



**MacDon®**

# **FD75 FlexDraper® Combine Header**

**IMPORTANT: PAGE 39 HAS BEEN  
UPDATED SINCE THIS MANUAL WAS  
PUBLISHED.**

**Operator's Manual**

169595 Revision E

Original Instruction

*Featuring MacDon FLEX-FLOAT Technology™*

*The harvesting specialists worldwide.*

FD75 FlexDraper® FlexDraper® Header for Combines



1000310

Published: October, 2013



# Declaration of Conformity



## EC Declaration of Conformity

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

*The person named below declares that:*

**Machine type:** *Combine Header*  
**Model:** *Series FD75*  
**Serial Number(s):** *As Per Shipping Document*

*fulfills all relevant provisions and essential requirements of the following directives:*

Directive	Number	Certification Method
Machinery Directive	2006/42/EC	Self-Certification

*Name and address of the person in the European Community authorized to compile the technical construction file:*

Johannes Molitor  
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66482 Zweibrucken / Germany  
HRB 31002, Amtsgericht Zweibrucken

**Place of Declaration:** Winnipeg, Manitoba, Canada **Name:** Ibrahim Saleh  
**Date of Declaration:** 17 May 2013 **Title:** Director, Product Integrity

1004632

# Introduction

This instructional manual contains information on the FD75 FlexDraper® and the CA25 Combine Adapter. It must be used in conjunction with your combine operator's manual.

The FD75 FlexDraper® is specially designed as a “straight cut” header and is equipped to work well in all straight cut conditions, whether cutting on or above the ground, using a three-piece flexible frame to closely follow ground contours.

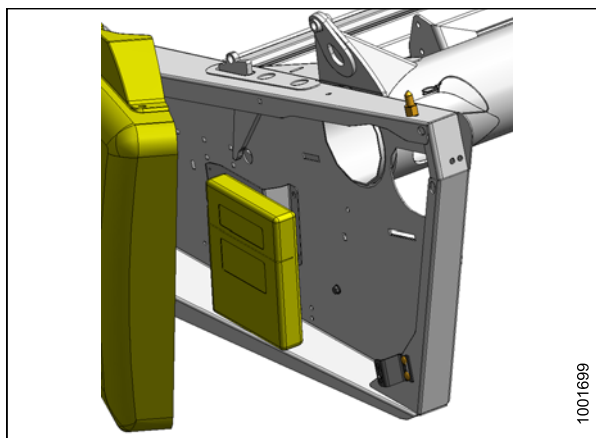
**CAREFULLY READ ALL THE MATERIAL PROVIDED BEFORE ATTEMPTING TO UNLOAD, ASSEMBLE, OR USE THE MACHINE.**

Use this manual as your first source of information about the machine. If you follow the instructions given here, your header will work well for many years. If you require more detailed service information, a technical manual is available from your MacDon Dealer.

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.

Keep this manual handy for frequent reference and to pass on to new Operators or Owners. A storage case for this manual is located inside the header left endshield.

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



**Figure 1: Manual storage location**

## Model and Serial Number

Record the model number, serial number, and model year of the header, combine adapter, and Slow Speed Transport/Stabilizer Wheel option (if installed) on the lines below.

**NOTE:** Right Hand (RH) and Left Hand (LH) designations are determined from the operator's position, facing forward.

### Draper Header

Header Model: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Year: \_\_\_\_\_

In shipping configuration, the serial number plate is located beside the knife drive motor on the left hand endsheet.

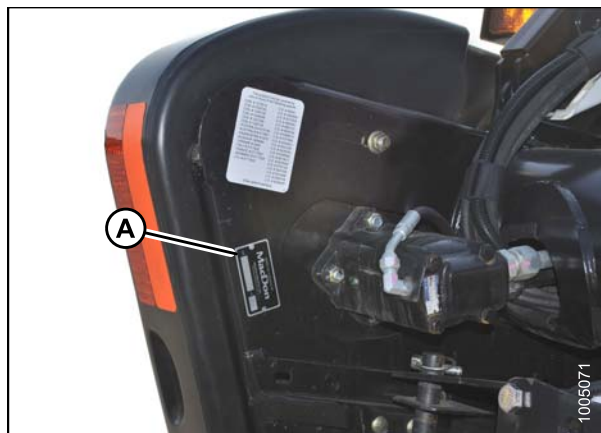


Figure 2: Header serial number location

### Combine Adapter

Adapter Model: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Year: \_\_\_\_\_

The serial number plate is located on the underside of the reservoir at the right end.

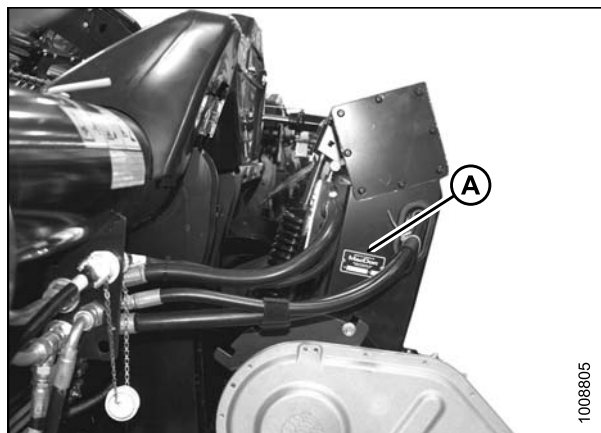


Figure 3: Adapter serial number location

### Slow Speed Transport/Stabilizer Wheel Option

Serial Number: \_\_\_\_\_

Year: \_\_\_\_\_

The serial number plate is located on the right hand axle assembly.

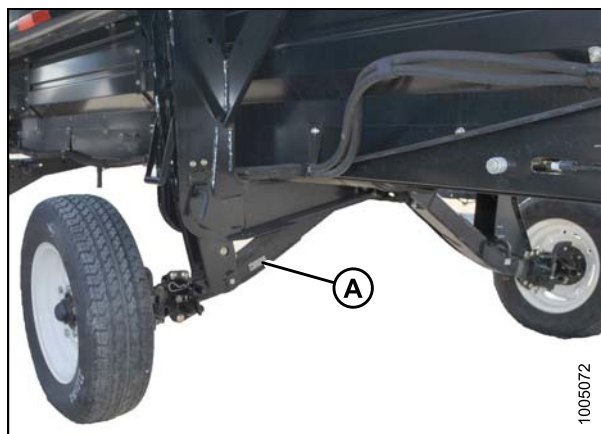


Figure 4: Slow Speed Transport/Stabilizer Wheel Option serial number location



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# 1 Safety

## 1.1 Safety Alert Symbols

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

This symbol means:

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

Carefully read and follow the safety message accompanying this symbol.

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

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



**Figure 1.1: Read Operator's Manual Before Operating**

## SAFETY

### 1.2 Signal Words

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

#### **DANGER**

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

#### **WARNING**

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

#### **CAUTION**

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

## 1.3 General Safety

### CAUTION

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

Protect yourself

- When assembling, operating, and servicing machinery, wear all the protective clothing and personal safety devices that **COULD** be necessary for the job at hand. Don't take chances.

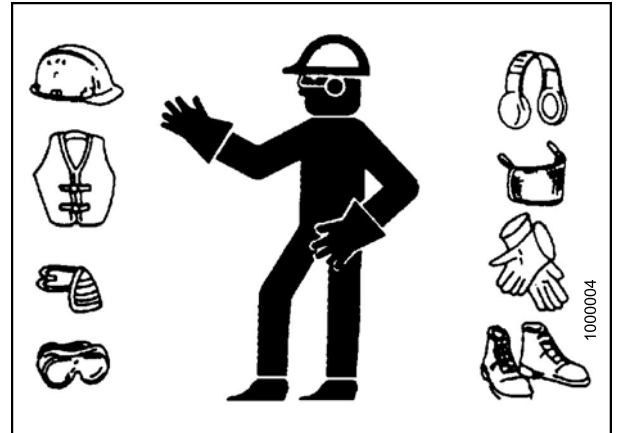


Figure 1.2

- You may need:
  - A hard hat
  - Protective footwear with slip resistant soles
  - Protective glasses or goggles
  - Heavy gloves
  - Wet weather gear
  - A respirator or filter mask
  - Hearing protection

Be aware that exposure to loud noise can cause impairment or loss of hearing. Wearing suitable hearing protection devices such as ear muffs or ear plugs. These will help protect against objectionable or loud noises.



Figure 1.3

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

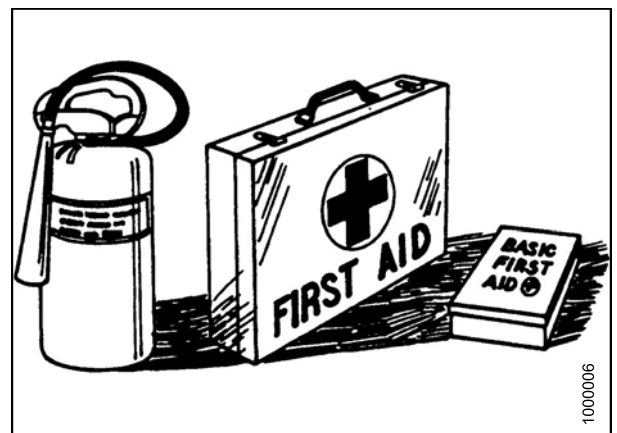


Figure 1.4

## SAFETY

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



Figure 1.5

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

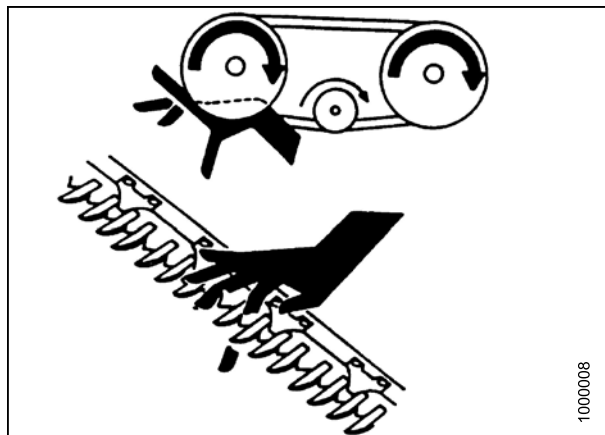


Figure 1.6

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



Figure 1.7



## 1.4 Maintenance Safety

To ensure your safety while maintaining the machine:

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



Figure 1.8: Slip on Puddle



Figure 1.9: Keep Away

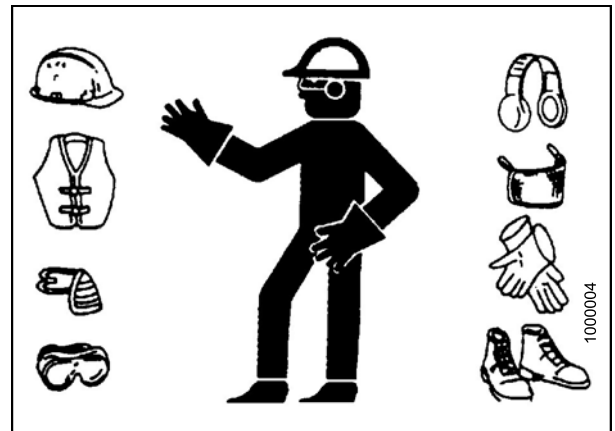
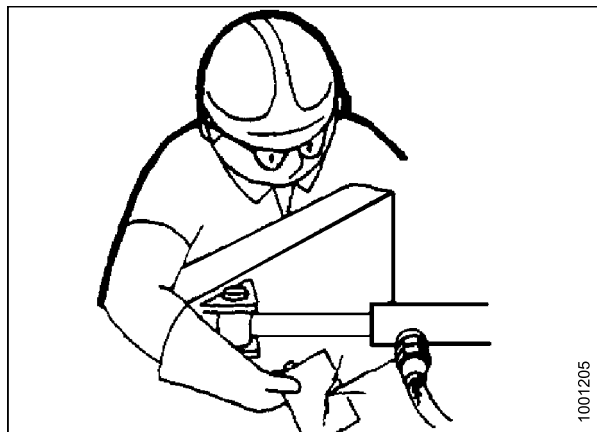


Figure 1.10: Safety Gear

## 1.5 Hydraulic Safety

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



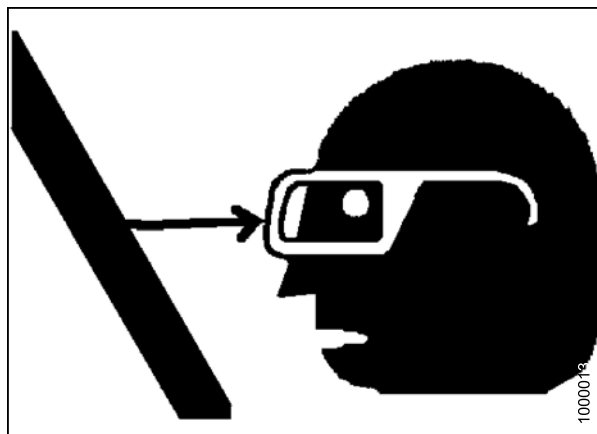
**Figure 1.11: Checking Hydraulic Leaks**

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



**Figure 1.12: Hydraulic Pressure Hazard**

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



**Figure 1.13: Wear Safety Glasses**

## SAFETY

### 1.6 Tire Safety

- Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion that may result in serious injury or death.

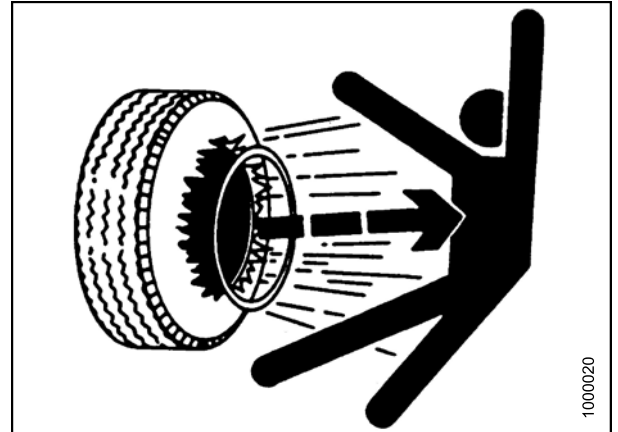


Figure 1.14: Over-Inflating a Tire

- Do **NOT** attempt to mount a tire unless you have the proper training and equipment.

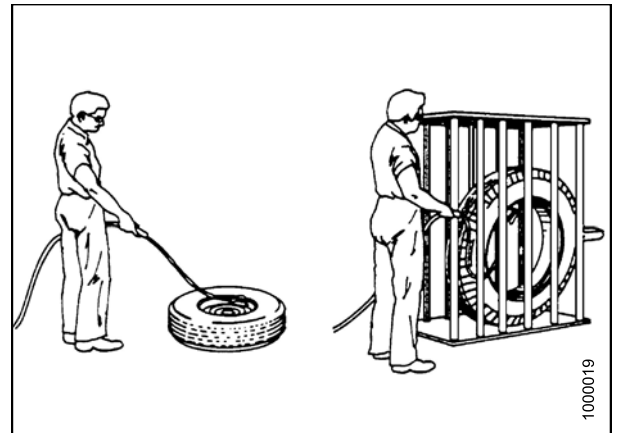


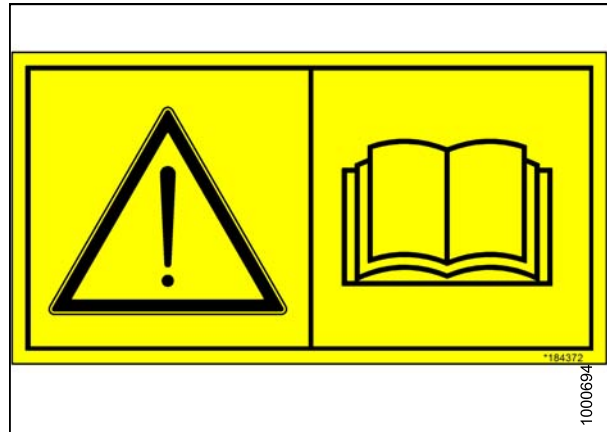
Figure 1.15: Safely Filling a Tire with Air

- Have a qualified tire dealer or repair service perform required tire maintenance.

## SAFETY

### 1.7 Safety Signs

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



**Figure 1.16: Read Operator's Manual before Operating**

#### 1.7.1 Installing Safety Decals

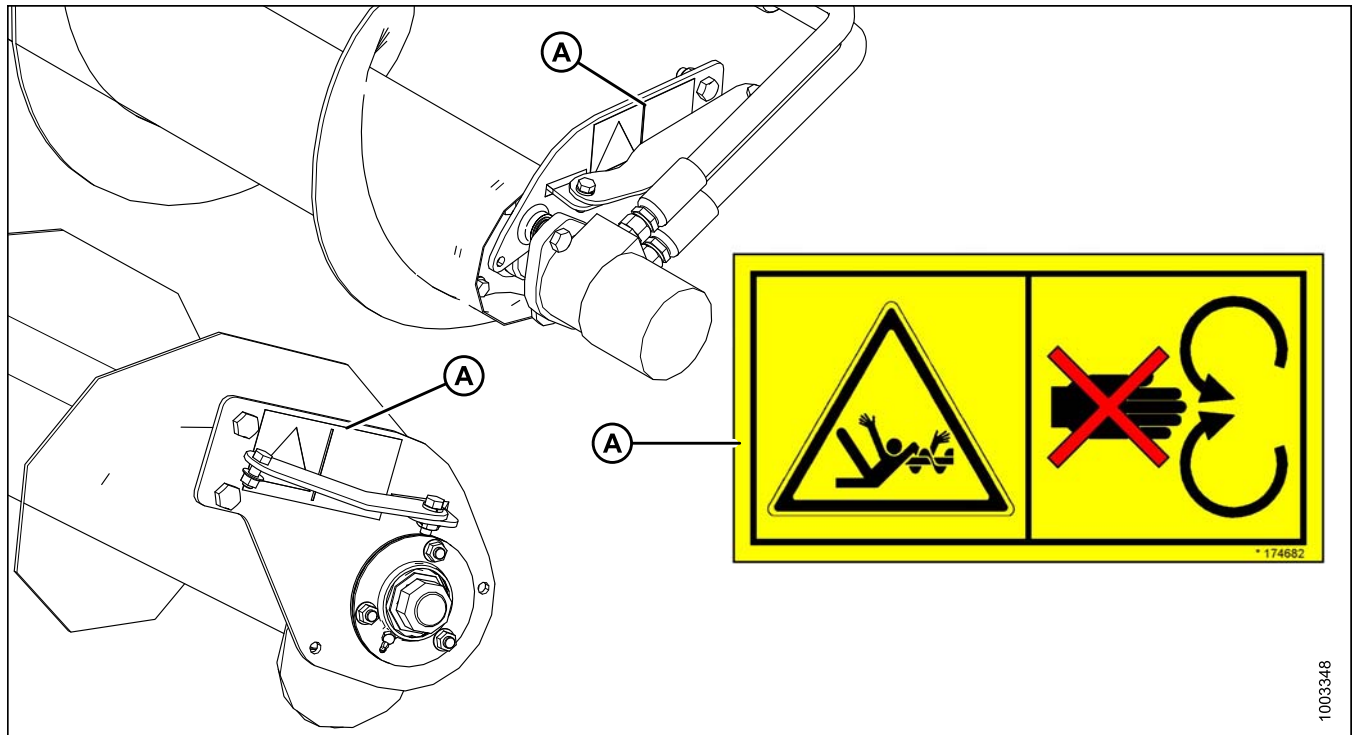
To install a safety decal, follow these steps:

1. Be sure the installation area is clean and dry.
2. Decide on the exact location before you remove the decal backing paper.
3. Remove the smaller portion of the split backing paper.
4. Place the sign in position and slowly peel back the remaining paper, smoothing the sign as it is applied.
5. Small air pockets can be smoothed out or pricked with a pin.

## SAFETY

### 1.8 Safety Decal Locations

#### 1.8.1 Upper Cross Auger (UCA)

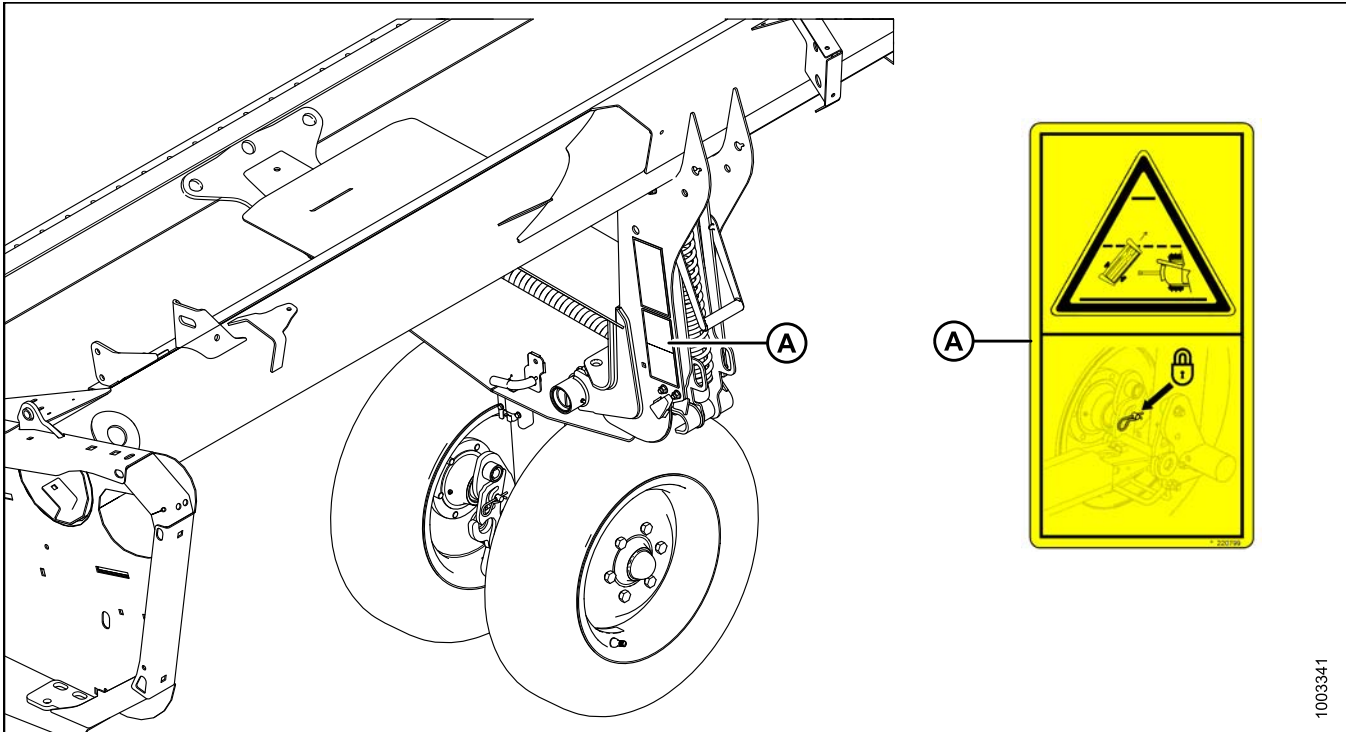


**Figure 1.17: Safety sign locations**

A - Auger bracket MD #174682

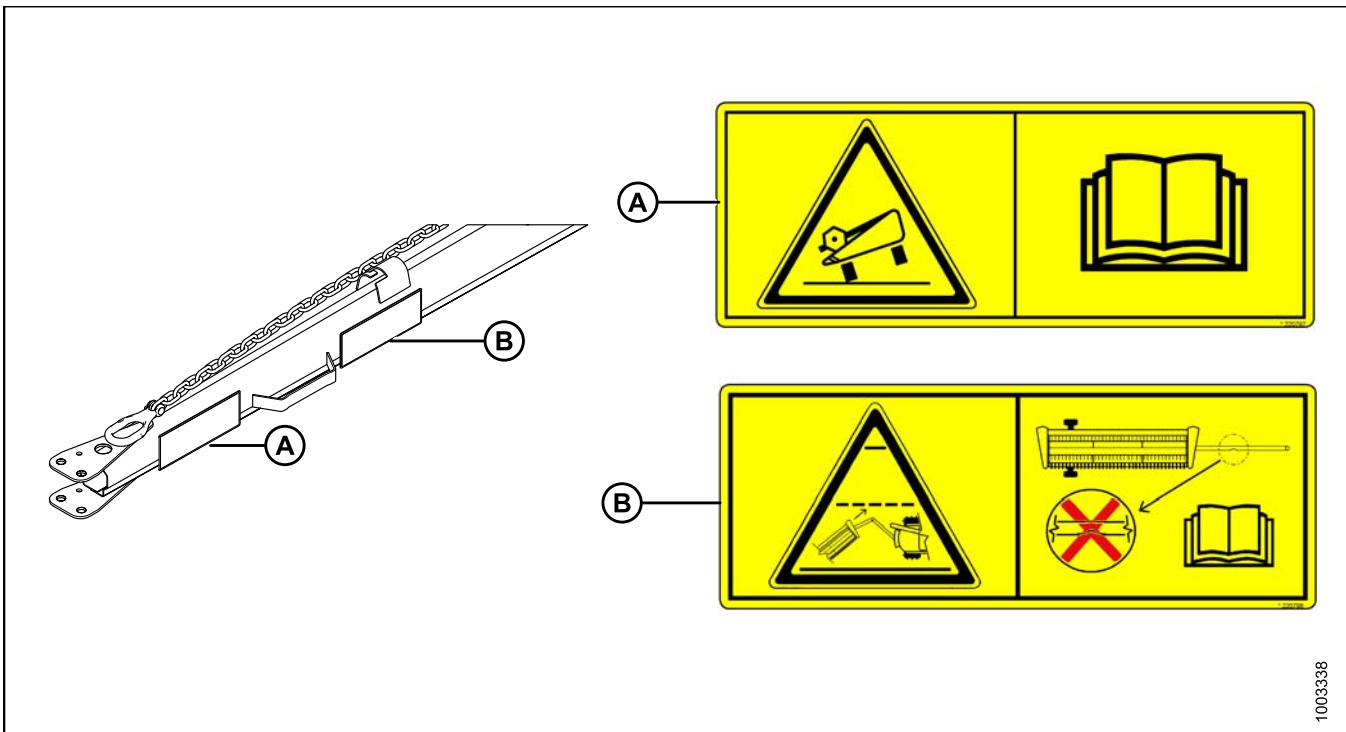
## SAFETY

### 1.8.2 Slow Speed Transport



**Figure 1.18: Safety sign locations (header)**

A - Front transport leg MD #220799



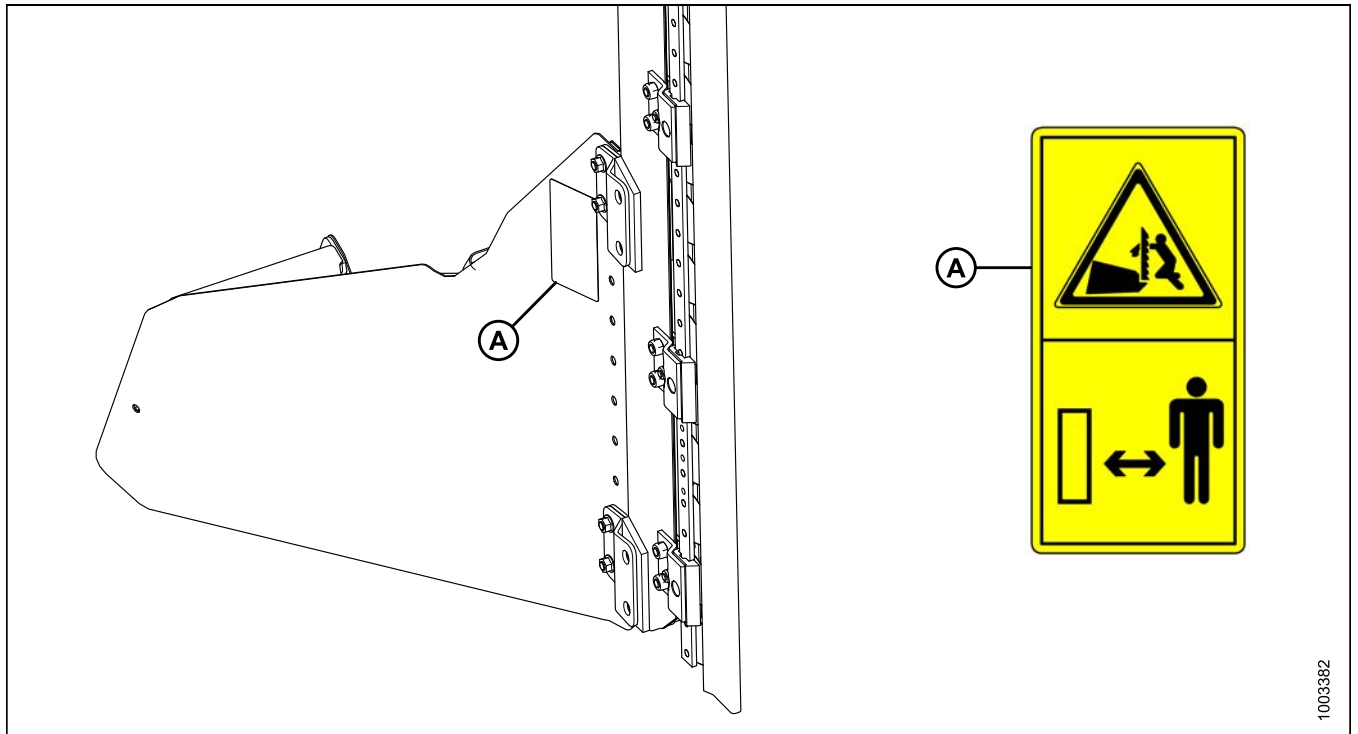
**Figure 1.19: Safety sign locations (hitch)**

A - MD #220797

B - MD #220798

## SAFETY

### 1.8.3 Vertical Knife

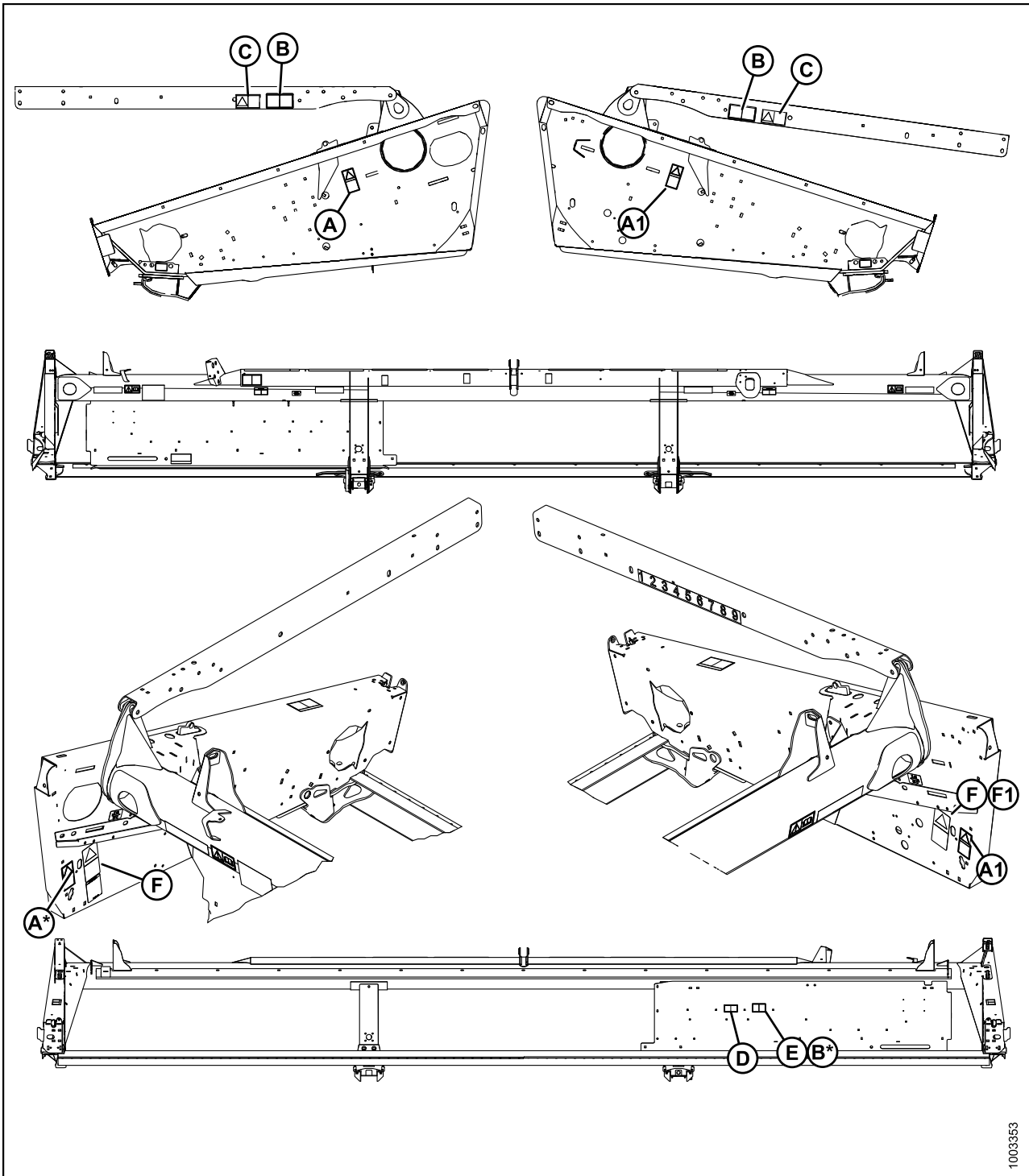


**Figure 1.20: Safety sign locations**

A - MD #174684

## SAFETY

### 1.8.4 All Headers



**Figure 1.21: All headers**

A - MD #184422<sup>1</sup> (A1 - double knife [DK])  
D - MD #131391

B - MD #131393<sup>2</sup>  
E - MD #131392

C - MD #174632  
F - MD #174436 (F1 - DK)

1. A\*- not used at this location for 15 ft.
2. B\*- Used on single knife (SK)



# SAFETY

30 Foot

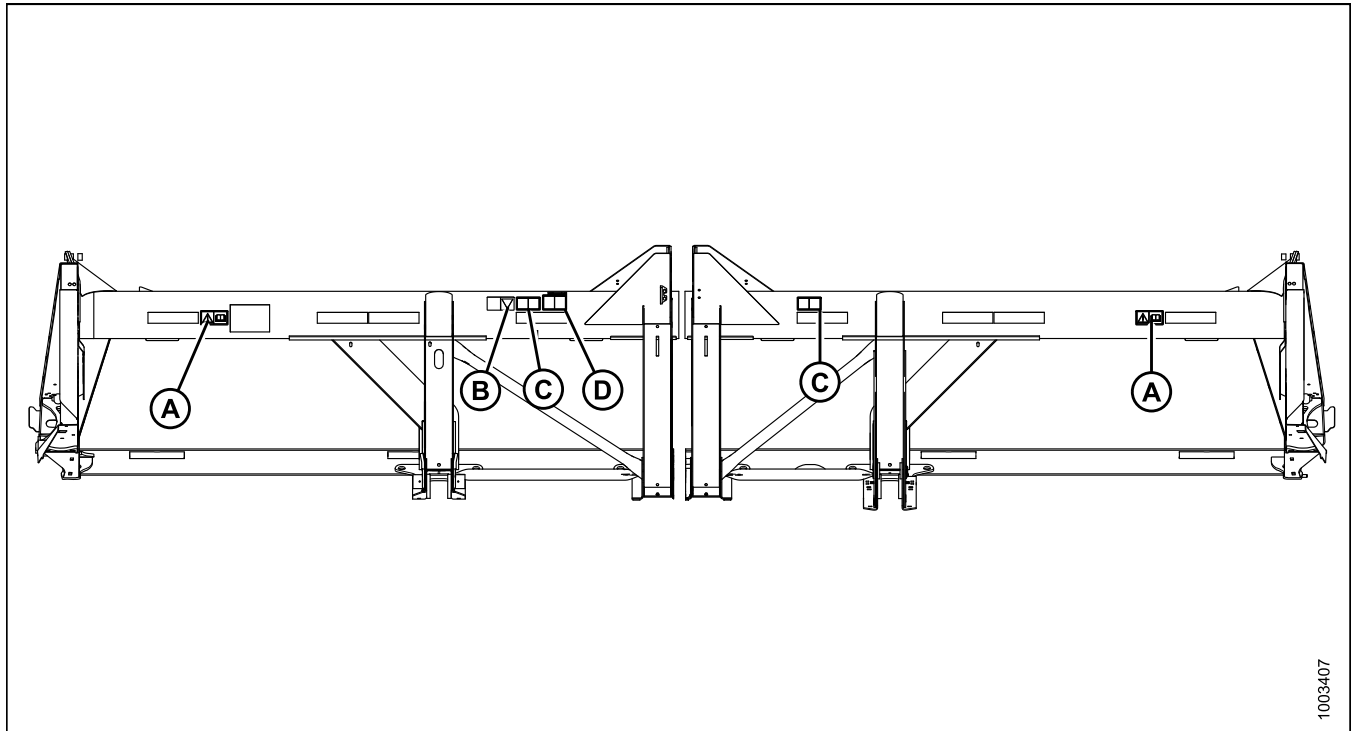


Figure 1.22

A - MD #184372

B - MD #166466

C - MD #131391

D - MD #131392

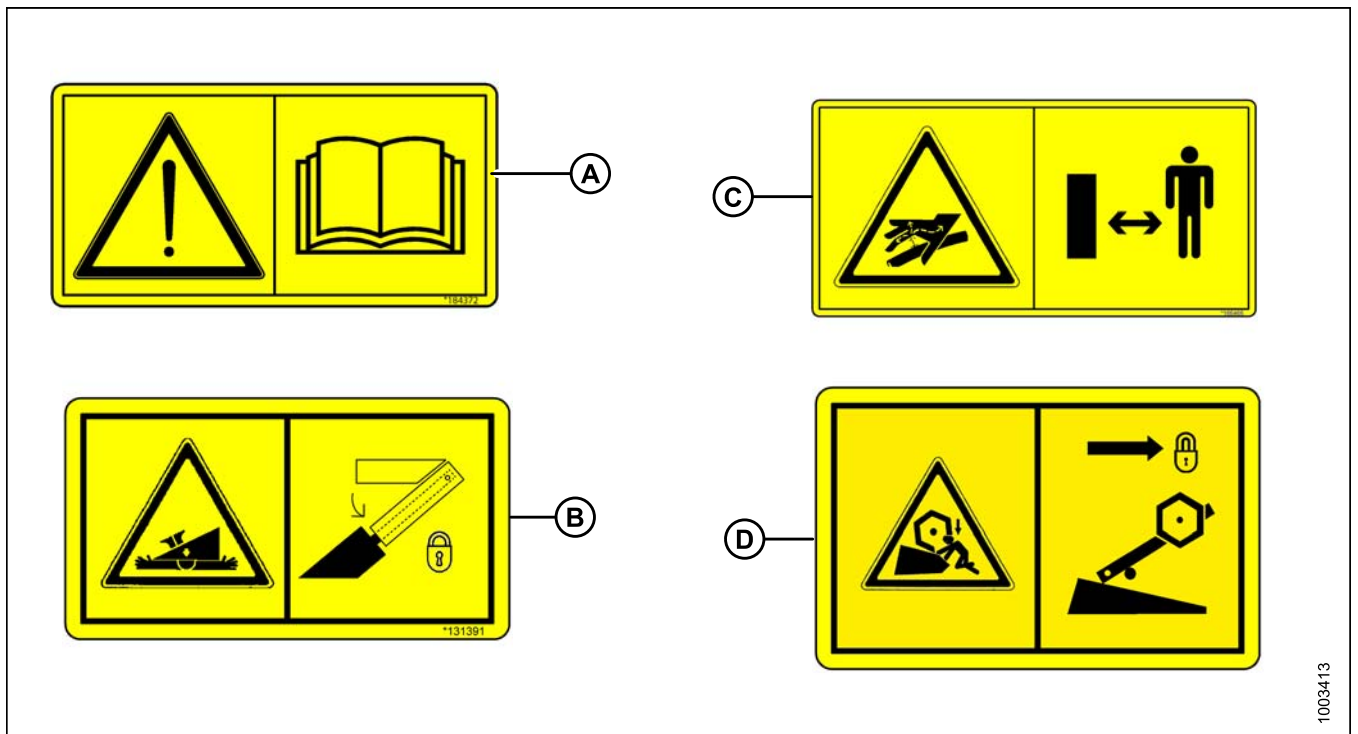
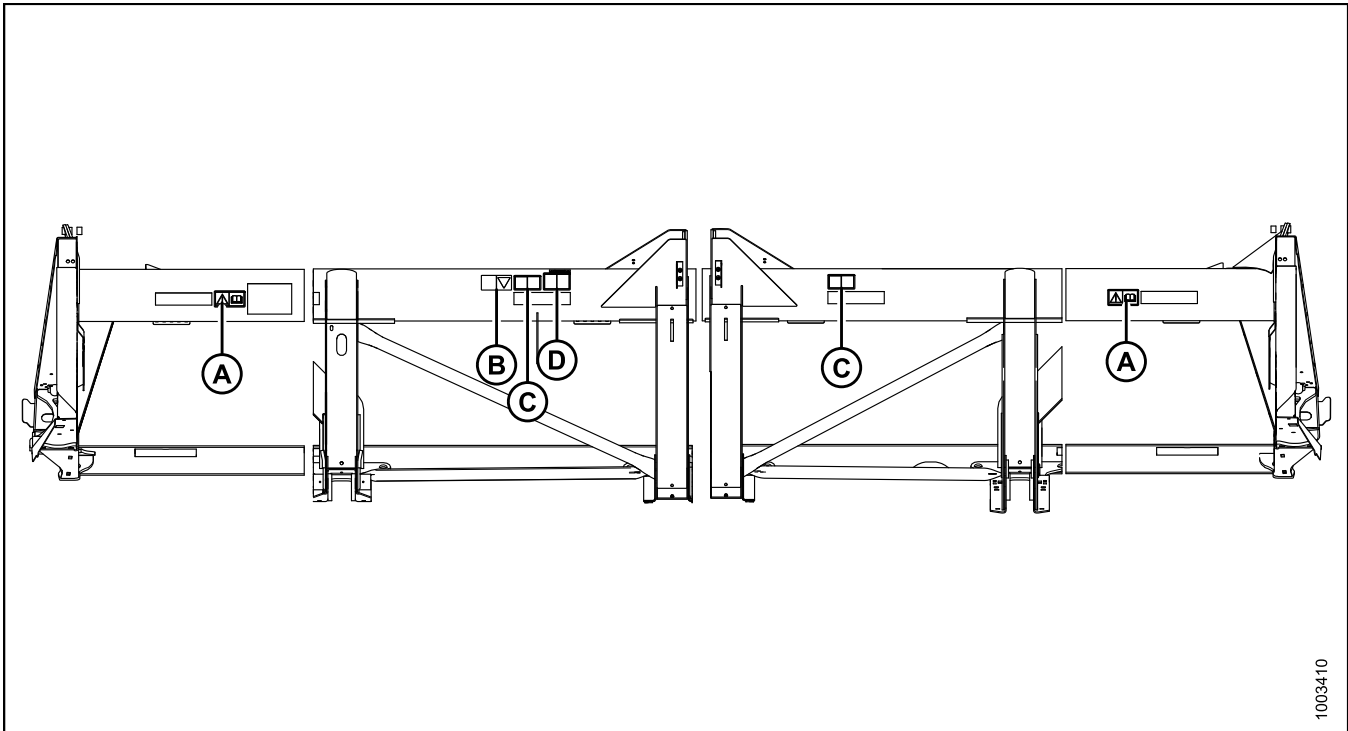


Figure 1.23

# SAFETY

35 Foot



1003410

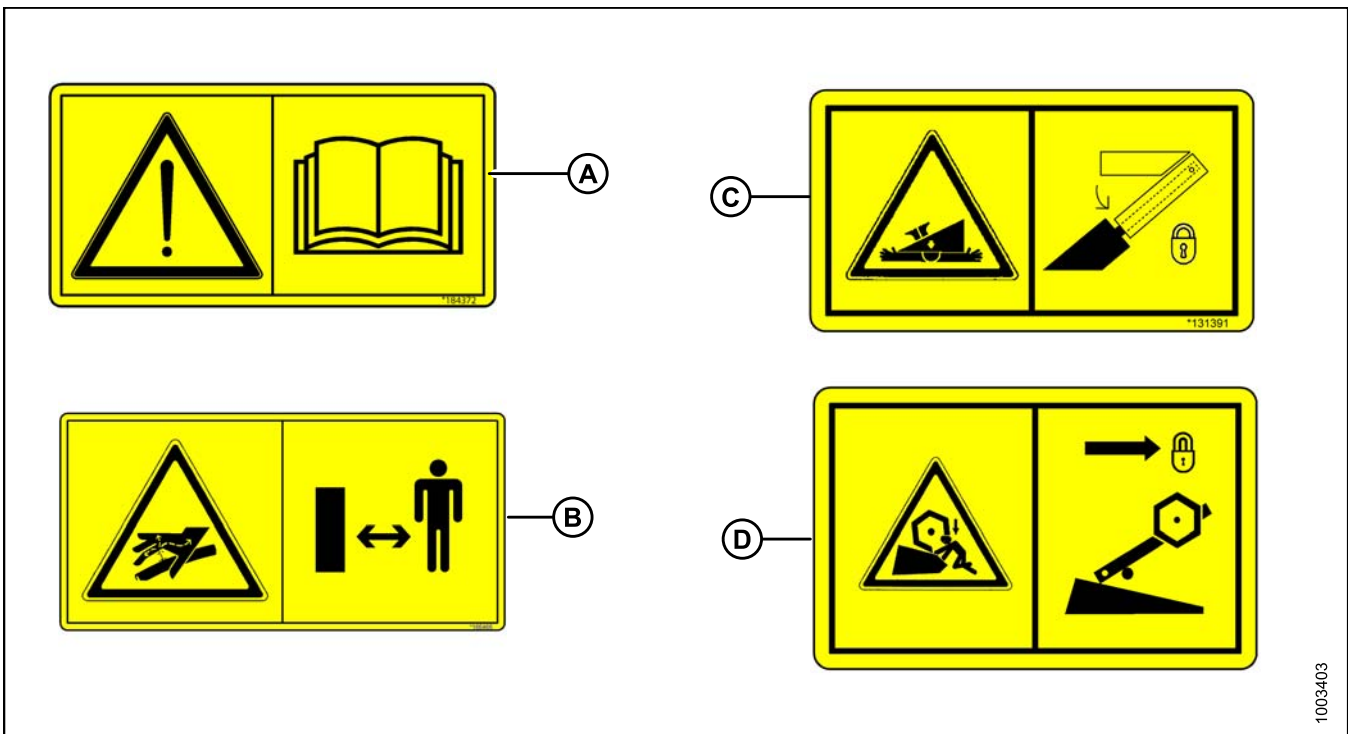
**Figure 1.24**

A - MD #184372

B - MD #166466

C - MD #131391

D - MD #131392 (DR only)



1003403

**Figure 1.25**

# SAFETY

40 Foot

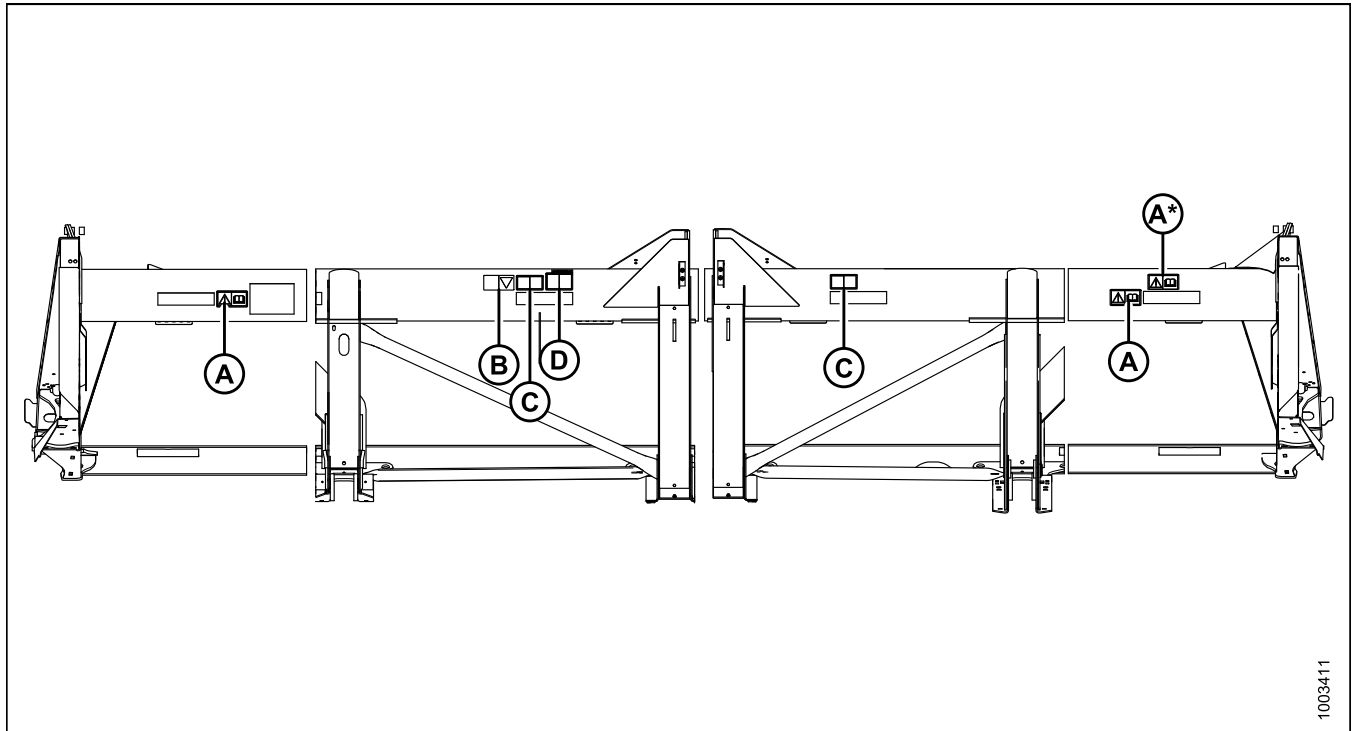


Figure 1.26

A - MD #184372 (A\* - Split Frame Location)

B - MD #166466

C - MD #131391

D - MD #131392

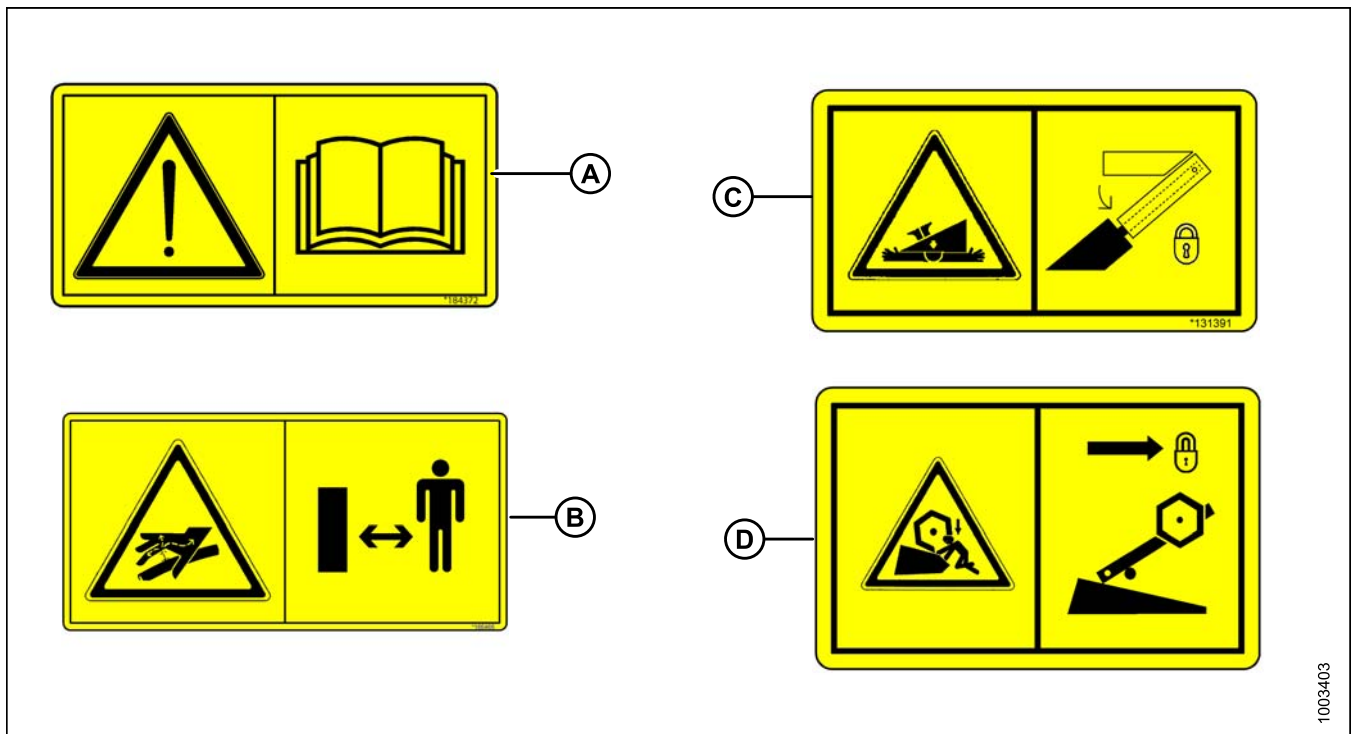
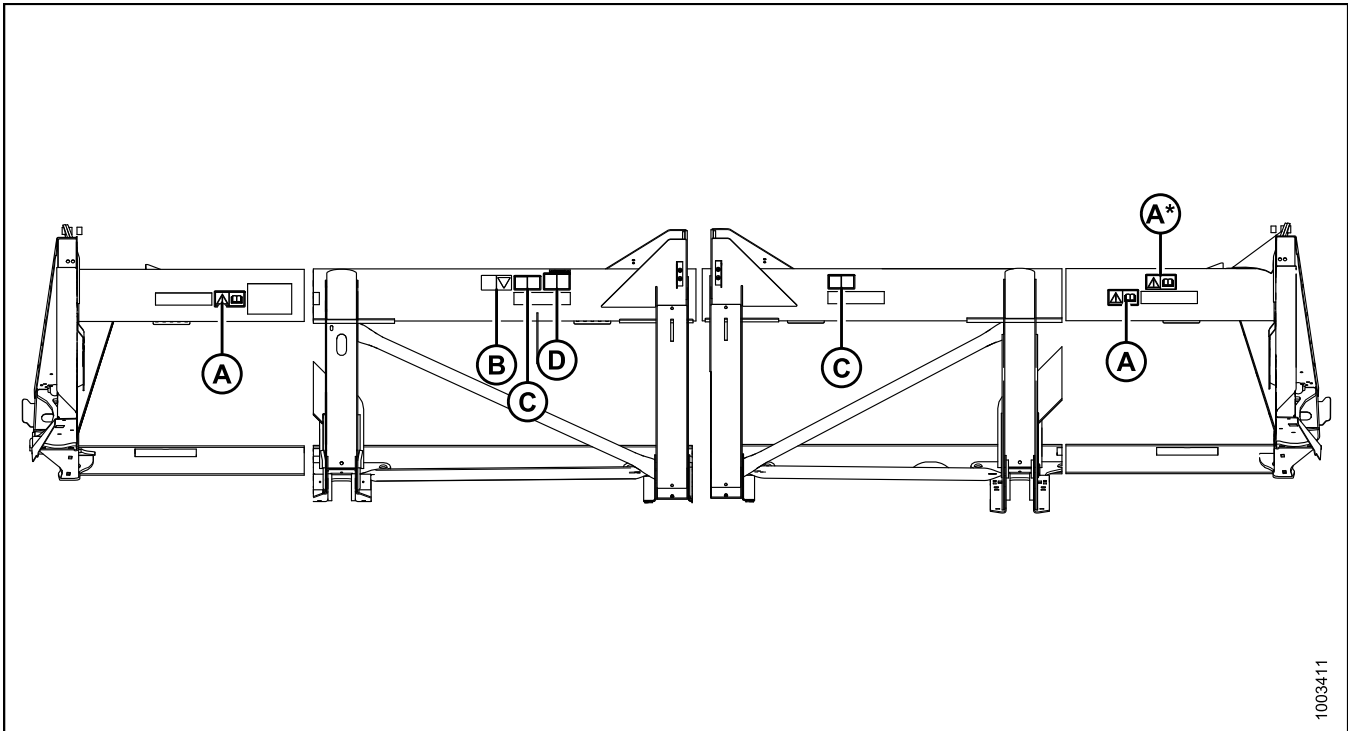


Figure 1.27

# SAFETY

45 Foot



1003411

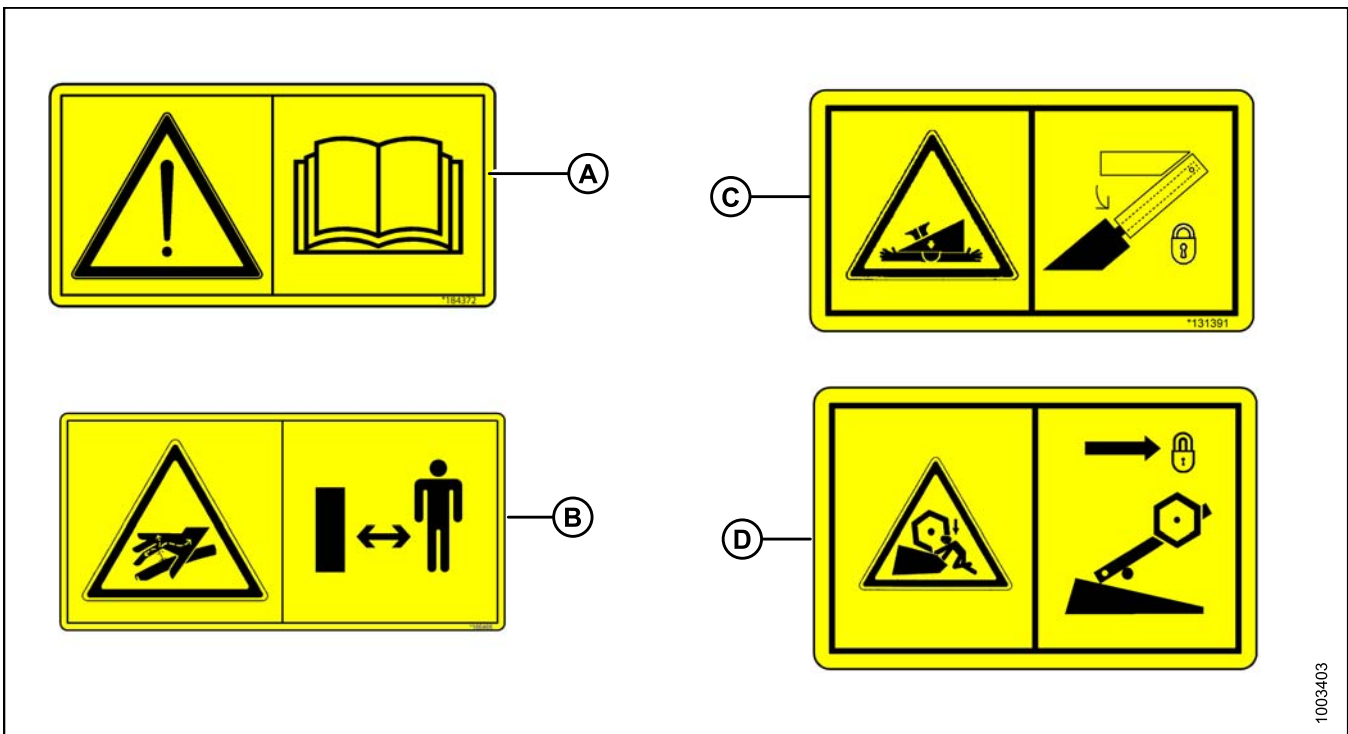
Figure 1.28

A - MD #184372 (A\* - Split Frame Location)

B - MD #166466

C - MD #131391

D - MD #131392



1003403

Figure 1.29

## 1.9 Interpreting Safety Signs

In the safety sign explanations below, (a) refers to the top or left position panel, (b) refers to the bottom or right position of the safety decal depending on decal orientation.

**NOTE:** If there are more than two panels in a decal, the lettering will continue downward or to the right, depending on decal orientation.

### 1. MD #131391

- a. Crushing hazard.
- b. **DANGER**
  - Rest header on ground or engage safety props before going under unit.

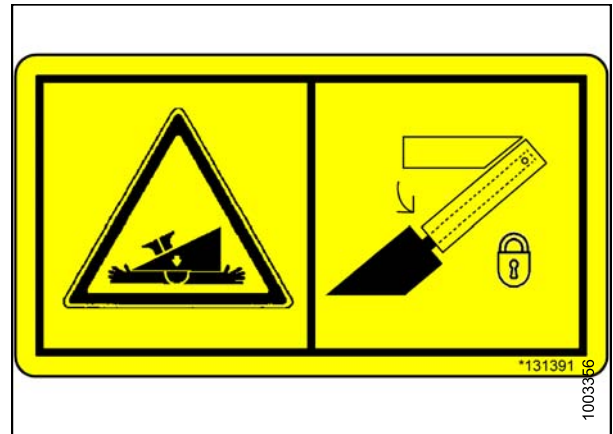


Figure 1.30: MD #131391

### 2. MD #131392

- a. Crushing hazard.
- b. **WARNING**
  - To avoid injury from fall of raised reel; fully raise reel, stop the engine, remove the key, and engage safety prop on each reel support arm before working on or under reel.
  - See operator's manual.

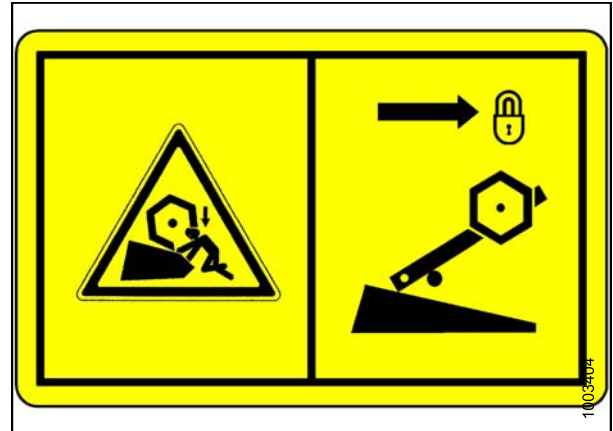


Figure 1.31: MD #131392

## SAFETY

### 3. MD #131393

a. Reel hazard.

b. **WARNING**

- To avoid injury from fall of raised reel; fully raise reel, stop the engine, remove the key, and engage safety prop on each reel support arm before working on or under reel.
- See operator's manual.



Figure 1.32: MD #131393

### 4. MD #166466

a. High pressure oil hazard.

b. **WARNING**

Do not go near leaks.

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



Figure 1.33: MD #166466

### 5. MD #174432

a. Reel hazard.

b. **WARNING**

- To avoid injury from fall of raised reel; fully raise reel, stop the engine, remove the key, and engage mechanical lock on each reel support arm before working on or under reel.
- See operator's manual.



Figure 1.34: MD #174432

## SAFETY

### 6. MD #174434

a. Header hazard.

b. **DANGER**

- Rest header on ground or engage mechanical locks before going under unit.

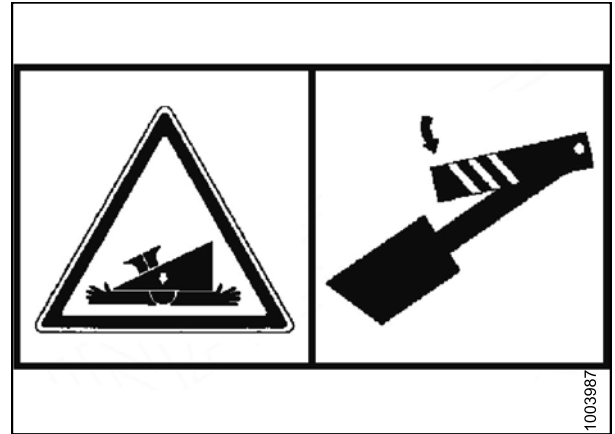


Figure 1.35: MD #174434

### 7. MD #174436

a. High pressure oil hazard.

b. **WARNING**

Do not go near leaks.

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



Figure 1.36: MD #174436

### 8. MD #174632

a. Reel entanglement hazard.

b. **CAUTION**

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



Figure 1.37: MD #174632

## SAFETY

### 9. MD #174682

- a. Auger entanglement hazard.
- b. **CAUTION**
  - To avoid injury from entanglement with rotating auger, stand clear of header while machine is running.

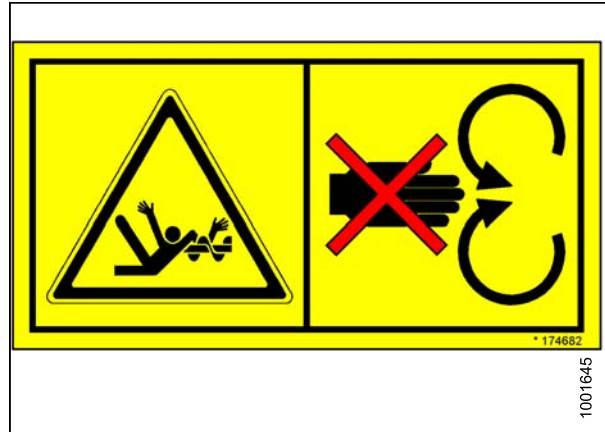


Figure 1.38: MD #174682

### 10. MD #174684

- a. Sharp component hazard.
- b. **CAUTION**
  - Wear heavy canvas or leather gloves when working with knife.
  - Be sure no one is near the vertical knife when removing or rotating knife.



Figure 1.39: MD #174684



## SAFETY

### 11. MD #184372

- a. General hazard pertaining to machine operation and servicing.

b. **CAUTION**

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

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

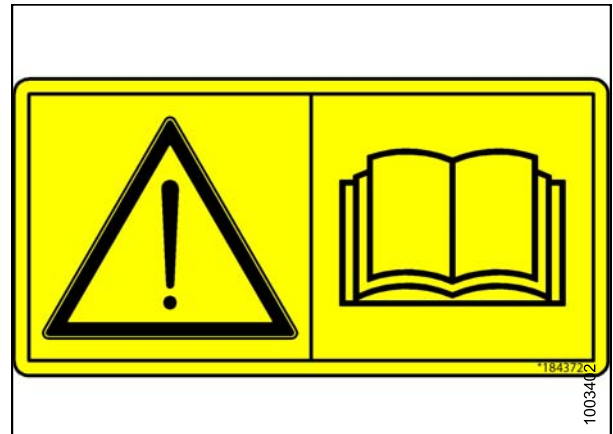


Figure 1.40: MD #184372

### 12. MD #184422

- a. Keep shields in place hazard.

b. **WARNING**

- To avoid injury, stop the engine and remove the key before opening power drive system shield.
- Keep all shields in place.



Figure 1.41: MD #184422

## SAFETY

### 13. MD #190546

- a. Slippery surface.
- b. **WARNING**  
Do not place foot.
  - Do not use this area as a step or platform.
  - Failure to comply could result in serious injury or death.

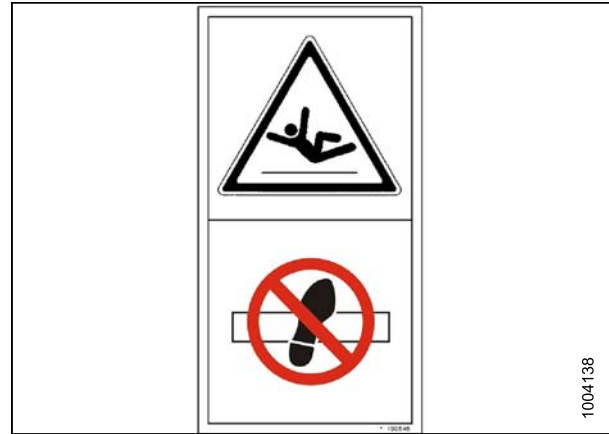


Figure 1.42: MD #190546

### 14. MD #193147

- a. Transport/roading hazard.
- b. **WARNING**
  - Ensure tow-bar lock mechanism is locked.

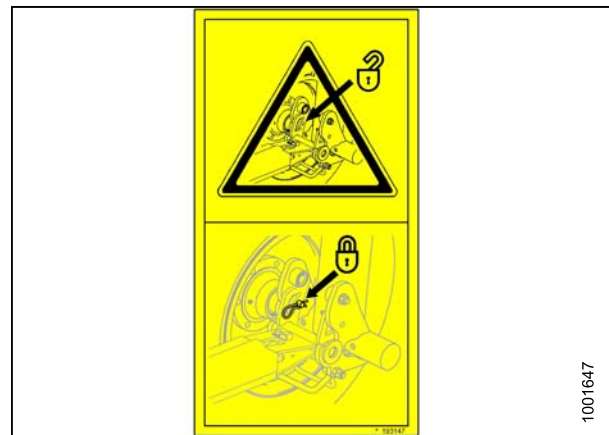


Figure 1.43: MD #193147

## SAFETY

### 15. MD #194521

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

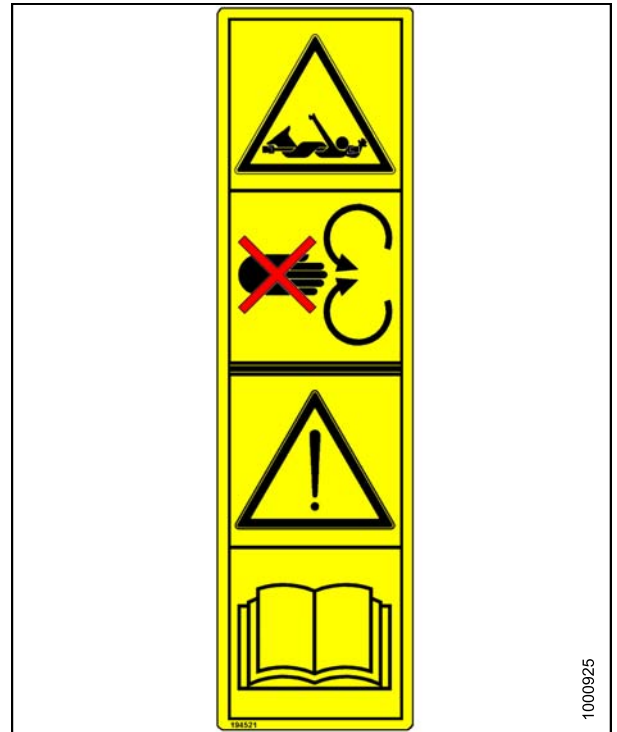


Figure 1.44: MD #194521

## SAFETY

### 16. MD #220797

- a. Tipping hazard in transport mode.
- b. **WARNING**
  - Read the operator's manual for more information on potential tipping or roll-over of header while transporting.

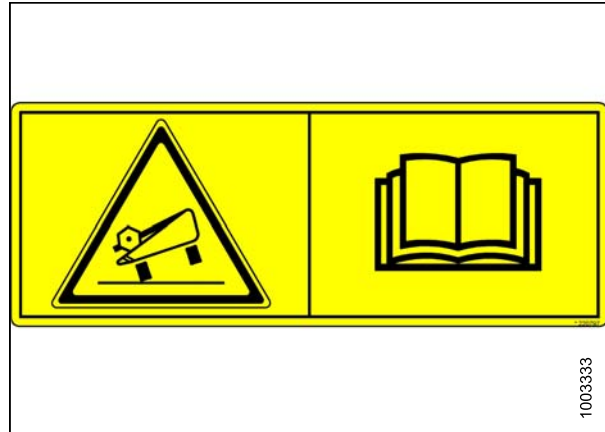


Figure 1.45: MD #220797

### 17. MD #220798

- a. Loss of control hazard in transport.
- b. **CAUTION**
  - Do not tow the header with a dented or otherwise damaged tow pole (the circle with the red X shows a dent in the pole).
  - Consult the operator's manual for more information.

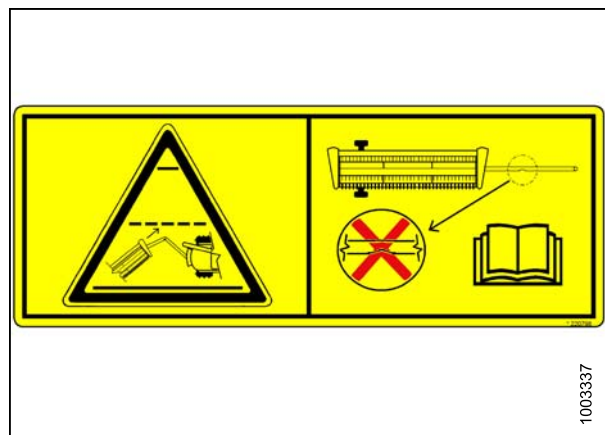


Figure 1.46: MD #220798

### 18. MD #220799

- a. Transport/roading hazard.
- b. **WARNING**
  - Ensure tow-bar lock mechanism is locked.

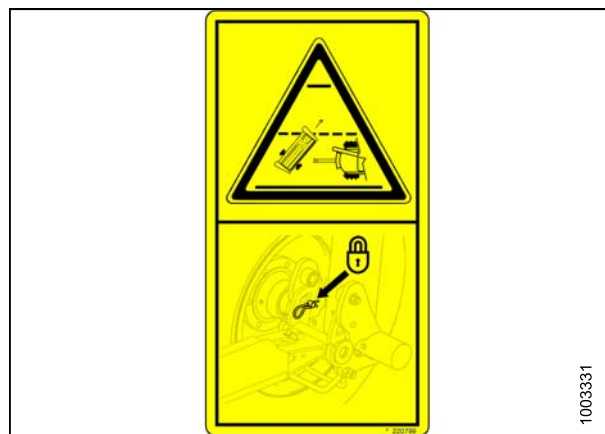


Figure 1.47: MD #220799

## 2 Reference

### 2.1 Definitions

The following terms and acronyms may be used in this manual.

Term	Definition
AHHC	Automatic Header Height Control
API	American Petroleum Institute.
APT	Articulating Power Turn.
ASTM	American Society of Testing and Materials.
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut.
Cab-forward	Windrower operation with the Operator and cab facing in the direction of travel.
CDM	Cab display module on a self-propelled windrower.
Center-link	A hydraulic cylinder or manually adjustable turnbuckle type link between the header and the machine to which it is attached. It is used to change header angle.
CGVW	Combined Vehicle Gross Weight.
D-Series header	MacDon draper headers.
DK	Double Knife
DKD	Double knife drive.
DDD	Double draper drive.
DR	Double reel.
ECM	Engine control module.
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other and the fitting has been tightened to a point where the fitting is no longer loose.
F.F.F.T	Flats from finger tight.
GSL	ground speed lever.
GVW	Gross vehicle weight.
Hard joint	A joint made with the use of a fastener where the joining materials are highly incompressible.
Header	A machine that cuts and lays crop into a windrow and is attached to a self-propelled windrower.
HDS	Hydraulic deck shift.
hp	Horsepower
ISC	Intermediate Speed Control.
JIC	Joint Industrial Council: a standards body that developed the standard sizing and shape for original 37° flared fitting.
Knife	A cutting device which uses a reciprocating cutter. Also called a sickle.
n/a	Not applicable

## REFERENCE

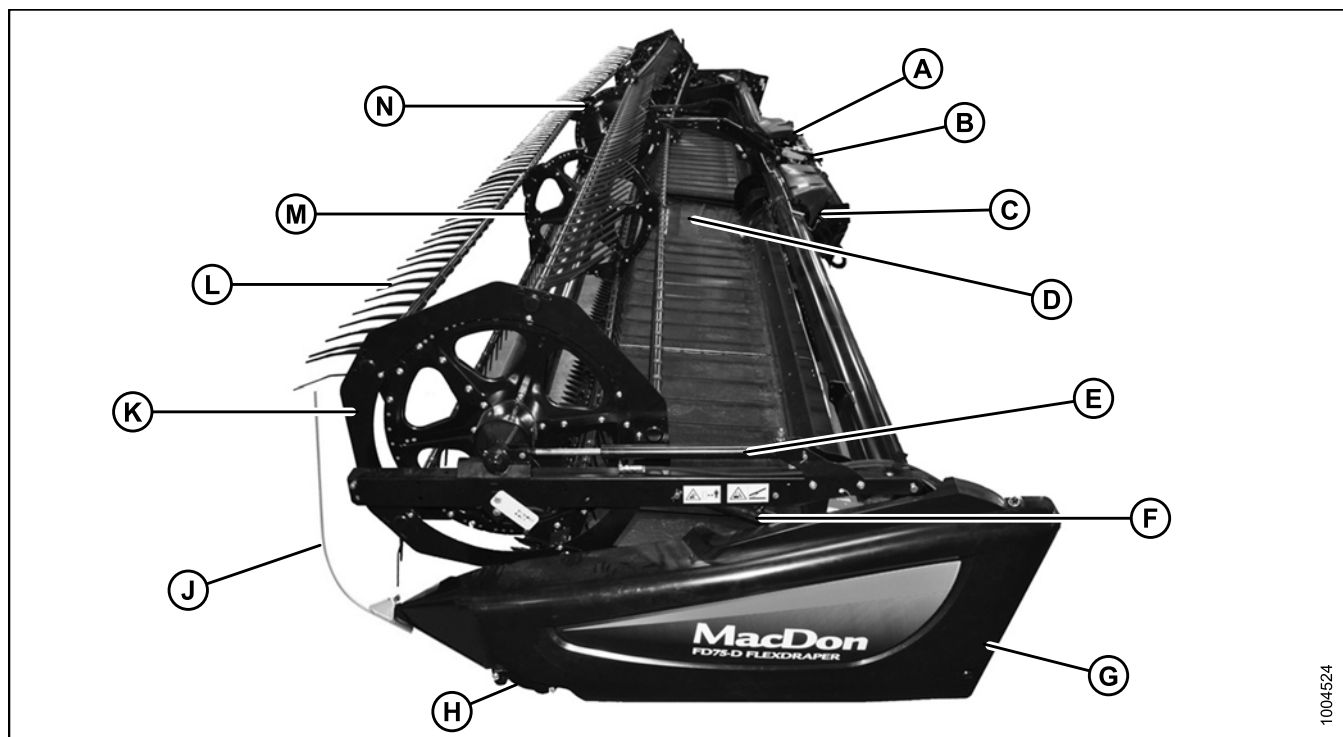
Term	Definition
Nut	An internally threaded fastener that is designed to be paired with a bolt.
NPT	National Pipe Thread: a style of fitting used for low pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit.
ORB	O-ring Boss: a style of fitting commonly used in port opening on manifolds, pumps and motors.
ORFS	O-ring Face Seal: a style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring Seal.
PTO	Power Take-Off.
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict the use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings).
SAE	Society Of Automotive Engineers.
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread in one of the mating parts.
SDD	Single draper drive.
Self-Propelled (SP) Windrower	Self-propelled machine consisting of a power unit with a header and/or conditioner.
Sickle	A cutting device which uses a reciprocating cutter. Also called a knife.
SK	Single knife
SKD	Single knife drive.
Soft joint	A joint made with the use of a fastener where the joining materials are compressible or experience relaxation over a period of time.
spm	Strokes per minute
SR	Single reel.
Tractor	Agricultural type tractor.
Truck	A four-wheel highway/road vehicle weighing no less than 7500 lbs (3400 kg)
Timed	One hydraulic motor drives both sickles boxes on double sickle headers.
Tension	Axial load placed on a bolt or screw, usually measured in pounds (lb) or Newtons (N).
T.F.F.T.	Turns from finger tight.
Torque	The product of a force X lever arm length, usually measured in foot-pounds (ft·lbf) or Newton-meters (N·m).
Torque angle	A tightening procedure where the fitting is assembled to a precondition (finger tight) and then the nut is turned further a number of degrees or a number of flats to achieve its final position.
Torque-tension	The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in the bolt or screw.
UCA	Upper Cross Auger.
Untimed	Two hydraulic motors operate the two knife drive boxes independently on double knife headers.
Washer	A thin cylinder with a hole or slot located in the center and is to be used as a spacer, load distribution element, or a locking mechanism.

## REFERENCE

Term	Definition
Windrower	Power unit of a self-propelled header.
WCM	Windrower control module.

## 2.2 Component Identification

### 2.2.1 FD75 FlexDraper®



**Figure 2.1: FD75 FlexDraper® Components**

A - Wing float linkage  
D - Transition pan  
G - Endshield  
K - Reel endshield  
N - Reel cam

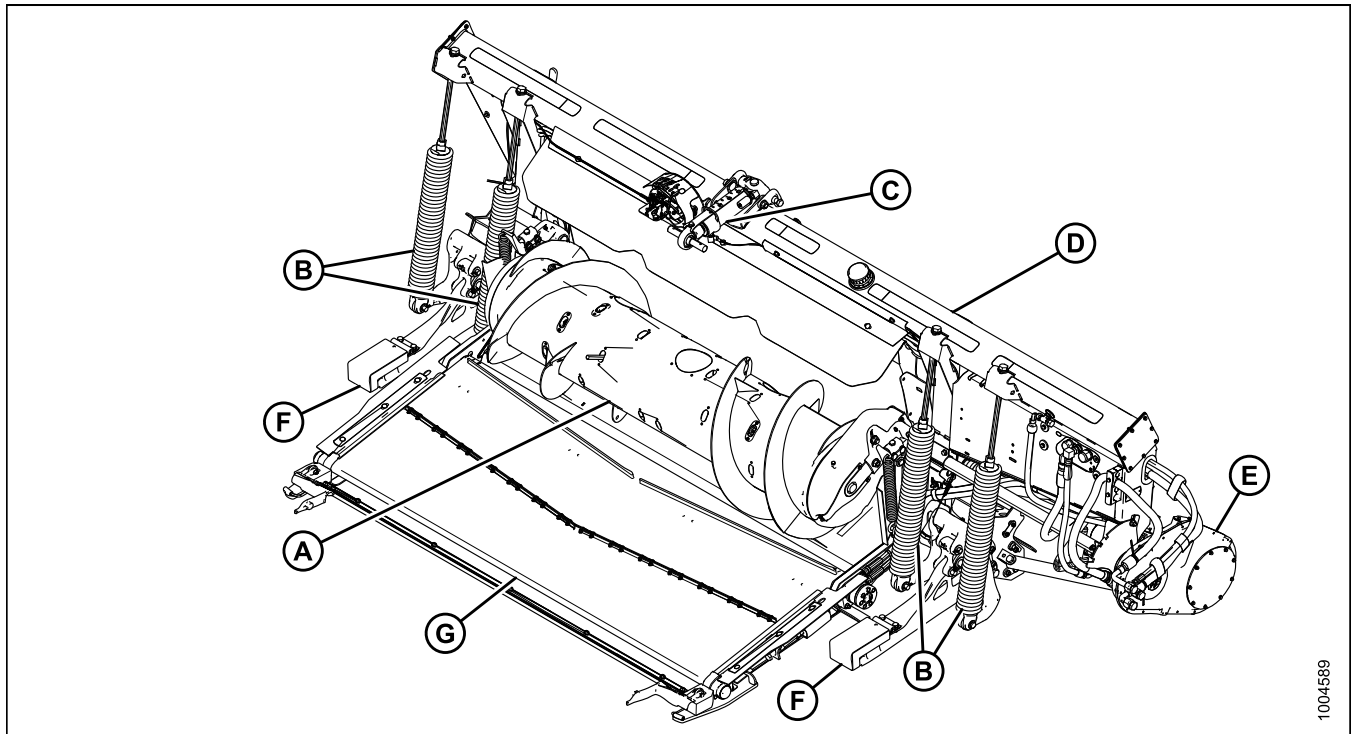
B - Center-link  
E - Reel fore-aft cylinder  
H - Knife drive  
L - Pick-up fingers

C - Center reel arm prop handle  
F - Reel lift cylinder  
J - Crop divider  
M - Pick-up reel



## REFERENCE

### 2.2.2 CA25 Combine Adapter



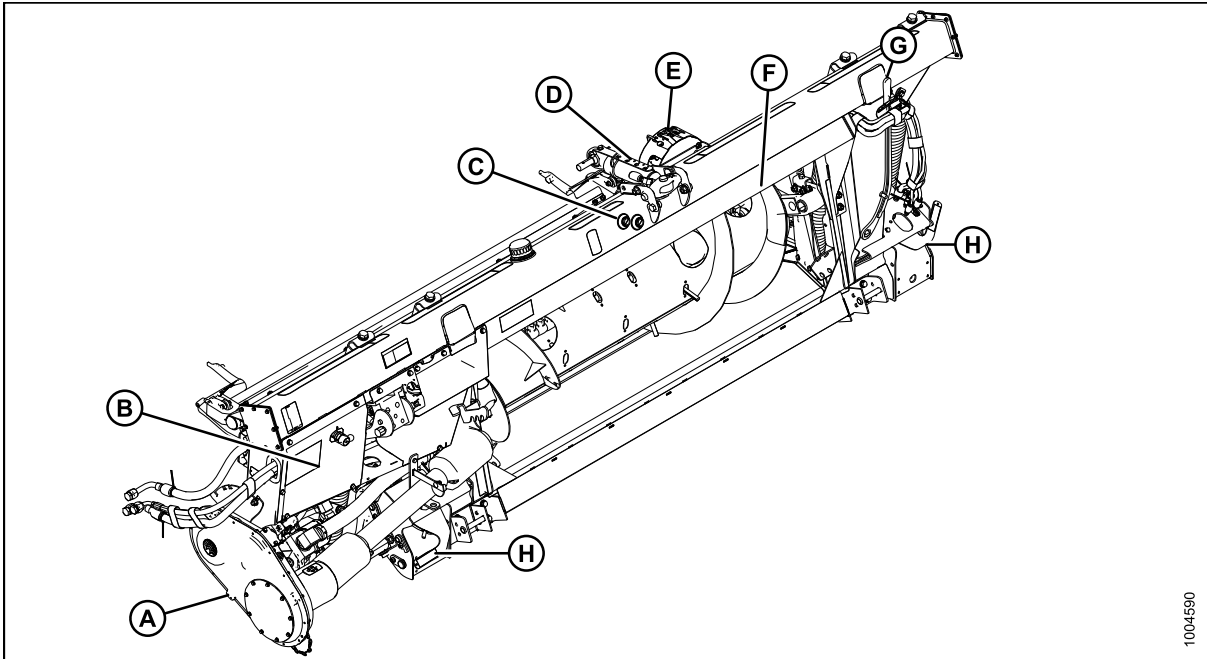
**Figure 2.2: Header Side of CA25 Combine Adapter**

A - Rotating Tine Drum (RTD)  
D - Hydraulic reservoir  
G - Feed draper

B - Header float springs  
E - Gearbox

C - Center-link  
F - Header support arm

## REFERENCE



**Figure 2.3: Combine Side of CA25 Combine Adapter**

A - Adapter gearbox  
D - Center-link  
G - Torque wrench

B - Hydraulic compartment cover  
E - Auto Header Height Control Indicator (AHHC)  
H - Header float lock

C - Reservoir oil level sight glass  
F - Transition frame

1004590

### 3 Specifications

**Engineering Specifications** Engineering Product Sheet Only, information provided by Product Design Manager.

| **D65** | **FD75** | **CA25** | **Options**

S: standard / O<sub>F</sub>: optional (factory installed) / O<sub>D</sub>: optional (dealer installed) / -: not available

		<b>D65</b>	<b>FD75</b>
<b>CUTTERBAR</b>			
Effective cutting width (distance between crop divider points)			
15 ft. header	15.00 ft. (180 in. [4572 mm])	S	-
20 ft. header	20.00 ft. (240 in. [6096 mm])	S	-
25 ft. header	25.00 ft. (300 in. [7620 mm])	S	-
30 ft. header	30.00 ft. (360 in. [9144 mm])	S	S
35 ft. header	35.00 ft. (420 in. [10668 mm])	S	S
40 ft. header	40.00 ft. (480 in. [12192 mm])	S	S
45 ft. header	45 ft. (540 in. [13716 mm])	S	S
Single knife drive: hydraulic motor to V-belt to enclosed heavy duty (MD) knife drive box		O <sub>F</sub>	O <sub>F</sub>
Double knife drive 35 ft. and smaller sizes: hydraulic motor to 2 cogged-belts to enclosed heavy duty (MD) knife drive boxes		O <sub>F</sub>	O <sub>F</sub>
Double knife drive 40 and 45 ft.: 2 hydraulic motors to banded-belts, untimed to enclosed heavy duty (MD) knife drive boxes		O <sub>F</sub>	O <sub>F</sub>
Knife Stroke	3 in. (76 mm)	S	S
<b>Knife Speed (strokes per minute)</b>			
<b>Single Knife header on SP Windrower</b>	Min – Max strokes/min.		
20 and 25 ft.	1200–1400	S	-
30 ft.	1200–1400	S	-
35 ft.	1100–1300	S	-
40 ft.	1050–1200	S	-
<b>Double Knife header on SP Windrower</b>			
15 ft.	1500–1900	S	-
20 and 25 ft.	1400–1700	S	-
30 ft.	1200–1600	S	-
35 ft.	1200–1400	S	-
40 ft.	1100–1400	S	-
<b>Single Knife header on Combine</b>			
25 ft.	1200–1450	S	-
30 ft.	1200–1400	S	S

## SPECIFICATIONS

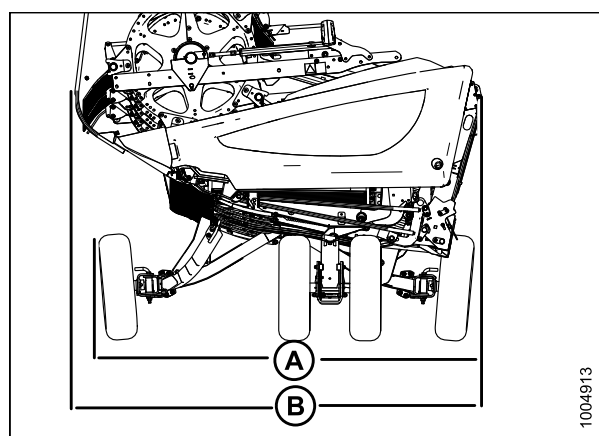
			D65	FD75
35 ft.		1100–1300	S	S
40 ft.		1050–1200	S	S
<b>Double Knife header on Combine</b>				
20 and 25 ft.		1400–1700	S	-
30 and 35 ft.		1200–1500	S	-
40 and 45 ft.		1100–1400	S	S
<b>Guards and Hold-Downs</b>				
Guard: Pointed / Forged / Double Heat Treated (DHT) Hold-Down: sheet metal / adjustment bolt			O <sub>F</sub>	S
Guard: Pointed / Forged / Case Hardened (CH) Hold-Down: sheet metal / adjustment bolt			O <sub>F</sub>	-
Guard: Stub / Forged bottom / Forged top / adjustment plate			O <sub>F</sub>	-
Guard: Stub / Forged bottom / Sheet Metal top / adjustment bolt			O <sub>F</sub>	-
Guard: 4 Point / no-choke design (2 long points with tangs / 2 short points without tangs)			O <sub>F</sub>	-
<b>Knife Sections</b>				
Over-serrated / solid / bolted / 9 serrations per inch			O <sub>F</sub>	S
Over-serrated / solid / bolted / 14 serrations per inch			O <sub>F</sub>	-
Knife Overlap at Center (Double Knife Headers)		3 mm	S	S
Cutterbar Lift Range (measured at guard tip)				
SP Windrower Header (Center-Link Fully Retracted)		49.8 in. (1265 mm)	S	-
Combine Header		Varies With Combine Model	S	S
<b>Guard Angle (cutterbar on ground)</b>				
Windrower (M Series Tractor) / Center-Link Retracted	15–25 ft.	7.5 Degrees	S	-
Windrower (M Series Tractor) / Center-Link Retracted	30–40 ft.	2.5 Degrees	S	-
Windrower (M Series Tractor) / Center-Link Extended	15–25 ft.	17.0 Degrees	S	-
Windrower (M Series Tractor) / Center-Link Extended	30–40 ft.	12.0 Degrees	S	-
Combine (CA25) / Center-Link Retracted	20–25 ft.	7.0 Degrees	S	-
Combine (CA25) / Center-Link Retracted	30–45 ft.	2.0 Degrees	S	S
Combine (CA25) / Center-Link Extended	20–25 ft.	12.4 Degrees	S	-
Combine (CA25) / Center-Link Extended	30–45 ft.	7.4 Degrees	S	S
<b>CONVEYOR (Draper) and DECKS</b>				
Draper Width		41.6 in. (1057 mm)	S	S
Draper Drive		Hydraulic	S	S

## SPECIFICATIONS

		D65	FD75
Draper Speed: CA25 (Combine Adapter)	0–464 fpm (141 m/min.)	S	S
SP (M Series Tractor)	0–742 fpm (225 m/min.)	S	S
<b>Delivery Opening Width (Center Delivery) / variable by shifting decks</b>			
15 ft. (on SP Windrower)	60.61–69.7 in. (1540 mm–1770 mm)	S	-
20, 25, 30, 35, 40 ft. (on SP Windrower)	67.1–76.7 in. (1720 mm–1950 mm)	S	S
20, 25, 30, 35, 40, 45 ft. (Combine configuration)	73.6 in. (1870 mm)	S	S
<b>Delivery Opening Height (under frame tube at 8 in. cutting height ) - SP Windrower ONLY</b>		S	-
Center-Link Fully Retracted	37.6 in. (955 mm)		
Center-Link Fully Extended	43.5 in. (1105 mm)		
<b>REEL</b>			
Pick-Up Reel PR15		S	S
Quantity of Tine Tubes	5, 6, or 9		
Center tube diameter: all reel sizes except 35 ft. single span	8 in. (203 mm)		
35 ft. single span (ONLY)	10 in. (254 mm)		
Finger Tip Radius (adjustment range / factory assembled)	30.2–31.5 in. (766 mm–800 mm) / 31.5 in. (800 mm)		
Effective Reel Diameter (via “shaped” cam action)	65 in. (1650 mm)		
Finger Length	11 in. (290 mm)		
Finger Spacing (staggered on alternate bats)	6.0 in. (150 mm)		
Reel Drive	Hydraulic	S	S
Reel Speed		S	S
SP Windrower (auto-adjust from cab using ground speed index)	0–85 rpm	S	-
Combine (adjustable from cab)	0–67 rpm (Varies with combine model)	S	S
export configured			

## SPECIFICATIONS

		D65	FD75
<b>FRAME and STRUCTURE</b>			
Header Width (Field Position)	cut width + 15.1 in. (384 mm)	S	S
Header Width (Transport Position) - reel fore-aft fully retracted			
Header Only (SP Configuration without external attachments)	(A) <sup>3</sup> (Long Dividers Installed) 104 in. (2636 mm)	-	-
	(B) (Long Dividers Removed) 97 in. (2452 mm)	-	-
With CA25 Combine Adapter installed (shortest center-link)	(A) (Long Dividers Installed) 106 in. (2684 mm)	-	-
	(B) (Long Dividers Removed) 98 in. (2500 mm)	-	-
With HC10 Hay Conditioner installed	(A) (Long Dividers Installed) 112 in. (2834 mm)	-	-
	(B) (Long Dividers Removed) 104 in. (2650 mm)	-	-



**Figure 3.1: Header width**

		D65	FD75
<b>ATTACHMENTS</b>			
<b>CA25 Combine Adapter</b>		O <sub>D</sub>	S
Feed Draper Width	78.7 in. (2000 mm)		

3. See figure [3.1: Header width](#), page 34

## SPECIFICATIONS

		<b>D65</b>	<b>FD75</b>
Feed Draper Speed	350–400 fpm (107–122 m/min)		
Feed Auger Width	65.3 in. (1660 mm)		
Feed Auger Outside (Flighting) Diameter (O.D.)	22 in. (559 mm)		
Feed Auger Tube Diameter (O.D.)	14 in. (356 mm)		
Feed Auger Speed	150 rpm (Varies with combine model)		
Oil Reservoir Capacity	16 US Gallons (60 Litres)		
Oil Type	15W40		
<b>HC10 Hay Conditioner</b>		O <sub>D</sub>	-
Roll Length	72 in. (1830 mm)		
Outside Roll Diameter (O.D.)	9.13 in. (232 mm)		
Roll Tube Diameter(O.D.)	6.61 in. (168 mm)		
Roll Speed	847–915 rpm		
<b>Upper Cross Auger</b>		O <sub>D</sub>	O <sub>D</sub>
Outside (Flighting) Diameter (O.D.)	12 in. (305 mm)		
Tube Diameter (O.D.): All sizes except 25 ft.	6 In. (152 mm)		
Tube Diameter 25. ft. (O.D.)	7 In. (178 mm)		
<b>Stabilizer Wheel / Slow Speed Transport</b>		O <sub>D</sub>	O <sub>D</sub>
Wheels	15 in.		
Tires	P205/75 R-15		





## 4 Operation

### 4.1 Owner/Operator Responsibilities

#### CAUTION

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

## 4.2 Operational Safety

### CAUTION

Follow these safety precautions:

- Follow all safety and operational instructions given in your operator's manuals. If you do not have a combine manual, get one from your Dealer and read it thoroughly.
- Never attempt to start the engine or operate the machine except from the combine seat.
- Check the operation of all controls in a safe clear area before starting work.
- Do NOT allow riders on the combine.

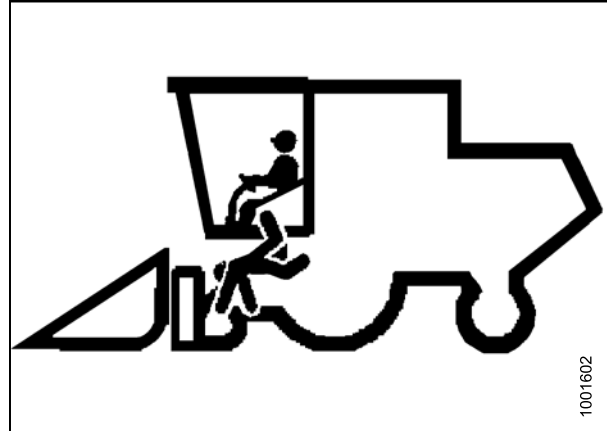


Figure 4.1

### CAUTION

- Never start or move the machine until you are sure all bystanders have cleared the area.
- Avoid travelling over loose fill, rocks, ditches, or holes.
- Drive slowly through gates and doorways.
- When working on inclines, travel uphill or downhill when possible. Be sure to keep transmission in gear when travelling downhill.
- Never attempt to get on or off a moving machine.
- Do NOT leave Operator's station while the engine is running.
- Stop engine and remove key before adjusting or removing plugged material from the machine. A child or even a pet could engage the drive.
- Check for excessive vibration and unusual noises. If there is any indication of trouble, shut down and inspect the machine. Follow proper shutdown procedure. Refer to [Section 4.4 Shutdown Procedure, page 50](#).
- Operate only in daylight or good artificial light.

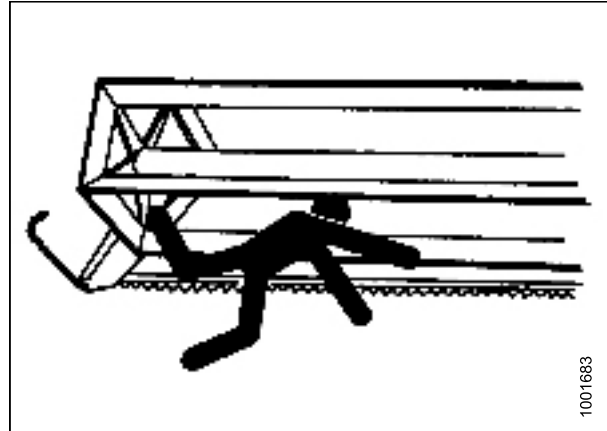


Figure 4.2

### 4.2.1 Header Safety Props

The header safety props are located beneath the combine feeder house. When props are engaged, they do not allow the feeder house and anything that attached to it to lower to the ground.

## OPERATION

### DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

### 4.2.2 Reel Safety Props

#### WARNING

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

Reel safety props are located at the reel support arms.

#### IMPORTANT:

To prevent damage to reel support arms, do NOT transport header with reel safety props engaged.

#### *Engaging Reel Safety Props*

#### 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.

#### WARNING

To prevent bodily injury from the fall of a raised reel, always engage the reel safety props before going under the raised reel for any reason.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Move reel safety props (A) to the engaged position (as shown). **The prop MUST be placed on the top surface of raised lug (B), making contact with the cylinder mount, to ensure positive engagement.**

#### NOTE:

Keep pivot bolt (C) sufficiently tight so that the prop remains in the stored position when not in use, but can still be engaged using hand force.

4. Repeat the previous step on the opposite side of the header.

**THE CONTENT ON THIS PAGE HAS CHANGED SINCE THIS MANUAL (169595 REVISION E) WAS PUBLISHED.**

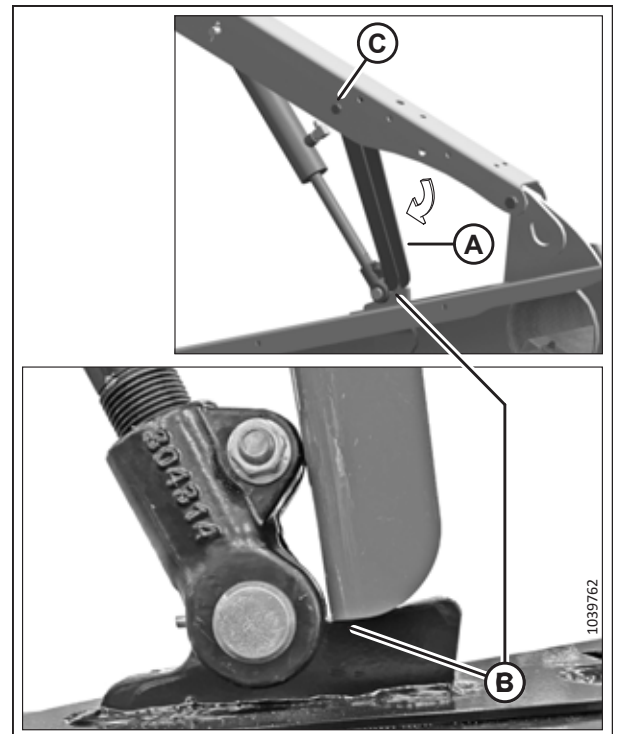
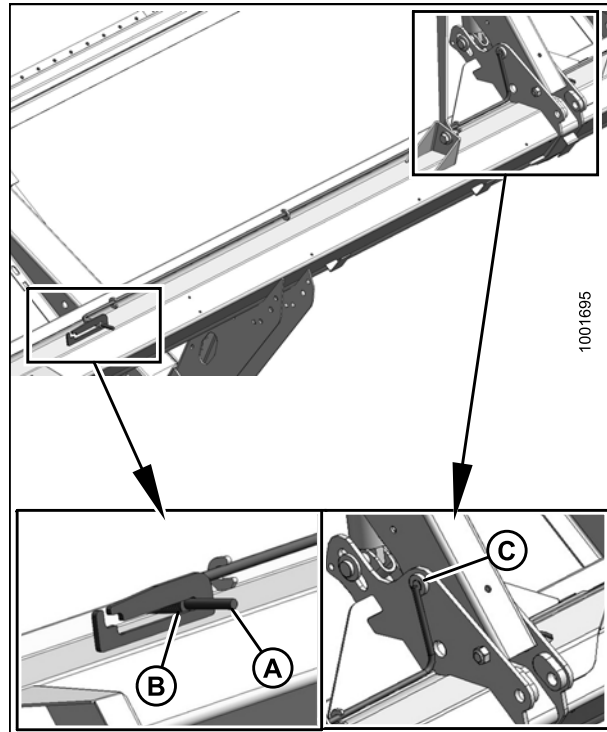


Figure 4.3

## OPERATION

3. At the center reel arm on double reel headers, use handle (A) to move lock rod to inboard position (B), engaging pin (C) under prop.
4. Lower reel until safety props contact cylinder mounts on outer reel arms and pin at center arm.



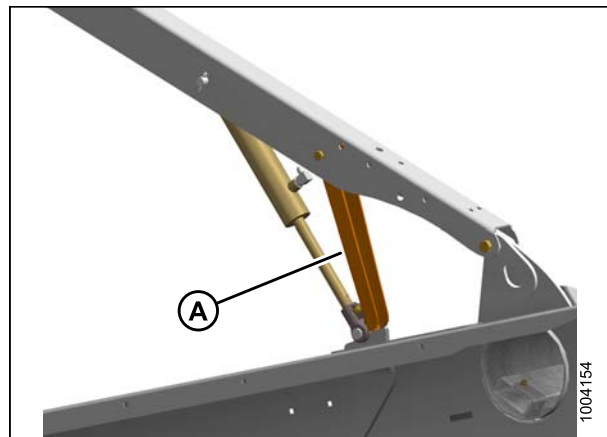
**Figure 4.4**

A - Handle  
C - Pin

B - Inboard position

### *Disengaging Reel Safety Props*

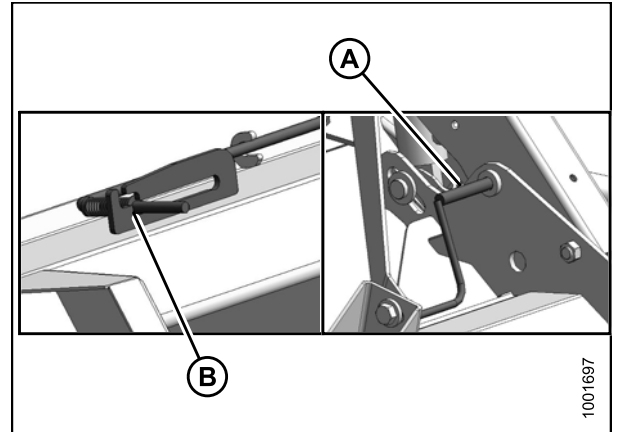
1. Raise reel to maximum height.
2. At outer reel arms, push props (A) back inside reel arms.



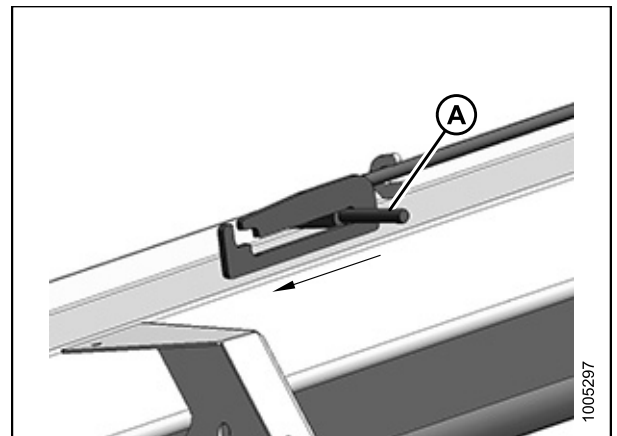
**Figure 4.5: Push props inside reel arms**

## OPERATION

3. For double reel headers, at center arm, use handle (A) to move lock rod to outboard position (B).



**Figure 4.6: Move lock rod to outboard position**



**Figure 4.7**

## OPERATION

### 4.2.3 Endshields

A hinged, polyethylene endshield is fitted on each end of the header.

#### *Opening Endshields*

To open an endshield, follow these steps.

1. Remove lynch pin (A) and tool (B) from pin (C) at top rear of endshield.
2. Use tool (B) to unlock latch (A) at lower rear corner of endshield.
3. Lift shield at aft end to clear pin at top rear of endshield.
4. Swing shield out and away from header while maintaining forward pressure to prevent shield from slipping out of tab (C) at front of endsheet.

#### **IMPORTANT:**

**Do NOT force shield once it has reached its end of travel, as damage to the shield structure can occur. Shield is designed to open sufficiently for normal access to the drive system and manual case as shown.**

**NOTE:** If more access is required to the front of the drives area, carefully disengage front of shield from tab at the front of the endsheet and then swing front of the shield away from the header.

**NOTE:** If complete access to the endsheet area is required, the shield can be removed. See [Section Removing Endshields, page 44](#).

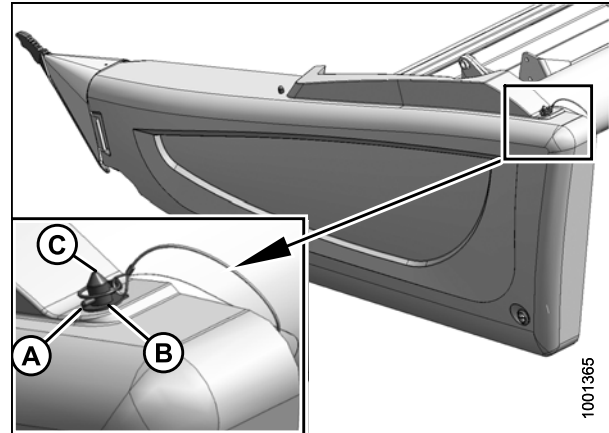


Figure 4.8

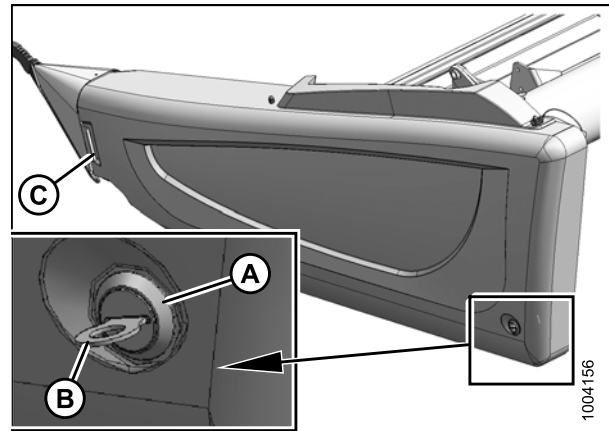


Figure 4.9

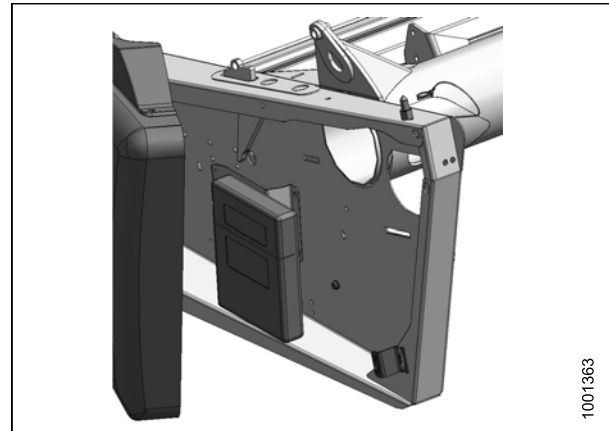


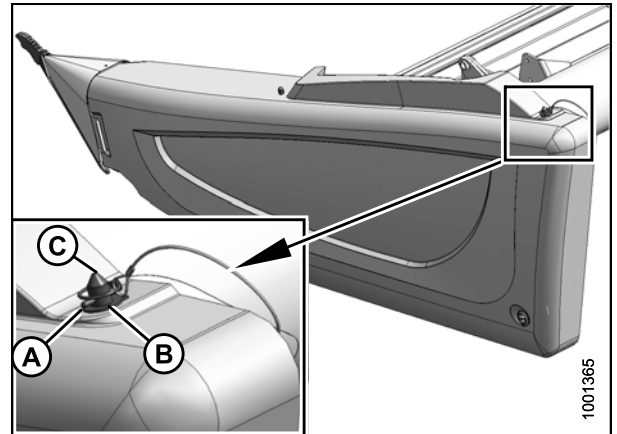
Figure 4.10

## OPERATION

### *Closing Endshields*

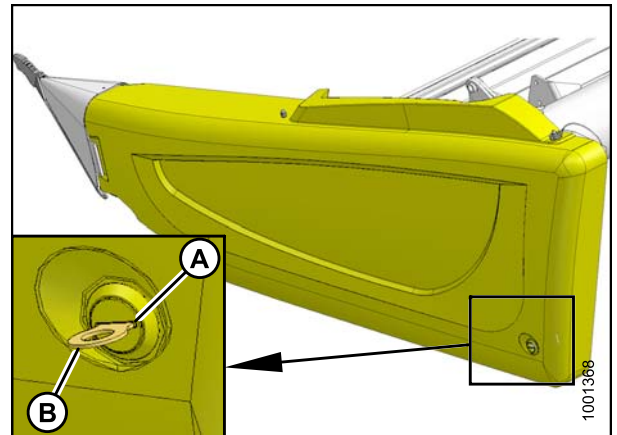
To close an endshield, follow these steps.

1. Maintain forward pressure and swing rear of shield towards header.
2. Lift shield and engage pin (C) on top of frame endsheet.



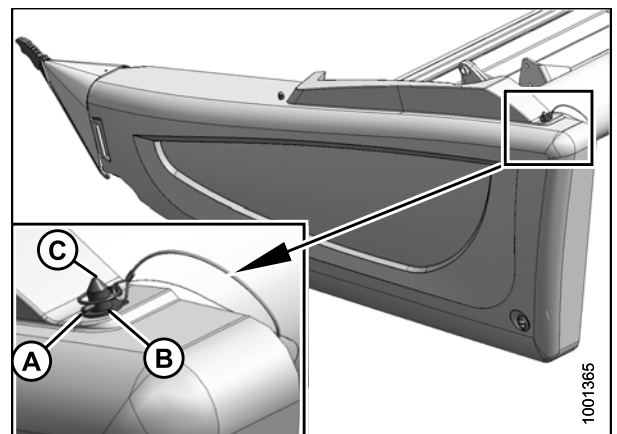
**Figure 4.11**

3. Push in shield to engage lower latch (A).
4. Use tool (B) to lock lower latch (A).



**Figure 4.12**

5. Replace tool (B) and lynch pin (A) on top pin (C).



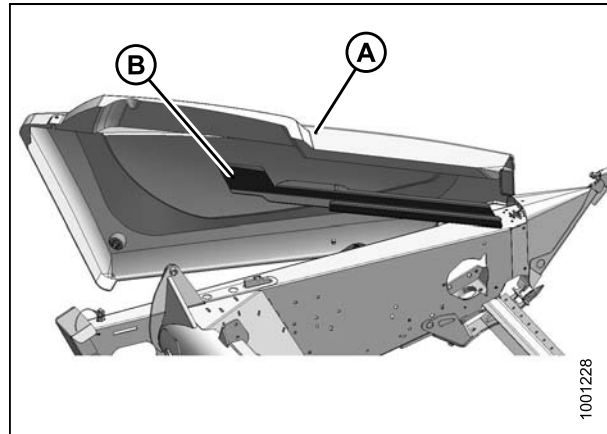
**Figure 4.13**

## OPERATION

### *Removing Endshields*

To remove an endshield, follow these steps:

1. Open endshield. See Section [Opening Endshields](#), page 42.
2. Remove acorn nut (A) that secures the endshield to support (B).
3. Lift endshield off support (B).

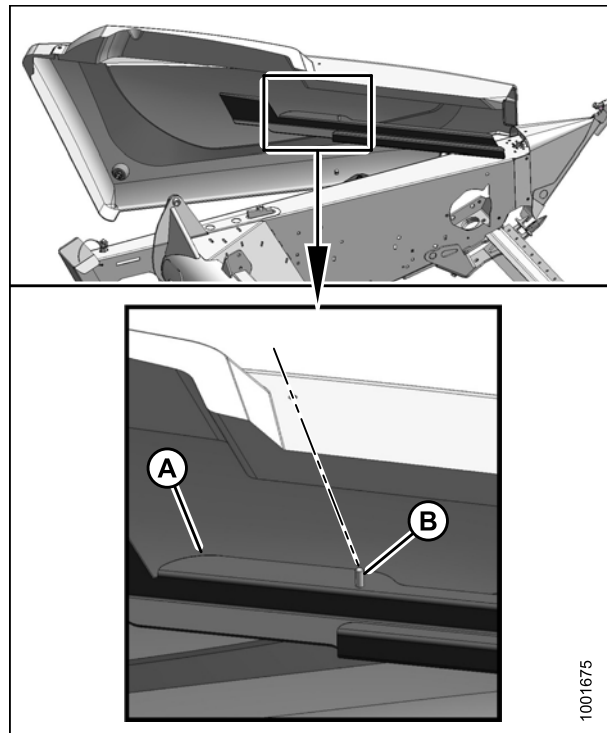


**Figure 4.14**

### *Installing Endshields*

To install an endshield, follow these steps.

1. Position endshield on support (A) and align the hole in the endshield with stud (B) on the support.



**Figure 4.15**



## OPERATION

2. Secure endshield to the support with acorn nut (A).
3. Close endshield. See Section [Closing Endshields](#), page 43.

**NOTE:** Plastic endshields are subject to expansion, or contraction depending on large temperature variations. Top pin and lower latch bracket positions can be adjusted to compensate for dimensional changes. See Section [Adjusting Endshields](#), page 45.

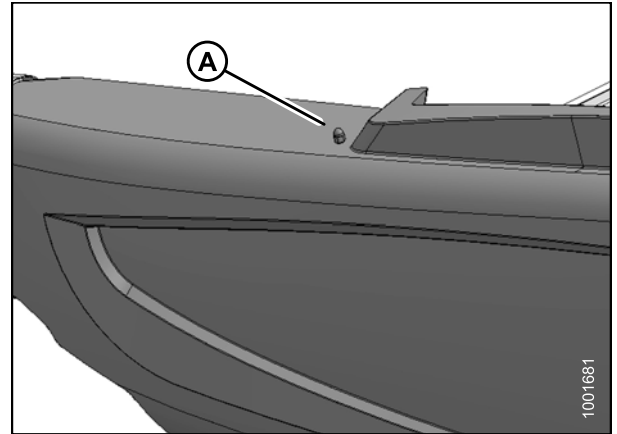


Figure 4.16

### *Adjusting Endshields*

To adjust an endshield, follow these steps.

1. Check gap 'X' between the front end of shield and header frame and compare to chart.

Temperature °F (°C)	Gap 'X' in. (mm)
25 (-4)	1-1/8 (28)
45 (7)	1 (2.4)
65 (18)	13/16 (20)
85 (29)	5/8 (16)
105 (41)	1/2 (12)
125 (52)	5/16 (8)
145 (63)	3/16 (4)
165 (89)	0

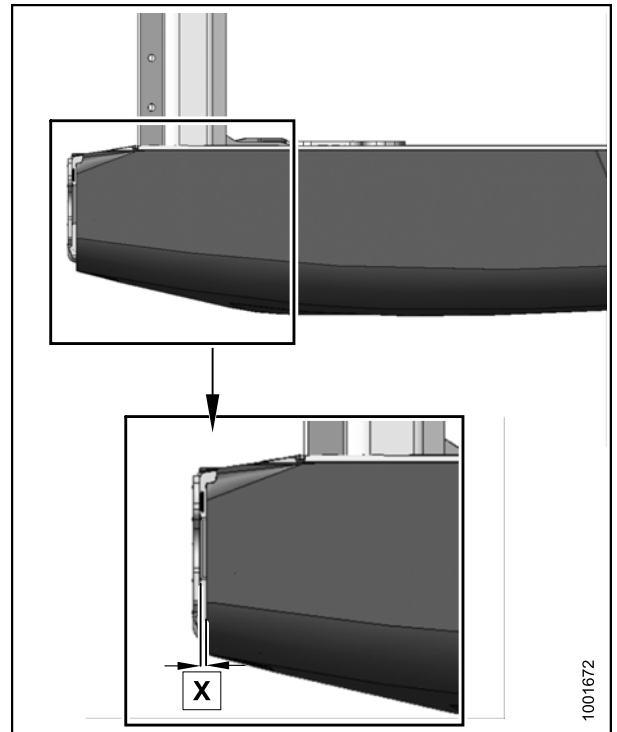


Figure 4.17

## OPERATION

If adjustments are required, proceed as follows:

2. Open endshield. See Section [Opening Endshields](#), page 42.
3. From inside endsheet, loosen nut (A) on pin (B) with a 3/4 in. socket.
4. Close endshield and adjust position to achieve the gap 'X' between the front end of shield and header frame.
5. Open endshield and tighten nut (A).
6. To achieve a snug fit between top of shield and header frame and to ensure that endshield is fully engaged on pin (B), loosen bolts on catch (C) and adjust catch as required to reposition shield.
7. Tighten bolts on catch (C).
8. Close endshield. See Section [Closing Endshields](#), page 43.

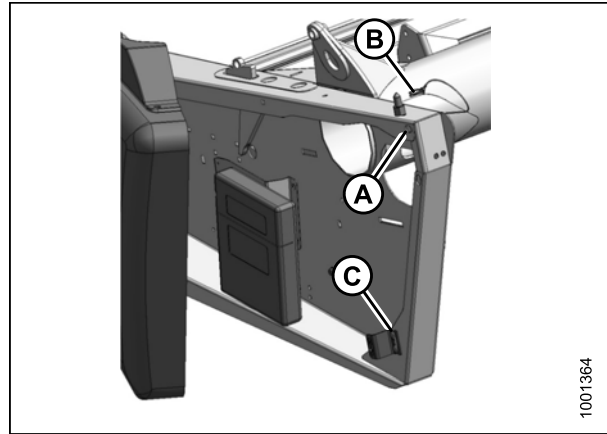


Figure 4.18

### 4.2.4 Linkage Covers

Linkage covers are plastic covers that reside on the backtube covering the flex linkage.

#### *Removing Linkage Covers*

To remove a linkage cover, follow these steps:

1. Remove screw (A) and lift outboard end of cover (B).

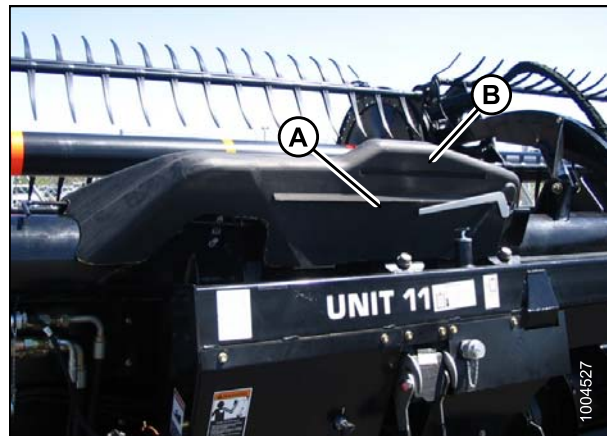


Figure 4.19

## OPERATION

2. Rotate cover (A) upward until inboard end can be lifted off.

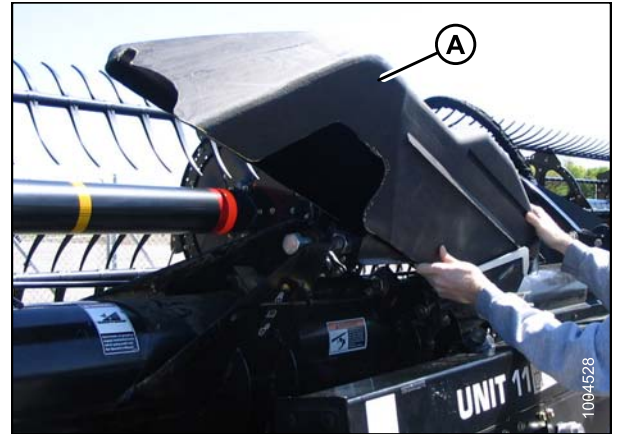


Figure 4.20

### *Installing Linkage Covers*

To install a linkage cover, follow these steps:

1. Position inboard end of cover (A) over linkage and behind indicator bar (B).
2. Lower cover until secure and against header tube.

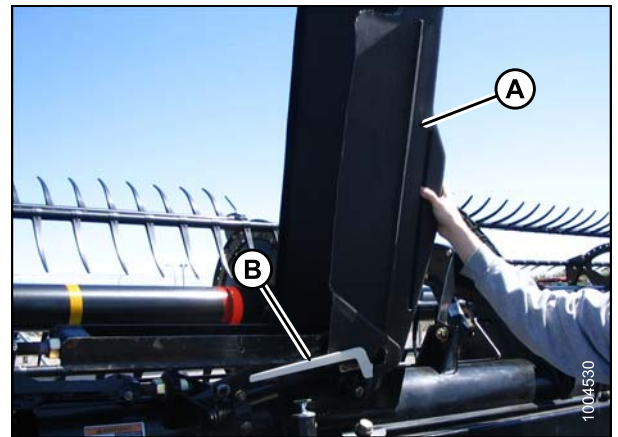


Figure 4.21

3. Install screw (A) to hold cover (B) in place.

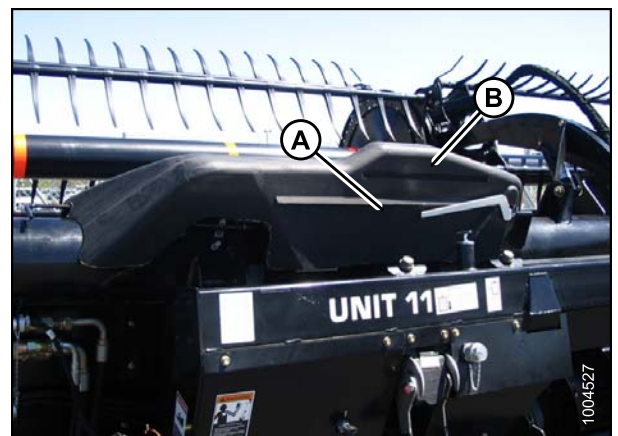


Figure 4.22

## OPERATION

### 4.2.5 Daily Start-Up Check

#### CAUTION

- Clear the area of other persons, pets, etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.
- Wear close-fitting clothing and protective shoes with slip-resistant soles.
- Remove foreign objects from the machine and surrounding area.
- As well, carry with you any protective clothing and personal safety devices that **COULD** be necessary through the day. Don't take chances. You may need a hard hat, protective glasses or goggles, heavy gloves, a respirator or filter mask, or wet weather gear.
- Protect against noise. Wear a suitable hearing protective device such as ear muffs or ear plugs to protect against objectionable or uncomfortable loud noises.

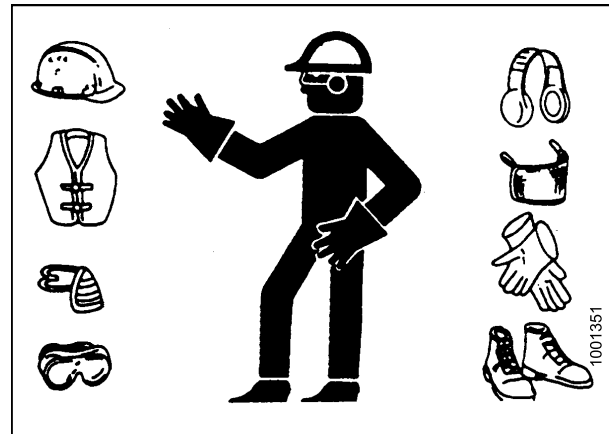


Figure 4.23: Use protective clothing and personal safety devices

Complete the following tasks each day before start-up:

1. Check the machine for leaks or any parts that are missing, broken, or not working correctly.

**NOTE:** Use proper procedure when searching for pressurized fluid leaks. Refer to [Section 7.4 Hydraulics, page 238](#).

2. Clean all lights and reflective surfaces on the machine.
3. Perform all daily maintenance. Refer to [Section 7.3.1 Maintenance Schedule/Record, page 222](#).

## OPERATION

### 4.3 Break-in Period

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

After attaching the header to the combine for the first time, follow these steps:

1. Operate the machine with reel drapers and knife running slowly for five minutes, watching and listening FROM THE OPERATOR'S SEAT for binding or interfering parts.

**NOTE:** Reel and side drapers will **NOT** operate until oil flow fills the lines.

2. Perform the items specified. Refer to Section [7.3.2 Break-In Inspection, page 224](#).



### CAUTION

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

### 4.4 Shutdown Procedure

#### CAUTION

To shut down and before leaving the combine seat for any reason, follow these steps:

- Park on level ground if possible.
- Lower the header fully.
- Place all controls in NEUTRAL or PARK.
- Disengage the header drive.
- Lower and retract Reel fully.
- Stop engine and remove key from ignition.
- Wait for all movement to stop.

### 4.5 Cab Controls



#### CAUTION

**Be sure all bystanders are clear of machine before starting engine or engaging any header drives.**

See your combine operator's manual for identification of in-cab controls for:

- Header engage control
- Header height
- Header angle
- Ground speed
- Reel speed
- Reel height
- Reel fore-aft position

## OPERATION

### 4.6 Header Setup

#### 4.6.1 Header Settings

This table is a guideline for setting up the FD75 FlexDraper® and the D65 Harvest Header®. Settings other than those suggested can be made to suit various crops and conditions not covered here.

#### 4.6.2 Header Optimizing for Straight Combining Canola

Ripe canola can be straight combined but the crop is very susceptible to shelling and subsequent seed loss. This section provides recommended attachments, settings and adjustments to optimize the FD75 and D65 headers for straight combining canola.

The optimization process includes the following modifications to the header:

- Installing Full Length Upper Cross Auger.
- Installing European Adapter Seal Kit.
- Installing Vertical Knives.
- Installing Short Center Reel Braces.
- Changing to High Speed Auger Drive Sprocket.
- Adding Auger Fingers.

Feeder Opening	Qty Installed at Factory		Total Qty for Optimizing
	2012 and Prior	2013 and Newer	
56–66 in. (1422–676 mm)	15	17	25
45–55 in. (1143–1397 mm)			23
30–44 in. (762–1118 mm)			17–19

Each kit includes installation instructions and necessary hardware. Refer to [9.1 Options and Attachments, page 403](#) for further information.

The process also includes specific settings for the header:

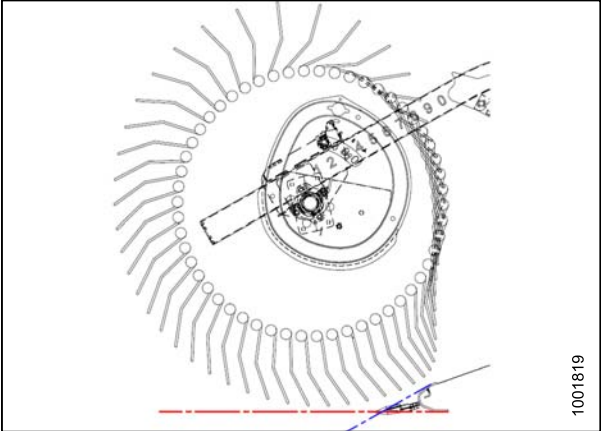
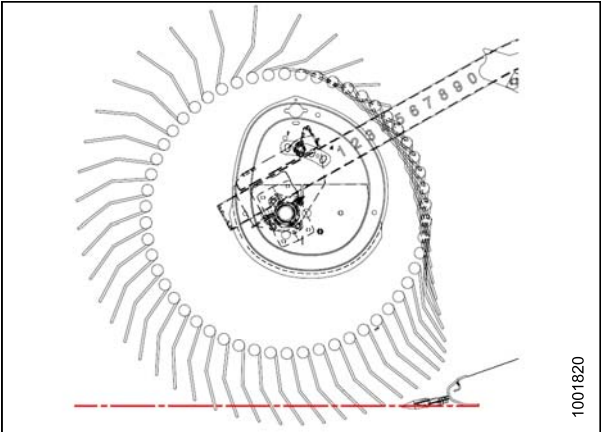
- Moving the reel fore-aft cylinders to the alternate aft location. Refer to [Repositioning Fore-Aft Cylinder on Double Reel, page 76](#) or
- Adjusting reel fore-aft position. Refer to [Adjusting Reel Fore-Aft Position, page 75](#)
- Adjusting reel height so that fingers just engage the crop. Refer to [4.7.8 Reel Height, page 74](#)
- Setting reel cam to position 1. Refer to [Adjusting Reel Cam, page 81](#)
- Setting reel speed to \_\_\_\_\_. Refer to [4.7.4 Reel Speed, page 69](#)
- Decreasing feed auger spring tension. Refer to
- Setting side draper speed to position \_\_\_\_ on CA25 control. Refer to [4.7.6 Draper Speed, page 72](#).



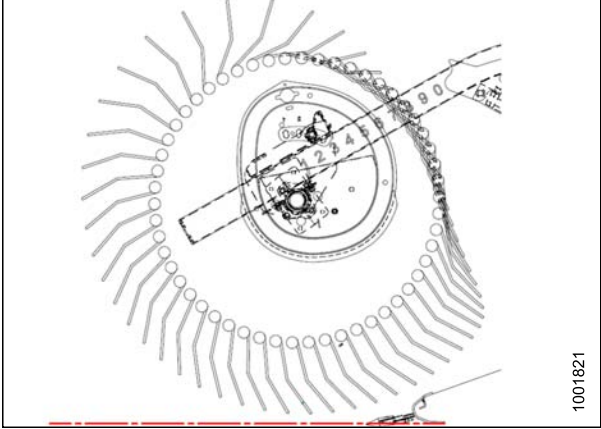
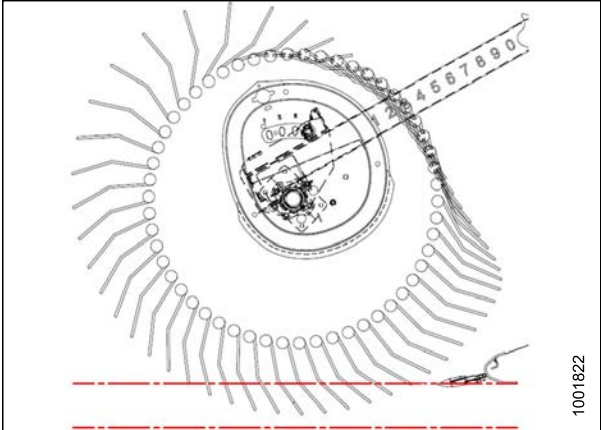
OPERATION

4.6.3 Reel Settings

Table 4.1 FD75 Reel Settings Chart

Cam Setting Number (Finger Speed Gain)	Reel Position Number	Reel Finger Pattern
1 (0)	6 or 7	
2 (20%)	6 or 7	

## OPERATION

Cam Setting Number (Finger Speed Gain)	Reel Position Number	Reel Finger Pattern
3 (30%)	3 or 4	
4 (35%)	2 or 3	

### NOTE:

- Adjust reel forward to get closer to ground when tilting header back. Fingers/tines will dig into ground at extreme reel forward positions, so adjust skid shoes or header angle to compensate. Adjust reel rearward to get reel further away from ground when tilting header forward.
- Header tilt can be increased to get reel closer to ground, or decreased to get reel further away from ground while keeping material flowing onto drapers.
- To leave maximum amount of stubble behind in lodged crop, raise header but increase header tilt to keep reel close to ground. Position the reel fully forward.
- Reel may have to be moved back to prevent lumps or plugging on cutterbar in thinner crops.
- Minimum crop carrying capacity (minimum area of exposed draper between reel and header backsheet) occurs with the reel in the furthest aft position.
- Maximum crop carrying capacity (maximum area of exposed draper between reel and header backsheet) occurs with the reel in the furthest forward position.
- The tip speed of the fingers/tines at the cutterbar becomes higher than the reel speed at higher cam settings due the nature of the cam action. Refer to Reel Settings chart.

## OPERATION

### 4.7 Header Operating Variables

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

Correct operation reduces crop loss and allows cutting of more acres. As well, proper adjustments and timely maintenance will increase the length of service you receive from the machine.

The variables listed below and detailed on the following pages will affect the performance of the machine. You will quickly become adept at adjusting the machine to get the desired results.

Variable	Section
Cutting height	<a href="#">4.7.1 Cutting Height, page 55</a>
Header float	<a href="#">4.7.2 Header Float, page 61</a>
Header angle	<a href="#">4.7.3 Header Angle, page 68</a>
Reel speed	<a href="#">4.7.4 Reel Speed, page 69</a>
Ground speed	<a href="#">4.7.5 Ground Speed, page 71</a>
Draper speed	<a href="#">4.7.6 Draper Speed, page 72</a>
Knife speed	<a href="#">4.7.7 Knife Speed, page 73</a>
Reel height	<a href="#">4.7.8 Reel Height, page 74</a>
Reel fore-aft position	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
Reel tine pitch	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
Crop divider rods	<a href="#">4.7.12 Crop Divider Rods, page 86</a>

#### 4.7.1 Cutting Height

The header is designed to allow an Operator to cut the crop above the ground for a desired stubble height, or to cut the crop at ground level with the header on the ground. Cutting height will vary, depending on type of crop, crop condition, etc.

##### *Cutting Off The Ground*

The stabilizing wheel system is designed to minimize bouncing at the header ends and may be used to float the headers to achieve an even cutting height when cutting above ground level in cereal grains. The system can provide very even stubble height and greatly reduces operator fatigue.

Cutting height is controlled with a combination of header lift cylinder adjustment and a stabilizer wheel system, or a stabilizer/slow speed transport wheel system.

The stabilizer wheel system or a stabilizer/slow speed transport wheel system are only available on 30, 35, 40, and 45 ft. headers.

If you have stabilizer wheels installed, Refer to [Adjusting the Stabilizer Wheels, page 57](#) to modify the height of the wheels.

If you have stabilizer/slow speed transport wheels installed, Refer to [Adjusting Stabilizer/Slow Speed Transport Wheels, page 56](#) to modify the height of the wheels.

## OPERATION

### Adjusting Stabilizer/Slow Speed Transport Wheels

The proper setting requires balancing the amount of header weight carried by the float and the stabilizer/slow speed transport wheels.

Refer to section [4.6.1 Header Settings, page 52](#) for recommended use in specific crops and crop conditions.

1. Raise the header so that the stabilizer wheels are off the ground. Shut down engine and remove the key.
2. On the RH wheel assembly, remove hairpin (A) from latch.
3. Disengage latch (B) and lift right wheel out of hook and place on ground as shown. This reduces weight of assembly and makes adjusting wheel position easier.
4. Support left wheel weight by lifting slightly with one hand. Pull up on handle (C) to release lock.
5. Lift left wheel to desired height and engage support channel into slot (D) in upper support.
6. Push down on handle (C) to lock.
7. Lift right hand wheel back into Field position and ensure latch (B) is engaged.
8. Secure latch with hairpin (A).
9. On the LH wheel assembly, support wheel weight by lifting slightly with one hand. Pull up on handle (A) to release lock.
10. Lift wheels to desired height and engage support channel into slot (B) in upper support.
11. Push down on handle (A) to lock.

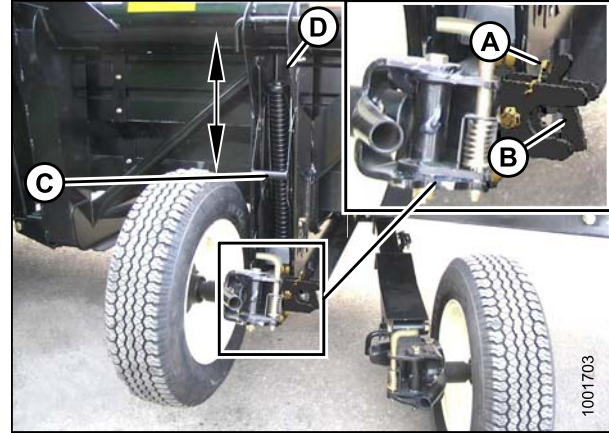


Figure 4.24: RH wheel

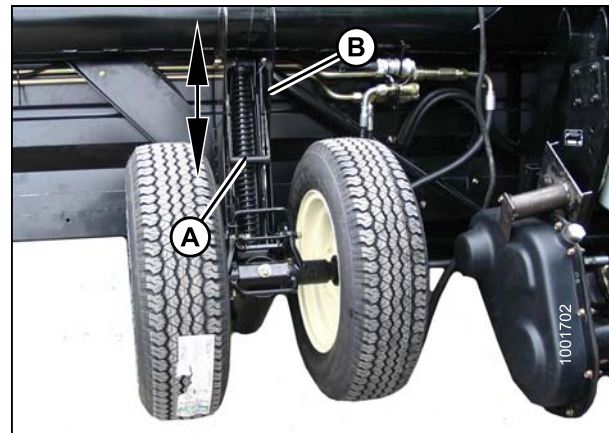


Figure 4.25: LH wheel

## OPERATION

12. Lower header to desired cutting height using combine controls and check load indicator. As an example the image shows that the wheels are set to a range between '2' and '3' on load indicator.

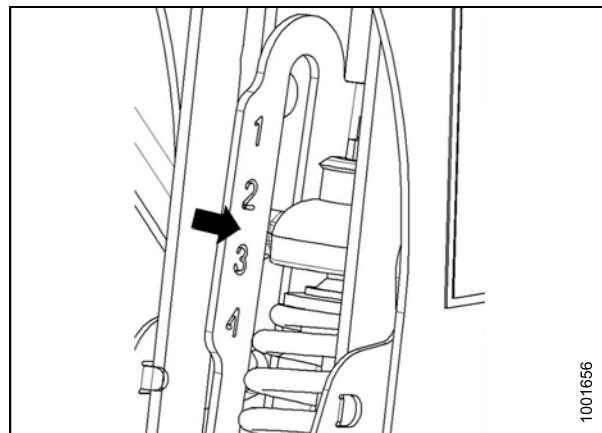


Figure 4.26: Load indicator between 2 and 3

### IMPORTANT:

Continuous operation with excessive spring compression (i.e., load indicator reading greater than '4' or shorter than 11.6 in. [295 mm]) can result in damage to suspension system.

13. Adjust header angle to desired working angle with the machine's header angle controls. If angle is **NOT** critical, set it to mid-position.
14. Use the combine's Auto Header Height Control (AHHC) to automatically maintain cutting height. Refer to [Section 6 Automatic Header Height Control, page 169](#) and your combine operator's manual for details.

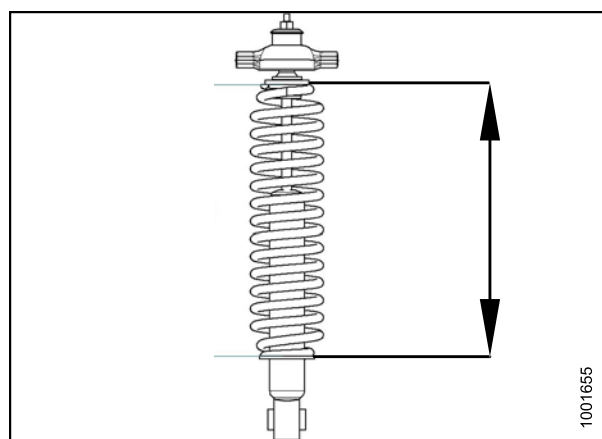


Figure 4.27: Spring compression

### Adjusting the Stabilizer Wheels

The proper setting requires balancing the amount of header weight carried by the float and the stabilizer wheels.

Refer to [4.6.1 Header Settings, page 52](#) for recommended use in specific crops and crop conditions.

1. Raise the header so that the stabilizer wheels are off the ground. Shut down engine and remove the key.

## OPERATION

### CAUTION

Handle may be under tension, especially when the wheels are on the ground. Raise header so that wheels are off the ground before making adjustments.

2. Support wheel weight by lifting slightly with one hand on handle (B). Pull up on handle (A) to release lock.
  3. Lift wheel with handle (B) and engage support channel into center slot (C) in upper support.
  4. Push down on handle (A) to lock.
- 
5. Lower header to desired cutting height using combine controls and check load indicator. As an example the image shows that the wheels are set to a range between '2' and '3' on load indicator.

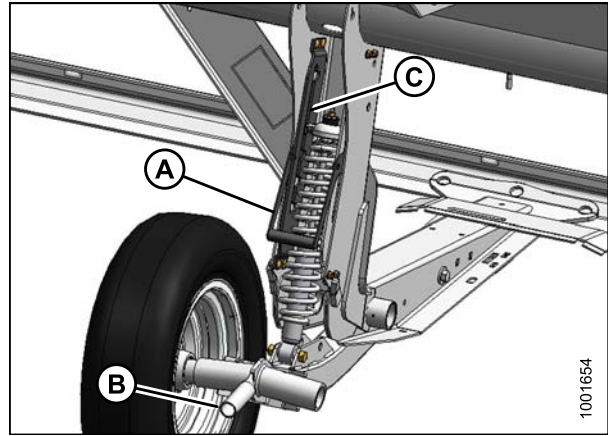


Figure 4.28: LH shown

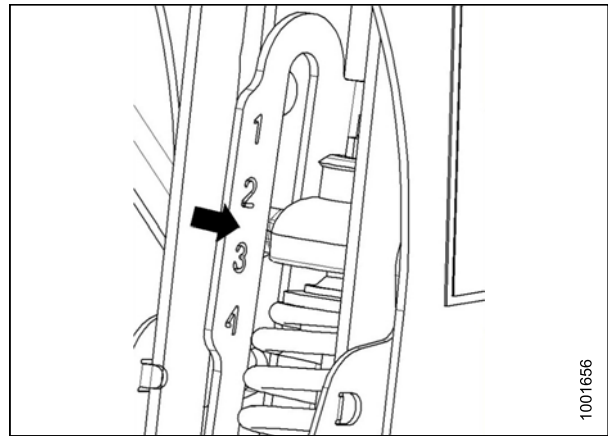


Figure 4.29: Load indicator between 2 and 3

### IMPORTANT:

Continuous operation with excessive spring compression (i.e., load indicator reading greater than '4' or shorter than 11.6 in. [295 mm]) can result in damage to suspension system.

6. Adjust header angle to desired working angle with the machine's header angle controls. If angle is **NOT** critical, set it to mid-position.
7. Use the combine's Auto Header Height Control (AHHC) to automatically maintain cutting height. Refer to Section 6 [Automatic Header Height Control](#), page 169 and your combine operator's manual for details.

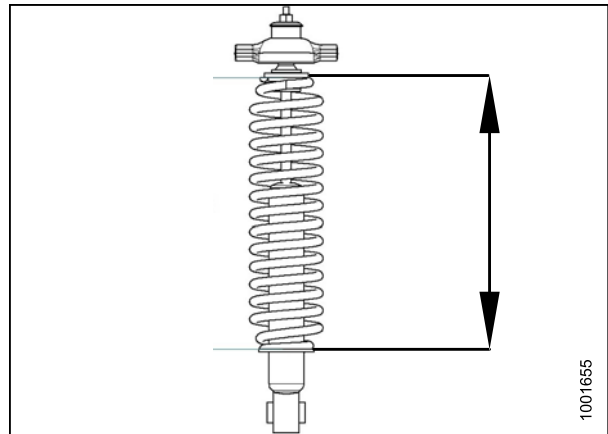


Figure 4.30: Spring compression

## OPERATION

### *Cutting On the Ground*

Cutting on the ground is controlled with a combination of skid shoes, header angle, and float adjustment and **NOT** with the header lift cylinders.

**NOTE:** Skid shoes are standard equipment on the D65 and FD75 headers.

Having the header ride on the skid shoes allows the float linkage to float the header over obstacles and follow ground contours, rather than supporting the header with the cylinders.

Lowering the skid shoes or decreasing the header angle increases the cutting height. This may be desirable in stony conditions to reduce damage to cutting components. Also, a longer stubble length helps material dry faster.

Raising the optional skid shoes and increasing the header angle allows the crop to be cut closer to the ground.

Refer to section [4.6.1 Header Settings, page 52](#) for recommended skid shoe positions in specific crops and crop conditions.

### **Adjusting Inner Skid Shoe**

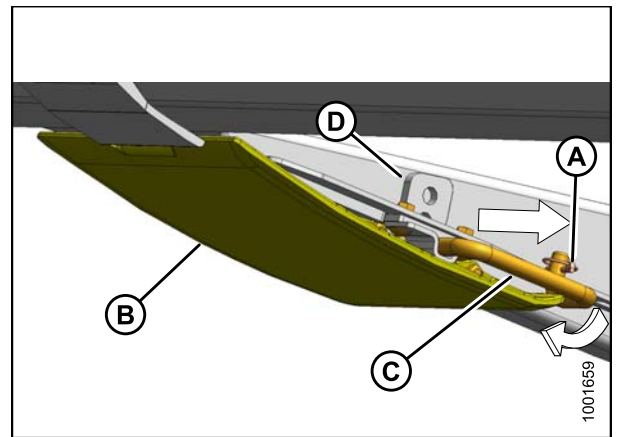
1. Fully raise the stabilizer wheels or slow speed transport wheels if installed. Refer to
  - [Adjusting the Stabilizer Wheels, page 57](#), or
  - [Adjusting Stabilizer/Slow Speed Transport Wheels, page 56](#) for procedure.



### **DANGER**

**To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.**

2. Fully raise header, engage safety props, shut off engine, and remove key.
3. Remove lynch pin (A).
4. Hold shoe (B) and remove pin (C) by pulling down to disengage frame and then pulling away from shoe.
5. Raise or lower skid shoe (B) to desired position using holes in support (D) as a guide.



**Figure 4.31: Inner skid shoes**

A - Lynch pin  
C - Pin

B - Shoe  
D - Support



## OPERATION

6. Reinsert pin (B), engage in frame, and secure with lynch pin (A).
7. Check that all of the skid shoes are adjusted to the same position.
8. Adjust header angle to desired working position using the machine's header angle controls. If angle is not critical, set it to mid-position.
9. Check header float. Refer to [Checking and Adjusting Header Float](#), page 62.

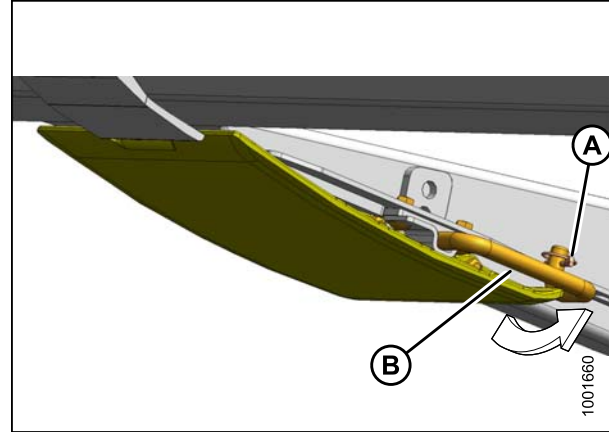


Figure 4.32

### Adjusting Outer Skid Shoe

1. Fully raise the stabilizer wheels or slow speed transport wheels if installed. Refer to
  - [Adjusting the Stabilizer Wheels](#), page 57 or
  - [Adjusting Stabilizer/Slow Speed Transport Wheels](#), page 56 for procedure.

## DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

2. Fully raise header, engage safety props, shut off engine, and remove key.
3. Remove lynch pin (A) at each skid shoe (B).
4. Hold shoe and remove pin (C) by disengaging frame and then pulling away from shoe.
5. Raise or lower skid shoe to desired position using holes in support as a guide.
6. Reinstall pin (C), engage in frame, and secure with lynch pin (A).
7. Check that skid shoes are adjusted to the same position.
8. Check header float. Refer to [Checking and Adjusting Header Float](#), page 62.

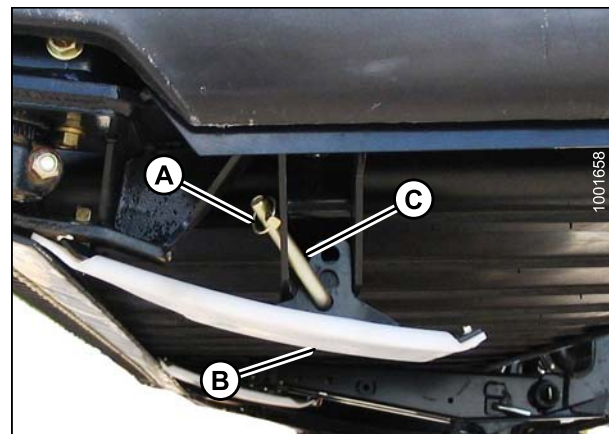


Figure 4.33: Outer skid shoes

A - Lynch pin  
C - Pin

B - Skid shoe



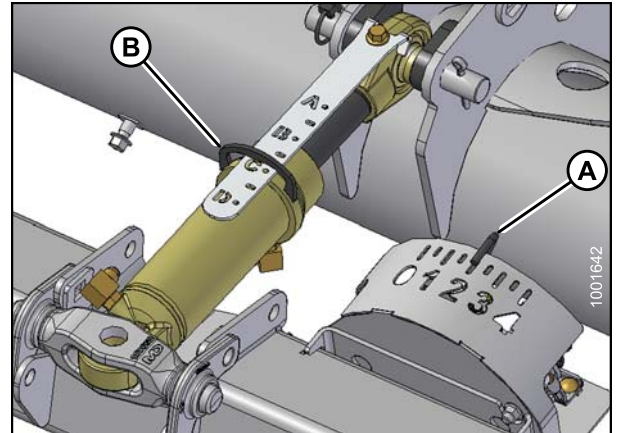
## OPERATION

### *Setting Feeder House Height and Header Angle*

**NOTE:** Installation of the auto header height controller attachment is recommended for cutting on the ground if the combine is equipped to interface with it.

To set the feeder house height and header angle, follow these steps:

1. Adjust feeder house height while watching float indicator (A) to set cutterbar down force (normally “2” on indicator). Lower feeder house height to increase ground pressure. Indicator reading will increase.
2. When cutting on ground, adjust header angle to achieve desired stubble height. Header angle indicator (B) indicates “A” for shallowest angle/higher stubble, and “D” for steepest angle/lower stubble.
3. Decrease header angle to minimize pushing soil.



**Figure 4.34**

A - Float indicator

B - Header angle indicator

### **4.7.2 Header Float**

Float is what allows the header to be light enough to follow the ground and be responsive enough to raise or lower depending on the obstacle.

The FD75 FlexDraper® combine headers perform best with minimum extra weight on the header, under normal conditions.

Check and set float adjustment. Refer to section [Checking and Adjusting Header Float, page 62](#).

#### *Header Float Locks*

The function of the header float locks is to lock and unlock the header float system. There are two locks—one on each side of the adapter.

### **IMPORTANT:**

**The float locks must be engaged when the header is being transported with the adapter attached so that there is no relative movement between the adapter and header during transport. The float locks must also be locked during detachment from the combine to allow the feeder house to release the adapter.**

## OPERATION

To **disengage float locks (unlock)**, move latch (A) downward, and move lever (B) at each lock to lowest position. In this position, the header is unlocked, and can float with respect to the adapter.

To **engage float locks (lock)**, move lever (B) up to its highest position. In this position, the header cannot move with respect to the adapter.

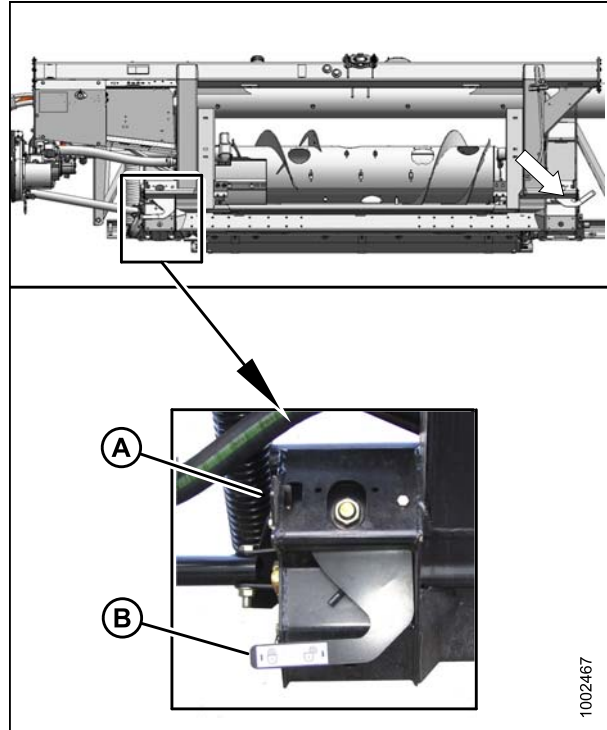


Figure 4.35: Lever Up = LOCK, Down = UNLOCK

### *Checking and Adjusting Header Float*

To check and adjust the header float, follow these steps.

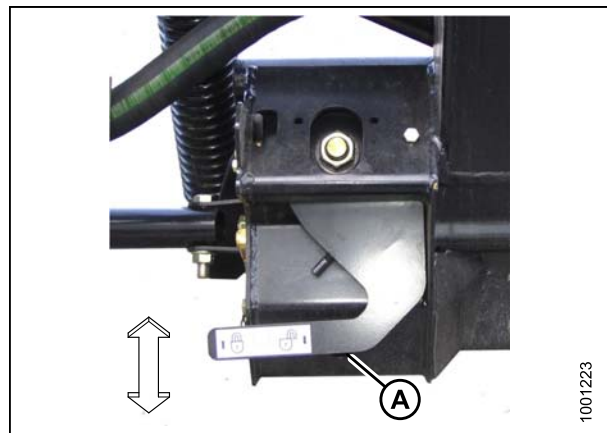


Figure 4.36

## OPERATION

1. Adjust center-link to mid-range (tilt to 'B 1/2').
2. Position cutterbar 8–12 in. (200–300 mm) off the ground.



### CAUTION

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

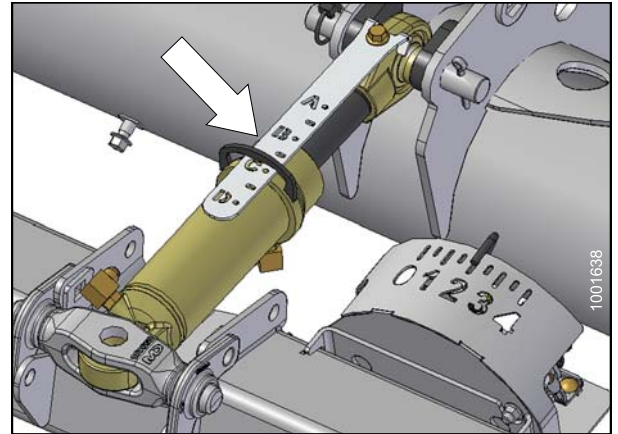


Figure 4.37: Adjust Center-Link

3. Remove torque wrench (A) from storage position at right-hand side of adapter frame. Pull slightly in direction shown to disengage wrench from hook.

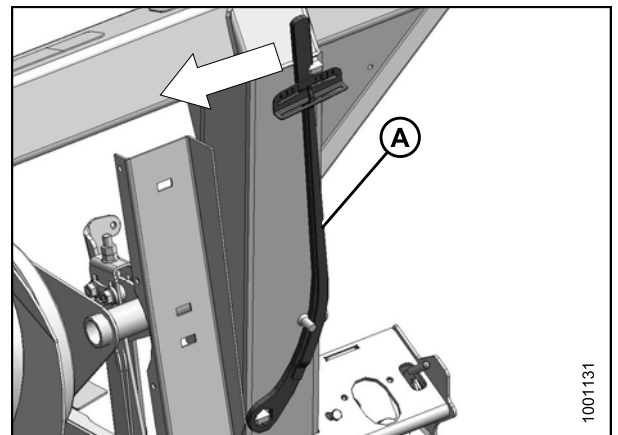


Figure 4.38: Torque wrench

4. Place torque wrench (A) onto float lock at (B). Note position of wrench for checking right- or left-hand side.
5. Push down on wrench to rotate bell crank (C) forward.

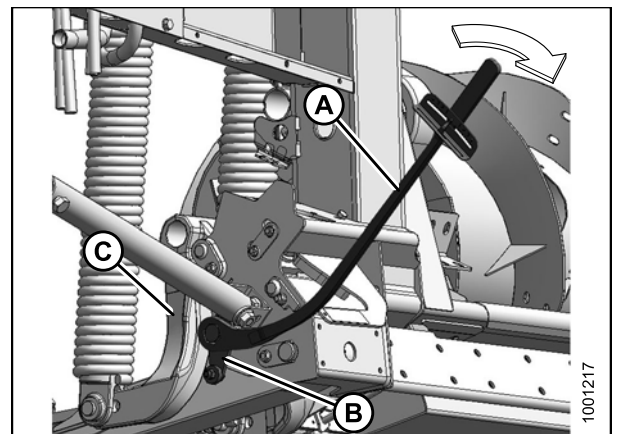


Figure 4.39: Left Side

A - Torque Wrench  
C - Bell Crank

B - Float Lock

## OPERATION

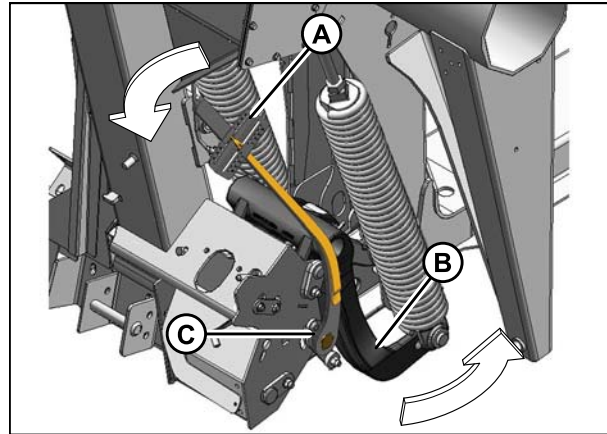


Figure 4.40: Right Side

6. Continue pushing down on the wrench until indicator (A) reaches a maximum reading, and begins to decrease. Note the maximum reading. Repeat for opposite side.
7. Use the table below as a guide for float settings. If reading on wrench is **high**, header is **heavy**. If reading on wrench is **low**, header is **light**.

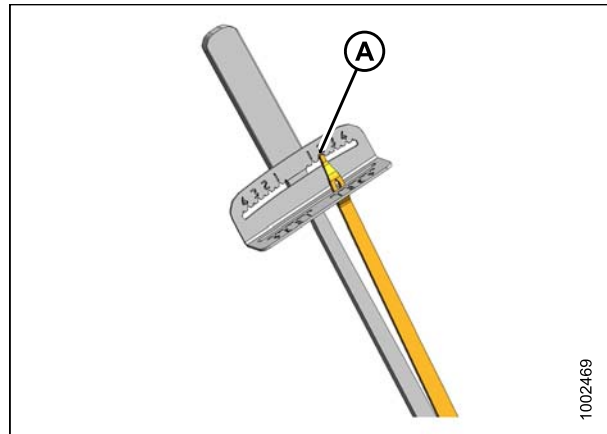


Figure 4.41: Indicator

8. To **increase** float (lighten header), turn bolts (A) and (B) **clockwise**.

**NOTE:** Loosen jam nuts on adjuster bolts before adjusting, and retighten once complete.

9. To **decrease** float (increase header weight), turn bolts (A) and (B) **counterclockwise**.

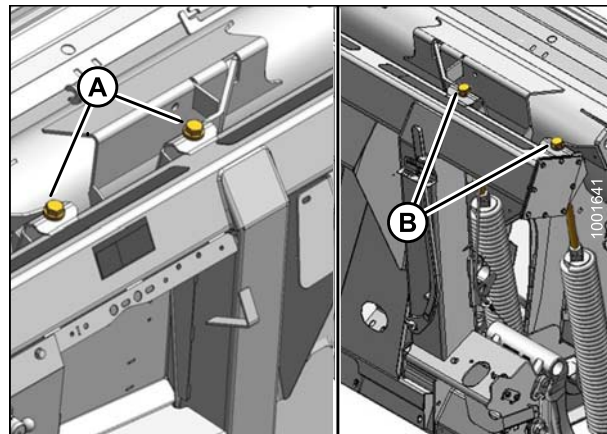


Figure 4.42: Left Side and Right Side Float

A - Left Side Float Bolts

B - Right Side Float Bolts

10. Use the following guidelines when adjusting float:

- For **single-knife headers**: Adjust the float so the wrench reading is equal for both sides.
- For **40- and 45-foot double-knife headers**: Adjust the float so that torque settings are equal for both sides, and then loosen both right side spring bolts two turns.

## OPERATION

- Turn each bolt pair equal amounts. After adjustment has been made, repeat torque wrench reading procedure.
- To avoid frequent breakage of knife components, scooping soil, or soil build-up at cutterbar in wet conditions, header float should be set as light as possible without causing excessive bouncing.
- With a light float setting, it may be necessary to use a slower ground speed to avoid excessive bouncing, and leaving a ragged cut.
- The stabilizer wheels may be used in conjunction with float to minimize bouncing at the header ends and control cut height when cutting off the ground. Refer to step [4.7.1 Cutting Height, page 55](#) for details.

**NOTE:** If adequate header float cannot be achieved using all of the available adjustments, an optional heavy duty spring is available. See your MacDon Dealer or parts catalog for ordering information.

### *Adjusting Header Float on Ground*

This procedure shows how to adjust header float for proper flex action while on the ground.

When operating with the cutterbar on the ground and with the wings unlocked, one wing may tend to 'smile', while the other may tend to 'frown'.

If the wing balance is set per Section [Checking Wing Balance, page 375](#), check that the header float is set as per section [Checking and Adjusting Header Float, page 62](#).

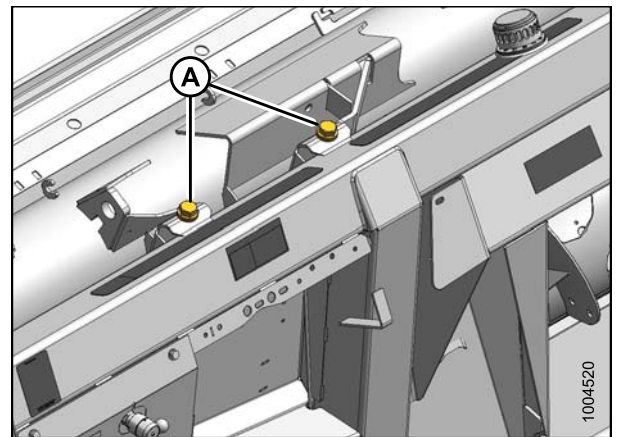
If that does not solve the problem, proceed as follows.

1. If left-hand wing tends to 'smile' and right-hand wing tends to 'frown', decrease left-hand float by turning left side float spring bolts (A) out 1 or 2 turns.

**NOTE:** Loosening the bolts decreases float and increases header weight. Tightening the bolts increases float, and lightens the header.

### **IMPORTANT:**

**Turn each bolt equal amounts.**



**Figure 4.43: Left side float**



## OPERATION

2. If right-hand wing tends to 'smile' and left-hand wing tends to 'frown', decrease right-hand float by turning right side float spring bolts (A) out 1 or 2 turns.
3. Check wing balance. See section [Checking Wing Balance, page 375](#).
4. Repeat above steps until wings tend to move up and down equally.

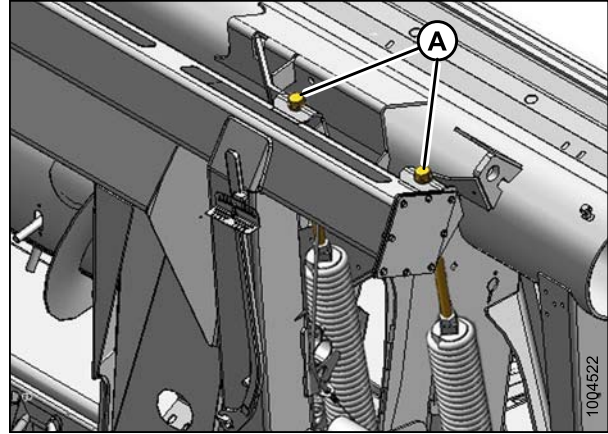


Figure 4.44: Right side float

### *Wing Float Linkage Adjustments*

The wing float has been adjusted at the factory, but the following adjustments may be necessary for optimum operation of the header:

- Wing balance, see section [Checking Wing Balance, page 375](#)

Refer to section [7.11.12 Checking and Adjusting Header Wing Float, page 375](#) for details on performing these adjustments.

### *Wing Float Locks*

The FD75 FlexDraper® is designed to operate with the cutterbar on the ground. The three sections move independently to follow the ground contours. In this mode, the wing float is **unlocked**.

The FD75 FlexDraper® can also be operated as a rigid header with the cutterbar straight. A typical application is in cereals when cutting above the ground. In this mode, the wing float is **locked**.

### **Unlocking Wing Float Lock**

Unlock wing float as follows:

1. To unlock (operate with the wing float), place spring handle (A) in the lower slot to unlock.
2. If the lock link (A) does not disengage, raise and lower the header, change the header angle, or drive the combine to cause wing movement which should cause it to disengage.

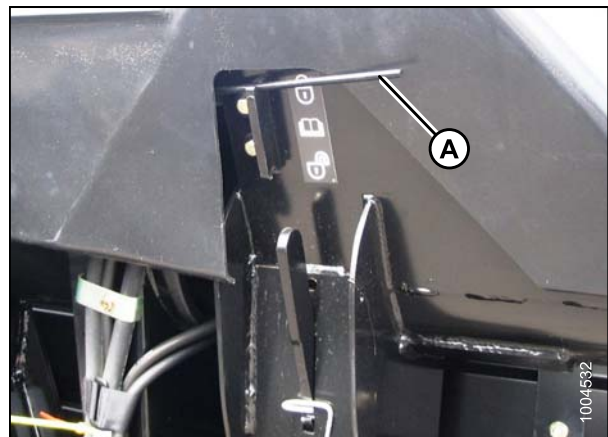


Figure 4.45: Wing float in locked position

## OPERATION

**NOTE:** The following steps below are only required if the above have not worked.

3. The wing can also be moved by using the supplied torque wrench (A). The wrench is stored on the adapter frame on the right-hand side.

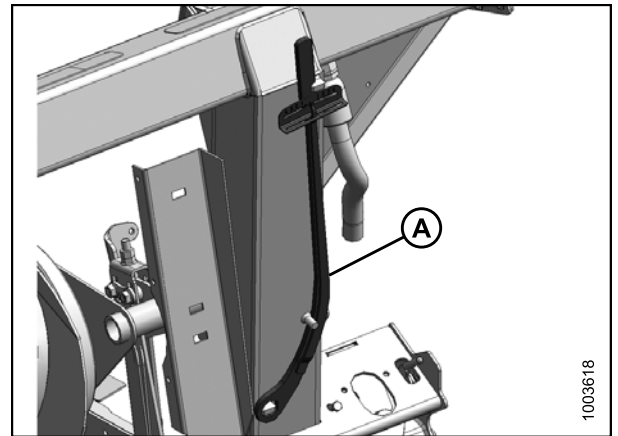


Figure 4.46

4. Remove the linkage cover. See section [Removing Linkage Covers, page 46](#).
5. Using torque wrench (A) Apply torque on bolt (B). To access bolt (B).

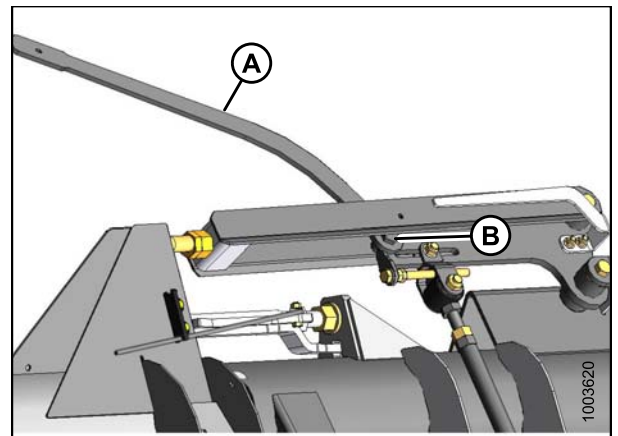


Figure 4.47

### Locking Wing Float Lock

Lock float as follows:

1. To lock (operate without wing float [rigid cutterbar]), place spring handle (A) in the upper slot to lock.
2. If the lock link (A) does not engage, raise and lower the header, change the header angle, or drive the combine to cause wing movement which should cause it to engage.

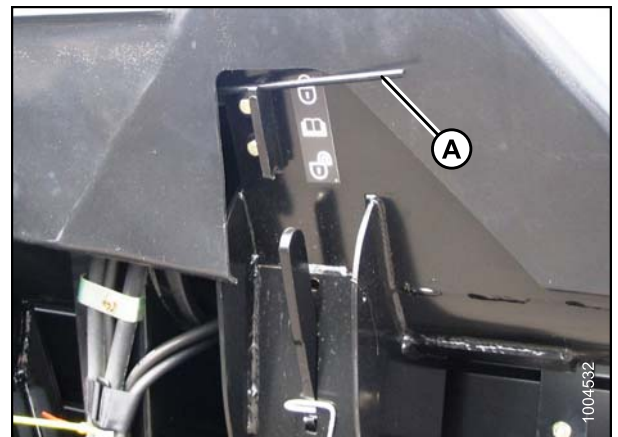


Figure 4.48: Wing float in locked position

## OPERATION

**NOTE:** The following steps below are only required if the above have not worked.

3. The wing can also be moved by using the supplied torque wrench (A). The wrench is stored on the adapter frame on the right-hand side..

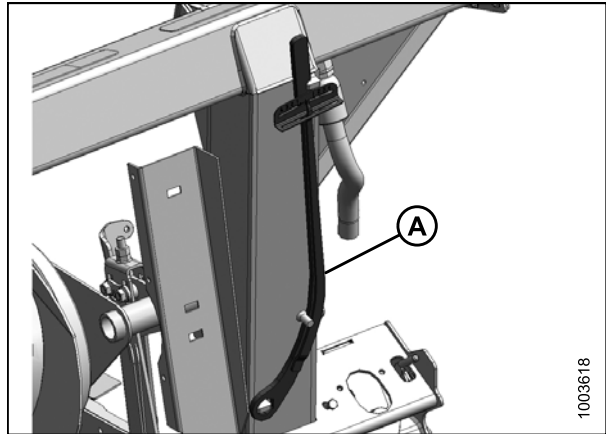


Figure 4.49

4. Remove the linkage cover. See section [Removing Linkage Covers](#), page 46.
5. Using torque wrench (A) Apply torque on bolt (B). To access bolt (B).

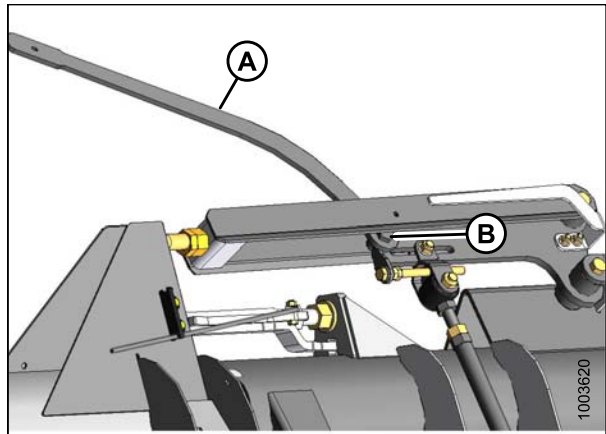


Figure 4.50

### 4.7.3 Header Angle

Header angle (B) is the angle between the drapers and the ground, and is adjustable to accommodate crop conditions and/or soil type.

Guard angle (A) is similar to header angle and is the angle between the guard upper surface and the ground.

Refer to illustrations at right that show angles for shortest and longest center-link.

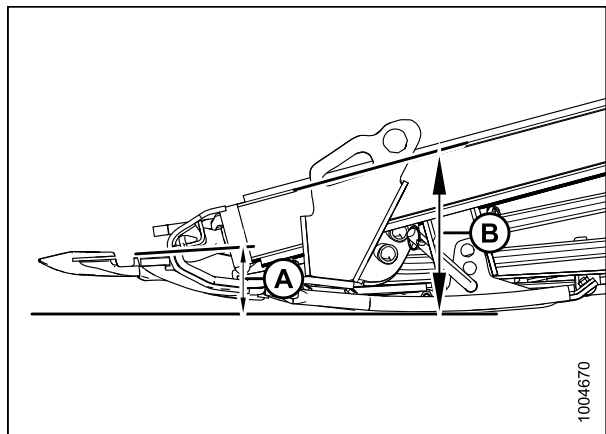


Figure 4.51: Shortest center-link



## OPERATION

Flatter header angles are recommended for normal crop conditions and for stony ground because they minimize knife section breakage and reduce soil scooping or build-up at the cutterbar in wet conditions.

Steeper angles are recommended in downed crops for better lifting action, or for cutting close to the ground in soybeans for example.

Refer to section [4.6.1 Header Settings](#), page 52 for recommended header angle in specific crops and crop conditions.

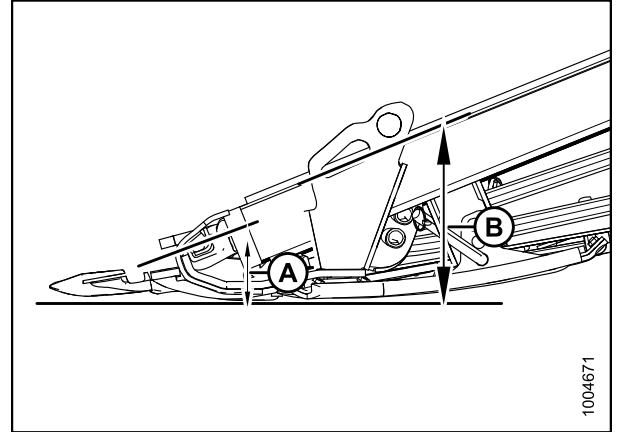


Figure 4.52: Longest center-link

Choose an angle that maximizes performance for your crop and field conditions. The table below summarizes the adjustment range:

Table 4.2 Fd75 Header Angle

Header size	Guard angle
30–45 ft.	2.0°–7.4°

### Angle Adjustment

The header angle is varied by adjusting the length of the center-link between the combine adapter and the header.

Setting “A” on the indicator is the shallowest angle, and results in higher stubble.

Setting “D” on the indicator is the steepest angle, and results in lower stubble.

Refer to your combine operator’s manual for more information on adjusting the header angle.

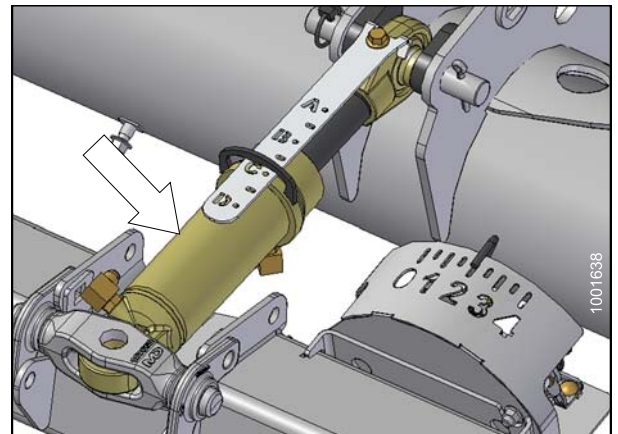


Figure 4.53: Adjust center-link length

## 4.7.4 Reel Speed

The reel speed is adjustable with the controls in the combine cab.

Reel speed affects feeding of crop into the knife and onto the drapers, as well as the smoothness and evenness of the delivered crop. Operating the reel too fast or too slow relative to ground speed will cause bunching. At the proper speed, the reel discs should appear to be being driven by the ground.

- If they look like they are skidding relative to ground, the reel is turning too slow.

## OPERATION

- If they look like they are spinning excessively relative to the ground, reel speed may be too fast.

In standing crop, reel speed should be just faster than or equal to ground speed, sweeping crop across the knife.

Flattened crop or a crop that is leaning away from the cutterbar requires a higher reel speed in relation to ground speed. This can be achieved by increasing reel speed, decreasing ground speed, or both.

Excessive shattering of grain heads or crop loss over the header backtube may be indications that reel speed is too fast. Excessive reel speed causes undue wear of reel components and unnecessary load on reel drive, resulting in uneven reel motion.

Generally, a 9-bat reels can effectively operate at lower reel speed, while minimizing crop loss in shatter prone crops.

**NOTE:** If you have a FD75 30 or 35-ft. header you can purchase conversion kit to upgrade a 6-bat reel to the 9-bat reel. See section [9.1.11 PR15 Tine Tube Reel Conversion Kit, page 407](#) for more information.

Refer to section [4.6.1 Header Settings, page 52](#) for recommended reel speeds in specific crops and crop conditions.

The reel speed is adjustable with the controls in the combine cab. Refer to your combine operator's manual for adjustment details.

### *Optional Reel Drive Sprockets*

Machine hydraulics	Combine	Application	Drive sprocket
All	All	Standard	19-Tooth
2000–2100 psi (13.79–14.48 MPa)	AGCO Transverse Rotary	Combining Down Rice	10-Tooth <sup>4</sup>
2500 psi (17.24 MPa)	CAT 500, 700 Series, AGCO Axial Rotary		12-Tooth <sup>4</sup>
3000 psi (20.68 MPa)	NH CR, CX, Case IH 7010, 8010, 7120, 8120, 88 Series		14-Tooth <sup>4</sup>
Low Flow (under 11 gpm)	—	Combining Light Crops Above 10 mph (16 km/hr)	21-Tooth <sup>4</sup>

For installation details, Refer to Section [7.11.5 Reel Drive Sprocket, page 343](#).

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4. Optional sprockets are available as an alternative to the factory-installed sprocket. See your MacDon Dealer Parts Department to order sprockets.

## OPERATION

### 4.7.5 Ground Speed

Ground speed should be such that the knife can cut crop smoothly and cleanly, while giving the desired delivery of material to the opening. Excessive ground speed results in ragged cutting.

In tough-to-cut crops, reduce ground speed to reduce loads on cutting components and drives.

When cutting very light crops (for example, short soybeans), ground speed may have to be reduced to allow reel to pull in small and short plants. Start at 3.0–3.5 mph (4.8–5.8 km/h) and adjust as required.

Higher ground speeds require heavier float settings to prevent excessive bouncing that would result in increased cutting component damage. In most cases, as ground speed is increased, draper and reel speed should be increased to handle the extra material.

The chart indicates the relationship between ground speed and area cut for the various header sizes.

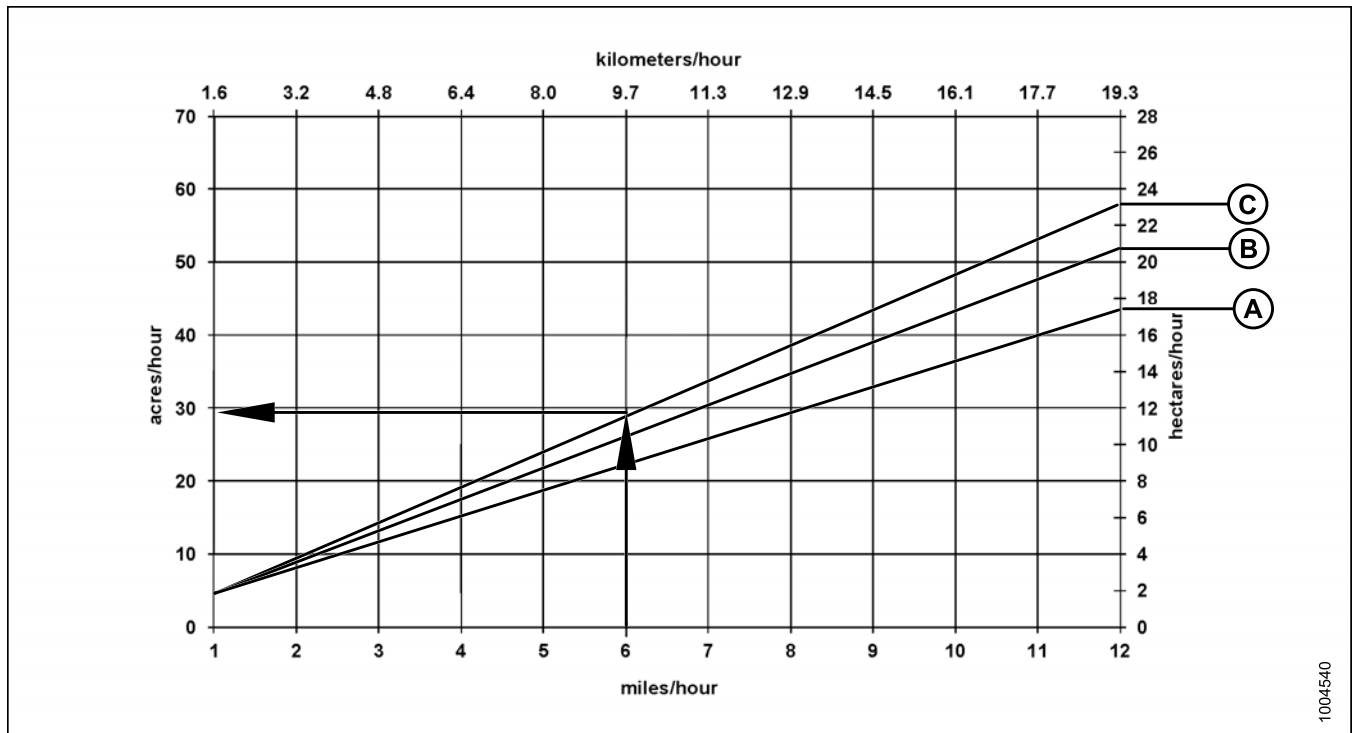


Figure 4.54: FD75 ground speed

A - 30 ft.

B - 35 ft.

C - 40 ft.

Example shown above: At a ground speed of 6 miles per hour (9.7 km/h) with a 40 ft. header, the area cut in one hour would be approximately 28 acres (11.3 hectares).

## OPERATION

### 4.7.6 Draper Speed

The speed of the header/side drapers (A) is adjusted at the flow control on the combine side of the CA25 adapter.

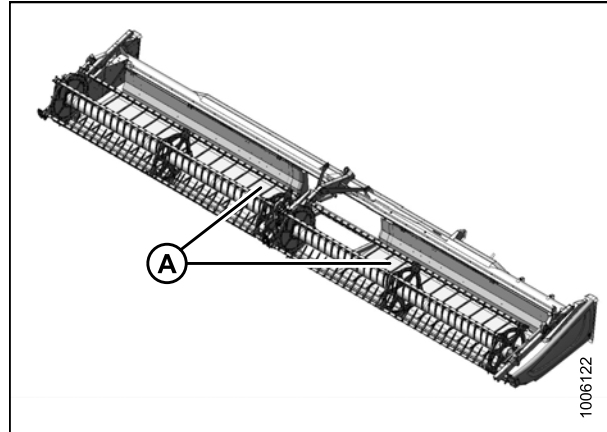


Figure 4.55

The flow control (B) has values 0–9 on the barrel, with a notch on the hydraulic compartment cover to set the desired draper speed. The draper speed control is factory-set to '6'. This setting should satisfy normal crop feeding.

If a different draper speed is desired, shut down the combine, and adjust the control accordingly. Refer to [4.6.1 Header Settings, page 52](#), or [4.6.2 Header Optimizing for Straight Combining Canola, page 52](#)

**NOTE:** If sufficient draper speed cannot be achieved, a possible cause is low relief pressure. Refer to the technical manual for checking and adjusting relief pressure.

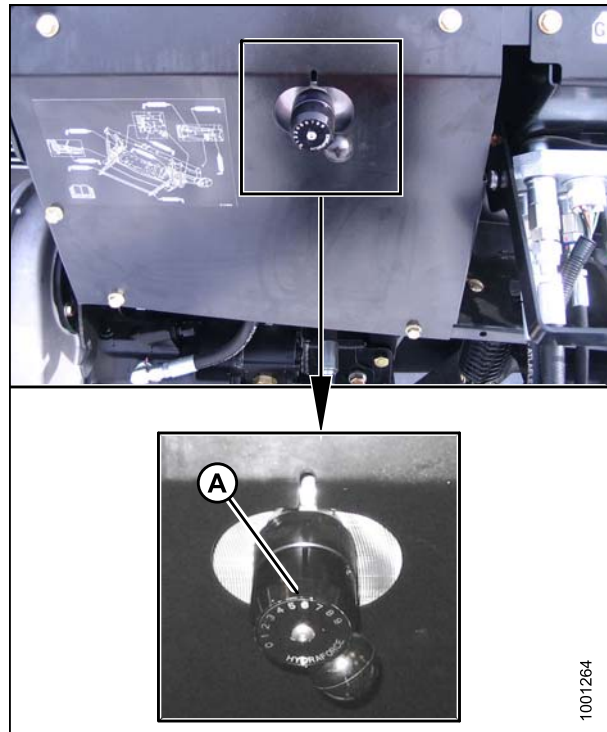


Figure 4.56: Flow control

## OPERATION

The adapter feed draper (A) is driven by the adapter mounted hydraulic pump. The speed is factory-set, and cannot be adjusted.

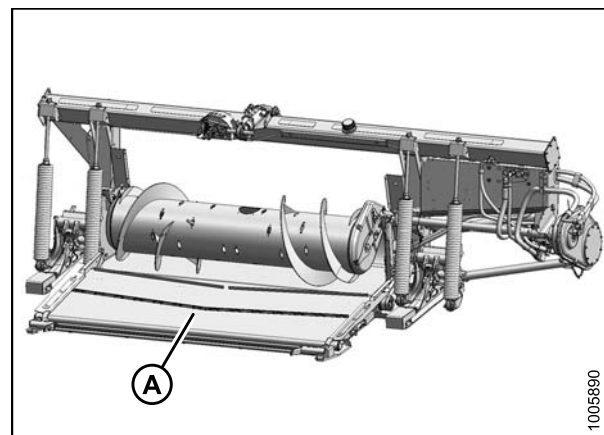


Figure 4.57: CA25 Combine Adapter

### 4.7.7 Knife Speed

The header knife drive is driven by the adapter-mounted hydraulic pump. The knife drive speed is factory-set for a feeder house speed.

#### IMPORTANT:

For variable speed feeder houses, this will be the **MINIMUM** speed setting. To operate variable speed feeder house at greater than minimum speed, flow to the knife drive motor must be reduced to prevent excessive speeds which could result in premature knife failure.

Combine	Feeder house speed (rpm)
John Deere	490
CIH	575
Gleaner	624
Massey	624
Challenger	624
New Holland	575
Lexion <sup>5</sup>	420

#### IMPORTANT:

Check that the knife speed is in the range shown in the chart. If adjustment is required, Refer to [Adjusting Knife Speed, page 74](#).

Table 4.3 FD75 Header

Header size	Recommended knife drive speed range	
	SKD	DKD
30 ft	600 – 700	—
35 ft	550 – 650	—
40 ft	525 – 600	550 – 700
45 ft	—	550 – 700

5. 420 is the rear shaft speed on Lexion combines (speed shown on cab monitor will also be 420). The output shaft speed is actually 750 rpm.

## OPERATION

### Adjusting Knife Speed

To adjust the knife speed, follow these steps:

#### **WARNING**

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

1. Stop combine engine, and remove key from ignition.
2. Open the left hand endshield (A).

#### **WARNING**

**Ensure bystanders are clear before starting engine.**

3. Start combine engine, engage the header drive, and run the combine at operating rpm.
4. Check pulley speed (knife speed) either by the drive or the driven pulley according to tachometers manufactures instruction.
5. Shut down the combine.
6. Compare actual pulley rpm with the values in the knife speed chart. Refer to [Section 4.7.7 Knife Speed, page 73](#)
7. If adjustment to the knife drive box pulley rpm is necessary, contact your MacDon Dealer.



Figure 4.58: Open LH endshield



Figure 4.59: Check rpm

### 4.7.8 Reel Height

Depending on crop height, adjust reel height to carry material past the knife onto the drapers. Operate combine hydraulics as required. Refer to [Section 4.7.9 Reel Fore-Aft Position, page 75](#).

Table 4.4 Reel Height Chart

Crop condition	Reel position
Combining down rice	Down (also change reel speed and/or cam setting)
Bushy or heavy standing	Up

Indications that reel may be too low are as follows:

- Crop loss over the header backtube
- Disturbance of crop on the drapers by the reel fingers
- Crop being pushed down by the tine tubes

Refer to [section 4.6.1 Header Settings, page 52](#) for recommended reel height in specific crops and crop conditions.

## OPERATION

### IMPORTANT:

**Maintain adequate clearance to prevent fingers contacting the knife or the ground. Refer to Section 7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar, page 331.**

### 4.7.9 Reel Fore-Aft Position

Reel position is a critical factor in achieving good results in adverse conditions. The reel position is factory-set for average straight standing crop and can be adjusted forward and backward for different crop conditions.

A decal is provided on the reel right support arm for identifying a preferred position. The back edge of the reel cam disc is the gauge indicator.

For straight standing crop, center the reel over the cutterbar (4–5 on decal).

For crops that are down, tangled, or leaning, it may be necessary to move the reel ahead of the cutterbar (to a lower number on the decal).

### IMPORTANT:

**When difficulty is encountered picking up flattened crop, adjust header angle to a steeper position. This tilts the entire reel/knife/drapeer combination and is often all that is required. See 4.7.9 Reel Fore-Aft Position, page 75 for adjustment details. Adjust reel position only if header angle adjustments are not satisfactory.**

Refer to section 4.6.1 Header Settings, page 52 for recommended reel positions in specific crops and crop conditions.

**NOTE:** In crops that are difficult to pick up such as rice, or severely lodged crops that require full forward positioning of the reel, the reel tine pitch can be set to provide proper placement of the crop onto the drapers. See section 4.7.10 Reel Tine Pitch, page 79 for adjustment details.

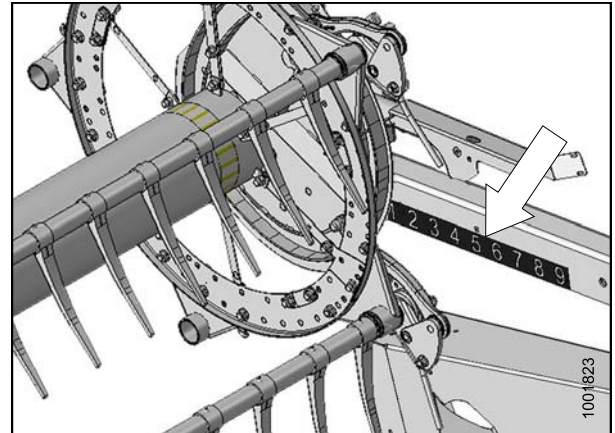


Figure 4.60: Decal

### Adjusting Reel Fore-Aft Position

To adjust the reel fore-aft position, follow these steps:

1. Select FORE-AFT mode on the selector switch in the cab.
2. Operate the hydraulics to move the reel to the desired position, again using the gauge as a reference.
3. Check reel clearance to cutterbar after making changes to cam setting. Refer to
  - Section 7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar, page 331
  - Section 7.11.2 Reel Frown, page 333 for measurements and adjustment procedures.



## OPERATION

### IMPORTANT:

Operating with the reel too far forward can cause the fingers to contact the ground before the cutterbar. Lower the skid shoes or adjust header tilt as required when operating with the reel in this position, otherwise, damage to the fingers will occur.

### *Repositioning Fore-Aft Cylinder on Double Reel*

The reel can be moved approximately 9 in (227 mm) further aft by repositioning the cylinders on the reel arms. This may be desirable when straight-combining canola. To reposition the cylinders on a double reel, follow these steps.

### **WARNING**

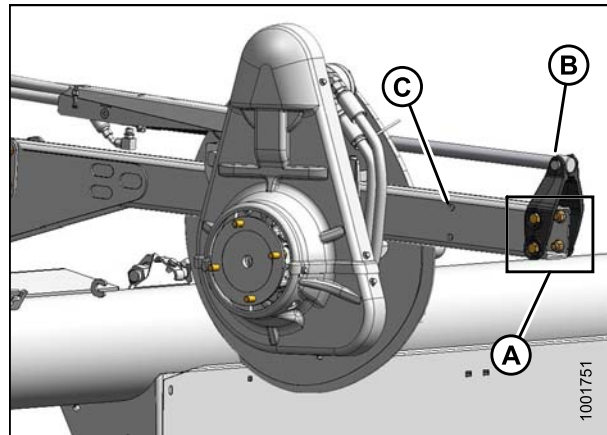
**Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.**

1. Position reel fully aft with support arms horizontal.
2. Stop engine and remove key.

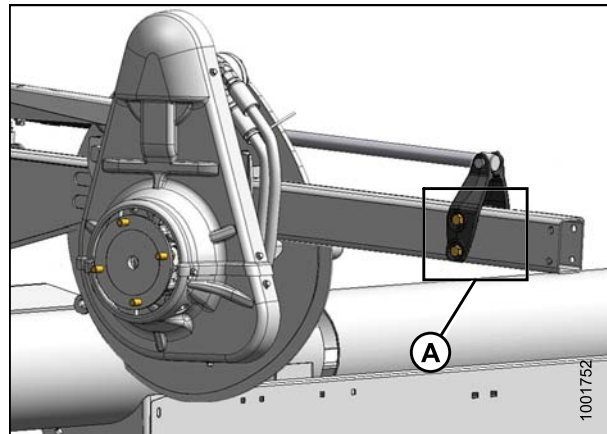
Reposition center arm cylinder as follows:

**NOTE:** Reel components are not shown for clarity.

3. Remove four bolts (A) securing cylinder bracket (B) to reel arm.
4. Push reel back until bracket (B) lines up with the aft set of holes (C).
5. Reinstall the four bolts (A) to secure bracket to reel arm at new position.



**Figure 4.61: Center arm cylinder- Forward position**



**Figure 4.62: Center arm cylinder - Rearward position**

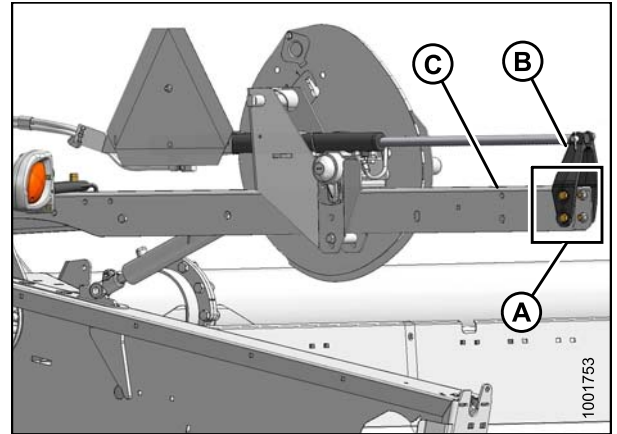


## OPERATION

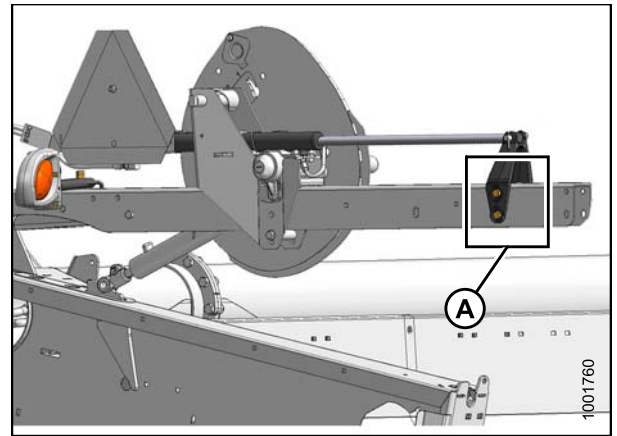
Reposition right arm cylinder as follows:

**NOTE:** Reel components are not shown for clarity.

6. Remove four bolts (A) securing cylinder bracket (B) to reel arm.
7. Push reel back until bracket (B) lines up with the aft set of holes (C).
8. Reinstall the four bolts (A) to secure bracket to reel arm at new position.



**Figure 4.63: Right arm cylinder - Forward position**



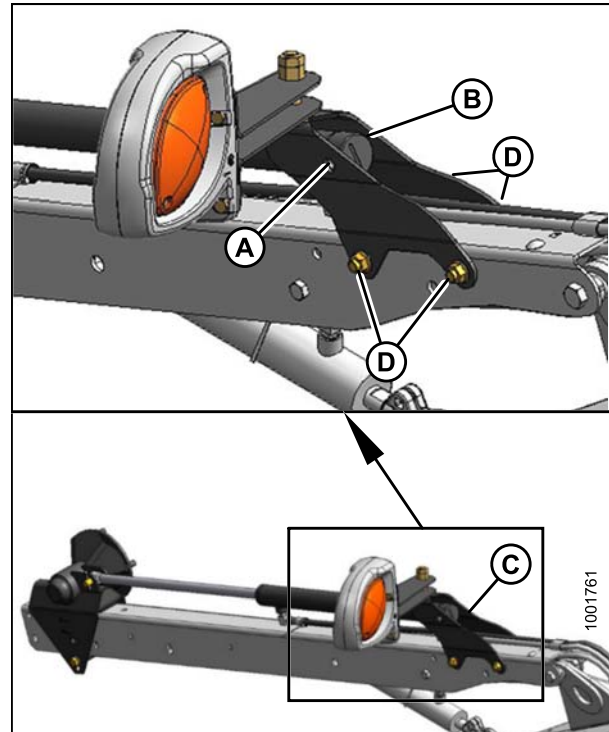
**Figure 4.64: Center arm cylinder - Rearward position**

## OPERATION

Reposition left arm cylinder as follows:

**NOTE:** Reel components are not shown for clarity.

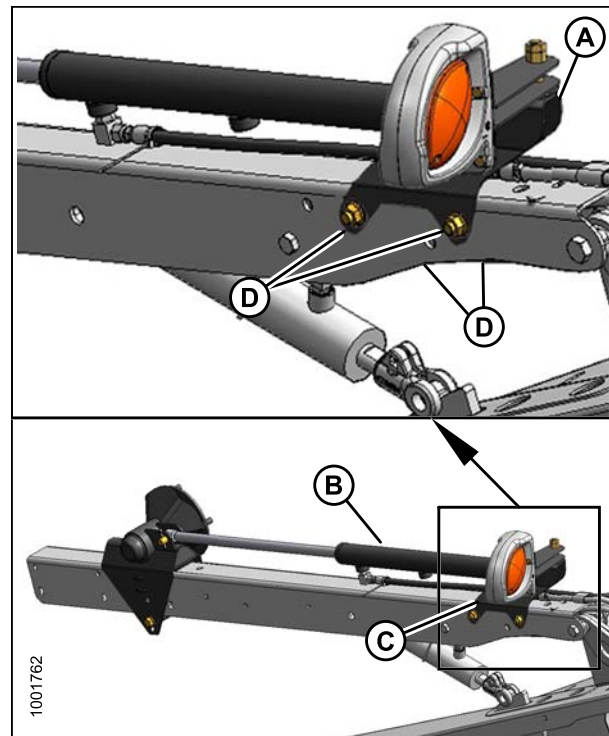
9. Remove pin (A) securing cylinder (B) to bracket/light assembly (C).
10. Remove bolts (D) securing bracket (C) to reel arm and remove bracket/light assembly.
11. If necessary, remove cable tie securing harness to bracket or reel arm.
12. Swivel light to working position as shown.



**Figure 4.65: Forward position**

A - Pin  
B - Cylinder  
C - Bracket/Light assembly  
D - Bolts

13. Reposition bracket/light assembly (C) on reel arm as shown and reinstall the four bolts (D) to secure bracket to reel arm. Tighten bolts.
14. Push reel back and reinstall cylinder (B) to bracket with pin (A). Secure pin with cotter pin.
15. Secure light harness to bracket with plastic tie wrap.
16. Check reel clearance to backsheet, upper cross auger (if installed) and reel braces.
17. Adjust reel tine pitch (if required). For adjustment procedures, Refer to
  - Section [4.7.10 Reel Tine Pitch](#), page 79 or
  - Section [7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar](#), page 331



**Figure 4.66: Rearward position**

A - Pin  
B - Bracket  
C - Bracket/Light assembly  
D - Bolts

## OPERATION

### 4.7.10 Reel Tine Pitch

#### IMPORTANT:

The following describes the concept and operational guidelines of the pickup reel. Please read carefully before operating the machine.

The pickup reel is designed to pick up flattened and severely lodged crops.

It is not always necessary to increase the tine pitch (higher cam setting) to pick up crops that are lodged, but rather, the cam settings are mainly used to determine how the crop will get delivered to the drapers.

The position of the fingers relative to the ground (tine pitch) is not significantly affected by the cam setting. For example, the cam position range is 33°, but the corresponding finger pitch range is only 5° at the lowest point of reel rotation.

For best performance, use the minimum cam setting that will deliver the crop past the rear edge of the cutterbar and onto the drapers.

#### *Pickup Reel Settings*

The following outlines the function of each cam setting and includes guidelines for set-up in various crop conditions.

The setting numbers are visible above the slots on the cam disc. Refer to [Adjusting Reel Cam, page 81](#).

**Cam Position 1, Reel Position 6 or 7** delivers the most even crop flow onto the drapers without fluffing up or disturbing the material.

- The crop is released quite close to the cutterbar and works best with the cutterbar on the ground.
- Some crops will not be delivered past the cutterbar when the cutterbar is raised off the ground and the reel is pushed forward. Initially, have the reel speed set about equal to the ground speed.

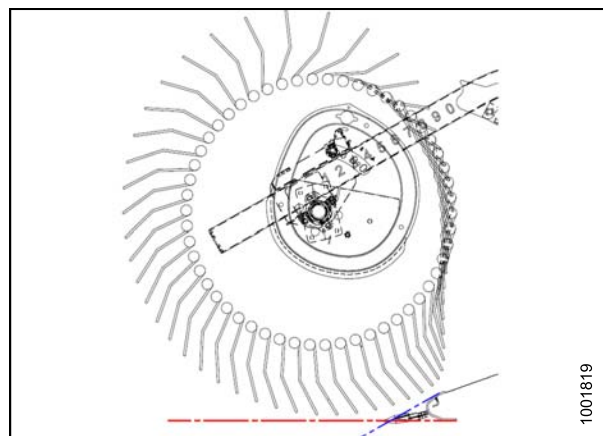


Figure 4.67

## OPERATION

**Cam Position 2, Reel Position 3 or 4** is the recommended starting position for most crops and conditions.

- This setting gives a fingertip speed approximately 20% faster than the reel speed.
- If crops tend to stall on the cutterbar with the reel in a forward position, the cam setting should be increased to push the crop past the rear edge of the cutterbar.
- If the crop getting fluffed, or the flow across the drapers is disrupted, the cam setting should be decreased.

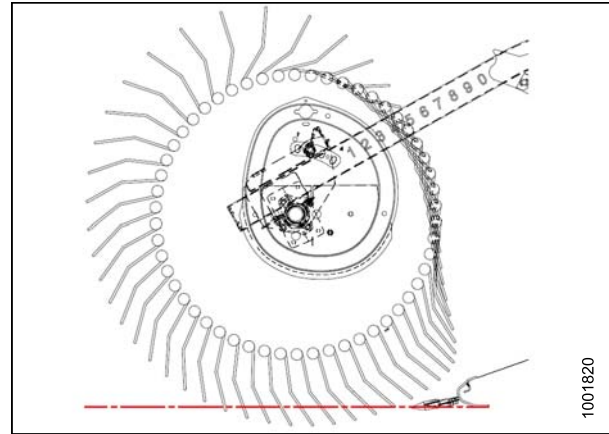


Figure 4.68

**Cam Positions 3, Reel Position 6 or 7** are mainly used to leave long stubble.

- This position allows the reel to reach forward and lift the crop across the knife and onto the drapers.
- This setting gives a finger tip speed approximately 30% faster than the reel speed.

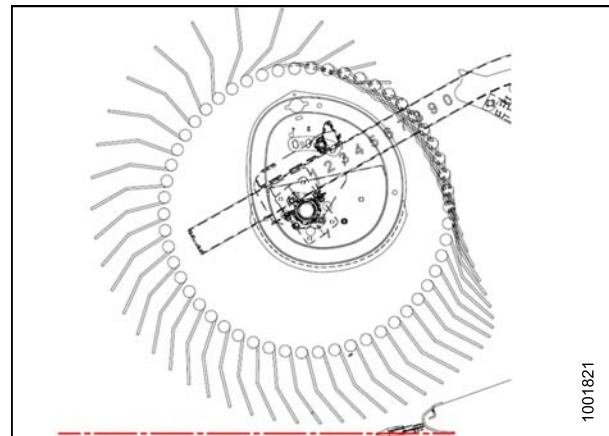


Figure 4.69

**Cam Position 4, Reel Position 2 or 3** is used with the reel fully forward to leave the maximum amount of stubble in lodged crops.

- This position allows the reel to reach forward and lift the crop across the knife and onto the drapers.
- This setting gives a finger tip speed approximately 35% faster than the reel speed.

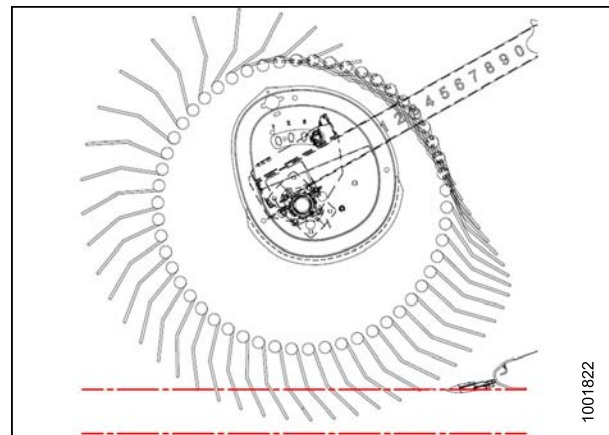


Figure 4.70

## OPERATION

**Cam Position 4, Header Angle At Maximum, and Reel Fully Forward** provides the maximum amount of reel reach below the cutterbar to pick up lodged crops and gives a finger tip speed approximately 35% faster than the reel speed.

- Cutting height is set to approximately 8 in. (203 mm) to leave a significant amount of stubble. In damp materials such as rice, it is possible to double ground speed because the amount of material that is being cut is less.

**NOTE:** High cam settings with the reel fore-aft position at 4–5 severely decreases the draper capacity because the reel disrupts crop flow across the drapers. The fingers are still engaged in the crop that is moving on the drapers. High cam settings are recommended only with the reel at or close to full forward settings.

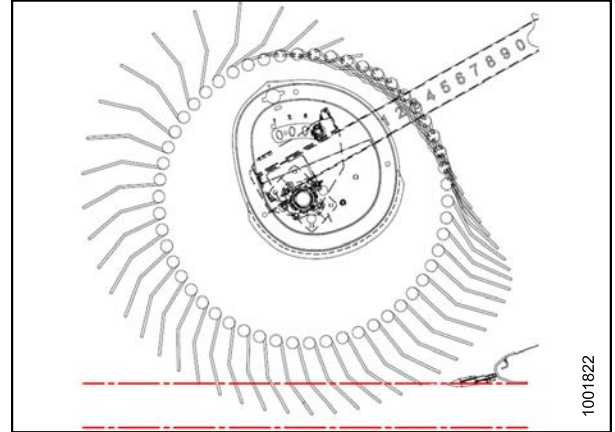


Figure 4.71

### IMPORTANT:

The reel to cutterbar clearance should always be checked following adjustments to reel tine pitch and reel fore-aft position.

Refer to Section [7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar](#), page 331.

Refer to Section [4.6.1 Header Settings](#), page 52 for recommended reel tine pitch in specific crops and crop conditions.

### Adjusting Reel Cam

#### **WARNING**

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

1. Using a 3/4 in. wrench, turn the cam latch pin (A) counterclockwise to release the cam disc.

2. Use the wrench on bolt (B) to rotate cam disc and align latch pin (A) with desired hole (1 to 4) at (C) in cam disc.

**NOTE:** Bolt (B) is through cam disc. Some parts shown transparent for visibility.

3. Turn latch pin (A) clockwise to engage and lock cam disc.
4. Repeat above procedure for the other reel.

### IMPORTANT:

**Secure cam position before operating machine.**

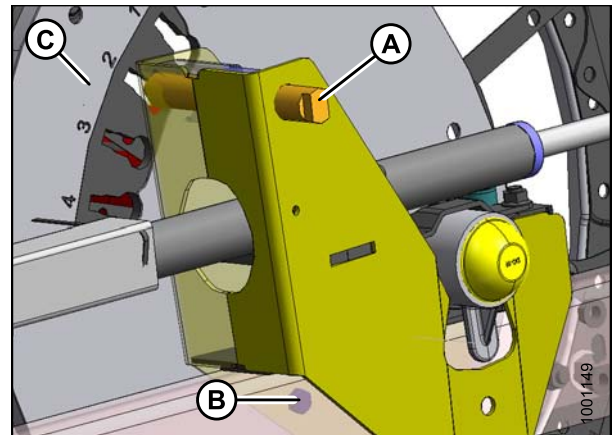


Figure 4.72

A - Cam latch pin

B - Bolt

C - Cam disc

## OPERATION

### 4.7.11 Crop Dividers

Crop dividers are used to help divide the crop when harvesting. They are removable to allow installation of vertical knives and to decrease transport width.

#### *Removing Crop Dividers from Header with Latch Option*

To remove crop dividers from a header with the latch option, follow these steps.

#### **⚠ DANGER**

**To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.**

1. Raise header, stop engine, remove key, and engage header safety props. For instructions, refer to your combine operator's manual.
2. Open/remove header endshields. See Section [4.2.3 Endshields, page 42](#).
3. Lift safety lever (A).
4. Hold onto divider (B), push lever (C) to open latch and lower divider.

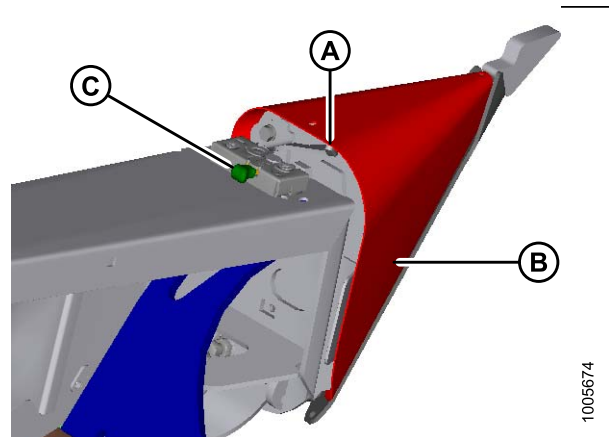


Figure 4.73

5. Lift divider off endsheet and store as follows:
  - a. Locate pin (A) on divider in hole in endsheet at location shown.
  - b. Lift divider and locate lugs (B) on divider into bracket on endsheet. Ensure lugs engage bracket.
6. Close/replace header endshields. See Section [4.2.3 Endshields, page 42](#).

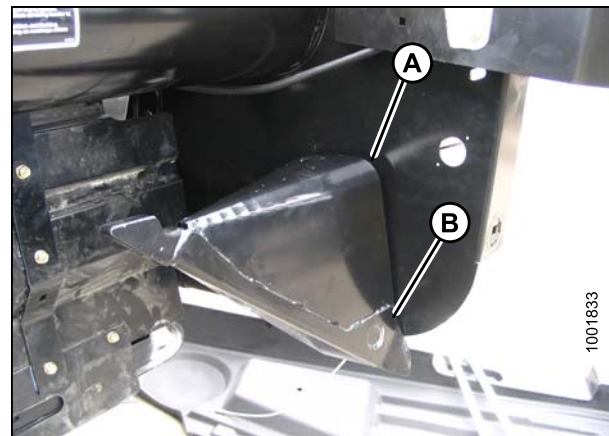


Figure 4.74



## OPERATION

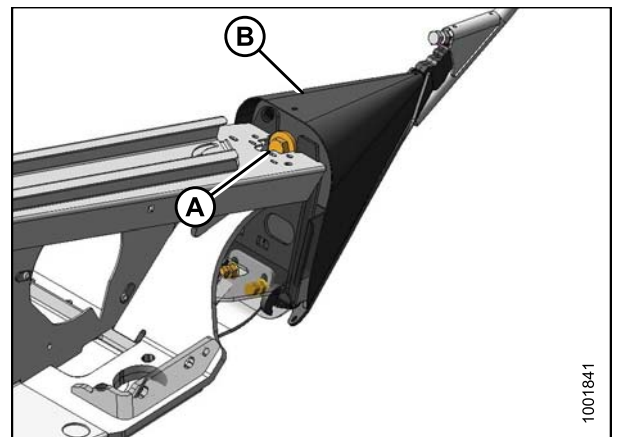
### *Removing Crop Dividers from Header without Latch Option*

To remove crop dividers from a header without the latch option, follow these steps.

#### **DANGER**

**To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.**

1. Raise header, stop engine, remove key, and engage safety props. For instructions, see your combine operator's manual.
2. Open/remove header endshield. See Section [4.2.3 Endshields, page 42](#).
3. Remove bolt (A), lock washer and flat washer.
4. Lower divider (B) and lift off endsheet.
5. Close/replace header endshield. See Section [4.2.3 Endshields, page 42](#).



**Figure 4.75**

### *Installing Crop Dividers on Header with Latch Option*

To install crop dividers on a header with the latch option, follow these steps.

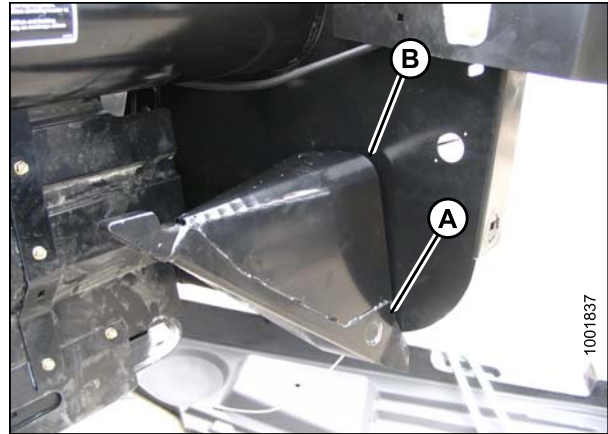
#### **DANGER**

**To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.**

1. Raise header, stop engine, remove key, and engage safety props. For instructions, see the combine operator's manual.
2. Open header endshield.

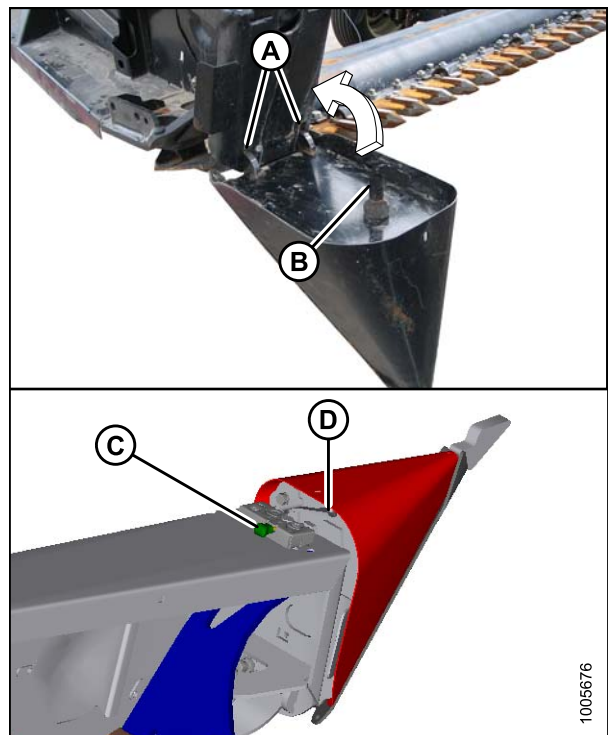
## OPERATION

3. At divider storage location, lift divider to disengage lugs (A) at lower end and then lower it slightly to disengage pin (B) from endsheet.



**Figure 4.76**

4. Position crop divider as shown by locating lugs (A) in holes in endsheet.
5. Lift forward end of divider until pin (B) at top of divider engages and closes latch (C).
6. Push safety lever (D) down to lock pin in latch.



**Figure 4.77**

A - Lugs  
C - Latch

B - Pin  
D - Safety lever



## OPERATION

7. Check that divider does **NOT** move laterally. Adjust bolts (A) as required to tighten divider and remove lateral play when pulling at divider tip.
8. Close endshield.

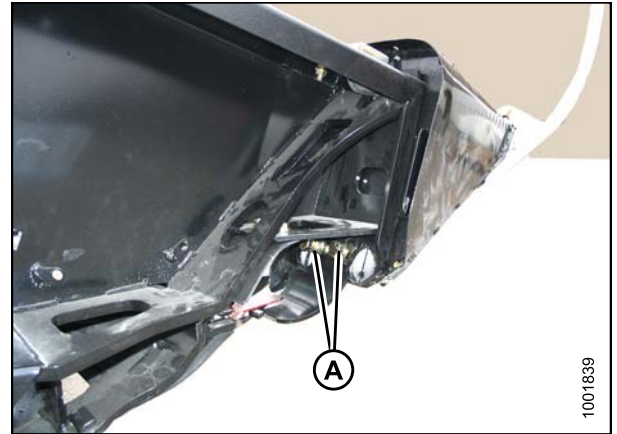


Figure 4.78

### *Installing Crop Dividers on Header without Latch Option*

To install crop dividers on a header without the latch option, follow these steps.

#### **DANGER**

**To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.**

1. Raise header, stop engine, remove key, and engage safety props. For instructions, see the combine operator's manual.
2. Open endshield. See Section [4.2.3 Endshields](#), page [42](#).
3. Remove crop divider from storage.
4. Position crop divider as shown by locating lugs (A) in holes in endsheet.

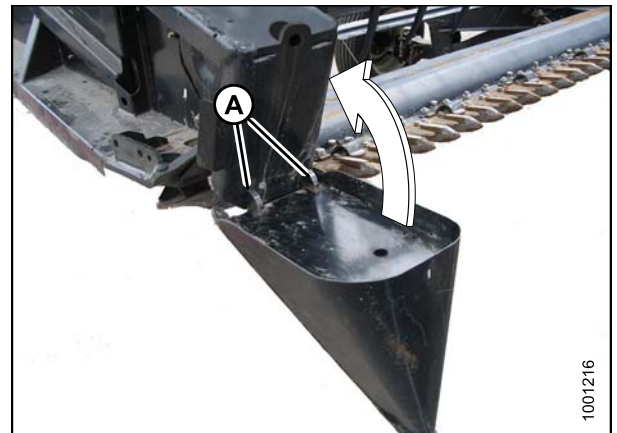


Figure 4.79

## OPERATION

5. Lift forward end of divider and install bolt (A) and special stepped washer (B) (step towards divider). Tighten bolt.
6. Check that divider does **NOT** move laterally. Adjust bolts (C) as required to tighten divider and remove lateral play when pulling at divider tip.
7. Close endshield. See Section [4.2.3 Endshields, page 42](#).

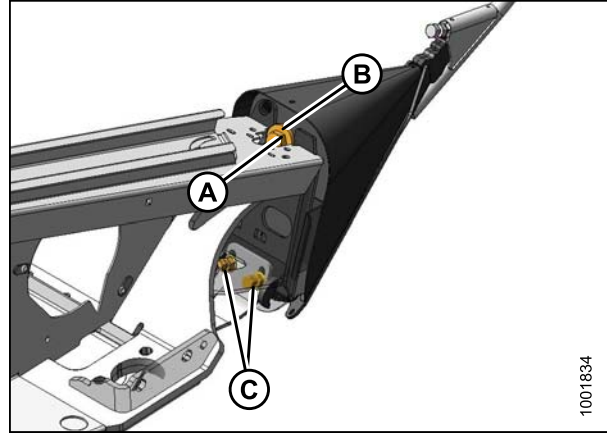


Figure 4.80

### 4.7.12 Crop Divider Rods

Crop divider rods are used with the crop dividers. The removable divider rods are suitable when crop is down, but can be removed when in standing crops as the crop dividers alone function better.

Table 4.5 Recommend Use of The Crop Divider Rods

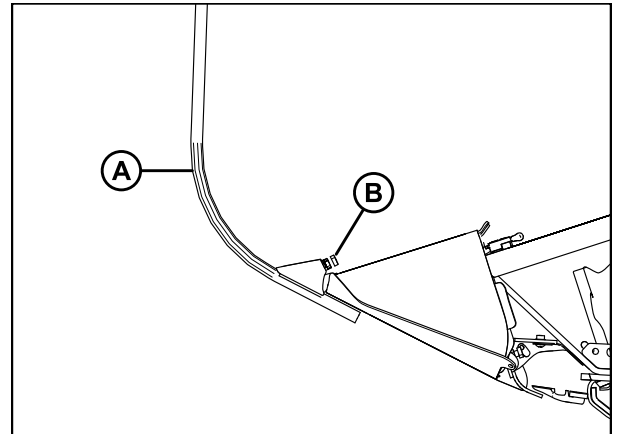
With divider rods	Without divider rods
Alfalfa	Edible Beans
Canola	Milo
Flax	Rice
Grass Seed	Soybeans
Lentils	Standing Cereal
Lodged Cereal	
Peas	
Soybeans	
Sudan Grass	
Winter Forage	

## OPERATION

### *Removing Crop Divider Rods*

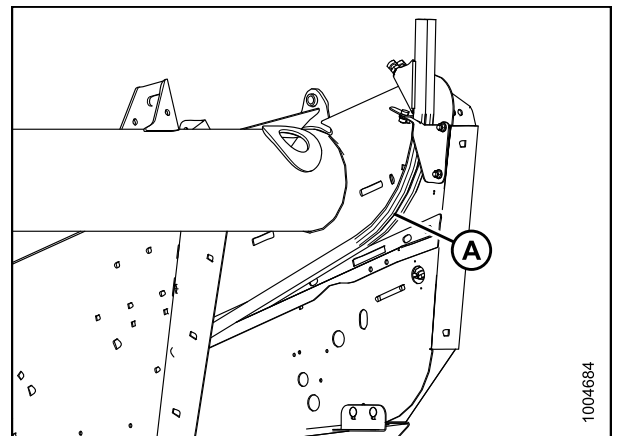
To remove divider rods, follow these steps:

1. Loosen bolt (B) and remove rod (A).



**Figure 4.81**

2. Store both rods on the inboard side of the right endsheet.

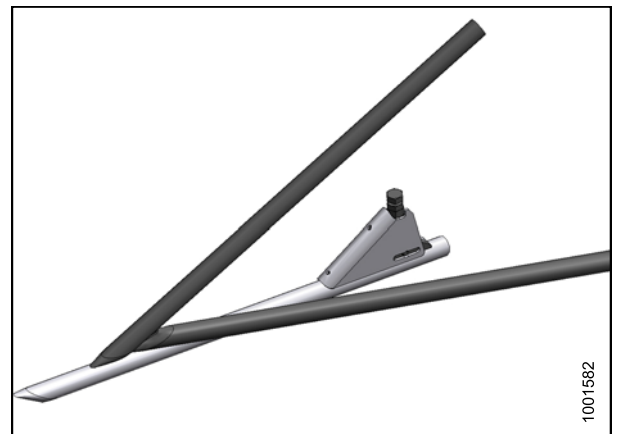


**Figure 4.82**

### *Rice Dividers*

Optional special rice dividers can be installed and used when required. See [Section 9.1.12 Rice Divider Rods, page 408](#).

The installation and removal procedures are the same as for the standard crop dividers.



**Figure 4.83**

## OPERATION

### 4.8 Levelling the Header

The adapter is factory-set to provide the proper level for the header, and should not normally require adjustment.

If the header is **NOT** level, perform the following checks prior to adjusting the levelling linkages:

- Check combine tire pressures.
- Check that the combine feeder house is level. Refer to your combine operator's manual for instructions.
- Check that top of adaptor is level and parallel with the feeder house.

#### IMPORTANT:

**The adapter float springs are not used to level the header.**

To make fine adjustments to header levelling, follow these steps:

1. Park combine on level ground.
2. Set wing float lock (A) to disengaged (so header can float). See Section [Header Float Locks](#), page 61.
3. Check and set float adjustment. Refer to [Checking and Adjusting Header Float](#), page 62.
4. Set header approximately 6 in. (150 mm) off ground, and check that float linkage is against down stops. Note high and low end of header.

5. Adjust level with nut (A) at each float lock as follows. Use small adjustments (1/4–1/2 turn), and adjust each side equally but in opposite directions:

**NOTE:** Setscrew (B) does not require loosening for adjustments up to one-half turn of nut (A).

- a. Turn low-side nut **clockwise** to raise header.
- b. Turn high-side nut **counterclockwise** to lower header.

**NOTE:** Adjustment of more than two turns in either direction may adversely affect header float.

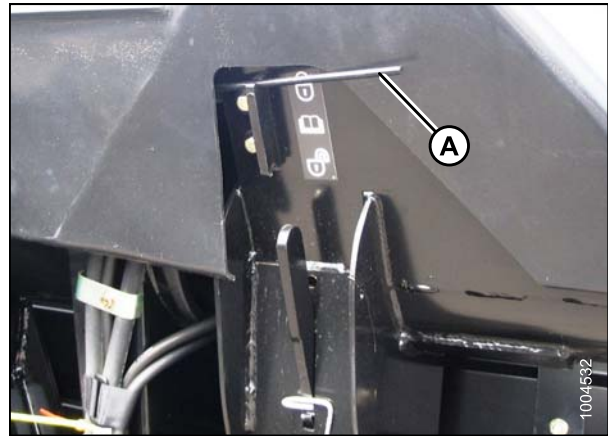


Figure 4.84

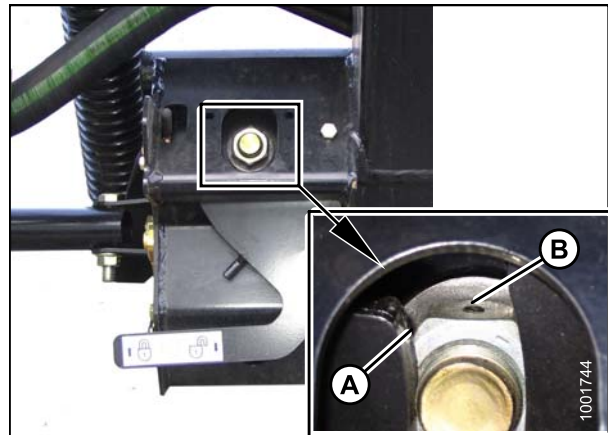


Figure 4.85

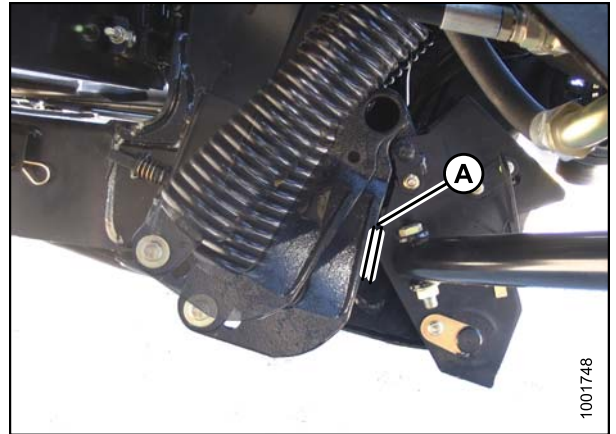
A - Nut

B - Setscrew

## OPERATION

**NOTE:** Always be sure there is a minimum 0.12 in. (2-3 mm) clearance between frame and back of bell crank lever.

**NOTE:** Float should be checked after levelling header. Refer to [Checking and Adjusting Header Float](#), page 62.



**Figure 4.86**

A - 0.12 in. (2-3 mm) clearance

### 4.9 Unplugging Cutterbar

To remove plugged material from the cutterbar, follow these steps.

1. Stop forward movement of machine and disengage header drives.
2. Raise header to prevent it from filling with dirt, and engage header drive clutch.



#### CAUTION

**Lowering rotating reel on a plugged cutterbar will damage the reel components.**

3. If plug does **NOT** clear, disengage header drive clutch and raise header fully.



#### WARNING

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

4. Shut off engine, remove key, and engage park brake.
5. Engage header safety props.



#### CAUTION

**Wear heavy gloves when working around or handling knives.**

6. Clean off cutterbar by hand.

**NOTE:** If cutterbar plugging persists, See Section [8 Troubleshooting, page 387](#).

### 4.10 Unplugging Adapter

To clear a plug from the adapter, follow these steps.

1. Stop forward movement of the machine, and disengage header drives.
2. Raise header slightly off the ground, and raise the reel.
3. Reverse the combine feed as per manufacturers specification (reverse feed varies for different combines) .
4. Re-engage header drive.

## 4.11 Upper Cross Auger (UCA)

The UCA helps deliver very bulky crops across the header into the combine.

Removable beater bars assist in delivering material through the header opening, but if wrapping occurs, the beater bars can be removed.

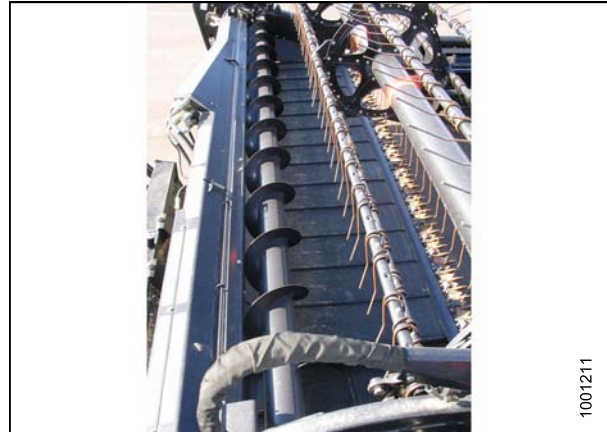


Figure 4.87: Upper cross auger

### 4.11.1 Removing Beater Bars

To remove beater bars, follow these steps.

#### **WARNING**

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

1. Lower header to ground, shut down engine, and remove key.
2. Remove bolts (A) securing bars (B) and clamps (C) to auger tubes, and remove bars and clamps.

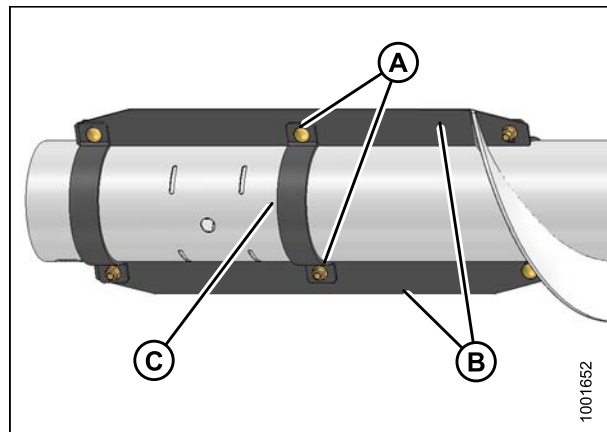


Figure 4.88: Double-reel headers



## OPERATION

### 4.11.2 Installing Beater Bars

To install beater bars, follow these steps.

1. Locate one beater bar (B) with one clamp set (C) on auger tube and loosely secure with carriage bolt (A) and nut. Bolt head **MUST** face direction of auger rotation.
2. Locate remaining clamp sets on tube and loosely attach to beater bar with carriage bolts and nuts. Bolt heads **MUST** face direction of auger rotation.
3. Position second beater bar in clamps and secure with carriage bolts and nuts.
4. Tighten bolts.

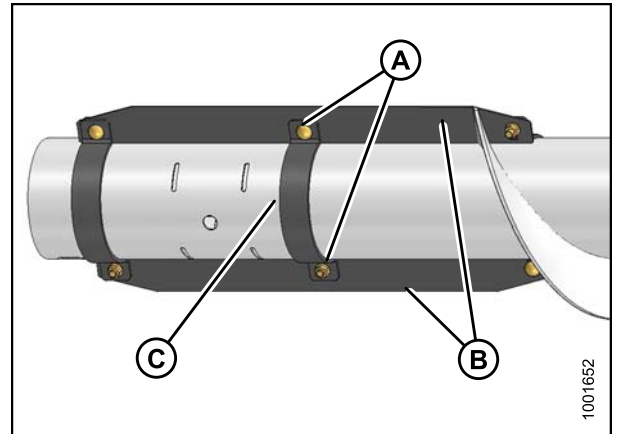


Figure 4.89: Double-reel headers

### 4.12 Transporting Header

#### **WARNING**

Do NOT drive combine with header attached on a road or highway at night, or in conditions which reduce visibility, such as fog or rain. The width of the header may not be apparent under these conditions.

#### 4.12.1 Transporting Header on Combine

##### **CAUTION**

- Check local laws for width regulations and lighting or marking requirements before transporting on roads.
- Follow all recommended procedures in your combine operator's manual for transporting, towing, etc.
- Disengage header drive clutch when travelling to and from the field.
- Before driving combine on a roadway, be sure flashing amber lamps, red tail lamps and head lamps are clean and working properly. Pivot amber lamps for best visibility by approaching traffic. Always use these lamps on roads to provide adequate warning to other vehicles.
- Do NOT use field lamps on roads, they may confuse other drivers.
- Before driving on a roadway, clean slow moving vehicle emblem and reflectors. Adjust rear view mirror and clean windows.
- Lower the reel fully and raise header unless transporting in hills. Maintain adequate visibility and be alert for roadside obstructions, oncoming traffic and bridges.
- When travelling downhill, reduce speed and keep header at a minimum height. This provides maximum stability if forward motion is stopped for any reason. Raise header completely at bottom of grade to avoid contacting ground.
- Travel speed should be such that complete control and machine stability are maintained at all times.

#### 4.12.2 Towing

The header can be towed behind the combine or with the Slow Speed Transport/Stabilizer Wheel option, or on an approved header transporter. Refer to your combine operator's manual, or see your MacDon Dealer.

## OPERATION

### *Attaching Header to Towing Vehicle*

#### **CAUTION**

To avoid bodily injury and/or machine damage caused by loss of control:

- Weight of towing vehicle must exceed header weight to ensure adequate braking performance and control.
- Do NOT tow with any highway-capable vehicle. Use only an agricultural tractor, agricultural combine, or properly configured MacDon windrower.
- Ensure that reel is down and fully back on support arms to increase header stability in transport. For headers with hydraulic reel fore-aft, never connect the fore-aft couplers to each other. This would complete the circuit and allow the reel to creep forward in transport, resulting in instability.
- Check that all pins are properly secured in Transport position at wheel supports, hitch, and cutterbar support.
- Check tire condition and pressure prior to transporting.
- Connect hitch to towing vehicle with a proper hitch pin with a spring locking pin or other suitable fastener.
- Attach safety hitch chain to towing vehicle. Adjust safety chain length to remove all slack except what is needed for turns.
- Connect header wiring harness 7-pole plug to mating receptacle on towing vehicle. (The 7-pole receptacle is available from your MacDon Dealer parts department).
- Ensure lights are functioning properly and clean the slow moving vehicle emblem and other reflectors. Use flashing warning lights unless prohibited by law.

### *Towing the Header*

#### **CAUTION**

This is intended as slow speed transport. To avoid bodily injury and/or machine damage caused by loss of control:

- Do NOT exceed 25 mph (40 km/h). Reduce transport speed to less than 5 mph (8 km/h) for corners and slippery or rough conditions.
- Turn corners only at very low speeds (5 mph [8km/h] or less). While cornering, header stability is reduced as front wheel moves to the left.
- Do NOT accelerate when making or coming out of a turn.
- Obey all highway traffic regulations in your area when transporting on public roads. Use flashing amber lights unless prohibited by law.

## OPERATION

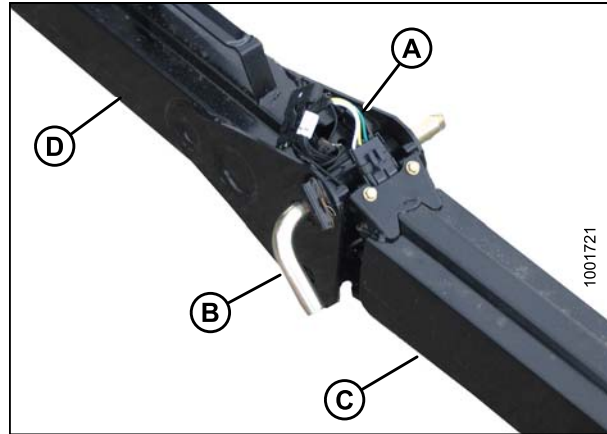
### 4.12.3 Converting from Transport to Field Position

To convert the header from Transport to Field position, follow these steps.

#### *Removing Tow-Bar*

Remove tow-bar as follows:

1. Block the tires to prevent header rolling and unhook from towing vehicle.
2. Disconnect wiring connector (A) on tow-bar.
3. Remove pin (B) from tow-bar and disassemble outer section (C) from inner section (D).

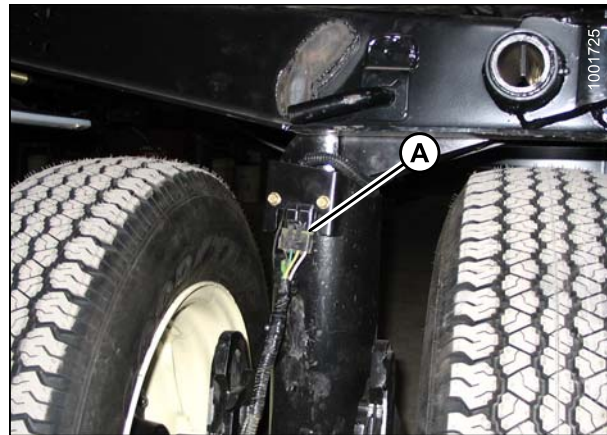


**Figure 4.90**

A - Wiring connector  
C - Outer section

B - Pin  
D - Inner section

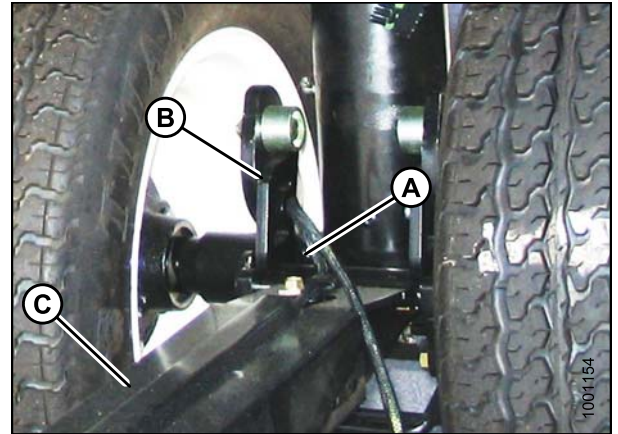
4. Disconnect wiring connector (A) at front wheel.



**Figure 4.91: Wiring connector**

## OPERATION

5. Remove clevis pin (A) and set aside for later installation.
6. Push latch (B) and lift tow-bar (C) from hook. Release latch.



**Figure 4.92**

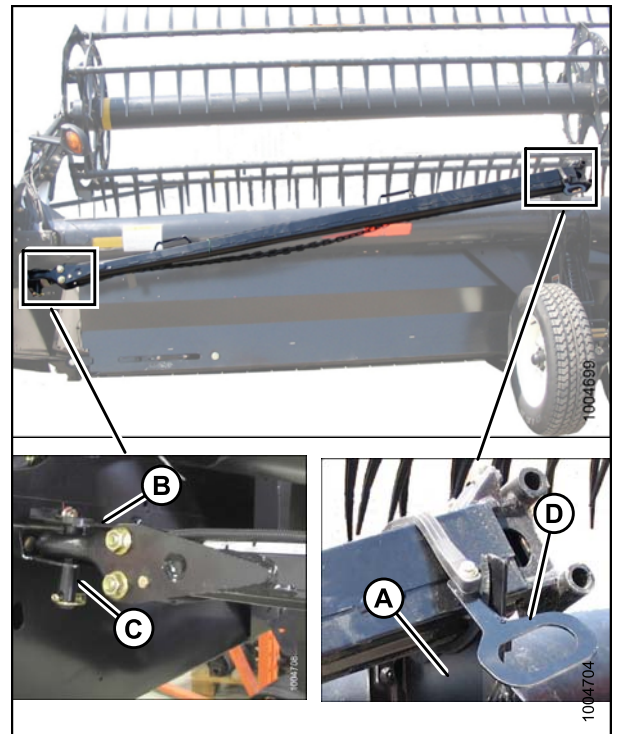
A - Clevis pin  
C - Tow-bar

B - Latch

### *Storing Tow-Bar*

Store tow-bar as follows:

1. On the LH side of the header, place the inner end of the outer half of the tow-bar in cradle (A) on header backtube.
2. For clevis or pintle end of tow-bar, secure in support (B) on endsheet with hitch pin (C). Secure with lynch pin.
3. Install rubber strap (D) on cradle (A).



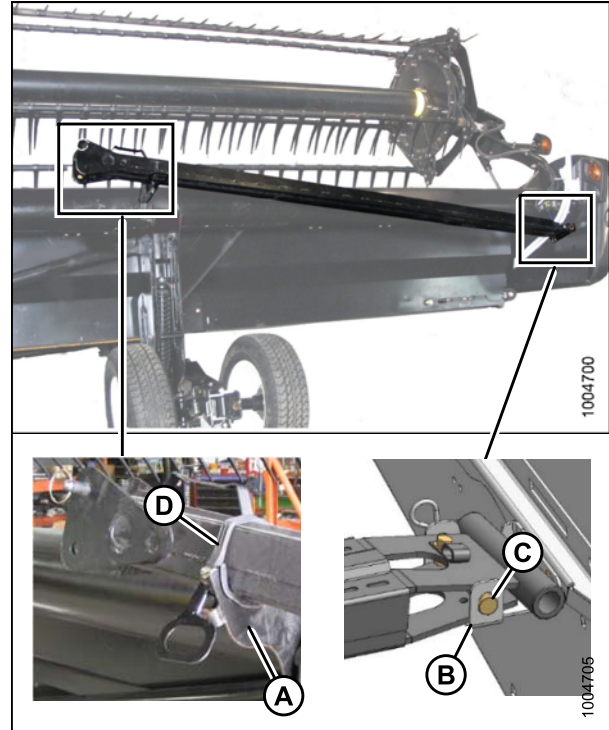
**Figure 4.93**

A - Cradle  
C - Hitch pin

B - Support  
D - Rubber strap

## OPERATION

4. On the RH side of the header, place the inner end of the inner half of the tow-bar in cradle (A) on header backtube.
5. Secure tube end in support (B) with clevis pin (C). Secure with hairpin.
6. Install rubber strap (D) on cradle (A).



**Figure 4.94**

A - Cradle

C - Clevis pin

B - Support

D - Rubber strap

7. Attach header to combine. Refer to Section [5 Header Attachment/Detachment](#), page 113.
8. Put front and rear transport wheels into Field position. Refer to
  - [Moving Front \(Left\) Wheels into Field Position](#), page 98
  - [Moving Rear \(Right\) Wheels into Field Position](#), page 100

### *Moving Front (Left) Wheels into Field Position*

To move the front (left) transport wheels into field position, follow these steps.

## OPERATION

### DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

1. Raise header fully. Engage header safety props.
2. Swivel front wheel assembly (A), so wheels are aligned with lower frame.
3. Remove pin (B) and pull wheel assembly towards rear of header. Store pin (B) in hole (C) at top of leg.
4. Pull handle (D) up to release and lower the linkage in the vertical support.

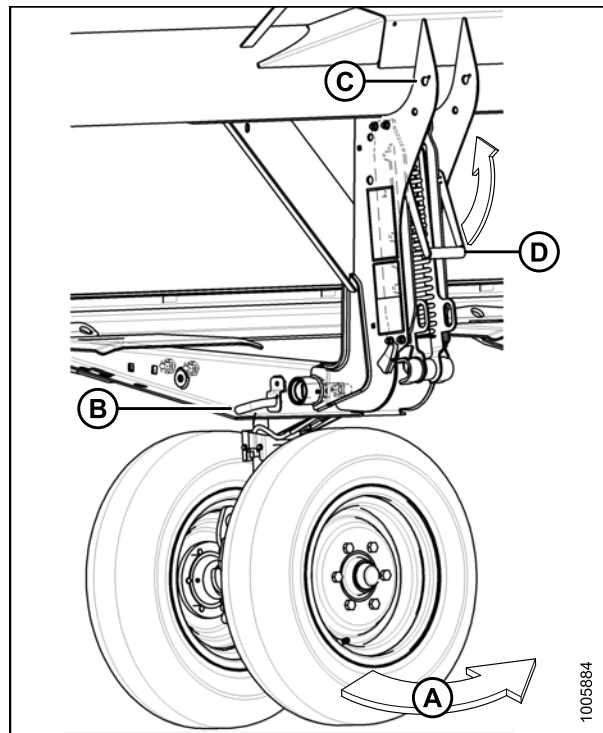


Figure 4.95

5. Align lift hook (A) with lug (B) and lift wheel assembly to engage pin in hook (A). Ensure latch (C) is engaged.
6. Install clevis pin (D) and secure with hairpin to center of axle.

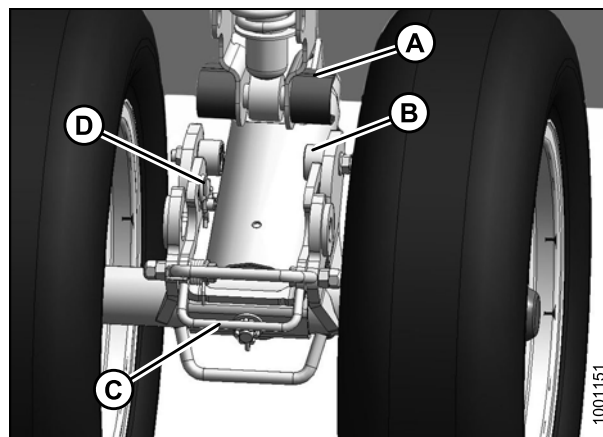


Figure 4.96

A - Hook  
C - Latch

B - Lug  
D - Clevis pin

## OPERATION

7. Lift wheel assembly to desired height and slide linkage (A) into appropriate slot in vertical support.
8. Push down on handle (B) to lock.

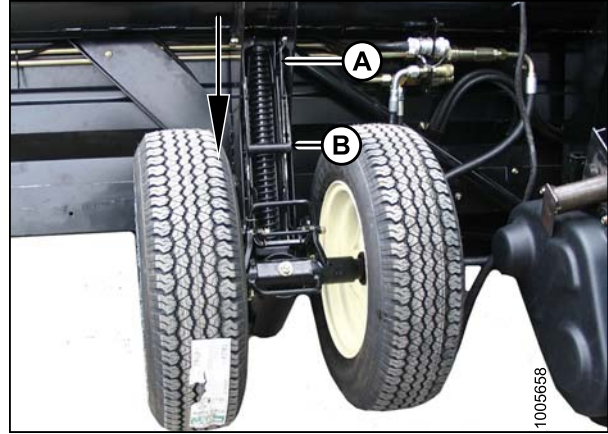


Figure 4.97

### *Moving Rear (Right) Wheels into Field Position*

To move the rear (right) transport wheels into Field position, follow these steps.

1. Pull pin (A) on the left hand wheel behind the header. Swivel wheel clockwise and lock with pin (A).

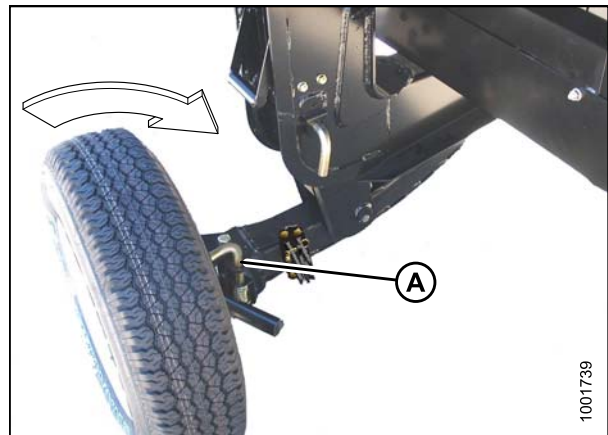


Figure 4.98

2. Remove pin at (A). Store pin at (B).
3. Pull handle (C) up to release.
4. Lift wheel to desired height and engage support channel into slot (D) in vertical support.
5. Push down on handle (C) to lock.

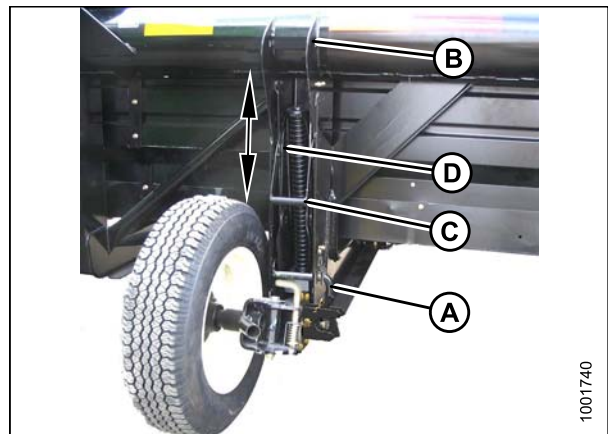


Figure 4.99

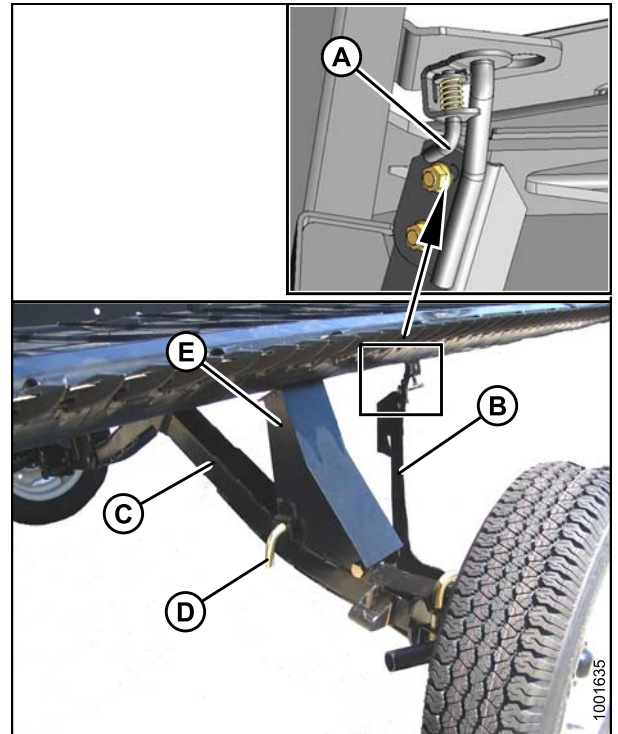
A - Pin  
C - Handle

B - Pin storage location  
D - Slot



## OPERATION

6. Pull pin (A) on brace (B) on the left hand wheel in front of the cutterbar. Disengage brace from cutterbar and lower the brace against axle (C).
7. Remove pin (D), lower the support (E) onto axle, and reinsert pin into support.
8. Swing axle clockwise towards the rear of the header.



**Figure 4.100**

A - Pin

D - Pin

B - Brace

E- Support

C - Axle

## OPERATION

9. Pull pin (A) at right wheel, swivel wheel counterclockwise to position shown and lock with pin (A).
10. Remove hairpin (B) from latch (C).
11. Lift wheel, lift latch (C), and engage lug (D) onto left axle. Ensure latch closes.
12. Secure latch with hairpin (B), with open end of pin facing rear of combine.

**NOTE:** Installing hairpin with the open end facing the cutterbar will cause it to be dislodged by crop during operation.

### IMPORTANT:

**Check that wheels are locked and that handle is in locked position.**

13. The conversion is complete when the wheels are as shown. In the image to the right, (A) shows Field position on left side. (B) shows Field position on right side.

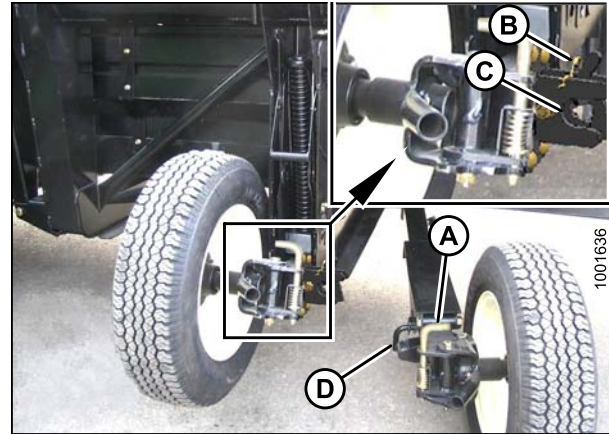


Figure 4.101: RH side

A - Pin  
C - Latch

B - Hairpin  
D - Lug

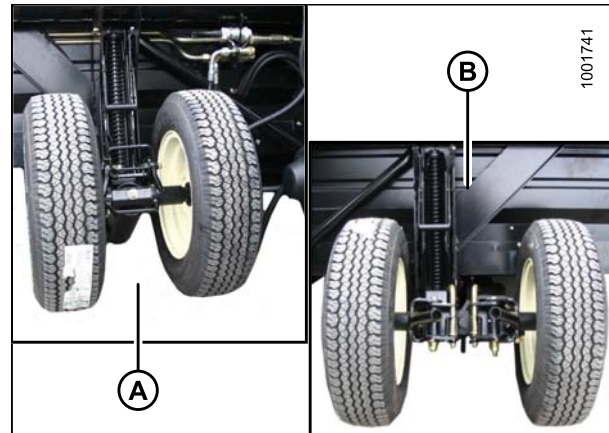


Figure 4.102: Field position - (A) shows left side; (B) shows right side

### 4.12.4 Converting from Field to Transport Position

To convert the header from field to transport position, follow these steps.

#### DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

#### *Moving Left (Front) Wheels into Transport Position*

To move the left transport wheels into transport position, follow these steps.

## OPERATION

### CAUTION

**Stand clear of wheels and release linkage carefully as wheels will drop once the mechanism is released.**

1. Pull handle (B) up to release and raise the linkage (A) fully upward in the vertical support.
2. Raise header fully. Engage header safety props.

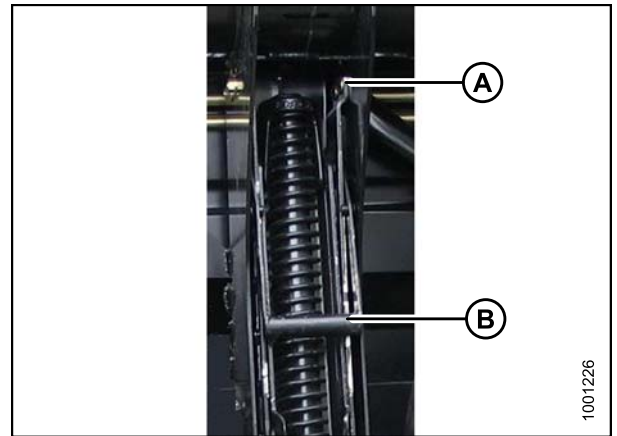


Figure 4.103

3. Remove hair pin and clevis pin (A).
4. Pull latch handle (B), once disengaged raise linkage and latch (C) from lug (D) to lower wheels.

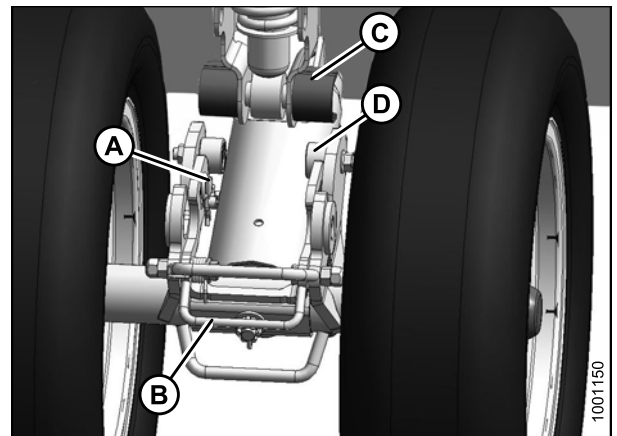


Figure 4.104

5. Lower handle (B) to lock.

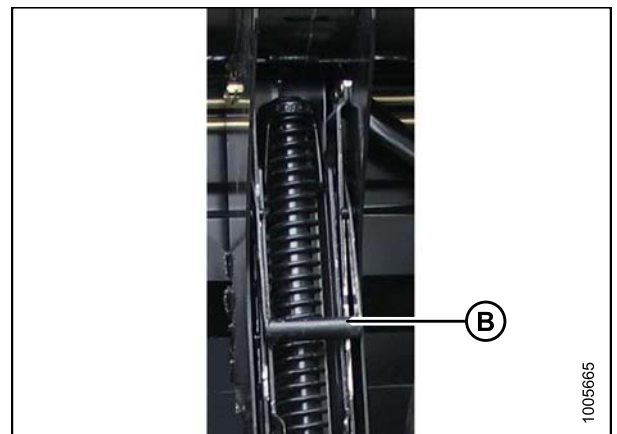


Figure 4.105

## OPERATION

6. Remove pin from storage at top of leg.
7. Move and swivel wheels clockwise so that lug (A) is turned towards the end of the header.



**Figure 4.106**

8. Insert pin (A) and turn pin to lock.
9. Lower header so that left wheels are just touching the ground.



**Figure 4.107**

### *Moving Right (Rear) Wheels into Transport Position*

To move the right-hand transport wheels into Transport position, follow these steps.

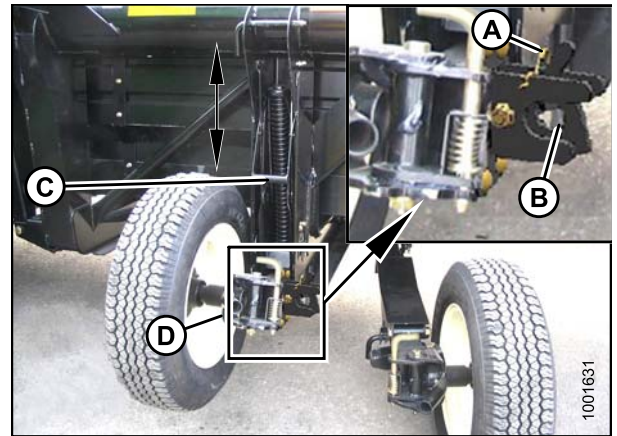
## OPERATION

1. At wheels at the right end of header, remove hairpin (A) from latch.
2. Lift latch (B), disengage right axle, and lower to ground.

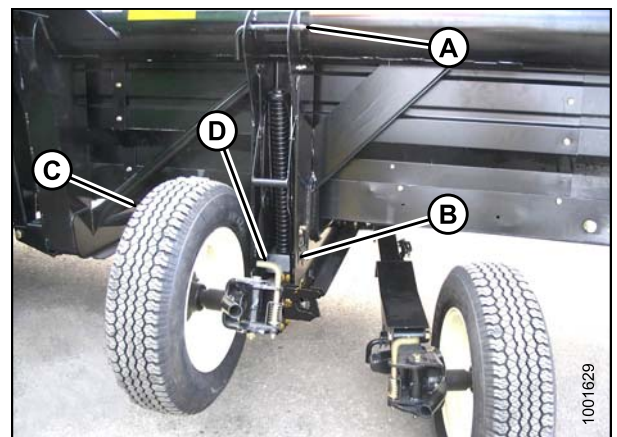
### CAUTION

**Stand clear of wheels and release linkage carefully as wheels will drop once the mechanism is released.**

3. Carefully pull handle (C) to release the spring and let the wheel drop to the ground.
4. Lift wheel and linkage with handle (D) and position linkage in second slot from bottom.
5. Lower handle (C) to lock.
6. Remove pin (A) and install at (B) to secure linkage. Turn pin (A) to lock.
7. To position the left wheel (C), pull pin (D), swivel wheel counterclockwise, and re-lock with pin (D).



**Figure 4.108**



**Figure 4.109**

A - Pin

C - Left wheel

B - Pin installation location

D - Pin

8. Left wheel is now in Transport position as shown.



**Figure 4.110**



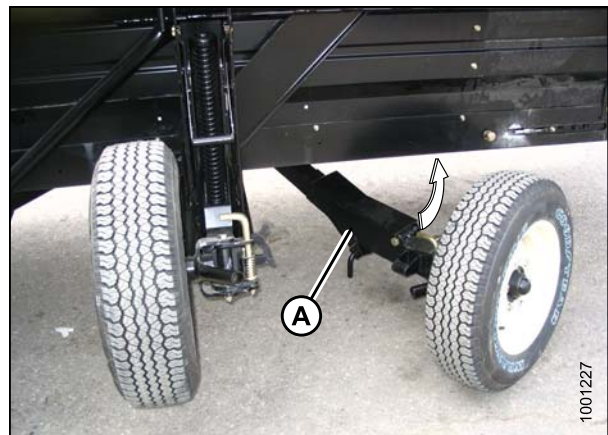
## OPERATION

9. Pull pin (A), swivel wheel clockwise as shown and lock with pin (A).



**Figure 4.111**

10. Swivel the right axle (A) to front of header.



**Figure 4.112**

## OPERATION

11. Remove pin (A), raise support (B) to position shown, and reinsert pin (A).

### IMPORTANT:

Ensure pin (A) engages the tube on the axle.

12. Swing brace (C) into position as shown and insert brace into slot (D) behind cutterbar. Position brace so that pin (A) engages hole in bracket (F). Right hand wheel is now in Transport position.
13. Disengage the header cylinder lift stops.
14. Detach the header's hydraulic and electrical connections from the combine. See [Section 5 Header Attachment/Detachment](#), page 113.
15. Start combine and lower header to the ground.

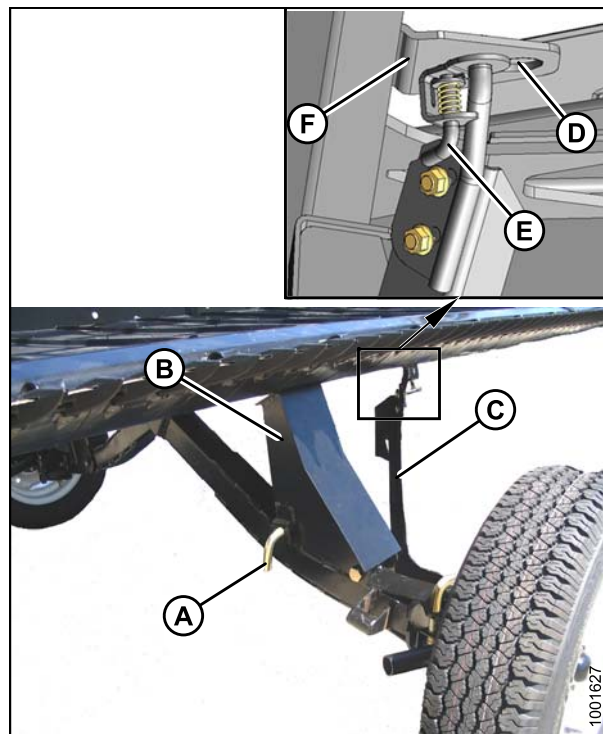


Figure 4.113

### Attaching Tow-bar

The tow-bar consists of two sections which make storage and handling easier.

1. On the RH side of the header, unhook rubber strap (D) on cradle (A).
2. Detach tube end from support (B). Remove clevis pin (C).
3. Lift inner half of tow-bar off of header and place it on the LH side of the header.

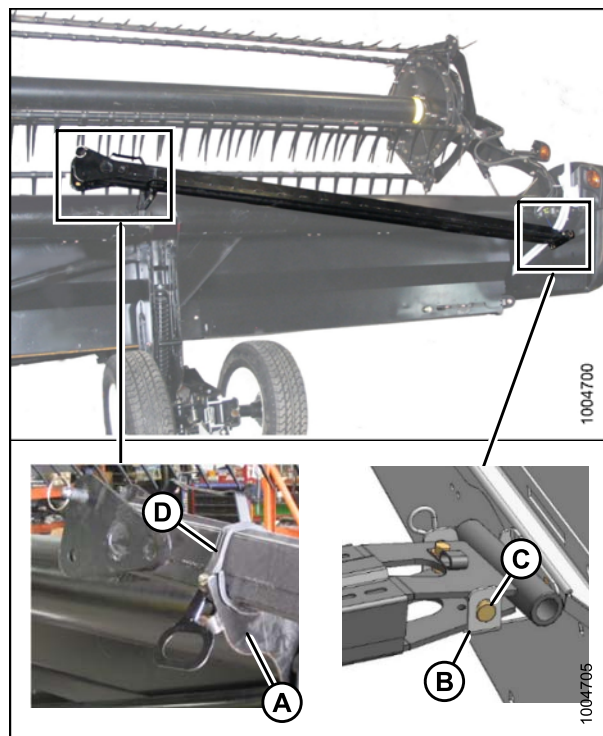
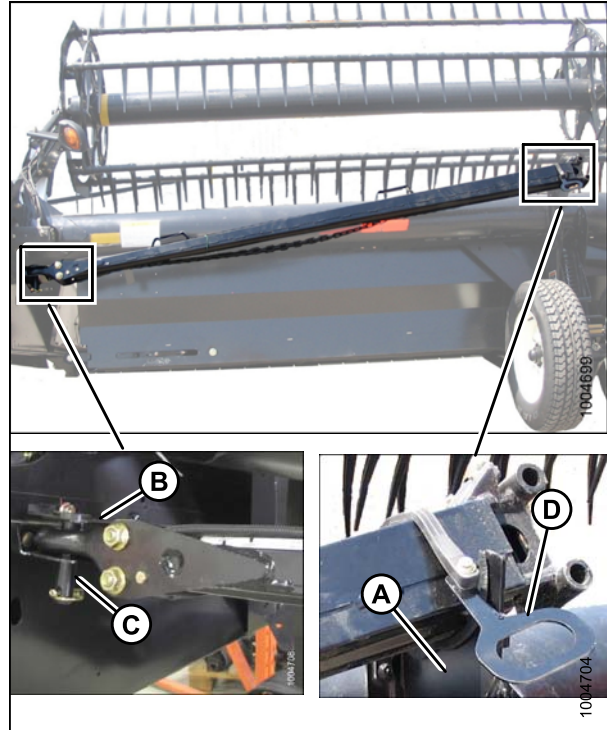


Figure 4.114

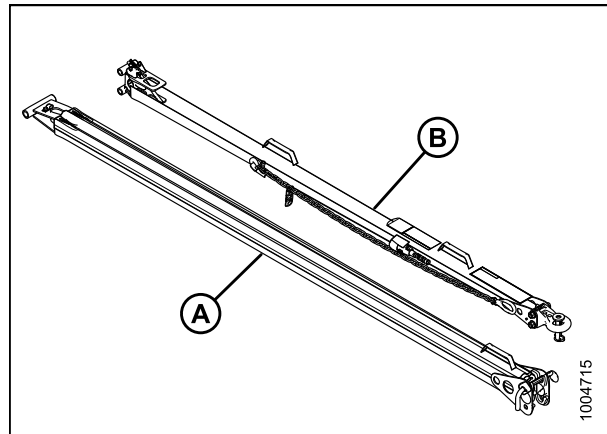
## OPERATION

4. On the LH side of the header, unhook rubber strap (D) on cradle (A).
5. Detach clevis or pintle end of tow-bar from support (B). Remove hitch pin (C).
6. Install rubber strap (D) on cradle (A).
7. Lift outer half of tow-bar off of header and place it on the ground.



**Figure 4.115**

8. Connect the outer half (B) of the tow-bar to the inner half (A).



**Figure 4.116**



## OPERATION

9. Lift the outer half (B) and insert it into the inner half (A)

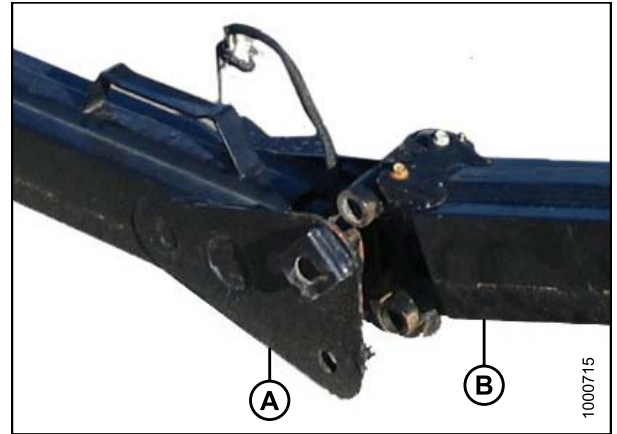


Figure 4.117

10. Secure the two halves together with L-pin (A), then turn it to lock it. Secure pin with ring (B).
11. Connect electrical harness to connector (C).

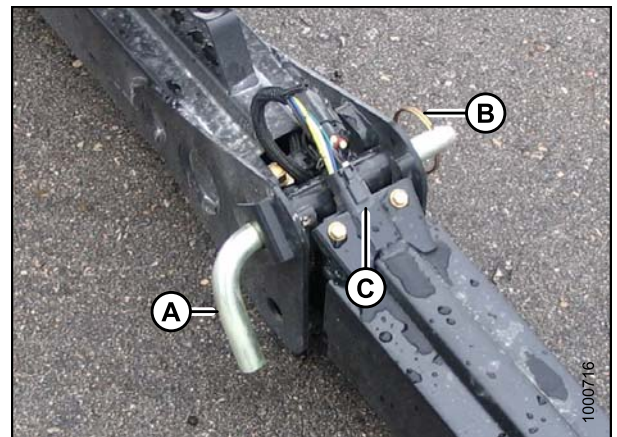


Figure 4.118

12. Position tow-bar (A) onto axle, and push against latch (B) until tow-bar pins drop into hooks (C).
13. Check that latch (B) has engaged tow-bar.
14. Install clevis pin (D), and secure with hairpin.

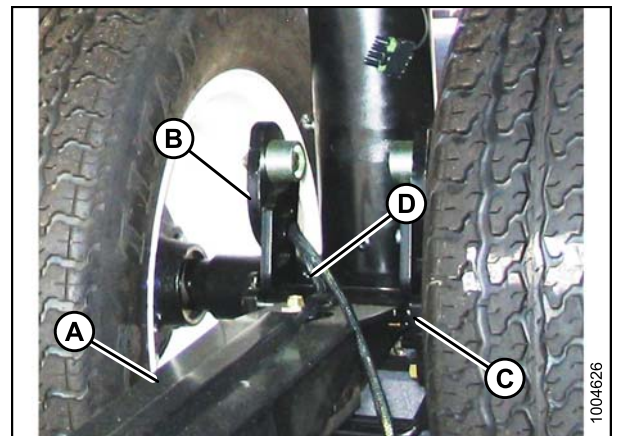


Figure 4.119: Field to Transport – LH Side

## OPERATION

15. Make the electrical connection (A) at the header wheel and at the joint.



**Figure 4.120**

### 4.13 Storage

The following should be done at the end of each operating season:

#### CAUTION

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

#### CAUTION

**Cover cutterbar and knife guards to prevent injury from accidental contact.**

1. Clean header thoroughly.
2. Store machine in a dry, protected place if possible. If stored outside, always cover with a waterproof canvas or other protective material.  
**NOTE:** If machine is stored outside, remove drapers and store in a dark, dry place. If drapers are not removed, store header with cutterbar lowered so water/snow will not accumulate on drapers. This accumulation of weight puts excessive stress on drapers and header.
3. Lower header onto blocks to keep cutterbar off the ground.
4. Lower reel completely. If stored outside, tie reel to frame to prevent rotation caused by wind.
5. Re-paint all worn or chipped painted surfaces to prevent rust.
6. Loosen drive belts.
7. Lubricate header thoroughly, leaving excess grease on fittings to keep moisture out of bearings. Apply grease to exposed threads, cylinder rods, and sliding surfaces of components. Oil knife components to prevent rust.
8. Check for worn or broken components, and repair or order replacements from your MacDon Dealer. Attention to these items right away will save time and effort at beginning of next season.
9. Replace or tighten any missing or loose hardware.



## 5 Header Attachment/Detachment

This chapter includes instructions on setting up, attaching, and detaching the header.

Combine	Section
Case IH 7010, 8010, 7120, 8120, 9120, 5088, 6088, 7088, 5130, 6130, 7130, 7230, 8230, 9230	<a href="#">5.2 Case IH Combines, page 118</a>
John Deere 60, 70, and S Series	<a href="#">5.3 John Deere 60, 70, and S Series Combines, page 126</a>
Lexion 500, 700 (R Series)	<a href="#">5.4 Lexion 500, 700 Series Combines, page 132</a>
New Holland CR, CX	<a href="#">5.5 New Holland CR/CX Combines, page 140</a>
AGCO Gleaner R and S Series, Challenger 660, 670, 680B, 540C, 560C, Massey 9690, 9790, 9895, 9520, 9540, 9560	<a href="#">5.6 AGCO Combines, page 149</a>

### IMPORTANT:

**Ensure applicable functions (Automatic Header Height Control (AHHC), Draper Header Option, Hydraulic Center-Link Option, Hydraulic Reel Drive etc.) are enabled on the combine and in the combine computer. Failure to do so may result in improper header operation.**

## 5.1 Adapter Setup

The following sections outline recommended adapter setup guidelines, depending on your combine and crop. The recommendations cannot cover all conditions.

If feeding problems develop with adapter operation, Refer to [Section 8 Troubleshooting, page 387](#).

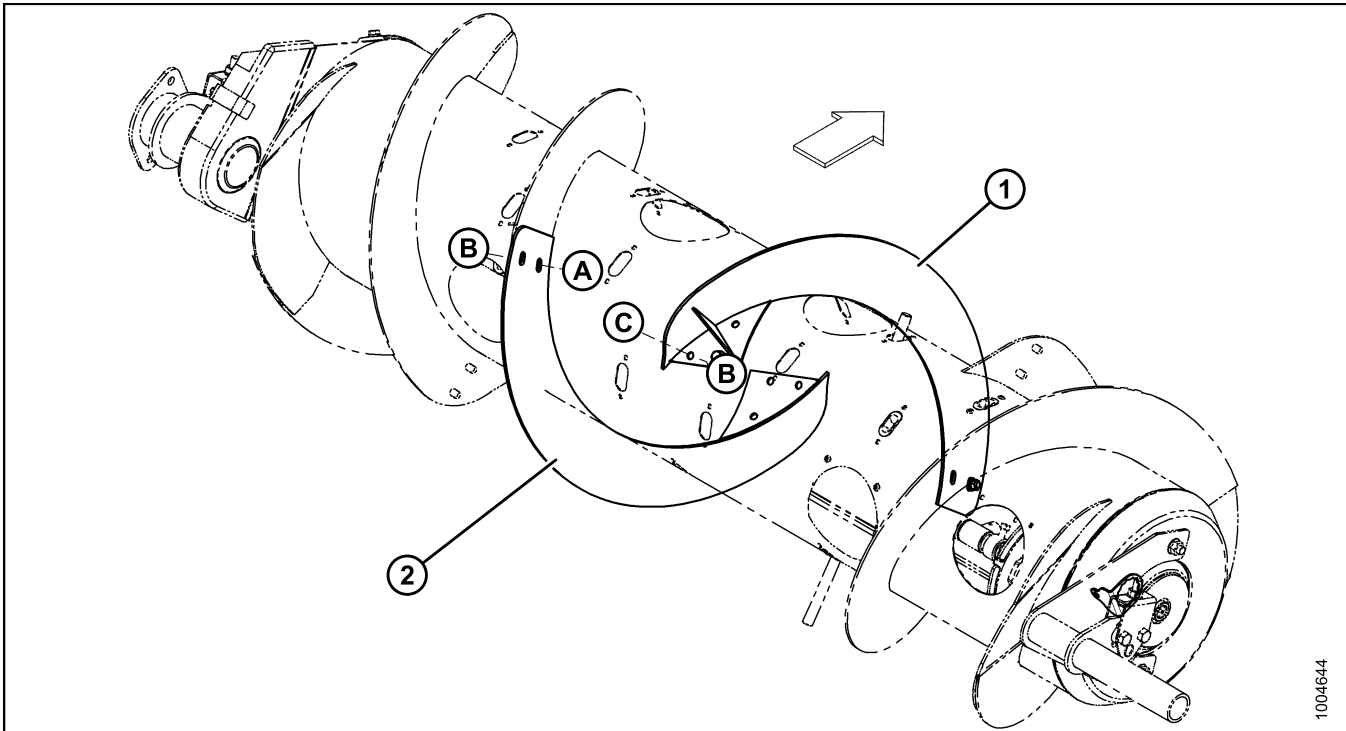
### 5.1.1 Flighting Extensions

The flighting extension kit may improve feeding in certain crops such as rice or heavy green crop. They are not recommended in cereal crops.

See [Section 9.1.7 CA25 Feed Auger Flighting, page 406](#) for more information.

## HEADER ATTACHMENT/DETACHMENT

### Installing Flighting Extensions



**Figure 5.1**

A - MD #133147 - RH Flighting Extension

B - MD #133148 - LH Flighting Extension

Reference	Part Number	Description	Quantity
1	133147	FLIGHTING - EXT. RH SIDE (LH HELIX), WELDT	1
2	133148	FLIGHTING - EXT. LH SIDE (RH HELIX), WELDT	1
A	21447	BOLT - HH LG FLG ( SERR FACE) 3/8 NC X 1.0 GR 5 ZP	6
B	30228	NUT - FLANGE DT SMOOTH FACE 0.375-16 UNC	10
C	21863	BOLT - RHSSN 3/8 NC X 0.75 LG GR 5 ZP	4

To install flighting extensions to the adapter auger, follow these steps:

## HEADER ATTACHMENT/DETACHMENT

1. Place the flighting extensions (A) outboard of the auger flighting (B). Tighten hardware finger tight making sure that carriage bolt heads are on the crop side (inside) and nuts (C) are on the outside of the flighting

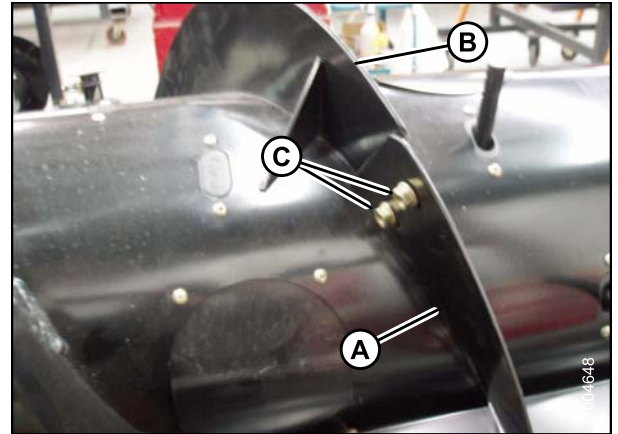


Figure 5.2

2. Stretch flighting extensions (A) to fit auger tube. Use slotted holes on flighting extension to get the best fit around the auger tube.

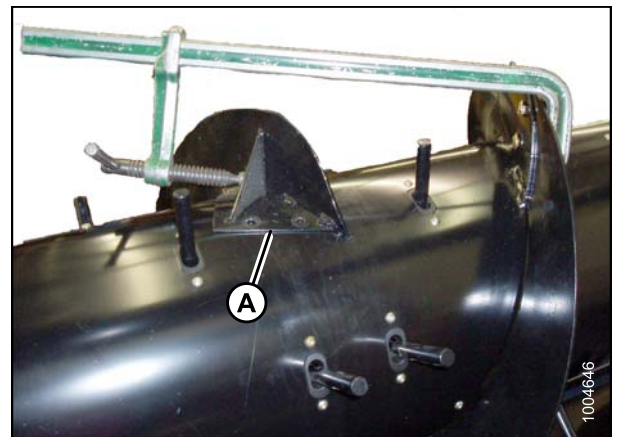


Figure 5.3

3. With flighting in desired place, mark holes (A) (three per extension), and drill 3/8 in. (76 mm) holes in auger tube.

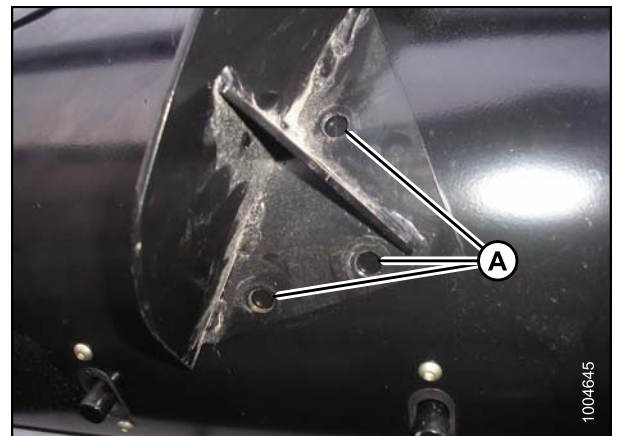


Figure 5.4

## HEADER ATTACHMENT/DETACHMENT

4. Install bolts. Remove nearest access cover (A) to access inside of drum to install nuts. Tighten all hardware.
5. Replace access cover, and add Loctite® 272 to cover hardware to prevent it from coming loose.

**NOTE:** Ideally the flighting extensions will fit tight to the auger tube. However, it is not unusual for the right-hand flighting extension to overlap a cover panel causing a gap to the auger tube. Even with no interference with a cover it is not uncommon to have a gap. Crop material may hairpin in this gap but generally this will not affect performance. If desired, silicone sealant may be used to fill these gaps, preventing material from catching in gap.

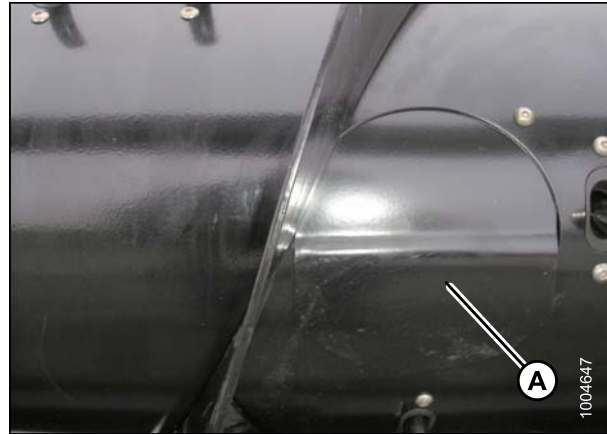


Figure 5.5

### Removing Flighting Extensions

To remove flighting extensions from the adapter auger, follow these steps:

1. Remove access cover (A).
2. Remove five bolts (B), washers, and nuts that secure flighting extension (C) to the auger.
3. Remove extension (C).
4. Repeat for other flighting extension.
5. Reinstall access cover (A).

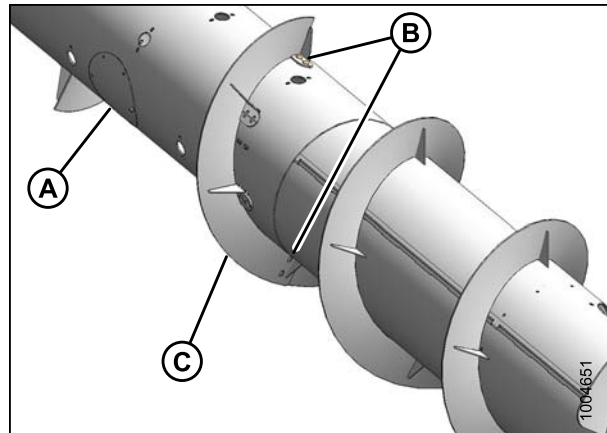


Figure 5.6: Auger flighting extensions

### 5.1.2 Stripper Bars

Stripper bar kits may have been supplied with your header to improve feeding in certain crops such as rice. They are **NOT** recommended in cereal crops.

To install, Refer to [Installing Stripper Bars, page 117](#).

To remove, Refer to [Removing Stripper Bars, page 117](#).



## HEADER ATTACHMENT/DETACHMENT

### *Installing Stripper Bars*

To install stripper bars to the adapter, follow these steps:

1. Remove combine from adapter. See Section 5 Header Attachment/Detachment, page 113 for your specific combine.
2. Install stripper bars so notch is outboard with nuts facing towards combine. Secure them to the adapter with four bolts (A) and nuts.
3. Repeat for opposite set of stripper bars.
4. Install the adapter and header onto the combine, See Section 5 Header Attachment/Detachment, page 113.

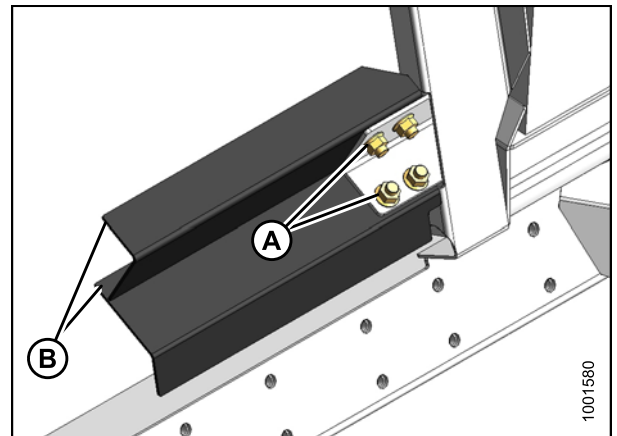


Figure 5.7: Stripper bar

### *Removing Stripper Bars*

To remove stripper bars from the adapter, follow these steps:

1. Remove four bolts (A) and nuts securing stripper bars (B) to adapter frame, and remove the bars.
2. Repeat for opposite set of stripper bars.

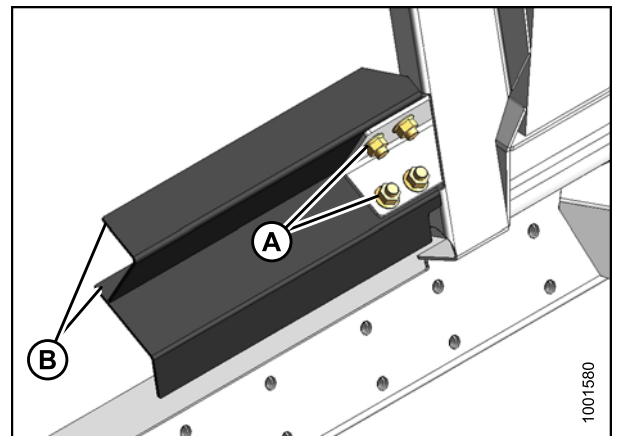


Figure 5.8: Stripper bar

## 5.1.3 Auger Drive

The adapter auger is chain-driven from a sprocket that is mounted on the input shaft from the combine, and which is enclosed in the drive gearbox.

The auger speed is determined by the combine input shaft, and is matched to each particular combine, so no adjustment is necessary. However, optional drive sprockets are available to change the auger speed to optimize auger performance. See your MacDon Dealer.

**NOTE:** For special conditions, 20, 22, and 26 tooth sprockets are available to change adapter feed auger speed. Consult with your MacDon Dealer.

## HEADER ATTACHMENT/DETACHMENT

### 5.2 Case IH Combines

These procedures cover Case IH 10, 20, 30, 40 and 88 Series combines.

- 5130, 6130, and 7130
- 7230, 8230, and 9230

#### 5.2.1 Attaching Adapter to Case IH Combine

To attach the adapter to a Case IH combine, follow these steps.

1. Slowly drive combine up to adapter until feeder house saddle (A) is directly under the adapter top cross member (B).
2. Raise feeder house slightly to lift adapter, ensuring feeder saddle is properly engaged in adapter frame.

#### CAUTION

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

3. Lift lever (A) on adapter at left side of feeder house, and push handle (B) on combine to engage locks (C) on both sides of the feeder house.
4. Push down on lever (A) so that slot in lever engages handle to lock handle in place.
5. If lock (C) does **NOT** fully engage pin on adapter when lever (A) and handle (B) are engaged, loosen bolts (D), and adjust lock as required. Retighten bolts.

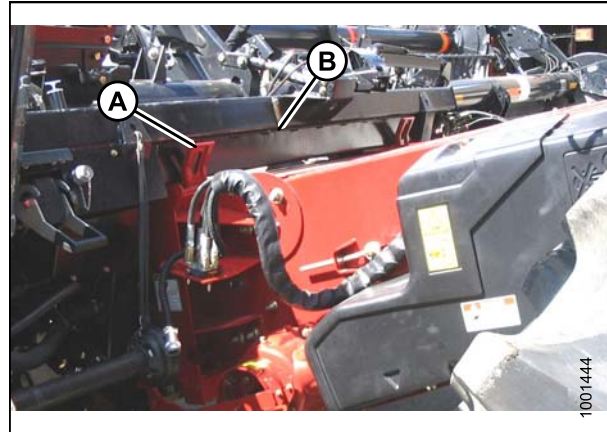


Figure 5.9

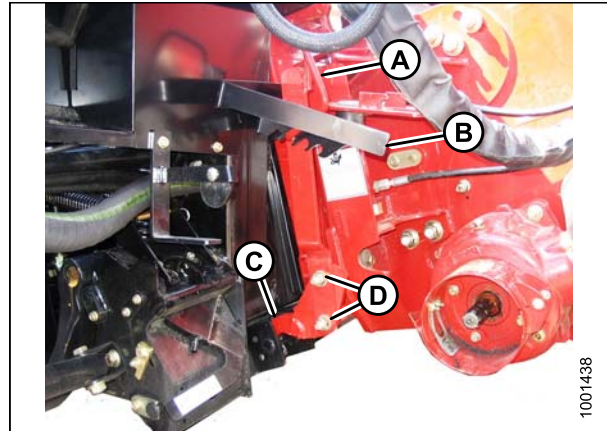


Figure 5.10

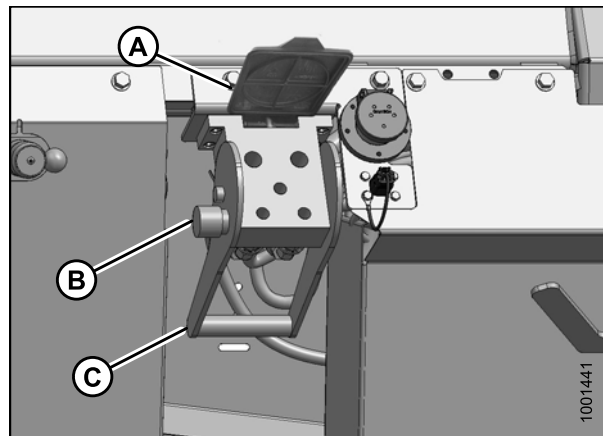
A - Lever  
C - Locks

B - Handle  
D - Bolts

## HEADER ATTACHMENT/DETACHMENT

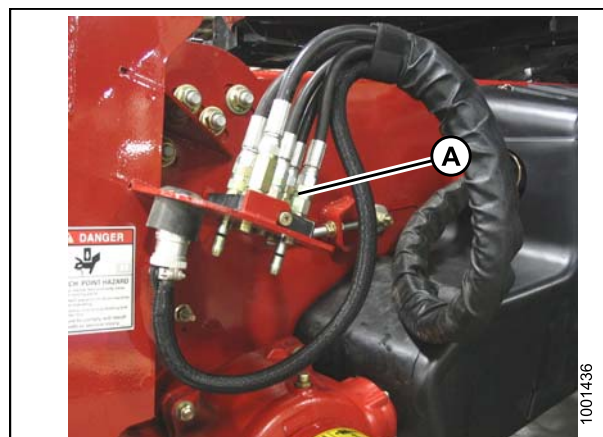
Connect the combine hydraulic quick coupler to the adapter receptacle as follows:

6. Open cover (A).
7. Push in lock button (B), and pull handle (C) to full open position.
8. Clean coupler on header.



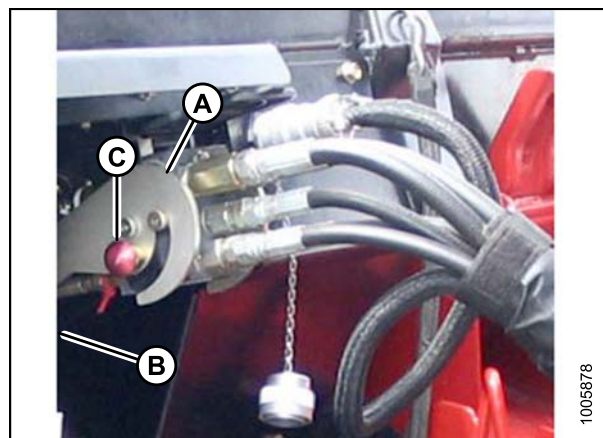
**Figure 5.11**

9. Remove coupler (A) from combine, and clean mating surfaces.



**Figure 5.12**

10. Position onto adapter receptacle (A), and push handle (B) to engage coupler pins into receptacle. (Handle (B) is just out of view in the image)
11. Push handle (B) to closed position until lock button (C) snaps out.



**Figure 5.13**

A - Adapter Receptacle  
C- Lock Button

B - Handle

## HEADER ATTACHMENT/DETACHMENT

12. Remove cover on adapter electrical receptacle (A). Ensure receptacle is clean and has no sign of damage.

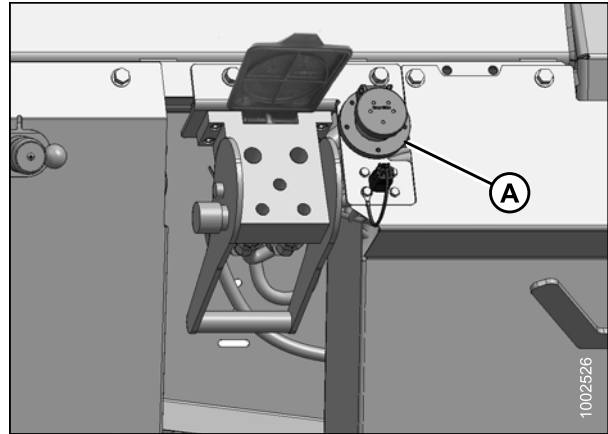


Figure 5.14

13. Remove electrical connector (A) from storage cup on combine, and route to adapter receptacle.
14. Align lugs on connector with slots in receptacle, push connector onto receptacle, and turn collar on connector to lock it in place.

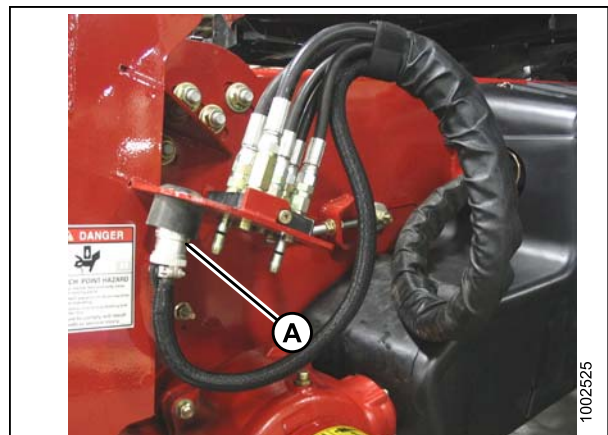


Figure 5.15

15. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

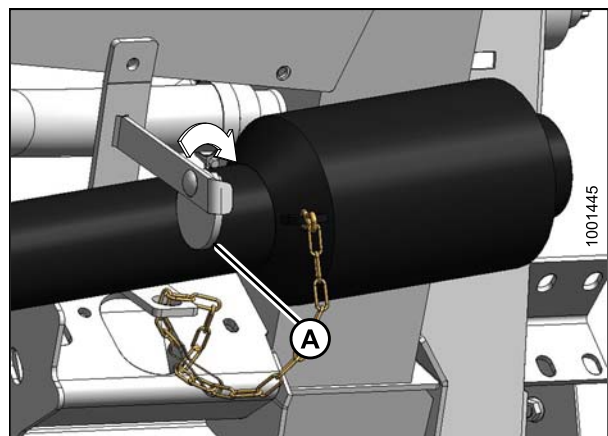
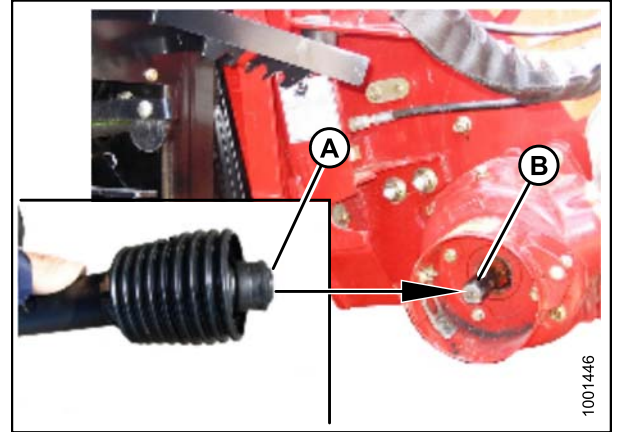


Figure 5.16

## HEADER ATTACHMENT/DETACHMENT

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



**Figure 5.17**

17. Disengage both adapter float locks by moving latch (A) away from adapter, and moving lever (B) at each lock to lowest position.

## HEADER ATTACHMENT/DETACHMENT

### 5.2.2 Detaching Case IH Combine from Adapter

To detach a Case IH combine from the adapter, follow these steps.

1. Choose a level area. Position header slightly above ground. Stop engine, and remove key.

#### **DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

#### **CAUTION**

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

2. Engage both adapter float locks by lifting lever (A) at each lock until it latches into lock position.

#### **IMPORTANT:**

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 55](#).

#### **IMPORTANT:**

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 55](#).

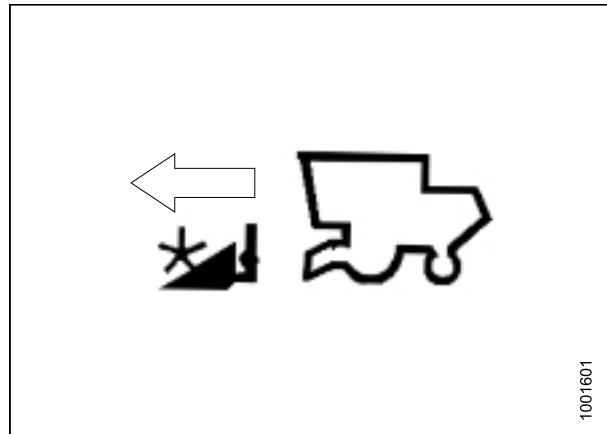


Figure 5.18

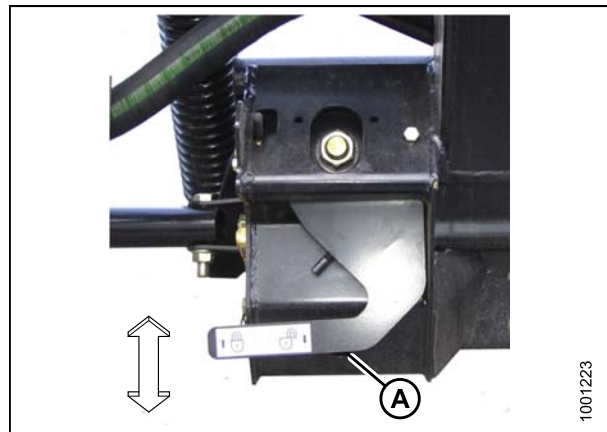


Figure 5.19: Lever Up = LOCK, Down = UNLOCK



## HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveshaft (A) from combine.

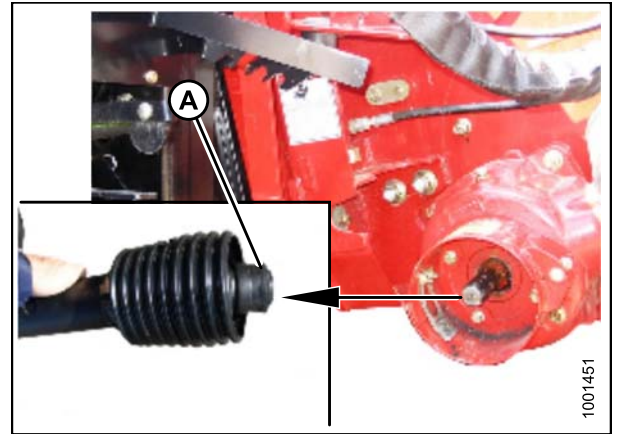


Figure 5.20

4. Slide driveshaft in hook (A) so that disc (B) drops to secure driveshaft.

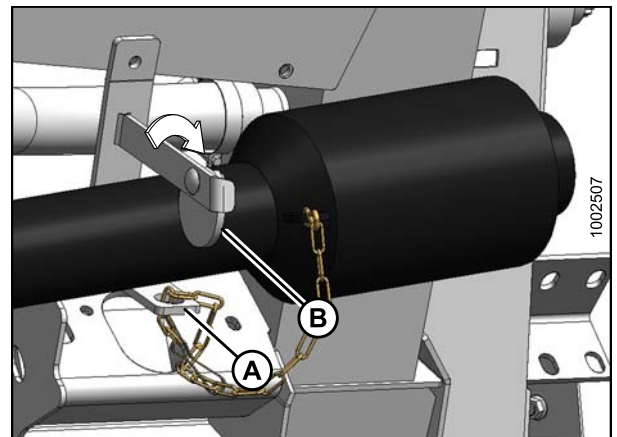


Figure 5.21

5. Remove electrical connector (A), and replace cover.

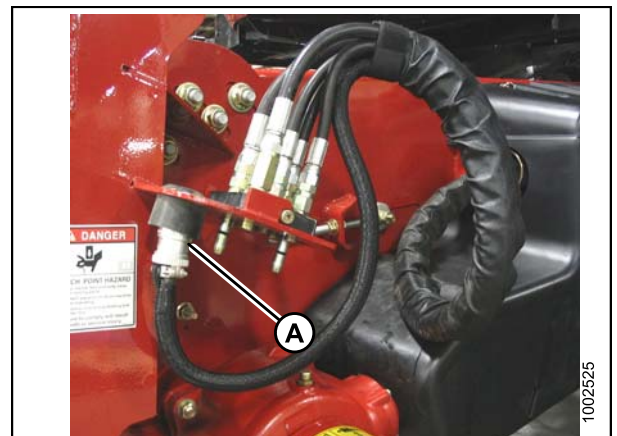


Figure 5.22

## HEADER ATTACHMENT/DETACHMENT

6. Push in lock button (A), and pull handle (B) to release coupler (C).

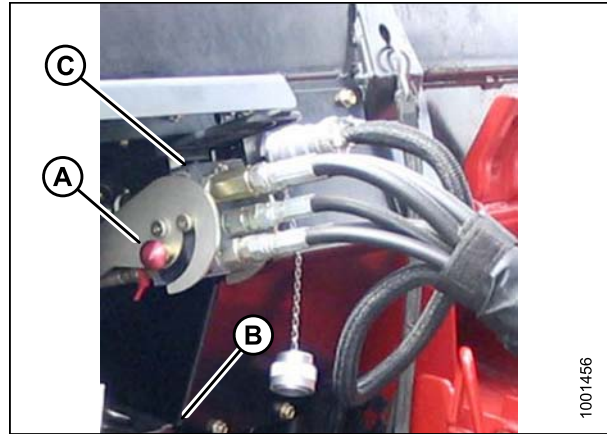


Figure 5.23

7. Position coupler (A) onto storage plate (B) on combine.
8. Place electrical connector (C) in storage cup on plate on combine (B).

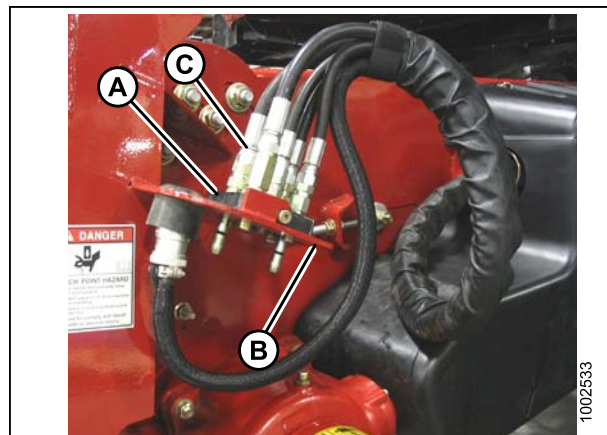


Figure 5.24

9. Push handle (A) to closed position until lock button (B) snaps out. Close cover (C).

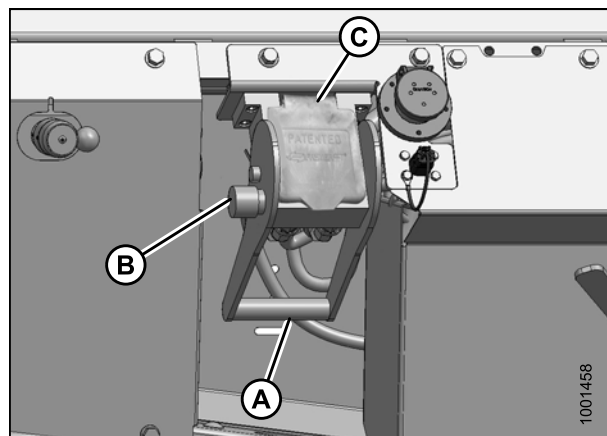


Figure 5.25



## HEADER ATTACHMENT/DETACHMENT

10. Lift lever (A), pull and lower handle (B) to disengage feeder house/adaptor lock (C).
11. Lower feeder house until it disengages adapter support.
12. Slowly back combine away from adapter.

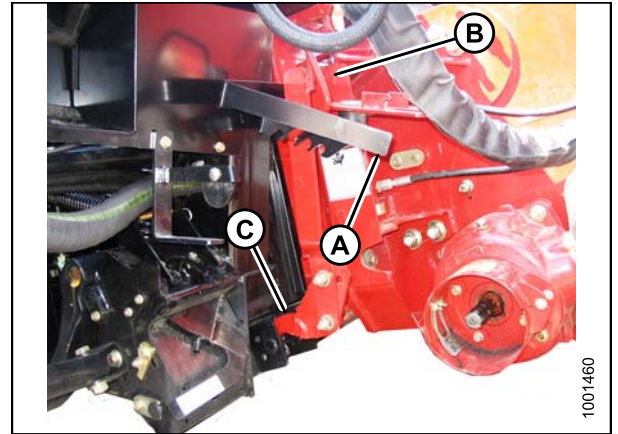


Figure 5.26

## HEADER ATTACHMENT/DETACHMENT

### 5.3 John Deere 60, 70, and S Series Combines

These procedures cover John Deere 60, 70, and S Series combines (Contour Master, Level Land).

#### 5.3.1 Attaching Adapter to John Deere Combine

To attach the adapter to a John Deere combine, follow these steps.

1. Push handle (A) on combine coupler toward feeder house to retract pins (B) at bottom corners of feeder house.
2. Slowly drive combine up to adapter until feeder house saddle (C) is directly under the adapter top cross member (D).
3. Raise feeder house to lift adapter, ensuring feeder saddle is properly engaged in adapter frame.
4. Raise or lower header until slightly off the ground.

#### CAUTION

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

5. Remove header single point connector from combine and clean before attaching to combine and pulling handle to lock.
6. Pull handle (A) to engage pins (B) in adapter.

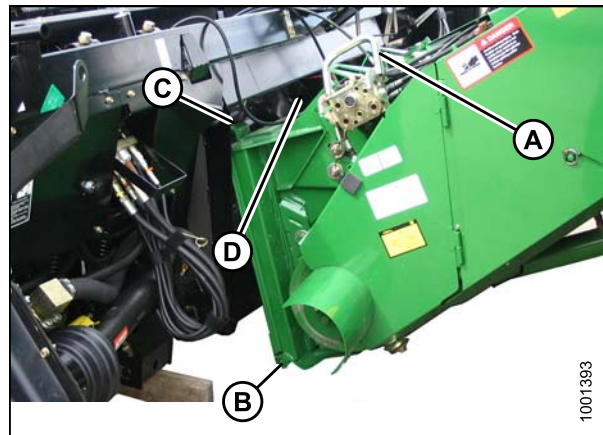


Figure 5.27

A - Handle

C - Feeder House Saddle

B - Pins

D - Adapter Top Cross Member

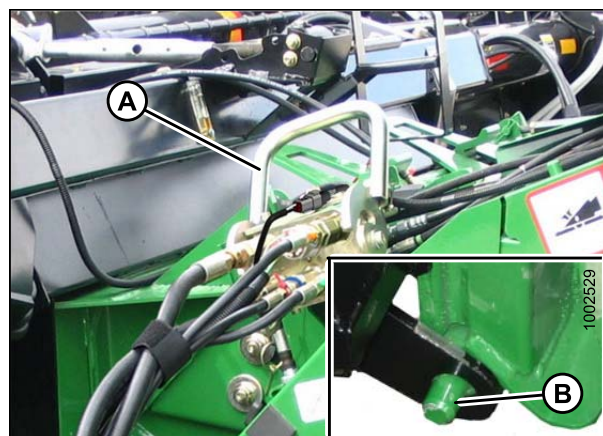


Figure 5.28

## HEADER ATTACHMENT/DETACHMENT

7. Pull handle (A) on adapter to release coupler (B) from storage position. Remove coupler, and push handle back into adapter to store.

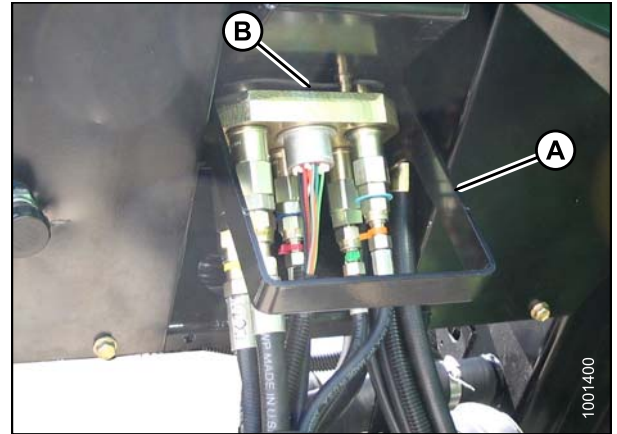


Figure 5.29

8. Before attaching coupler to combine, move handle (A) into the nearly-up position. Clean receptacle.

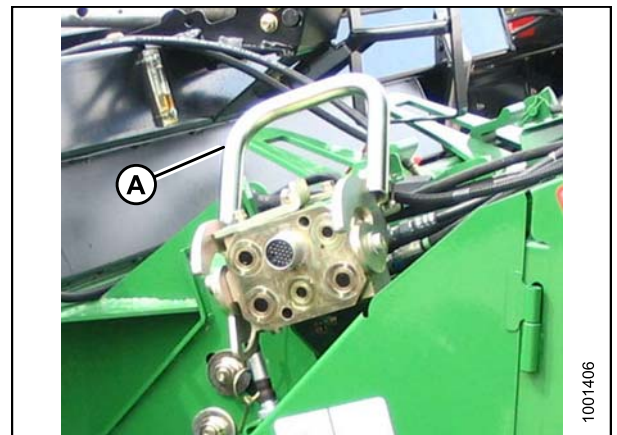


Figure 5.30

9. Attach coupler (A) to combine as follows:
  - a. Position coupler (A) onto receptacle, and pull handle (B) so that lugs on coupler are engaged into handle.
  - b. Pull handle to full horizontal position as shown.
  - c. Slide latch (C) to lock handle in position, and secure with lynch pin (D).
  - d. If adapter is equipped with reel fore-aft/header tilt selector, connect harness (E) to combine connector (F).

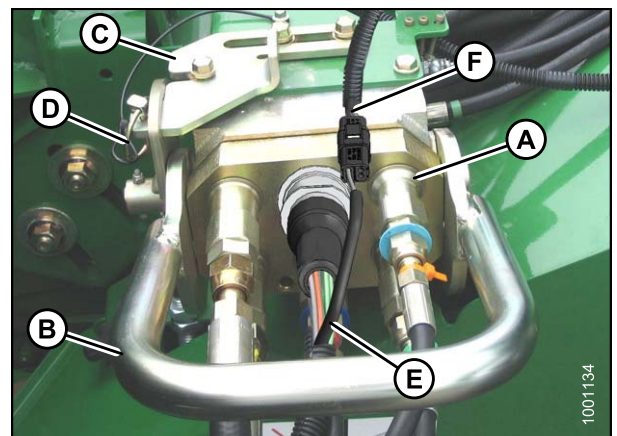


Figure 5.31

A - Coupler	B - Handle
C - Latch	D - Lynch Pin
E - Harness	F - Combine Connector

## HEADER ATTACHMENT/DETACHMENT

10. Check that bolts (A) on adapter brackets are tight.
11. If pins (B) do not fully engage adapter brackets, loosen bolts (A), and adjust bracket as required. Retighten bolts.
12. Remove blocks from under cutterbar.
13. Start engine, and lower header.

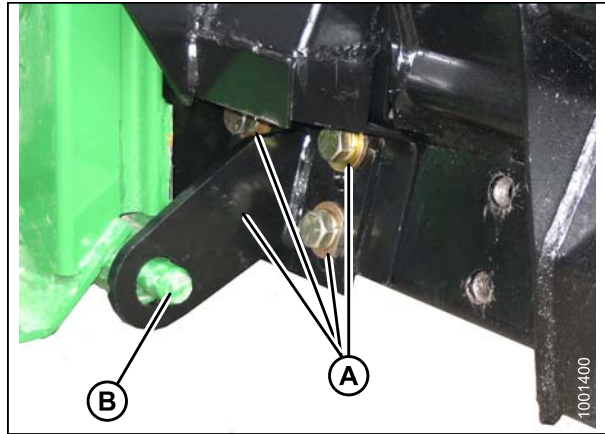


Figure 5.32

14. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

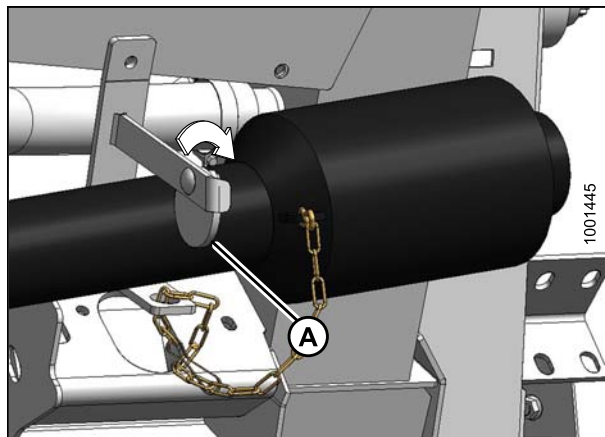


Figure 5.33: Driveline

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

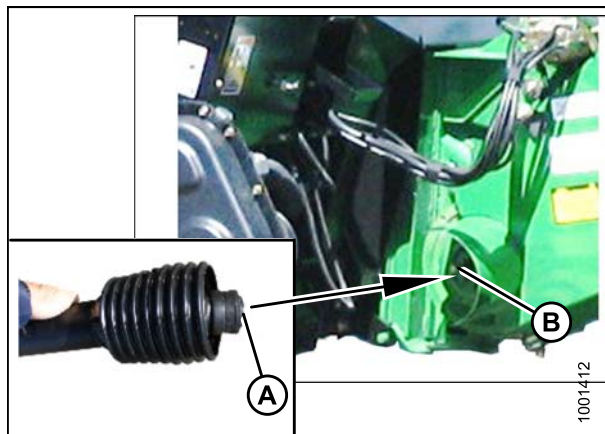


Figure 5.34: Driveline



## HEADER ATTACHMENT/DETACHMENT

### 5.3.2 Detaching John Deere Combine from Adapter

1. Choose a level area. Position header slightly above ground. Stop engine, and remove key.

#### **DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

#### **CAUTION**

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

2. Engage both adapter float locks by lifting lever (A) at each lock until it latches into the lock position.

#### **IMPORTANT:**

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height](#), page 55.

#### **IMPORTANT:**

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height](#), page 55.

3. Open shield (A) on combine. Pull back collar on driveline, and pull driveline (B) off combine output shaft.



Figure 5.35

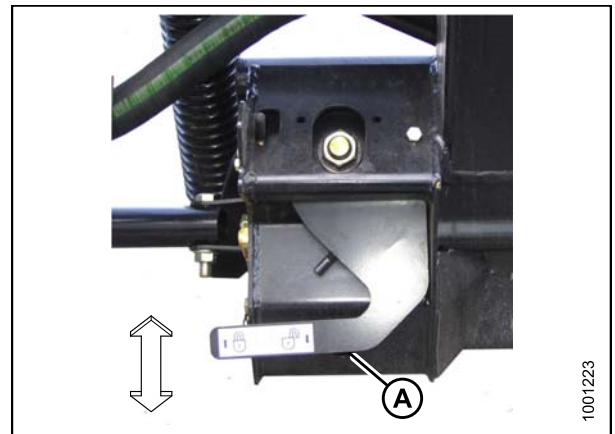


Figure 5.36: Lever Up = LOCK, Down = UNLOCK

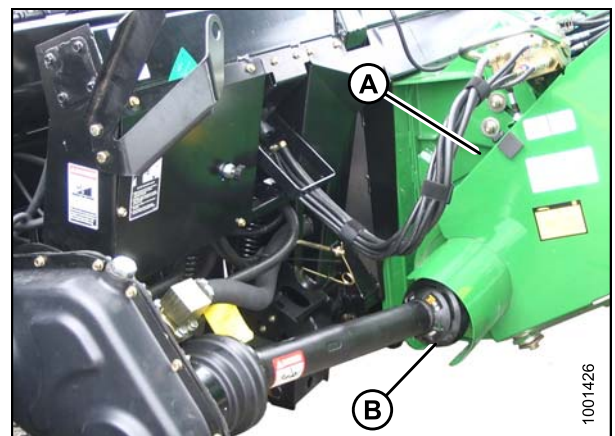


Figure 5.37

## HEADER ATTACHMENT/DETACHMENT

- Slide driveshaft in hook (A) so that disc (B) drops to secure driveshaft.

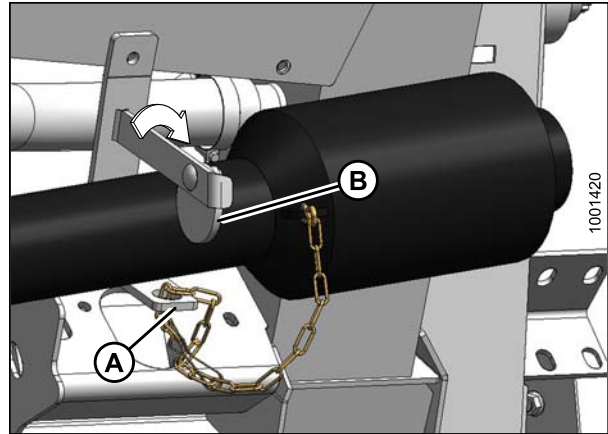


Figure 5.38

- Lift handle (A) on adapter.

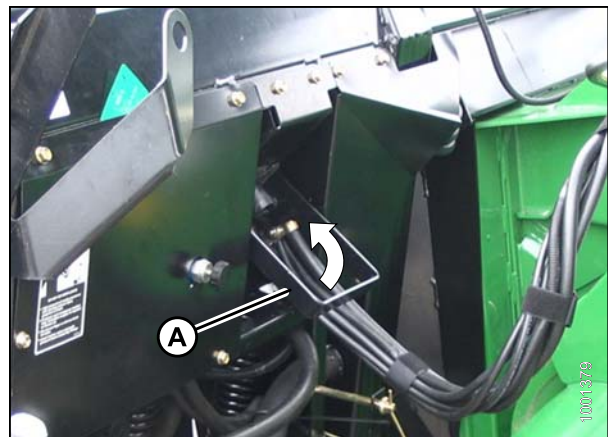


Figure 5.39

The following steps are required to disconnect the hydraulic/electrical coupler from the combine.

- Disconnect harness (A) from combine harness.
- Remove lynch pin (B), and slide lock (C) to release handle (D)
- Lift handle (D) to full vertical position to release coupler (E) from combine.

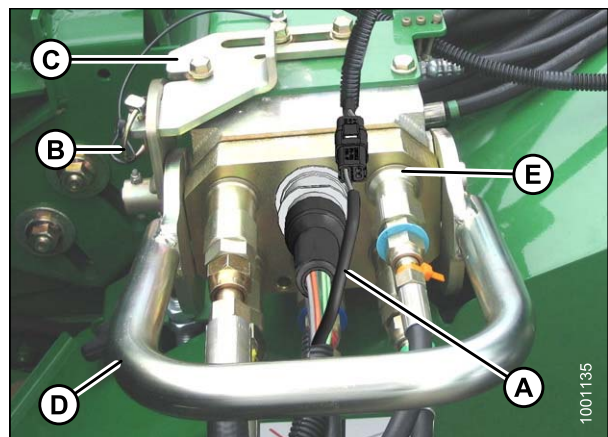


Figure 5.40

A - Harness  
B - Lynch pin  
C - Lock  
D - Handle  
E - Hydraulic/electrical coupler

## HEADER ATTACHMENT/DETACHMENT

9. Position coupler (A) on adapter receptacle, and lower handle (B) to lock coupler.

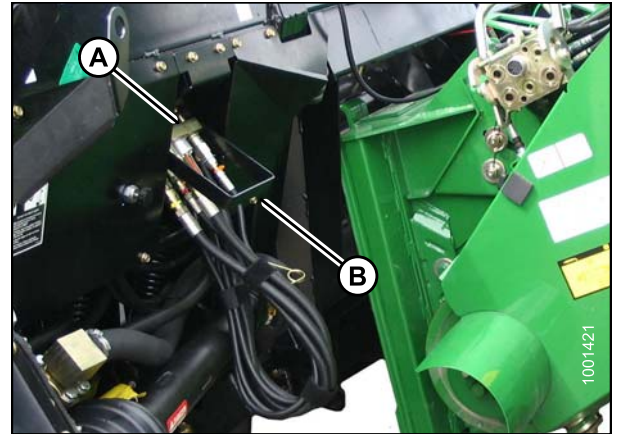


Figure 5.41

10. Push handle (A) on combine toward feeder house to disengage feeder house pin (B) from adapter.

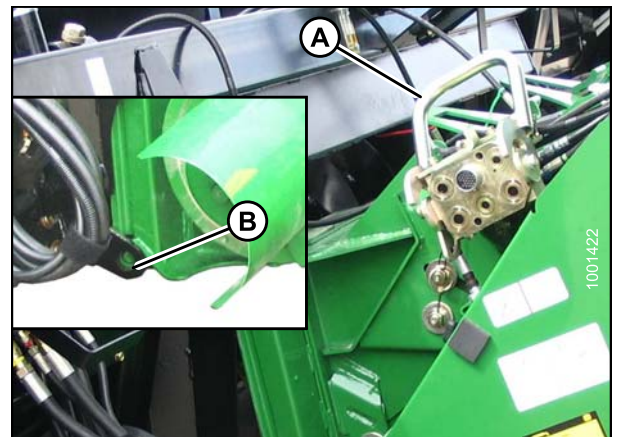


Figure 5.42

11. Lower feeder house until saddle (A) disengages and clears adapter support (B).
12. Slowly back combine away from adapter.

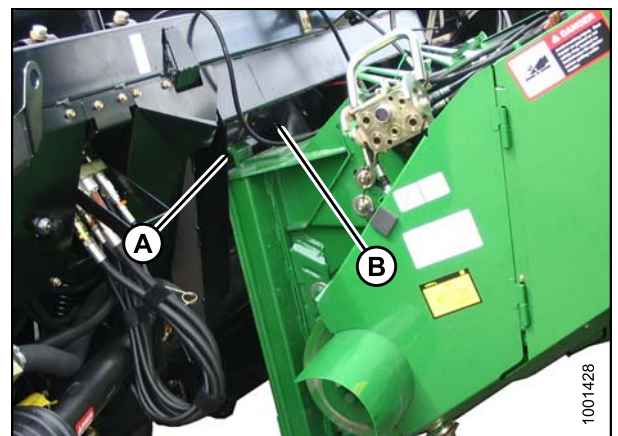


Figure 5.43

### 5.4 Lexion 500, 700 Series Combines

These procedures cover Lexion 500 and 700 Series combines.

#### 5.4.1 Attaching Adapter to Lexion 500 or 700 Series Combine

To attach a Lexion combine to the adapter, follow these steps:

1. Move handle (A) on the CA25 adapter into raised position, and ensure pins (B) at bottom corners of adapter are retracted.
2. Slowly drive combine up to adapter until feeder house is directly under the adapter top cross member.

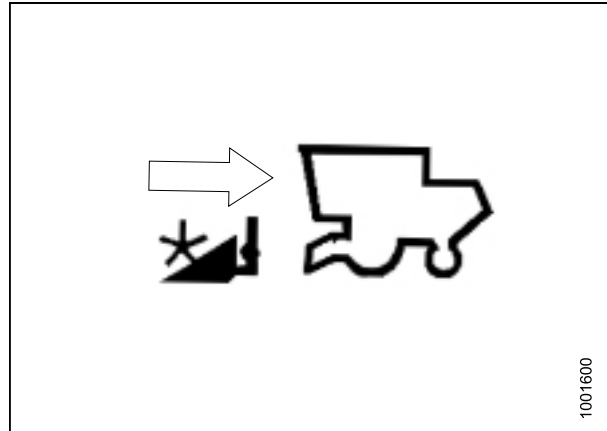


Figure 5.44

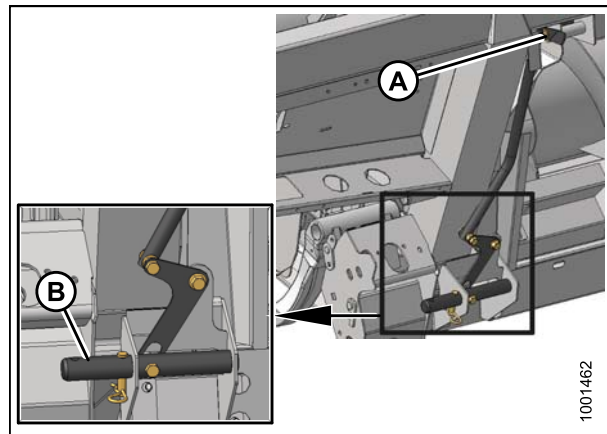


Figure 5.45

A - Handle

B - Pins



## HEADER ATTACHMENT/DETACHMENT

3. Raise feeder house to lift adapter, ensuring feeder house posts (A) are properly engaged in adapter frame (B).
4. Position header slightly off the ground.

### CAUTION

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

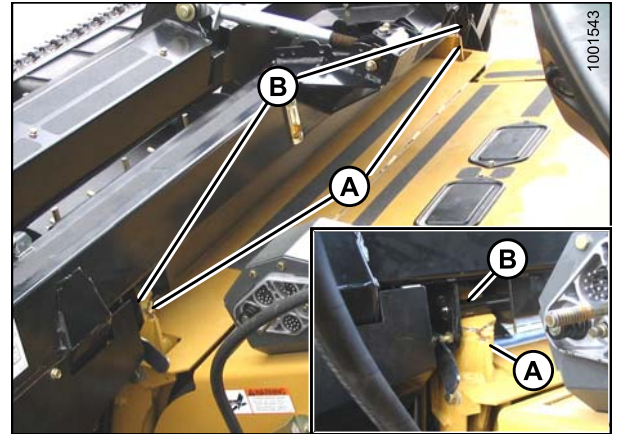


Figure 5.46

A - Feeder House Posts

B - Adapter Frame

5. Remove locking pin (A) from adapter pin (B).

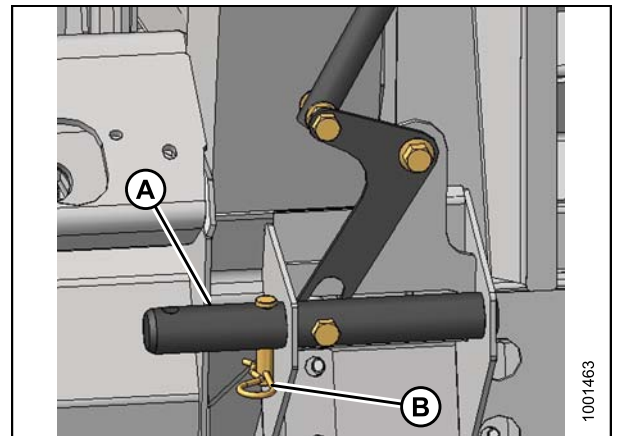


Figure 5.47

6. Lower handle (A) to engage adapter pins (B) into feeder house. Reinsert locking pin (C), and secure with hairpin.

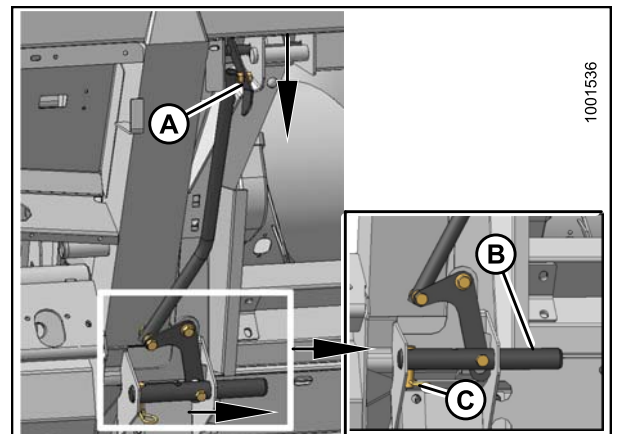


Figure 5.48

A - Handle

B - Adapter Pins

C - LockingPin

## HEADER ATTACHMENT/DETACHMENT

The following steps show how to connect the hydraulic hoses.

7. Unscrew knob (A) on combine coupler (B) to release coupler from combine receptacle and clean coupler.

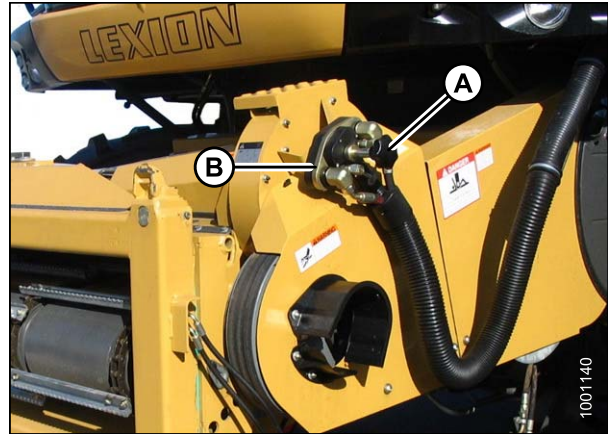


Figure 5.49

8. Remove cover (A) from adapter receptacle and clean coupler.

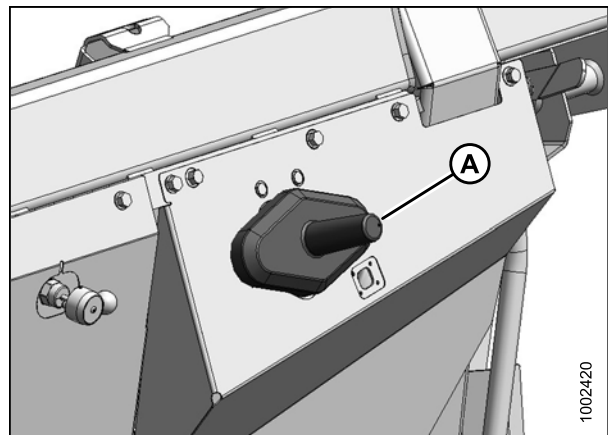


Figure 5.50

9. Clean mating surface of coupler (A), and position onto adapter receptacle (B).
10. Turn knob (C) to secure coupler to receptacle.
11. Connect combine harness (D) to reel fore-aft/header tilt selector receptacle (E).

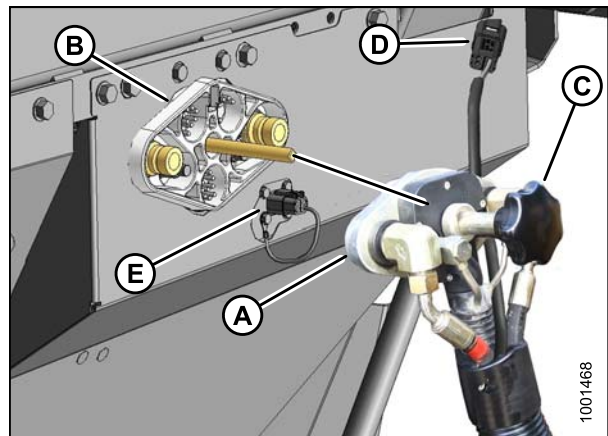
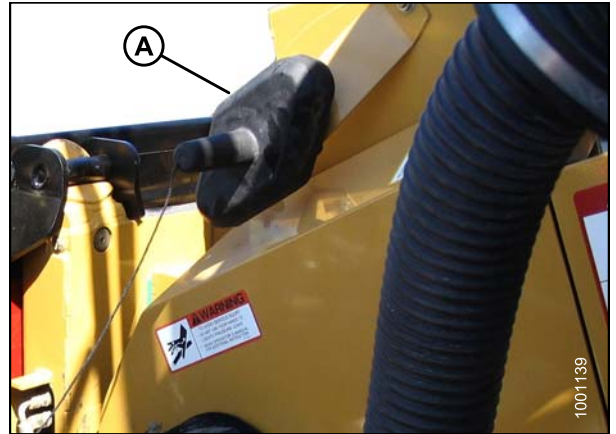


Figure 5.51

A - Coupler Mating Surface      B - Adapter Receptacle  
C - Knob      D - Combine Harness  
E - Reel Fore-aft/Header Tilt Selector Receptacle

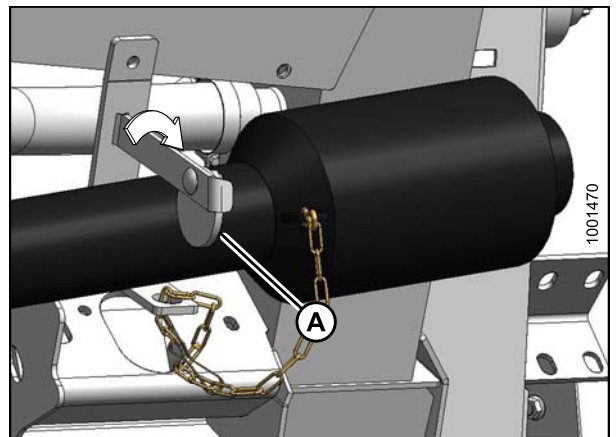
## HEADER ATTACHMENT/DETACHMENT

12. Place cover (A) on combine receptacle.



**Figure 5.52**

13. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.



**Figure 5.53: Driveline**

14. Attach driveline to combine output shaft (A).

## HEADER ATTACHMENT/DETACHMENT

### 5.4.2 Detaching Lexion Combine from Adapter

To detach a Lexion combine from the adapter, follow these steps:

1. Choose a level area. Position header slightly off the ground. Stop engine, and remove key.

#### **DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

#### **CAUTION**

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

2. Engage the adapter float locks by lifting lever (A) at both locks until it latches into the lock position.

#### **IMPORTANT:**

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to [Section 4.7.1 Cutting Height, page 55](#).

#### **IMPORTANT:**

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to [Section 4.7.1 Cutting Height, page 55](#).

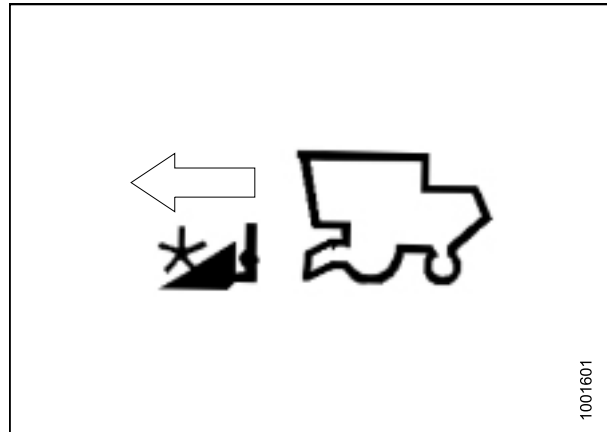


Figure 5.54

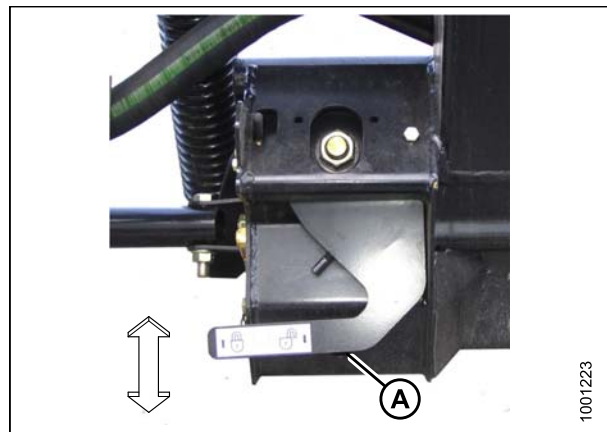


Figure 5.55: Lever Up = LOCK, Down = UNLOCK

## HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveline (A) from combine.

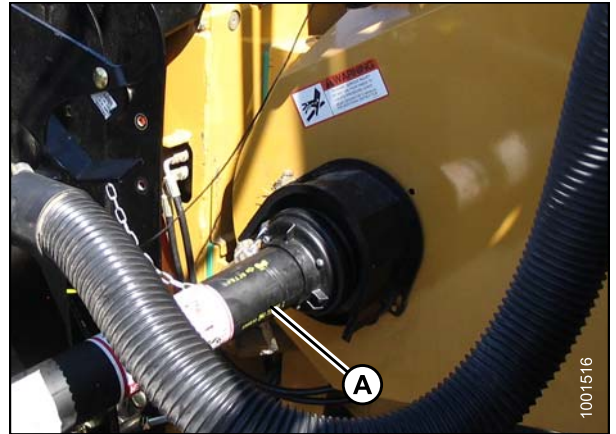


Figure 5.56

4. Slide driveline in hook (A) so that disc (B) drops to secure driveline.

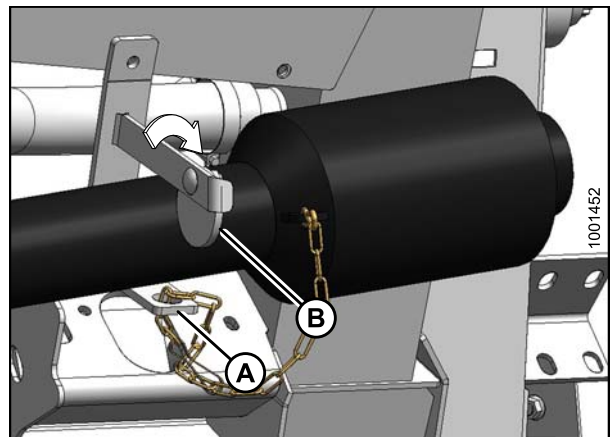


Figure 5.57

The following steps describe how to disconnect hydraulics/electrical from the adapter.

5. Unplug electrical connector (A) from adapter receptacle.
6. Unscrew knob (B) on coupler (C) to release coupler from adapter.

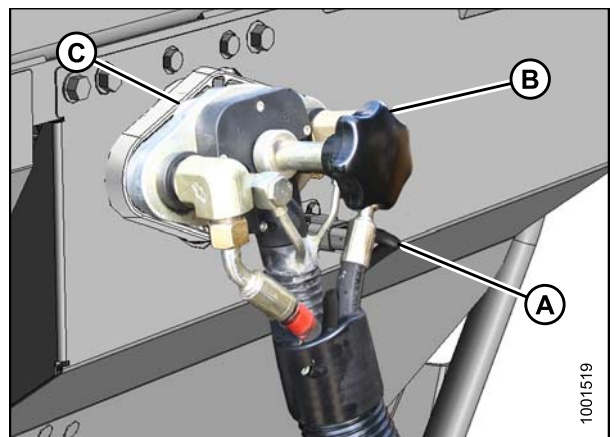
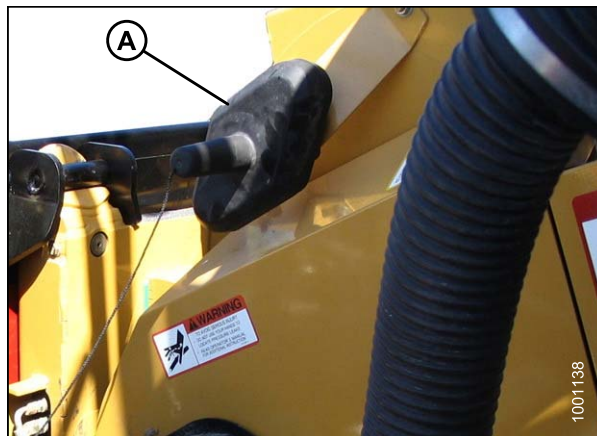


Figure 5.58



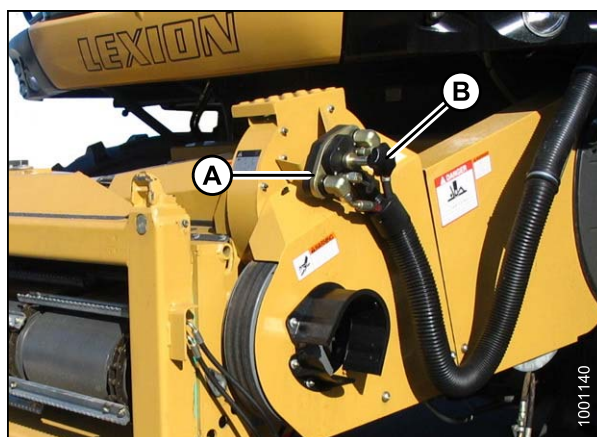
## HEADER ATTACHMENT/DETACHMENT

7. Remove cover (A) from combine receptacle.



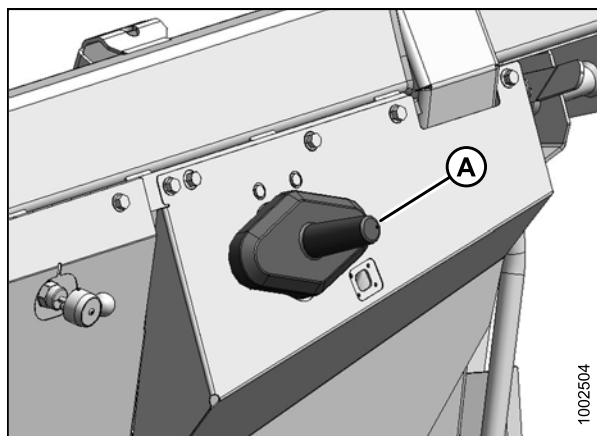
**Figure 5.59**

8. Position coupler (A) onto combine receptacle, and turn knob (B) to secure coupler to receptacle.



**Figure 5.60**

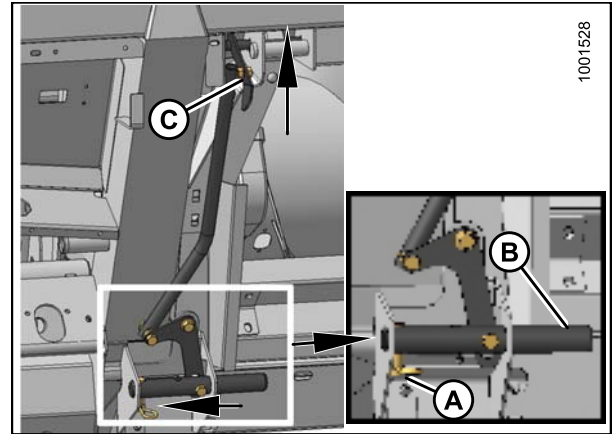
9. Place cover (A) on adapter receptacle.



**Figure 5.61**

## HEADER ATTACHMENT/DETACHMENT

10. Remove locking pin (A) from adapter pin (B).
11. Raise handle (C) to disengage adapter pins (B) from feeder house. Replace locking pin (A) in adapter pin, and secure with hairpin.



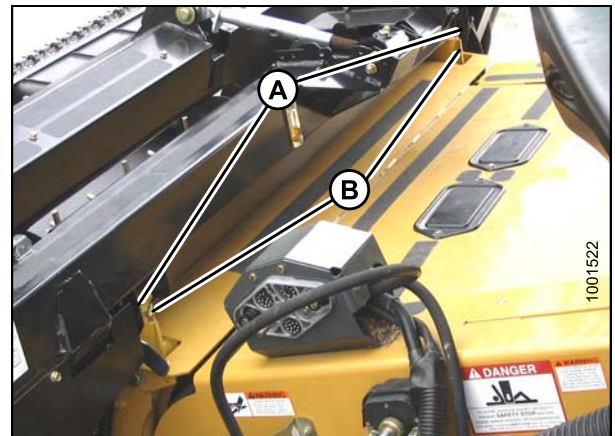
**Figure 5.62**

A - Locking pin

B - Adapter pin

C - Handle

12. Lower feeder house to ground until feeder house posts (A) disengage adapter (B).
13. Slowly back combine away from adapter.



**Figure 5.63**

A - Feeder house posts

B - Adapter

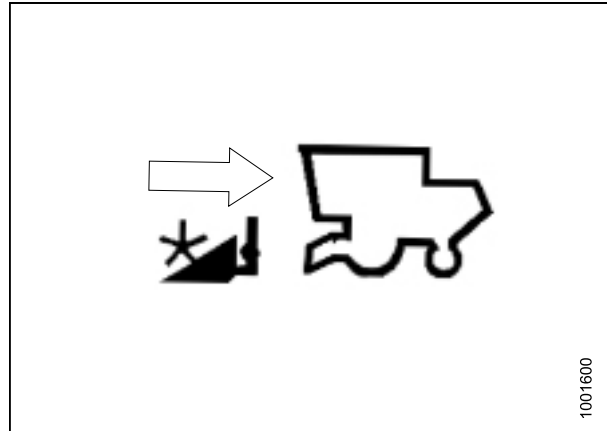
## 5.5 New Holland CR/CX Combines

These procedures cover New Holland CR and CX combines.

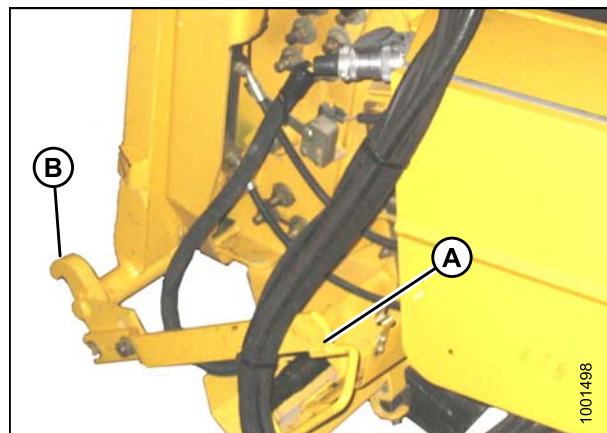
### 5.5.1 Attaching Adapter to New Holland CR/CX Combine

To attach a New Holland CR or CX model combine to the adapter, follow these steps:

1. Ensure handle (A) is positioned so that hooks (B) can engage adapter.



**Figure 5.64: Attach New Holland CR or CX Combine to the Adapter**

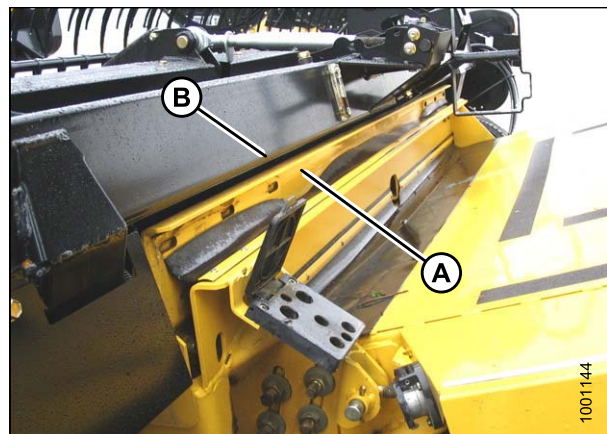


**Figure 5.65**

2. Slowly drive combine up to adapter until feeder house saddle (A) is directly under the adapter top cross member (B).
3. Raise feeder house to lift adapter, ensuring feeder saddle is properly engaged in adapter frame.

### CAUTION

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

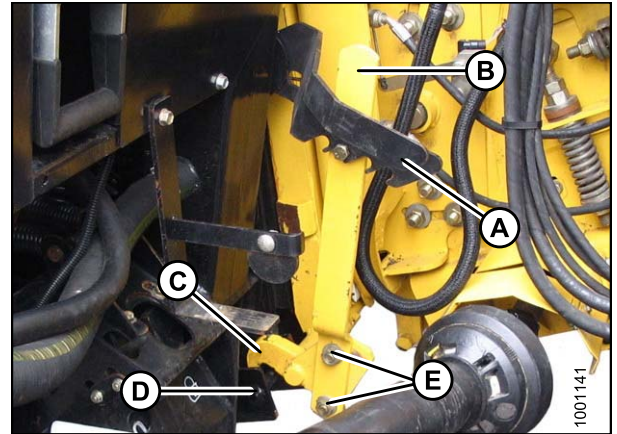


**Figure 5.66**



## HEADER ATTACHMENT/DETACHMENT

4. Lift lever (A) on adapter at left side of feeder house, and push handle (B) on combine so that hooks (C) engage pins (D) on both sides of the feeder house.
5. Push down on lever (A) so that slot in lever engages handle to lock handle in place.
6. If hook (C) does **NOT** fully engage pin on adapter when (A) and (B) are engaged, loosen bolts (E), and adjust lock as required. Retighten bolts.



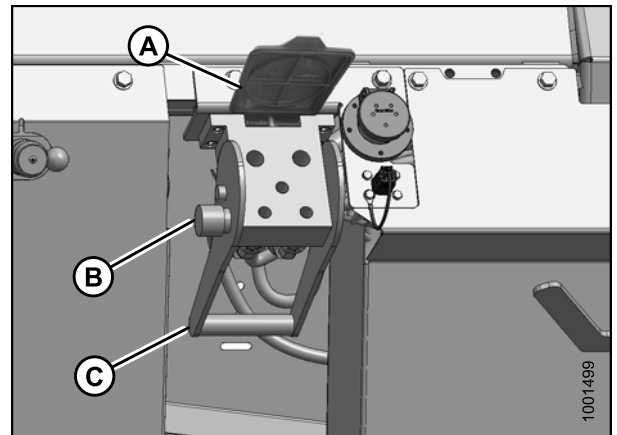
**Figure 5.67**

A - Adapter Lever  
C - Combine Hooks  
E - Combine Bolts

B - Combine Handle  
D - Adapter Pins

Connect receptacle on adapter as follows:

7. Open cover (A).
8. Push in lock button (B), and pull handle (C) halfway up to open position.
9. Clean coupler face.



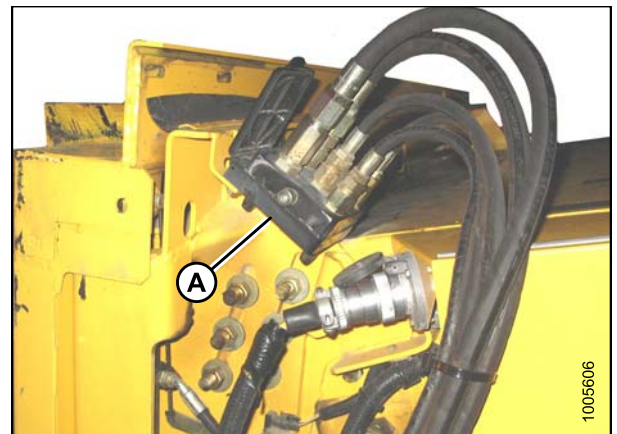
**Figure 5.68**

A - Cover

B - Lock Button

C - Handle

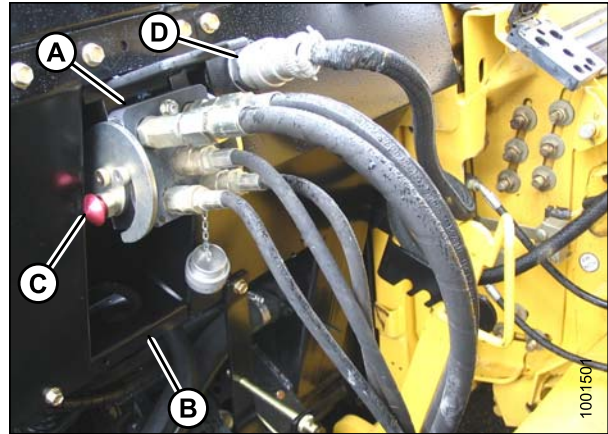
10. Remove hydraulic quick coupler (A) from storage plate on combine, and clean mating surface of coupler.



**Figure 5.69**

## HEADER ATTACHMENT/DETACHMENT

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

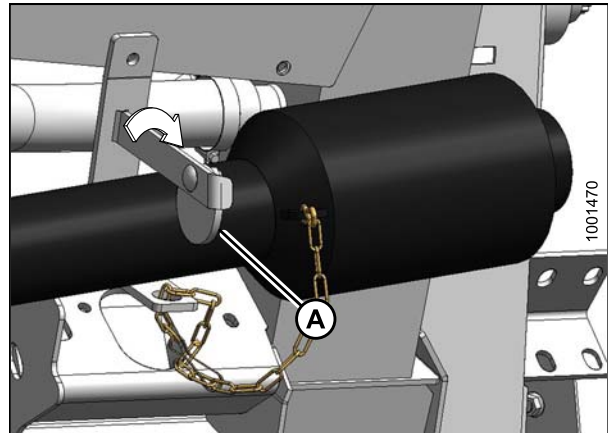


**Figure 5.70**

A - Coupler  
B - Handle

C - Lock button  
D - Connector

16. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.



**Figure 5.71: Driveline**

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

## HEADER ATTACHMENT/DETACHMENT

### 5.5.2 Detaching New Holland CR/CX Combine from Adapter

To detach a New Holland CR or CX model combine from the adapter, follow these steps:

1. Choose a level area. Position header slightly off the ground. Stop engine, and remove key.

#### **DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

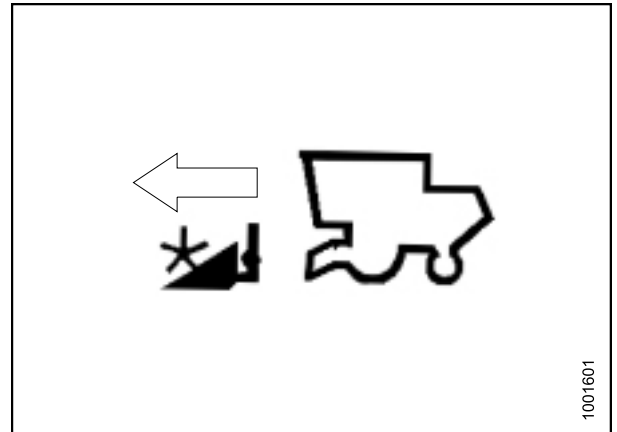


Figure 5.72

#### **CAUTION**

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

2. Engage the adapter float locks by lifting lever (A) at each lock until it latches into the lock position.

#### **IMPORTANT:**

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height](#), page 55.

#### **IMPORTANT:**

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height](#), page 55.

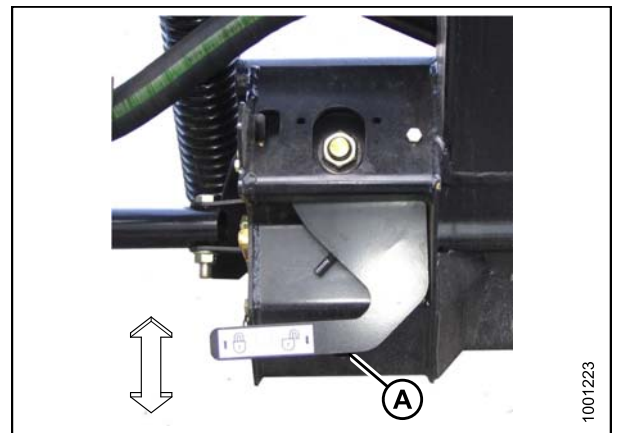


Figure 5.73: Lever Up = LOCK, Down = UNLOCK

## HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveshaft (A) from combine.

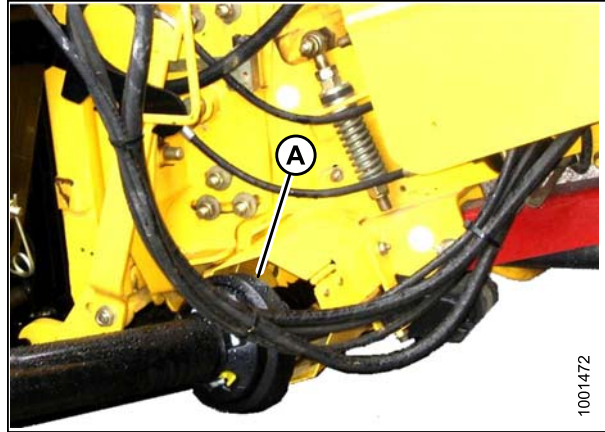


Figure 5.74

4. Slide driveshaft in hook (A) so that disc (B) drops to secure driveshaft.

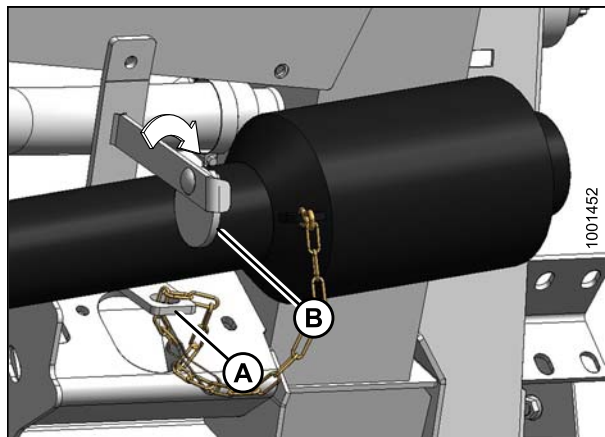


Figure 5.75

The following describes how to remove the hydraulic quick coupler (A) from the receptacle on the adapter:

5. Push in lock button (B), and pull handle (C) to release coupler (A).

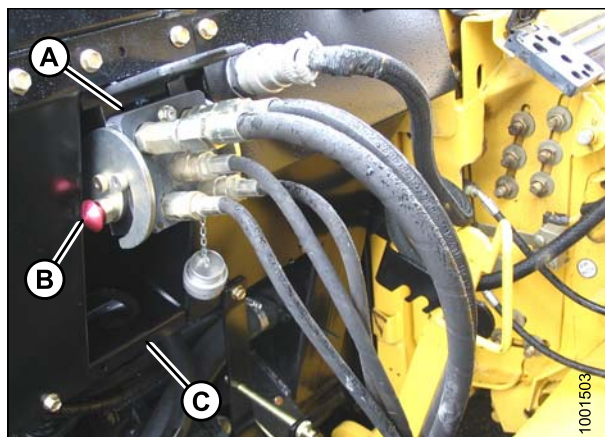


Figure 5.76



## HEADER ATTACHMENT/DETACHMENT

6. Push handle (A) to closed position until lock button (B) snaps out. Close cover (C).

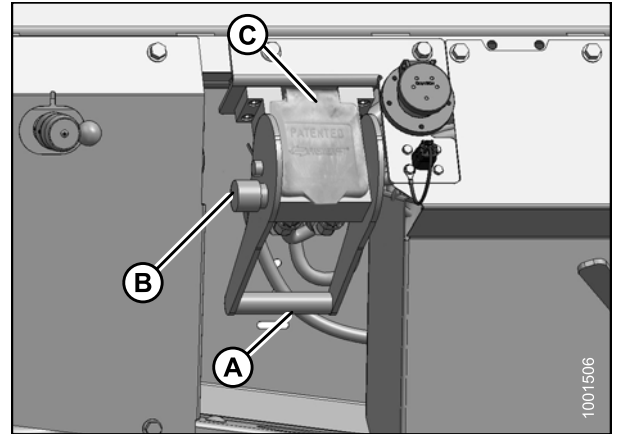


Figure 5.77

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

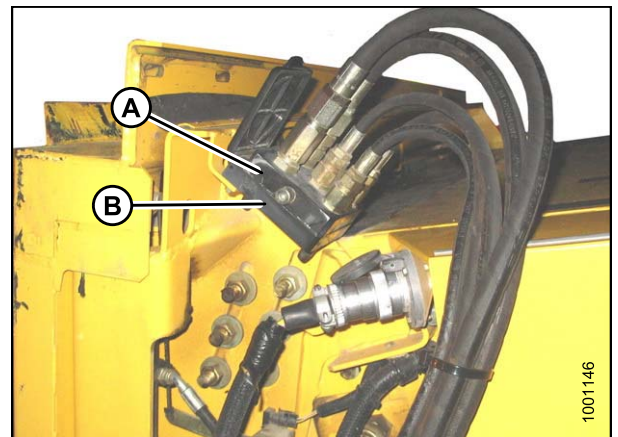


Figure 5.78

8. Remove electrical connector (A) from adapter.

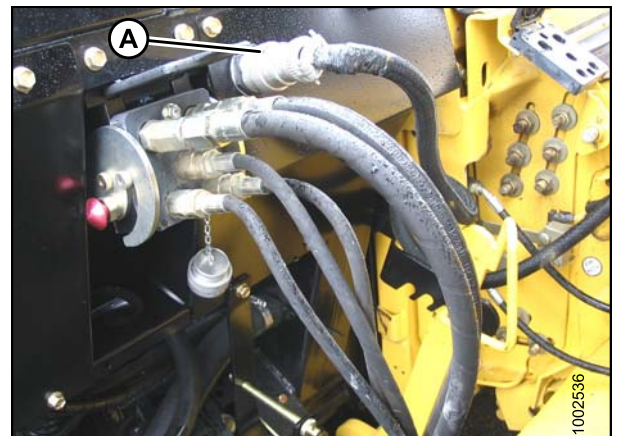


Figure 5.79

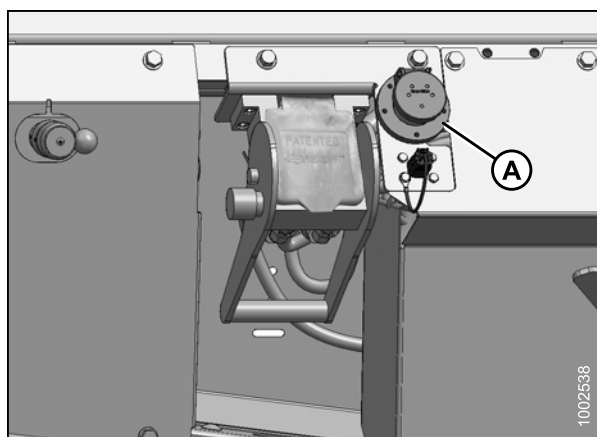
## HEADER ATTACHMENT/DETACHMENT

9. Connect electrical connector to combine at (A).



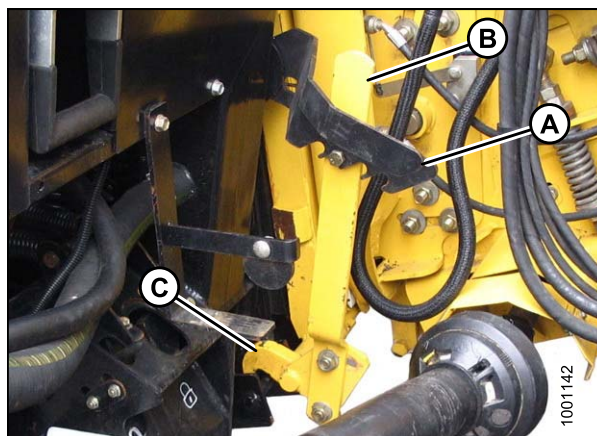
**Figure 5.80**

10. Replace cover (A) on adapter receptacle.



**Figure 5.81**

11. Lift lever (A), and pull and lower handle (B) to disengage feeder house/adapter lock (C).



**Figure 5.82**

A - Adapter lever

B - Combine handle

C - Feeder house/adapter lock

## HEADER ATTACHMENT/DETACHMENT

12. Lower feeder house until feeder house (A) disengages adapter support (B).
13. Slowly back combine away from adapter.

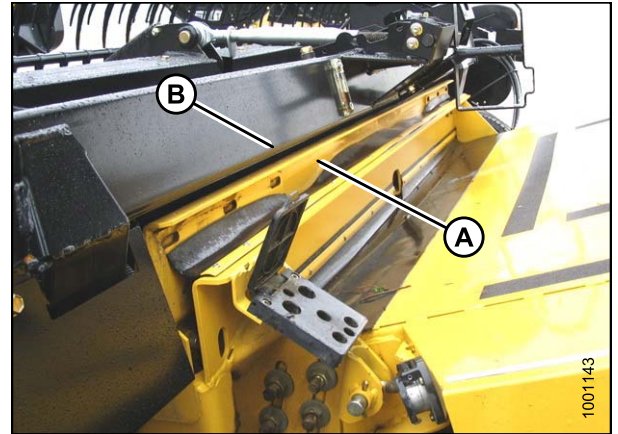


Figure 5.83

### 5.5.3 CR Feeder Deflectors

**For New Holland CR 960, 9070, and 9080 combines**, feeder kits have been installed on the adapter at the factory to improve feeding into the feeder house. They may also have been installed as an option on older machines. If necessary, they can be removed.

CA25 adapters for the CR Models listed below have short feeder kits installed at the factory. Long feeder kits are provided for narrow feeder house combines, and are Dealer-installed to replace the short feeder kits.

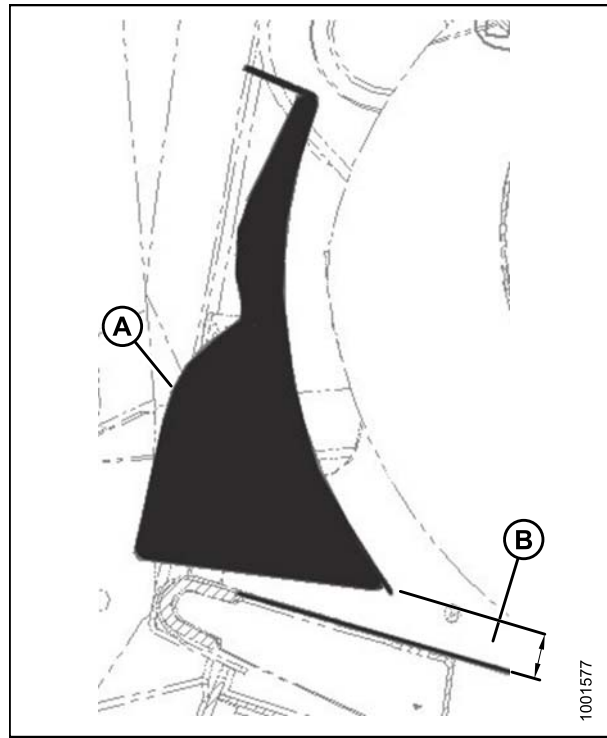
Combine model	Feeder house size	Feeder kit size	MD part #
CR970, 9070, 9080	Wide	Short: 7-7/8 in. (200 mm)	B5405
CR960, 9060, 940, 9040	Narrow	Long: 12-13/16 in. (325 mm)	B5404

## HEADER ATTACHMENT/DETACHMENT

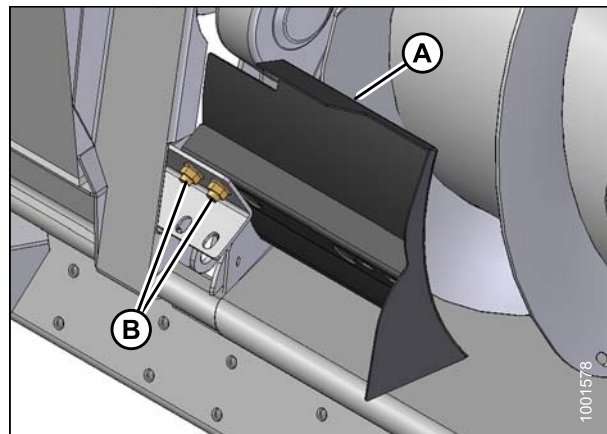
### *Replacing Feed Deflectors*

To replace feeder deflectors, follow these steps:

1. Determine position of existing deflector (A) by measuring gap (B) between deflector forward edge and pan.
2. Remove two bolts (B), and nuts securing deflector (A) to adapter frame, and remove deflector.
3. Position replacement deflector, and secure with bolts (B) and nuts. Maintain dimension from existing deflector for replacement deflector.
4. Repeat for opposite deflector.
5. After attaching header to combine, extend center-link fully, and check gap between deflector and pan. Maintain 0.8125–0.9375 in. (19–25 mm).



**Figure 5.84**



**Figure 5.85**



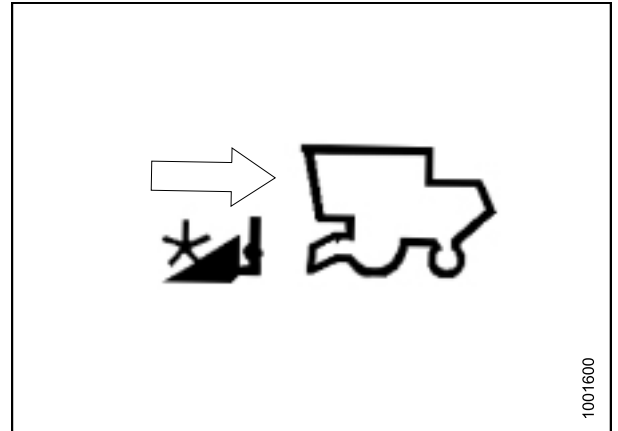
### 5.6 AGCO Combines

These procedures are for the following AGCO combine models:

- Challenger 660, 670, 680B, 540C, and 560C
- Gleaner R and S Series
- Massey 9690, 9790, 9895, 9520, 9540, and 9560

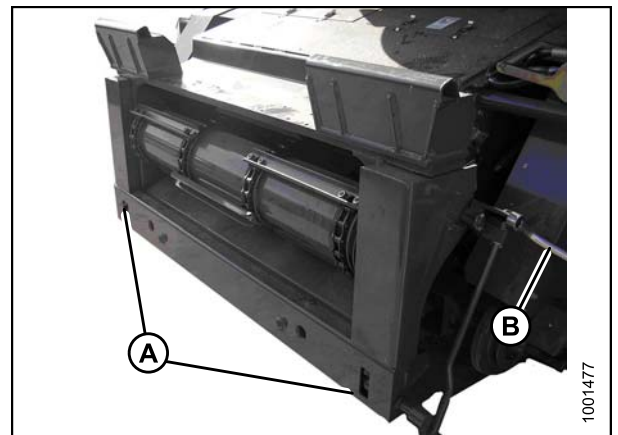
#### 5.6.1 Attaching Adapter to AGCO Combine

To attach the adapter to an AGCO combine, follow these steps:



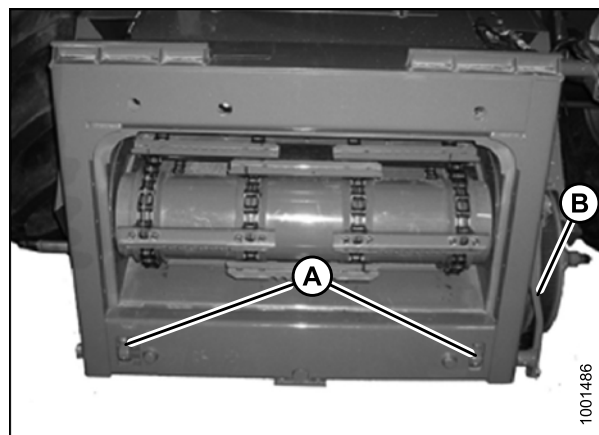
**Figure 5.86: Attach AGCO Combine to Adapter**

1. Retract lugs (A) at base of feeder-house with lock handle (B).



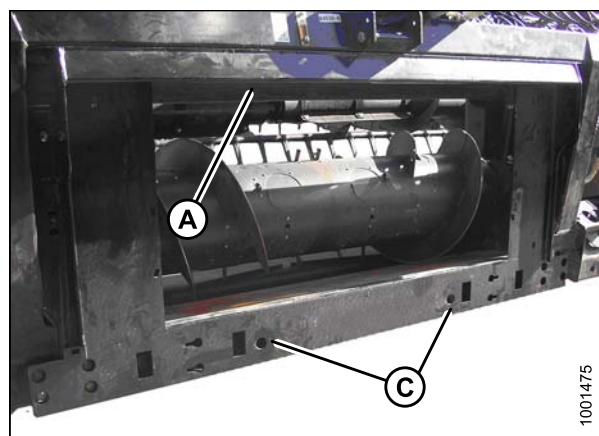
**Figure 5.87: All AGCO except Gleaner R and S Series**

## HEADER ATTACHMENT/DETACHMENT



**Figure 5.88: Gleaner R and S Series**

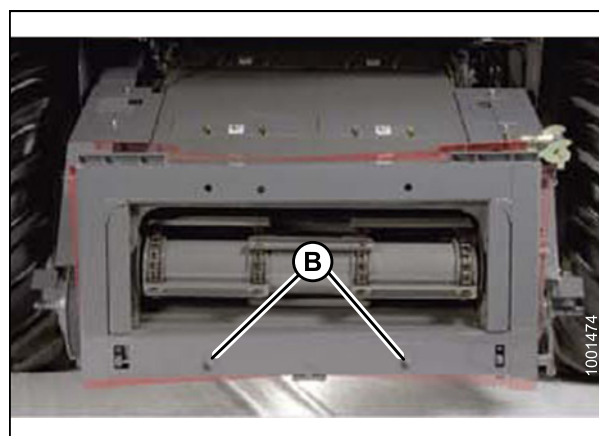
2. Slowly drive combine up to adapter until feeder house is directly under the adapter top cross member (A), and alignment pins (B) are aligned with holes (C) in adapter frame.



**Figure 5.89: Adapter Cross Member and Alignment Pins**

A - Adapter Top Cross Member

C - Holes



**Figure 5.90: Alignment Pins for All AGCO except Gleaner R and S Series and LL Models**

## HEADER ATTACHMENT/DETACHMENT

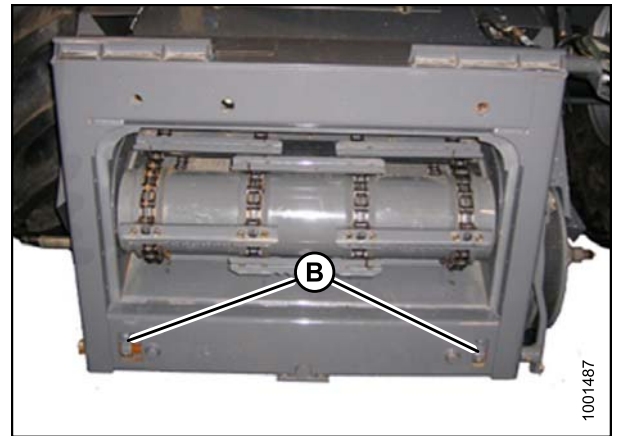


Figure 5.91: Gleaner R and S Series Alignment Pins

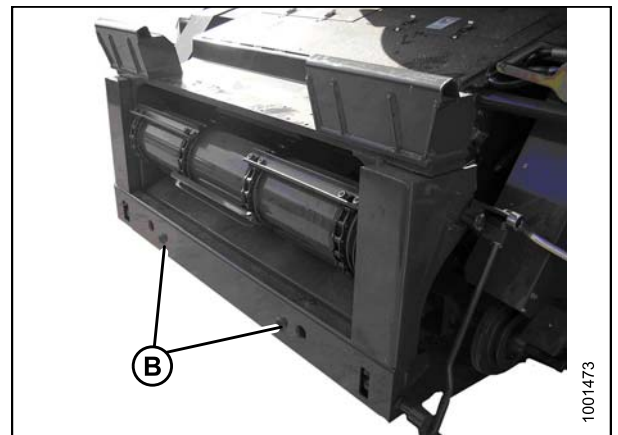


Figure 5.92: AGCO LL Model Alignment Pins

3. Raise feeder house to lift adapter, ensuring feeder house saddle (A) and alignment pins are properly engaged in adapter frame.
4. Raise header slightly off the ground.

### **CAUTION**

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

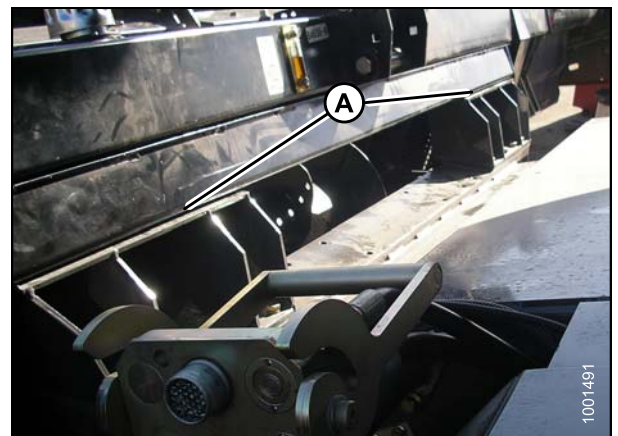
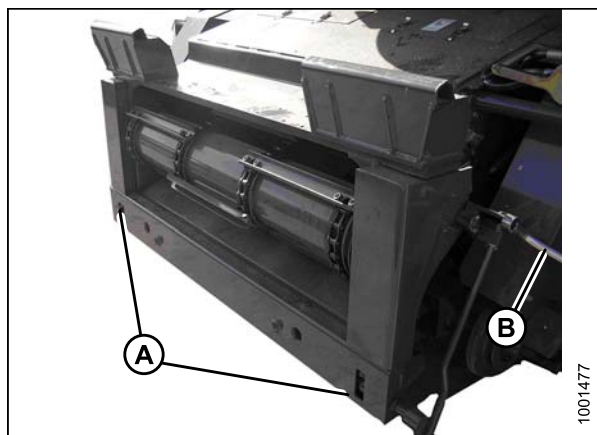


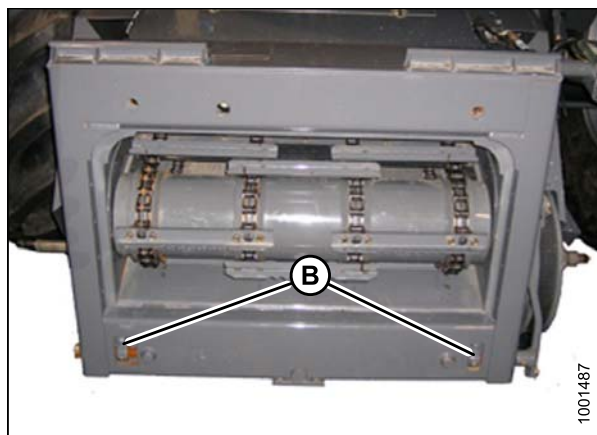
Figure 5.93

## HEADER ATTACHMENT/DETACHMENT

- Engage lugs (A) with adapter using lock handle (B).



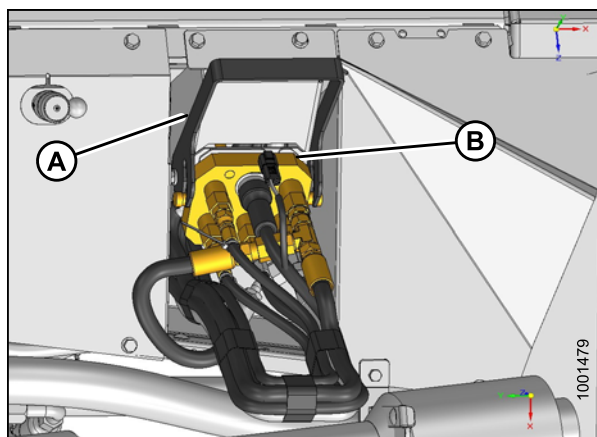
**Figure 5.94: All AGCO except Gleaner R and S Series**



**Figure 5.95: Gleaner R and S Series**

Connect the adapter hydraulic quick coupler to the combine receptacle as follows:

- Raise handle (A) to release coupler (B) from adapter.



**Figure 5.96**

## HEADER ATTACHMENT/DETACHMENT

7. Push handle (A) on combine to full open position.
8. Clean mating surfaces of coupler (B) and receptacle if necessary.

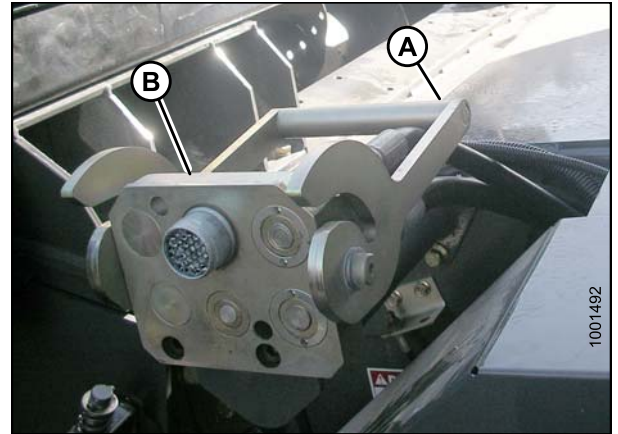


Figure 5.97

9. Position coupler (A) onto combine receptacle, and pull handle (B) to fully engage coupler into receptacle.
10. Connect reel fore-aft/header tilt selector harness (C) to combine harness (D).

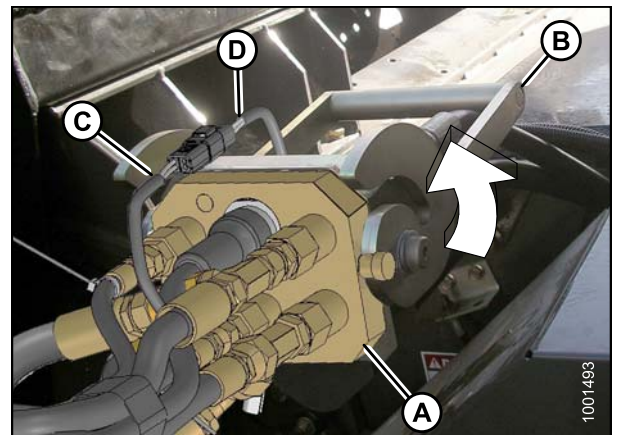


Figure 5.98

11. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

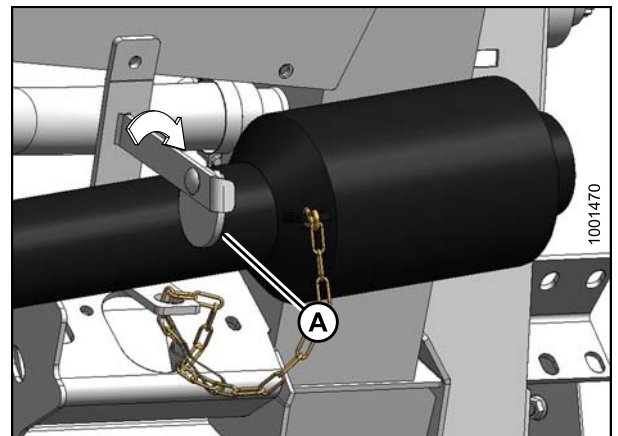
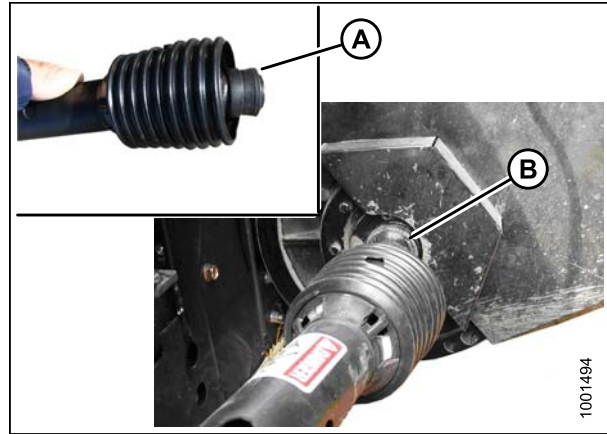


Figure 5.99: Driveline

## HEADER ATTACHMENT/DETACHMENT

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



**Figure 5.100: Driveline**



## HEADER ATTACHMENT/DETACHMENT

### 5.6.2 Detaching AGCO Combine from Adapter

To detach an AGCO combine from the adapter, follow these steps.

1. Choose a level area. Position header slightly off the ground. Stop engine, and remove key.

#### **DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

#### **CAUTION**

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

2. Engage the adapter float locks by lifting lever (A) at each lock until it latches into the lock position.

#### **IMPORTANT:**

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 55](#).

#### **IMPORTANT:**

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 55](#).

3. Disconnect driveshaft (A) from combine.

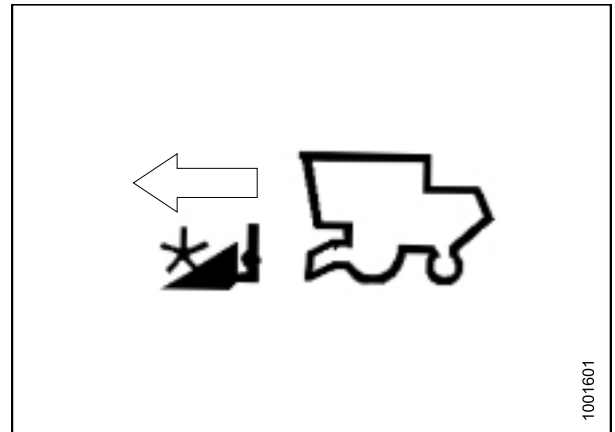


Figure 5.101: Detach Header

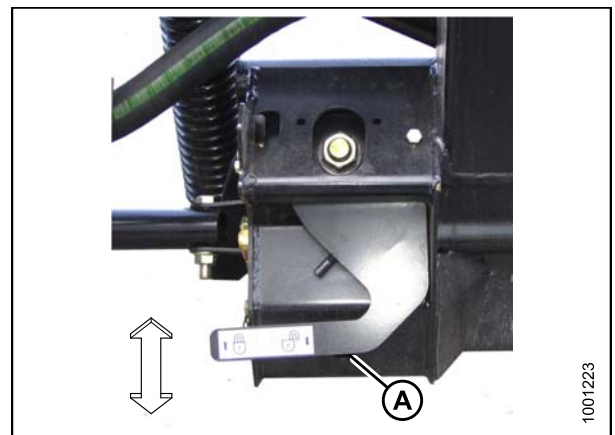


Figure 5.102: Lever Up = LOCK, Down = UNLOCK

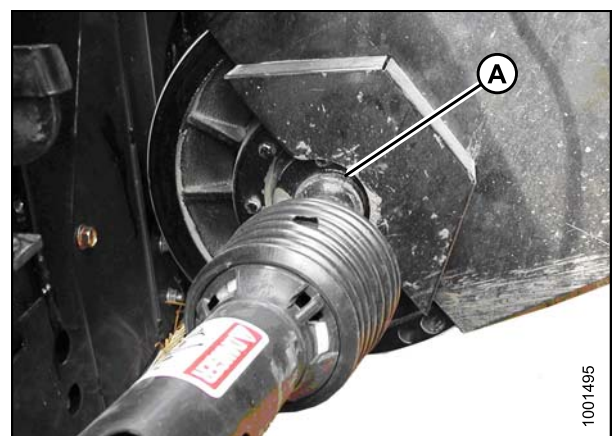


Figure 5.103: Disconnect driveshaft

## HEADER ATTACHMENT/DETACHMENT

- Slide driveshaft in hook (A) so that disc (B) drops to secure driveshaft.

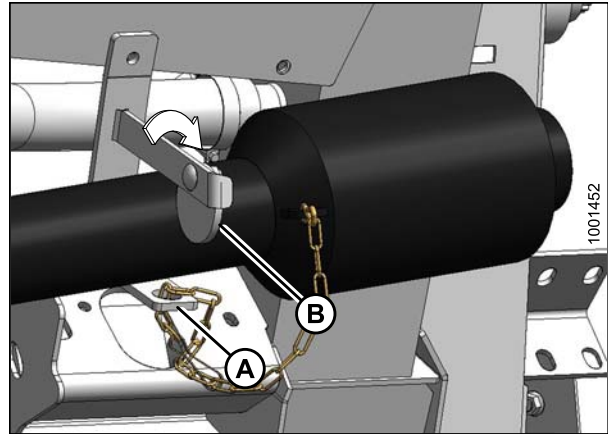


Figure 5.104

- Disconnect harness at connector (A).
- Move handle (B) on combine multi-coupler to full open position to release coupler (C) from combine.

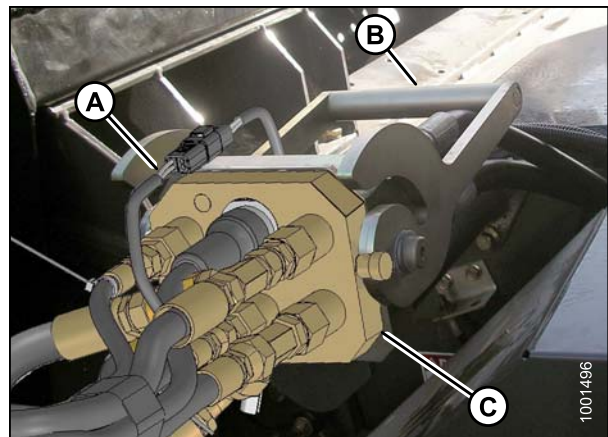


Figure 5.105

- Raise handle (A) on adapter, and place coupler (B) on adapter receptacle.
- Lower handle (A) to lock coupler.

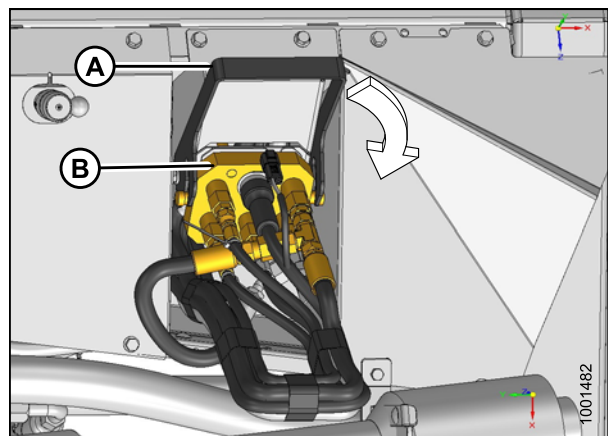
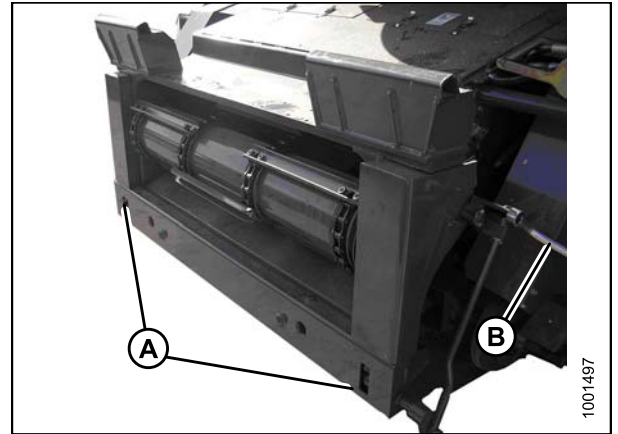


Figure 5.106

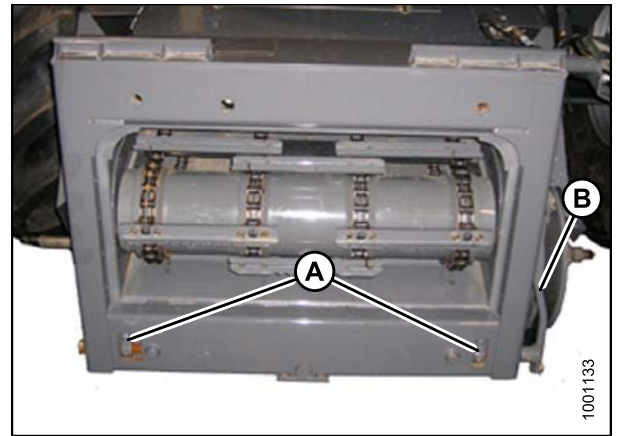


## HEADER ATTACHMENT/DETACHMENT

9. Retract lugs (A) at base of feeder-house with lock handle (B).

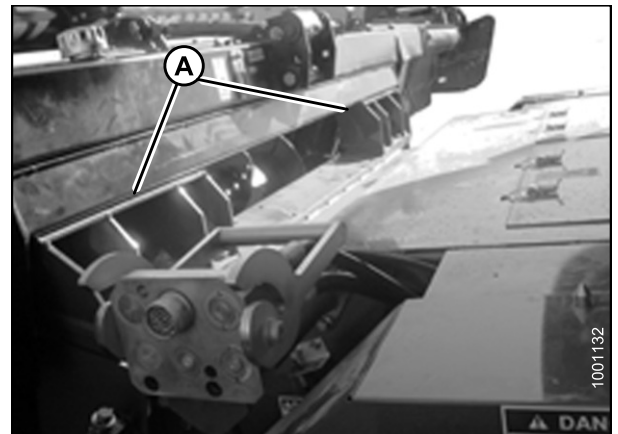


**Figure 5.107: All AGCO except Gleaner R and S Series**



**Figure 5.108: Gleaner R and S Series**

10. Lower feeder house until saddle (A) disengages and clears adapter support.
11. Slowly back combine away from adapter.



**Figure 5.109**

## 5.7 Attaching and Detaching Header With Combine and Adapter

These procedures are the same for all makes and models of combines. The headers can be attached to the adapter from either Field configuration or Transport configuration.

In the procedures that follow, the adapter remains attached to the combine. Use these procedures when:

- Detaching the header for use on a windrower
- Changing headers
- Performing certain maintenance tasks

### 5.7.1 Detaching Header from Combine and Adapter

To detach the header from the combine and adapter.

#### **WARNING**

Keep hands clear of the area between guards and knife at all times.

#### **CAUTION**

Wear heavy gloves when working around or handling knives.

#### **DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

Disconnect the adapter deck from the cutterbar as follows:

1. Start engine, lower header. Tilt header until cylinder is fully extended and indicator (A) is at "D". This will increase clearance under adapter feed draper.
2. Raise reel fully.
3. Engage reel safety props.
4. Stop engine, and remove key.

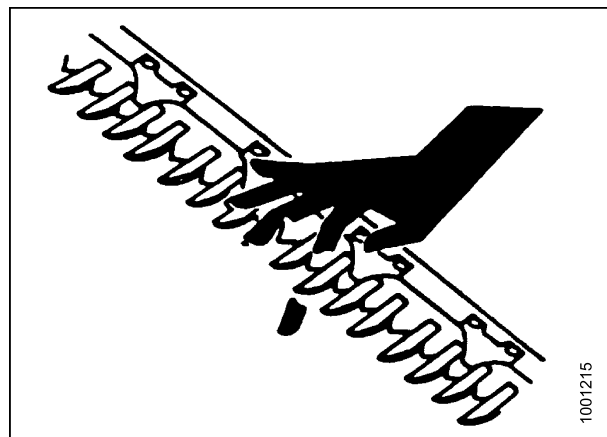


Figure 5.110

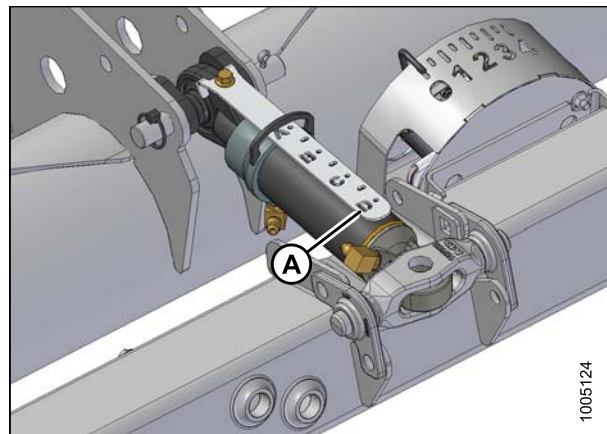
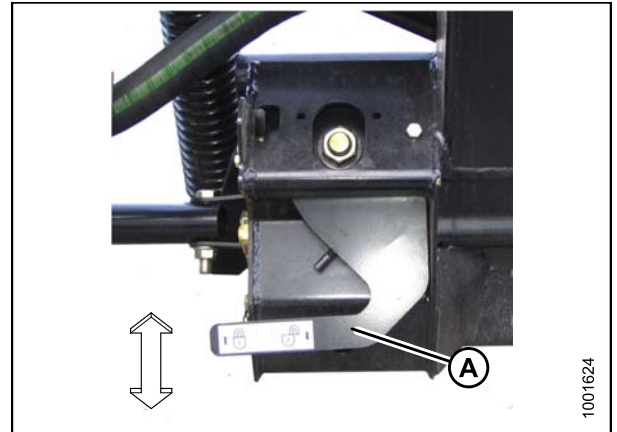


Figure 5.111

## HEADER ATTACHMENT/DETACHMENT

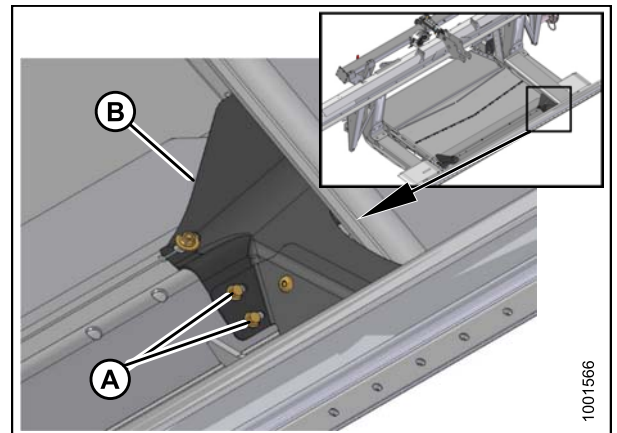
- Engage the adapter float locks by lifting lever (A) until it latches into the lock position.

**NOTE:** Stabilizer/Slow Speed Transport wheels can be used to support header.



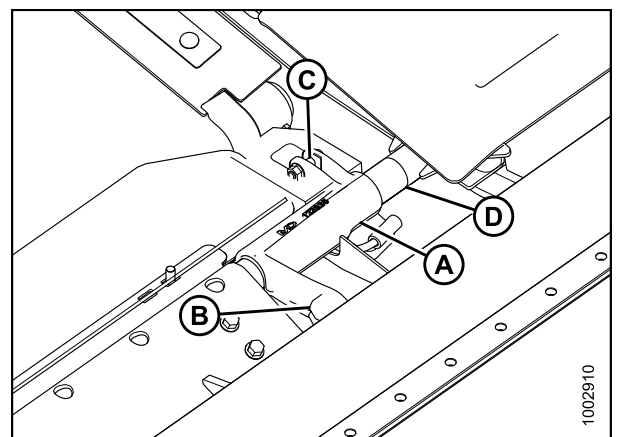
**Figure 5.112: Lever Up = LOCK, Down = UNLOCK**

- Remove two hex head bolts (A) attaching filler (B) to transition pan at front corners, fold back filler (B) for access to latch, shown in next image.



**Figure 5.113**

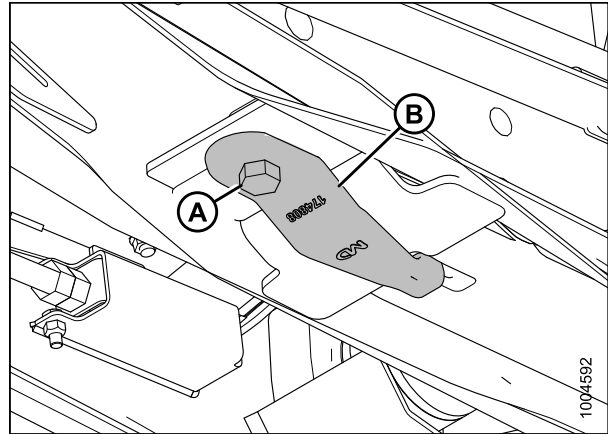
- Remove 9/16 in. nut from bolt (C).
- Rotate latch (A) down with a 15/16 in. wrench on hex (B) to raise feed deck slightly so that bolt (C) can be removed.
- Rotate latch (A) up and back to lower adapter deck and disengage transition pan tube (D).
- Reinstall bolt (C).
- Repeat for other side of the feed draper deck.
- Disengage reel safety props, start engine, lower reel and raise header fully. Stop engine, remove key, and engage combine lift safety props.



**Figure 5.114**

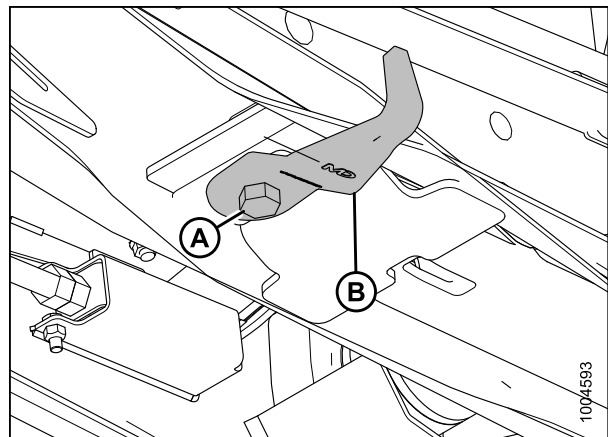
## HEADER ATTACHMENT/DETACHMENT

13. Loosen nut and bolt (A), and disengage hook (B) from leg on both sides of adapter.



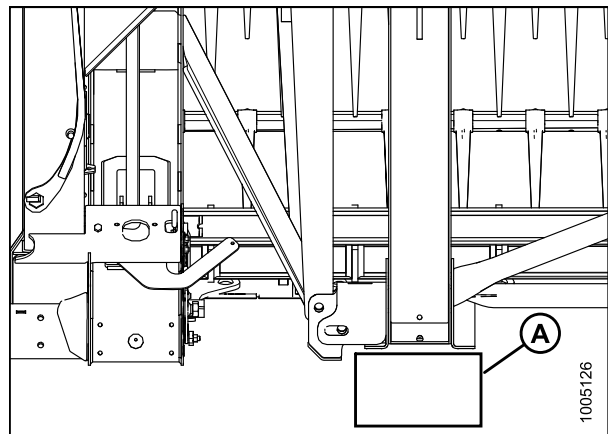
**Figure 5.115**

14. Rotate hook 90° for storage, and retighten bolt and nut (H).



**Figure 5.116**

15. Place a 6 in. (150 mm) block (A) under the header leg. This will assist with disconnecting the center-link.
16. Disengage combine lift cylinder locks, start engine, and lower header until the header leg rests on the block or stabilizer wheels are the ground.



**Figure 5.117**

## HEADER ATTACHMENT/DETACHMENT

### 17. Disconnect hydraulic center-link:

- Remove lynch pin and clevis pin (A), and then lift center-link (B) clear of bracket.
- Replace pin (A), and secure with lynch pin.

**NOTE:** Feeder house may need to be raised or lowered, or length of link adjusted, to relieve load on link.

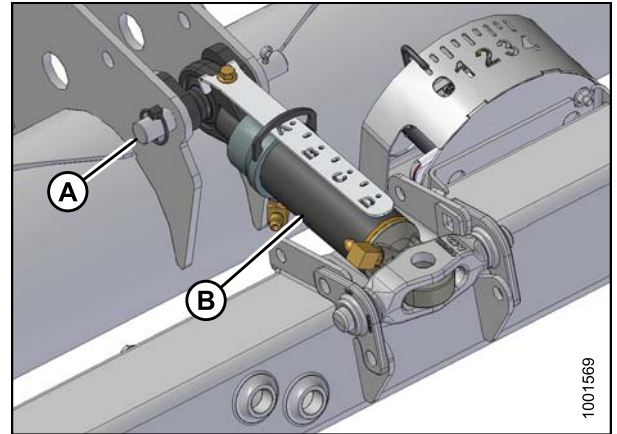


Figure 5.118: Disconnect hydraulic center-link

### 18. Disconnect knife and draper drive hydraulic hoses (A) at bracket. Cap off ends immediately to avoid loss of oil.

- NOTE:**
- If on the ground: Push reel fully forward to reduce oil loss.
  - If on transport: Pull reel fully back.

### 19. Store and secure hoses on adapter frame.

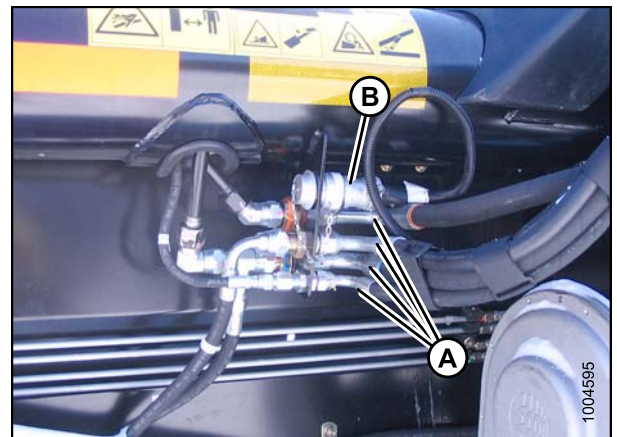


Figure 5.119

### 20. If quick disconnects are installed, disconnect as follows:

- Line up slot (A) in collar with pin (B) on connector.
- Push collar toward pin, and pull connector to disengage.
- Install plugs or caps on hose ends (if equipped).

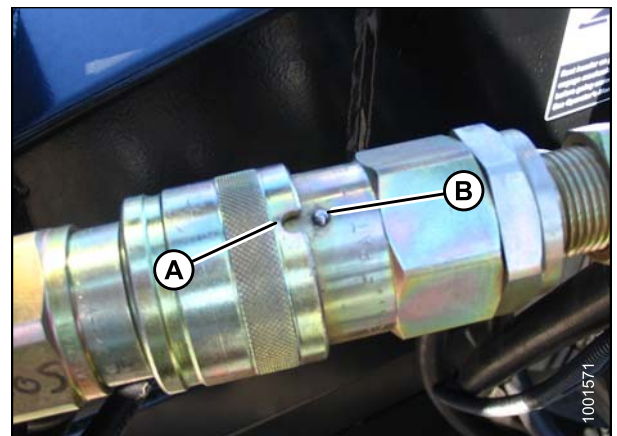


Figure 5.120: Disconnect quick disconnects

## HEADER ATTACHMENT/DETACHMENT

21. Disconnect reel hydraulics. Cap off end immediately to avoid loss of oil.

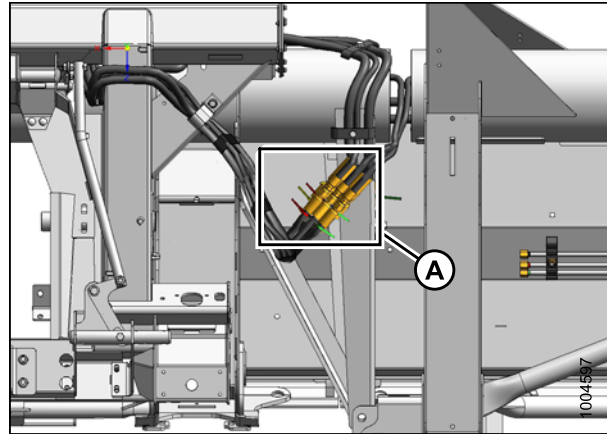


Figure 5.121: Disconnect reel hydraulics

22. Store and secure hoses to adapter frame.
23. Ensure header is on ground, or is supported by wheels in transport mode.
24. Start engine, and slowly back combine away from header.
25. Stop engine, and remove key.



Figure 5.122: Store and secure hoses

### 5.7.2 Attaching Header to Combine and Adapter

The FD75 FlexDraper® can be attached to the adapter from either Field configuration or Transport configuration.



#### CAUTION

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

**NOTE:** Stabilizer/Slow Speed Transport wheels can be used to support header. Refer to Section [4.7.1 Cutting Height](#), page 55.



## HEADER ATTACHMENT/DETACHMENT

1. Prop up hydraulic center-link (A) with pin (or equivalent tool) at (B).

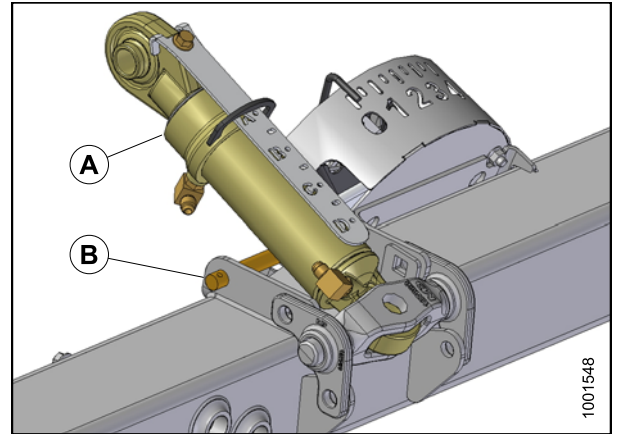


Figure 5.123

2. Ensure hooks (A) are in storage position as shown, not interfering with entrance into channel (B).

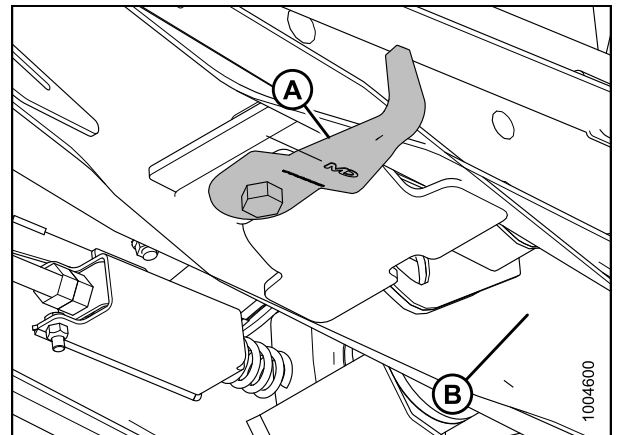


Figure 5.124

3. Ensure latches (A) at front corners of adapter are rotated towards the rear of adapter.



### CAUTION

Be sure all bystanders are clear of machine before starting engine or engaging any header drives.

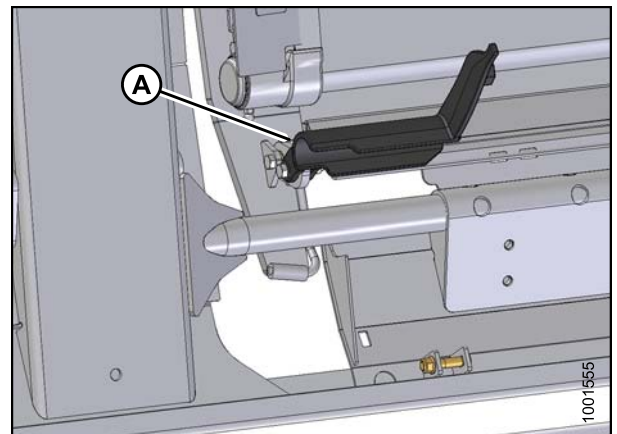


Figure 5.125: Latches

## HEADER ATTACHMENT/DETACHMENT

4. Start engine, and lower combine feeder house so that adapter arms (B) are aligned with header balance channels (B).
5. Drive slowly forward, maintaining alignment between adapter arms (A) and header balance channels (B).
6. Keep adapter arms (A) just under the balance channels (B) to ensure adapter legs seat properly in the header linkage supports at (C).

### IMPORTANT:

**Keep hydraulic hoses clear to prevent damage when driving into header.**

7. Continue forward until adapter arms (A) contact stops in balance channels (B).
8. Adjust length of center-link (A) with header angle hydraulics to approximately align eye (B) on center-link with hole in header bracket.
9. Shut down engine, and remove key.

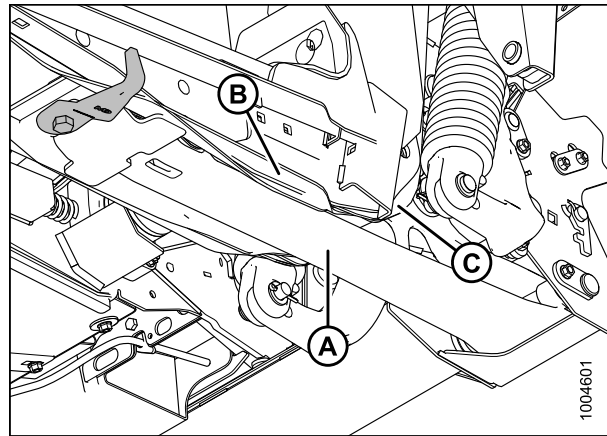


Figure 5.126

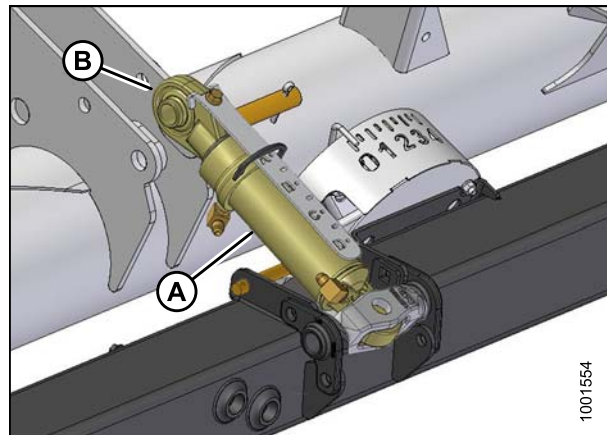


Figure 5.127

10. Connect center-link:
  - a. Pull pin (B) part way out of bracket, and remove prop from under center-link (A).
  - b. Install pin (B) through center-link (A) and bracket, and secure with lynch pin.

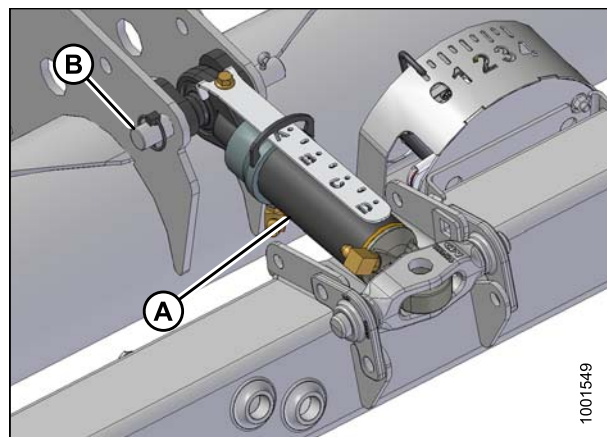


Figure 5.128



## HEADER ATTACHMENT/DETACHMENT

11. Connect reel hydraulics at right end of adapter matching colored cable ties.

### CAUTION

Always connect center-link before fully raising header.

### CAUTION

Be sure all bystanders are clear of machine before starting engine or engaging any header drives.

12. Start engine, and raise adapter slowly, making sure adapter legs engage in header legs.
13. Raise header fully, stop engine, and remove key.
14. Engage header lift cylinder stops on combine.

### DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

15. Loosen nut and bolt (A), and reposition hook (B) as shown to engage adapter arm. Tighten bolt and nut (A).
16. Remove lift cylinder locks, start engine, and lower header to ground. Adjust header angle to the shallowest setting (shortest center-link).
17. Raise reel fully.
18. Shut down engine, and remove key from ignition.
19. Engage reel safety props.

The next four steps show how to attach the adapter feeder deck.

### WARNING

Keep hands clear of the area between guards and knife at all times.

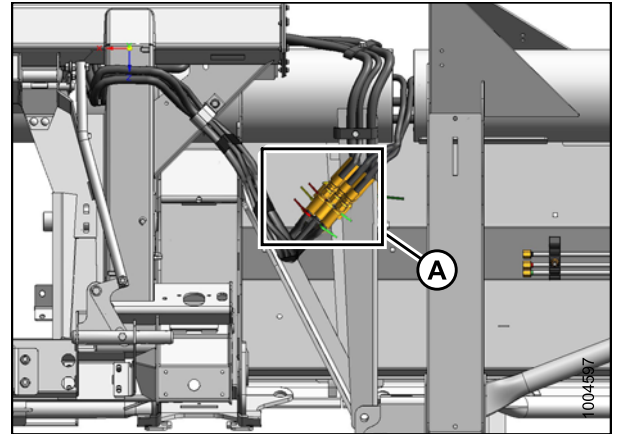


Figure 5.129: Connect reel hydraulics

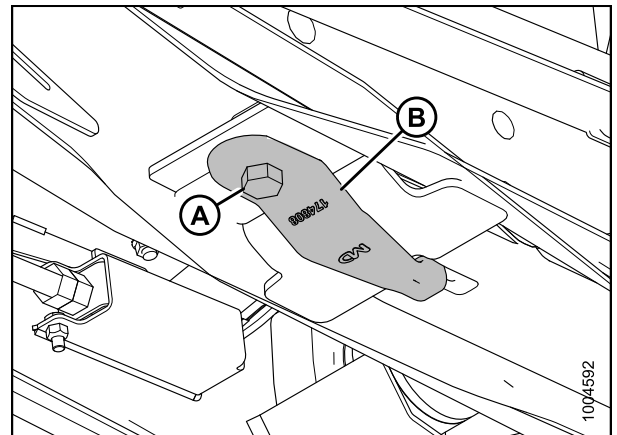


Figure 5.130

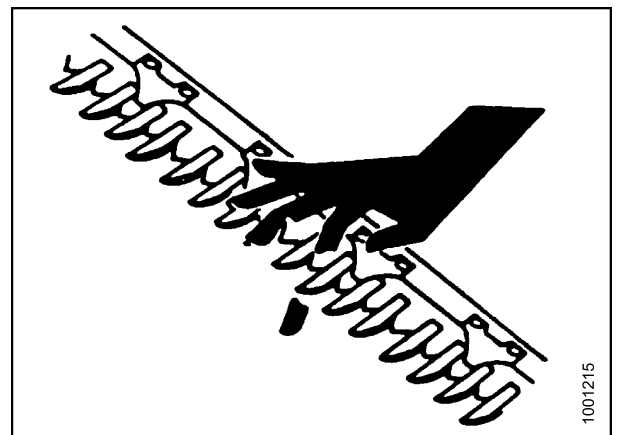


Figure 5.131

## HEADER ATTACHMENT/DETACHMENT

20. Remove bolts (A) at either side of opening to allow attachment of adapter deck.
21. Rotate latches (B) forward and down engage transition pan tube (C).

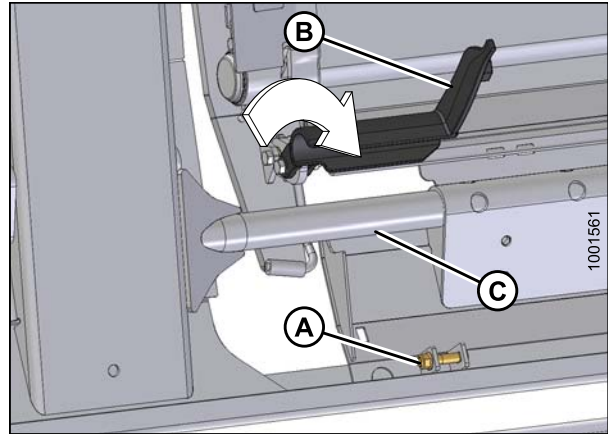


Figure 5.132

22. Rotate latches (A) down with a 15/16 in. wrench on hex (B) to raise feed deck so that bolt (C) can be reinstalled to lock the latch position.
23. Repeat for other side of feed draper deck.

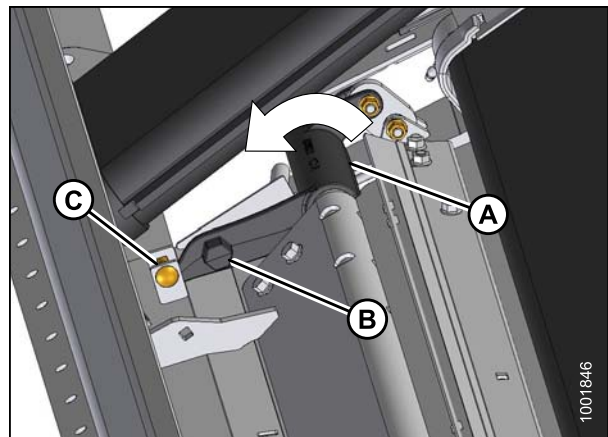


Figure 5.133

24. Install fillers (A) at each front corner of feed deck with two 3/8 in. x 0.75 long hex head bolts (B) at each location.

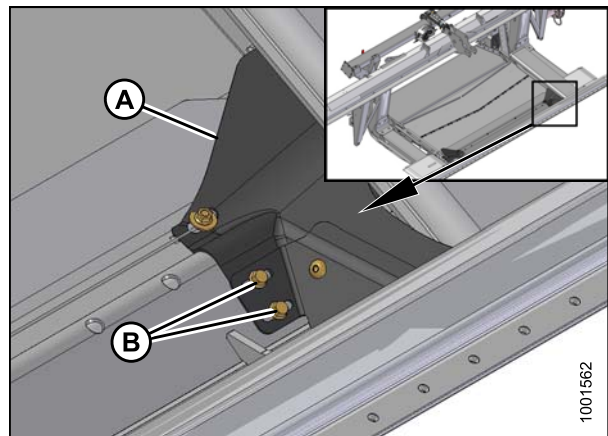


Figure 5.134

## HEADER ATTACHMENT/DETACHMENT

25. Connect knife and draper drive hydraulic hoses (A) at bracket.

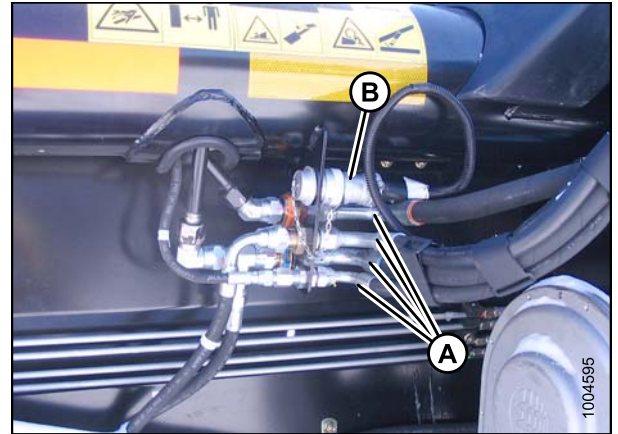


Figure 5.135

26. If quick disconnects are installed, connect as follows:

- Remove covers (if installed) from receptacles and hose ends.
- Check connectors, and clean if required.
- Push hose connector onto mating receptacle until collar on receptacle snaps into lock position.

**NOTE:** Ensure hoses are clear of driveline and adjacent structure.

**NOTE:** It is not necessary to bleed the system by loosening fittings.

27. Check float, and confirm that the header is level. Refer to

- [Checking and Adjusting Header Float, page 62](#)
- [Section 4.8 Levelling the Header, page 88](#)



Figure 5.136

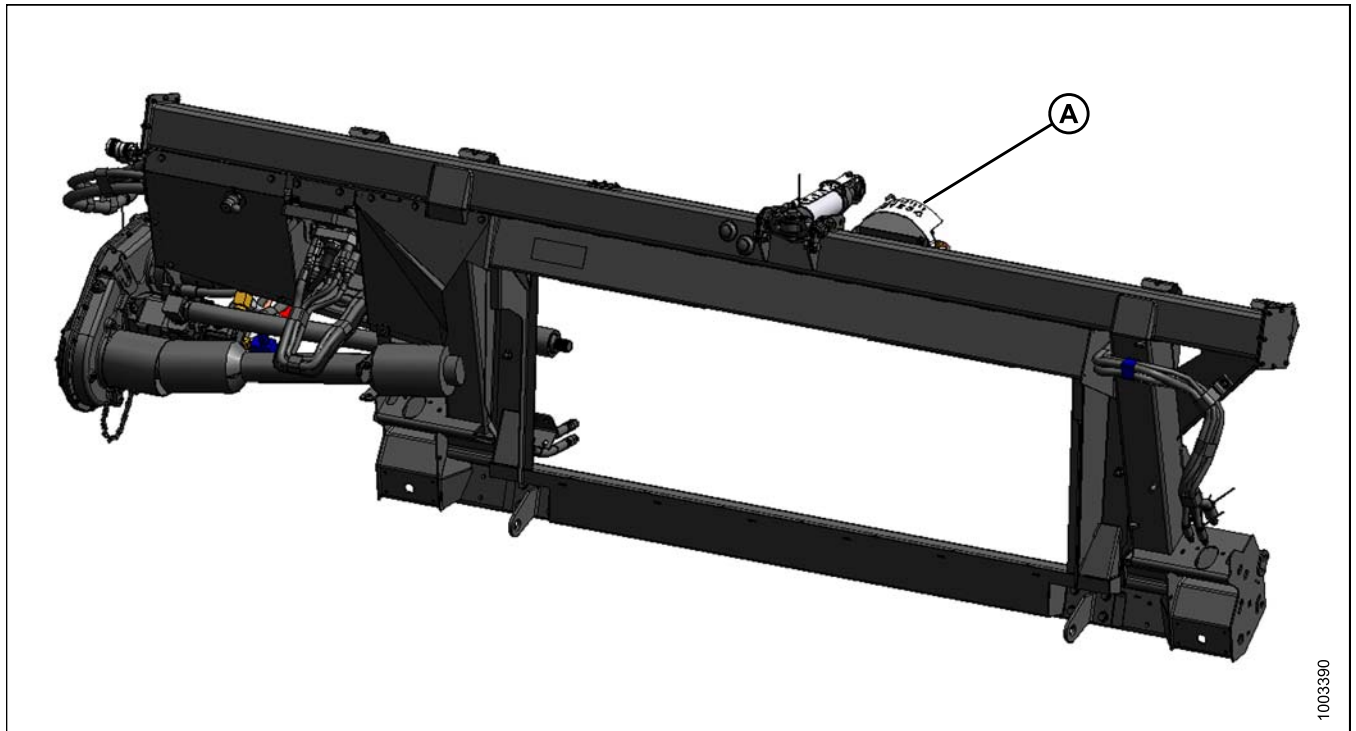


## 6 Automatic Header Height Control

### 6.1 Sensor Adjustment

#### 6.1.1 Automatic Header Height Control

MacDon's Auto Header Height feature works in conjunction with the Auto Header Height Control option available on certain combine models. A sensor is installed in the float indicator box (A) on the CA25 Combine Adapter. This sensor sends a signal to the combine to allow it to maintain a consistent cutting height, and optimum adapter float as the header follows ground contours.



**Figure 6.1**

CA25 Combine Adapters are factory-equipped for Auto Header Height. However, before using the Auto Header Height feature, you must:

1. Ensure that the Auto Header Height sensor's output voltage range is appropriate for the combine.
2. Prepare the combine to use the Auto Header Height feature.
3. Calibrate the Auto Header Height system so that the combine can correctly interpret data from the Auto Header Height sensor on the combine adapter.
4. Once calibration is complete, you are ready to use the Auto Header Height feature in the field. For each combine, certain operation settings can be used to improve the performance of the Auto Header Height feature.

**NOTE:** If your CA25 Combine Adapter is not equipped to work with a specific combine model, you will need to install the appropriate combine completion package. That completion package will come with instructions for installing the Auto Header Height sensor on the combine adapter.

## AUTOMATIC HEADER HEIGHT CONTROL

### 6.1.2 Preparing Combine to Use Auto Header Height Control

Once you have confirmed that the Auto Header Height sensor output voltage range is appropriate for the combine, you must prepare the combine to receive that output. The procedure is different for different combines.

#### *Engaging the Auto Header Height System (AGCO 6 Series)*

The following system components are required in order for the Auto Header Height system to work:

- Main module (PCB board) and header driver module (PCB board) mounted in card box in Fuse Panel Module (FP)
- Multi Function Control Handle operator inputs
- Operator inputs mounted in the control console module (CC) panel

**NOTE:** In addition to the above components, the electro hydraulic header lift control valve must also be considered an integral part of the system.

To select the AHHC mode, scroll through the header control options using the header control switch until the AHHC icon is displayed in the first message box.

When activated, the AHHC will adjust the header height in relation to the ground according to the height setting and sensitivity setting.

#### *Engaging the Auto Header Height System (Case IH 2300)*

To engage the Auto Header Height system, follow these steps:

1. In combine, turn mode select switch (A) to HT.
2. Turn feeder ON.
3. Push header LOWER switch.

In Automatic Header Height Control, the system raises and lowers the header to maintain a fixed distance from the ground. The POSITION CONTROL (B) sets the height to maintain the header from the ground.



Figure 6.2: Combine Display

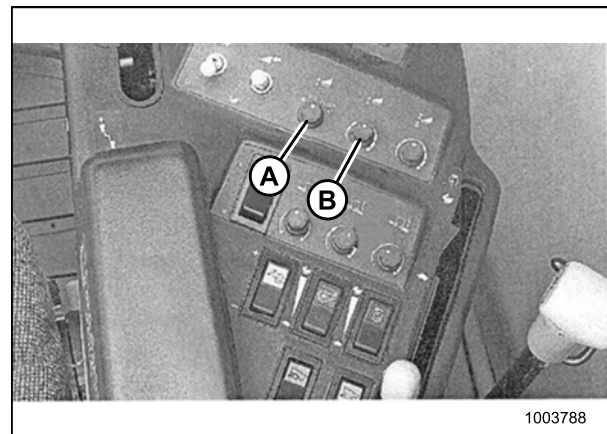


Figure 6.3: Combine Controls



## AUTOMATIC HEADER HEIGHT CONTROL

The rate at which the header raises or lowers to maintain the ground height is controlled by the HEADER RAISE RATE (A) and HEADER LOWER RATE (B) control settings.



Figure 6.4: Combine Controls

In this mode the SENSITIVITY CONTROL (A) sets how sensitive the header control is to changing ground conditions.

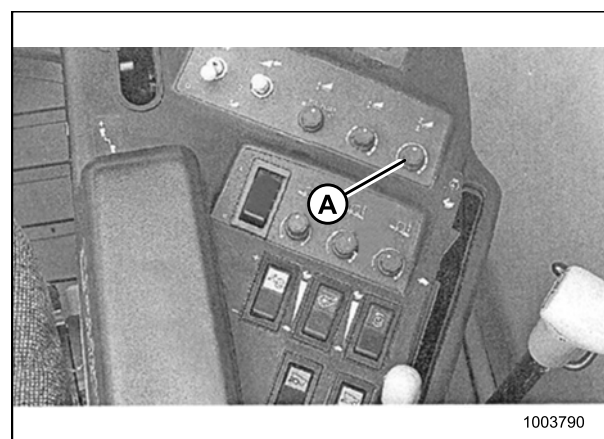


Figure 6.5: Combine Controls

### System Requirements (Gleaner R62/R75)

The following system components are required in order for the Auto Header Height system to work:

- Main module (PCB board) and header driver module (PCB board) mounted in card box in Fuse Panel Module (FP)
- Multi Function Control Handle operator inputs
- Operator inputs mounted in the control console module (CC) panel

**NOTE:** In addition to the above components, the electro hydraulic header lift control valve must also be considered an integral part of the system.

## AUTOMATIC HEADER HEIGHT CONTROL

### *Engaging the Auto Header Height System (Gleaner R65/R75)*

The following system components are required in order for the Auto Header Height system to work:

- Main module (PCB board) and header driver module (PCB board) mounted in card box in Fuse Panel Module (FP)
- Multi Function Control Handle operator inputs
- Operator inputs mounted in the control console module (CC) panel

**NOTE:** In addition to the above components, the electro hydraulic header lift control valve must also be considered an integral part of the system.

To engage the Auto Header Height system, follow these steps:



**Figure 6.6**

Image Tag Expected within Figure Tag

1. Press the AUTO MODE (A) button until the AHHC LED light (B) is flashing. If the RTC light is flashing, press the AUTO MODE (A) button again until it switches to AHHC.



## AUTOMATIC HEADER HEIGHT CONTROL

2. Momentarily press the down button (A) on the control handle. The AHHC light should change from flashing to solid. The header should also drop toward the ground. The Auto Header Height control is now working and active and can be adjusted for height and sensitivity.

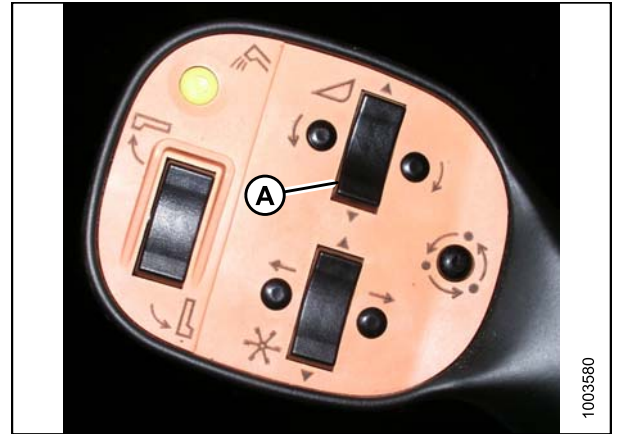


Figure 6.7

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

Before calibrating the Auto Header Height system, you must calibrate the combine's feeder house speed. See the combine operator's manual for instructions.

### *Configuring Combine (New Holland CR/CX Series)*

To configure the combine, follow these steps:

1. On the combine display screen, select Header lateral float, and then press ENTER.
2. In the window that opens, select Installed. You can use the up and down navigation keys to move between options.

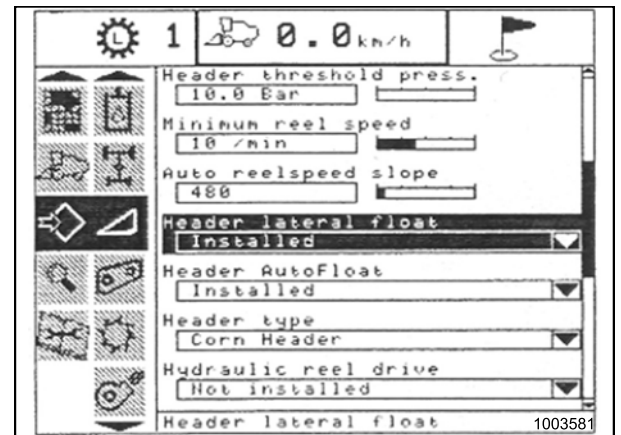


Figure 6.8

## AUTOMATIC HEADER HEIGHT CONTROL

3. On the combine display screen, select Header Autofloat, and then press ENTER.
4. In the window that opens, select Installed.

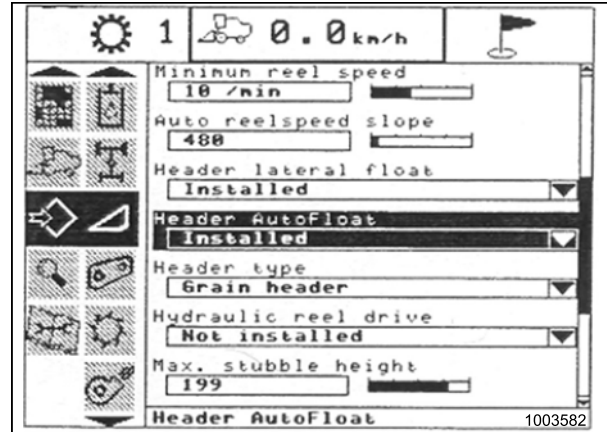


Figure 6.9

### 6.1.3 Field Operation Settings

Once calibration is complete, you are ready to use the Auto Header Height feature in the field. For each combine, certain operation settings can be used to improve the performance of the Auto Header Height feature. For optimal performance, perform all of the field operation setting procedures provided here for your combine model.

Performance can be further enhanced by

- Adjusting the lower rate of the combine feeder house. See combine operator's manual.
- Installing spring lock outs on feeder house lift cylinders. See combine operator's manual.

#### *Adjusting the Header Height (AGCO 6 Series)*

Once the AHHC is activated, press and release the lower button on the control handle. The AHHC will automatically lower the header to the selected height setting.

To selected AHHC height is adjusted using the height adjustment knob on the control console. Turning the knob clockwise increases the selected height and counterclockwise decreases the selected height.



Figure 6.10

#### *Adjusting the Header Raise/Lower Rate (AGCO 6 Series)*

To adjust the header raise/lower rate, follow these steps:

## AUTOMATIC HEADER HEIGHT CONTROL

1. On the Field page, press the Header icon. The Header page displays.

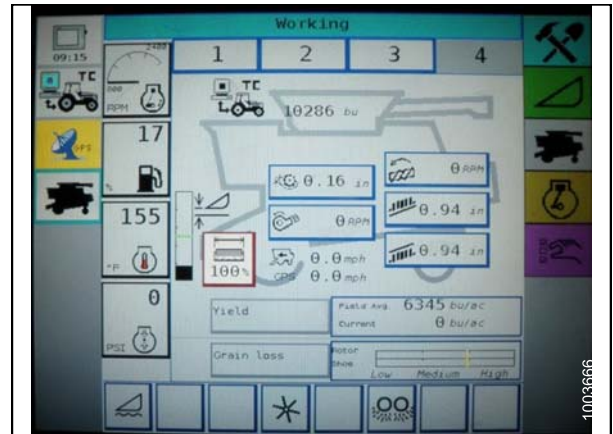


Figure 6.11

2. Press Header control (A). The Header control page displays.

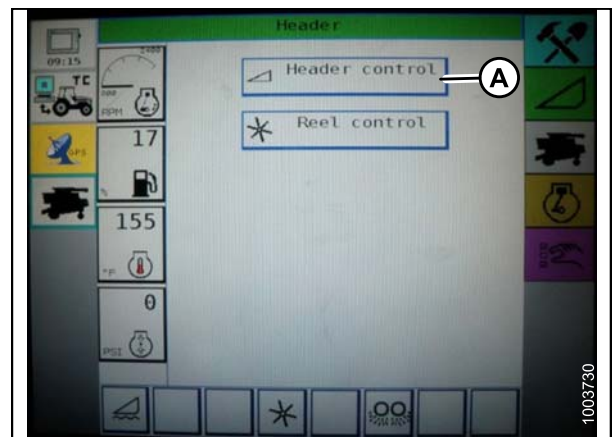


Figure 6.12

3. Go to the Table Settings tab.
4. To increase raise speed, make percentage number bigger by pressing up arrow on Max UP PWM. To decrease raise speed, make percentage number lower by pressing down arrow on Max UP PWM.
5. To increase lower speed, make percentage number bigger by pressing up arrow on Max DOWN PWM. To decrease lower speed, make percentage number lower by pressing down arrow on Max DOWN PWM.

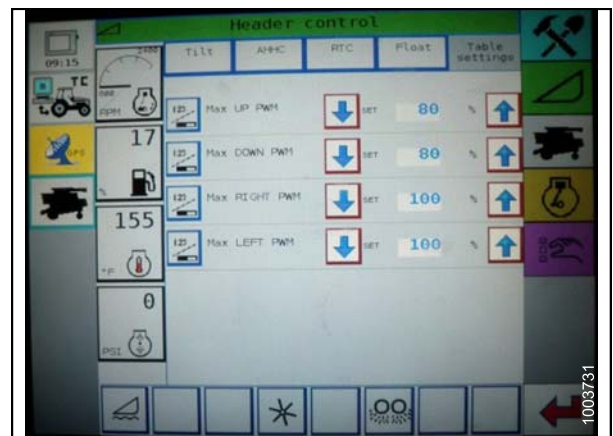


Figure 6.13

## AUTOMATIC HEADER HEIGHT CONTROL

### *Adjusting the Sensitivity of the Auto Header Height (AGCO 6 Series)*

The sensitivity adjustment, controls the distance the cutterbar must travel up or down before the AHHC reacts and raises or lowers the feeder house. When the sensitivity is at the maximum, small changes in the ground height is needed to cause the feeder house to raise or lower. When the sensitivity is at the minimum, large changes in the ground height is needed to cause the feeder house to raise or lower.

The sensitivity is adjusted in the AHHC page of the Header Control page.

To adjust the sensitivity of the Auto Header Height system, follow these steps:

1. On the field page, press the header icon. The Header page appears.
2. Press the Header control button (A). The Header control page appears. You can adjust sensitivity on this page using the up and down arrows.

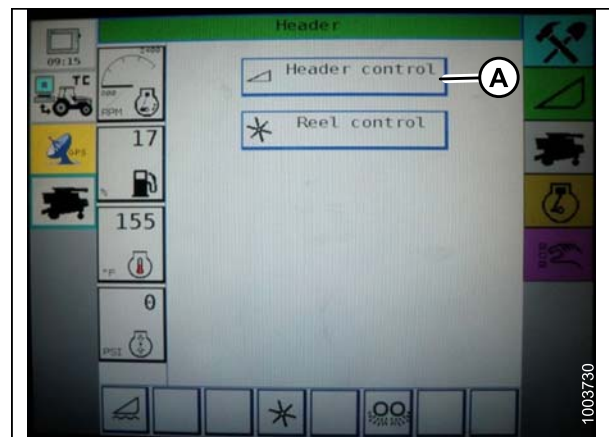


Figure 6.14

3. Adjust the sensitivity to the maximum setting.
4. Activate the AHHC, and press the header lower button on the control handle.

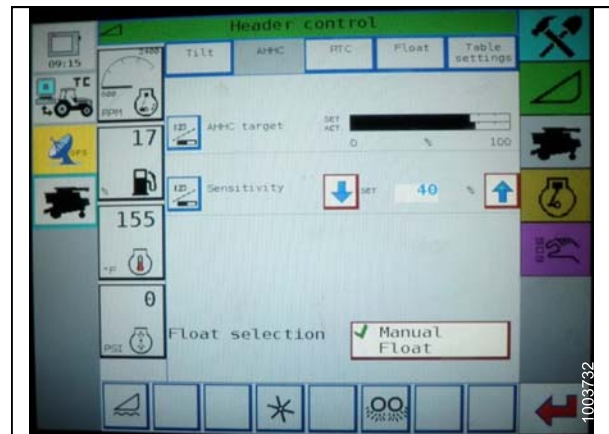


Figure 6.15

## AUTOMATIC HEADER HEIGHT CONTROL

5. Decrease the sensitivity until the feeder house remains steady and does not bounce up and down. This is the maximum sensitivity and is only an initial setting. The final setting must be made in the field as the system reaction will vary with changes in surface and operating conditions.
6. If a maximum sensitivity is not needed, a less sensitive setting will reduce the frequency of header height corrections and component wear. Partially opening the accumulator valve will cushion the action of the header lift cylinders and reduce header hunting.

### *Operation Settings (Gleaner R62/R72 Series)*

Set Auto Header Height operation settings for the AGCO R62 and R72 combines as follows:

1. Engage the Main Threshing Clutch (A) and Header Clutch (B).

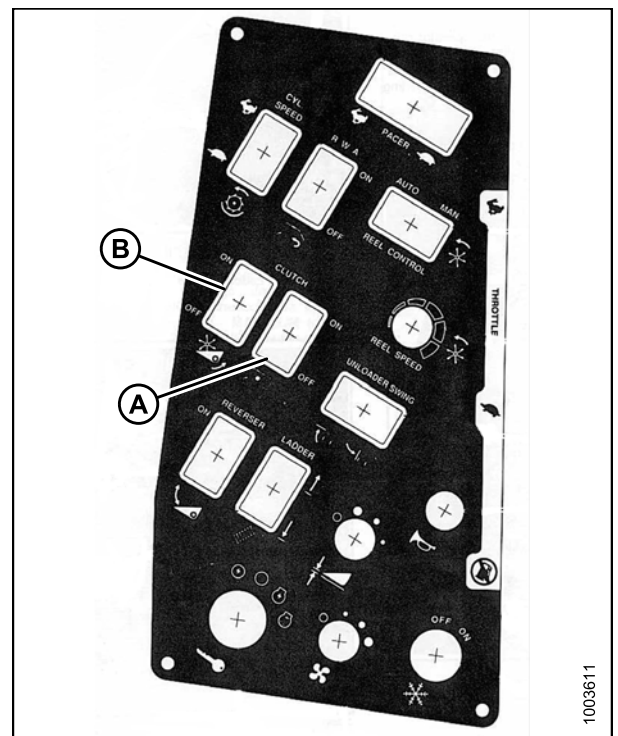


Figure 6.16

## AUTOMATIC HEADER HEIGHT CONTROL

2. Speed the throttle (A) to over 2000 rpm.

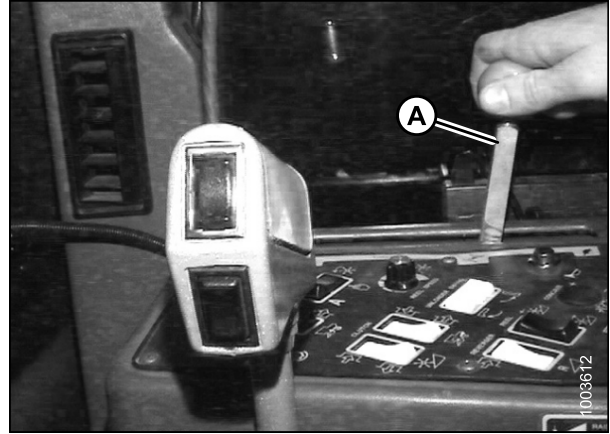


Figure 6.17

3. Push the Auto Header Height button (A). The LED light (B) should flash continuously, indicating it is in standby mode and waiting for a response from the operator.

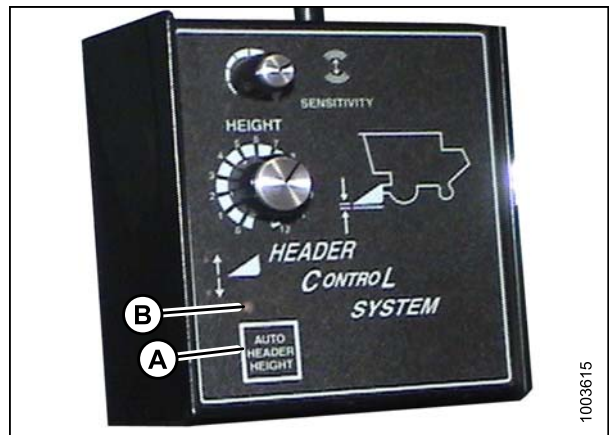


Figure 6.18

4. Momentarily push the header down button (A). The header should lower automatically and the LED light should stay illuminated, indicating the auto height system is engaged and working.

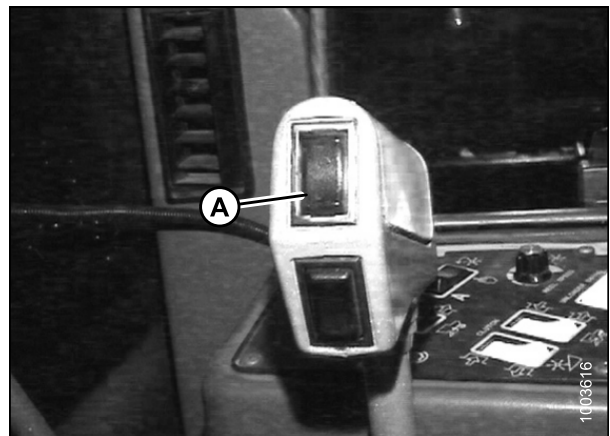


Figure 6.19



## AUTOMATIC HEADER HEIGHT CONTROL

5. To control the ground pressure turn the Height dial (A) to increase or decrease ground pressure.
6. To control the sensitivity or how quickly the auto header height reacts to varying ground conditions, turn the Sensitivity dial (B).

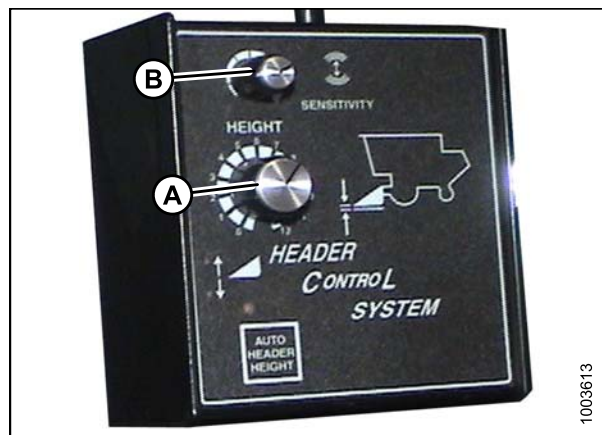


Figure 6.20

### *Turning the Accumulator Off (Gleaner R65/R75)*

The accumulator will affect the combine's reaction time and greatly inhibit the Auto Header Height performance.

Refer to the combine operator's manual for proper procedure when turning accumulator off and on. For best performance, turn the feeder house accumulator off.

**NOTE:** The accumulator is located in front of the front left axle beam.



Figure 6.21

A - Accumulator Lever (Off Position)



## AUTOMATIC HEADER HEIGHT CONTROL

### *Adjusting the Header Raise/Lower Rate (Gleaner R65/R75)*

Header height control system stability is affected by hydraulic flow rates. Ensure that the header raise (A) and lower (B) adjustable restrictors in the hydraulic valve are adjusted so it takes approximately six seconds to raise the header from ground level to maximum height (hydraulic cylinders fully extended) and approximately six seconds to lower the header from maximum height to ground level.

**NOTE:** Make this adjustment with the hydraulic system at normal operating temperature (130°F [54.4°C]) and the engine running at full throttle.

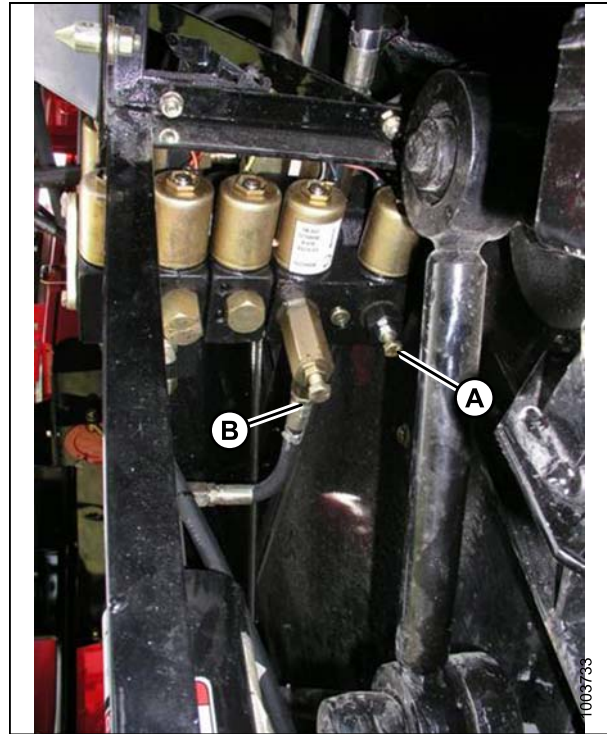


Figure 6.22

### *Adjusting Ground Pressure (Gleaner R65/R75)*

To adjust height of header, be sure the header is in Auto Header Height Control (AHHC) mode. This is indicated by the LED (A) being solid. The header will lower to the height (ground pressure) corresponding to the position selected with the height control knob (B).

Turn the knob counterclockwise for minimum ground pressure and clockwise for maximum ground pressure.

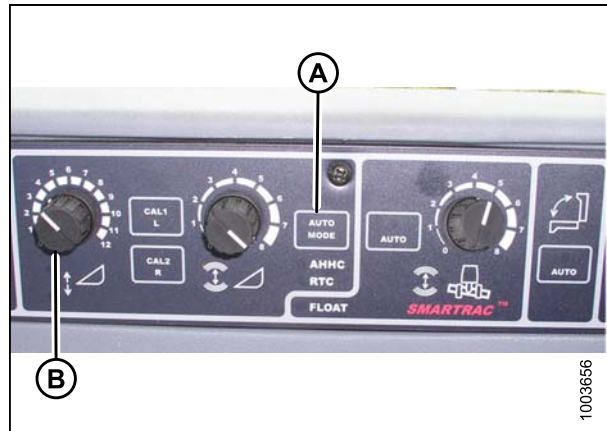


Figure 6.23

## AUTOMATIC HEADER HEIGHT CONTROL

**NOTE:** Desired ground pressure is in most cases one number separation of the Auto Header Height from having the header fully suspended off the ground (A) to just sitting on the ground (B).

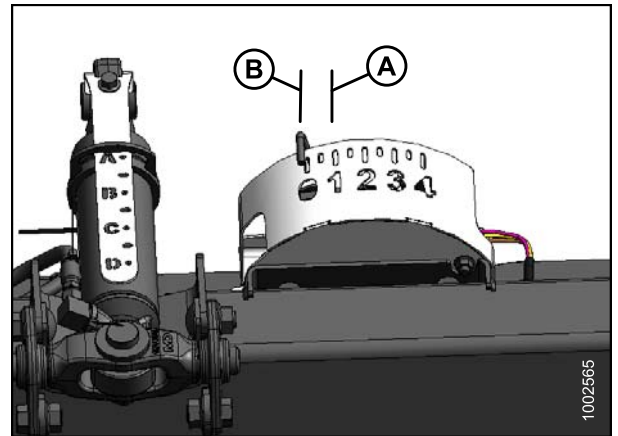


Figure 6.24

*Adjusting the Sensitivity of the Auto Header Height (Gleaner R65/R75)*



Figure 6.25

## AUTOMATIC HEADER HEIGHT CONTROL

The sensitivity adjustment dial (A) is used to control the distance the cutterbar travels (moves up or down) in relation to the header frame (flex head) or header in relation to ground (rigid or corn head) before the control module activates the hydraulic valve to raise or lower the header frame.

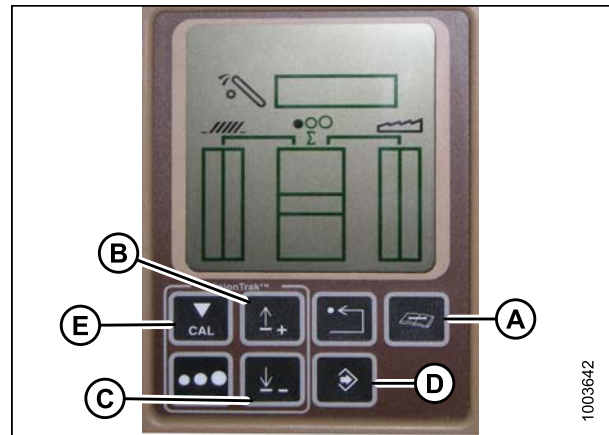
When the sensitivity adjustment dial (A) is turned completely clockwise, the control module is set to the “MOST” sensitive position. In this position, the cutterbar typically only moves up and down a distance of approximately 3/4 in. (19 mm) before the control module activates the hydraulic control valve to raise or lower the header frame.

When the sensitivity adjustment dial is turned completely counterclockwise, the control module is set to the “LEAST” sensitive position. In this position, the flex head cutterbar can move up and down approximately 2 in. (51 mm) before the control module activates the hydraulic control valve to raise or lower the header frame. The “HEADER SENSE LINE” input changes the range of the sensitivity sensor as well. Connected to a draper, the counterclockwise position (least sensitive) allows for approximately 4 in. of vertical travel before correction is initiated.

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

To turn the accumulator off, follow these steps:

1. Press the diagnostic button on the VisionTrak Display monitor (this is the button with the open book with the wrench on top of it (A) DIA appears on the monitor).
2. Press the up button (B) until EO1 appears on the monitor (these are all your header adjustments). Then press enter (D).
3. Now press the up (B) or down button (C) until 132 is displayed on the top portion of the monitor. This is the reading of the accumulator.
4. Once you have 132 displayed at the top of the monitor, press enter (D). This will now allow you to change the display to a three-digit number so it has a “0” in it. For example, “x0x”.
5. Press the up (B) or down button (C) until the desired number is displayed, and then press the CAL (E) button.
6. The accumulator is now deactivated. Press enter (D) to save the changes.



**Figure 6.26**

## AUTOMATIC HEADER HEIGHT CONTROL

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

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

1. Press the diagnostic button on the “Vision Trak Display” monitor (this is the button with the open book with the wrench on top of it (A) DIA appears on the monitor.
2. Press the up button (B) until EO1 appears on the monitor (this is all your header adjustments), and then press enter (B).
3. Press the up or down button (A) until 128 is displayed on the top portion of the monitor. This is the reading of the sensor.
4. Press enter (D). Now you can change the display so it has a “50” in it.
5. Push the up (B) or down button (C) until the desired number is displayed, then press the CAL (E) button.
6. The height is now set. Press enter (D) to save the changes.

**NOTE:** Do not use the active header float function (A) in combination with the MacDon Auto Header Height as the two systems will counteract one another. Header symbol on display should not have wavy line under it and should appear exactly as shown on the Active Header Control Display illustration.

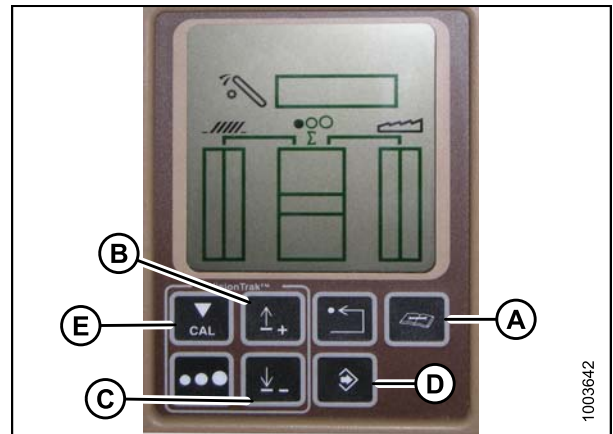


Figure 6.27

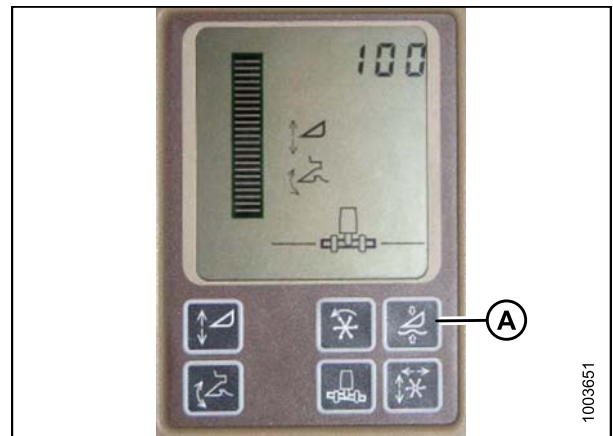


Figure 6.28

### *Increasing the Sensitivity of the Auto Header Height (John Deere 60 Series)*

This is also known as dead band adjustment.

To increase the sensitivity of the Auto Header Height, follow these steps:

## AUTOMATIC HEADER HEIGHT CONTROL

1. Press the diagnostic button on the monitor—the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
2. Press the up button (B) until EO1 appears on the monitor (these are all your header adjustments), and then push the enter button (D).
3. Press the up (B) or down (C) button until 112 is displayed on the monitor. This is your sensitivity setting; the lower the reading, the higher the sensitivity. You should operate in the 50 to 80 range.
4. To adjust the sensitivity, once you have 112 displayed at the top of the monitor, press enter. You can now change the first digit of the number sequence.
5. Press the up (B) or down button (C) until the desired number is displayed, and then press the CAL button (E). This brings you to the second digit. Repeat this procedure until the desired setting is achieved. Press enter (D) to save changes.

**NOTE:** The numbers under this display are simply reference numbers; they do not represent any particular value.

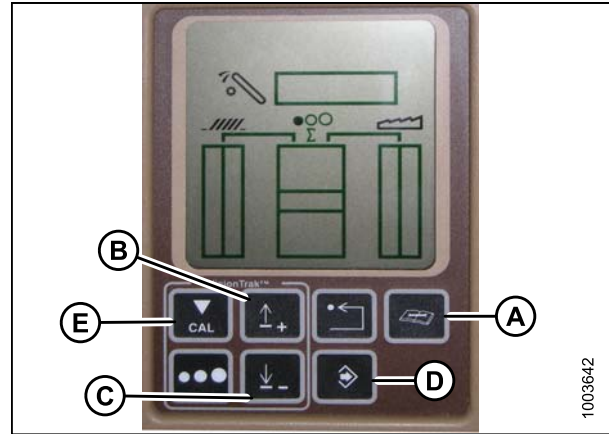


Figure 6.29



Figure 6.30

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

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

To increase the flow rate sooner, follow these steps:



## AUTOMATIC HEADER HEIGHT CONTROL

1. Press the diagnostic button on the monitor—the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
2. Press the up button (B) until EO1 appears on the monitor (these are all your header adjustments), and then push the enter button (C).
3. Press the up or down button until 114 is displayed on the monitor. This is the setting that adjusts when the fast drop rate starts with respect to the dead band. The default setting is 100. You should operate in the 60–85 range.
4. To adjust the threshold, once you have 114 displayed at the top of the monitor, press enter. You can now change the first digit of the number sequence.
5. Press the up or down button (B) until the desired number is displayed, and then press the CAL button (D). This will bring you to the second digit. Repeat this procedure until the desired setting is achieved. Press enter (C) to save changes.

**NOTE:** The numbers under this display are simply reference numbers; they do not represent any particular value.

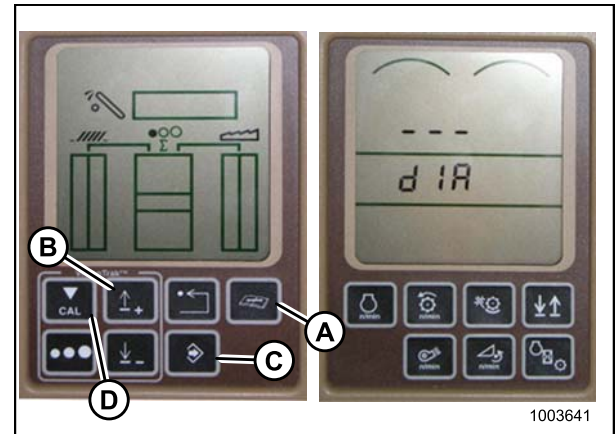


Figure 6.31

### *Increasing the Sensitivity of the Auto Header Height (John Deere 70 Series)*

To adjust the sensitivity of the Auto Header Height, follow these steps:

1. Press button (A), found on the right-hand console, twice. On the Command Center the page displays the current setting. This is your sensitivity setting, the lower the reading the lower the sensitivity.
2. To adjust the sensitivity setting, use scroll knob (B). The adjustment will be automatically saved. If the page remains idle for a short period of time it will return to its previous page or the enter button (C) can be pushed to return to the previous page.

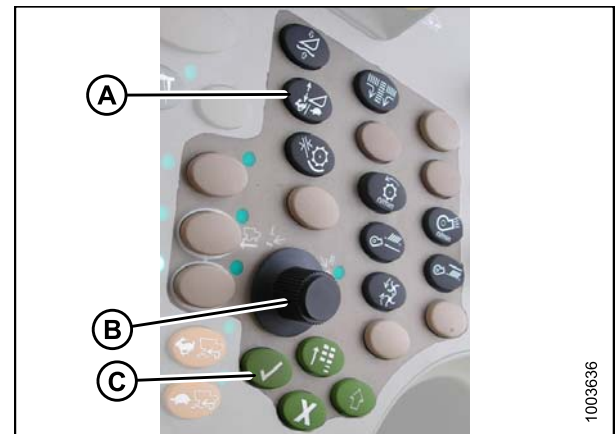


Figure 6.32

## AUTOMATIC HEADER HEIGHT CONTROL

**NOTE:** The numbers under this display are simply reference numbers they do not represent any particular value.



Figure 6.33

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

To adjust the raise/lower rate, follow these steps:

1. Press button (A), found on the right-hand console, once. On the Command Center the page displays the current setting. This is your raise/lower rate setting. The lower the reading the slow the rate.
2. To adjust the rate, use scroll knob (B). The adjustment will be automatically saved.

If the page remains idle for a short period of time it will return to its previous page or the enter button (C) can be pushed to return to the previous page.

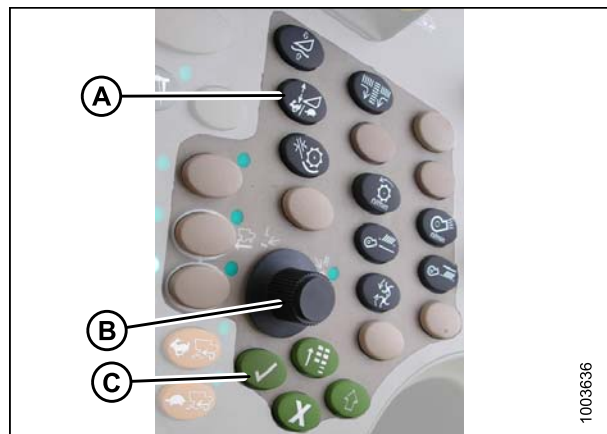


Figure 6.34

**NOTE:** The numbers under this display are simply reference numbers they do not represent any particular value.



Figure 6.35



## AUTOMATIC HEADER HEIGHT CONTROL

### *Increasing the Sensitivity of the Auto Header Height (John Deere S Series)*

To adjust the sensitivity of the Auto Header Height, follow these steps:

1. Press button (A) twice. On the Command Center, the page will display the current setting.



Figure 6.36

2. To adjust rates, press the “-” or “+” sign (A) to make a change.

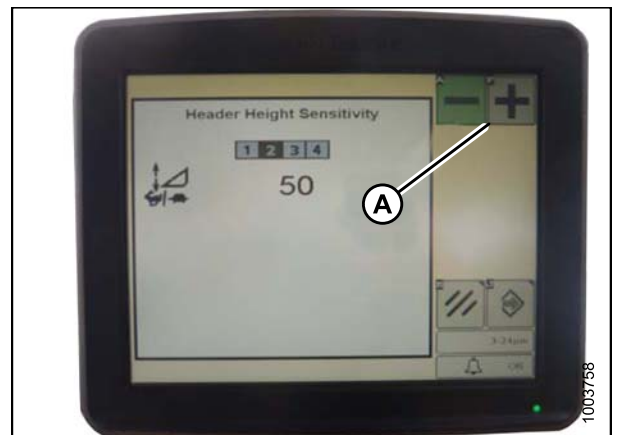


Figure 6.37

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

To adjust the raise/lower rate, follow these steps:

## AUTOMATIC HEADER HEIGHT CONTROL

1. Press the top right button (A) once. On the Command Center, the page will display the current setting.



Figure 6.38

2. To adjust rates press the “-” or “+” (A) button to make a change.

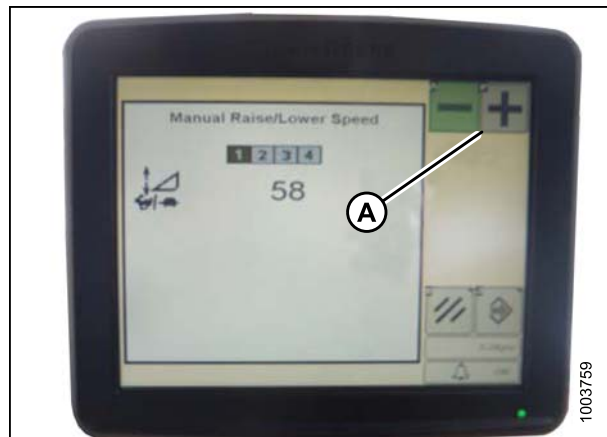


Figure 6.39

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

To operate your Auto Header Height, follow these steps:

1. From the main page of the Command Center, press the header option button (A). This is the icon with a header on it. The Combine - Header Setup page displays. This page is used to set various header settings such as reel speed, header width, and height of feeder house for acre counter engagement.



Figure 6.40

## AUTOMATIC HEADER HEIGHT CONTROL

2. To go to the automatic header modes page, select icon (A) with a side view of a header. The Combine – Header Setup AHC page displays.



Figure 6.41

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



Figure 6.42

4. After the two icons are selected, you will be able to set the ground pressure preset on the joy stick by having button #2 as a light ground pressure setting for muddy or soft soil conditions, and button #3 as a heavier setting for harder soil conditions with a faster ground speed so the header does not skip crop.

Button #1 is reserved for header lift on the headland, it does not have ground cutting capabilities.



Figure 6.43

## AUTOMATIC HEADER HEIGHT CONTROL

- Adjustment for selecting the different button settings is done by control knob (A).



Figure 6.44

- When the header height is engaged, the Auto header height icon appears on the monitor with the number from which button is pressed.



Figure 6.45

### Setting Cutting Height (Lexion 500 Series)

The cutting heights can be programmed into the preset cutting height and into the auto contour system. Use the preset cutting height for cutting heights above 5.9 in. (150 mm). Use the auto contour system for cutting heights below 5.9 in. (150 mm).

Use the "<" key or use the ">" key in order to select the Cutting height window. Press the "OK" key in order to open the respective sub menu.

An active value is indicated by a solid arrow. An inactive value is indicated by an empty arrow.

### Setting Preset Cutting Height (Lexion 500 Series)

To program the settings of the preset cutting height, follow these steps:

- Start the engine.
- Activate the machine enable switch.
- Engage the threshing mechanism.
- Engage the header.

## AUTOMATIC HEADER HEIGHT CONTROL

5. Briefly press button (A) in order to activate the auto contour system or briefly press button (B) in order to activate the preset cutting height.

**NOTE:** Button (A) is used only with AHHC function. Button (B) is used only with the return to cut function.



Figure 6.46

6. Use the “-” key (A) or use the “+” key (B) in order to set the desired cutting height. An arrow indicates the selected cutting height on the scale.

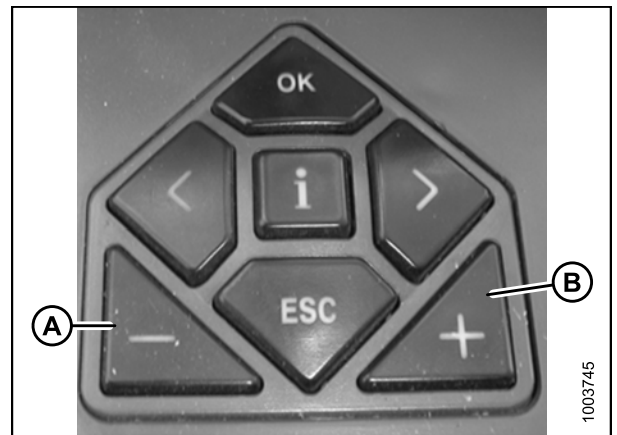


Figure 6.47

7. Briefly press button (A) or button (B) in order to select the set point.
8. Repeat step 6 for the set point.



Figure 6.48

## AUTOMATIC HEADER HEIGHT CONTROL

## Setting Cut Height Manually (Lexion 500 Series)

To set the cutting height manually, follow these steps:

1. When you enter the crop use button (A) or use button (B) in to raise or lower the header to the desired cutting height. For on the ground cutting press button (C) for three seconds. This stores the cutting height into the CEBIS. The alarm will sound when the new setting is stored.
2. If desired using button (A) or (B) move the header on the ground and briefly press button (C) in order to set a second set point. For above the ground cutting repeat the above steps only this time press button (D) to set points.
3. Repeat step 1 for the second set point.



**Figure 6.49**

## Adjusting the Sensitivity of the Auto Header Height (Lexion 500 Series)

Setting the sensitivity of the auto header height control (AHHC) system influences the reaction speed of the AHHC on the header.

**NOTE:** CEBIS must learn the upper limits and the lower limits of the header before you adjust the sensitivity of the AHHC system. The setting can be adjusted from 0 percent to 100 percent. When sensitivity is adjusted to 0 percent, the signals from the sensing bands have no effect. When set to 100 percent, sensing bands have maximum effect on the automatic cutting height adjustment. 50% is a recommended starting point.

1. Use the "<" key or the ">" key to select "Sensitivity CAC". Press the "OK" key to confirm the selection.
2. Use the "-" key or the "+" key to change the reaction speed setting. Press the "OK" key in order to confirm the setting.



### Figure 6.50

## AUTOMATIC HEADER HEIGHT CONTROL

- Line (A) indicates the setting of the sensitivity. Window E4 (B) displays the (A). Also value (C) indicates the sensitivity. Window E5 (D) displays value (C).

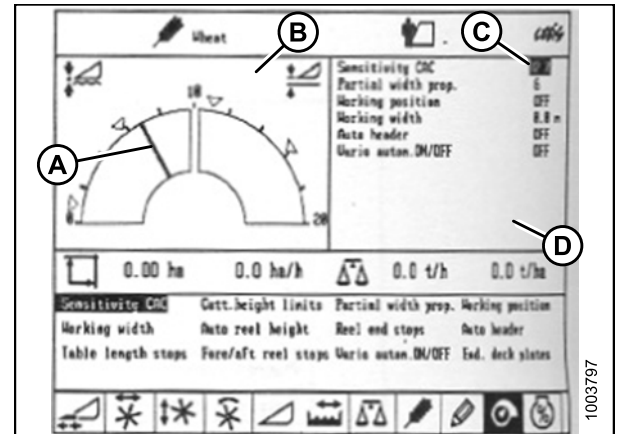
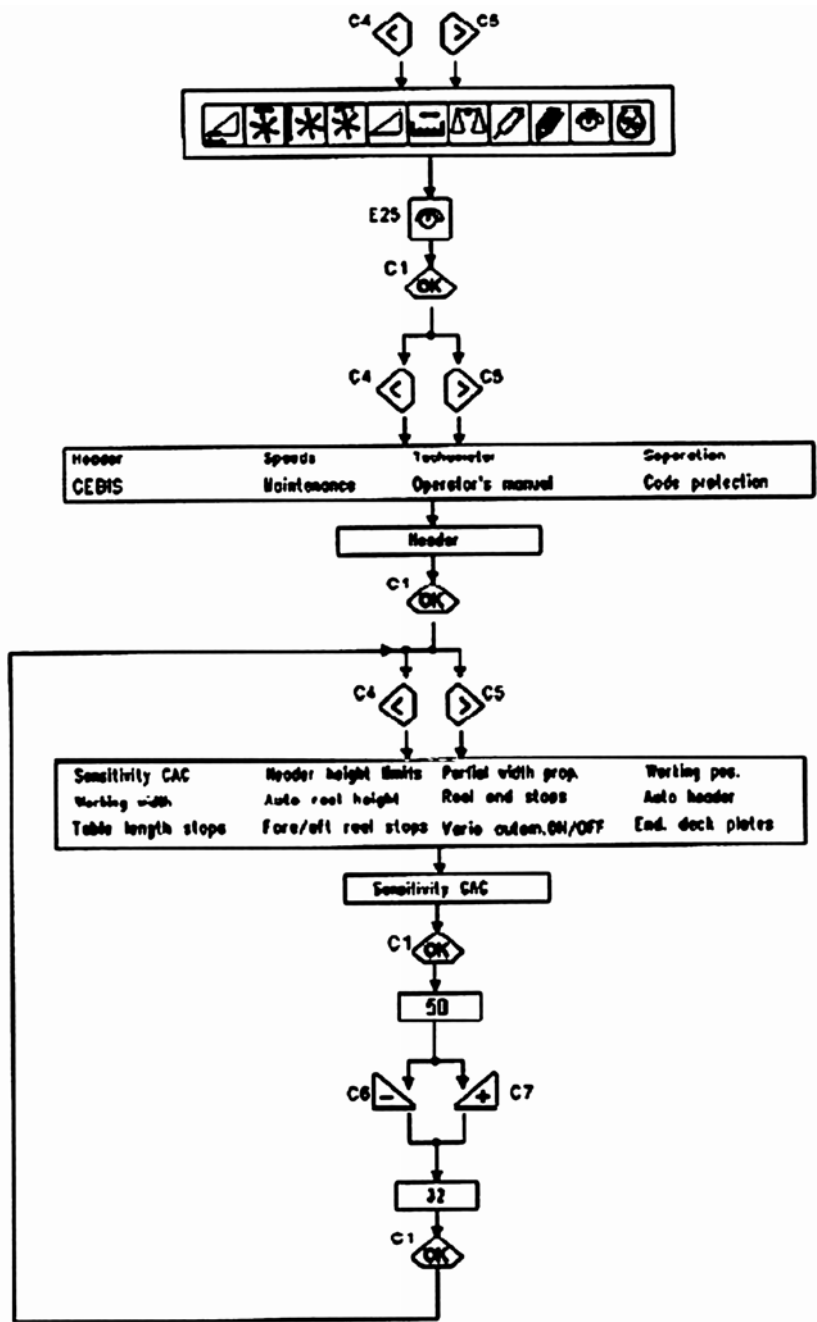


Figure 6.51



AUTOMATIC HEADER HEIGHT CONTROL



1003798

Figure 6.52: Flow Chart for Setting the Sensitivity of the Float Optimizer

## AUTOMATIC HEADER HEIGHT CONTROL

### *Adjusting Auto Reel Speed (Lexion 500 Series)*

The preset reel speed can be set when the automatic header functions are activated.

To set the preset reel speed, follow these steps:

1. Use the “<” key or the “>” key to select reel window. When reel window is selected, window (E15) will display the current advance or retard speed of the reel relation to the ground speed.
2. Press the “OK” key (C) in order to select the reel speed window.
3. Use the “-” key (A) or use the “+” key (B) in order to set the reel speed in relation to the current ground speed. Window (E15) will display the selected reel speed.

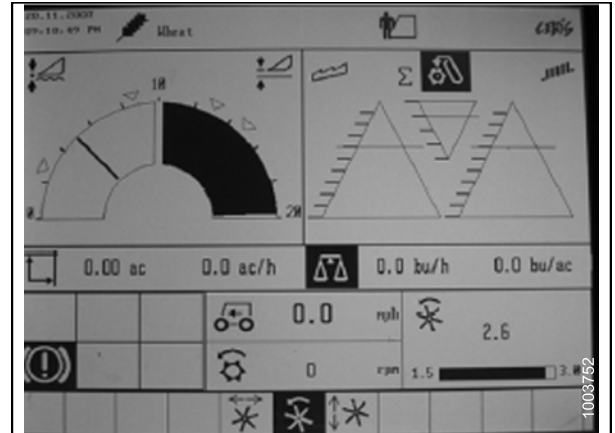


Figure 6.53

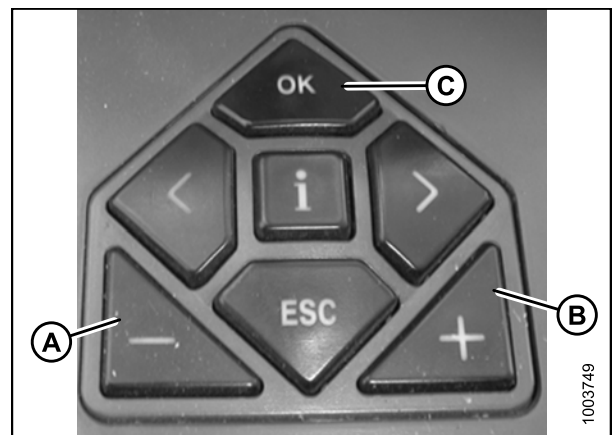


Figure 6.54

You can also manually adjust the reel speed by rotating the rotary switch to the reel position (A), and then using the “-” key or the “+” key to set the reel speed.



Figure 6.55

## AUTOMATIC HEADER HEIGHT CONTROL

4. Press button (A) or (B) for three seconds in order to store the setting into CEBIS.

**NOTE:** The alarm will sound when the new setting is stored.

**NOTE:** Whenever button (A) or (B) is pressed for three seconds, the current positions for the following functions are stored: reel speed and cutting height.



Figure 6.56

5. Use the "<" key or the ">" key to select the reel window. When the reel window is selected, window (E15) will display the current advance or retard speed of the reel in relation to the ground speed.

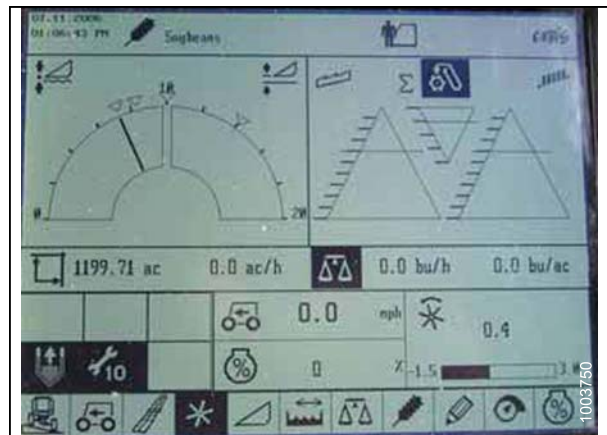


Figure 6.57

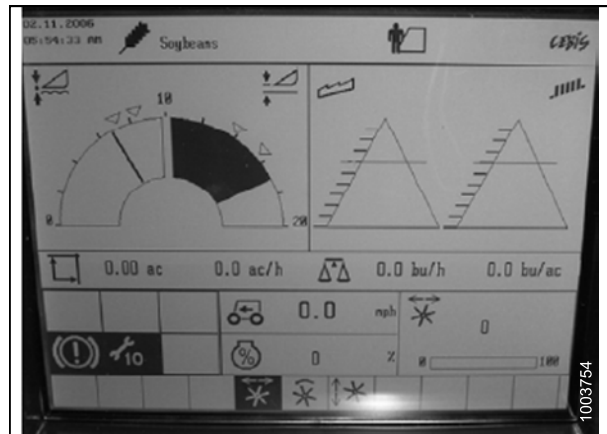


Figure 6.58

## AUTOMATIC HEADER HEIGHT CONTROL

6. Press the "OK" button (C). Use the "<" key or the ">" key to select the reel fore and aft window.
7. Use the "-" key (A) or the "+" key (B) to set the fore-aft position of the reel.

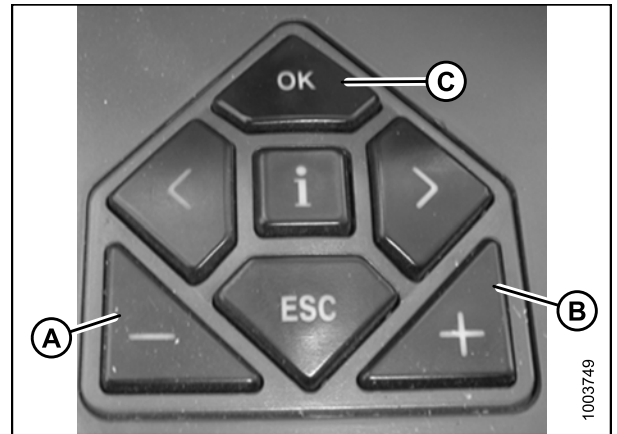


Figure 6.59

**NOTE:** You can also use button (A) or (B) to set the fore-aft position of the reel.

8. Press button (C) or button (D) for three seconds to store the setting into CEBIS.

**NOTE:** The alarm will sound when the new setting is stored.

**NOTE:** Whenever button (C) or button (D) is pressed for three seconds, the current positions for the following functions are stored: reel speed and cutting height.



Figure 6.60

### Setting Cutting Height (Lexion 700 Series)

To set cutting height, follow these steps:

1. Lower the header to desired cutting height or ground pressure setting. The indicator on the float indicator box (white box on top of the CA25 adapter) should be set to 1.5.

## AUTOMATIC HEADER HEIGHT CONTROL

2. Hold the left side of the header lift and lower switch (A) until you hear a ping.

**NOTE:** You can set two different cutting heights.



Figure 6.61

### *Adjusting Sensitivity of the Auto Header Height (Lexion 700 Series)*

To adjust the sensitivity of the Auto Header Height, follow these steps:

1. Use control knob (A) to navigate to the header and reel icon (B) on the CEBIS screen.
2. Push the knob to select this icon. The header/reel window opens.

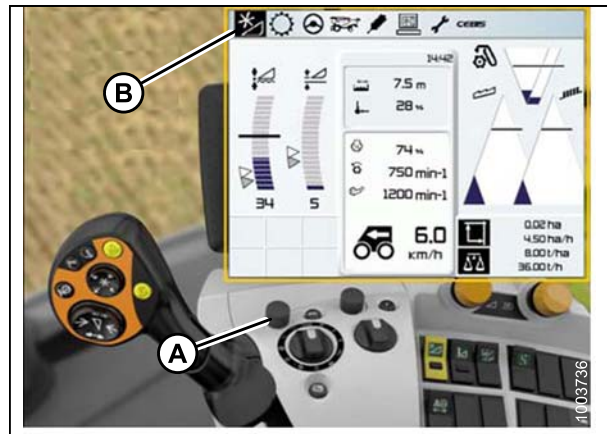


Figure 6.62

3. Select the Front attachment parameter settings icon (A). A list of settings appears.
4. Select Sensitivity CAC (B) from the list.



Figure 6.63

## AUTOMATIC HEADER HEIGHT CONTROL

5. Select the Sensitivity CAC icon (A).
6. To set the sensitivity you will have to change the cutting height adjustment from the 0 default. The settings between 1 to 50 provide a faster response. Settings between -1 to -50 provide a slower response. When making adjustments to the above numbers, do it in increments of 5.

There are two settings to change:

- Cutting Height Adjustment (B)
- Auto Drop Rate (C)

between the header and the adapter is too slow increase the Cutting height adjustment.

When the feeder house reacts (hunting) up and down too fast, decrease the cutting height adjustment.

When lowering the header takes too much time, increase the sensitivity.

When the header hits the ground too hard and too quickly, decrease the sensitivity.

### *Adjusting Auto Reel Speed (Lexion 700 Series)*

To adjust the auto reel speed, follow these steps:

1. Use control knob (A) to navigate to the header and reel icon (B) on the CEBIS screen.
2. Push the knob to select this icon. The header/reel window opens.



Figure 6.64

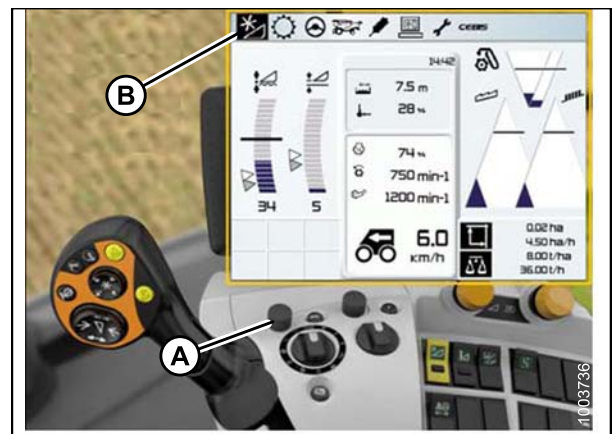


Figure 6.65

## AUTOMATIC HEADER HEIGHT CONTROL

- If you are not using Auto Reel Speed, in the window under Reel, select Reel speed (A). A graph displays. Use control knob (B) to adjust the reel speed.



Figure 6.66

- If you are using Auto Reel Speed, in the window under Auto reel speed, select Actual value (A). The Actual value window opens and displays the auto reel speed.



Figure 6.67

- Use control knob (A) to reduce or increase the reel speed.



Figure 6.68

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

If the header raise rate (the first speed on the header height rocker switch of the multifunctional handle) is not acceptable, it can be adjusted.

To adjust the header raise rate, follow these steps:



## AUTOMATIC HEADER HEIGHT CONTROL

1. On the combine display screen, select Header raise rate.
2. Use the “+” or “-” buttons to change the setting.
3. Press ENTER to save the new setting.

**NOTE:** The raise rate can be changed between 32 and 236 in steps of 34. The factory setting is 100.

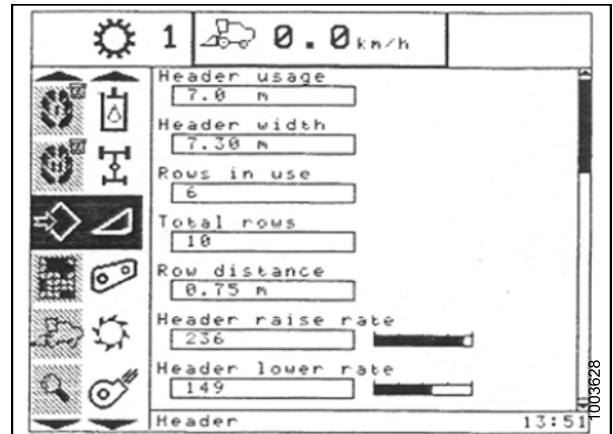


Figure 6.69

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

The fast lower speed (the automatic header height control button or second speed on the header height rocker switch of the multi-function handle) can be changed.

To set the header lower rate, follow these steps:

1. On the combine display screen, select Header lower rate.
2. Use the “+” or “-” buttons to change the setting to 50.
3. Press ENTER to save the setting.

**NOTE:** The setting can be changed between 2 and 247% in steps of 7. It is factory set to 100%.

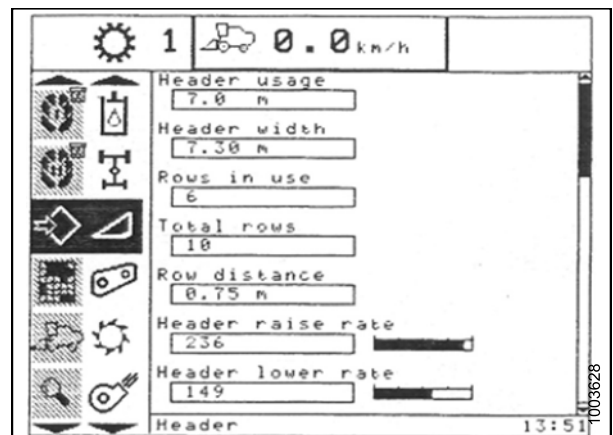


Figure 6.70

## AUTOMATIC HEADER HEIGHT CONTROL

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

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

To set the auto header height sensitivity, follow these steps:

1. Engage threshing, and feeder house.
2. On the combine display screen, select Height Sensitivity.
3. Use the “+” or “-” buttons to change the setting to 200.
4. Press ENTER to save the setting.

**NOTE:** The setting can be changed between 10 and 250 in steps of 10. It is factory set to 100.

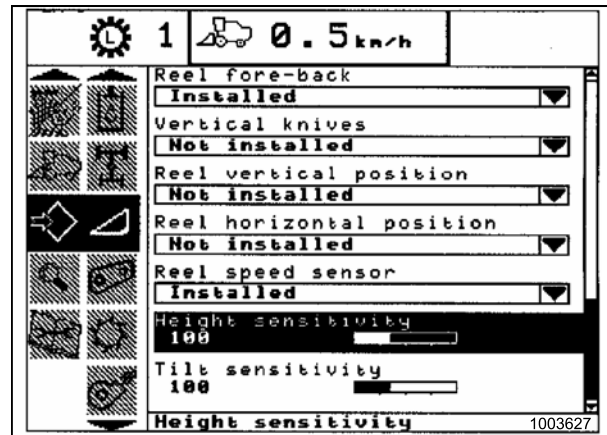


Figure 6.71: Combine Display

### 6.1.4 Diagnostics (Gleaner R65/R75)

#### Display type:

Displayed on tachometer (A) as “XX” or “XXX”.



Figure 6.72: Tachometer

## AUTOMATIC HEADER HEIGHT CONTROL

Displayed on LCD (A) as “XX in” or “XXX cm”.

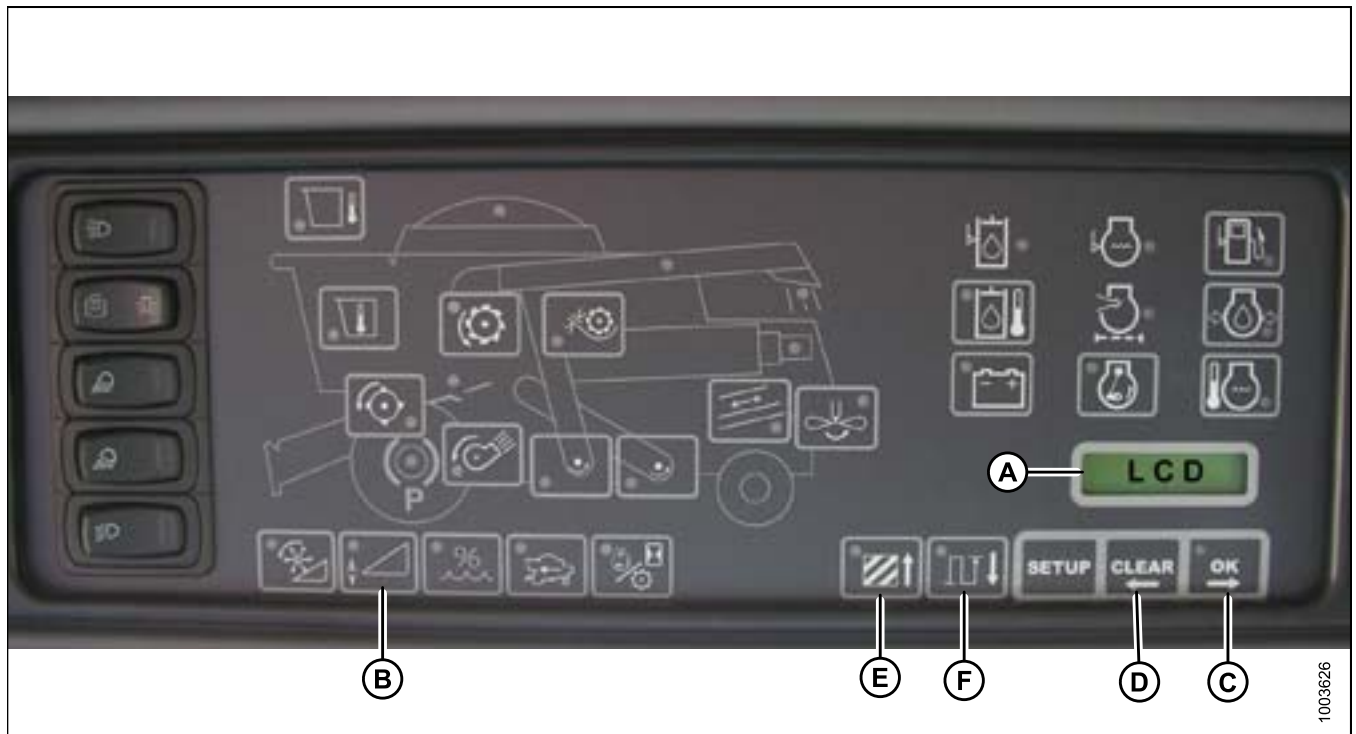


Figure 6.73

### Alarm conditions:

If an error is indicated in message received from the fuse panel, an audible alarm is set. The LCD on the EIP indicates the header system in error as HDR CTRL followed by HGT ERR for height, and HDR CTRL followed by TILT ERR from tilt. The header height LED flashes yellow two times every second.

The alarm is also noted by the buzzer sounding five times every 10 seconds.

**NOTE:** If the header height switch (B) is pressed for 5 seconds or longer, the EIP goes into auto header height/tile (HTC) control diagnostic mode.

When an alarm condition occurs, switch green LED flashes on and off (green, yellow, or red depending on the input).

In addition, a message is displayed on the LCD to identify the nature of the alarm. For example, HYD TEMP, OPEN, SHrt will be flashed alternately.

## AUTOMATIC HEADER HEIGHT CONTROL

### Diagnostic fault failures:

Pressing the header height switch (B) for a minimum of five seconds will put Electronic Instrument Panel (EIP) in header diagnostic mode.

The LCD (shown on previous page) will display the message HDR DIAG when the EIP has entered header diagnostic mode.

In this mode, after three seconds, header fault parameter labels are displayed on the EIP LCD.

**NOTE:** all the information displayed is read only.

The OK (C) and CLEAR (D) buttons allow the operator to scroll through the list of parameters.

**NOTE:** If there are no active fault codes, the EIP LCD will display NO CODE.

When a parameter is displayed, its label is displayed for three seconds, after which its value is automatically displayed.

Pressing OK button (C) at this point when the value is displayed will advance to the next parameter and display its label.

When a parameter label is displayed, and the OK button (C) is pressed before three seconds, the parameters value will be displayed.

Pressing AREA (E) will cycle through the options.

**NOTE:** When LEFT is displayed in LCD, press the OK button (C), and the Auto Header Height voltage will be shown in display.

Press the DIST button (F) to cycle back through the table.

Press the CLEAR button (D) to exit header diagnostics and return to normal mode.

Refer to step [Sensor Operation](#).

## 7 Maintenance and Servicing

### 7.1 Preparation for Servicing

The following instructions are provided to assist Operator in the use of header.

Detailed maintenance, service, and parts information are contained in the technical manual and parts catalog which are available from your MacDon Dealer.

#### **CAUTION**

**To avoid personal injury, before servicing header or opening drive covers:**

1. **Fully lower the header. If necessary to service in the raised position, always engage safety props.**
2. **Stop engine and remove key.**
3. **Engage park brake.**
4. **Wait for all moving parts to stop.**

## 7.2 Maintenance Specifications

### 7.2.1 Conversion Chart

Quantity	Inch-Pound Units		Factor	SI Units (Metric)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	acres	acres	x 0.4047 =	hectares	ha
Flow	US gallons per minute	gpm	x 3.7854 =	liters per minute	L/min
Force	pounds force	lbf	x 4.4482 =	Newtons	N
Length	inch	in.	x 25.4 =	millimeters	mm
	foot	ft.	x 0.305 =	meters	m
Power	horsepower	hp	x 0.7457 =	kilowatts	kW
Pressure	pounds per square inch	psi	x 6.8948 =	kilopascals	kPa
			x .00689 =	megapascals	MPa
			÷ 14.5038 =	bar (non-SI)	bar
Torque	pound feet or foot pounds	ft·lbf	x 1.3558 =	newton meters	N·m
	pound inches or inch pounds	in·lbf	x 0.1129 =	newton meters	N·m
Temperature	degrees fahrenheit	°F	(°F-32) x 0.56 =	Celsius	°C
Velocity	feet per minute	ft/min	x 0.3048 =	meters per minute	m/min
	feet per second	ft/s	x 0.3048 =	meters per second	m/s
	miles per hour	mph	x 1.6063 =	kilometres per hour	km/h
Volume	US gallons	US gal	x 3.7854 =	liters	L
	ounces	oz.	x 29.5735 =	milliliters	ml
	cubic inches	in. <sup>3</sup>	x 16.3871 =	cubic centimetres	cm <sup>3</sup> or cc
Weight	pounds	lbs	x 0.4536 =	kilograms	kg

### 7.2.2 Recommended Fluids and Lubricants

Your machine can operate at top efficiency only if clean lubricants are used.

- Use clean containers to handle all lubricants.
- Store in an area protected from dust, moisture, and other contaminants.

## MAINTENANCE AND SERVICING

Lubricant	Specification	Description	Use	Capacities
Grease	SAE Multi-Purpose	High Temperature Extreme Pressure (EP2) Performance With 1% Max. Molybdenum Disulphide (NLGI Grade 2) Lithium Base	As Required Unless Otherwise Specified.	—
		High Temperature Extreme Pressure (EP) Performance With 10% Max. Molybdenum Disulphide (NLGI Grade 2) Lithium Base	Driveline Slip-Joints	—
Gear Lubricant	SAE 85W-140	API Service Class GL-5	Knife Drive Box	2.3 quarts (2.2 liters)
			Main Drive Gearbox	5 pints (2.5 liters)
Hydraulic Oil	SAE 15W-40	Compliant With SAE Specs For API Class SJ And CH-4 Engine Oil	Header Drive Systems Reservoir	16 US gallons (60 liters)

### 7.2.3 Torque Specifications

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

- Tighten all bolts to the torques specified in chart (unless otherwise noted throughout this manual).
- Replace hardware with the same strength and grade bolt.
- Check tightness of bolts periodically, using the tables below as a guide.
- Torque categories for bolts and cap screws are identified by their head markings.



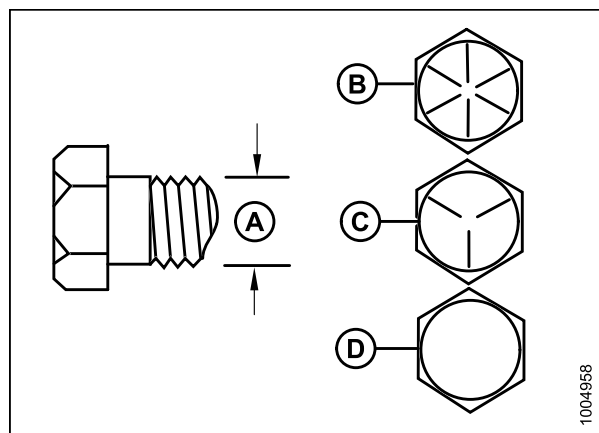
## MAINTENANCE AND SERVICING

### SAE Bolt Torque Specifications

Torque values shown in this table are valid for non-greased, or non-oiled threads and heads. Therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

**Table 7.1 SAE Grade 5 Bolt and Grade 5 Free Spinning**

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*106	*117	11.9	13.2
5/16-18	*218	*241	24.6	27.1
3/8-16	32	36	44	48
7/16-14	52	57	70	77
1/2-13	79	87	106	118
9/16-12	114	126	153	170
5/8-11	157	173	212	234
3/4-10	281	311	380	420
7/8-9	449	496	606	669
1-8	611	676	825	912



**Figure 7.1**

A - Nominal Size  
C - SAE-5

B - SAE-8  
D - SAE-2

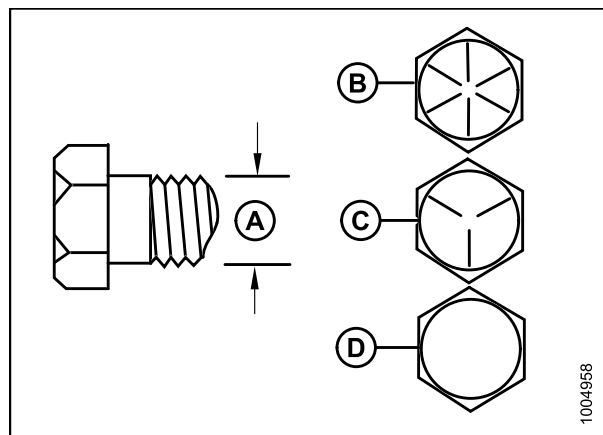
**Table 7.2 SAE Grade 5 Bolt and Grade 5 Distorted Thread Nut**

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*72	*80	8.1	9
5/16-18	*149	*164	16.7	18.5
3/8-16	22	24	30	33
7/16-14	35	39	48	53
1/2-13	54	59	73	80
9/16-12	77	86	105	116
5/8-11	107	118	144	160
3/4-10	192	212	259	286
7/8-9	306	338	413	456
1-8	459	507	619	684

## MAINTENANCE AND SERVICING

**Table 7.3 SAE Grade 8 Bolt and Grade 8 Distorted Thread Nut**

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*150	*165	16.8	18.6
5/16-18	18	19	24	26
3/8-16	31	34	42	46
7/16-14	50	55	67	74
1/2-13	76	84	102	113
9/16-12	109	121	148	163
5/8-11	151	167	204	225
3/4-10	268	296	362	400
7/8-9	432	477	583	644
1-8	647	716	874	966



**Figure 7.2**

A - Nominal Size  
C - SAE-5

B - SAE-8  
D - SAE-2

**Table 7.4 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut**

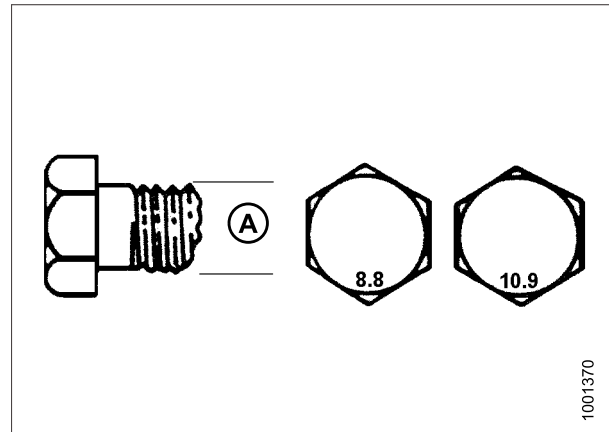
Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*150	*165	16.8	18.6
5/16-18	26	28	35	38
3/8-16	46	50	61	68
7/16-14	73	81	98	109
1/2-13	111	123	150	166
9/16-12	160	177	217	239
5/8-11	221	345	299	330
3/4-10	393	435	531	587
7/8-9	633	700	855	945
1-8	863	954	1165	1288

## MAINTENANCE AND SERVICING

### *Metric Bolt Specifications*

**Table 7.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut**

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



**Figure 7.3**

A - Nominal Size

**Table 7.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut**

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

## MAINTENANCE AND SERVICING

**Table 7.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut**

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

**Table 7.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut**

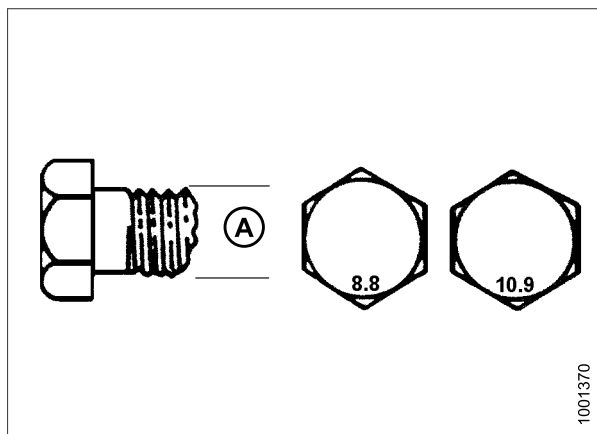
Nominal Size	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*12	*13	1.3	1.5
3.5-0.6	*19	*21	2.1	2.3
4-0.7	*28	*31	3.1	3.4
5-0.8	*56	*62	6.3	7
6-1.0	*95	*105	10.7	11.8
8-1.25	19	21	26	29
10-1.5	38	42	51	57
12-1.75	66	73	90	99
14-2.0	106	117	143	158
16-2.0	165	182	222	246
20-2.5	322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

## MAINTENANCE AND SERVICING

### *Metric Bolt Specifications Bolting into Cast Aluminum*

**Table 7.9 Metric Bolt Bolting into Cast Aluminum**

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

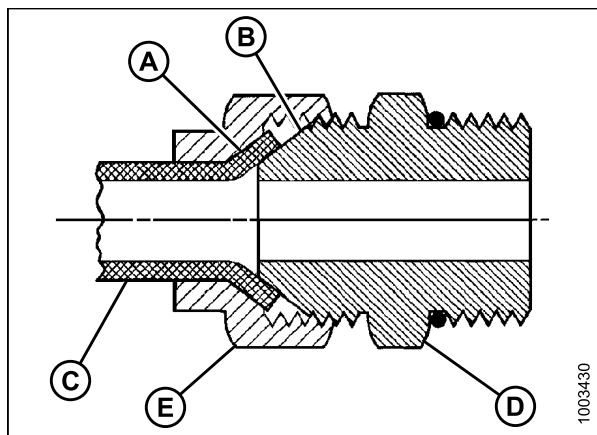


**Figure 7.4**

A - Nominal Size

### *Flare-Type Hydraulic Fittings*

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D) and thread nut (E) onto fitting without lubrication until contact has been made between the flared surfaces.
3. Torque the fitting nut (E) to the specified number of FFFT or to a given torque value shown in the following table.
4. To prevent the fitting (D) from rotating, use two wrenches. Place one wrench on the fitting body (D) and tighten the nut (E) with the other wrench to the torque shown.
5. Assess the final condition of the connection.



**Figure 7.5**

A - Flare  
C - Tube  
E - Nut

B - Flare Seat  
D - Body

## MAINTENANCE AND SERVICING

**Table 7.10 Flare-Type Hydraulic Tube Fittings**

SAE No.	Tube Size O.D. (in.)	Thread Size (in.)	Nut Size Across Flats (in.)	Torque Value <sup>6</sup>		Flats From Finger Tight (FFFT)	
				ft·lbf	N·m	Flats	Turns
3	3/16	3/8	7/16	6	8	1	1/6
4	1/4	7/16	9/16	9	12	1	1/6
5	5/16	1/2	5/8	12	16	1	1/6
6	3/8	9/16	11/16	18	24	1	1/6
8	1/2	3/4	7/8	34	46	1	1/6
10	5/8	7/8	1	46	62	1	1/6
12	3/4	1-1/16	1-1/4	75	102	3/4	1/8
14	7/8	1-3/8	1-3/8	90	122	3/4	1/8
16	1	1-5/16	1-1/2	105	142	3/4	1/8

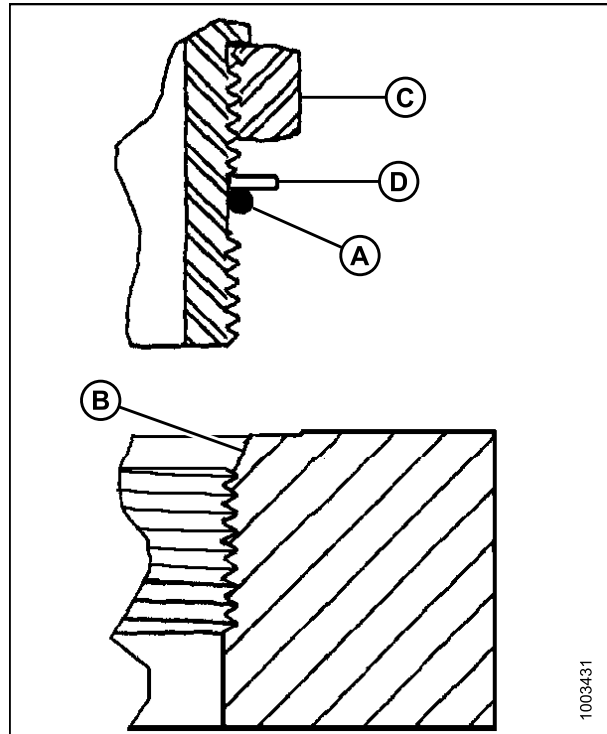
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6. Torque values shown are based on lubricated connections as in reassembly.

## MAINTENANCE AND SERVICING

### *O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)*

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



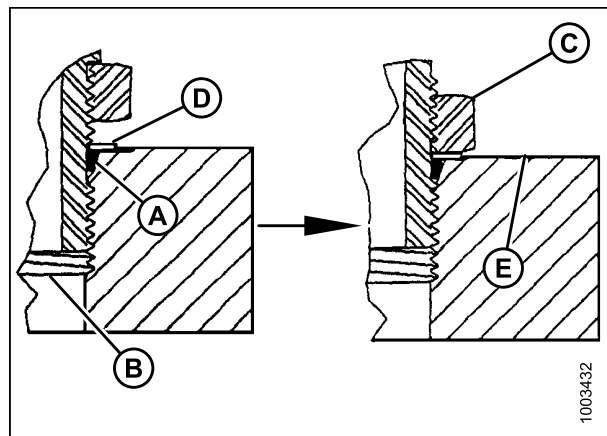
**Figure 7.6**

A - O-Ring  
D - Washer

B - Seat

C - Nut

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



**Figure 7.7**

A - O-Ring  
D - Washer

B - Fitting  
E - Part Face

C - Nut



## MAINTENANCE AND SERVICING

**Table 7.11 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)**

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

---

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

## MAINTENANCE AND SERVICING

### *O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)*

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is not on the threads, adjust if necessary.
3. Apply hydraulic system oil to the O-ring.
4. Install fitting (C) into port until fitting is hand tight.
5. Torque fitting (C) per value in chart. Refer to table 7.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable), page 216.
6. Check the final condition of the fitting.

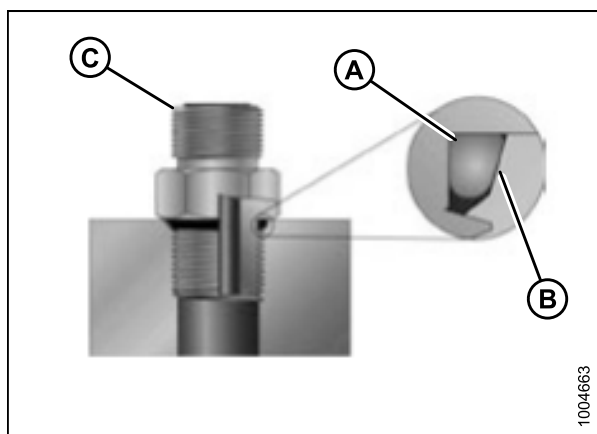


Figure 7.8

Table 7.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

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

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

## MAINTENANCE AND SERVICING

### *O-Ring Face Seal (ORFS) Hydraulic Fittings*

To tighten O-ring face seal (ORFS) hydraulic fittings, follow these steps:

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

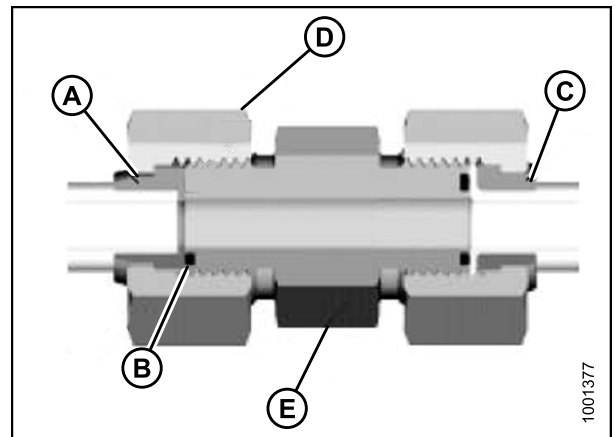


**Figure 7.9**

2. Apply hydraulic system oil to the O-ring (B).
3. Align the tube or hose assembly so that the flat face of the sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fitting further to the torque value in the table shown in the opposite column.

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

6. When assembling unions or two hoses together, three wrenches will be required.
7. Check the final condition of the fitting.



**Figure 7.10**

A - Braze Sleeve  
C - Two Piece Sleeve  
E - Fitting Body

B - O-Ring  
D - Nut

## MAINTENANCE AND SERVICING

**Table 7.13 O-Ring Face Seal (ORFS) Hydraulic Fittings**

SAE Dash Size	Thread Size (in.)	Torque Value <sup>9</sup>	
		ft·lbf (*in·lbf)	N·m
-3	Note <sup>10</sup>	—	—
-4	9/16–18	18–21	25–28
-5	Note <sup>10</sup>	—	—
-6	11/16-16	29–32	40–44
-8	13/16-16	41–45	55–61
-10	1–14	59–65	80–88
-12	1-3/16-12	85–94	115–127
-14	Note <sup>10</sup>	—	—
-16	1-7/16-12	111–122	150–165
-20	1-11/16-12	151–167	205–226
-24	2–12	232–256	315–347
-32	2-1/2-12	376–414	510–561

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

10. O-ring face seal type end not defined for this tube size

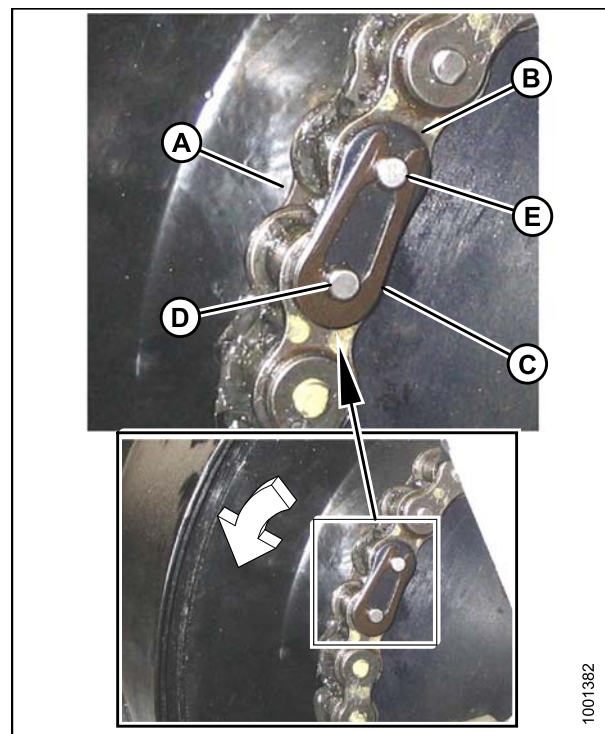
## 7.2.4 Installing a Roller Chain

To install a roller chain, follow these steps.

### CAUTION

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

1. Locate ends of chain on sprocket.
2. Install pin connector (A) into chain, preferably from the sprocket backside.
3. Install connector (B) onto pins.
4. Install spring clip (C) onto front pin (D) with closed end of clip in direction of sprocket rotation.
5. Locate one leg of clip in groove of aft pin (E).
6. Press other leg of spring clip over face of aft pin (E) until it slips into groove. Do **NOT** press clip lengthwise from closed end.
7. Ensure clip is seated in grooves of pins.



**Figure 7.11: Arrow shows direction of rotation**

A - Pin connector  
B - Connector  
C - Spring clip  
D - Front pin  
E - Aft pin

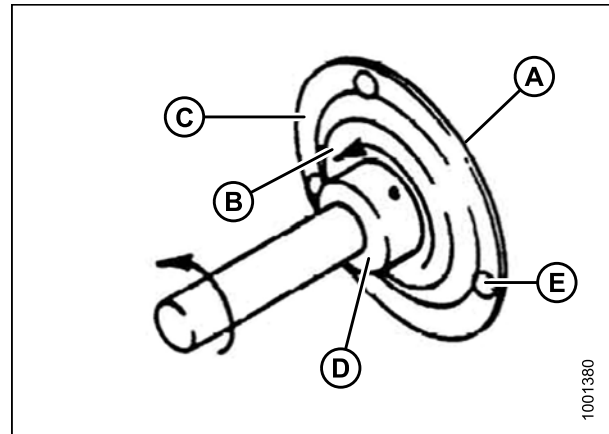
### 7.2.5 Installing a Sealed Bearing

To install a sealed bearing, follow these steps.

1. Clean shaft and coat with rust preventative.
2. Install flangette (A), bearing (B), second flangette (C), and lock collar (D).

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

3. Install (but do **NOT** tighten) flangette bolts (E).
4. When the shaft is correctly located, lock the lock collar with a punch. The collar should be locked in the same direction the shaft rotates. Tighten the setscrew in the collar.
5. Tighten flangette bolts.
6. Loosen flangette bolts on mating bearing one turn and retighten. This will allow the bearing to line up.



**Figure 7.12**

A - Flangette

B - Bearing

C - Flangette

D - Lock collar

E - Flangette bolt

### 7.3 Maintenance Requirements

The following maintenance schedule is a listing of periodic maintenance procedures, organized by service intervals. Regular maintenance is the best insurance against early wear and untimely breakdowns. Following this schedule will increase machine life.

For detailed instructions, refer to the specific headings in this section. Use the fluids and lubricants specified, See Section [7.2.2 Recommended Fluids and Lubricants, page 206](#).

Log hours of operation and use the Maintenance Record on the next page to keep a record of scheduled maintenance. You will want to make copies of the Maintenance Record page for this purpose.

**Service Intervals:** The recommended service intervals are in hours of operation. Where a service interval is given in more than one time frame, e.g., “100 hours or Annually”, service the machine at whichever interval is reached first.

#### **IMPORTANT:**

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



#### **CAUTION**

Carefully follow safety messages. See Section [7.1 Preparation for Servicing, page 205](#) and [Recommended Safety Procedures](#).

## MAINTENANCE AND SERVICING

### 7.3.1 Maintenance Schedule/Record

Copy this page to continue record.

Maintenance Record	Action:	✓ - Check	⬇ - Lubricate	▲ - Change																
Hour Meter Reading																				
Date																				
Serviced By																				
FIRST USE, Refer to Section 7.3.2 Break-In Inspection, page 224																				
END OF SEASON, Refer to Section 7.3.4 End of Season Service, page 225																				
<b>10 HOURS OR DAILY<sup>11</sup></b>																				
✓ Hydraulic Hoses and Lines <sup>12</sup>																				
✓ Knife Sections, Guards, and Hold-Downs <sup>12</sup>																				
✓ Tire Pressure <sup>12</sup>																				
⬇ Knife (except in sandy conditions) <sup>12</sup>																				
<b>25 HOURS</b>																				
Hydraulic Oil Level at Reservoir <sup>12</sup>																				
Knifehead(s) <sup>12</sup>																				
<b>50 HOURS</b>																				
⚙ Draper Roller Bearings																				
⬇ Driveline and Driveline Universals																				
▲ Knife Drive Box Oil - First 50 Hours Only																				
<b>100 HOURS OR ANNUALLY<sup>11</sup></b>																				
✓ Auger to Pan and Feed Draper Clearance																				
✓ Draper Seal																				
✓ Gearbox Lubricant Level																				
✓ Reel Drive Chain Tension																				
✓ Reel Tine/Cutterbar Clearance																				
✓ Knife Drive Belt Tension																				

11. Whichever occurs first.

12. A record of daily maintenance is not normally required but is at the Owner's/Operator's discretion.



## MAINTENANCE AND SERVICING

Maintenance Record	Action:	✓ - Check	⬇ - Lubricate	▲ - Change
✓ Wheel Bolt Torque				
✓ Knife Drive Box Lubricant Level				
✓ Knife Drive Box Mounting Bolts				
⬇ Auger Drive Chain				
⬇ Float Pivots				
⬇ Float Spring Tensioners				
⬇ Reel Drive Chain				
⬇ Upper Cross Auger RH Bearing				
<b>250 HOURS OR ANNUALLY<sup>11</sup></b>				
✓ Draper Seal				
⬇ Adapter Auger Pivots				
⬇ Upper Cross Auger Center Support				
⬇ Reel Drive U-joint				
⬇ Bell crank Linkage				
⬇ Transport Axle Pivot Bushings				
▲ Hydraulic Oil Filter				
<b>500 HOURS OR ANNUALLY<sup>11</sup></b>				
✓ Draper Seal				
⬇ Reel Shaft Bearings				
⬇ Stabilizer/Slow Speed Transport Wheel Bearings				
✓ Gearbox Chain Tension				
<b>1000 HOURS OR 3 YEARS<sup>11</sup></b>				
▲ Knife Drive Box Lubricant				
▲ Gearbox Lubricant				
▲ Hydraulic Oil				

## MAINTENANCE AND SERVICING

### 7.3.2 Break-In Inspection

A break-in inspection has the operator check over belts, fluids, and a general machine inspection looking for loose hardware or other areas of concern. The break-in inspection ensures that motors, pumps, belts, etc are operated in such a way that gives them the ability to operate for an extended period without requiring service or replacement.

Timing	Item	Refer to
At 5 minutes	Check reservoir hydraulic oil level.	<a href="#">Checking Hydraulic Oil Level, page 238</a>
At 5 hours	Check for loose hardware. Tighten to required torque.	<a href="#">7.2.3 Torque Specifications, page 207</a>
	Check knife drive belt tension. Periodically check for first 50 hours.	<a href="#">Tensioning Single and Double Knife Headers with Non-Timed Drive, page 276</a>
At 10 hours	Check knife drive box mounting bolts.	<a href="#">Mounting Bolts, page 296</a>
At 50 hours	Change adapter gearbox oil.	<a href="#">Changing Oil in Header Drive Gearbox, page 237</a>
	Change adapter hydraulic oil filter.	<a href="#">7.4.2 Changing Hydraulic Oil Filter, page 240</a>
	Change knife drive box lubricant.	<a href="#">Changing Oil in Knife Drive Box, page 306</a>
	Check gearbox chain tension.	<a href="#">7.6.5 Adjusting Tension on Gearbox Drive Chain, page 249</a>

### 7.3.3 Preseason/Annual Service

Perform the following the beginning of each operating season

#### CAUTION

- Review this manual to refresh your memory on safety and operating recommendations.
  - Review all safety decals and other decals on the header and note hazard areas.
  - Be sure all shields and guards are properly installed and secured. Never alter or remove safety equipment.
  - Be sure you understand and have practiced safe use of all controls. Know the capacity and operating characteristics of the machine.
  - Check the first aid kit and fire extinguisher. Know where they are and how to use them.
1. Adjust tension on drive belts.  
For single knife, Refer to
    - [Tensioning Single and Double Knife Headers with Non-Timed Drive, page 276.](#)For double knife, Refer to .
    - [Tensioning Knife Drive Belt \(Timed\) \(Double Knife\) \(Left Hand\), page 279](#) or
    - [Tensioning Knife Drive Belt \(Timed\) \(Double Knife\) \(Right Hand\), page 286](#)
  2. Perform all annual maintenance. See Section [7.3.1 Maintenance Schedule/Record, page 222.](#)

### 7.3.4 End of Season Service

Do the following at the end of each operating season.



#### CAUTION

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



#### CAUTION

**Cover cutterbar and knife guards to prevent injury from accidental contact.**

1. Clean the header thoroughly.
2. Store the machine in a dry, protected place if possible. If stored outside, always cover with a waterproof canvas or other protective material.
3. If machine is stored outside, remove drapers and store in a dark, dry place.  
**NOTE:** If drapers are not removed, store header with cutterbar lowered so water/snow will not accumulate on drapers. This accumulation of weight puts excessive stress on drapers and header.
4. Lower header onto blocks to keep cutterbar off the ground.
5. Lower reel completely. If stored outside, tie reel to frame to prevent rotation caused by wind.
6. Repaint all worn or chipped painted surfaces to prevent rust.
7. Loosen drive belts.
8. Lubricate the header thoroughly, leaving excess grease on fittings to keep moisture out of bearings. Apply grease to exposed threads, cylinder rods, and sliding surfaces of components. Oil knife components to prevent rust.
9. Check for worn or broken components and repair or order replacement from your MacDon Dealer. Attention to these items right away will save time and effort at beginning of next season.
10. Replace or tighten any missing or loose hardware. Refer to Section [7.2 Maintenance Specifications, page 206](#).

## MAINTENANCE AND SERVICING

### 7.3.5 Hydraulic Hoses and Lines

Check hydraulic hoses and lines daily for signs of leaks.

#### WARNING

- Avoid high-pressure fluids. Escaping fluid can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure.
- If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.
- Use a piece of cardboard or paper to search for leaks.

#### IMPORTANT:

Keep hydraulic coupler tips and connectors clean. Dust, dirt, water, and foreign material are the major causes of hydraulic system damage. Do NOT attempt to service hydraulic system in the field. Precision fits require WHITE ROOM CARE during overhaul.



Figure 7.13

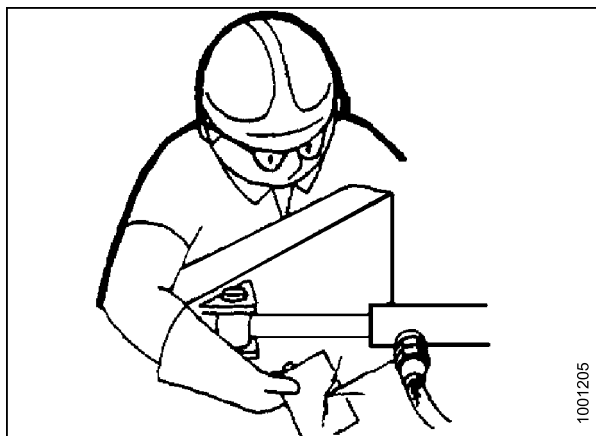


Figure 7.14

### 7.3.6 Lubrication and Servicing

#### CAUTION

To avoid personal injury, before servicing header or opening drive covers, follow procedures in [Section 7.1 Preparation for Servicing, page 205](#).

Refer to [Section 7.2.2 Recommended Fluids and Lubricants, page 206](#) for recommended greases.

Log hours of operation and use the Maintenance Record provided to keep a record of scheduled maintenance. Refer to [Section 7.3.1 Maintenance Schedule/Record, page 222](#).

## MAINTENANCE AND SERVICING

### *Service Intervals*

Refer to the illustrations on the following pages to identify the various locations that require lubrication and servicing. Illustrations are organized by the frequency of service that is required.

#### **Every 10 Hours or Daily**

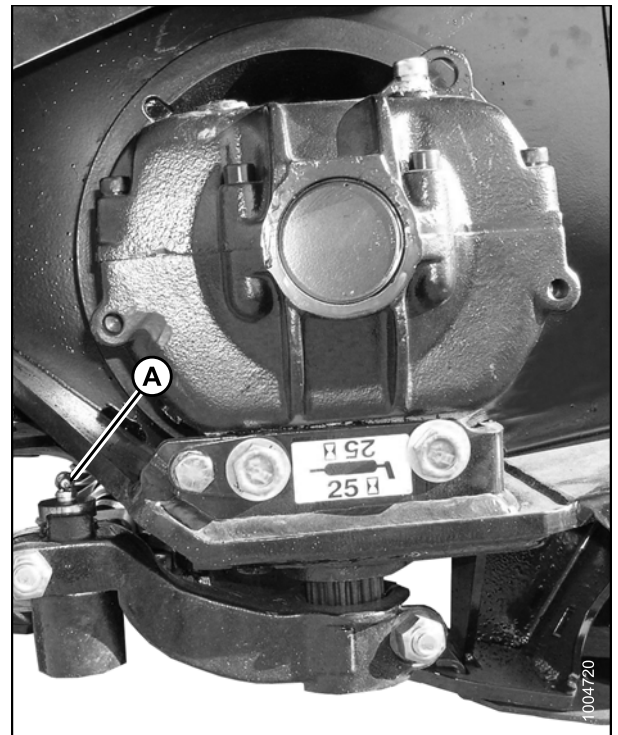


**Figure 7.15: Except in sandy conditions**

#### **Every 25 Hours**

**NOTE:** To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** over grease the knifehead (A). Only, one to two pumps with a mechanical grease gun (do **NOT** use an electric grease gun) is required. If more than six to eight pumps of the grease gun are required to fill the cavity, replace the seal in the knifehead.

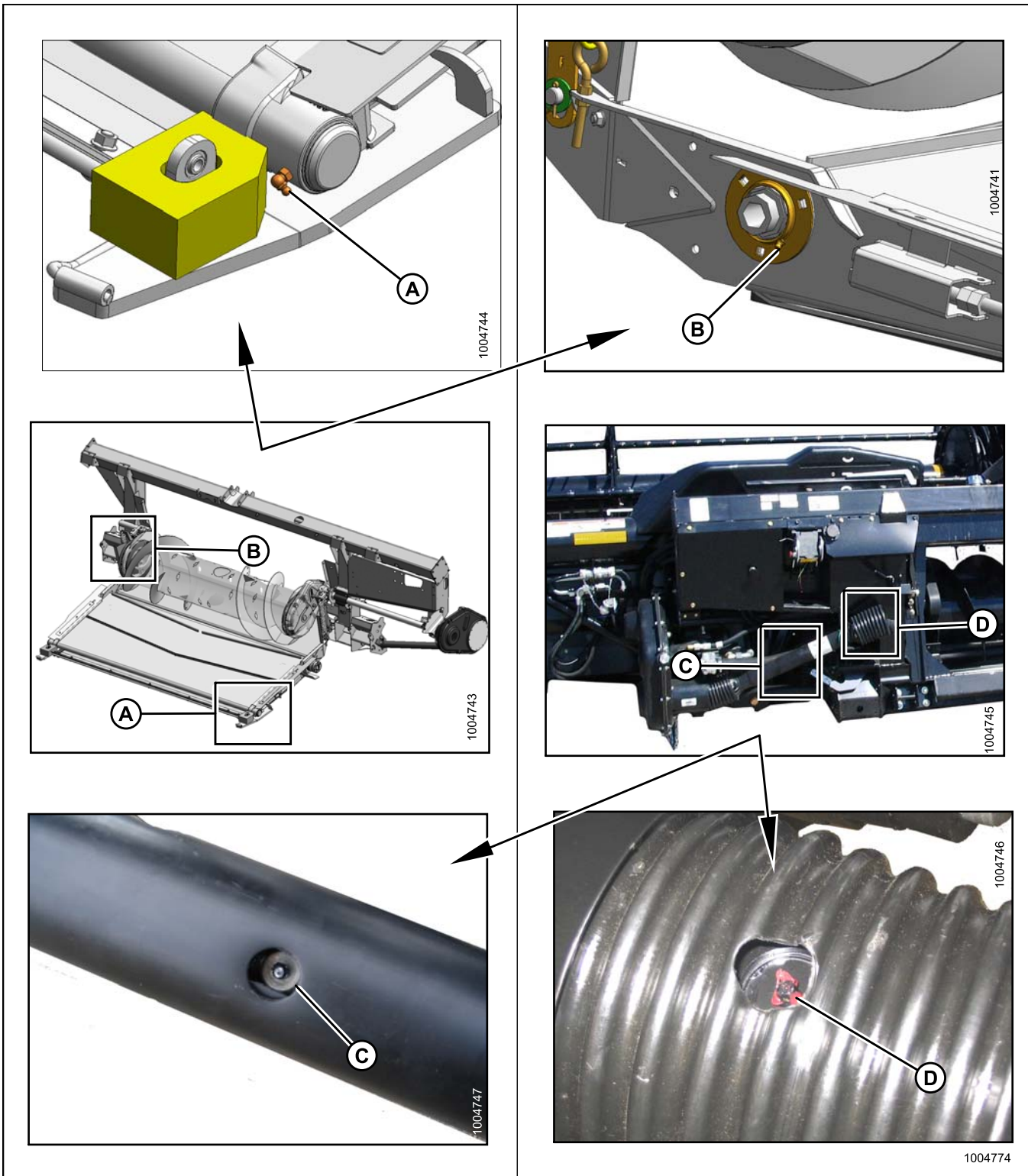
**NOTE:** Check for signs of excessive heating on first few guards after greasing. If required, relieve pressure by pressing check-ball in grease fitting.



**Figure 7.16: Knifehead (Single Knife - 1 PLC)  
(Double Knife - 2 PLCS)**

## MAINTENANCE AND SERVICING

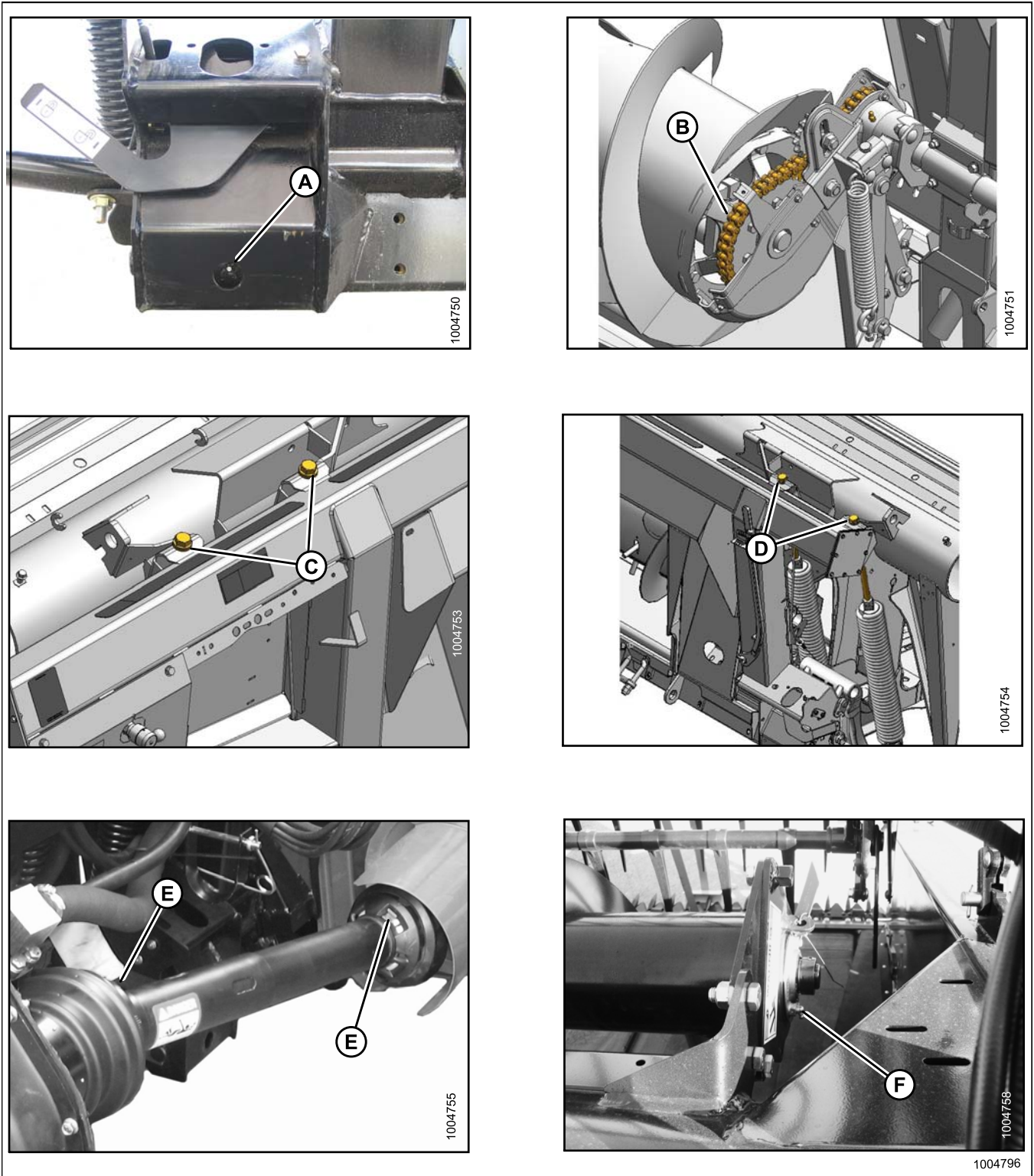
Every 50 Hours (Drive Roller Bearing, Idler Roller, Slip Joint and Driveline Universal)





## MAINTENANCE AND SERVICING

Every 100 Hours (Float Pivot, Auger Drive Chain, Float, Driveline Guard and Upper Cross Auger Bearing)



**Figure 7.18: Every 100 Hours - Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base**

A - Float pivot - RH and LH  
C - LH Float spring tensioner  
(lubricate rods)

B - Auger drive chain - See section [Lubricating Auger Drive Chain, page 235](#)  
D - RH Float spring tensioner  
(lubricate rods)

E - Driveline guard - 2 PLCS

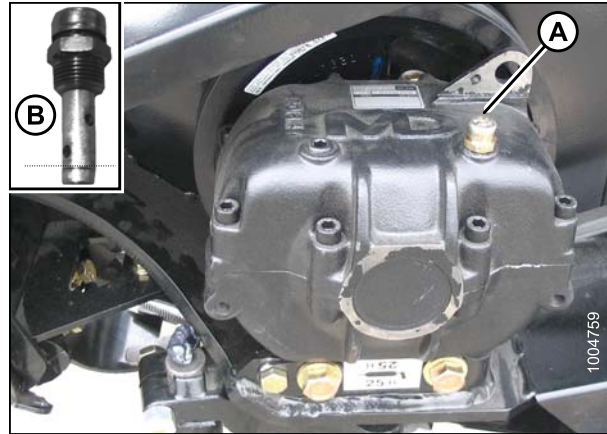
F - Upper cross auger bearing - 1 PLC

## MAINTENANCE AND SERVICING

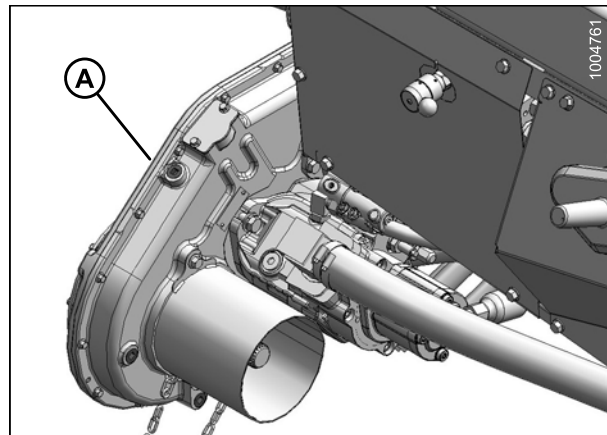
### Every 100 Hours (Continued)

**NOTE:** Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

**NOTE:** Double knife drive – check both knife drive boxes.



**Figure 7.19: Every 100 hours – Knife drive box**  
A - Knife drive box (check oil level with dipstick at top of knife drive box)  
B - Dipstick – Oil level between lower hole and end of dipstick.



**Figure 7.20: Every 100 Hours – Main drive gearbox**  
A - Main drive gearbox oil level (See section [Lubricating Header Drive Gearbox, page 236](#))

### Every 250 Hours (Upper Cross Auger, Flex Linkage, Reel U-joint, Auger Pivots, Wheel Axle, Wheel Pivots)

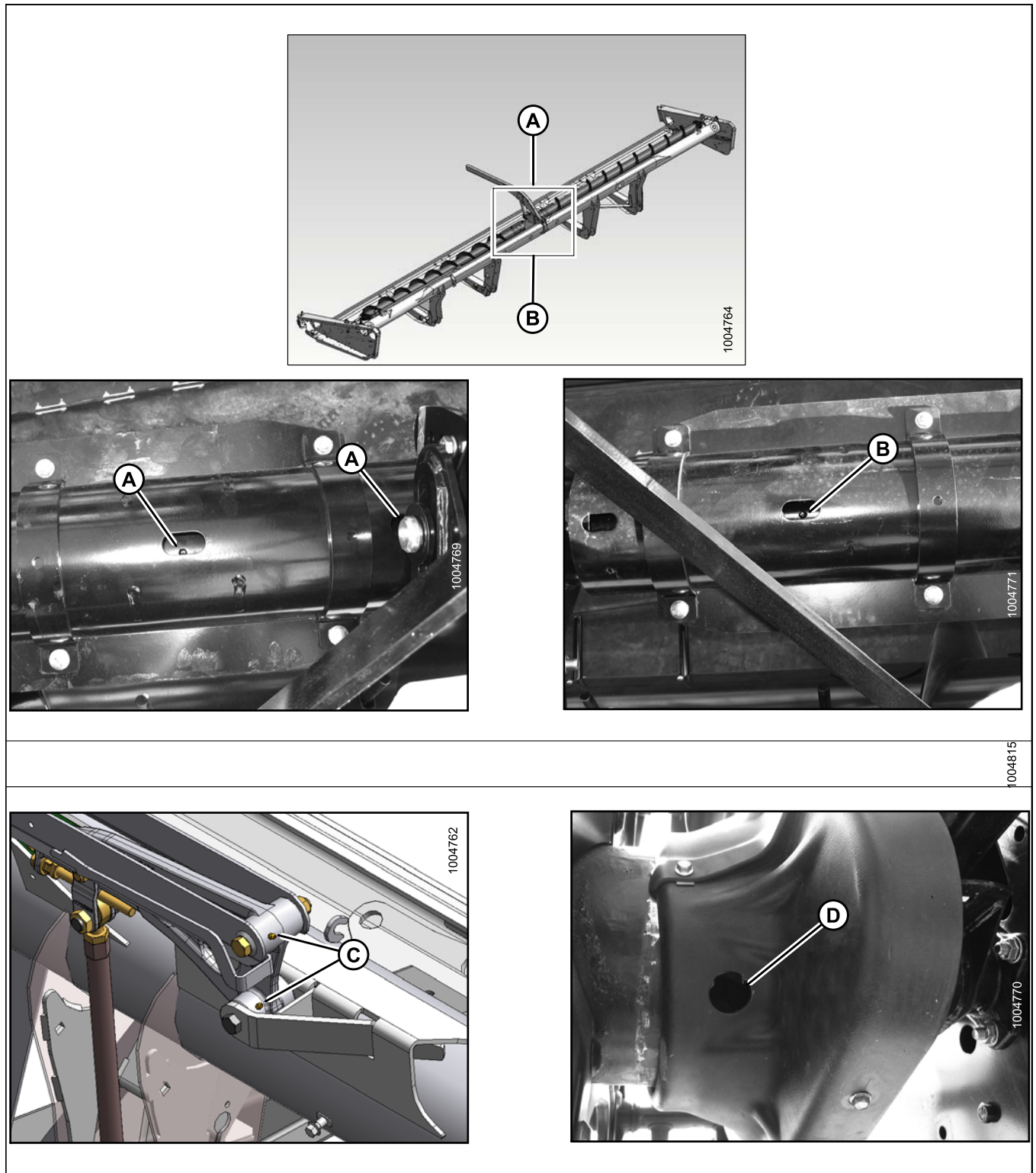
**NOTE:** U-JOINT HAS AN EXTENDED LUBRICATION CROSS AND BEARING KIT. STOP GREASING WHEN GREASING BECOMES DIFFICULT OR IF U-JOINT STOPS TAKING GREASE. OVERGREASING WILL DAMAGE U-JOINT. 6–8 PUMPS ARE SUFFICIENT AT FIRST GREASE (FACTORY). DECREASE GREASE INTERVAL AS U-JOINT WEARS AND REQUIRES MORE THAN 6 PUMPS.

**NOTE:** Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2). Lithium Base.



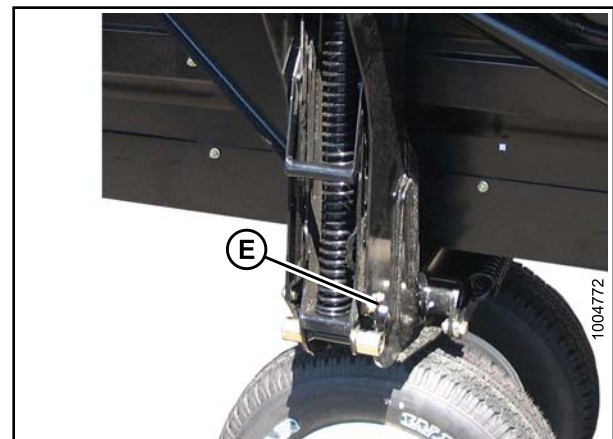
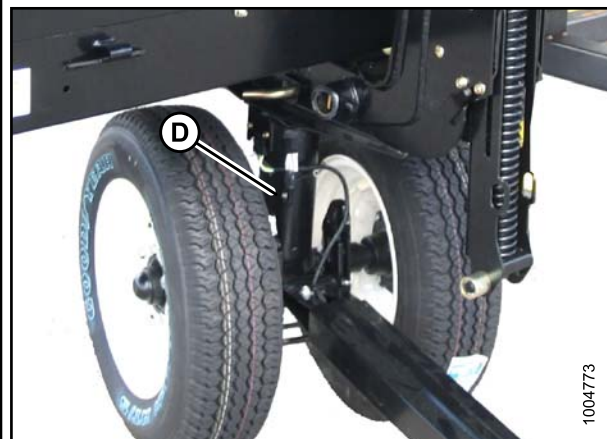
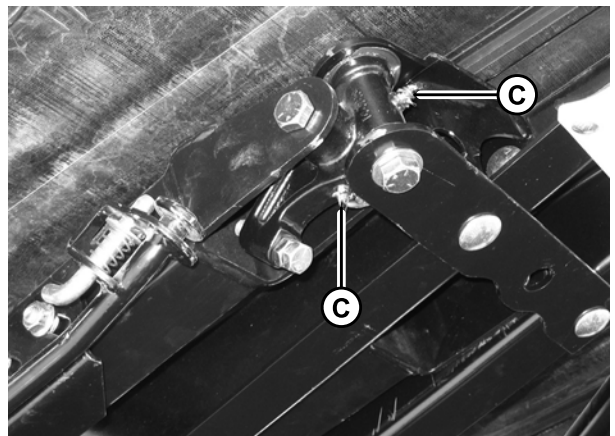
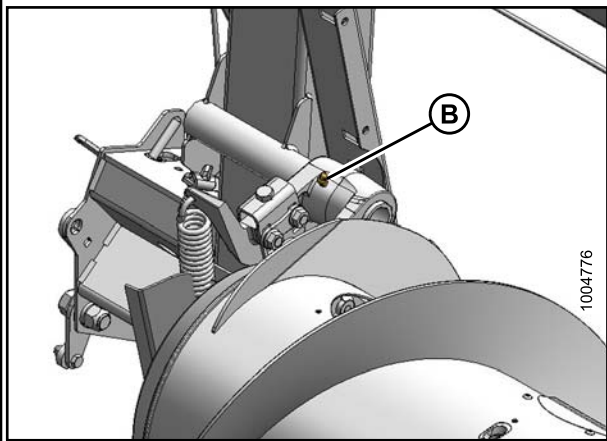
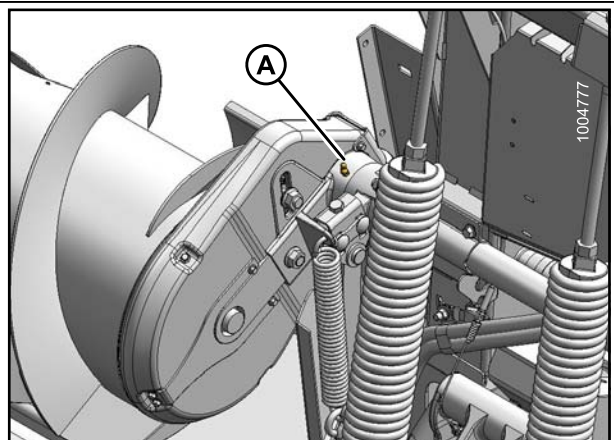
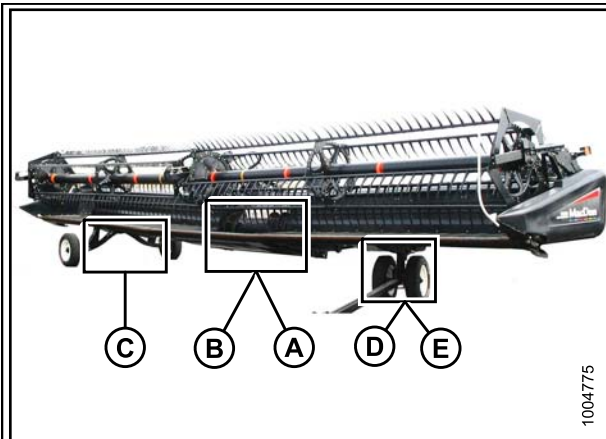
## MAINTENANCE AND SERVICING

Every 250 Hours (Upper Cross Auger, Flex Linkage, Reel U-joint)



## MAINTENANCE AND SERVICING

### Every 250 Hours Continued (Auger Pivots, Wheel Axle, Wheel Pivots)



**Figure 7.22: Every 250 Hours – Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2). Lithium Base.**

A and B - Auger pivots

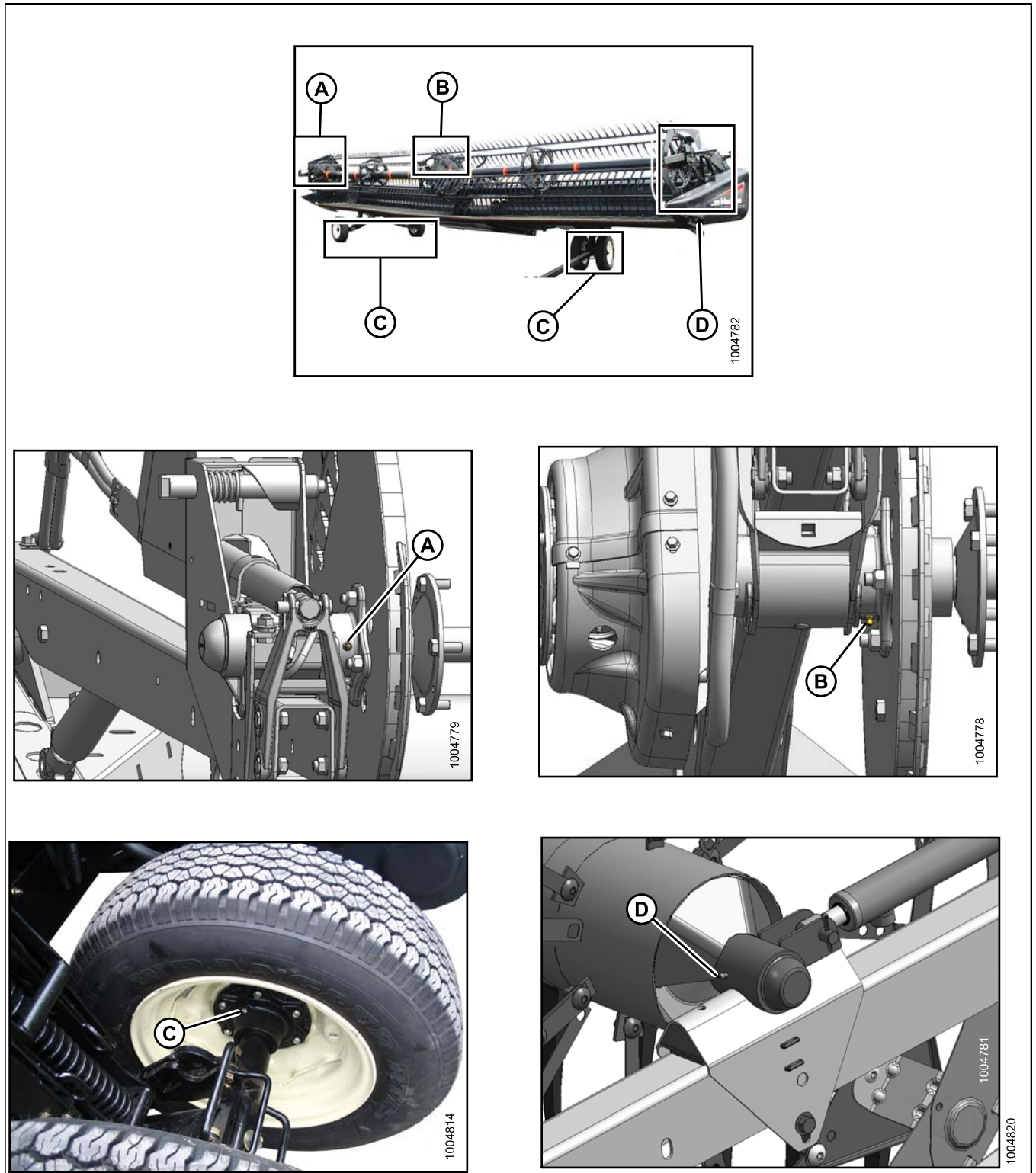
C - Right side - Wheel axle (2 PLCS)

D - Left side - Wheel pivot (1 PLC)

E - Frame/wheel pivot (1 PLC) - both sides

## MAINTENANCE AND SERVICING

### Every 500 Hours (Reel Shaft and Wheel Bearings)



**Figure 7.23: Every 500 Hours – Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2). Lithium Base.**

A - Reel shaft RH bearing (1 PLC)

B - Reel center bearing (1 PLC)

C - Wheel bearings (4 PLCS)

D - Reel shaft LH bearing (1 PLC)



## MAINTENANCE AND SERVICING

### *Greasing Procedure*

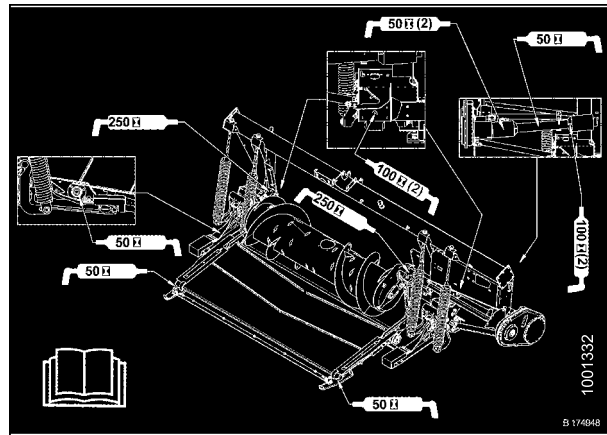
Greasing points are marked on the machine by decals showing a grease gun and grease interval in hours of operation. Master grease point location decals as shown below are provided on the header and adapter back frame.

Use the recommended lubricants specified in this manual.  
See Section [7.2.2 Recommended Fluids and Lubricants](#),  
[page 206](#).

### **CAUTION**

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

1. To avoid injecting dirt and grit, wipe grease fitting with a clean cloth before greasing.
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted.
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.
6. Use clean High Temperature Extreme Pressure grease as shown.



**Figure 7.24: CA25 Adapter**

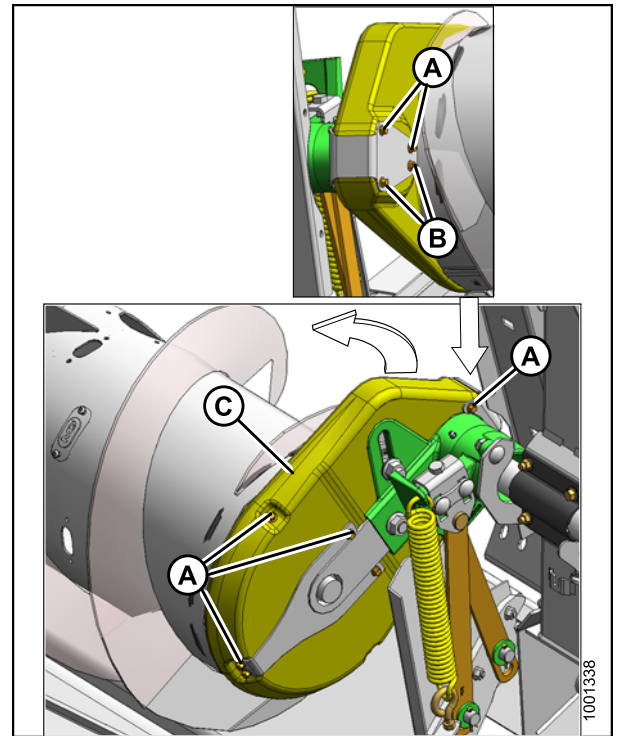
## MAINTENANCE AND SERVICING

### *Lubricating Auger Drive Chain*

Lubricate auger drive chain every 100 hours. This can be done with the adapter attached to the combine, but is easier if the adapter is detached.

To lubricate the auger drive chain, follow these steps:

1. The auger drive cover consists of an upper and a lower half. Only the upper half needs to be removed to grease the chain. Remove six bolts (A), securing the upper half (C).
2. Loosen three bolts (B) at the rear of the cover.
3. Rotate upper half (C) forward to remove.



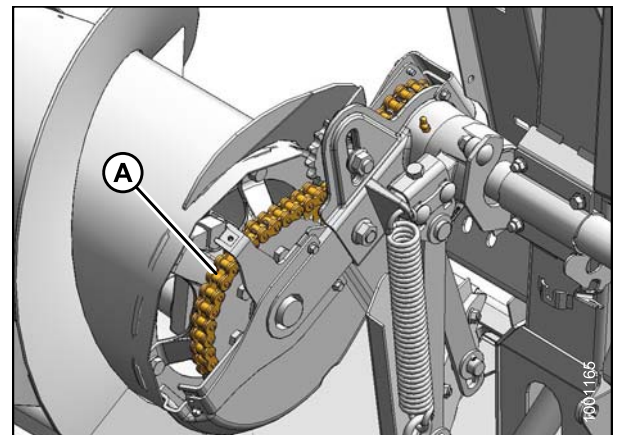
**Figure 7.25**

A - Bolts

B - Bolts

C - Upper auger drive cover

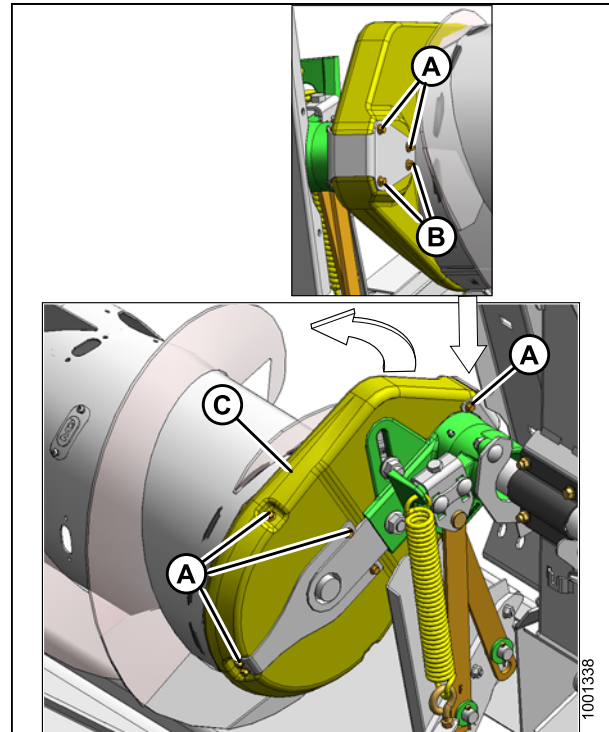
4. Liberally apply grease to chain (A).



**Figure 7.26**

## MAINTENANCE AND SERVICING

5. Reinstall upper half (C), by positioning the inboard lip into the auger tube and rotating back to engage the rear support.
6. Replace and tighten bolts (A) and (B).



**Figure 7.27**

A - Bolts

B - Bolts

C - Upper auger drive cover

### *Lubricating Header Drive Gearbox*

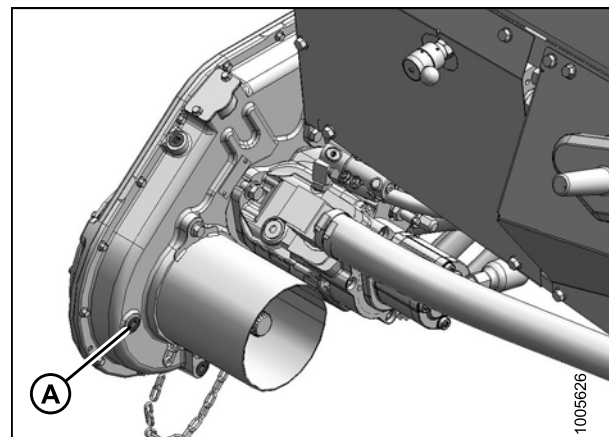
#### **Checking Oil Level in Header Drive Gearbox**

Check oil level every 100 hours as follows:

#### **CAUTION**

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

1. Set cutterbar to working position. Shutdown combine and remove key from ignition.
2. Remove plug (A). Level should be to bottom of hole.
3. Reinstall plug (A).
4. Add oil if required. Refer to [Adding Oil to Header Drive Gearbox, page 237](#).



**Figure 7.28**

## MAINTENANCE AND SERVICING

### Adding Oil to Header Drive Gearbox

To add oil to the header drive gearbox, follow these steps:

1. Lower cutterbar to ground. Gearbox must be in working position. Shutdown combine and remove key from ignition.
2. Remove plug (A) and filler plug (B).
3. Add SAE 85W-140 (API Service Class GL-5) oil at (B) until it runs out of hole (A).
4. Replace plug (A) and filler plug (B).

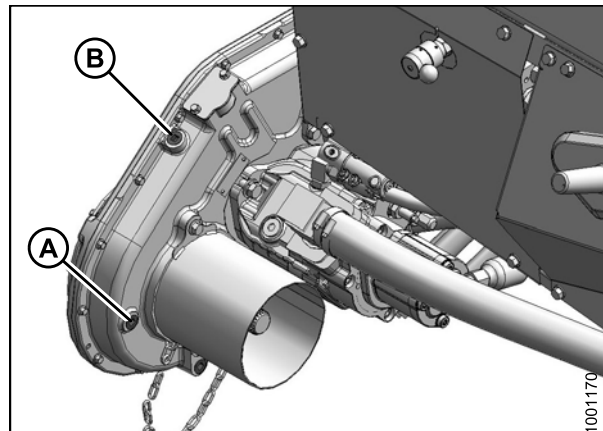


Figure 7.29

### Changing Oil in Header Drive Gearbox

To change the header drive gearbox lubricant, follow these steps:

Change header drive gearbox lubricant after the first 50 hours of operation, and every 1000 hours (or 3 years) thereafter.

1. Raise or lower header to position oil drain plug (A) at its lowest point. Shutdown combine and remove key from ignition.
2. Place a suitable container (approximately one US gallon [4 liters]) under gearbox drain to collect oil.
3. Remove drain plug (A) and filler plug (C), and allow oil to drain.
4. Replace drain plug (A), and remove oil level plug (B).
5. Add SAE 85W-140 (API Service Class GL-5) oil at (C) until it runs out of hole at (B). Gearbox holds approximately 5 US pints (2.5 liters).
6. Replace oil level plug (B) and filler plug (C).

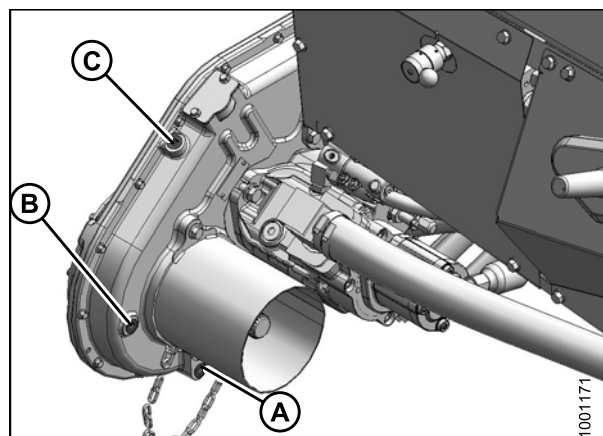


Figure 7.30

## 7.4 Hydraulics

The CA25 Combine Adapter's hydraulic system provides oil for the header draper and knife drives as well as the adapter feed draper.

Reel hydraulics are provided by the combine.

### 7.4.1 Reservoir

The adapter frame is used as a reservoir..

See Section [7.2.2 Recommended Fluids and Lubricants, page 206](#) for oil requirements.

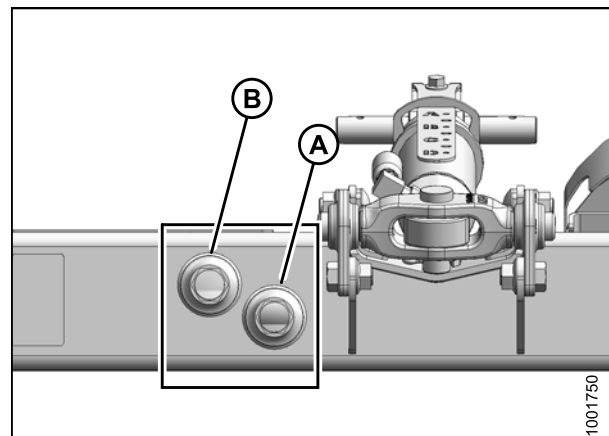
#### Checking Hydraulic Oil Level

Check oil level every 25 hours at lower (A) and upper (B) sights with cutterbar just touching ground. Check level when oil is cold, and with center-link retracted.

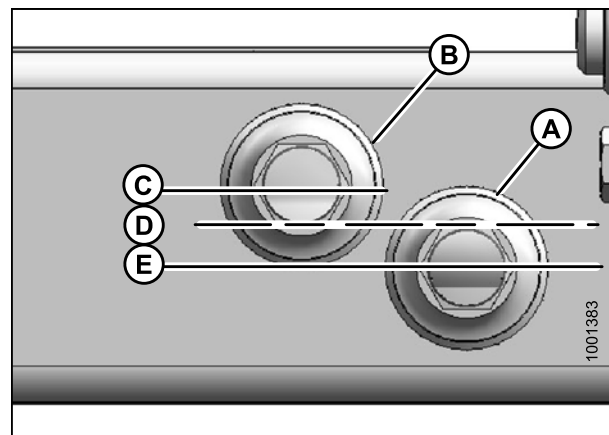
- **Maximum - Hilly Terrain (C):** Maintain level so lower sight (A) is full, and upper sight (B) is up to one-half filled.
- **Nominal - Normal Terrain (D):** Maintain level so lower sight (A) is full, and upper sight (B) is empty.
- **Minimum - Level Ground (E):** For slopes of 6 degrees or less, oil level may be kept slightly lower if desired. Maintain level so lower sight (A) is one-half filled or higher.

**NOTE:** When ambient temperatures are above 95°F (35°C), to prevent overflow at breather under operating temperatures, it may be necessary to lower oil level slightly.

This image provides more detail, and a closer look at the sight gauge.



**Figure 7.31: Oil Level Sights**



**Figure 7.32: Oil Level Sights**

- A - Lower Sight
- B - Upper Sight
- C - Shows MAXIMUM setting - Side Hills
- D - Shows NOMINAL Setting
- E - Shows MINIMUM Setting - Flat Terrain



## MAINTENANCE AND SERVICING

### *Adding Hydraulic Oil*

To add oil to the hydraulic reservoir, follow these steps.

#### **CAUTION**

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

1. Clean filler cap (A) of any dirt or debris.
2. Turn filler cap (A) counterclockwise until loose, and then remove cap.
3. Add warm (room temperature) oil and fill to required level. Refer to [Section 7.2.2 Recommended Fluids and Lubricants, page 206](#) for specifications.

#### **IMPORTANT:**

**Warm (room temperature) oil will flow through the screen better than cold oil. DO NOT REMOVE THE SCREEN.**

4. Reinstall filler cap. Hand-tighten.



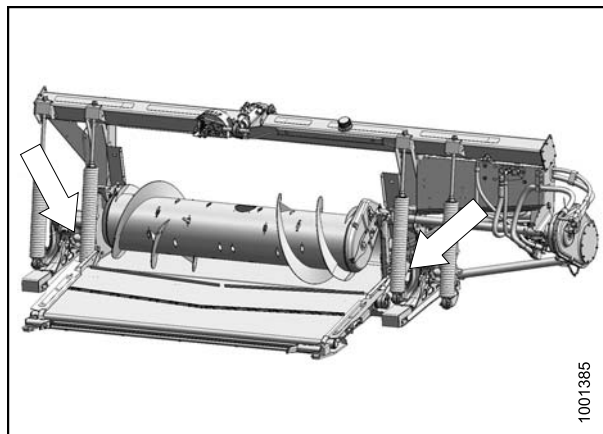
**Figure 7.33**

### *Changing Hydraulic Oil*

To change the hydraulic oil in the reservoir, follow these steps.

Change hydraulic oil every 1000 hours or 3 years.

1. Detach header from adapter. Refer to [Section 5 Header Attachment/Detachment, page 113](#).
2. Raise adapter on feeder house and engage safety prop.



**Figure 7.34**

## MAINTENANCE AND SERVICING

3. There is a drain plug at the bottom of each side frame (legs). Place a suitable container (at least 16 US gallons [60 liters]) under the two drains (A) to collect oil.
4. Using a 1-1/2 in. hex socket with extension, remove drain plugs (A).
5. Replace drain plugs when reservoir is empty.
6. Change filter, if required. See Section [7.4.2 Changing Hydraulic Oil Filter](#), page 240.
7. Fill with oil, Refer to [Adding Hydraulic Oil](#), page 239.

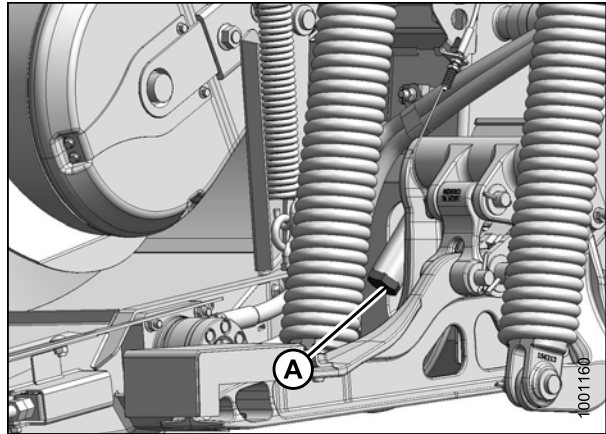


Figure 7.35

### 7.4.2 Changing Hydraulic Oil Filter

To change the adapter hydraulic oil filter, follow these steps:

Change hydraulic oil filter after the first 50 hours of operation, and every 250 hours thereafter.

Part MD #123989 can be obtained from your MacDon Dealer.



#### CAUTION

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

1. Remove five bolts (A), and remove panel (B).

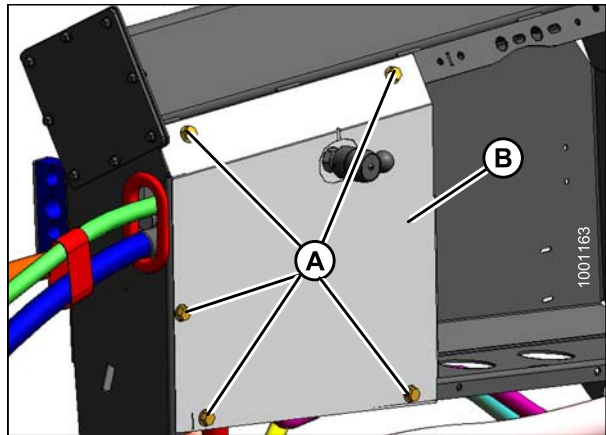


Figure 7.36

## MAINTENANCE AND SERVICING

2. Clean around mating surfaces of filter and valve block (A).
3. Remove spin-off filter (B), and clean the exposed filter port in valve block.
4. Apply a thin film of clean oil to the O-ring provided with the new filter.
5. Turn filter into the valve block until O-ring contacts mating surface. Tighten filter an additional 1/2 to 3/4 turn by hand.

### IMPORTANT:

**Do not use a filter wrench to install filter. Over-tightening can damage O-ring and filter.**

6. Reinstall panel (B) with screws (A).

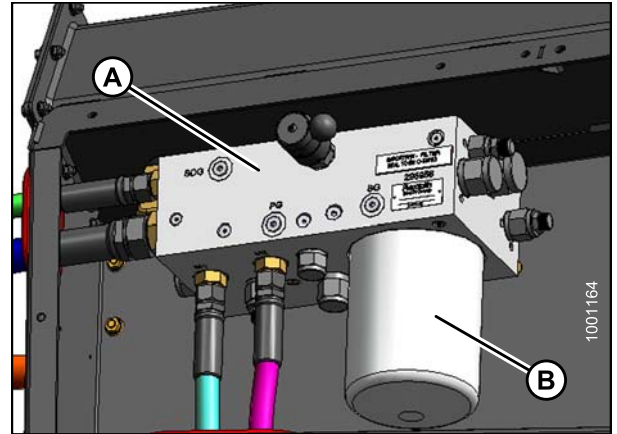


Figure 7.37

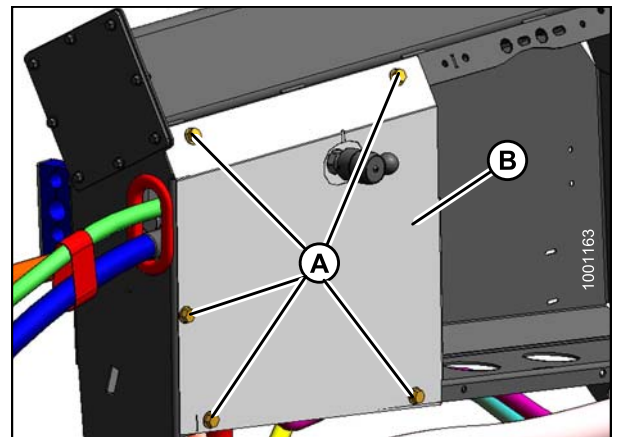


Figure 7.38

### 7.4.3 Multicoupler

The purpose of multicoupler system is to allow hook up of the combine to the adapter with only one connection. Some multicoupler connectors incorporate both the hydraulic and electrical connections in one simple connection while others have separate connections. This section will explore the orientation and functionality of the various multicoupler systems.

## MAINTENANCE AND SERVICING

### 7.5 Electrical

Use electrical tape and wire clips as required to prevent wires from dragging or rubbing.

Keep lights clean and replace defective bulbs.

#### 7.5.1 Replacing Light Bulbs

To replace a light bulb, follow these steps:

1. Using a Phillips screwdriver, remove screws (A) from fixture and remove plastic lens.
2. Replace bulb and reinstall plastic lens and screws.

**NOTE:** Bulb Part Numbers: Use Bulb Trade #1156 for amber clearance lights and #1157 for red tail light (Slow Speed Transport option). #1156 is 21W (12V), and #1157 is 21/5W (12V).

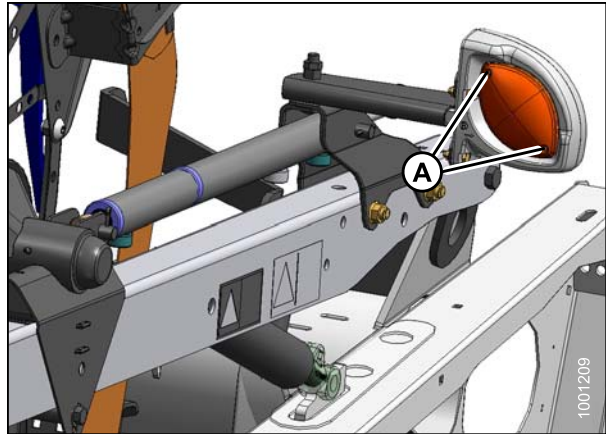


Figure 7.39

## 7.6 Header Drive

The header drive consists of a driveline from the combine to the CA25 combine adapter gearbox that drives the feed auger and a hydraulic pump. The pump provides hydraulic power to the drapers, knife, and optional equipment.

### 7.6.1 Removing Driveline

To remove the driveline, follow these steps.

**NOTE:** The driveline normally remains attached to the adapter, and is stored on the hook provided when not in use.

#### CAUTION

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

1. If adapter is attached to combine, remove driveline from combine by pulling the quick disconnect collar to release driveline yoke at combine shaft.

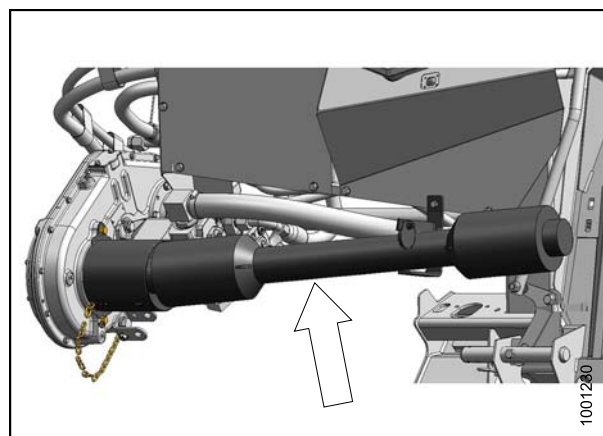


Figure 7.40

2. Remove two nuts (A) attaching shield (B) to gearbox.
3. Slide shield over poly driveline shield to expose quick disconnect on gearbox. Do **NOT** disconnect tether (C).
4. Pull quick disconnect collar to release driveline yoke, and pull driveline off shaft.
5. Slide shield (B) off driveline.

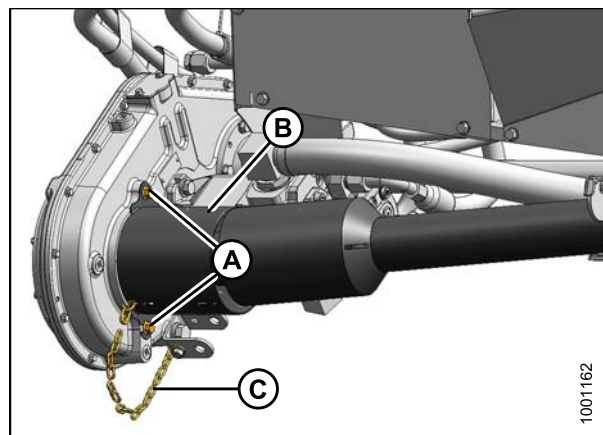


Figure 7.41

## MAINTENANCE AND SERVICING

6. Rotate disc (A) on adapter driveline storage hook, and remove the driveline from hook.

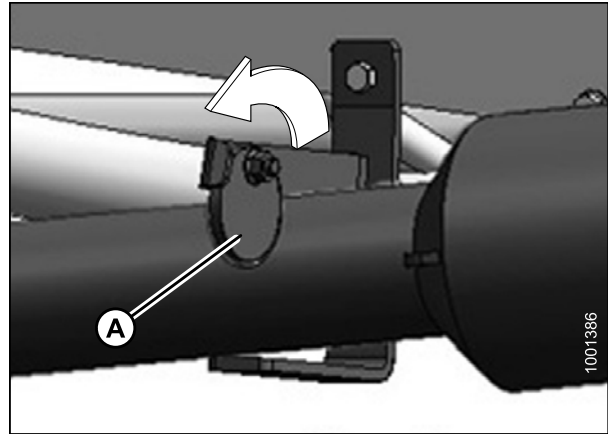


Figure 7.42

### 7.6.2 Installing Driveline

To install the driveline, follow these steps:

#### CAUTION

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

#### IMPORTANT:

If combine output shaft splines match adapter input shaft splines, ensure driveline is installed with longer guard at adapter gearbox end.

1. Slide driveline in hook (A) so that disc (B) drops to secure driveline.

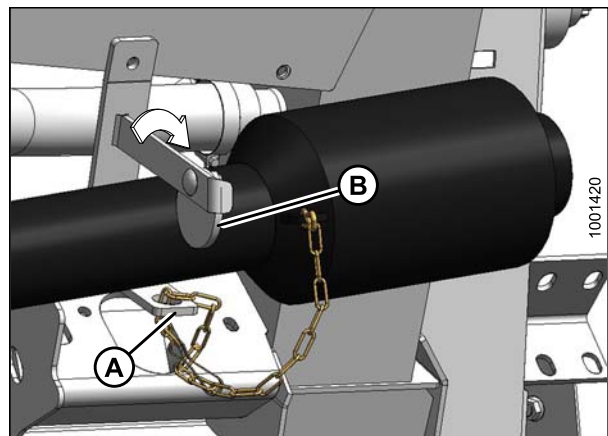


Figure 7.43

## MAINTENANCE AND SERVICING

2. Slide shield (B) over driveline.
3. Position driveline quick disconnect onto adapter gearbox shaft, pull back collar, and slide onto shaft until yoke locks onto shaft. Release collar.
4. Position shield (B) on gearbox and secure with nuts (A).
5. Reconnect other end to combine if necessary.

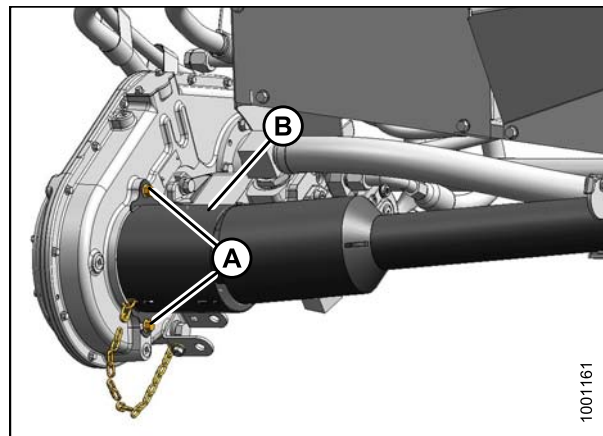


Figure 7.44

### 7.6.3 Removing Driveline Guard

The main driveline guard normally remains attached to the driveline, but can be removed for maintenance.

#### CAUTION

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

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

To remove a main driveline guard, follow these steps:

1. Rotate disc (B) on adapter driveline storage hook (A), and remove driveline from hook.

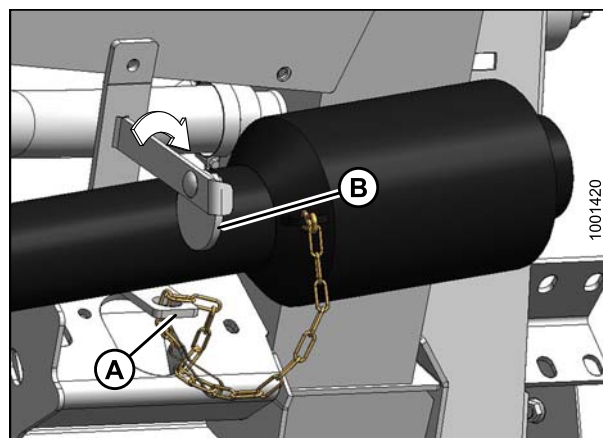


Figure 7.45



## MAINTENANCE AND SERVICING

2. Lift combine end of driveline (A) from hook, and extend driveline until it separates. Hold adapter end of driveline to prevent it from dropping and hitting the ground.



Figure 7.46

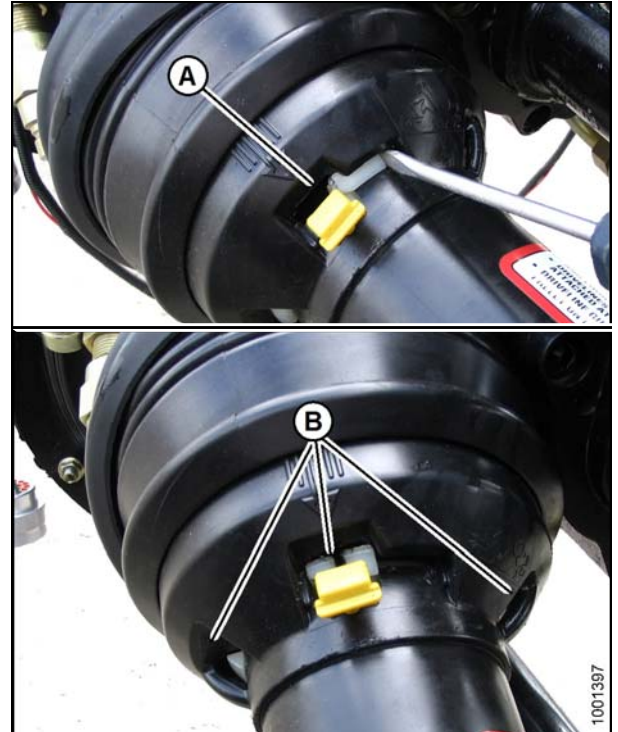
3. Release grease zerk/lock (A) with a screwdriver.



Figure 7.47

## MAINTENANCE AND SERVICING

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



**Figure 7.48**

A - Guard Locking Ring

B - Lugs

### 7.6.4 Installing Driveline Guard

To install the main driveline guards, follow these steps.

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



**Figure 7.49**

## MAINTENANCE AND SERVICING

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

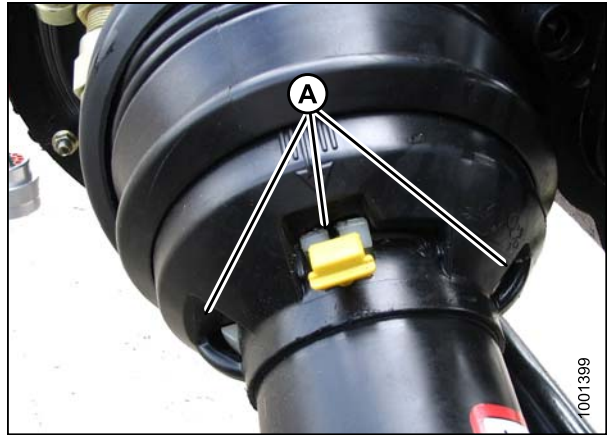


Figure 7.50

3. Rotate ring (A) clockwise with a screwdriver to lock ring in guard.

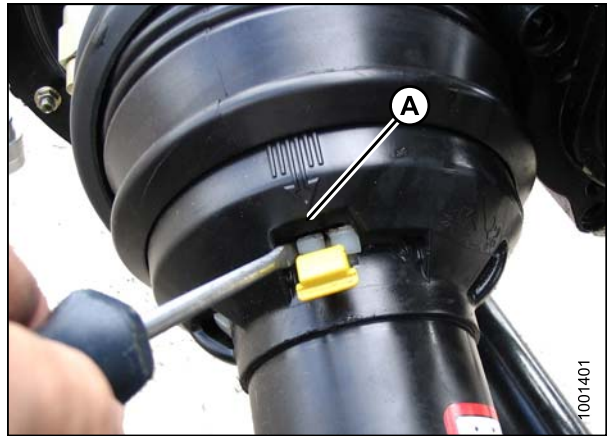


Figure 7.51

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



Figure 7.52

## MAINTENANCE AND SERVICING

5. Reassemble driveline.

**NOTE:** The splines are keyed so that universals are aligned. Align weld (A) with missing spline (B) when assembling.

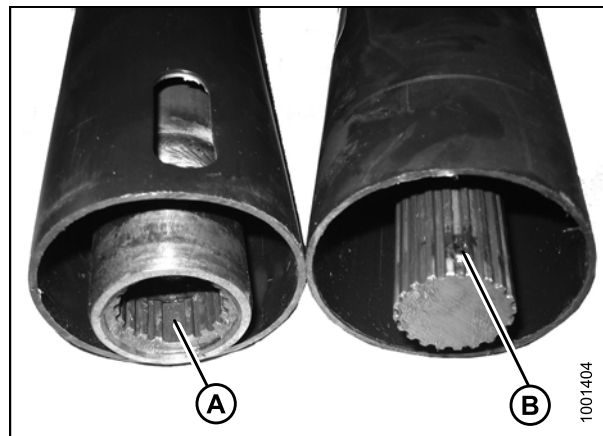


Figure 7.53

6. Slide driveshaft in hook (A) so that disc (B) drops to secure driveshaft, or connect to combine.

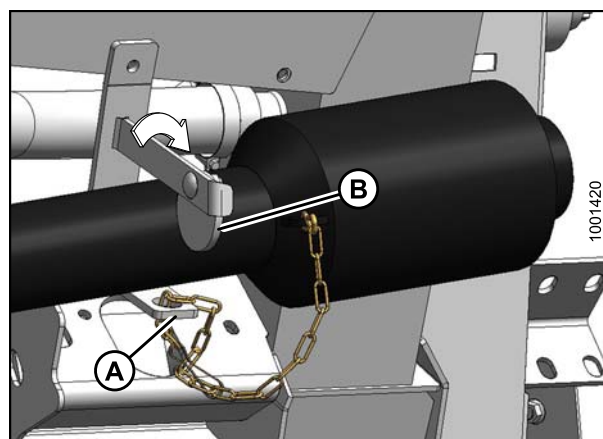


Figure 7.54

### 7.6.5 Adjusting Tension on Gearbox Drive Chain

The chain inside the gearbox has been tensioned at the factory and requires no maintenance, other than to adjust the tension every 500 hours or annually. To adjust chain tension, follow these steps:

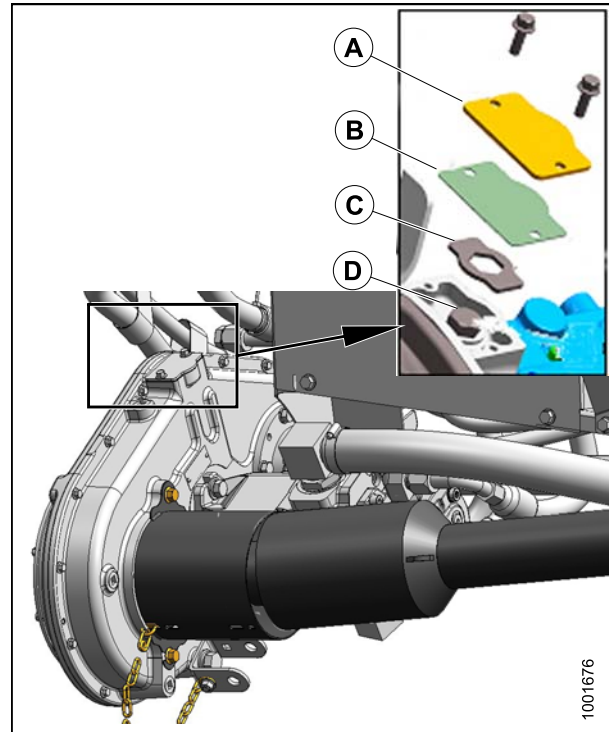


#### CAUTION

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

## MAINTENANCE AND SERVICING

1. Lower header, stop engine, and remove key.
2. Remove chain adjusting cover (A). Be sure gasket (B) is not damaged.
3. Remove retainer plate (C).
4. Tighten bolt (D) to 60 in·lbf (6.8 N·m), Then back off bolt 1-2/3 turns.
5. Reinstall retainer plate (C).
6. Reinstall chain adjusting cover (A) and gasket (B). Torque hardware to 84 in·lbf (9.5 N·m).



**Figure 7.55**

A - Cover

C - Retainer plate

B - Gasket

D - Bolt

## 7.7 Auger

The CA25 Combine Adapter auger assists the header by directing the cut crop from the draper decks into the combine feeder house..

### 7.7.1 Adjusting Auger to Pan Clearance

#### IMPORTANT:

It is important that these clearances are maintained. Too little clearance may result in the tines or flighting contacting and damaging the draper or feed pan under certain orientations of the header.

#### IMPORTANT:

Look for evidence of contact when greasing the adapter.

To adjust the auger pan clearance, follow these steps:

1. Extend center-link to maximum for steepest header angle, and fully lower the header.
2. Check that adapter float linkage is on downstops (washer (A) and nut (B) cannot be moved).

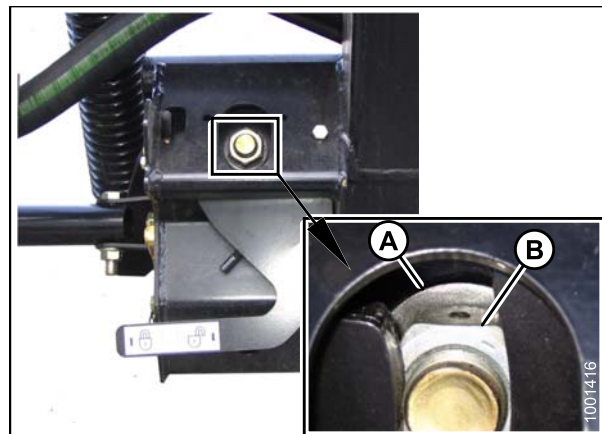


Figure 7.56

3. Loosen two nuts (B).
4. Turn bolt head (A) clockwise to raise auger and increase pan/drafter clearance (C)..
  - Steepest angle: 0.2–0.4 in. (5–10 mm)
  - Flattest angle: 1.0–1.5 in. (25–40 mm)
5. Repeat for other end of auger.
6. Tighten nuts (B) on both ends of auger.

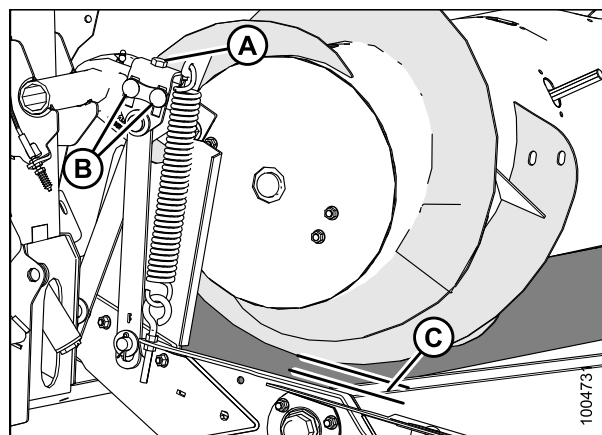


Figure 7.57: Auger Height Adjustment Bolt



## 7.7.2 Adjusting Auger Drive Chain

The auger is chain-driven from the adapter drive system by a sprocket that is attached to side of the auger.

To adjust chain tension, follow these steps.

### CAUTION

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

1. Detach combine from adapter. For instructions, See Section 5 Header Attachment/Detachment, page 113.
2. Remove the six bolts (A) that secure the top cover on the auger chain case.
3. Remove the three bolts (B) and loosen two bolts (E) that secure the bottom cover.
4. Remove cover retainer (F).
5. Hinge covers (C) and (D) forward, and then remove them to expose drives.

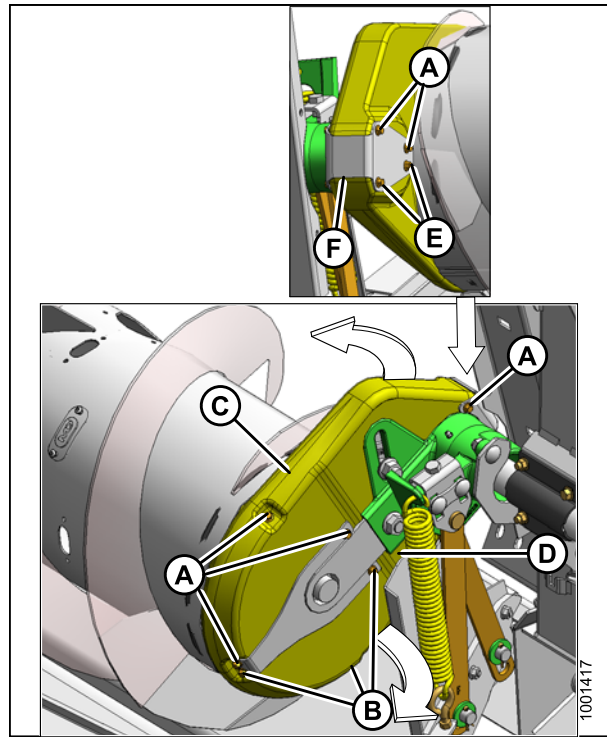


Figure 7.58

6. Loosen the bolt (A) that secures the idler sprocket.
7. Rotate auger in reverse to take up slack in lower strand of chain (B).
8. Push idler sprocket down to eliminate remaining slack in upper strands.
9. Rotate auger back and forth to check slack, and repeat above step if necessary. A slight amount of slack is acceptable.

**NOTE:** Do **NOT** use excessive force on idler to tighten chain.

10. Tighten idler bolt (A), and torque to 215 ft·lbf (290 N·m).

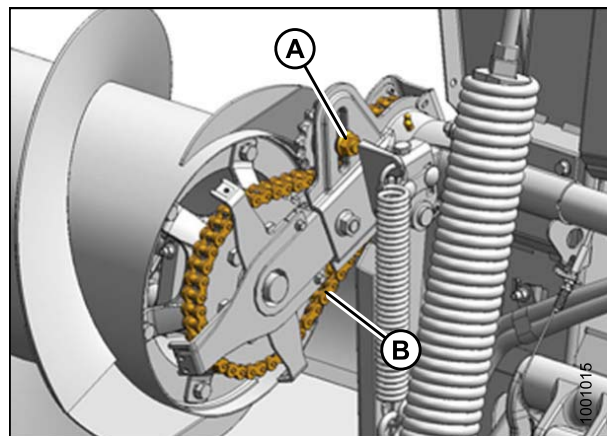


Figure 7.59



## MAINTENANCE AND SERVICING

11. Reinstall covers (C) and (D), engage inboard lip of cover into auger tube and rotate cover back to engage rear support.
12. Install cover retainer (F).
13. Replace and tighten bolts (A), (B) and (E).

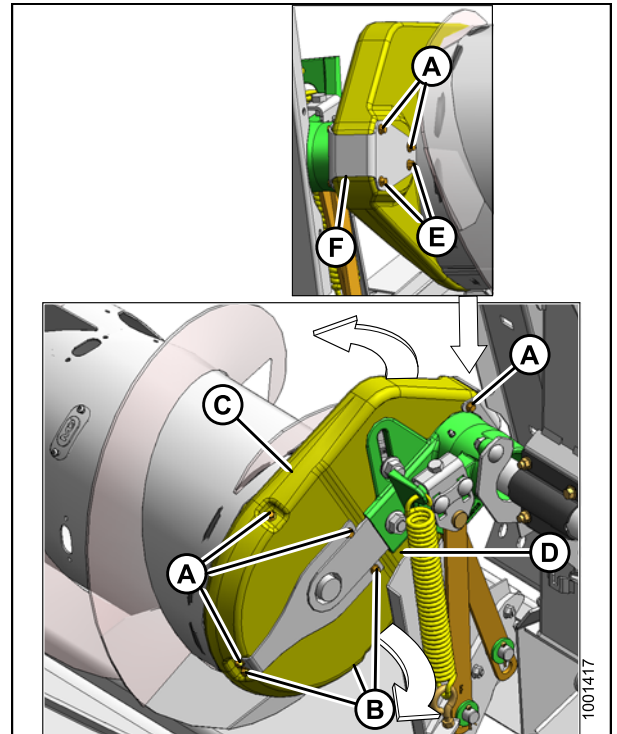


Figure 7.60

### 7.7.3 Removing Auger Drive Chain

The chain tensioner can only take up slack for a single pitch. When the chain has worn or stretched beyond the limits of the tensioner, the chain should be replaced.

To replace the auger drive chain, follow these steps:

#### CAUTION

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

## MAINTENANCE AND SERVICING

1. Detach combine from adapter. For instructions, See [Section 5 Header Attachment/Detachment, page 113](#).
2. Remove the six bolts (A) that secure the top cover on the auger chain case.
3. Remove the three bolts (B) and loosen two bolts (E) that secure the bottom cover.
4. Remove cover retainer (F).
5. Hinge covers (C) and (D) forward, and then remove them to expose drives.

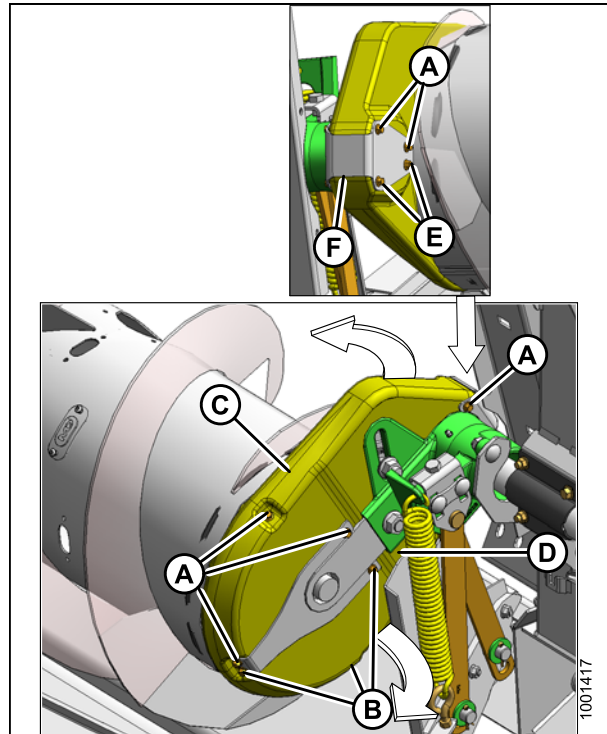


Figure 7.61

6. Loosen idler sprocket bolt (A), and raise to uppermost position to release tension on chain (B). Snug up bolt (A) to hold sprocket.

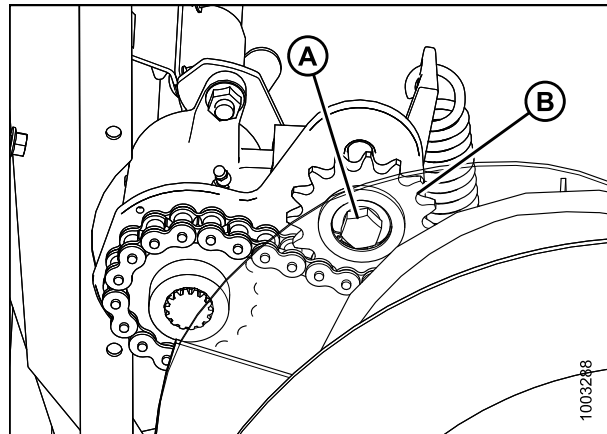


Figure 7.62

## MAINTENANCE AND SERVICING

7. Remove lower bolt (A), and loosen top bolt (B). Swing C-clamp (C), and slide drive assembly to the right.

**NOTE:** This will allow the drive sprocket to fall off shaft.

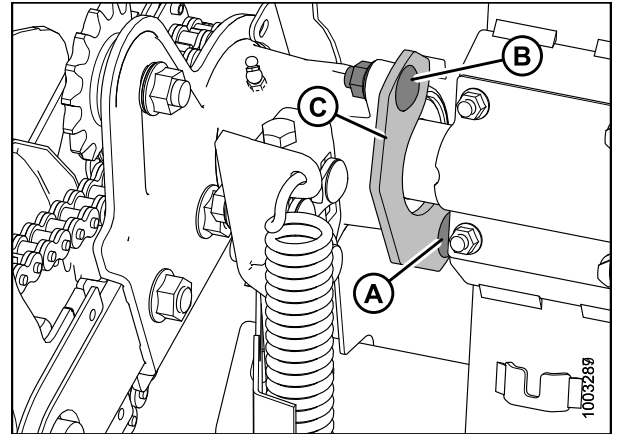


Figure 7.63

8. Using a pry bar (A), slide drum assembly to the right side of the CA25.

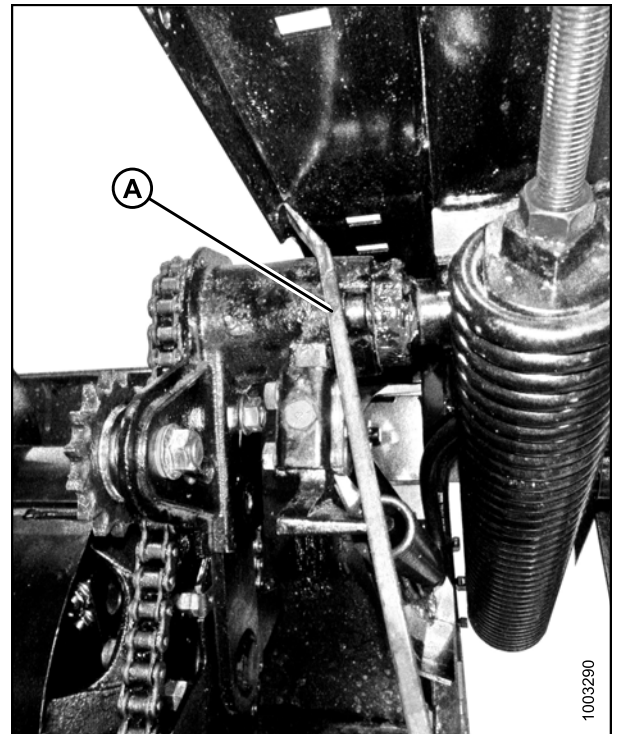


Figure 7.64

## MAINTENANCE AND SERVICING

**NOTE:** Once the drum starts sliding to the right, the drive sprocket will fall off.

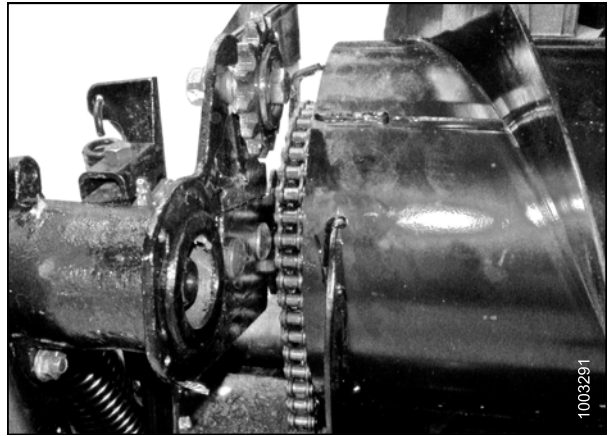


Figure 7.65

9. Block the left hand side of the auger with a 2x4 (A), this will stop the auger from falling on the feed draper and cutting it.

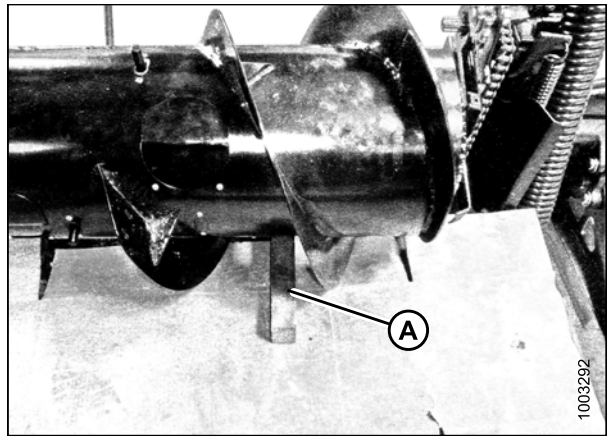


Figure 7.66

10. Remove the two bolts and nuts (A), and separate the drive housing from the auger mount bracket.

**NOTE:** May need to lift or support drum to remove bolts.

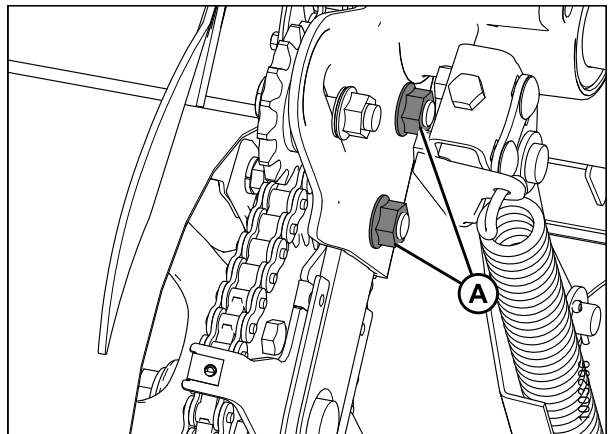


Figure 7.67

## MAINTENANCE AND SERVICING

11. Slide left housing (A) back into position so the endless chain (B) can be removed.

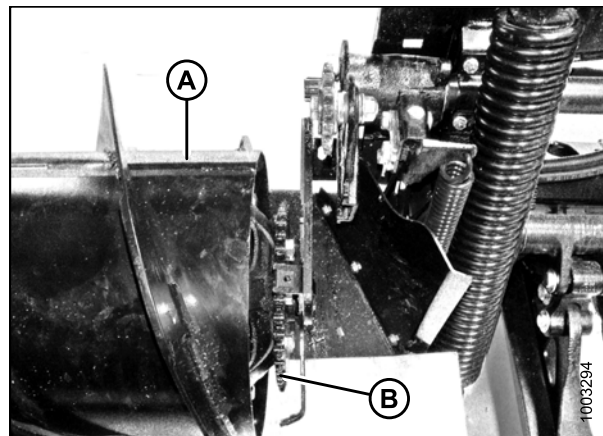


Figure 7.68

### 7.7.4 Installing Auger Drive Chain

To install the auger drive chain, follow these steps.

**NOTE:** Blocking the left side of the drum may ease in doing the next step.

1. Place the drive chain over the sprocket. Slide the left hand housing toward the drum and mount just enough to still leave the drive shaft 1/2 in. exposed. Bolt the assembly together.

**NOTE:** Remove block if used. Prior to hooking up the chain to the drive assembly, rotate drum in forward, and reverse a couple of times. This will ensure the drum has been rebuilt correctly.

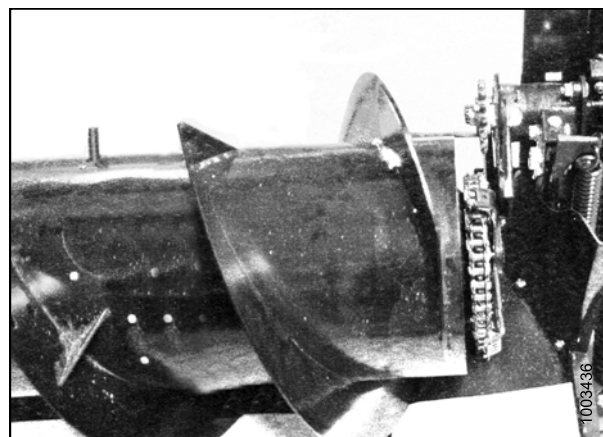


Figure 7.69

2. Align sprocket on shaft, and put drive sprocket (A) into chain (B).

**NOTE:** The shoulder of the drive sprocket (A) faces the RTD.

3. Slide entire drum assembly back in place, and bolt down the C-clamp (C) over the housing.

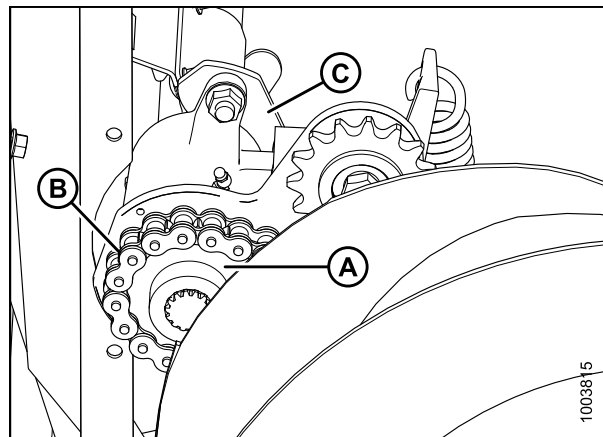


Figure 7.70

## MAINTENANCE AND SERVICING

4. Loosen bolt (A) securing idler sprocket (B).
5. Rotate auger in reverse to take up slack in lower strand of chain (C).

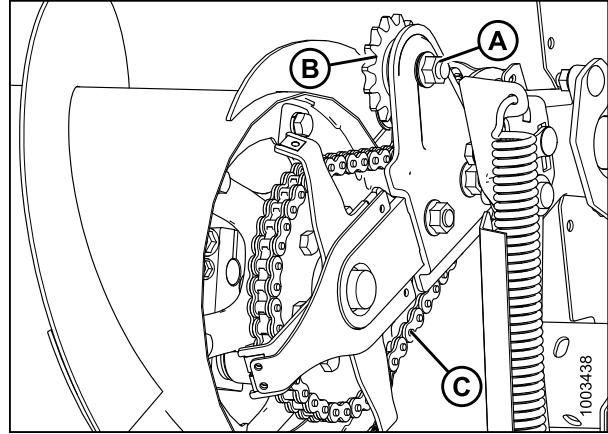


Figure 7.71

6. Push idler sprocket (A) down to eliminate remaining slack in upper strands (B).
7. Rotate auger back and forth to check slack, and repeat above step if necessary. A slight amount of slack is acceptable.

**NOTE:** Do not use excessive force on idler sprocket (A) to tighten chain (B).

8. Torque idler bolt (C) to 121–134 ft·lbf (163–181 N·m).

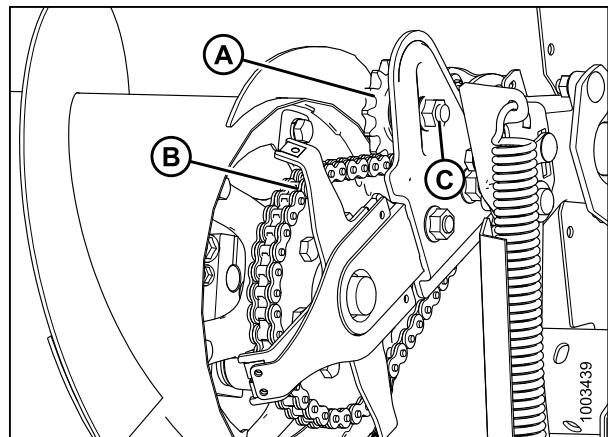


Figure 7.72

## MAINTENANCE AND SERVICING

9. Reinstall covers (C) and (D), engage inboard lip of cover into auger tube and rotate cover back to engage rear support.
10. Install cover retainer (F).
11. Replace and tighten bolts (A), (B) and (E).

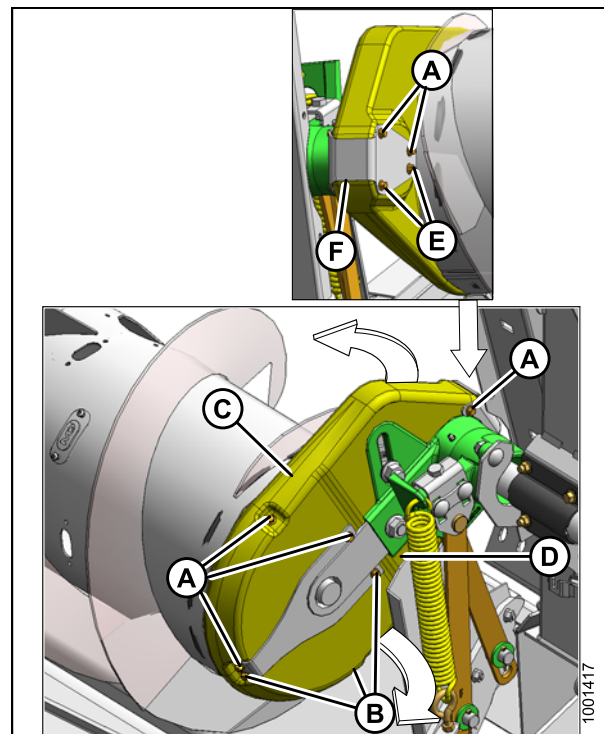


Figure 7.73

### 7.7.5 Auger Tines

The CA25 Combine Adapter auger has tines installed in it to enhance feeding crop into the combine feeder house. Some conditions may require the removal or addition of tines for optimal feeding of the crop. Tines that become worn or damaged should be replaced.

#### *Removing Feed Auger Tines*

1. Remove screws (A), and remove access cover (B).

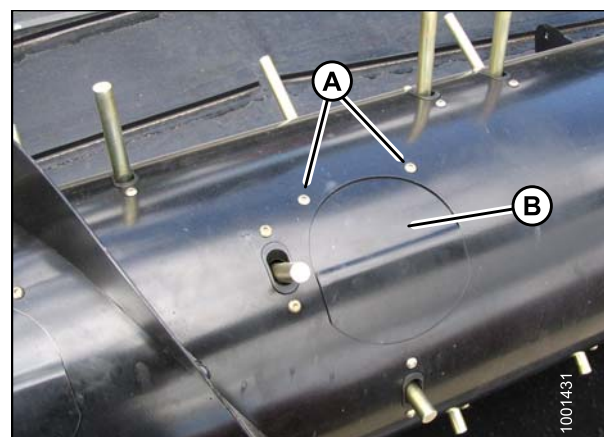


Figure 7.74

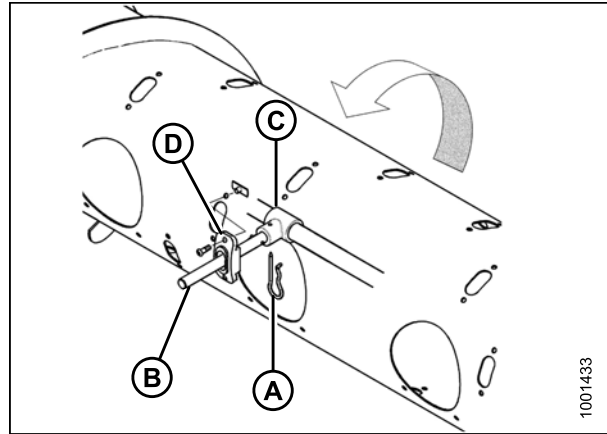
A - Screws

B - Access cover



## MAINTENANCE AND SERVICING

2. From inside the auger, remove hairpin (A), and pull tine (B) out of bushing (C).
3. From inside the auger, swivel tine away from bushing, pull from plastic guide (D), and remove from auger.



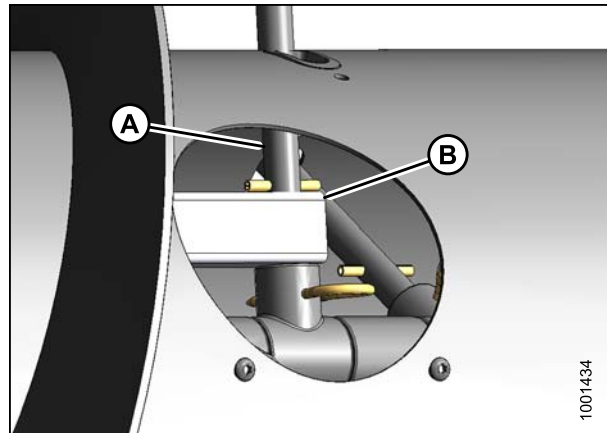
**Figure 7.75**

A - Hairpin  
C - Bushing

B - Tine  
D - Plastic guide

**NOTE:** If the sixth tine (A) opposite drive side is being replaced, it also must be slipped off drive tube (B). This particular tine cannot be removed for normal operation.

4. If tine is not reinstalled, proceed to next step. Otherwise, Refer to [Installing Feed Auger Tines, page 261](#).

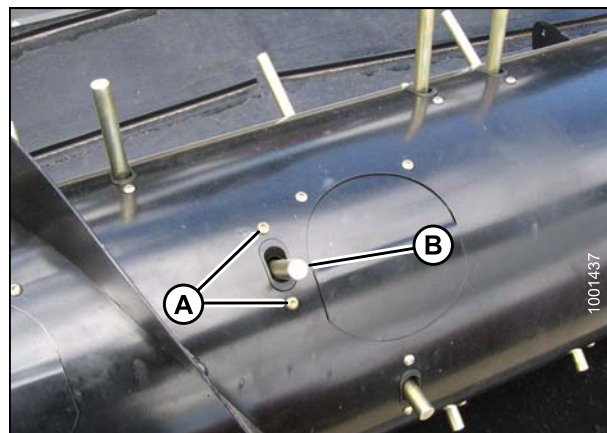


**Figure 7.76**

A - 6th tine

B - Drive tube

5. Remove screws (A) securing plastic guide (B) to auger, and remove guide from inside auger.



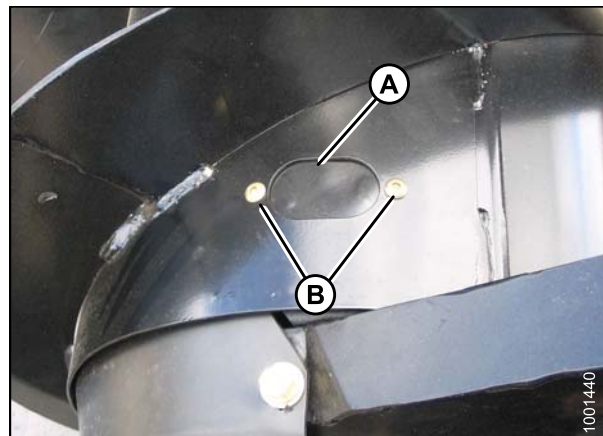
**Figure 7.77**

A - Screws

B - Plastic guide

## MAINTENANCE AND SERVICING

- Position cover (A) from inside auger over hole, and secure with screws (B). Coat screws with Loctite® #243 (or equivalent), and torque to 75 in·lbf (8.5 N·m).



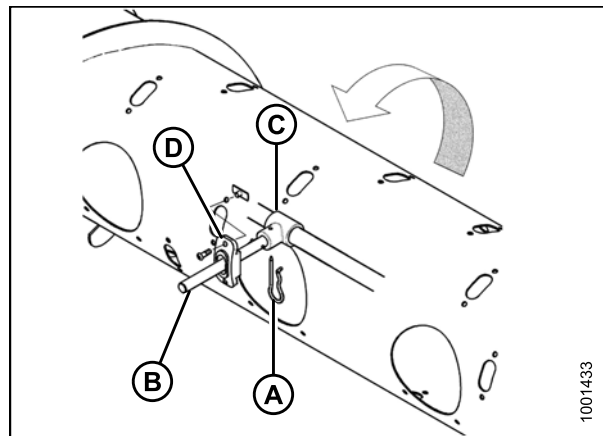
**Figure 7.78**

A - Cover

B - Screws

### *Installing Feed Auger Tines*

- If replacing a tine, Refer to Section 5., [Installing Feed Auger Tines](#), page 261.
- Remove access cover (if applicable).
- Remove cover at tine location (if applicable).
- Install plastic guide.
- Insert tine (B) through plastic guide (D) from inside the auger.
- Insert tine into bushing (C).



**Figure 7.79**

A - Hairpin

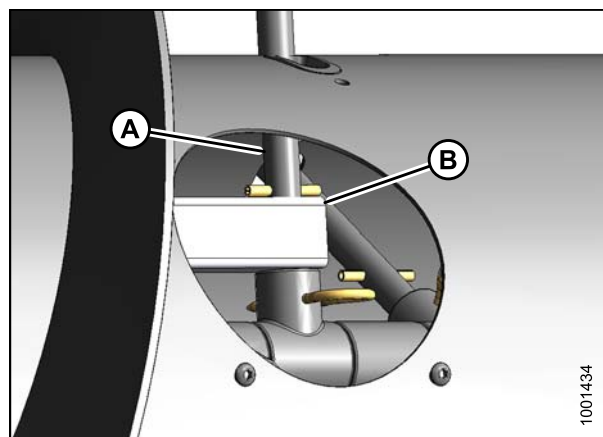
B - Tine

C - Bushing

D - Plastic guide

**NOTE:** The #6 tine (A) must also be inserted through the square tube (B).

- Secure tine in bushing with hairpin (hairpin is shown in above image as (A). Install hairpin with closed end leading with respect to auger forward rotation.



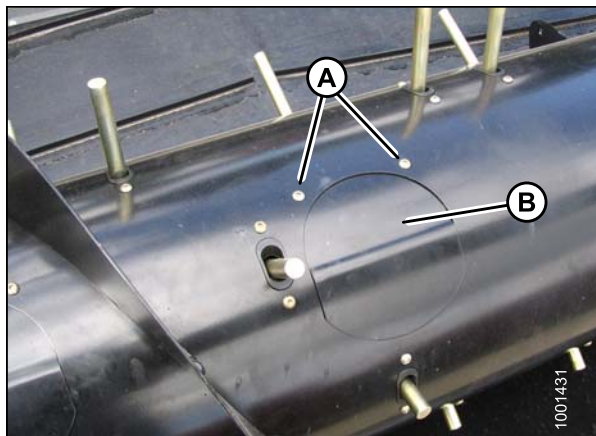
**Figure 7.80**

A - #6 tine

B - Square tube

## MAINTENANCE AND SERVICING

8. Replace access cover (B), and secure with screws (A). Coat screws with Loctite® #243 (or equivalent), and torque to 75 in·lbf (8.5 N·m).



**Figure 7.81**

A - Screws

B - Access cover

## 7.8 Knife and Knife Drive

### CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to Section 7.1 Preparation for Servicing, page 205.

### WARNING

Keep hands clear of the area between guards and knife at all times.

### CAUTION

Wear heavy gloves when working around or handling knives.

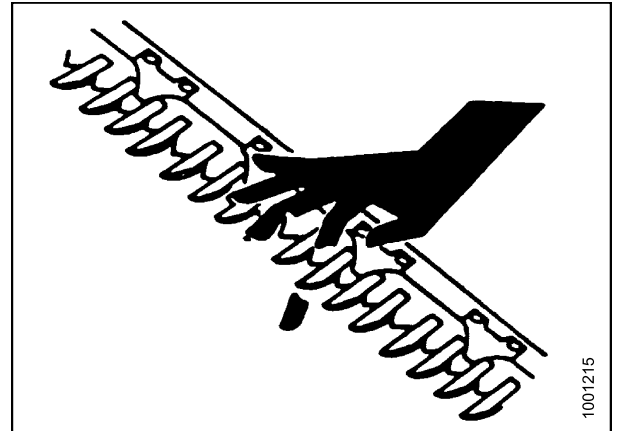


Figure 7.82

### 7.8.1 Replacing Knife Section

Check daily that sections are firmly bolted to the knife back and are not worn or broken. Damaged or worn sections leave behind uncut plants.

Coarse serrated sections last longer than fine serrated sections in dirty or sandy conditions.

Fine serrated sections perform better in fine stemmed grasses and plants that contain more fibrous stems.

A worn or broken knife section can be replaced without removing knife from cutterbar.

To replace a knife section, follow these steps:

1. Stroke knife as required to center it between guard tangs.
2. Remove lock nuts (A).
3. Remove bars (B) and lift knife section off the knife bar.
4. Clean any dirt off of knife back and position new knife section on knife.

#### IMPORTANT:

**Do NOT mix fine or coarse knife sections on same knife.**

5. Reposition bars (B) and install lock nuts (A).

**NOTE:** If replacing a screw, make sure to fully insert it. Do not use the nut to draw the screw into the knife bar.

6. Torque nuts to 7 ft·lbf (9.5 N·m).

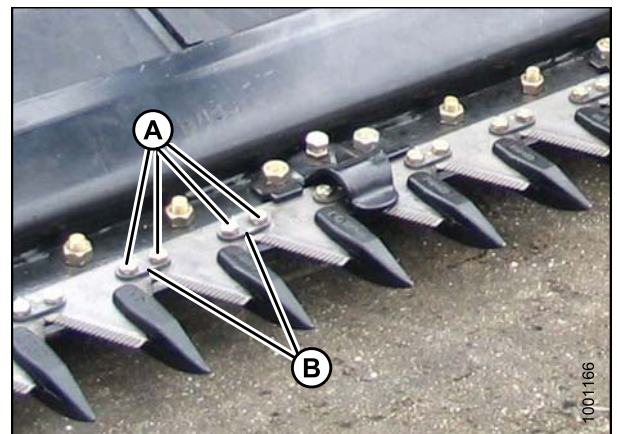


Figure 7.83

### 7.8.2 Removing Knife

#### WARNING

Stand to rear of knife during removal to reduce risk of injury from cutting edges. Wear heavy gloves when handling knife.

1. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
2. Remove the grease zerk (B) from the pin.
3. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

**NOTE:** Groove in pin may be used to pry up on pin.

4. Push the knife assembly inboard until it is clear of the output arm.
5. Seal bearing in knifehead with plastic or tape.
6. Wrap a chain around knifehead and pull knife out.

**NOTE:** For single knife drive with splice plate, remove bolts from splice plate and pull knife out from both ends.

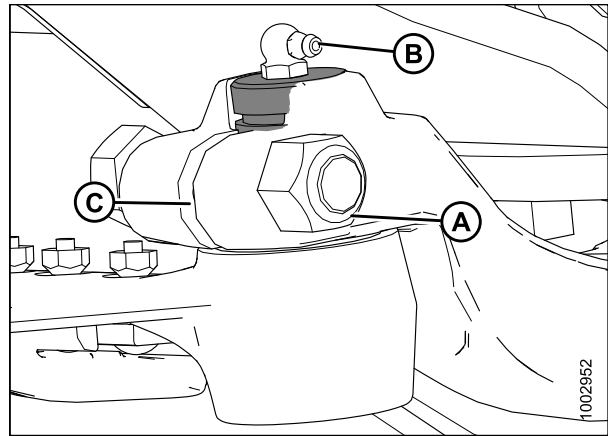


Figure 7.84

### 7.8.3 Removing Knifehead Bearing

Procedure to remove knifehead bearing.

1. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
2. Remove the grease zerk (B) from the pin.
3. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

**NOTE:** Groove in pin may be used to pry up on pin.

4. Push the knife assembly inboard until it is clear of the output arm.
5. Seal bearing in knifehead with plastic or tape.

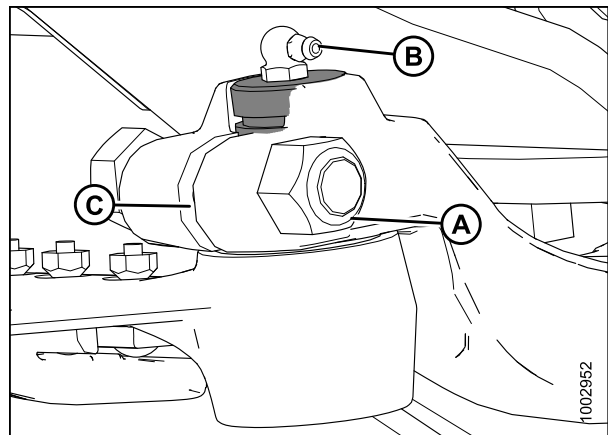
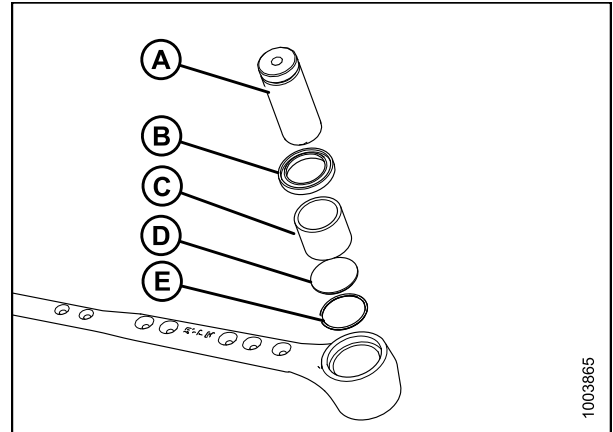


Figure 7.85

## MAINTENANCE AND SERVICING

- Using a flat-ended tool with approximately the same diameter as pin (A). From the underside of the knifehead, tap the seal (B), bearing (C), plug (D), and O-ring (E) from the knifehead.

**NOTE:** Seal (B) can be replaced without removing the bearing. When changing seal, check pin and needle bearing for wear. Replace if necessary.



**Figure 7.86: Remove seal, bearing, plug, and O-ring**

A - Flat-ended tool      B - Seal      C - Bearing  
D - Plug      E - O-ring

### 7.8.4 Installing Knifehead Bearing

To install the knifehead bearing, follow these steps:

- Place O-ring (E) and plug (D) in knifehead.

#### **IMPORTANT:**

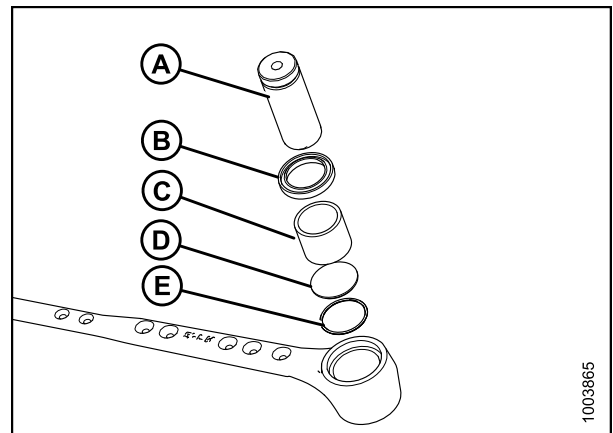
**Install the bearing with the stamped end (the end with identification markings) facing up.**

- Using a flat-ended tool (A) with approximately the same diameter as the bearing (C), push the bearing into the knifehead until the top of the bearing is flush with the step in knifehead.
- Install seal (B) into the knifehead with the lip facing outwards.

#### **IMPORTANT:**

**To avoid premature knifehead or knife drive box failure, be sure there is no looseness in the fit of the knifehead pin and the needle bearing, and the fit of the knifehead pin and output arm.**

- Install knife. See Section [7.8.5 Installing Knife](#), page 266.



**Figure 7.87**

A - Flat-ended tool      B - Seal      C - Bearing  
D - Plug      E - O-ring

### 7.8.5 Installing Knife

#### WARNING

Stand to rear of knife during installation to reduce risk of injury from cutting edges. Wear heavy gloves when handling knife.

To install a knife, follow these steps:

1. Slide knife into place and align knifehead with the output arm.

**NOTE:** For ease of removing or installing knifehead pin, remove grease zerk from pin.

2. Install knifehead pin (A) through the output arm and into the knifehead bearing cup.
3. Align groove (B) in knifehead pin 0.06 in. (1.5 mm) above (C). Install 5/8 in. X 3 in. hex head bolt (D) and torque to 160 ft·lbf (217 N·m).
4. Install grease zerk (A) into the knifehead pin, turn the grease zerk for easy access.

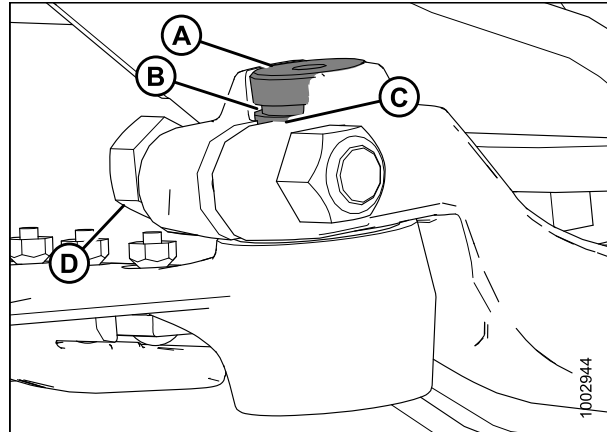


Figure 7.88

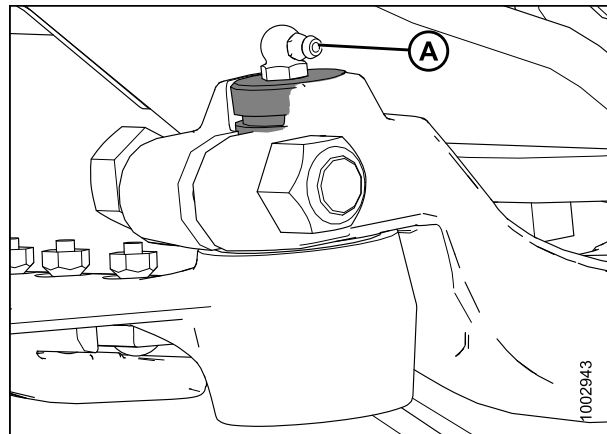


Figure 7.89



## MAINTENANCE AND SERVICING

### 7.8.6 Spare Knife

A spare knife may be stored in the header frame tube at the left end. Ensure knife is secured in place.



Figure 7.90

### 7.8.7 Knife Guards

Check **DAILY** that guards are aligned to obtain proper shear cut between knife section and guard. Knife sections should contact shear surface of each guard.

#### *Adjusting Knife Guards*

To adjust knife guards, follow these steps. The guard straightening tool (MD #140135) is available from your MacDon Dealer.

1. To adjust guard tips upward, position tool as shown, and pull up.



Figure 7.91: Upward adjustment

## MAINTENANCE AND SERVICING

2. To adjust tips downward, position tool as shown and push down.

**TIP:** If trouble is encountered cutting tangled or fine-stemmed material, install a knife hold-down on every guard and then replace lower guards with stub guards.

3. If material is tough to cut, install stub guards with top guard and adjuster plate. A kit is available from your MacDon Dealer. Refer to [Section 9.1.17 Stub Guard Conversion Kit](#), page 410.



**Figure 7.92: Downward adjustment**

## MAINTENANCE AND SERVICING

### *Replacing Pointed Guards on a Single-Knife Header*

To replace pointed knife guards on a single-knife header, follow these steps:

#### **! WARNING**

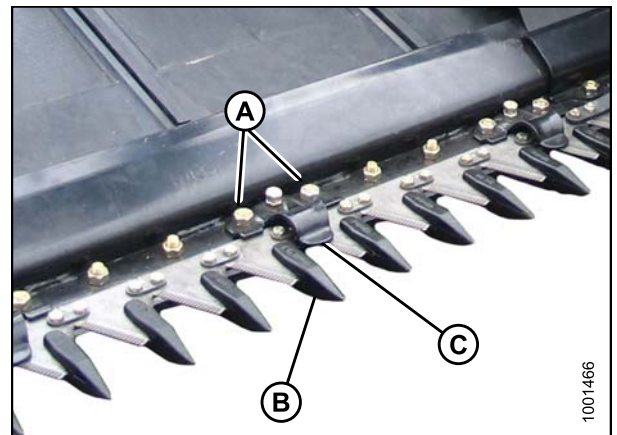
**To avoid bodily injury from fall of raised reel, always engage reel safety props before going under raised reel for any reason.**

1. Stroke knife so that knife sections are spaced midway between the guards.
2. Remove two nuts (A) and bolts that attach guard (B) and hold-down (C) (if applicable) to cutterbar.
3. Remove guard, hold-down, and poly wear plate (if installed).
4. Position new guard and poly wear plate (if applicable) on cutterbar, and install carriage bolts.

#### **IMPORTANT:**

**The first four outboard guards on drive side(s) of header do not have a ledger plate. Ensure that proper replacement is installed.**

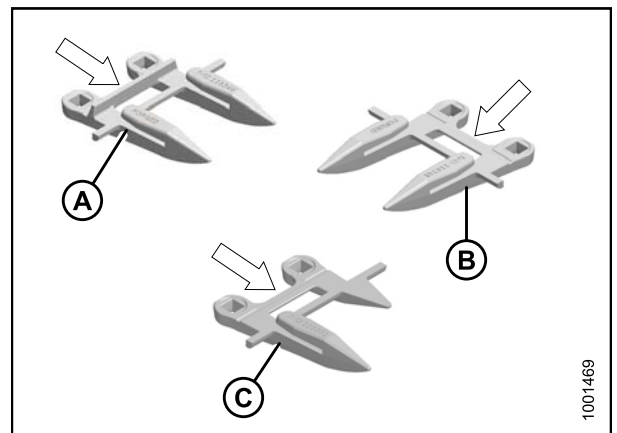
5. Install hold-down and secure with nuts. Tighten nuts to 50 ft·lbf (68 N·m).
6. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs, page 272](#).



**Figure 7.93**

A - Nuts  
C - Hold-down

B - Knife guard



**Figure 7.94: Check and adjust clearance**

A - Normal  
C - Half Guard (End)

B - Drive side

## MAINTENANCE AND SERVICING

### Replacing Pointed Guards on a Double-Knife Header

#### WARNING

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

Refer to [Replacing Pointed Guards on a Single-Knife Header](#), page 269 for typical guard replacement.

The guard near the center of the double-knife header (where the two knives overlap) requires a slightly different replacement procedure.

To replace the pointed center guard or center top guide on a double-knife header, follow these steps:

1. Remove two nuts (B) and bolts that attach guard (A) and top guide (C) to cutterbar.
2. Remove guard, poly wear plate (if installed), top guide (C), and adjuster bar (D).
3. Position poly wear plate (if applicable), replacement guard (A), adjuster bar, and top guide (B). Install bolts, but do **NOT** tighten.

#### IMPORTANT:

Ensure center guard (B) (right of cutterbar split) has offset cutting surfaces.

**NOTE:** Top guide (C) must accommodate the two overlapping knives at center guard location on double-knife header. Ensure replacement is correct part.

4. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs](#), page 272.

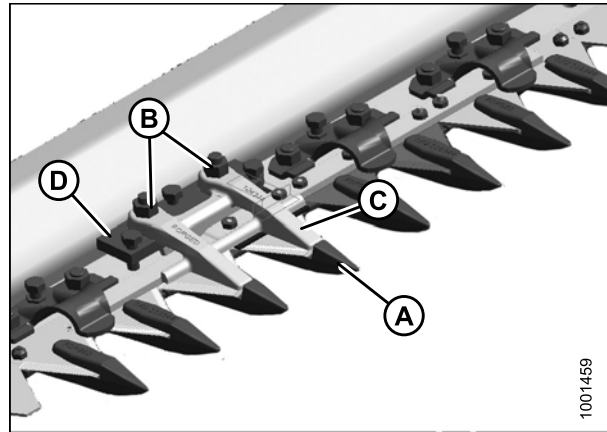


Figure 7.95

A - Knife guard  
C - Top guide

B - Nuts  
D - Adjuster bar

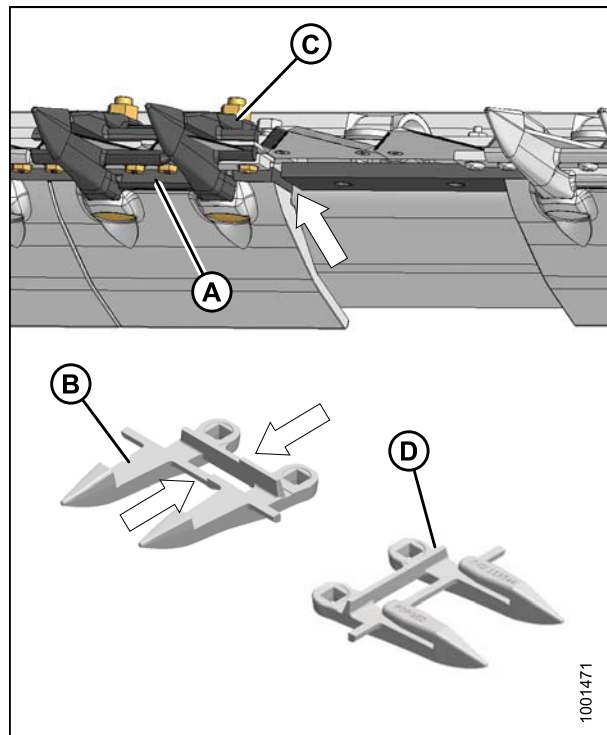


Figure 7.96

A - Knife guard  
C - Top guide

B - Center guard  
D - Normal guard

## MAINTENANCE AND SERVICING

### Replacing Stub Guards on a Single-Knife Header

#### **WARNING**

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

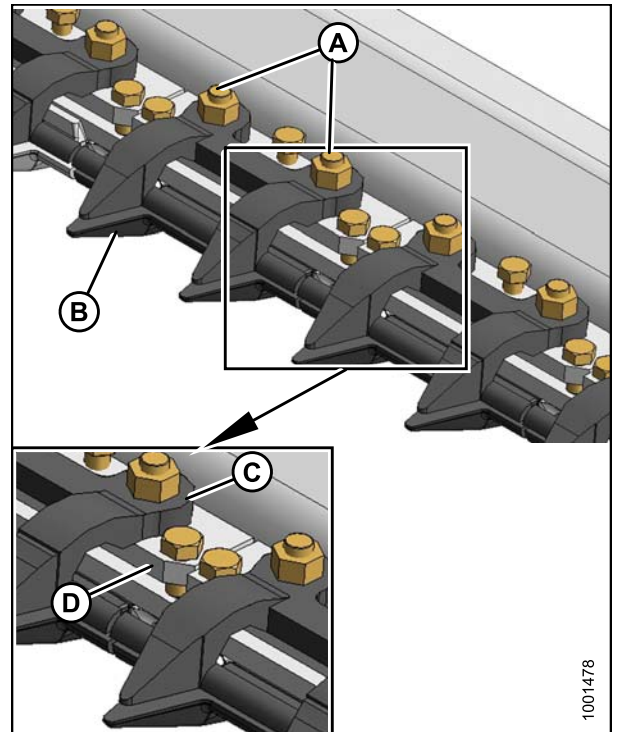
Stub guards, complete with top guides and adjuster plates, are designed to cut tough crops. Some configurations of the header come equipped with stub guards at the outer ends.

To replace stub guards, follow these steps:

1. Remove the two nuts (A) and bolts that attach guard (B) and top guide (C) to cutterbar.
2. Remove guard, poly wear plate (if installed), top guide, and adjuster bar (D).
3. Position poly wear plate (if applicable), replacement guard (B), adjuster bar (D), top guide (C), and install bolts. Do **NOT** tighten.

#### **IMPORTANT:**

Note position of mitre on adjuster bar (D). Bar should be reinstalled in same position. Mitres should not be adjacent to each other.



**Figure 7.97**

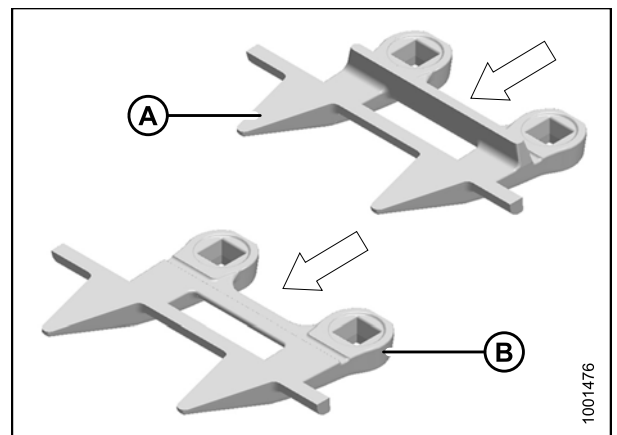
A - Nuts  
C - Top guide

B - Stub guard  
D - Adjuster bar

#### **IMPORTANT:**

The first four outboard guards on drive side(s) of the header do **NOT** have a ledger plate. Ensure that the proper replacement is installed.

4. Check and adjust clearance between top guide and knife. Refer to [Knife Hold-Downs, page 272](#).



**Figure 7.98: Check clearance**

A - Normal guard

B - Drive side guard

## MAINTENANCE AND SERVICING

### *Replacing Stub Guards on a Double-Knife Header*

Refer to [Replacing Stub Guards on a Single-Knife Header](#), page 271 for typical guard replacement.

The guard at the center of the Double Knife header, where the two knives overlap, requires a slightly different replacement procedure.

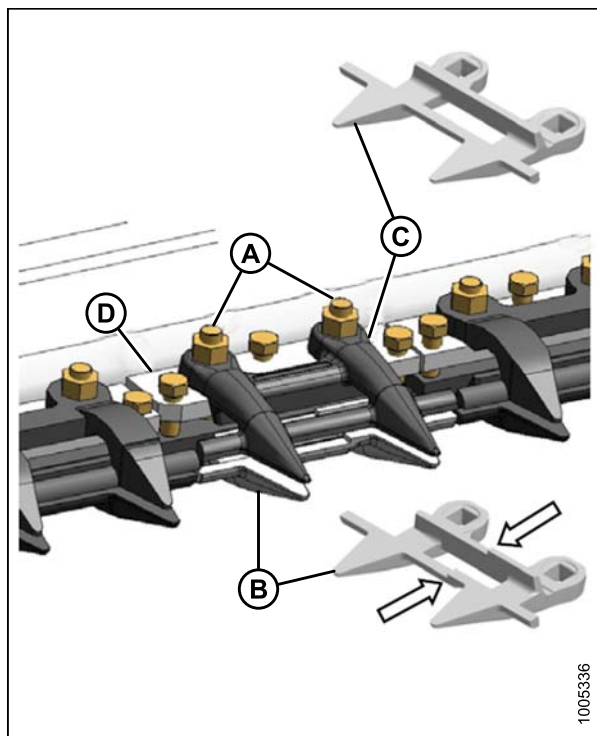
To replace the center guard or center top guide, follow these steps:

1. Remove the two nuts (A) and bolts that attach guard (B) and top guide (C) and adjuster bar (D) to cutterbar.
2. Remove guard, poly wear plate (if installed), top guide (C), and adjuster bar (D).
3. Locate poly wear plate (if applicable), replacement guard (B), adjuster bar (D), top guide (C), and install bolts, but do **NOT** tighten.

#### **IMPORTANT:**

**Ensure center guard (B) has offset cutting surfaces.**

**NOTE:** Top guide (C), which is an inverted normal stub guard, must accommodate the two overlapping knives at center guard location on double-knife header. Ensure replacement is correct part.



**Figure 7.99**

A - Nuts

C - Normal top guide

B - Center guard

D - Adjuster bar

4. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs](#), page 272.

### *Knife Hold-Downs*

Check daily that knife hold-downs are set to prevent knife sections from lifting off guards, but still permit knife to slide without binding.

If you have pointed guards, See Section [Adjusting Hold-Downs on Headers with Pointed Guards](#), page 273.

If you have stub guards, See Section [Adjusting Hold-Downs on Headers with Stub Guards](#), page 274.

**NOTE:** Guards should be aligned prior to adjusting hold-downs. See Section [Adjusting Knife Guards](#), page 267.



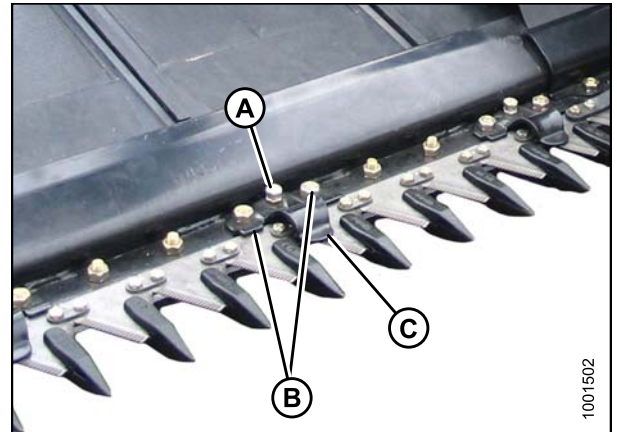
## MAINTENANCE AND SERVICING

### Adjusting Hold-Downs on Headers with Pointed Guards

To adjust hold-downs on header with pointed guards, follow these steps:

1. To adjust the clearance between hold-down and knife for typical pointed guards, turn the adjuster bolts (A). Using a feeler gauge, clearance from hold-down to knife section (C) should be 0.004–0.024 in. (0.1–0.6 mm).

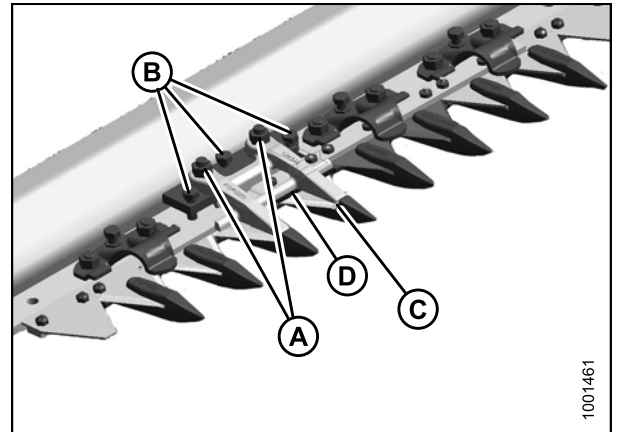
**NOTE:** For larger adjustments, it may be necessary to loosen nuts (B), turn adjuster bolt (A), then retighten nuts (B).



**Figure 7.100**

A - Adjuster bolts  
B - Nuts  
C - Clearance: 0.004–0.024 in. (0.1–0.6 mm)

2. To adjust clearance between hold-down and knife for center guards, torque nuts (A) to 35 ft·lbf (46 N·m).
3. Turn the adjuster bolts (B) as required. Using a feeler gauge, clearance from hold-down to knife section should be:
  - 0.004–0.016 in. (0.1–0.4 mm) at guide tip (C)
  - 0.004–0.040 in. (0.1–1.0 mm) at rear of guide (D)
4. Torque nuts (A) to 53 ft·lbf (72 N·m).
5. After adjusting all hold-downs, run header at a low engine speed and listen for noise due to insufficient clearance. Insufficient clearance will also result in overheating of the knife and guards. Readjust as necessary.



**Figure 7.101**

A - Nuts  
B - Adjuster bolts  
C - Guide tip  
D - Rear of guide

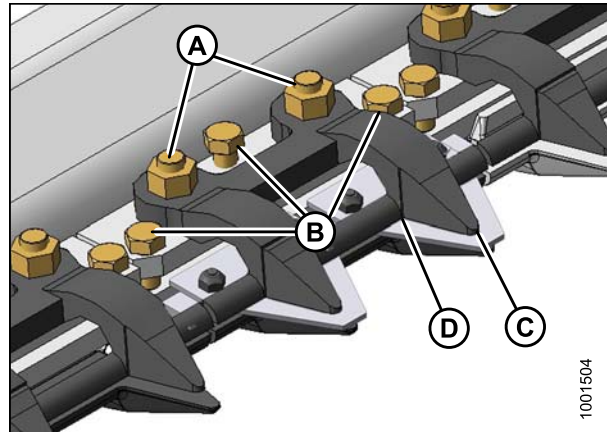


## MAINTENANCE AND SERVICING

### Adjusting Hold-Downs on Headers with Stub Guards

To adjust the clearance between the hold-down and knife for all stub guards, follow these steps:

1. Torque nuts (A) to 35 ft-lbf (46 N·m).
2. Turn the adjuster bolts (B) as required. Using a feeler gauge, clearance from hold-down to knife section should be:
  - 0.004–0.016 in. (0.1–0.4 mm) at guide tip (C)
  - 0.004–0.040 in. (0.1–1.0 mm) at rear of guide (D)
3. Torque nuts (A) to 53 ft-lbf (72 N·m).
4. After adjusting all hold-downs, run header at a low engine speed and listen for noise due to insufficient clearance. Insufficient clearance will also result in overheating of knife and guards. Re-adjust as necessary.



**Figure 7.102**

A - Nuts  
B - Adjuster bolts  
C - Clearance at guide tip  
D - Clearance at rear of guide

### 7.8.8 Knife Drive Belt

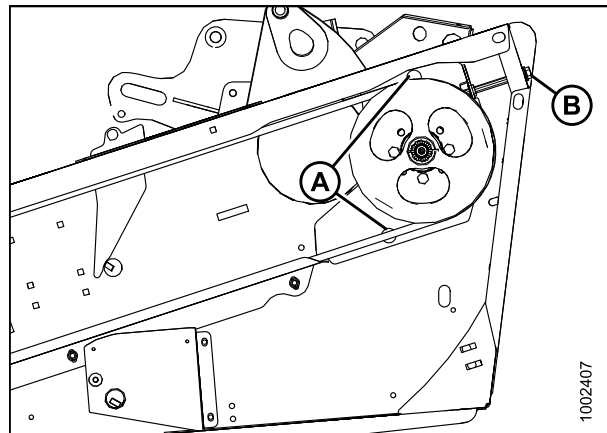
#### *Single Knife and Double Knife Untimed*

#### **Removing Knife Drive Belt on Single Knife Headers and Double Knife Headers with Non-Timed Drives**

This procedure covers how to remove the knife drive belt on single knife headers and double knife headers with non-timed drives.

**NOTE:** Procedure is the same for right-hand side of the non-timed double knife header.

1. Open endshield. See Section [Opening Endshields](#), page 42.
2. Loosen the two bolts (A) that secure the motor assembly to header endsheet.
3. Loosen the tension on the belt by turning the tensioning bolt (B) counterclockwise. This will loosen the belt attached to the knife drive box.



**Figure 7.103**

## MAINTENANCE AND SERVICING

4. Once the belt is loose, open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

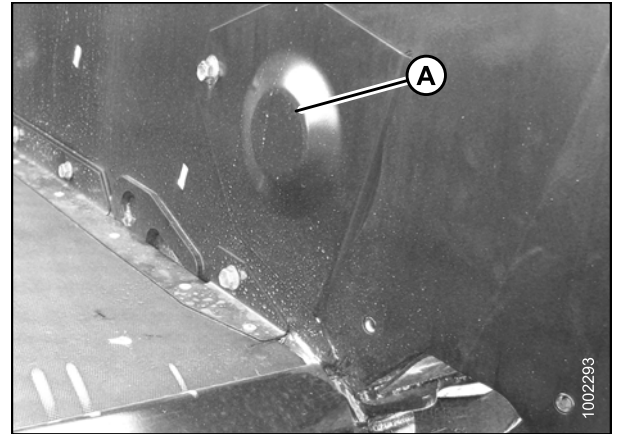


Figure 7.104

### Installing Knife Drive Belt on Single Knife Headers and Double Knife Headers with Non-Timed Drives

This procedure explains how to install the knife drive belt on single knife headers and double knife headers with non-timed drives.

**NOTE:** Procedure is the same for right-hand side of the untimed double knife header.

1. Route knife drive belt (A) around knife drive box pulley and knife drive pulley.

**NOTE:** When installing new belt, never pry belt over pulley. Be sure drive motor is fully forward, then tension belt.

2. Tension knife drive belt, See Section [Tensioning Single and Double Knife Headers with Non-Timed Drive](#), page 276.

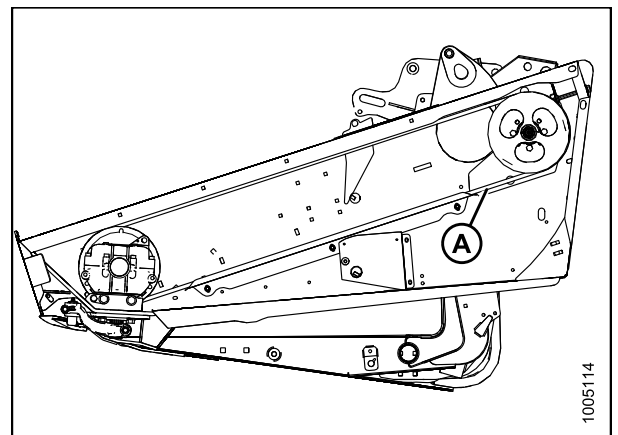


Figure 7.105

3. Once the belt is installed, reinstall the access panel (A) and secure it with a bolt.
4. Close endshield. See Section [Closing Endshields](#), page 43.

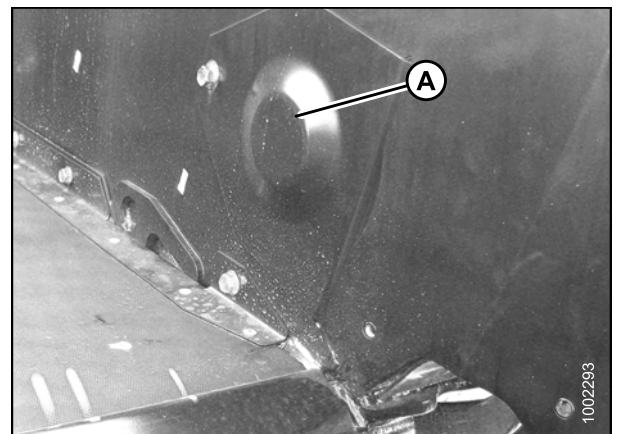


Figure 7.106

## MAINTENANCE AND SERVICING

### Tensioning Single and Double Knife Headers with Non-Timed Drive

This procedure applies to single knife headers and to double knife headers with non-timed drives.

#### IMPORTANT:

**To prolong belt and drive life, do not overtighten belt.**

1. Open endshield. See Section [Opening Endshields](#), page 42.
2. Loosen the two bolts (A) that secure the motor assembly to header endsheet.
3. Turn adjuster bolt (B) clockwise to move the drive motor until a force of 20 ft·lbf (80 N·m) deflects belt (C) 3/4 in. (18 mm) at mid-span.

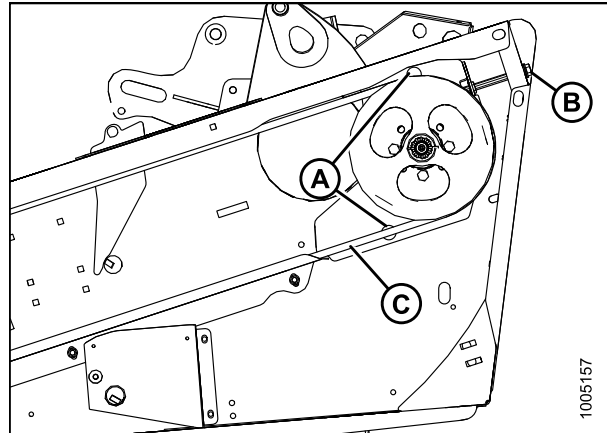


Figure 7.107

4. Check clearance between belt (A) and belt guide (B). It should be 0.04 in. (1 mm).
5. Loosen three bolts (C) and adjust position of guide (B) as required.
6. Tighten bolts (C).
7. Close endshield. See Section [Closing Endshields](#), page 43.
8. Re-adjust tension of a new belt after a short run-in period (about 5 hours).

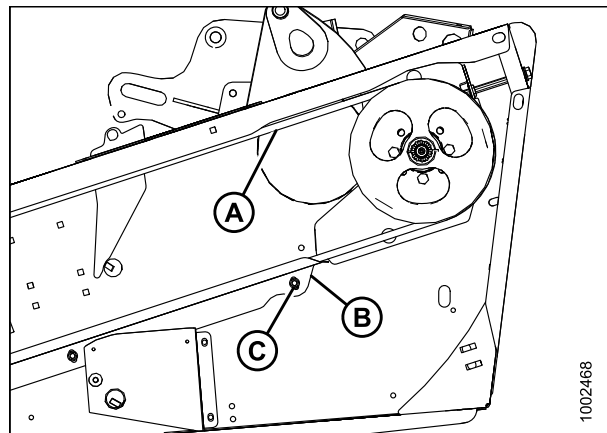


Figure 7.108

### *Double Knife Timed*

See Section [7.8.8 Knife Drive Belt](#), page 274 for removal and installation procedures.

## MAINTENANCE AND SERVICING

### Removing Knife Drive Belt (Timed) (Double Knife) (Left Hand)

1. Open LH endshield. See Section [Opening Endshields](#), page 42.
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

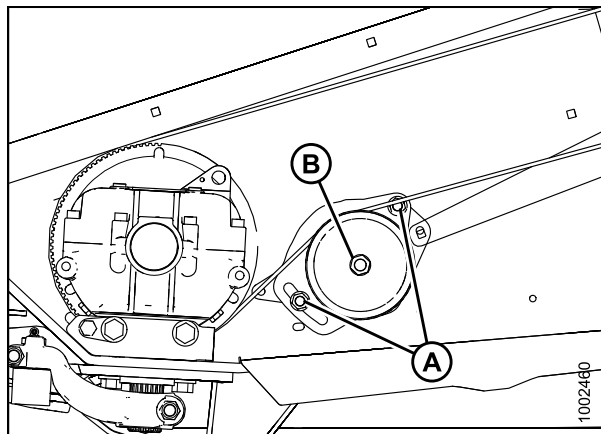


Figure 7.109

4. Loosen two bolts (A) on endsheet.
5. Turn adjuster bolt (B) to loosen the two V-belts (C) and remove them.

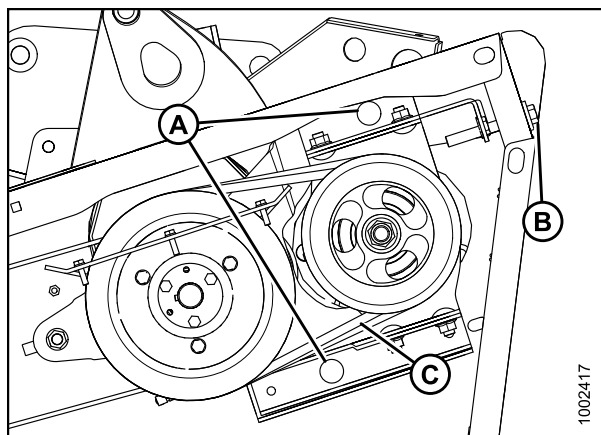


Figure 7.110

6. Open the access panel (A) inside the draper opening, just behind cutterbar. This will give you access to the knife drive pulley.
7. Remove the knife drive belt.

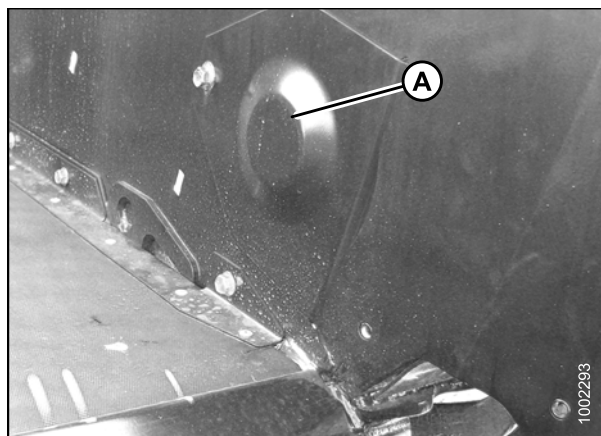


Figure 7.111

## MAINTENANCE AND SERVICING

### Installing Knife Drive Belt (Timed) (Double Knife) (Left Hand)

If there are problems with belt alignment. See Section [Aligning Knife Drive Belt Pulley \(Double Knife\) \(Left Hand\)](#), page 280.

1. Route knife drive belt around knife drive box pulley and knife drive pulley.

**NOTE:** When installing new belt, never pry belt over pulley. Be sure drive motor is fully forward, then tension belt.

2. Once the belt is installed, reinstall the access panel (A) and secure it with a bolt.

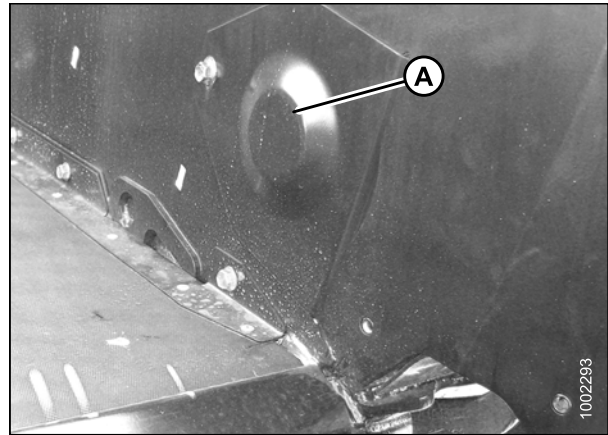


Figure 7.112

3. Install the two V-belts (C) and turn adjuster bolt (B) to tension them. Tension is checked at mid span of the belts. The belts should deflect 0.12 in. (3 mm) with 12 ft·lbf (53 N·m) of force.
4. Tighten the two bolts (A) on endsheet.

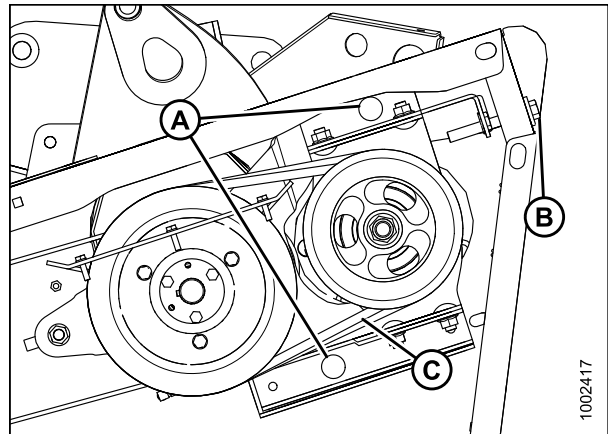


Figure 7.113

## MAINTENANCE AND SERVICING

5. Rotate the idler pulley bracket (A) down. Loosen nut (B) and slide the idler pulley up by hand to remove most of the belt slack. Tighten nut (B).

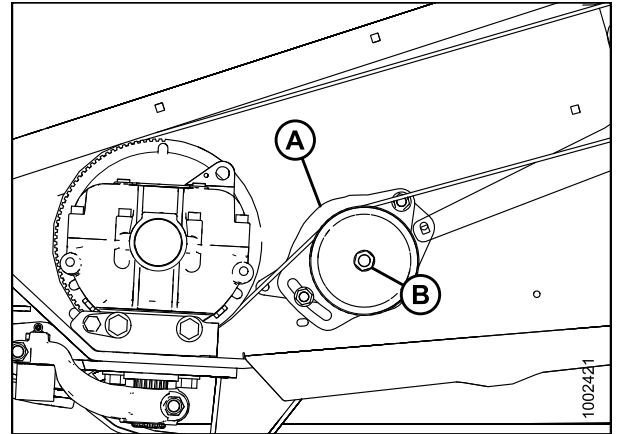


Figure 7.114

6. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
7. Tighten bolts (A) that secure the idler bracket to the end frame.

**NOTE:** Re-adjust tension of a new belt after a short run-in period, (about 5 hours).

8. Close endshield. See Section [Closing Endshields](#), page 43.

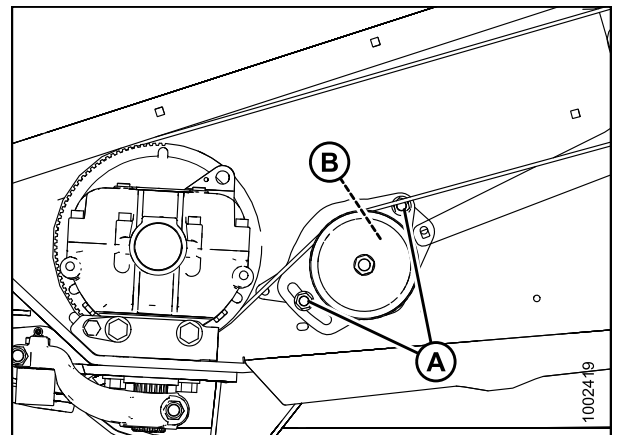


Figure 7.115

### Tensioning Knife Drive Belt (Timed) (Double Knife) (Left Hand)

#### IMPORTANT:

To prolong belt and drive life, do NOT over-tighten belt.

1. Open endshield. See Section [Opening Endshields](#), page 42.
2. Loosen two nuts (A) on knife drive belt idler bracket.

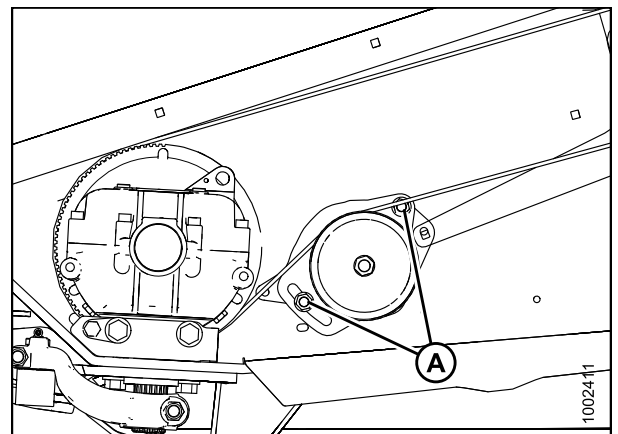


Figure 7.116

## MAINTENANCE AND SERVICING

3. Insert a long punch (or equivalent) into hole (B) in idler bracket and pry downward until a force of 6 ft·lbf (27 N·m) deflects timing belt 1/2 in. (13 mm) at mid-span.
4. Tighten nuts (A) on idler mounting bracket.

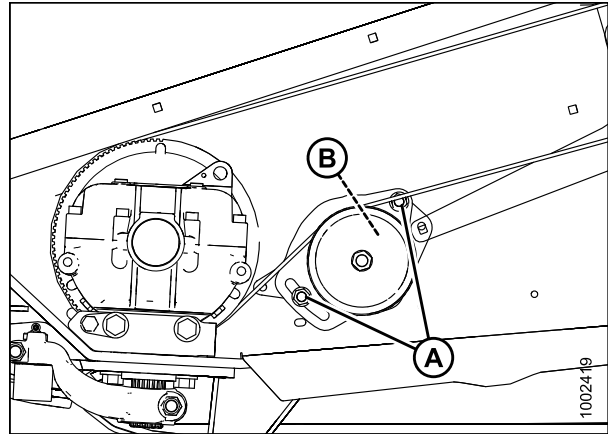


Figure 7.117

5. Loosen bolts (B) and adjust guide (A). The measurement should be 0.02–0.04 in. (0.5–1.0 mm).
6. Readjust tension of a new belt after a short run-in period (about 5 hours).

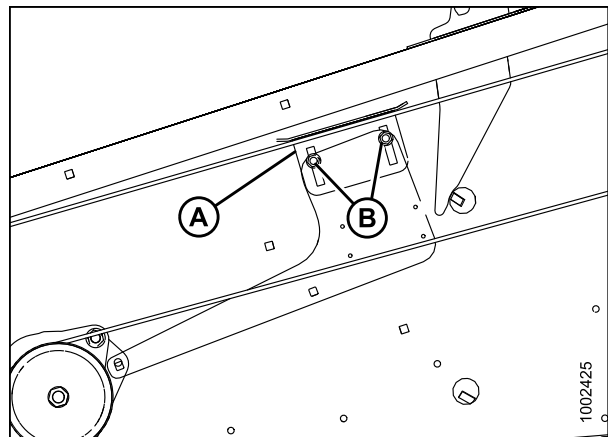


Figure 7.118

### Aligning Knife Drive Belt Pulley (Double Knife) (Left Hand)

1. Locate the grease zerk (A) on the bottom of the backtube that greases the cross shaft tube. There is one per side. Check the location of the bolt in slot. The LH bolt should be near the center of the slot and the RH bolt should be near the front of the slot. If not, loosen the nut and adjust them accordingly. Torque the nuts to 230–250 ft·lbf (312–339 N·m). If they are not in the correct place, adjust accordingly.

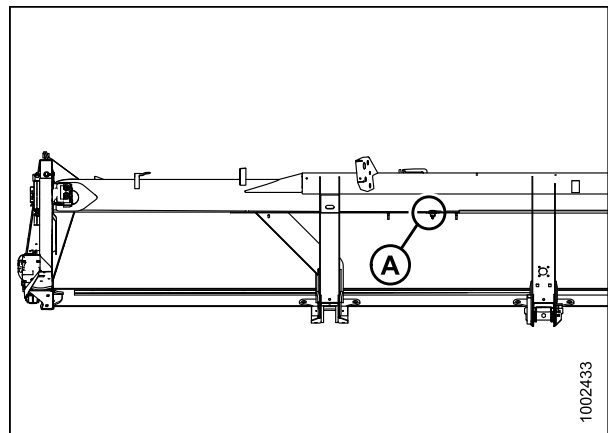


Figure 7.119: View from behind header



## MAINTENANCE AND SERVICING

2. Open endshield. See Section [Opening Endshields](#), page 42.
3. Release tension on the cogged drive belt by loosening nuts (A) to loosen the idler pulley.

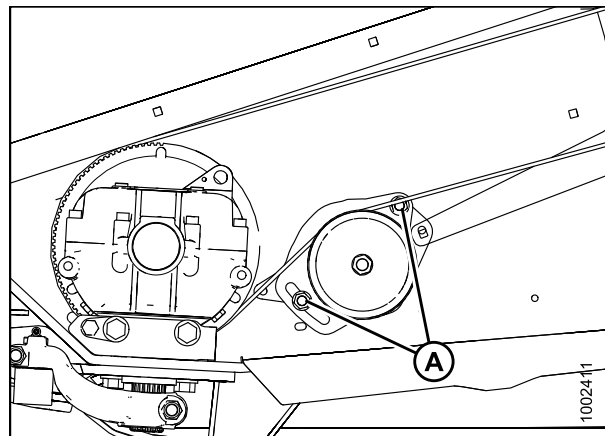


Figure 7.120

4. Check the 'toe in' the knife drive pulley. Use a straight edge (A) across the face of the double pulley bolted to the knife drive pulley. Measure from the straight edge to the end panel in two places (B, C). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D). Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, then you will need to adjust the pulley.

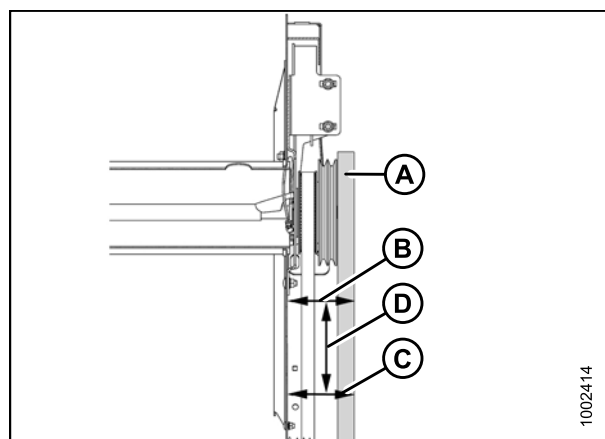


Figure 7.121

5. Loosen bolts (A) and adjust bolt (B) to move the knife drive pulley.

**NOTE:** Adjusting bolt (B) affects the fore-aft position of the drive pulley. Moving it forward will change the toe in, rearward will change the toe-out dimension of the pulley.

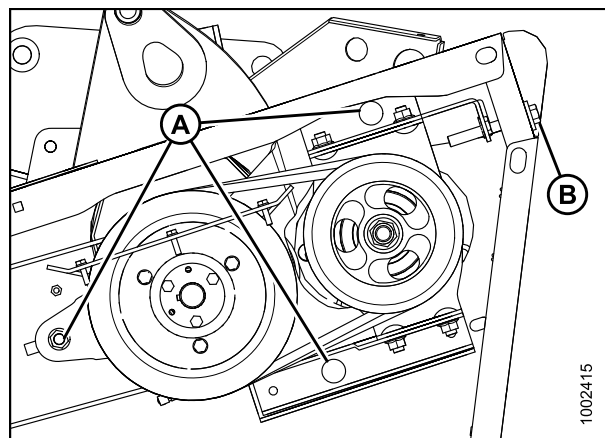


Figure 7.122

## MAINTENANCE AND SERVICING

**NOTE:** The following is important to belt alignment. Follow instructions carefully.

6. This adjustment will toe in the knife drive pulley. This will allow the pulley to be aligned after the belts are tensioned. Use a straight edge (A) across the face of the double pulley bolted to the knife drive pulley. Measure from the straight edge to the end panel in two places (B, C). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D). Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'.

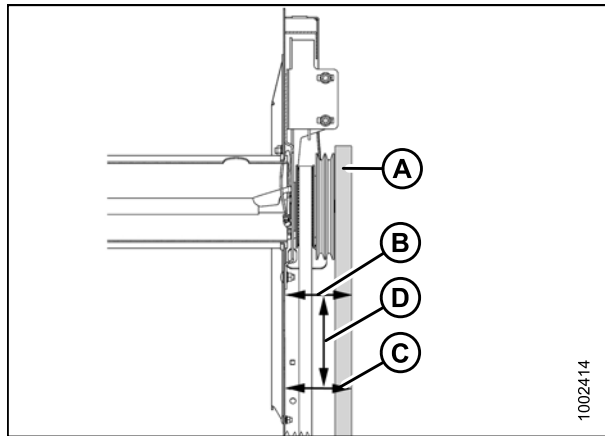


Figure 7.123

7. If more adjustment is required, adjust bolt (A). Check pulley alignment again.

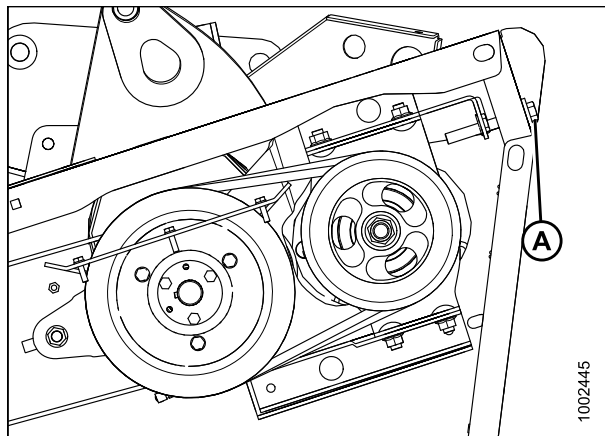


Figure 7.124

8. Tighten nut (A) to retain the pulley setting.

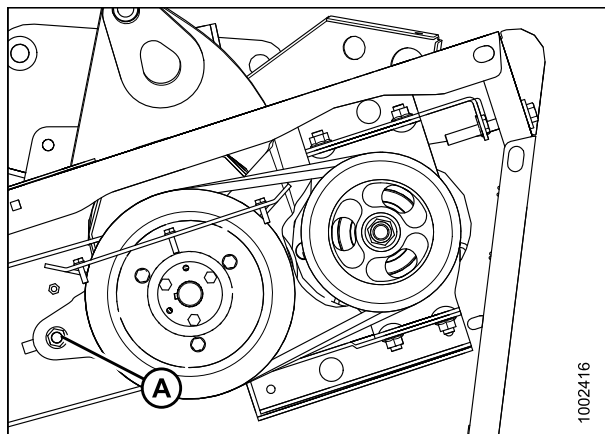


Figure 7.125

## MAINTENANCE AND SERVICING

9. Tighten bolt (B) to tension double V-belts (C). Tension is checked at mid span of the belts. The belts should deflect 0.12 in. (3 mm) with 12 ft·lbf (53 N·m) of force.
10. Tighten bolts (A) to lock in the double V-belt setting.

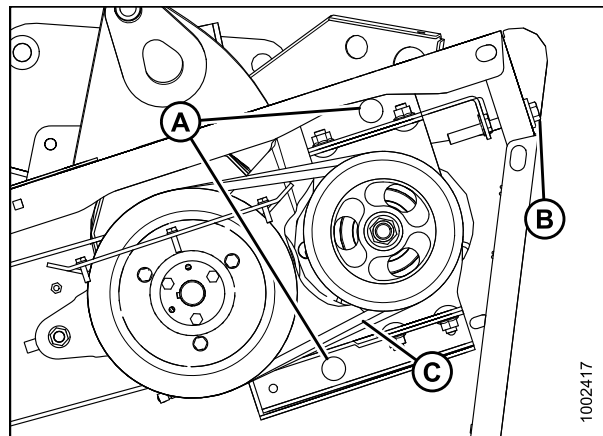


Figure 7.126

11. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
12. Tighten bolts (A), that secure the idler bracket to the end frame.

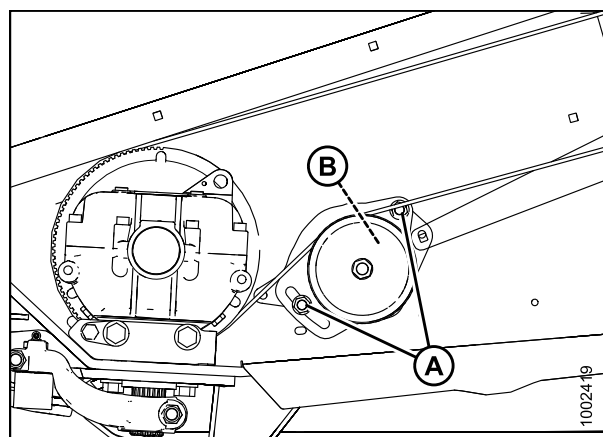


Figure 7.127

13. Check idler pulley alignment. Place a 12 in. (300 mm) straight edge on the idler pulley horizontally and vertically (B). Measure from the straight edge to the frame. Pulley should be parallel to the frame in both directions within 0.08 in. (2 mm). If pulley adjustment is required, use a deep socket and extension on nut (A) and adjust accordingly.

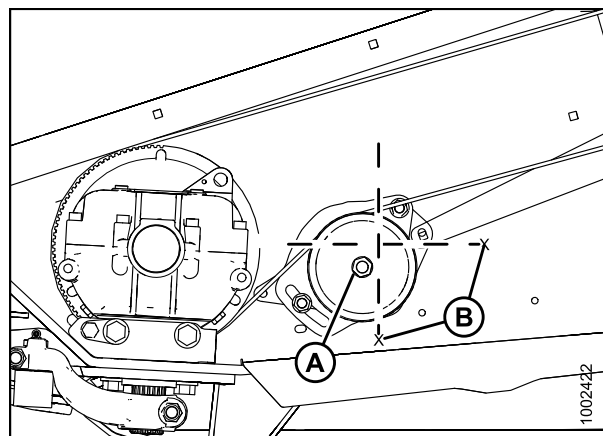


Figure 7.128

## MAINTENANCE AND SERVICING

14. After the double V-belts and timing belts are tensioned, recheck drive pulley alignment with a straight edge. Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, see Step 6., [Aligning Knife Drive Belt Pulley \(Double Knife\) \(Left Hand\)](#), page 282 and readjust the fore-aft position of the drive pulley.

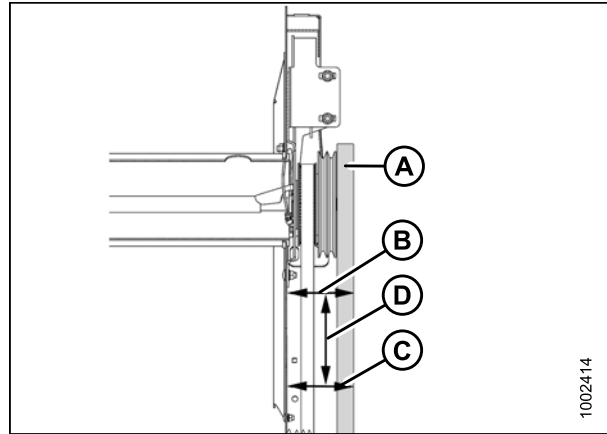


Figure 7.129

15. Loosen bolts (B) and adjust belt guide bracket (A). It should be set so there is 0.02–0.06 in. (0.5–1.5 mm) between the belt and the guide.

**NOTE:** If you have removed the belt, ensure the knives are timed. Refer to [Double Knife Timed](#), page 276.

16. Close endshield. Refer to [Closing Endshields](#), page 43.

17. Run up the header and ensure belt is tracking correctly.

**NOTE:** Belt should run completely on knife drive box sprocket and should not tend to ride up on flanges of driving sprocket or idler pulley. If it does not, then more adjustment on the idler pulley or the driving pulley may be needed.

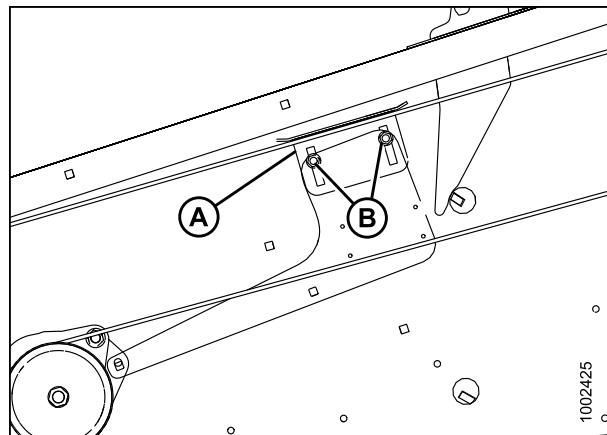


Figure 7.130

### Removing Knife Drive Belt (Timed) (Double Knife) (Right Hand)

1. Remove RH endshield, See Section [4.2.3 Endshields](#), page 42 for instructions.
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

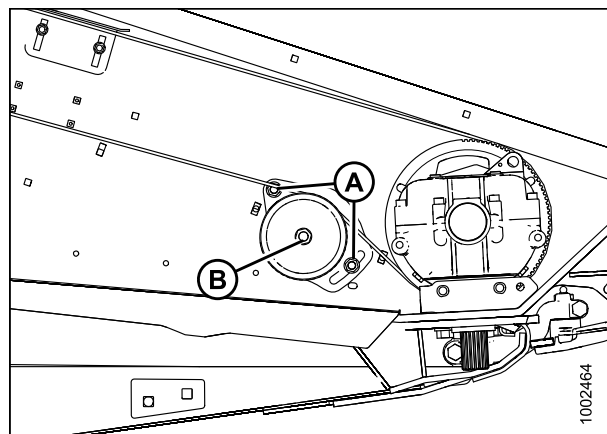


Figure 7.131

## MAINTENANCE AND SERVICING

4. Open the access panel (A) inside the draper opening, just behind cutterbar. This will give you access to the knife drive pulley.

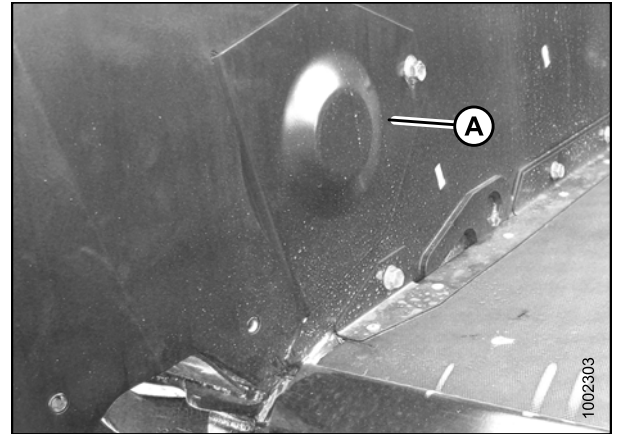


Figure 7.132

5. Remove the knife drive belt (A).

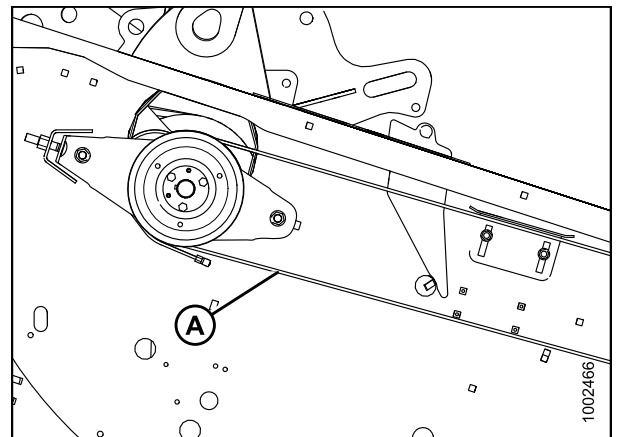


Figure 7.133

### Installing Knife Drive Belt (Timed) (Double Knife) (Right Hand)

If there are problems with belt alignment. See Section [Aligning Knife Drive Belt Pulley \(Double Knife\) \(Right Hand\)](#), page 288.

1. Route knife drive belt around knife drive box pulley and knife drive pulley.

**NOTE:** When installing new belt, never pry belt over pulley. Be sure drive motor is fully forward, then tension belt.

## MAINTENANCE AND SERVICING

2. Once the belt is installed, reinstall the access panel (A) and secure it with a bolt.

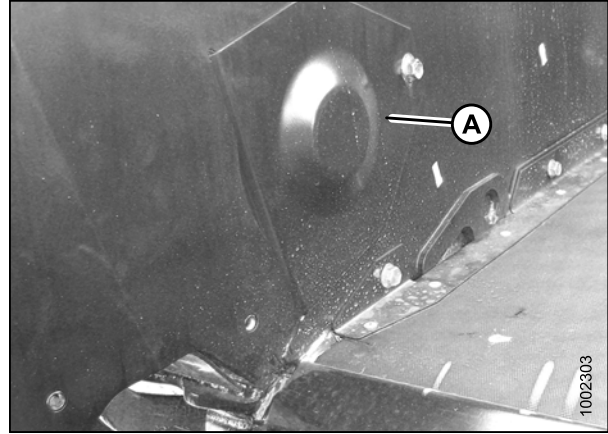


Figure 7.134

3. Rotate the idler pulley bracket (A) down. Loosen nut (B) and slide the idler pulley up by hand to remove most of the belt slack. Tighten nut (B).

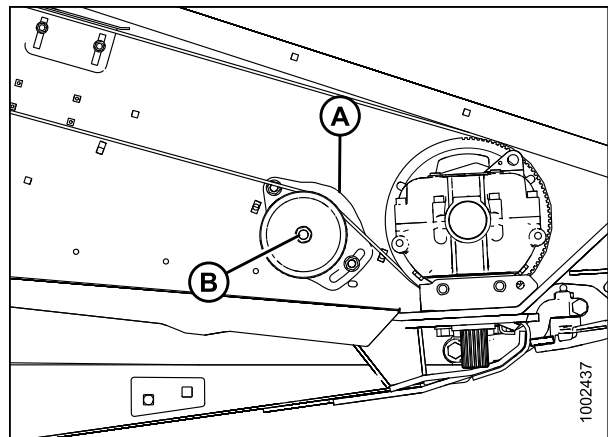


Figure 7.135

4. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
5. Tighten bolts (A) that secure the idler bracket to the end frame.
6. Close endshield. See Section [Closing Endshields](#), page 43.

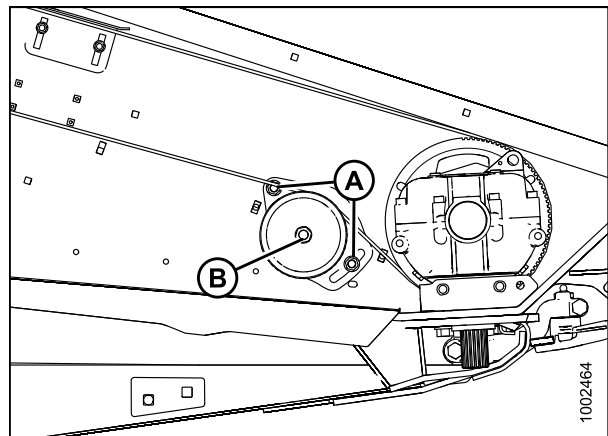


Figure 7.136

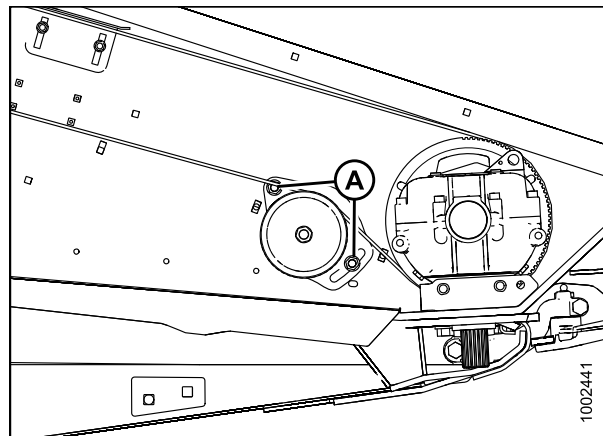
### Tensioning Knife Drive Belt (Timed) (Double Knife) (Right Hand)

#### IMPORTANT:

To prolong belt and drive life, do not over-tighten belt.

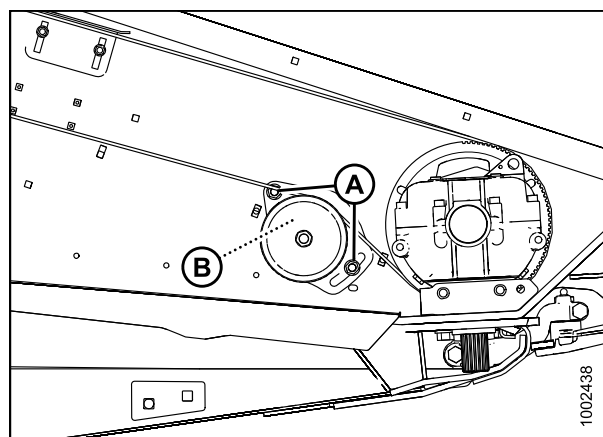
## MAINTENANCE AND SERVICING

1. Open endshield. See Section [Opening Endshields](#), page 42.
2. Loosen two nuts (A) on knife drive belt idler bracket.



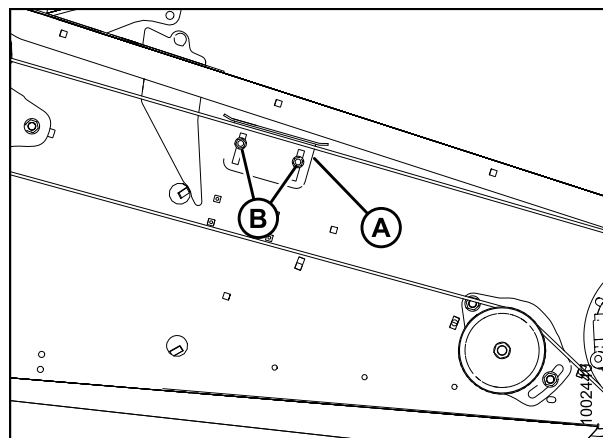
**Figure 7.137**

3. Insert a long punch (or equivalent) into hole (B), behind the pulley in idler bracket and pry downward until a force of 6 ft·lbf (27 N·m) deflects timing belt 1/2 in. (13 mm) at mid-span.
4. Tighten nuts (A) on idler mounting bracket.



**Figure 7.138**

5. Loosen bolts (B) and adjust guide (A). The measurement should be 0.02–0.04 in. (0.5–1.0 mm).
6. Re-adjust tension of a new belt after a short run-in period (about 5 hours).



**Figure 7.139**



## MAINTENANCE AND SERVICING

### Aligning Knife Drive Belt Pulley (Double Knife) (Right Hand)

1. Locate the grease zerk (A) on the bottom of the backtube, that greases the cross shaft tube. There is one per side. Check the location of the bolt in the slot. The RH bolt should be near the front of the slot and the LH bolt should be near the center of the slot. Torque the nuts to 230–250 ft·lbf (312–339 N·m). If they are not in the correct place, adjust accordingly.

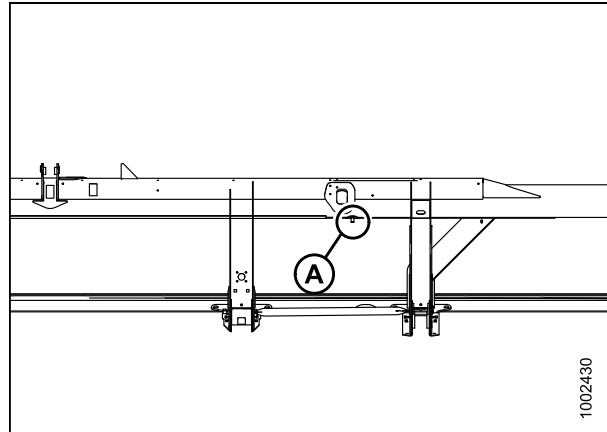


Figure 7.140: View from behind header

2. Open endshield. See Section [Opening Endshields](#), page 42.
3. Release tension on the cogged drive belt by loosening nuts (A) to loosen the idler pulley.

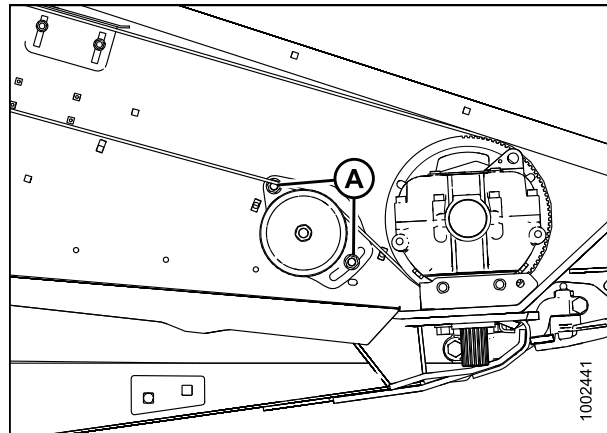


Figure 7.141

4. Check the 'toe in' the knife drive pulley. Use a straight edge (A) across the face of the double pulley bolted to the knife drive pulley. Measure from the straight edge to the end panel in two places (B, C). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D). Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, then you will need to adjust the pulley.

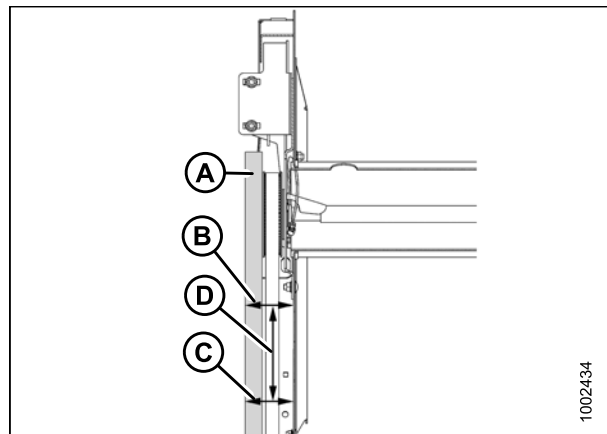


Figure 7.142

## MAINTENANCE AND SERVICING

5. Loosen bolts (A) and adjust bolt (B) to move the knife drive pulley.

**NOTE:** Adjusting bolt (B) affects the fore-aft position of the drive pulley. Moving it forward will change the 'toe in', rearward will change the 'toe-out' dimension of the pulley.

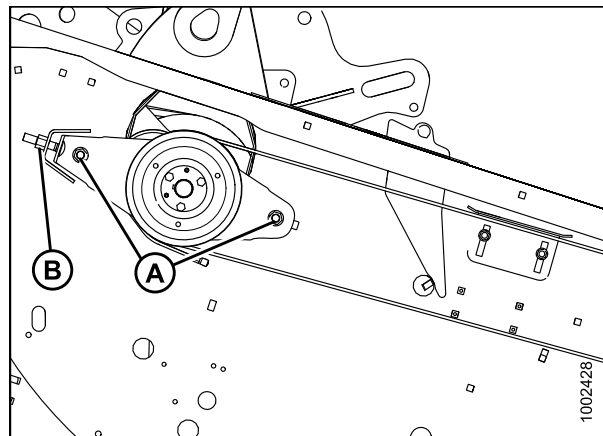


Figure 7.143

**NOTE:** The following is important to belt alignment. Follow instructions carefully.

6. This adjustment will 'toe in' the knife drive pulley. This will allow the pulley to be aligned after the belts are tensioned. Use a straight edge (A) across the face of the knife drive pulley. Measure the difference between point 'B' and 'C'. Point 'C' should be 0.12 in. (3 mm) greater than point 'B'. (Dimension is measured from straight edge to end panel). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D).

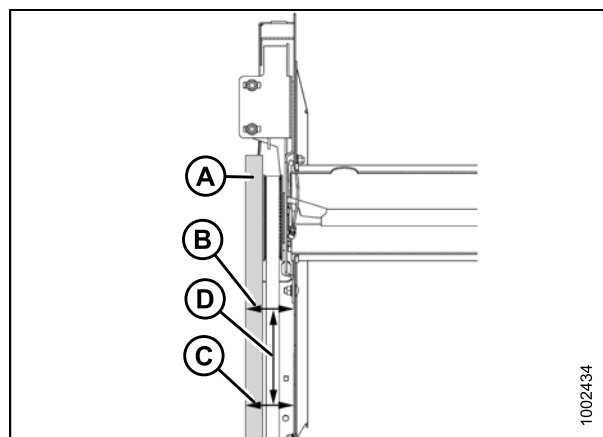


Figure 7.144

7. If more adjustment is required, adjust bolt (A). Check pulley alignment again.

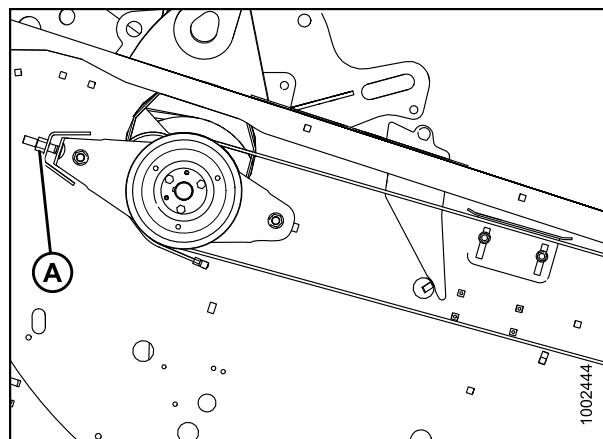


Figure 7.145

## MAINTENANCE AND SERVICING

8. Tighten nuts (A) to retain the pulley setting.

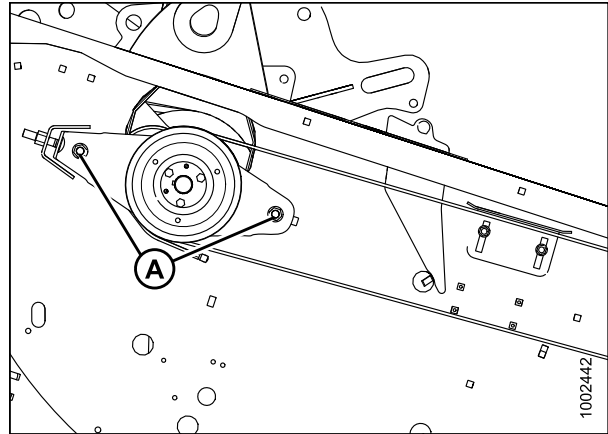


Figure 7.146

9. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
10. Tighten bolts (A) that secure the idler bracket to the end frame.

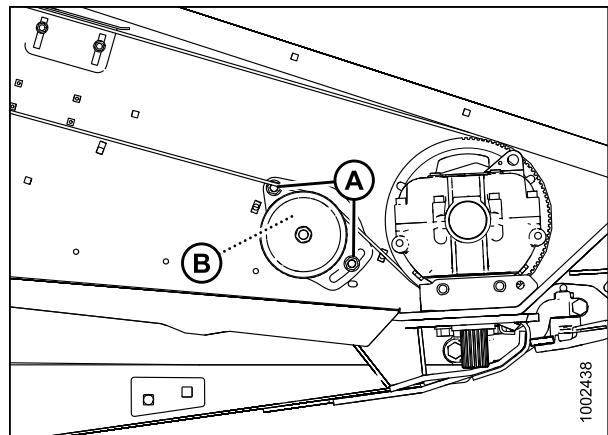


Figure 7.147

11. Check idler pulley alignment. Place a 12 in. (300 mm) straight edge on the idler pulley horizontally and vertically (B). Measure from the straight edge to the frame. Pulley should be parallel to the frame in both directions within 0.08 in. (2 mm). If pulley adjustment is required, use a deep socket and extension on nut (A) and adjust accordingly.

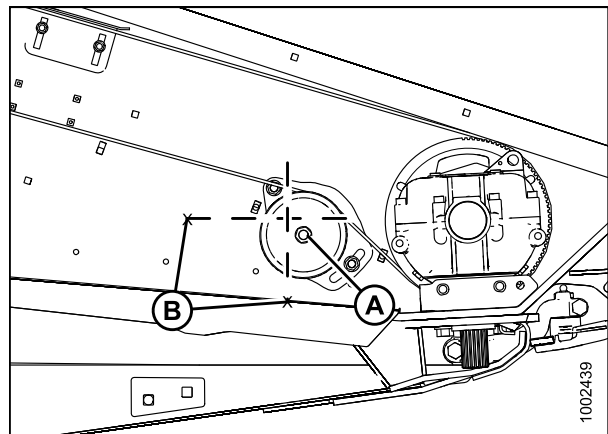
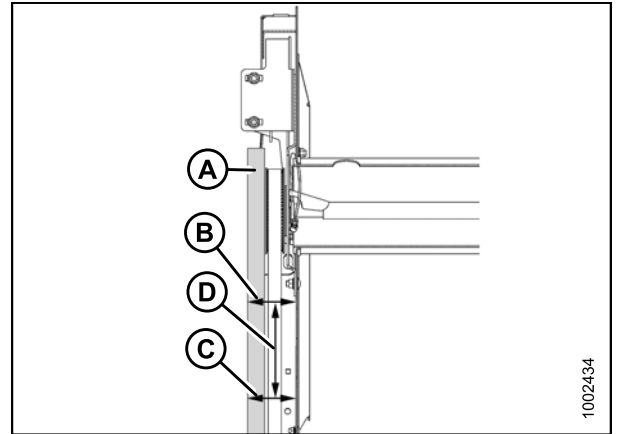


Figure 7.148

## MAINTENANCE AND SERVICING

12. Recheck pulley alignment with a straight edge. Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, see [Step 5., Aligning Knife Drive Belt Pulley \(Double Knife\) \(Right Hand\)](#), page 289 and readjust the fore-aft position of the drive pulley.



**Figure 7.149**

13. Loosen bolts (B) and adjust belt guide bracket (A). It should be set so there is 0.02–0.06 in. (0.5–1.5 mm) between the belt and the guide.

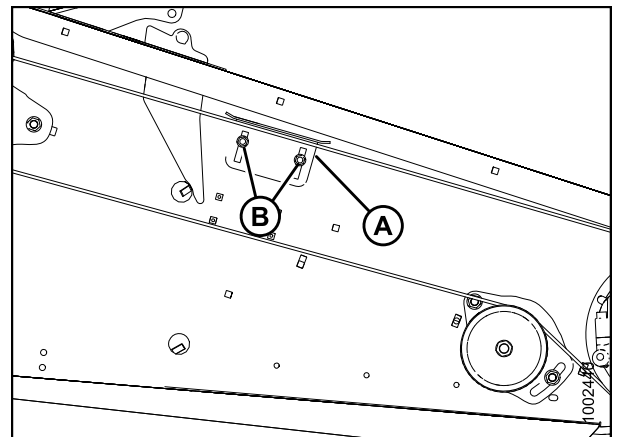
**NOTE:** If you have removed the belt, ensure the knives are timed. Refer to [Double Knife Timed](#), page 276.

14. Close endshield. Refer to [Closing Endshields](#), page 43.

15. Run up the header and ensure belt is tracking correctly.

**NOTE:** Belt should run completely on knife drive box sprocket and should not tend to ride up on flanges of driving sprocket or idler pulley. If it does not, then adjusting the idler pulley or the driving pulley may be needed.

16. Readjust tension of a new belt after a short run-in period (about 5 hours).



**Figure 7.150**

## Adjusting Double Knife Timing

Double knife D65 Draper Headers, 40 ft. and smaller, require that knives are properly timed to move in opposite directions.

1. Open both endshields. Refer to [Opening Endshields, page 42](#).
2. Remove the belt on the right hand side. Refer to [Removing Knife Drive Belt \(Timed\) \(Double Knife\) \(Right Hand\), page 284](#).

## MAINTENANCE AND SERVICING

3. Rotate the left knife drive box driven pulley clockwise until the left knife (A) is at the center of the inboard stroke (moving towards center of header).

**NOTE:** Center stroke is when the knife sections are centered between guard points (B).

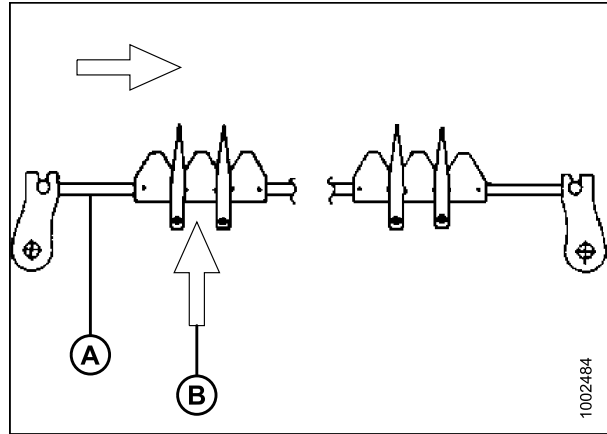


Figure 7.151

4. Rotate the right knife drive box pulley counterclockwise until the right knife (A) is at the center of the inboard stroke.

**NOTE:** Center stroke is when the knife sections are centered between guard points (B).

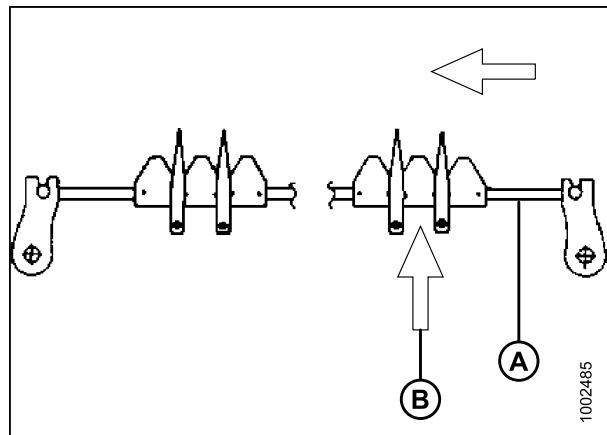


Figure 7.152

5. Install right-hand belt (A).

### IMPORTANT:

To maintain timing, knife drive box driver and driven pulleys must NOT rotate as the belt is tightened.

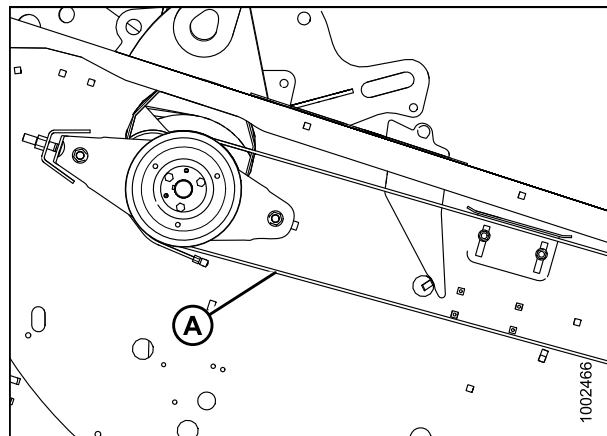


Figure 7.153

## MAINTENANCE AND SERVICING

6. Rotate the idler pulley bracket (A) down. Loosen nut (B) and slide the idler pulley up by hand to remove most of the belt slack. Tighten nut (B).

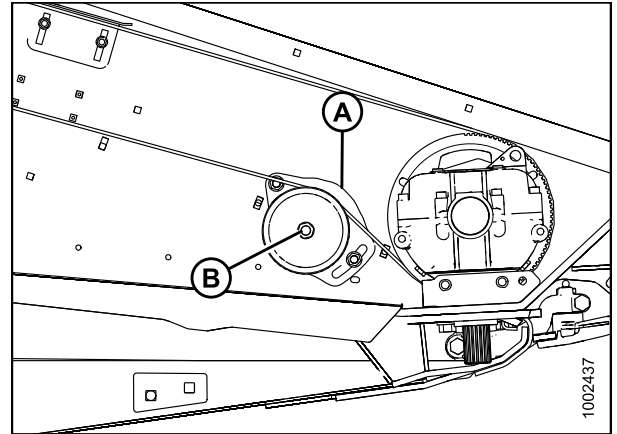


Figure 7.154

7. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
8. Tighten bolts (A) that secure the idler bracket to the end frame.
9. Check that the timing belts are properly seated in the grooves on both driver and driven pulleys.
10. Check for correct knife timing by rotating the drive slowly by hand and observe knives where they overlap at the centre of the header.

**NOTE:** If right knife 'leads' left knife, loosen right hand knife drive belt and rotate RIGHT SIDE driven pulley clockwise. If right knife 'lags' left knife, loosen right-hand knife drive belt and rotate RIGHT SIDE driven pulley counterclockwise.

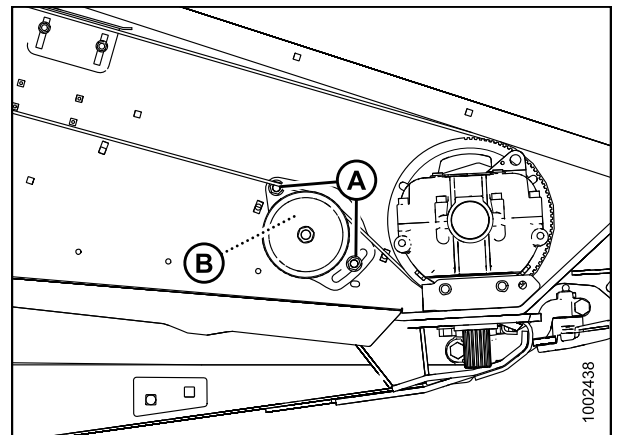


Figure 7.155

11. Close both endshields. Refer to [Closing Endshields](#), page 43.

### *Adjusting Double Knife Timing*

Double knife D65 Draper Headers, 40 ft. and smaller, require that knives are properly timed to move in opposite directions.

1. Open both endshields. Refer to [Opening Endshields](#), page 42.
2. Remove the belt on the right hand side. Refer to [Removing Knife Drive Belt \(Timed\) \(Double Knife\) \(Right Hand\)](#), page 284.

## MAINTENANCE AND SERVICING

3. Rotate the left knife drive box driven pulley clockwise until the left knife (A) is at the center of the inboard stroke (moving towards center of header).

**NOTE:** Center stroke is when the knife sections are centered between guard points (B).

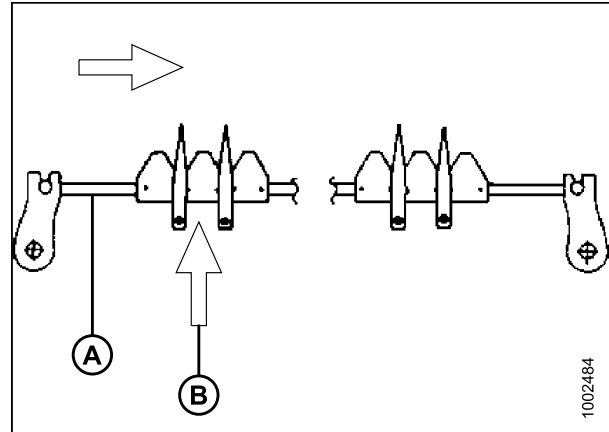


Figure 7.156

4. Rotate the right knife drive box pulley counterclockwise until the right knife (A) is at the center of the inboard stroke.

**NOTE:** Center stroke is when the knife sections are centered between guard points (B).

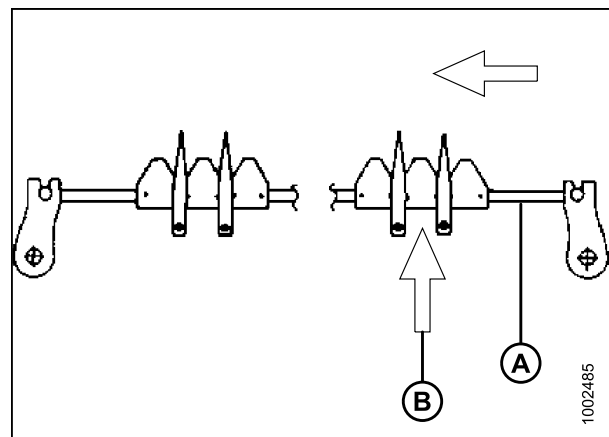


Figure 7.157

5. Install right-hand belt (A).

### IMPORTANT:

To maintain timing, knife drive box driver and driven pulleys must NOT rotate as the belt is tightened.

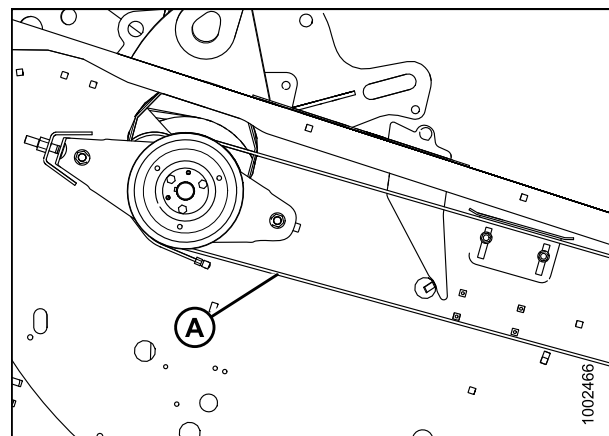


Figure 7.158



## MAINTENANCE AND SERVICING

6. Rotate the idler pulley bracket (A) down. Loosen nut (B) and slide the idler pulley up by hand to remove most of the belt slack. Tighten nut (B).

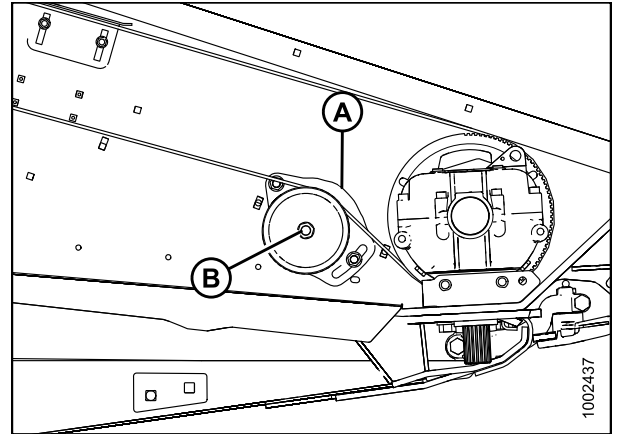


Figure 7.159

7. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
8. Tighten bolts (A) that secure the idler bracket to the end frame.
9. Check that the timing belts are properly seated in the grooves on both driver and driven pulleys.
10. Check for correct knife timing by rotating the drive slowly by hand and observe knives where they overlap at the centre of the header.

**NOTE:** If right knife 'leads' left knife, loosen right hand knife drive belt and rotate RIGHT SIDE driven pulley clockwise. If right knife 'lags' left knife, loosen right-hand knife drive belt and rotate RIGHT SIDE driven pulley counterclockwise.

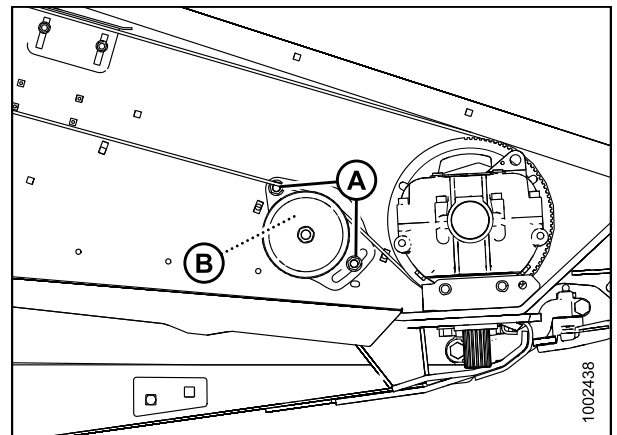


Figure 7.160

11. Close both endshields. Refer to [Closing Endshields, page 43](#).

### 7.8.9 Knife Drive Box

The knife drive box drives the knife. It is belt driven. The knife drive box converts rotational motion into oscillating motion to drive the knife.



#### CAUTION

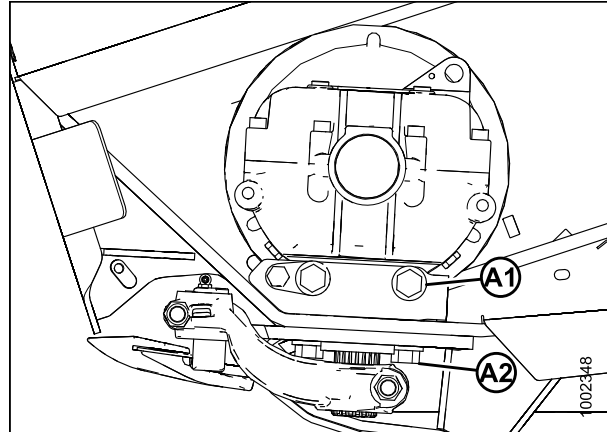
To avoid personal injury, before servicing machine or opening drive covers, Refer to [Section 7.1 Preparation for Servicing, page 205](#).

## MAINTENANCE AND SERVICING

### *Mounting Bolts*

Check the four knife drive box mounting bolts (A1, A2) torque after the first 10 hours operation and every 100 hours thereafter.

1. Tighten knife drive box side bolts (A1) first, then the bottom bolts (A2). Torque to 200 ft·lbf (271 N m).



**Figure 7.161: Check mounting bolts**

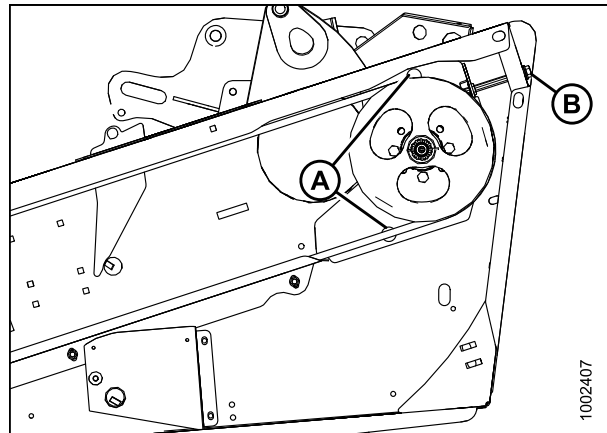
### *Removing Knife Drive Box*

#### **Single and Untimed Double Knife**

This procedure applies to single and untimed double knife drive box.

**NOTE:** Procedure is the same for right-hand side of the untimed double knife header.

1. Open endshield. See Section [Opening Endshields](#), page 42.
2. Loosen the two bolts (A) that secure the motor assembly to header endsheet.
3. Loosen the tension on the belt by turning the tensioning bolt (B) counterclockwise.



**Figure 7.162**

## MAINTENANCE AND SERVICING

4. Open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

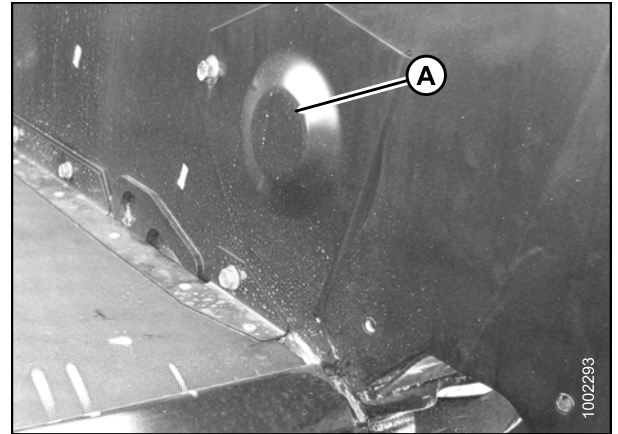


Figure 7.163

6. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
7. Remove the grease zerk (B) from the pin.
8. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

**NOTE:** Groove in pin may be used to pry up on pin.

9. Push the knife assembly inboard until it is clear of the output arm.
10. Seal bearing in knifehead with plastic or tape.

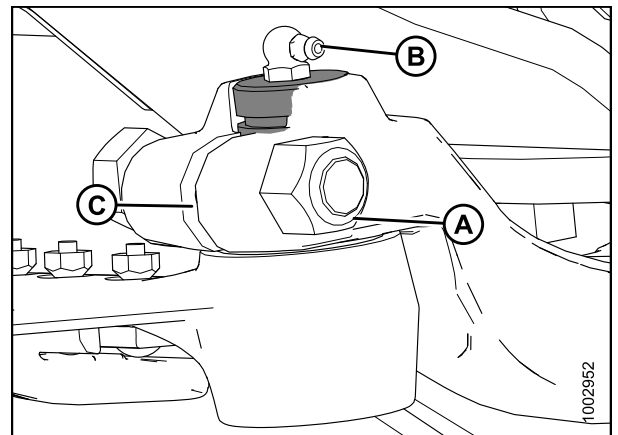


Figure 7.164

## MAINTENANCE AND SERVICING

11. Remove bolt (A) that clamps the knife drive arm to the knife drive box output shaft.
12. Remove the knife drive arm from the knife drive box output shaft.
13. Remove the four knife drive box mounting bolts (B, D).

**NOTE:** Do **NOT** remove bolt (C), this is factory set. It is used to position the knife drive box in the proper fore-aft position.

14. Remove knife drive box with pulley and place on a bench for disassembly.

### CAUTION

Knife drive box with pulley weighs over 65 lbs (35 kg). Use care when removing or installing. Lug (L) can be used for lifting. If speed sensor is installed at this location you will need to remove it before using it for lifting.

15. For double knife headers, repeat procedure on RH side.

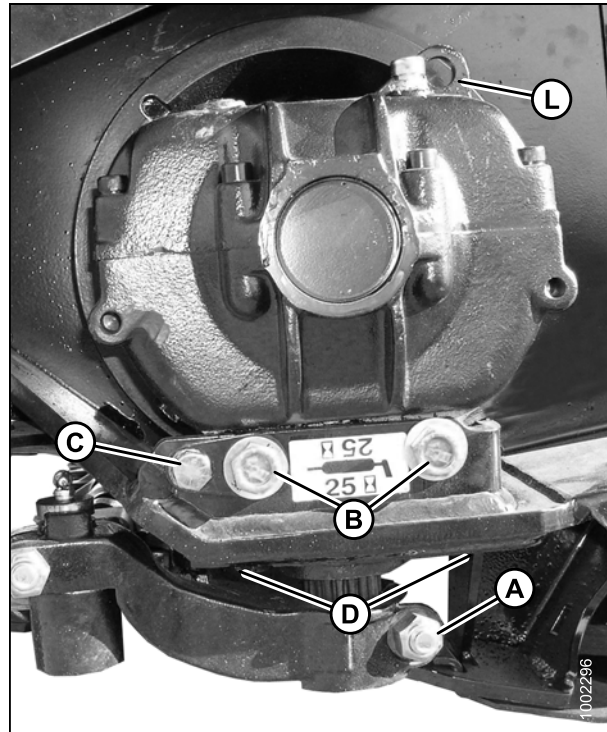


Figure 7.165

### Double Knife Timed

#### Removing (LH) Knife Drive Box

1. Open LH endshield. See Section [Opening Endshields](#), page 42.
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

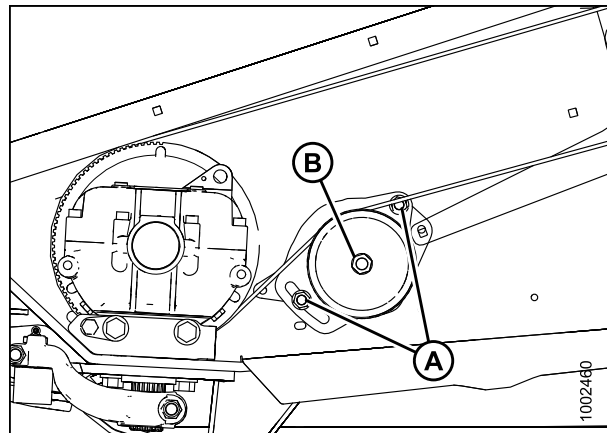


Figure 7.166

## MAINTENANCE AND SERVICING

4. Open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

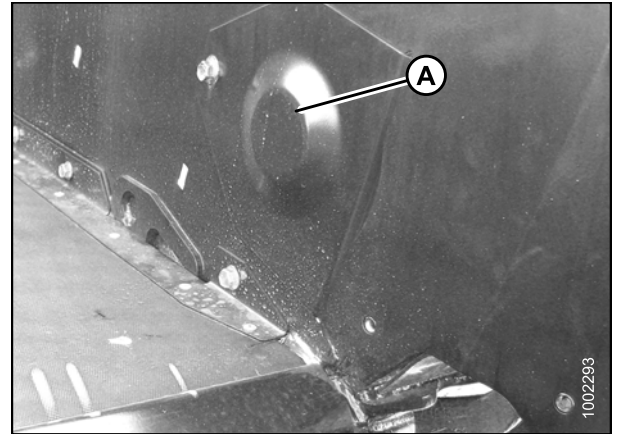


Figure 7.167

6. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
7. Remove the grease zerk (B) from the pin.
8. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

**NOTE:** Groove in pin may be used to pry up on pin.

9. Push the knife assembly inboard until it is clear of the output arm.
10. Seal bearing in knifehead with plastic or tape.

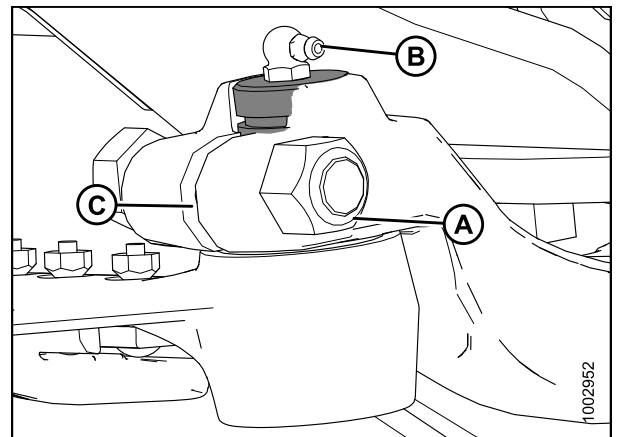


Figure 7.168

## MAINTENANCE AND SERVICING

11. Remove bolt (A) that clamps the knife drive arm to the knife drive box output shaft.
12. Remove the knife drive arm from the knife drive box output shaft.
13. Remove the four knife drive box mounting bolts (B, D).

**NOTE:** Do **NOT** remove bolt (C), this is factory set. It is used to position the knife drive box in the proper fore-aft position.

14. Remove knife drive box with pulley and place on a bench for disassembly.

### CAUTION

Knife drive box with pulley weighs over 65 lbs (35 kg). Use care when removing or installing. Lug (L) can be used for lifting. If speed sensor is installed at this location you will need to remove it before using it for lifting.

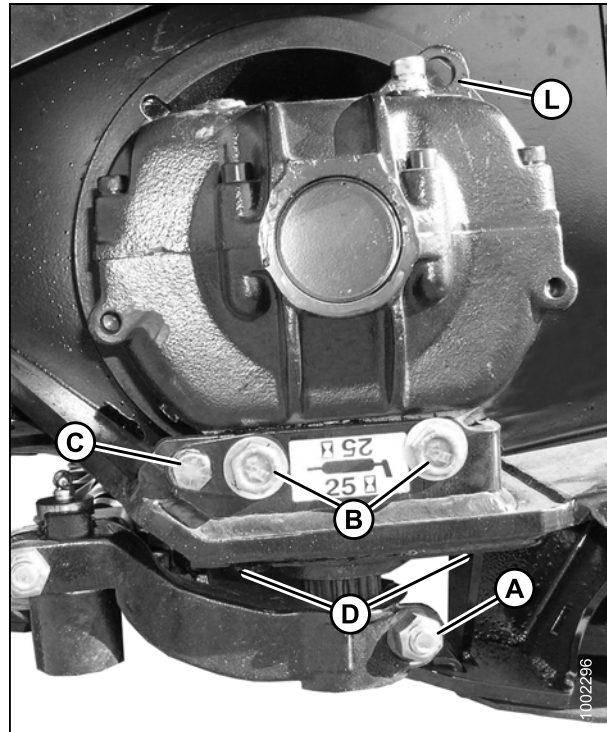


Figure 7.169

### Removing (RH) Knife Drive Box

1. Open RH endshield. See Section [Opening Endshields](#), page 42.
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

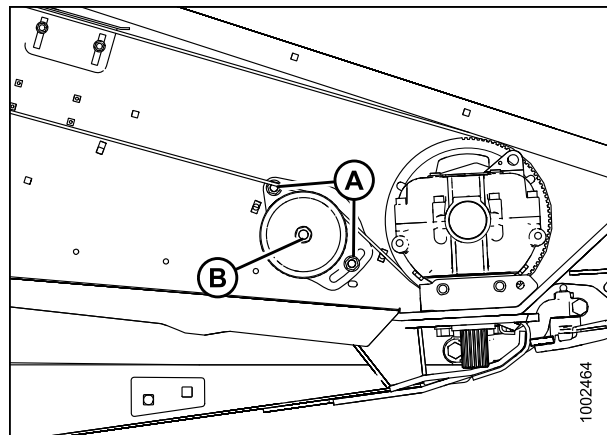


Figure 7.170

## MAINTENANCE AND SERVICING

4. Open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

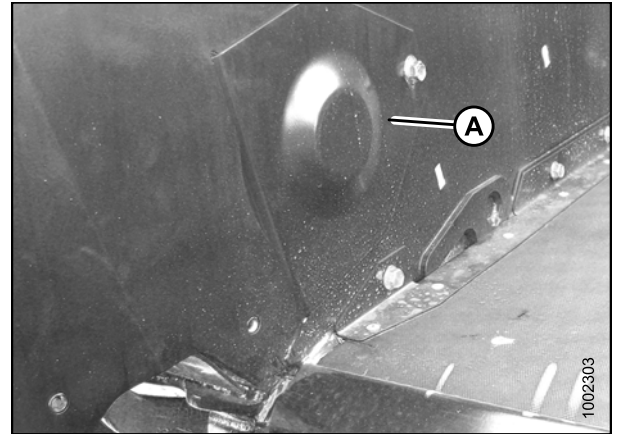


Figure 7.171

6. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
7. Remove the grease zerk (B) from the pin.
8. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

**NOTE:** Groove in pin may be used to pry up on pin.

9. Push the knife assembly inboard until it is clear of the output arm.
10. Seal bearing in knifehead with plastic or tape.

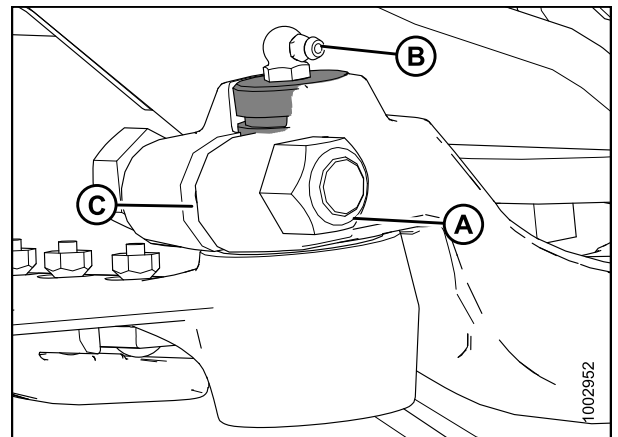


Figure 7.172



## MAINTENANCE AND SERVICING

11. Remove bolt (A) that clamps the knife drive arm to the knife drive box output shaft.
12. Remove the knife drive arm from the knife drive box output shaft.
13. Remove the four knife drive box mounting bolts (B, D).

**NOTE:** Do **NOT** remove bolt (C), this is factory set. It is used to position the knife drive box in the proper fore-aft position.

14. Remove knife drive box with pulley and place on a bench for disassembly.

### CAUTION

Knife drive box with pulley weighs over 65 lbs (35 kg). Use care when removing or installing. Lug (L) can be used for lifting. If speed sensor is installed at this location you will need to remove it before using it for lifting.

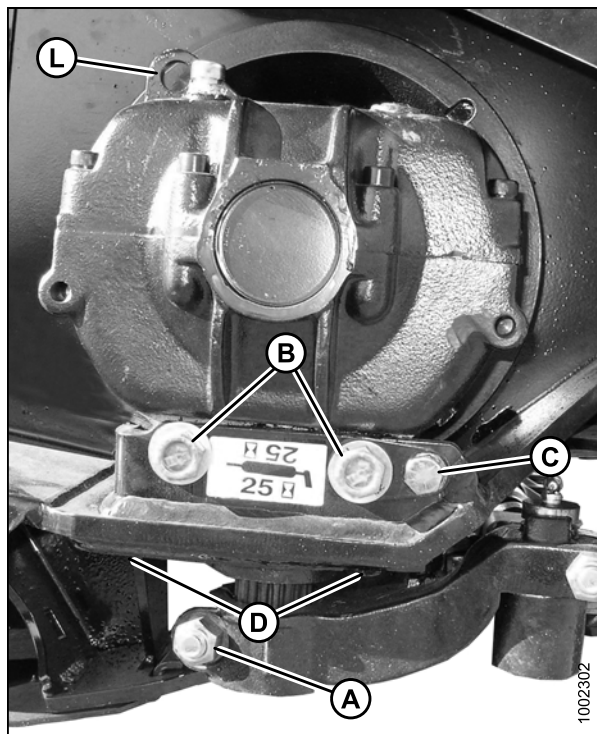


Figure 7.173

### *Removing Knife Drive Box Pulley*

To remove knife drive box pulley, follow these steps:

1. Loosen and remove the knife drive box pulley clamping bolt (A) and nut (B) and remove knife drive box pulley (C).
2. Remove pulley using a three-jaw puller.

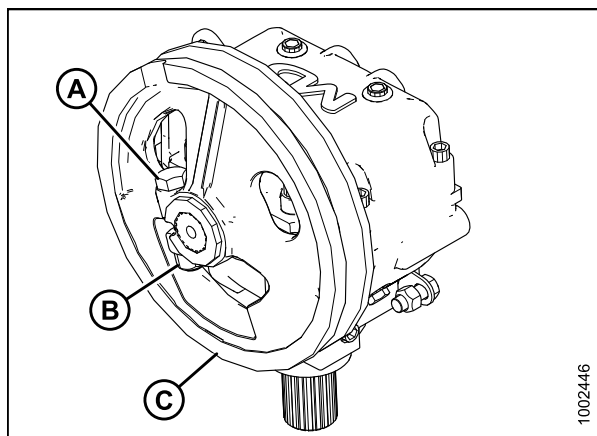


Figure 7.174

## MAINTENANCE AND SERVICING

### Installing Knife Drive Box Pulley

To install the knife drive box pulley, follow these steps:

1. Ensure splines and bores in pulley or drive arm are free of paint oil and solvents.
2. Apply Loctite® #243 adhesive (or equivalent) to spline. Apply in two bands (A) around shaft as shown, with one band at end of spline and one band approximately mid-way.
3. Install pulley (B) until flush with end of shaft.
4. Secure pulley with 5/8 in. X 3 in. hex head bolt with distorted thread NC lock nut and torque to 160 ft-lbf (217 N·m).

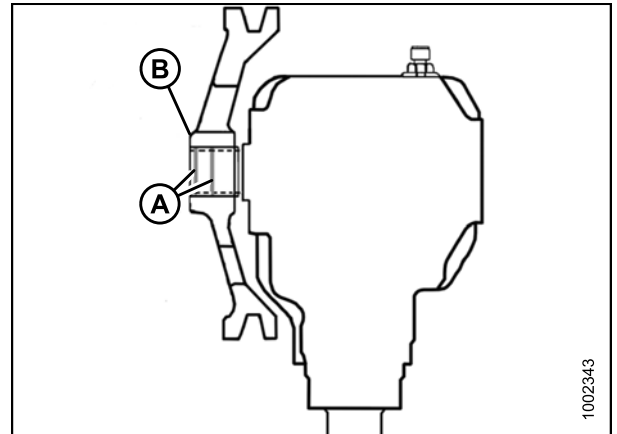


Figure 7.175: Pulley shown is for single knife

### Installing Knife Drive Box

This procedure can be used for single and double knife headers.

**NOTE:** Before installing the knife drive box onto the header, install the pulley onto the knife drive box.

### CAUTION

Knife drive box with pulley weighs over 65 lbs (35 kg). Use care when removing or installing. Lug (L) can be used for lifting. If speed sensor is installed at this location you will need to remove it before using it for lifting.

1. Place knife drive box into position on header mount, placing belt around pulley.
2. Install two 5/8 in. X 1.75 in. grade 8 hex head bolts (A) on the side and two 5/8 in. X 2.25 in. (B) on the bottom to mount knife drive box to frame.
3. Tighten knife drive box side bolts (A) first, then the bottom bolts (B), to ensure proper contact with vertical and horizontal mounting surfaces. Do **NOT** torque bolts at this time.

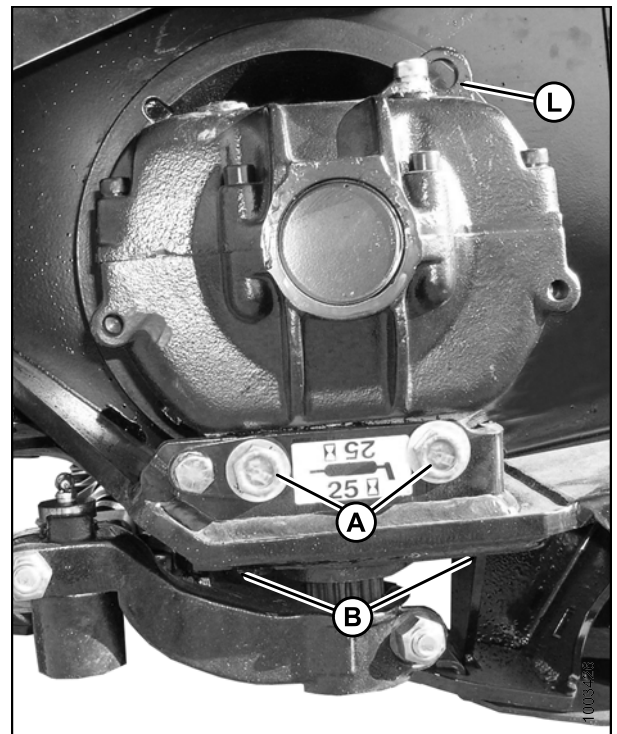


Figure 7.176

## MAINTENANCE AND SERVICING

4. Apply Loctite® #243 to the output shaft in two bands as shown at (A).
5. Slide output arm (B) onto output shaft. Rotate pulley to ensure drive arm just clears frame on inboard stroke to ensure proper placement on splines.

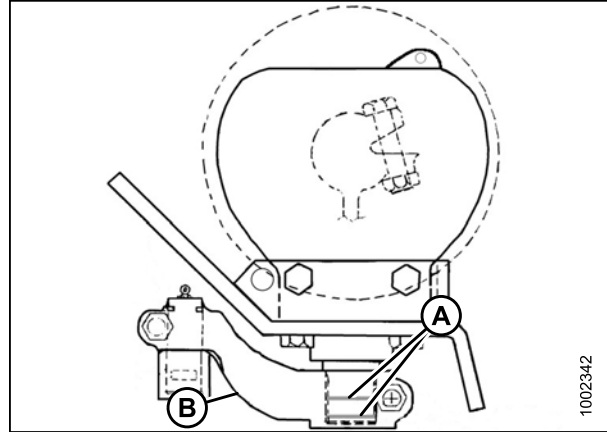


Figure 7.177

6. Position output arm (A) to farthest outboard position. Move output arm (A) up or down on splined shaft until it almost contacts knifehead (B). Spacing at (C) should be 0.010 in. (0.254 mm).

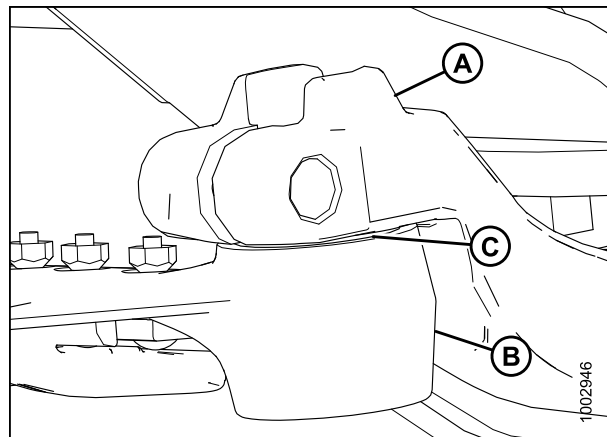


Figure 7.178

7. Torque output arm bolt (B) to 160 ft-lbf (217 N·m) to secure arm to knife drive output shaft.

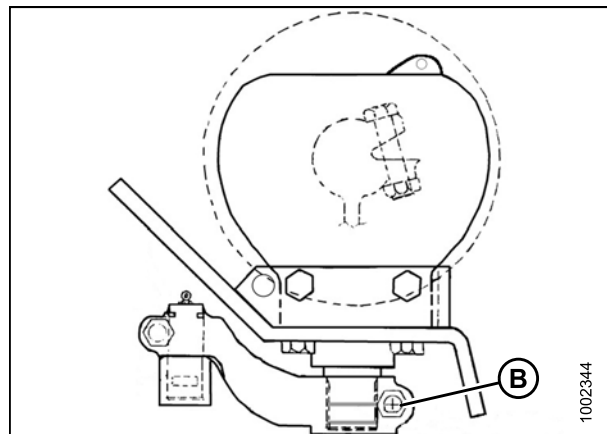


Figure 7.179

## MAINTENANCE AND SERVICING

**NOTE:** For ease of removing or installing knifehead pin, remove grease zerk from pin.

8. Install knifehead pin (A) through the output arm and into the knifehead bearing cup.
9. Align groove (B) in knifehead pin 0.06 in. (1.5 mm) above (C). Install 5/8 in. X 3 in. hex head bolt (D) and torque to 160 ft·lbf (217 N·m).

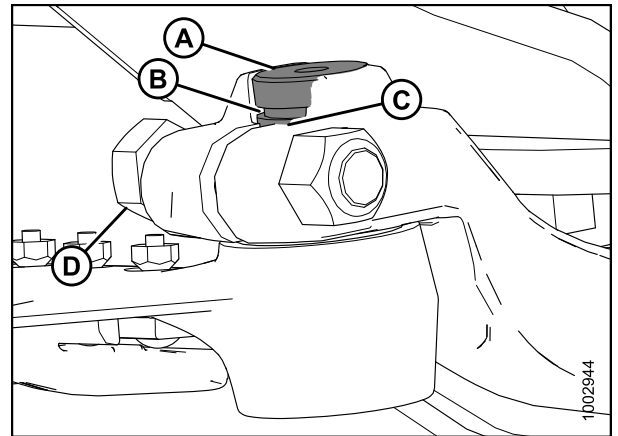


Figure 7.180

10. Install grease zerk (A) into the knifehead pin, turn the grease zerk for easy access.

### IMPORTANT:

**Grease knifehead just enough to start a slight downward movement of knifehead. Over greasing will cause knife to heat at guards and cause undue loading.**

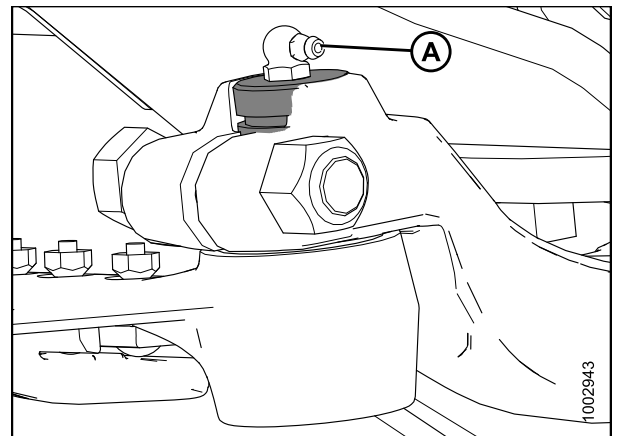


Figure 7.181

11. Align the knife drive box pulley with drive pulley. If adjustment is required, contact your MacDon Dealer.
12. Tighten knife drive box side bolts (A1) first, then the bottom bolts (A2). Torque to 200 ft·lbf (271 N·m).
13. Stroke the output arm to mid stroke, check and ensure there is no contact between the front of the guard and the knife back. If adjustment is required, contact your MacDon Dealer.
14. Install the knife drive belts onto the pulleys. For single and double knife headers, see Section [Tensioning Single and Double Knife Headers with Non-Timed Drive, page 276](#) for tensioning instructions. For double knife headers that are timed, you will also be required to check the knife timing, see Section [Double Knife Timed, page 276](#) for timing instructions.
15. Close endshield. See Section [Closing Endshields, page 43](#).

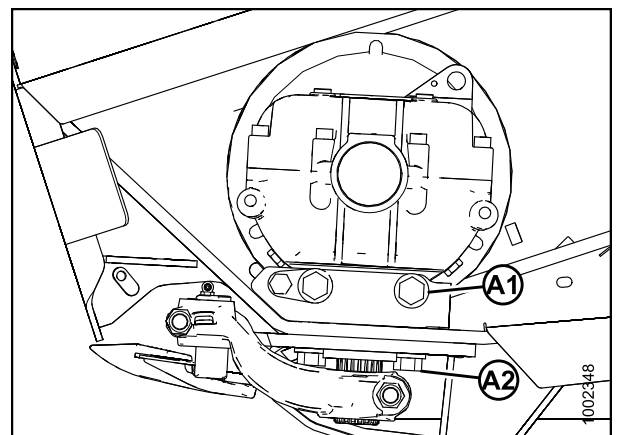


Figure 7.182

## MAINTENANCE AND SERVICING

### *Changing Oil in Knife Drive Box*

Change knife drive box lubricant after the first 50 hours of operation and every 1,000 hours (or 3 years) thereafter.

To change the oil in the knife drive box, follow these steps:

1. Raise header to allow a suitable container to be placed under the knife box drain to collect oil.
2. Open endshield(s). See Section [Opening Endshields](#), page 42.
3. Remove breather/dipstick (A) and drain plug (B).
4. Allow oil to drain.
5. Reinstall drain plug (B).
6. Add oil to knife drive box. See Section [7.2.2 Recommended Fluids and Lubricants](#), page 206 for quantity.
7. Close endshield(s). See Section [Closing Endshields](#), page 43.

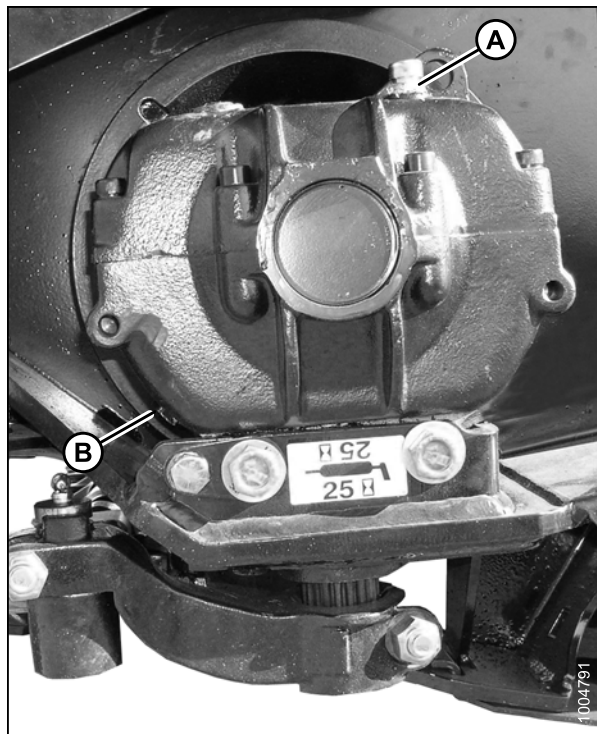


Figure 7.183

### 7.8.10 Knifehead Shield

The shield attaches to the endsheet and reduces the knifehead opening to prevent cut crop from accumulating in the knifehead cut-out creating plugging.

It is recommended that the shield(s) be installed when harvesting severely lodged crop or any crop condition where plugging occurs at the knifehead cutout.

The shield(s) and mounting hardware are available from your MacDon Dealer.

#### **IMPORTANT:**

**Shields should be removed when cutting with the cutterbar on the ground in muddy conditions. Mud may pack into the cavity behind the shield and cause knife drive box failures.**

## MAINTENANCE AND SERVICING

### *Installing Knifehead Shield*

The knifehead shield is supplied in flattened form and can be bent to suit installation on pointed or stub guard cutterbars and on double-knife headers. Shields are slightly different depending on header size and guard configuration. Ensure proper shield is used. See header parts catalog for proper replacement parts.

#### **DANGER**

**To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.**

1. Raise reel fully, lower header to ground, shut down combine, and remove key.

#### **WARNING**

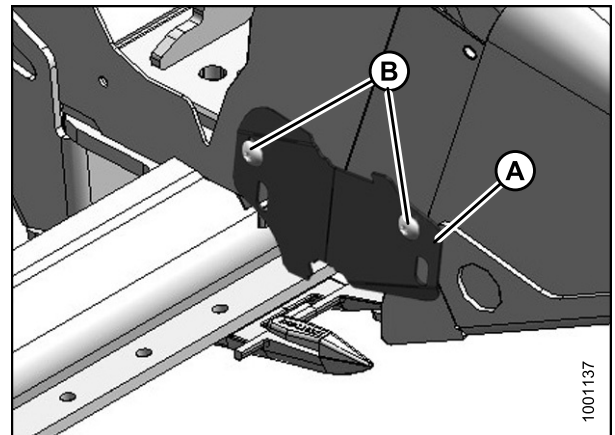
**To avoid bodily injury from fall of raised reel, always engage reel safety props before going under raised reel for any reason.**

2. Engage reel arm locks.

#### **CAUTION**

**Wear heavy gloves when working around or handling knives.**

3. Place knifehead shield (A) against endsheet as shown. Orient the shield so that cutout matches profile of knifehead and/or hold-downs.
4. Bend shield along slit to conform to endsheet.
5. Align mounting holes and then install two 3/8 in. x 1/2 Torx® head bolts (B).
6. Snug up bolts just enough so that shield can be adjusted as close as possible to the knifehead.
7. Manually rotate knife drive box pulley to move knife and check for areas of contact between the knifehead and shield.
8. If required, adjust shield to avoid interference with the knife.
9. Tighten bolts.



**Figure 7.184**

## 7.9 Adapter Feed Draper

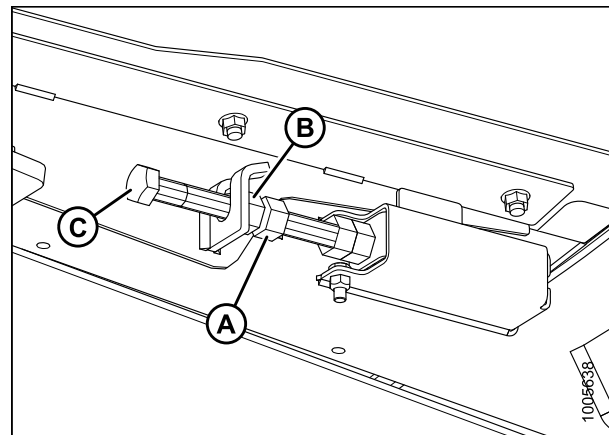
### CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to [Section 7.1 Preparation for Servicing, page 205](#).

### 7.9.1 Replacing Adapter Feed Draper

The draper should be replaced or repaired if it is torn, missing slats, or cracked.

1. If adapter is attached to combine and header, disconnect header. See [Section 5 Header Attachment/Detachment, page 113](#).
2. Raise header fully, stop engine and remove key. Engage header safety props.
3. To loosen draper tension, loosen jam nut (A) and then hold nut (B) with a wrench and turn bolt (C) counterclockwise to release tension. Do this to both sides.
4. Disengage header safety props and lower feeder house and adapter onto blocks to keep adapter slightly off the ground.
5. Remove the draper connector straps (A) along draper joint.
6. Pull draper from deck.

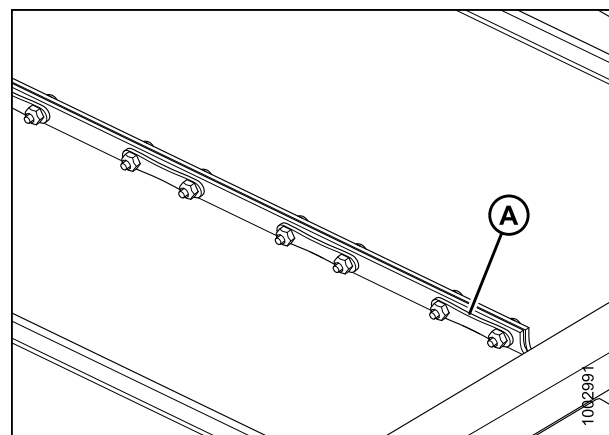


**Figure 7.185**

A - Jam nut

B - Nut

C - Bolt



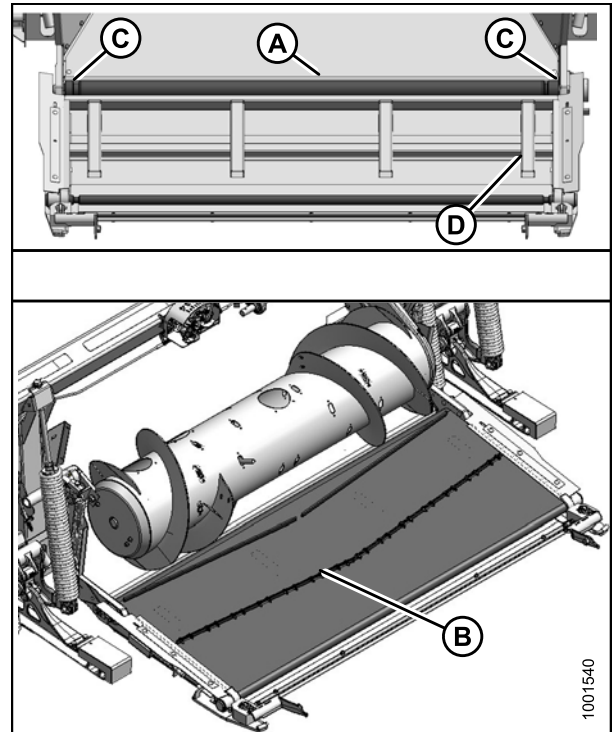
**Figure 7.186**



## MAINTENANCE AND SERVICING

7. Install new draper over drive roller (A) with chevron cleat (B) pointing to front of adapter. Make sure draper guides fit in drive roller grooves (C).
8. Pull draper along bottom of adapter deck and over draper supports (D).

**NOTE:** Check chevron pattern when installing, should look like a V going to the back towards the motor.



**Figure 7.187**

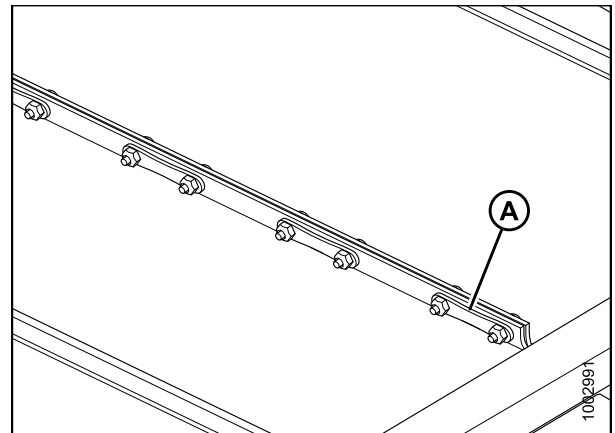
A - Drive roller

B - Chevron cleat

C - Drive roller grooves

D - Draper Supports

9. Connect draper joint with straps (A). Secure with nuts and screws. Screw heads should face toward rear of the deck. Tighten nuts so that end of screw is approximately flush with nut.
10. Adjust draper tension. See Section [7.9.2 Adjusting Feed Draper Tension](#), page 310.



**Figure 7.188**

## 7.9.2 Adjusting Feed Draper Tension

### **⚠ DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

### **⚠ CAUTION**

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

1. Raise header fully, stop engine, and remove key. Engage header safety props.
2. Check that draper guide (rubber track on underside of draper) is properly engaged in groove of drive roller and that idler roller is between the guides.
3. Loosen jam nut (A).
4. Hold nut (B) with a wrench and turn bolt (C) clockwise to increase tension and counterclockwise to decrease tension.

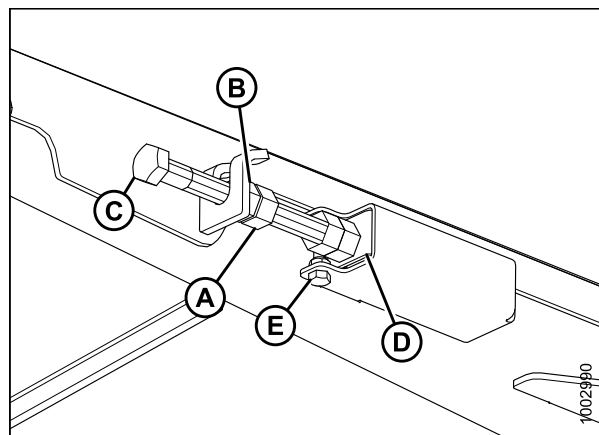
### **IMPORTANT:**

**Adjust both sides equal amounts.**

5. Correct tension is when retainer (D) is flush with spring holder, and bolt (E) is free.

**NOTE:** Draper tension should be just enough to prevent slipping, and keep draper from sagging below cutterbar.

6. Tighten jam nut (A).



**Figure 7.189**

A - Jam nut      B - Nut      C - Bolt  
D - Retainer      E - Bolt

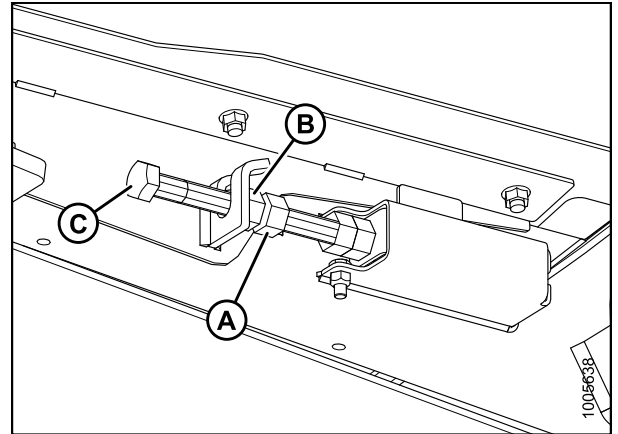
## 7.9.3 Adapter Drive Roller

### *Removing Adapter Feed Deck Drive Roller*

1. If adapter is attached to combine and header, disconnect header. See [Section 5 Header Attachment/Detachment, page 113](#).
2. Raise header fully, stop engine, and remove key. Engage header safety props.

## MAINTENANCE AND SERVICING

3. Loosen draper tension.
4. Loosen jam nut (A).
5. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Do this to both sides.



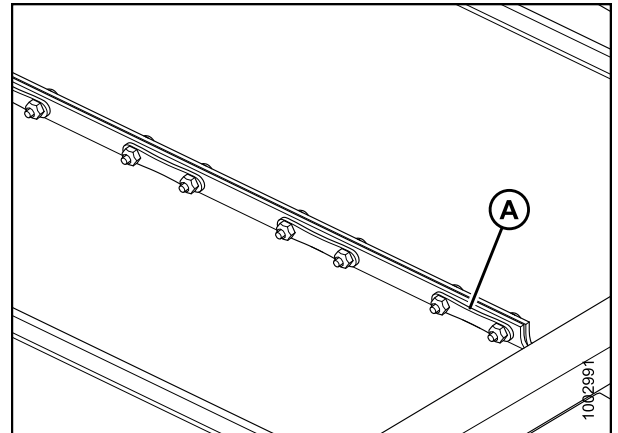
**Figure 7.190**

A - Jam nut

B - Nut

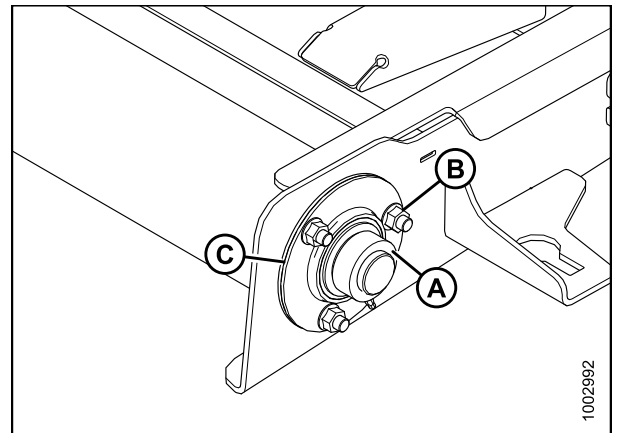
C - Bolt

6. Remove the draper connector straps (A) along the draper joint.
7. Open the draper.



**Figure 7.191**

8. Loosen setscrew and unlock the bearing lock collar (A).
9. Remove three bolts (B).
10. Remove bearing flangettes (C) and bearing.



**Figure 7.192: Rear RH View**

## MAINTENANCE AND SERVICING

11. Remove four bolts (A) that secure motor (B) to the frame. Slide motor (B) away from the drive roller.
12. Remove roller (C).

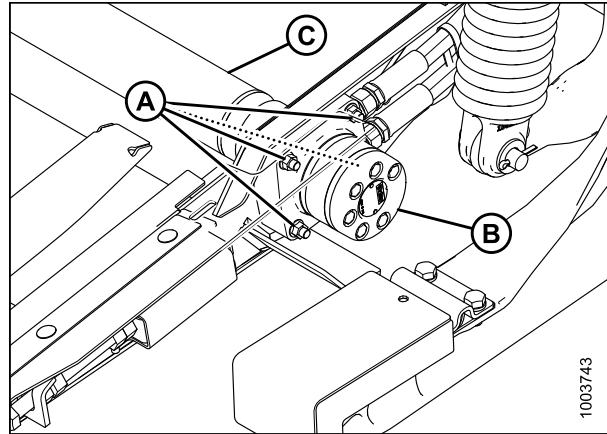


Figure 7.193: Rear LH View

### *Installing Adapter Feed Deck Drive Roller*

1. Install roller (C).
2. Slide motor (B) into the drive roller. Secure the motor to the feed deck with four bolts (A).

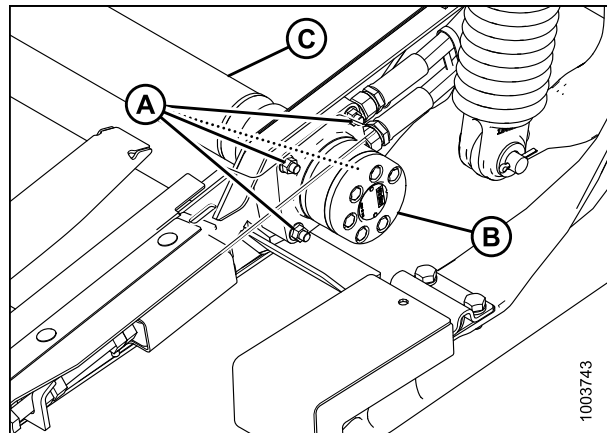


Figure 7.194: Rear LH View

3. Install bearing flangettes (C) and new bearing.
4. Install three bolts (B), to secure bearing and flangettes to the feed deck.
5. Lock bearing collar (A) and tighten setscrew.
6. Install the feed deck draper. See [Section 7.9.1 Replacing Adapter Feed Draper, page 308](#).
7. Tension the feed draper, see [Section 7.9.2 Adjusting Feed Draper Tension, page 310](#).
8. Attach the header to the adapter. See [Section 5 Header Attachment/Detachment, page 113](#) for procedure.

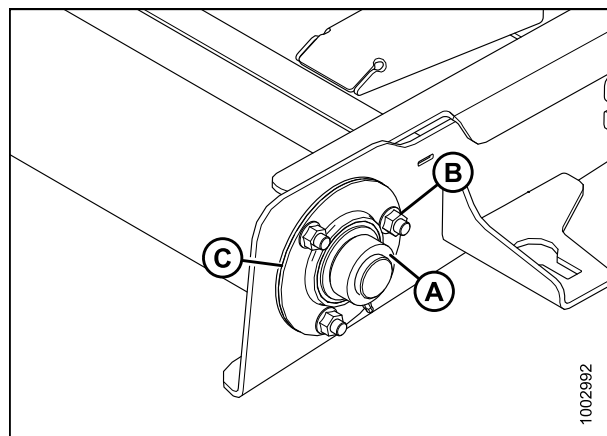


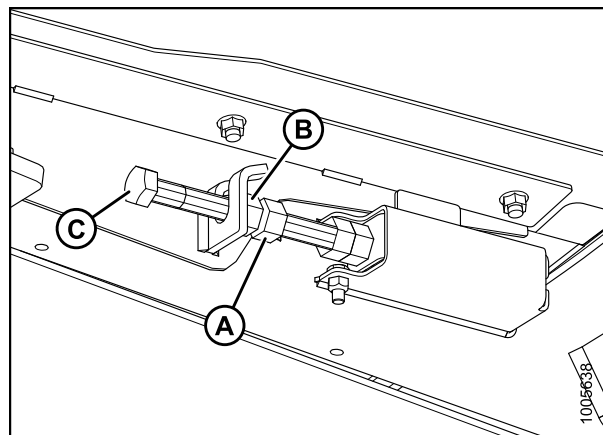
Figure 7.195: Rear RH View

## MAINTENANCE AND SERVICING

### *Replacing Adapter Drive Roller Bearing*

#### **Removing Adapter Feed Deck Drive Roller Bearing**

1. Remove the header from the adapter. See Section [5 Header Attachment/Detachment](#), page 113 for procedure.
2. Leave adapter attached to combine. Engage the feeder house safety props.
3. Loosen belt tension.
4. Loosen jam nut (A).
5. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Do this to both sides.



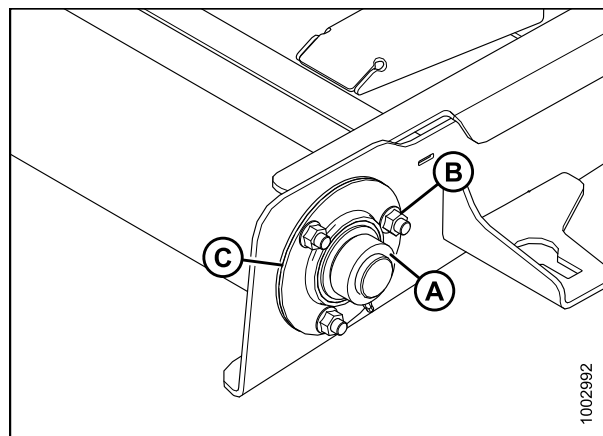
**Figure 7.196**

A - Jam nut

B - Nut

C - Bolt

6. Loosen setscrew and unlock the bearing lock collar (A).
7. Remove three bolts (B)
8. Remove bearing flangettes (C) and bearing.



**Figure 7.197: Rear RH View**

## MAINTENANCE AND SERVICING

### Installing Adapter Feed Deck Drive Roller Bearing

1. Install bearing flangettes (C) and new bearing.
2. Install three bolts (B), to secure bearing and flangettes to the feed deck.
3. Lock bearing collar (A) and tighten setscrew.
4. Tension the feed draper, See Section [7.9.2 Adjusting Feed Draper Tension](#), page 310
5. Attach the header to the adapter. See Section [5 Header Attachment/Detachment](#), page 113 for procedure.

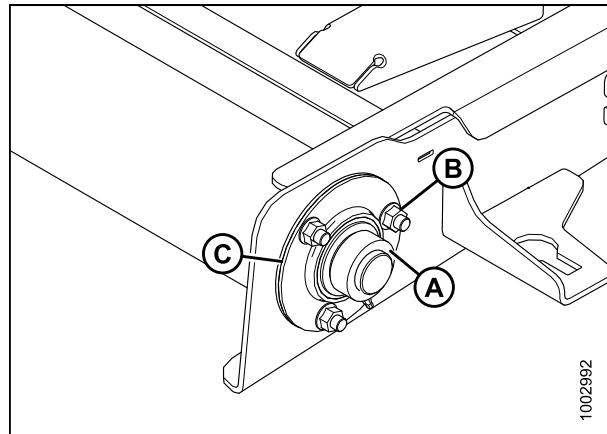


Figure 7.198: Rear RH View

### 7.9.4 Adapter Idler Roller

#### *Removing Adapter Feed Deck Idler Roller*

LH side shown:

1. Remove the header from the adapter. See Section [5 Header Attachment/Detachment](#), page 113.
2. Leave adapter attached to combine. Engage the feeder house safety props.
3. Loosen belt tension
4. Loosen jam nut (A).
5. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Do this to both sides.

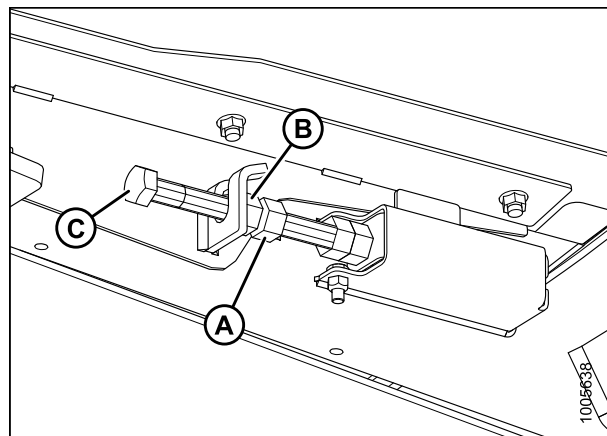


Figure 7.199

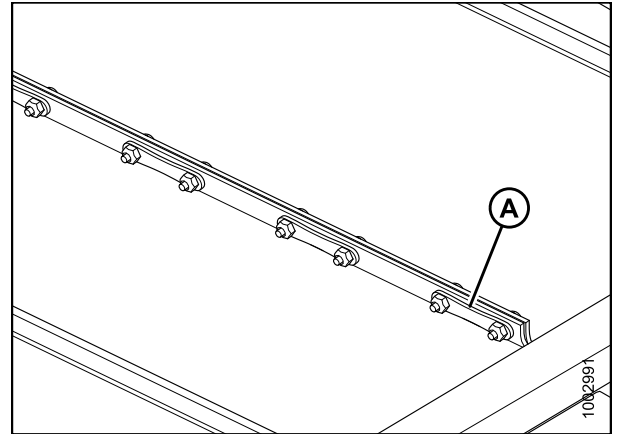
A - Jam nut

B - Nut

C - Bolt

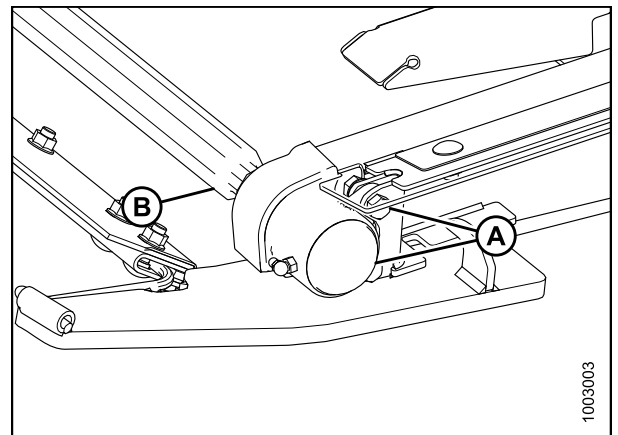
## MAINTENANCE AND SERVICING

6. Remove all of the draper connector straps (A).
7. Open the feed draper.



**Figure 7.200**

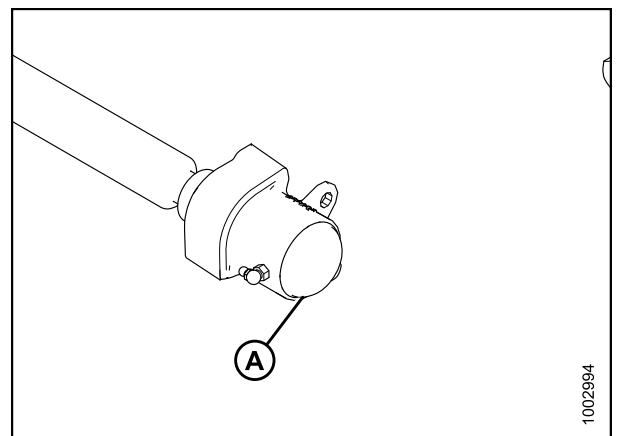
8. Remove two bolts (A). Do this to both ends of the idler roller.
9. Remove the idler roller assembly (B).



**Figure 7.201**

### *Replacing Adapter Feed Deck Idler Roller Bearing*

1. Remove dust cap (A).



**Figure 7.202**

## MAINTENANCE AND SERVICING

2. Remove nut (A).
3. Using a hammer, tap the bearing assembly (B) until it slides off the shaft.

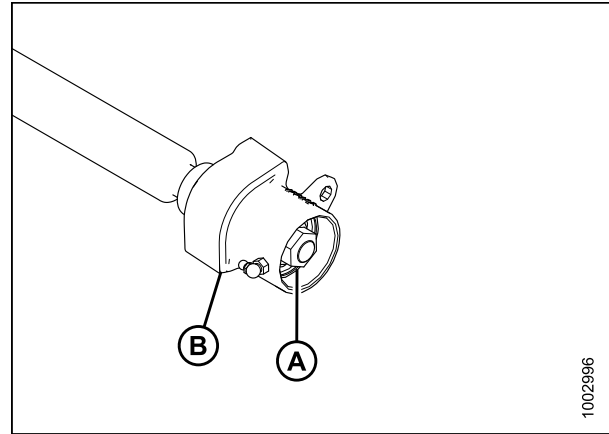


Figure 7.203

4. Secure the housing (D) and remove the internal retaining ring (A), bearing (B) and two seals (C).
5. Install seals into casting (D).

**NOTE:** Flat side of seal should be facing inboard.

6. Brush shaft with oil. Carefully rotate the housing (D) with seals (C) onto the shaft by hand to prevent seal damage.
7. Install bearing (B).
8. Install retaining ring (A).

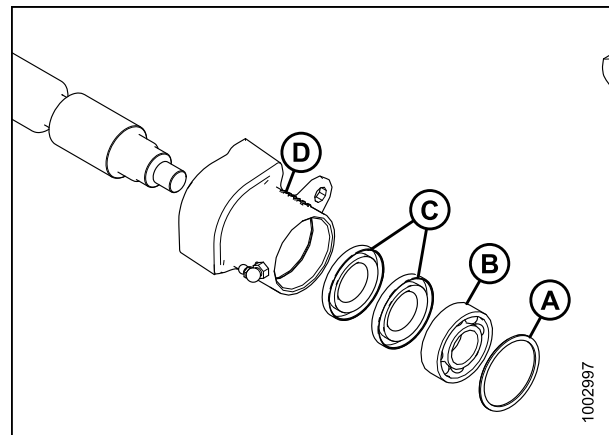


Figure 7.204

9. Install nut (A) to secure the bearing assembly to the shaft.
10. Install the dust cap (B).
11. Pump grease into bearing assembly.

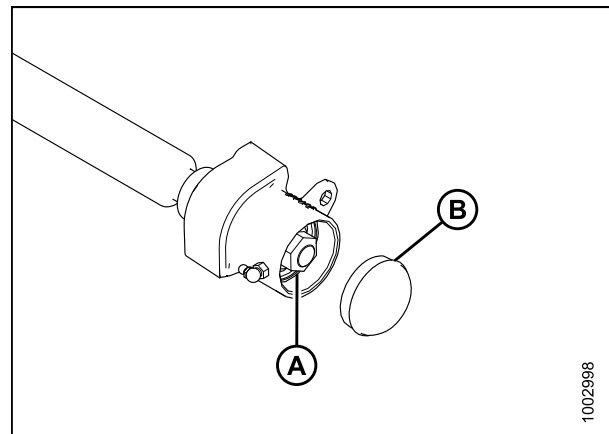


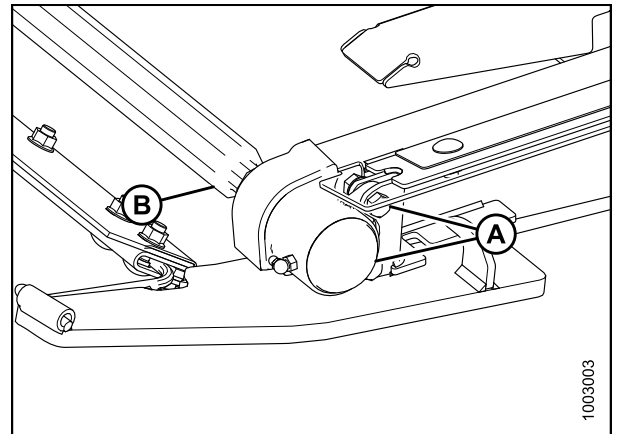
Figure 7.205



## MAINTENANCE AND SERVICING

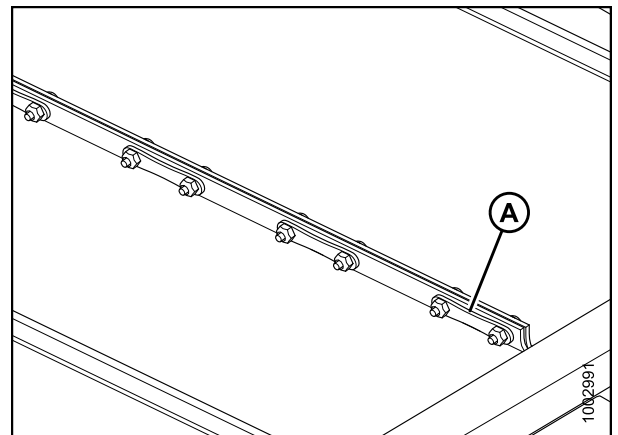
### *Installing Adapter Feed Deck Idler Roller*

1. Install the idler roller assembly (B).
2. Install two bolts (A). Do this to both ends of the idler roller.



**Figure 7.206**

3. Close the feed draper
4. Install all of the draper connector straps (A).
5. Tension the feed draper. See [Section 7.9.2 Adjusting Feed Draper Tension, page 310](#)
6. Attach the header to the adapter. See [Section 5 Header Attachment/Detachment, page 113](#).



**Figure 7.207**

### 7.10 Header Drapers

The draper should be replaced or repaired if it is torn, missing slats, or cracked.

#### 7.10.1 Removing Side Draper

To remove a side draper, follow these steps.

#### WARNING

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

1. Raise reel and engage reel safety props.
2. Raise header and engage safety props.
3. Stand in draper opening or on combine feed draper and move draper until draper joint is in work area.

**NOTE:** Deck can also be shifted towards center to provide opening at endsheet.

4. Release tension on the draper. Refer to [Section 7.10.3 Adjusting Side Draper Tension, page 320](#).
5. Remove nuts (A) and tube connectors (B) at the draper joint.
6. Pull draper from deck.

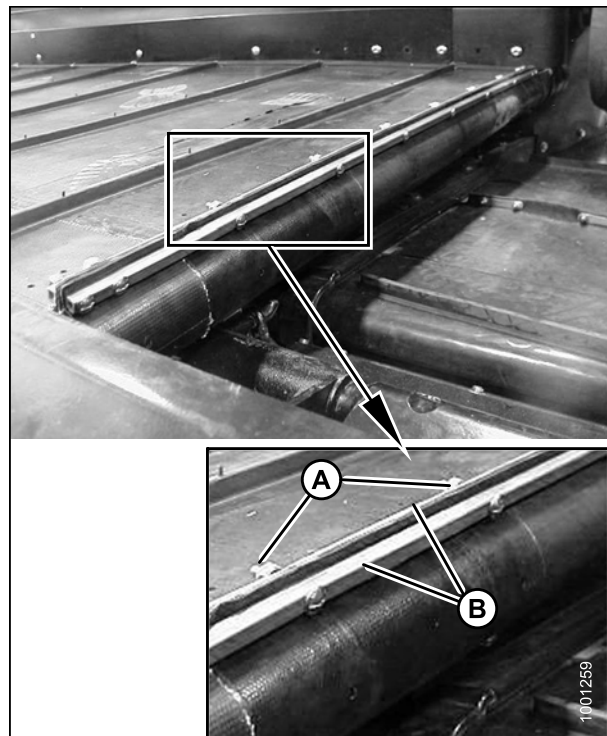


Figure 7.208

## 7.10.2 Installing Side Draper

To install a header draper, follow these steps:

### WARNING

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

**NOTE:** Check deck height before installing draper's. See Section [7.10.5 Adjusting Deck Height](#), page 322.

1. Apply talc (baby powder) or talc/graphite lubricant mix to the draper surface that forms the seal with the cutter bar and to the underside draper guides.
2. Insert draper into deck at outboard end, under the rollers. Pull draper into deck while feeding it at the end.
3. Feed in the draper until it can be wrapped around the drive roller.
4. Similarly, insert the other end into the deck over the rollers. Pull draper fully into the deck.
5. Attach ends of draper with tube connectors (B).
6. Install screws (A) with heads facing the center opening.
7. Adjust tension. See Section [7.10.3 Adjusting Side Draper Tension](#), page 320.
8. Check for tight spots between the drapers and the cutter bar, adjust the deck if necessary (there will be between a 1–2 mm gap between the cutter bar and the draper). If more adjustment is required, see Section [7.10.5 Adjusting Deck Height](#), page 322.



Figure 7.209

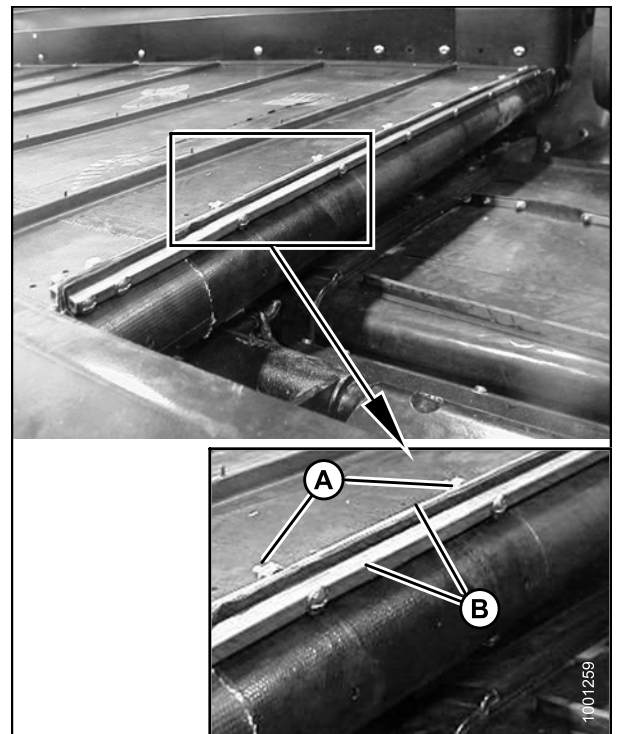


Figure 7.210

## MAINTENANCE AND SERVICING

- Run the header empty with the engine at idle so the talc or talc/graphite lubricant will contact and adhere to the necessary draper surfaces

### 7.10.3 Adjusting Side Draper Tension

Draper tension should be just enough to prevent slipping, and to keep the draper from sagging below the cutterbar.

### 7.10.4 Adjusting Header Draper Tracking

Each draper deck has one fixed roller and one spring-loaded roller. The spring-loaded roller is located at the same end of the deck as the draper tensioner. Both rollers can be aligned by adjuster rods so that the draper tracks properly on the rollers.

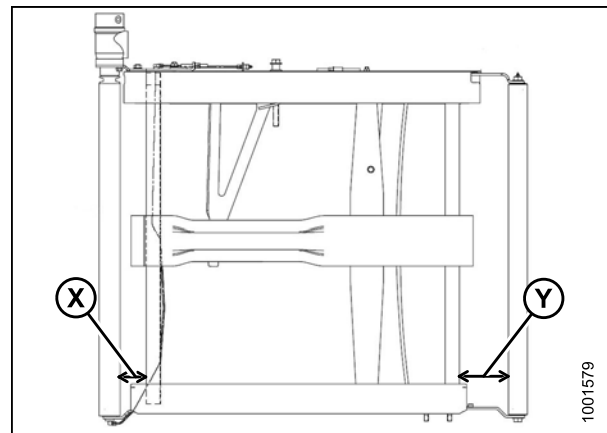
#### CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to Section 7.1 Preparation for Servicing, page 205.

If the draper is tracking incorrectly, make the following adjustments to the rollers:

**Table 7.14 Header Draper Tracking**

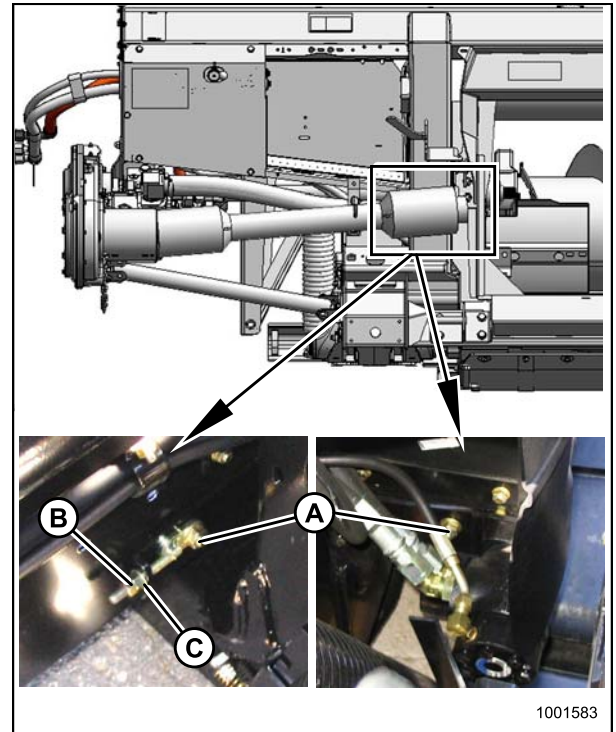
Tracking	At location	Adjustment	Method
Backward	Drive Roller	Increase 'X'	Tighten nut (C)
Forward		Decrease 'X'	Loosen nut (C)
Backward	Idler Roller	Increase 'Y'	Tighten nut (C)
Forward		Decrease 'Y'	Loosen nut (C)



**Figure 7.211: Adjustment location**

## MAINTENANCE AND SERVICING

1. Adjust the **drive** roller 'X' (shown in Figure 7.211: [Adjustment location, page 320](#)) by loosening nuts (A), jam nut (B) on adjuster rod and turning the adjusting nut (C).



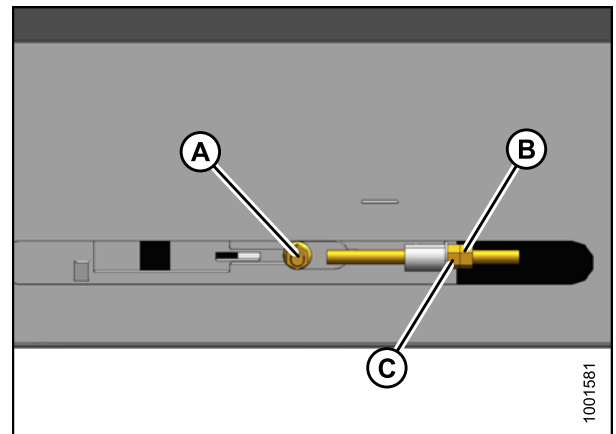
**Figure 7.212: Adjust LH drive roller 'X'**

A - Nuts

B - Jam nut

C - Adjusting nut

2. Adjust the **idler** roller 'Y' (shown in Figure 7.211: [Adjustment location, page 320](#)) by loosening nut (A), jam nut (B) on adjuster rod and turning adjusting nut (C).
3. If the draper will **NOT** track at the idler roller end, the drive roller is likely not square to the deck. Adjust the drive roller and then readjust the idler.



**Figure 7.213: Adjust LH idler roller 'Y'**

A - Nut

B - Jam nut

C - Adjusting nut

## 7.10.5 Adjusting Deck Height

To prevent material from entering drapers and cutterbar, maintain deck height so that draper runs just below cutterbar with maximum 1/32 in. (1 mm) gap, or with draper deflected down slightly (up to 1/16 in. [1.5 mm]) to create a seal.

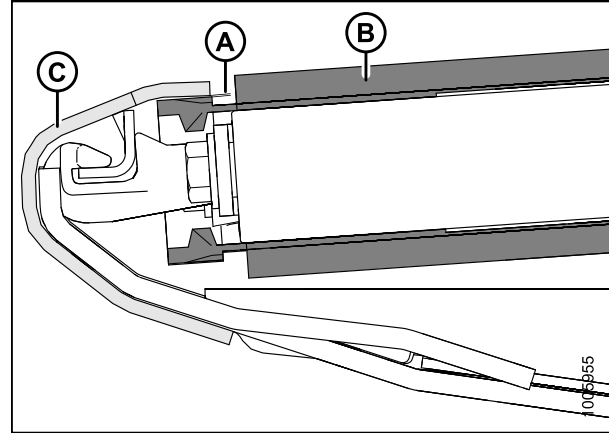
**NOTE:** Measurement is at supports with header in working position and decks slid fully ahead.

### WARNING

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

### DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.



**Figure 7.214: Draper removed for clarity**

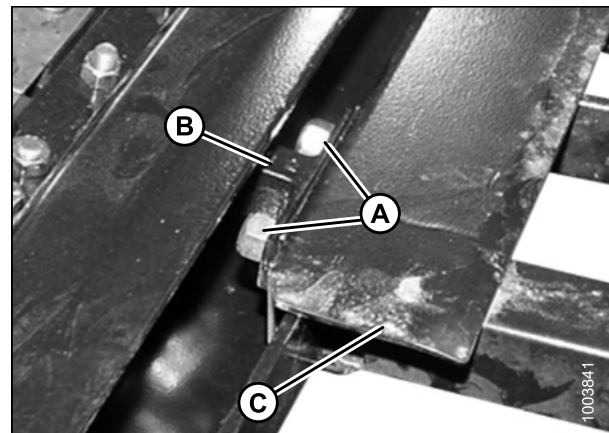
A - Gap (draper to cutterbar) B - Draper C - Cutterbar

To adjust deck height, follow these steps:

1. Loosen tension on draper. See Section [7.10.3 Adjusting Side Draper Tension](#), page 320.
2. Lift draper up at front edge past cutterbar.
3. Loosen two lock nuts (A). **ONE HALF TURN ONLY** on deck support (B).

**NOTE:** The size of the header will determine how many supports there are 30–45 ft. = 8

4. Tap deck (C) to lower deck relative to supports to achieve setting recommended above. Tap support (B) using a punch to raise deck relative to support.

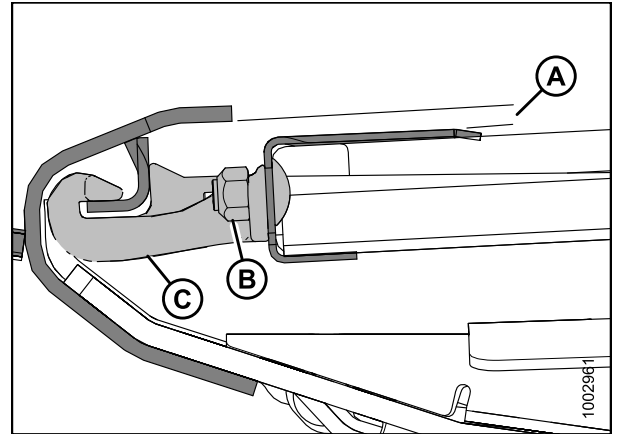


**Figure 7.215: Draper removed for clarity**

A - Lock nuts B - Deck support C - Deck

## MAINTENANCE AND SERVICING

5. Tighten deck support hardware (B).
6. Check dimension (A) again it should be set to 5/16–3/8 in. (8–9 mm).
7. Tension draper. See Section [7.10.3 Adjusting Side Draper Tension](#), page 320.



**Figure 7.216: Draper removed for clarity**

A - 5/16-3/8 in. (8-9 mm)

B - Lock nut

C - Deck support

### 7.10.6 Draper Roller Maintenance

The draper rollers have non-greaseable bearings. The external seal should be checked every 200 hours (and more frequently in sandy conditions) to obtain the maximum bearing life.

#### *Inspecting Draper Roller Bearing*

Procedure to inspect draper roller bearings.

1. If you suspect that you have a bad bearing in one of the draper rollers, a quick way to check is using an infrared thermometer.
2. Engage header and run for approximately 3 minutes.
3. Check each of the roller arms, they should not exceed 80°F (27°C) above ambient temperature.

#### *Side Draper Deck Idler Roller*

##### **Removing Side Draper Deck Idler Roller**

1. Shut OFF header. Raise the reel until the safety props can be engaged, then raise the header until the combine safety prop can be engaged

**NOTE:** If draper connector is not visible on the header, engage the header until the connector on the side you are working is visible.

## MAINTENANCE AND SERVICING

2. On the back of the draper deck on both end of the header, there is a bolt for tensioning the draper. Locate bolt (A) on the side you will be changing, turn bolt counterclockwise to loosen draper. Once bolt is loose, push the roller assembly inboard, this will ensure the draper is loose.
3. Uncouple the connector slat that joins the draper together.

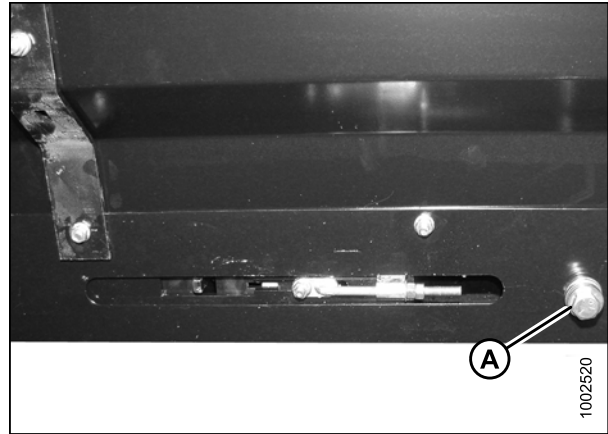


Figure 7.217

4. Slide idler roller assembly (A) out of the draper deck (B) channels.

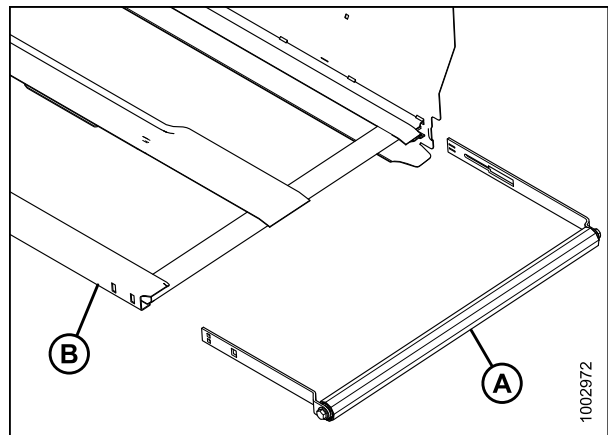


Figure 7.218

5. Remove the two end bolts (A) that hold the roller to the idler arms.
6. Remove the seal (B).
7. Use a slide hammer to remove bearing (C) from the roller.

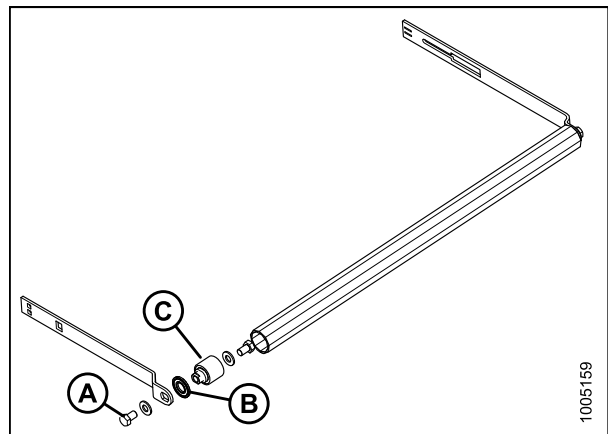


Figure 7.219



## MAINTENANCE AND SERVICING

### Replacing Side Draper Deck Idler Roller Bearing

1. Remove the two end bolts (A) that hold the roller to the idler arms.
2. Remove seal (B).
3. Use a slide hammer to remove the bearing (C) from the roller.

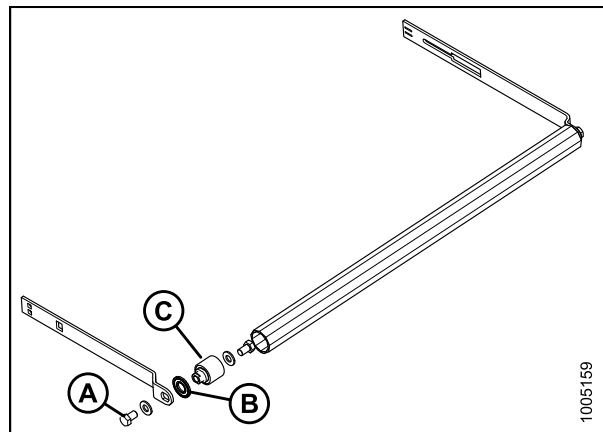


Figure 7.220

4. Install new bearing (C) by pressing on the outer race of the bearing into the tube. From the outside edge of the tube, bearing must be pressed in (B) 0.55–0.59 in. (14–15 mm).

**NOTE:** Before installing new seal, fill area (A) with 8 cc of grease.

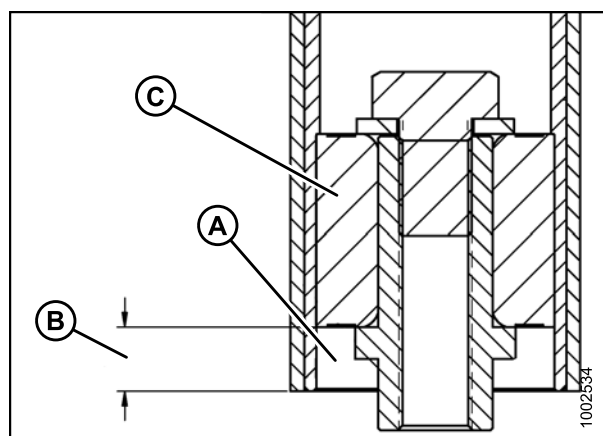


Figure 7.221

B- 0.51–0.55 in.. (14–15 mm)

5. Install new seal (A) by pressing on the inner and outer race of the seal. From the outside edge of the tube, the seal must be pressed in (B) 0.12–0.16 in. (3–4 mm).

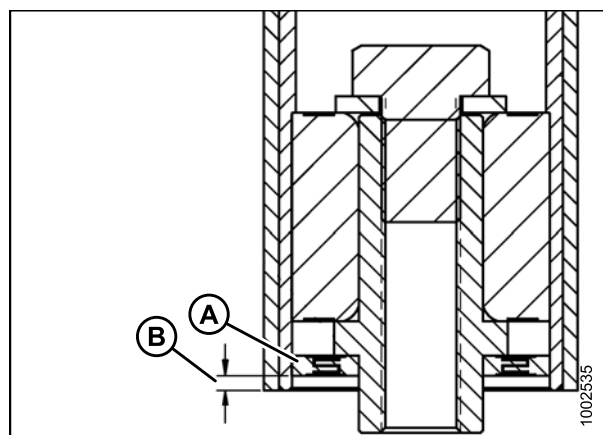


Figure 7.222

B- 0.12–0.16 in.. (3–4 mm)

## MAINTENANCE AND SERVICING

6. Install the idler roller (A) between the idler arms. Install the two bolts (B) that hold roller to the arms. Torque bolts to 70 ft-lbf (95 N·m).

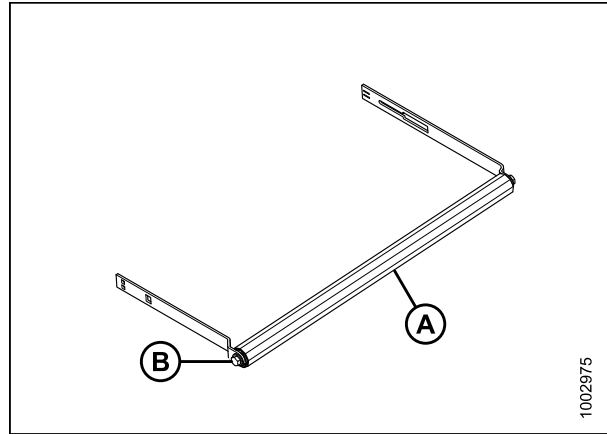


Figure 7.223

### Installing Side Draper Deck Idler Roller

1. Install the idler roller (A) into the channels on the feed deck (B).
2. Connect the ends of the draper together with the connector slat.

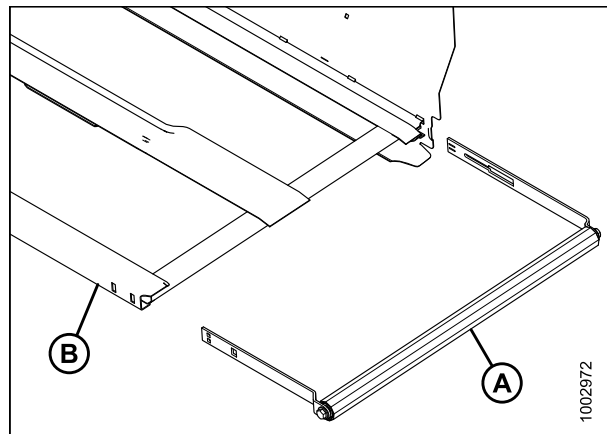


Figure 7.224

3. Tension the draper, locate bolt (A) and follow the directions on the decal for proper draper tensioning.
4. Disengage the reel safety props and header safety props. Lower header to the ground and verify that the draper tracks correctly.

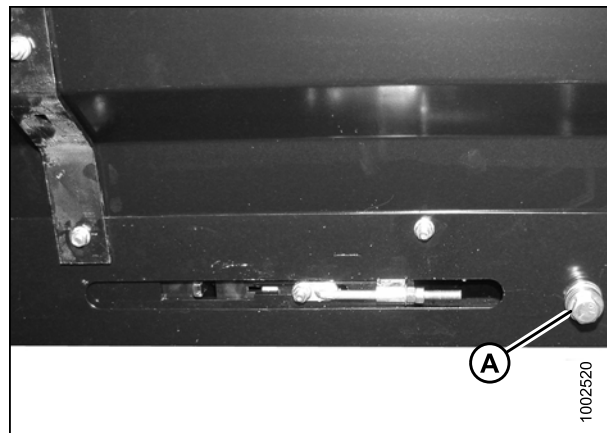


Figure 7.225

## Side Draper Deck Drive Roller

### Removing Side Draper Deck Drive Roller

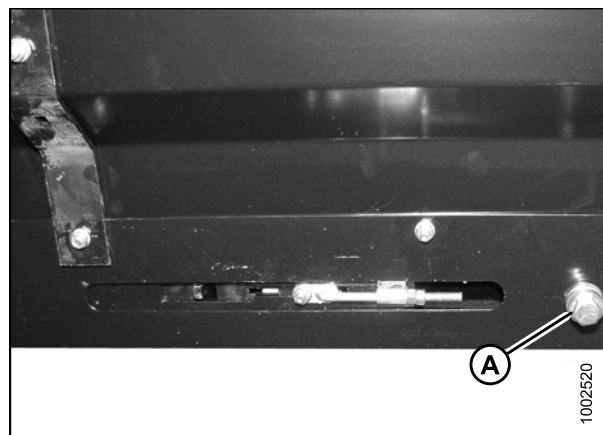
#### **DANGER**

**Engage header safety props and reel props before working under header or reel.**

1. Shut OFF header. Raise the reel until the safety props can be engaged, then raise the header until the combine safety props can be engaged.

**NOTE:** If draper connector is not visible on the header, engage the header until the connector on the side you are working is visible.

2. On the back of the deck assembly outboard end, there is a bolt for tensioning the draper, locate the bolt (A) on the side you will be changing and loosen the draper.
3. Uncouple the connector slat that joins the draper together.



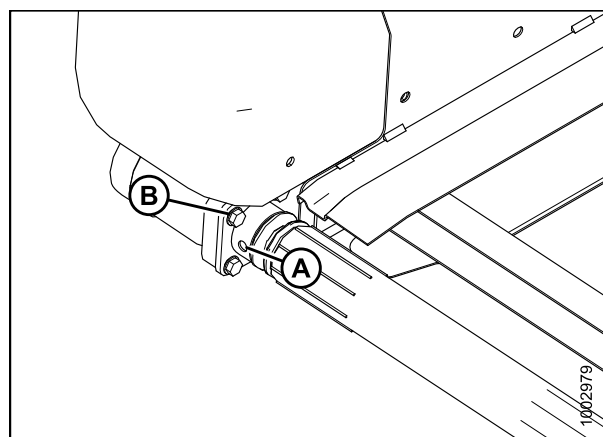
**Figure 7.226**

4. Line up the setscrews with the hole (A) in the guard. Remove the two setscrews that hold the motor onto the drive roller.

**NOTE:** The setscrews are a 1/4 turn apart.

5. Remove the four bolts (B) that hold motor to the drive roller arm.

**NOTE:** You may need to remove the plastic shield to gain access to the top bolt.



**Figure 7.227**

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6. Remove bolt (A) that secures the other end of the drive roller (B) to the support arm.
7. Remove the drive roller (B).

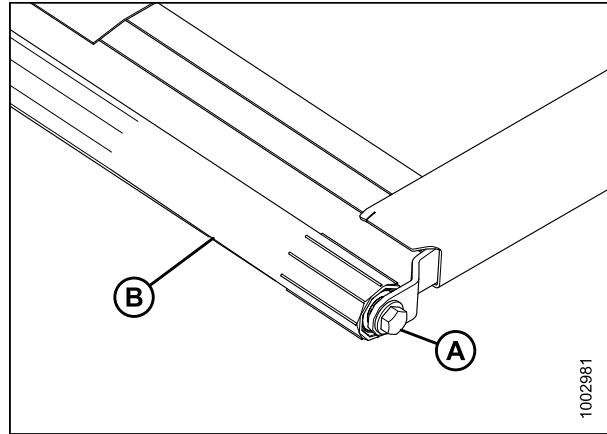


Figure 7.228

### Replacing Side Draper Deck Drive Roller Bearing

1. Remove seal (A).
2. Use a slide hammer to remove bearing (B) from the drive roller (C).

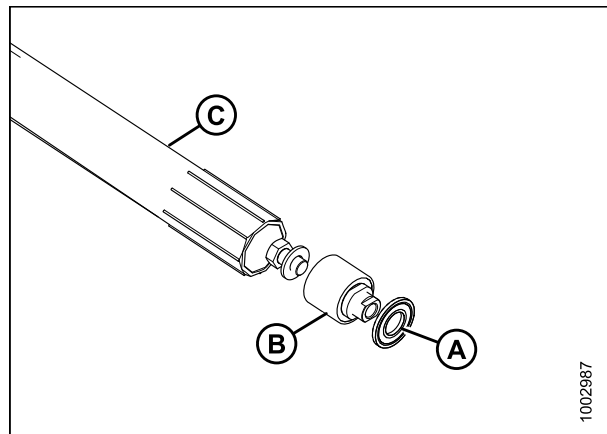


Figure 7.229

3. Install new bearing (C) by pressing on the outer race of the bearing into the tube. From the outside edge of the tube, bearing must be pressed in (B) 0.55–0.59 in. (14–15 mm).

**NOTE:** Fill area (A) with 8 cc of grease before installing new seal.

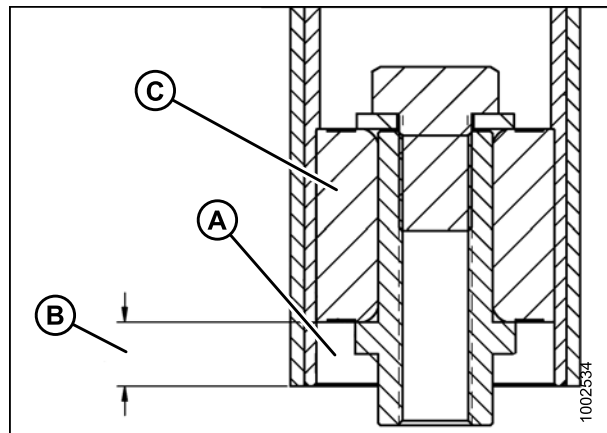


Figure 7.230

B - 0.51–0.55 in. (14–15 mm)

## MAINTENANCE AND SERVICING

4. Install the new seal (A) by pressing on the inner and outer race of the seal. From the outside edge of the tube, the seal must be pressed in (B) 0.12–0.16 in. (3–4 mm).

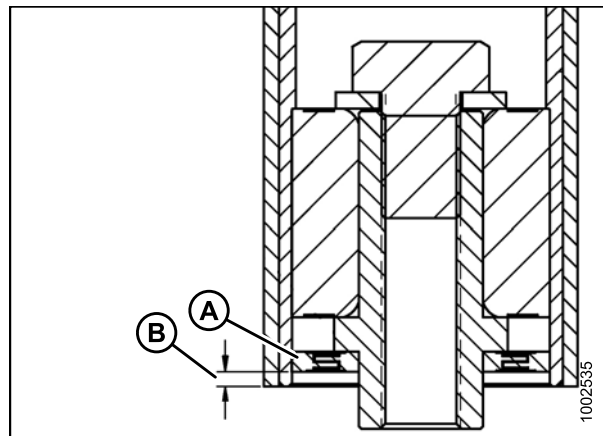


Figure 7.231

A - Seal

B - 0.12–0.16 in. (3–4 mm)

### Installing Side Draper Deck Drive Roller

**NOTE:** Motor with two bolts shown during installation, may have four bolts.

1. Install the drive roller (B) between the roller support arms. Install bolt (A) that holds the drive roller to the arm closest to the cutterbar. Torque bolt to 70 ft·lbf (95 N·m).
2. Grease motor shaft and insert into the end of the drive roller.

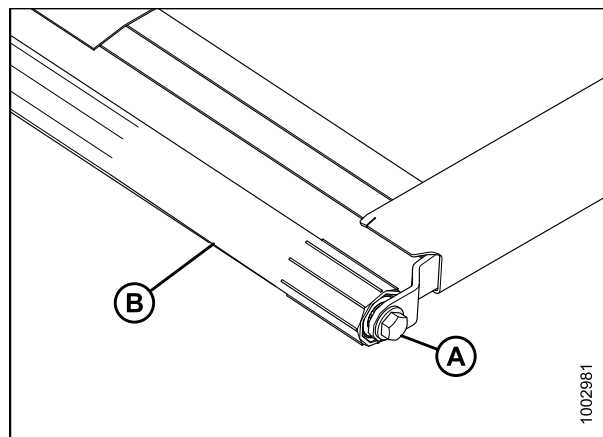


Figure 7.232

3. Secure motor to the roller support using four bolts (A). Torque to 20 ft·lbf (27 N·m).

**NOTE:** Tighten any loosened bolt and reinstall plastic shield, if removed.

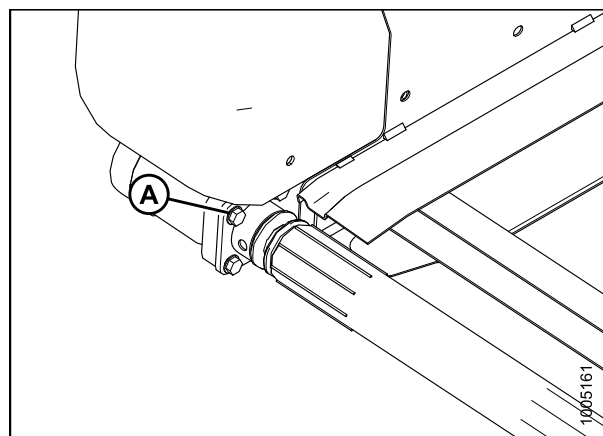
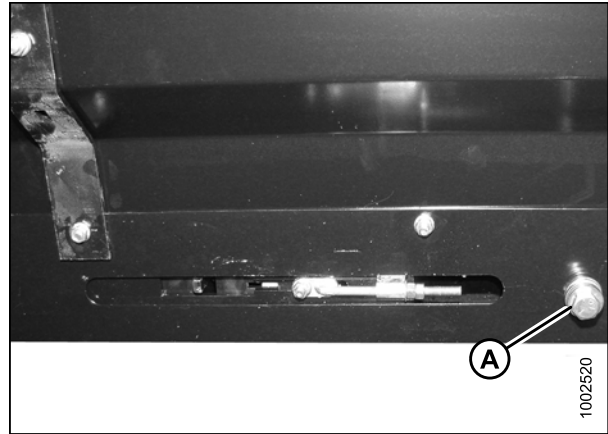


Figure 7.233

## MAINTENANCE AND SERVICING

4. Connect the ends of the draper together with the connector slat.
5. Tension the draper, locate bolt (A), and follow the directions on the decal for proper draper tensioning.
6. Disengage the reel and header safety props. Lower header to the ground and verify that the draper tracks correctly. If adjustment is required, See Section [7.10.4 Adjusting Header Draper Tracking](#), page 320.



**Figure 7.234**

## 7.11 Reel and Reel Drive

### CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to Section 7.1 Preparation for Servicing, page 205.

### 7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar

Header width (ft.)	'X' +/- 0.12 in. (3 mm) at reel ends and flex locations
	Double reel
30 ft.	3/4 in. (20 mm)
35 ft.	3/4 in. (20 mm)
40 ft.	3/4 in. (20 mm)
45- ft.	3/4 in. (20 mm)

#### *Measuring Reel Clearance*

To measure the finger-to-guard/cutterbar clearance, follow these steps:

### DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.

1. Park header on level ground.
2. Move spring handles (A) down to unlock position.

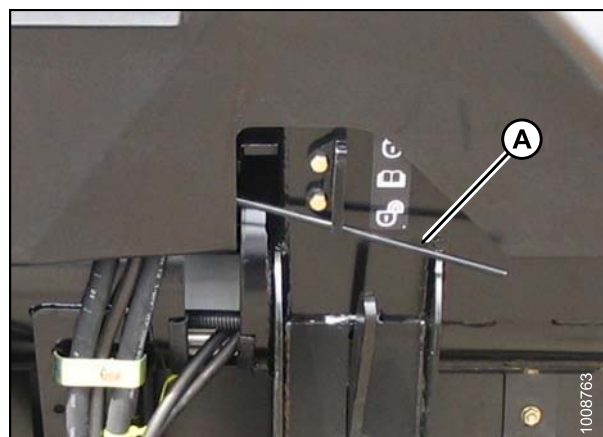
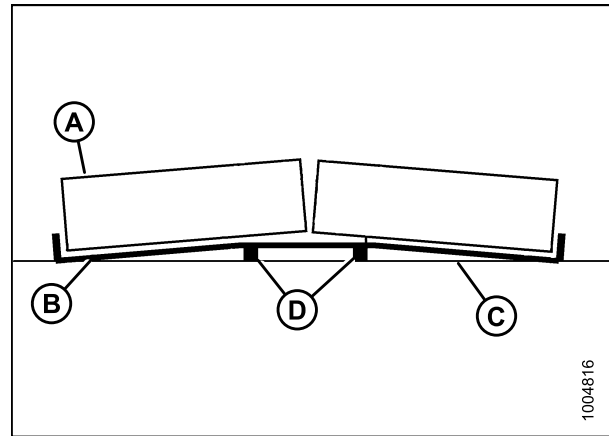


Figure 7.235: Unlock Position (Lower Slot)

## MAINTENANCE AND SERVICING



**Figure 7.236**

A - Reel  
B - Cutterbar  
C - Level Ground  
D - 6 in (150 mm) Blocks  
E - Locations to Measure

### *Adjusting Reel Clearance*

To adjust reel clearance, follow these steps.

#### **DANGER**

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See your combine operator's manual for instructions for use and storage of header safety props.



### 7.11.2 Reel Frown

The reel has been adjusted at the factory to provide more clearance at the center of the reel than at the ends ('frown') to compensate for reel flexing.

The frown is adjusted by repositioning the hardware connecting reel finger tube arms to reel discs. The frown adjustment compensates for reel flexing.

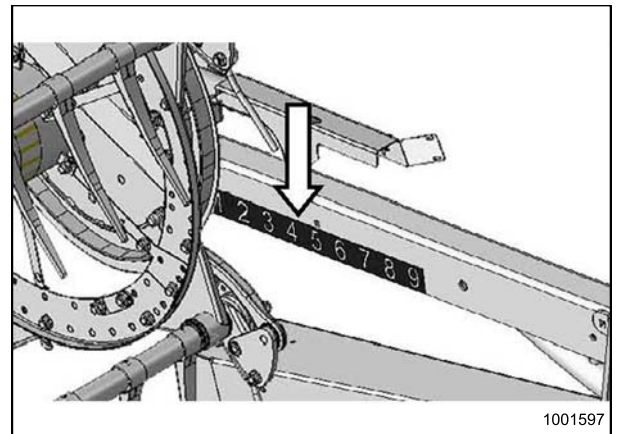
#### *Adjusting Reel Frown*

To adjust the reel frown, follow these steps:

#### **IMPORTANT:**

**The frown profile should be measured prior to reel disassembly for servicing so that the profile can be maintained after reassembly.**

1. Position the reel over the cutterbar (between '4' and '5' on the gauge). This position provides adequate clearance at all reel fore-aft positions.
2. Record a measurement at each reel disc location for each reel tube.

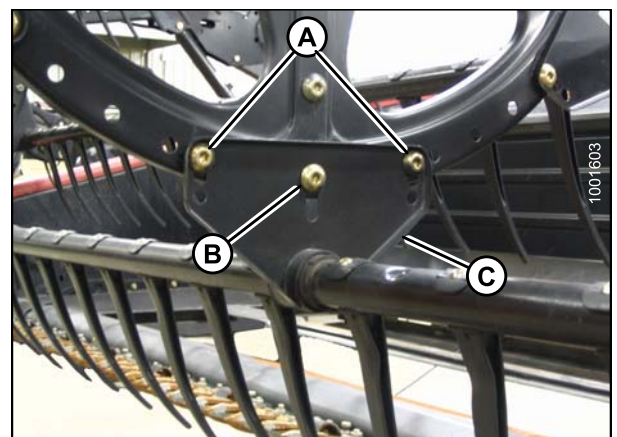


**Figure 7.237: Arm decal**

3. Adjust the profile as follows: Start with the reel disc set closest to center of header and proceed to the ends.
  - a. Remove bolts (A).
  - b. Loosen bolt (B) and adjust arm (C) until desired measurement is obtained between reel tube and cutterbar.

**NOTE:** Allow the reel tubes to find a natural curve and position the hardware appropriately.

- c. Reinstall bolts (A) in aligned holes and tighten.



**Figure 7.238**

## MAINTENANCE AND SERVICING

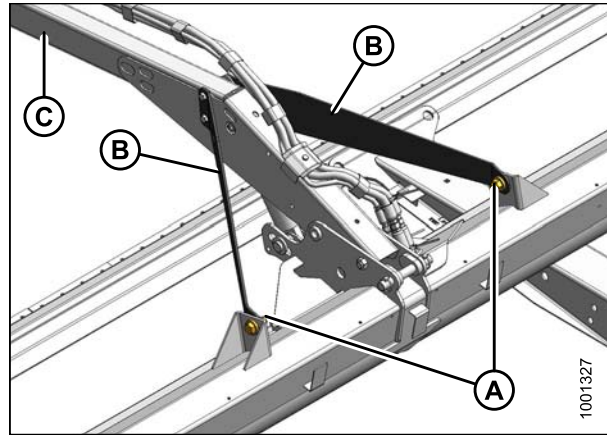
### 7.11.3 Reel Centering

The reel(s) should be centered between the endsheets.

#### *Centering Double Reels*

To center the reels, follow these steps:

1. Place the header in a full smile. Raise the header enough to put 6 in. blocks under the outboard skid shoes. Lower the header slowly to force it into a full smile.
2. Loosen bolt (A) on each brace (B).
3. Move forward end of reel center support arm (C) laterally as required to center both reels.
4. Tighten bolts (A) and torque to 265 ft-lbf (359 N·m).



**Figure 7.239: Double reel header**

A - Bolts

B - Brace

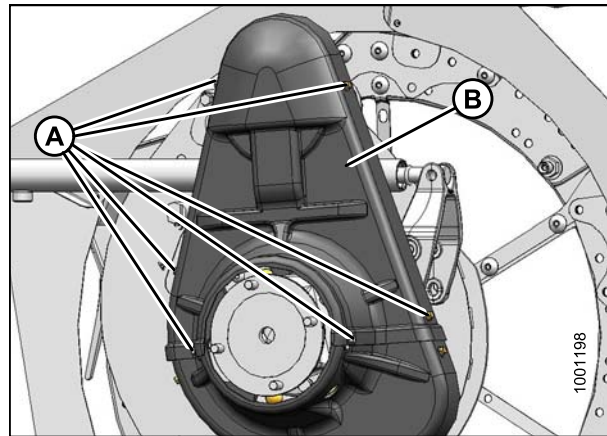
C - Reel Center Support Arm

### 7.11.4 Reel Drive Chain

#### *Adjusting Chain Tension on Double Reel Drive*

To adjust the tension on the reel drive chain, follow these steps:

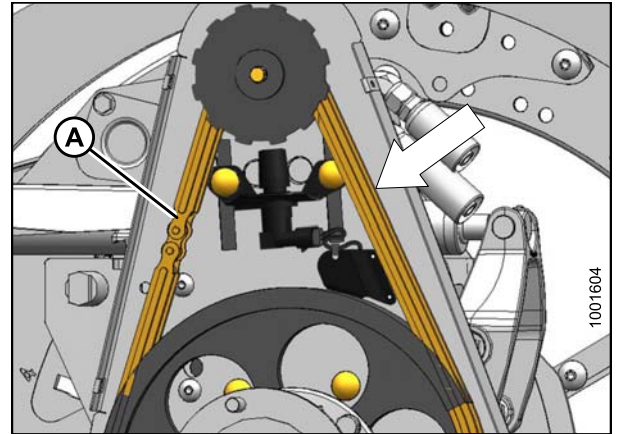
1. Lower header and reel and engage reel safety props.
2. Shut down and remove key from ignition.
3. Remove six screws (A) and then remove upper drive cover (B).



**Figure 7.240: Remove upper drive cover**

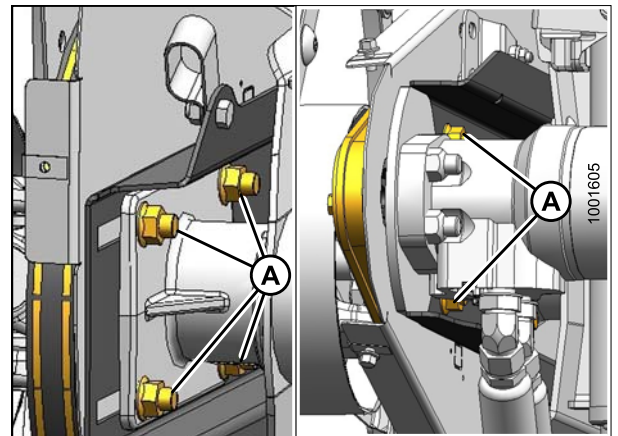
## MAINTENANCE AND SERVICING

4. Tension on chain (A) should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.



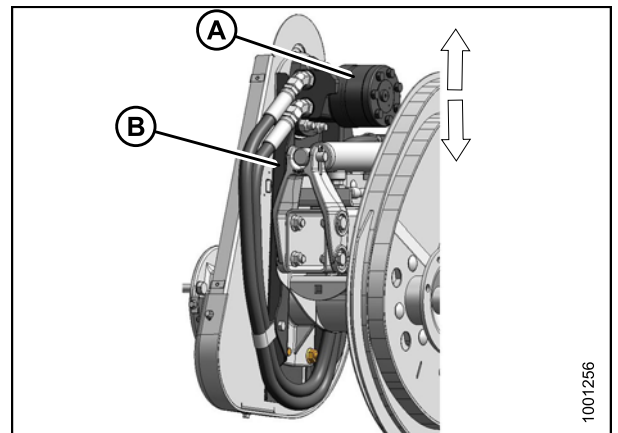
**Figure 7.241: Reel drive chain (shown with Lexion reel speed sensor installed)**

5. Loosen six bolts (A) on motor mount.



**Figure 7.242: Bottom view on Left, Top view on Right**

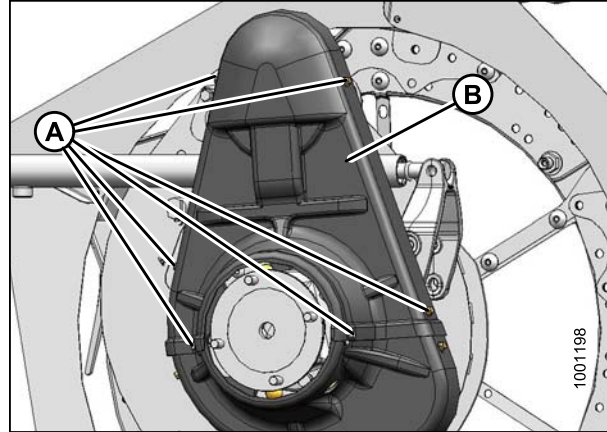
6. Slide motor (A) and motor mount (B) up or down until required tension is achieved.
7. Tighten bolts to 75 lb-ft (102 N·m).



**Figure 7.243: Slide motor and motor mount**

## MAINTENANCE AND SERVICING

8. Reinstall drive cover (B) with screws (A).

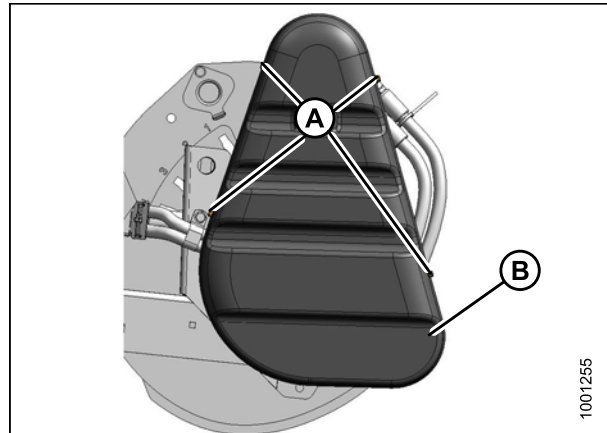


**Figure 7.244: Reinstall drive cover**

### *Removing Chain from Single Reel Drive – High Torque*

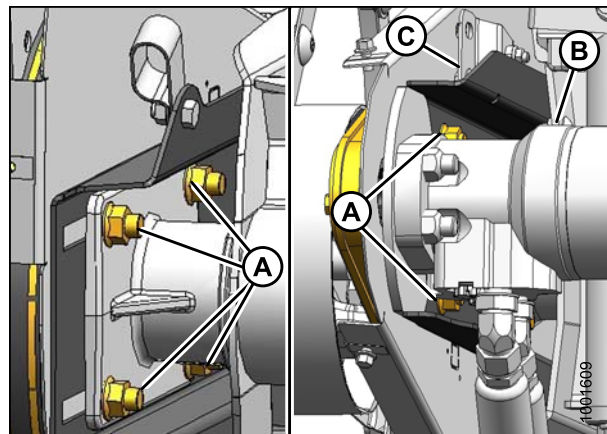
To remove a chain from a high torque single reel drive, follow these steps:

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove reel drive cover (B).



**Figure 7.245**

3. Loosen nuts (A). Slide motor (B) and motor mount (C) down towards reel shaft.



**Figure 7.246**

A - Nuts

B - Reel drive motor

C - Motor mount

## MAINTENANCE AND SERVICING

4. Remove chain (A).

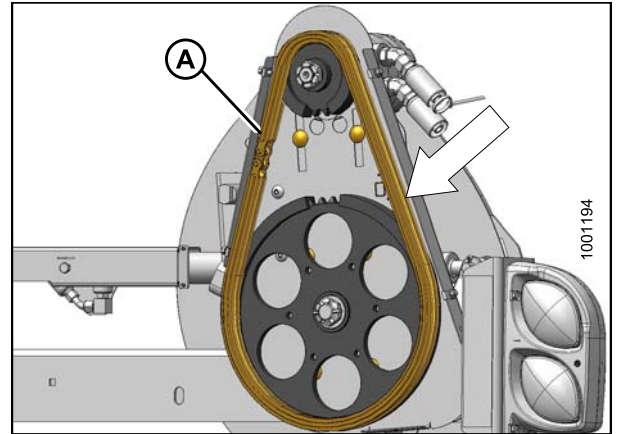


Figure 7.247

### *Installing Chain on a Single Reel Drive*

To install a chain on a high torque single reel drive follow these steps:

1. Position new chain (A) around sprockets.

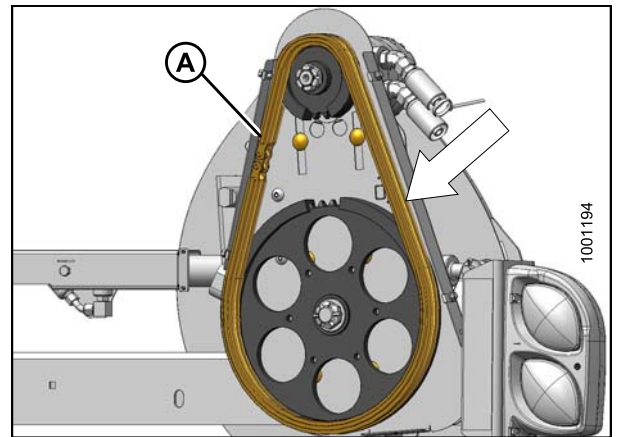


Figure 7.248

2. Slide motor (B) and motor mount (C) upward until tension on chain is such that hand-force deflects the chain 1/8 in. (3 mm) at mid-span.
3. Tighten nuts (A) and recheck tension.

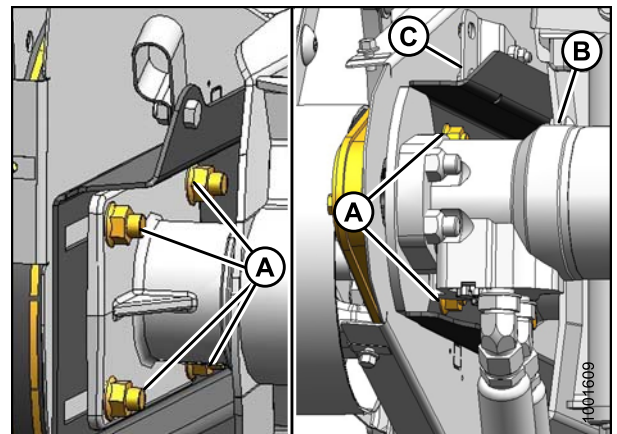


Figure 7.249

A - Nuts  
C - Motor mount

B - Reel drive motor



## MAINTENANCE AND SERVICING

4. Install reel drive cover (B) and secure with four screws (A).

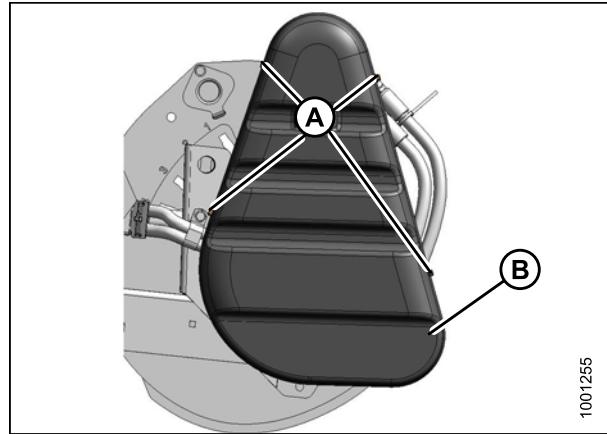


Figure 7.250

### *Replacing Chain on Double Reel Drive*

The drive chain on a high torque double reel drive can be replaced using two methods, Refer to

- [Disconnecting the Reel Drive Method, page 338](#)
- [Breaking the Chain Method, page 341](#)

Both procedures are acceptable, but disconnecting the reel drive method is preferred because the chain integrity is not affected.

#### **Disconnecting the Reel Drive Method**

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and then remove upper reel drive cover (B).

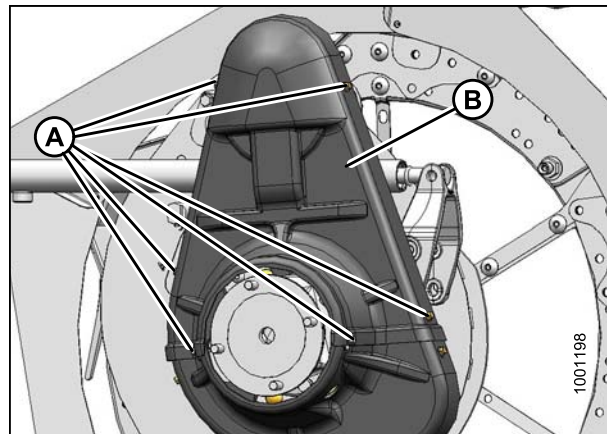


Figure 7.251

## MAINTENANCE AND SERVICING

3. Remove three screws (A) and remove lower cover (B).
4. Release tension on chain (C). See Section [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#) for double reel drive.

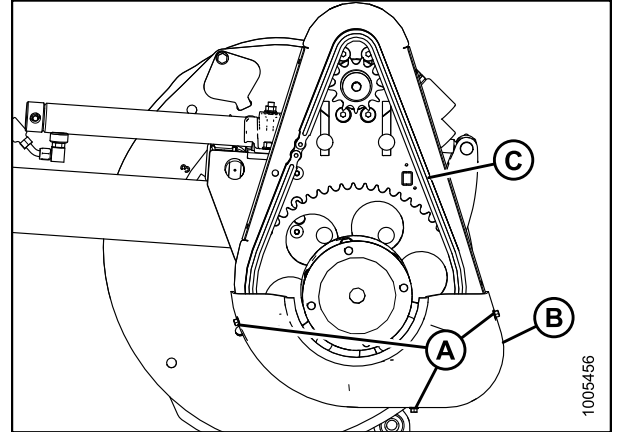


Figure 7.252

5. Support inboard end of right reel with a front end loader and nylon slings (or equivalent setup).

**NOTE:** To avoid damaging or denting center tube, support reel as close as possible to the end disc.



Figure 7.253

6. Remove four bolts (A) attaching reel tube to U-joint (B).

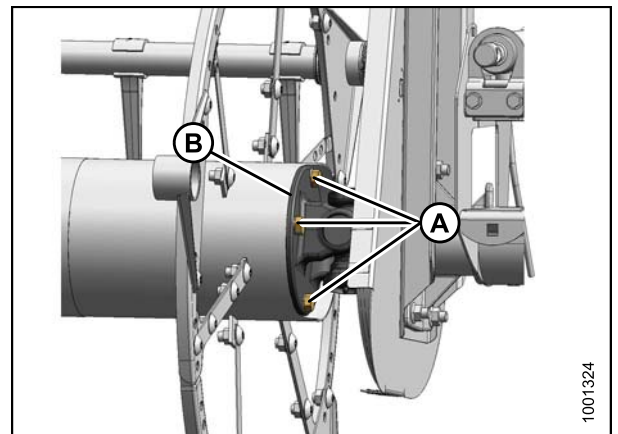
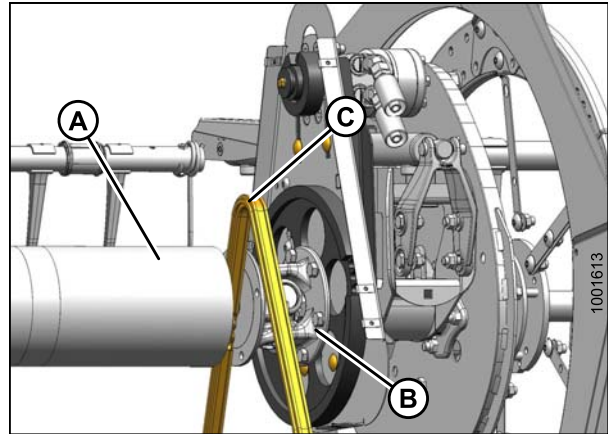


Figure 7.254

## MAINTENANCE AND SERVICING

7. Move right-hand reel sideways to separate the reel tube (A) and U-joint (B).
8. Remove the chain (C).
9. Route new chain (C) over U-joint (B) and locate on sprockets.



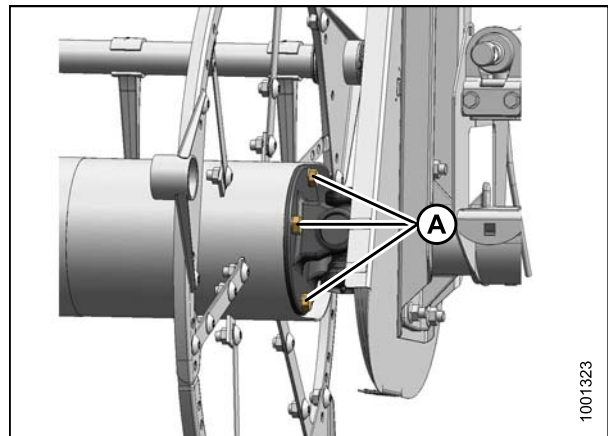
**Figure 7.255**

A - Reel tube

B - U-joint

C - Drive chain

10. Position right-hand reel tube (A) against reel drive and engage stub shaft into U-joint (B) pilot hole.
11. Rotate reel until holes in end of reel tube and U-joint line up.
12. Apply Loctite® #243 (or equivalent) to four 1/2 in. bolts (A) and install with lock washers.
13. Torque to 75–85 ft·lbf (102–115 N·m).



**Figure 7.256**

14. Remove temporary reel support.



**Figure 7.257**



## MAINTENANCE AND SERVICING

15. Adjust the chain tension (C). Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
16. Install lower cover (B) and secure with three screws (A).

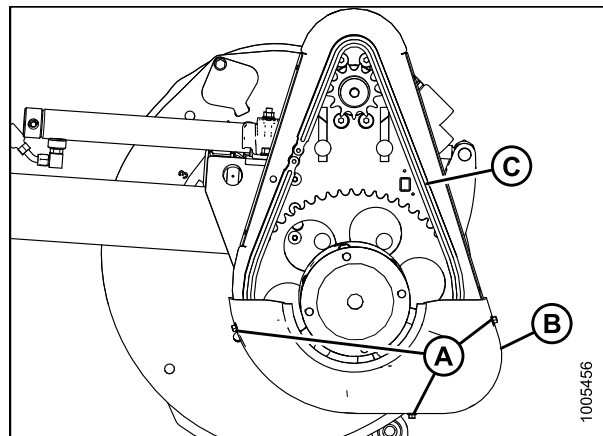


Figure 7.258

17. Install upper reel drive cover (B) and secure with six screws (A).

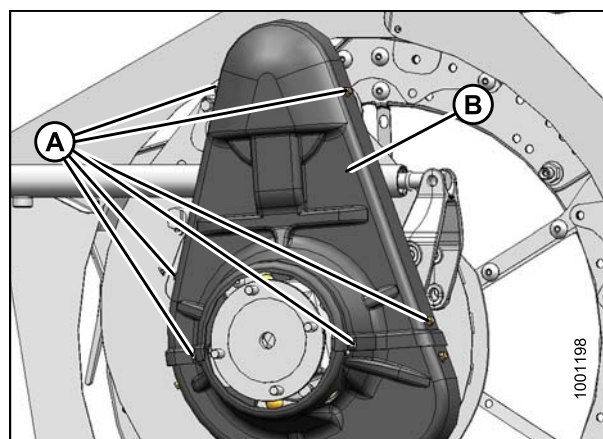


Figure 7.259

### Breaking the Chain Method

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and then remove upper reel drive cover (B).

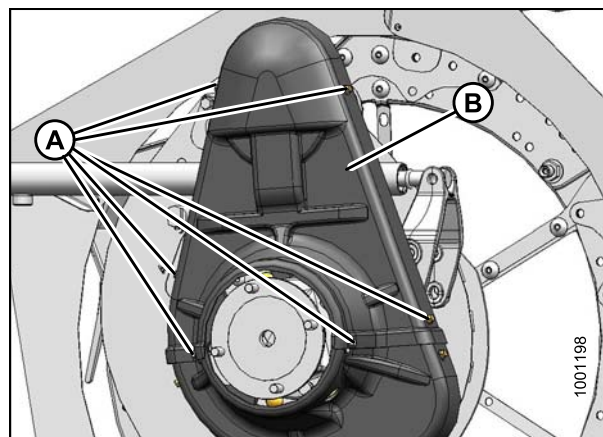


Figure 7.260

## MAINTENANCE AND SERVICING

3. Remove three screws (A) and remove lower cover (B).
4. Release tension on chain (C). Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#) for double reel drive..
5. Grind off head of a link rivet on chain (C), punch out the rivet, and remove chain.
6. Grind off the head from one of the link rivets on the new chain and punch out rivet to separate the chain.
7. Locate ends of chain on sprocket.

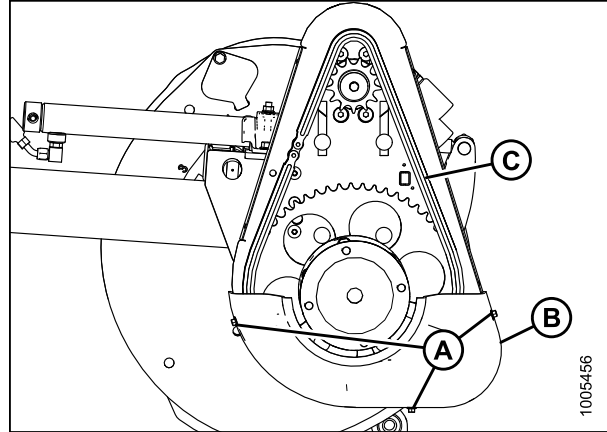


Figure 7.261

8. Install pin connector (A) (not available as a MacDon part) into chain, preferably from sprocket backside.
9. Install connector (B) onto pins.
10. Install spring clip (C) onto front pin (D) with closed end of clip in direction of sprocket rotation.
11. Locate one leg of clip in groove of apt pin (E).
12. Press other leg of spring clip over face of aft pin (E) until it slips into groove. Do **NOT** press clip lengthwise from closed end.
13. Ensure clip is seated in grooves of pins.

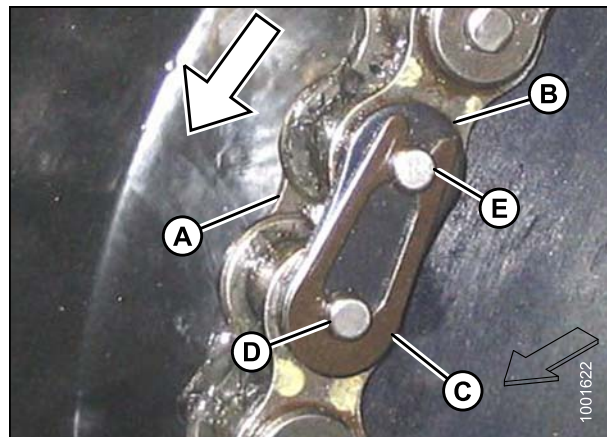


Figure 7.262

14. Adjust the chain tension. Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
15. Install lower cover (B) and secure with three screws (A).

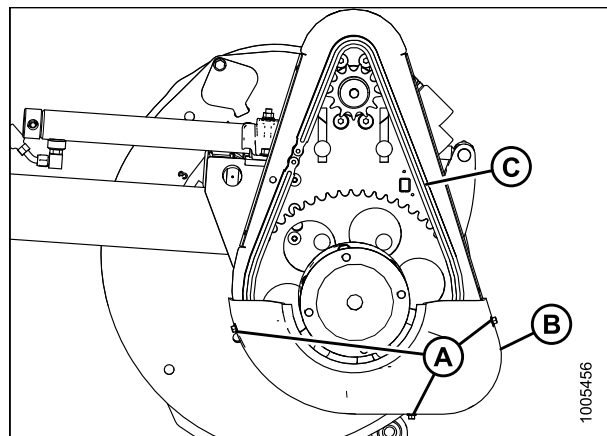


Figure 7.263

## MAINTENANCE AND SERVICING

16. Install upper reel drive cover (B) and secure with six screws (A).

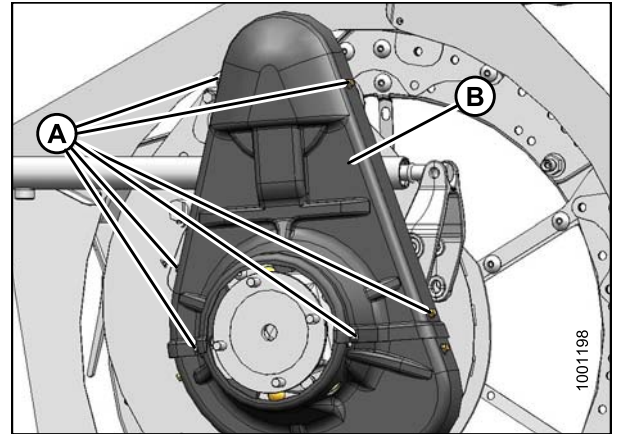


Figure 7.264

### 7.11.5 Reel Drive Sprocket

For CaseIH and New Holland combine models, the combine needs to be configured for reel sprocket size to optimize the auto reel to ground speed control.

#### *Replacing Reel Drive Sprocket on Double Reel*

To replace the reel drive sprocket on a double reel header, follow these steps:

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and then remove upper reel drive cover (B).

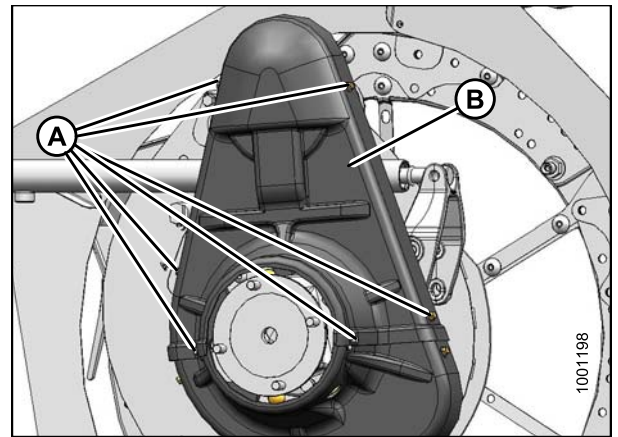


Figure 7.265: Remove upper reel drive cover

## MAINTENANCE AND SERVICING

3. Release tension on chain. Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#). for double reel drive.
4. Remove bolt (B), lock washer, and flat washer (C).
5. Remove speed sensor disc (D) (if installed).

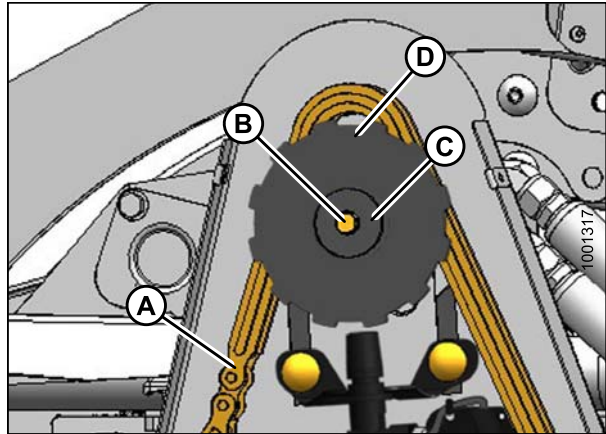


Figure 7.266

6. Slip chain (A) off drive sprocket (B).
7. Remove sprocket (B) from shaft.

### IMPORTANT:

Do not use pry bar and/or hammer to remove sprocket; this will damage the motor. If sprocket does not come off by hand, use a puller.

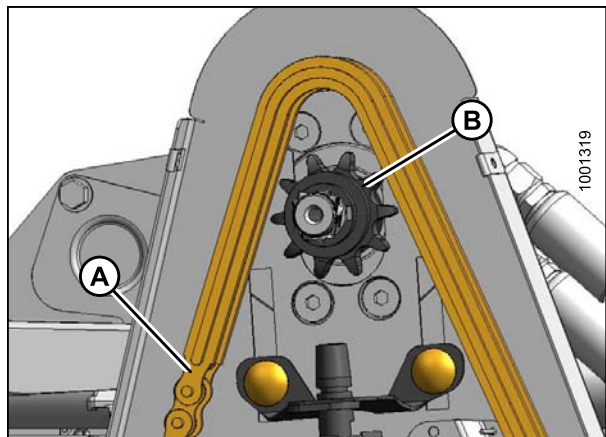


Figure 7.267

8. Align keyway (A) in new sprocket with key (B) in shaft and slide new sprocket onto shaft.
9. Slip chain over drive sprocket.

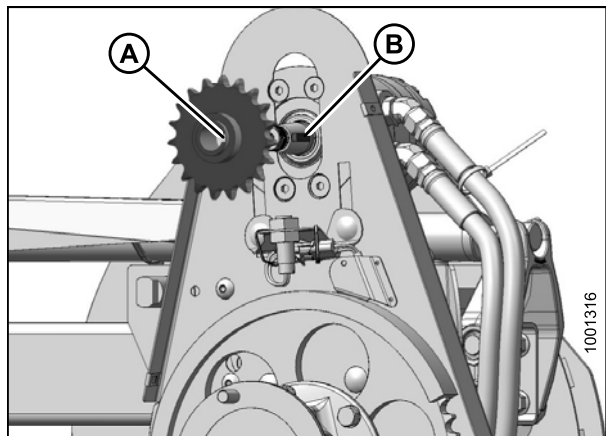


Figure 7.268

## MAINTENANCE AND SERVICING

10. Install speed sensor disc (D) (if applicable) onto shaft.
11. Install flat washer (C), lock washer, and bolt (B).
12. Torque bolt to 18 lbf·ft (24 N·m).
13. Tighten chain (A). See section. Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#) for double reel drive.

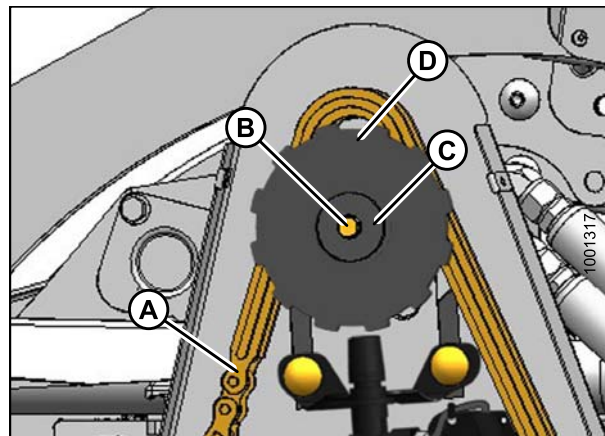


Figure 7.269

14. Reinstall drive cover(s) by positioning upper cover (B) onto drive and securing with six screws (A).

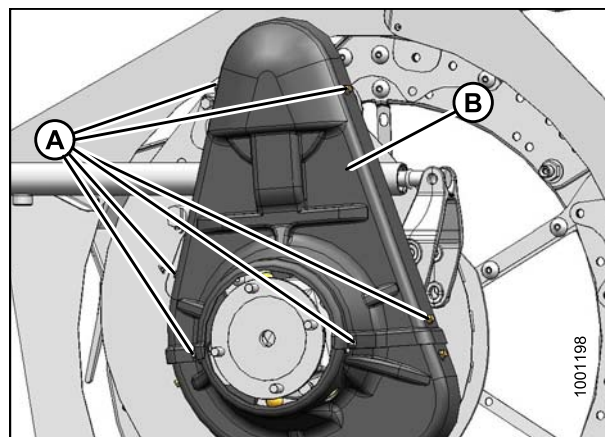


Figure 7.270: Reinstall upper reel drive cover

### 7.11.6 Reel Drive U-Joint

The reel drive U-joint allows movement between the two reels. This allows either reel to move independently.

Lubricate the U-joint in accordance with the requirements. Refer to Section [7.3.6 Lubrication and Servicing](#), page [226](#). U-joint should be replaced if severely worn or damaged. Refer to [Removing U-Joint](#), page [346](#).



## MAINTENANCE AND SERVICING

### Removing U-Joint

To remove the U-joint, follow these steps.

1. Lower header, raise reel, and engage reel safety props.
2. Remove six screws (A) and then remove upper reel drive cover (B).

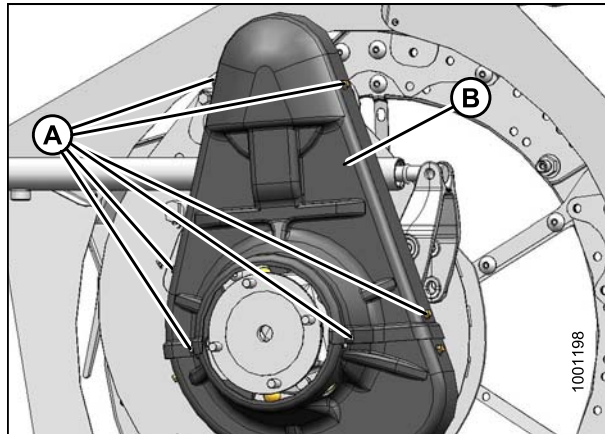


Figure 7.271: Remove upper reel drive cover

3. Remove three screws (A) and then remove lower cover (B).

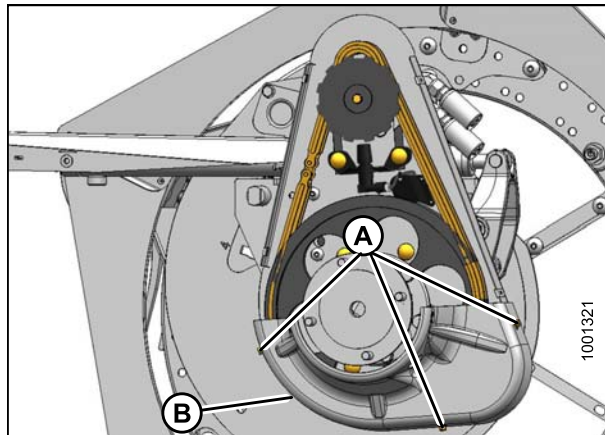


Figure 7.272: Remove lower reel drive cover

4. Support inboard end of right reel with a front end loader and nylon slings (or equivalent setup).

#### **IMPORTANT:**

To avoid damaging or denting center tube, support reel as close as possible to the end disc.

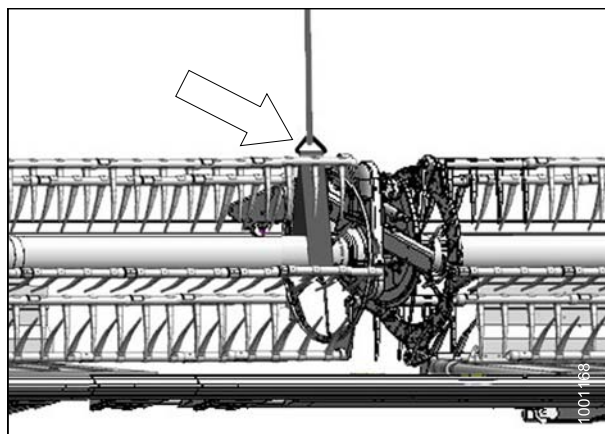


Figure 7.273

## MAINTENANCE AND SERVICING

5. Remove four bolts (A) attaching reel tube to U-joint flange (B) and move reel sideways to disengage stub shaft from U-joint.

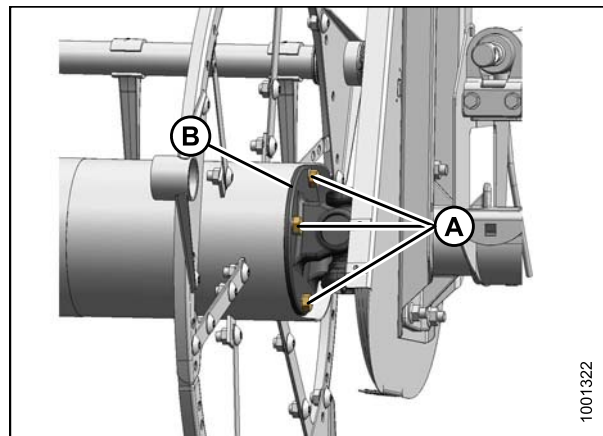


Figure 7.274

6. Remove six bolts (A) attaching U-joint flange (B) to driven sprocket (C).
7. Remove U-joint.

**NOTE:** Right hand reel may need to be moved sideways for U-joint to clear reel tube.

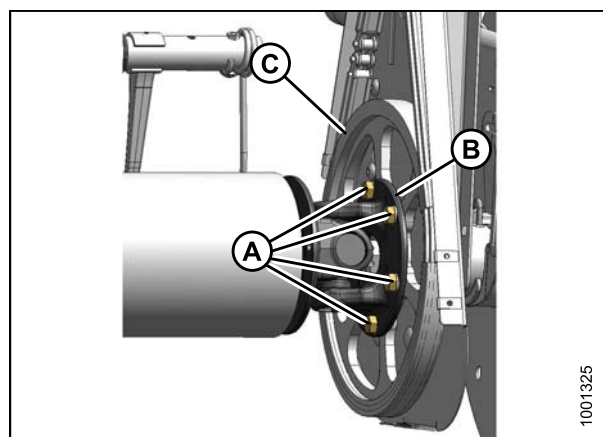


Figure 7.275

### *Installing U-Joint*

To install the U-joint, follow these steps.

**NOTE:** Right hand reel may need to be moved sideways for U-joint to clear reel tube.

1. Position U-joint flange (B) onto driven sprocket (C) as shown. Install six bolts (A) and hand-tighten. Do **NOT** torque at this time.

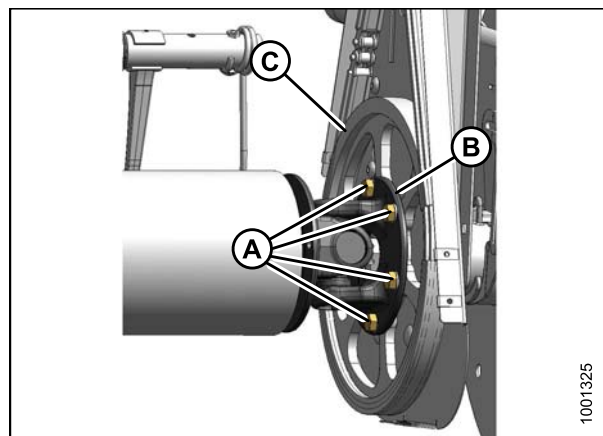
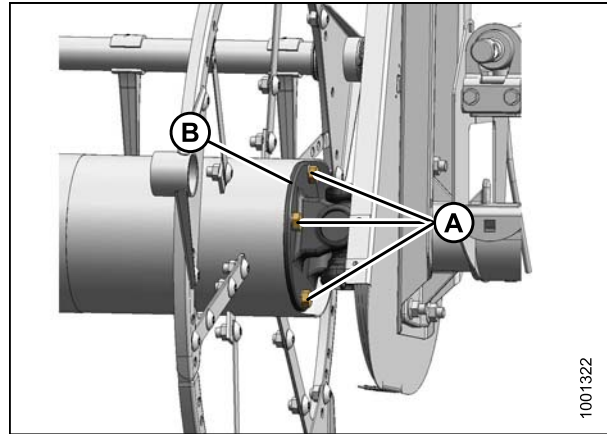


Figure 7.276

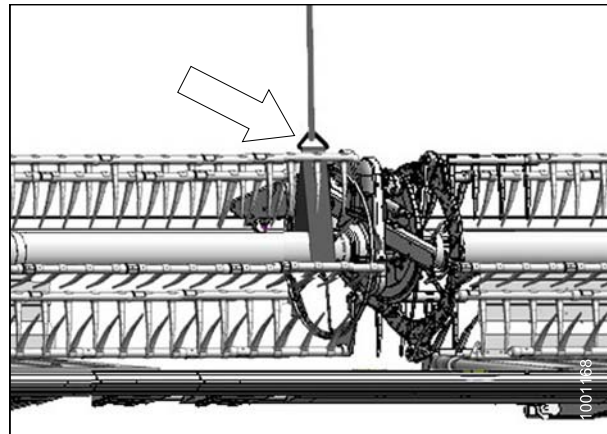
## MAINTENANCE AND SERVICING

2. Position right-hand reel tube against reel drive and engage stub shaft into U-joint pilot hole.
3. Rotate reel until holes in end of reel tube and U-joint flange (B) line up.
4. Install four bolts (A) and torque to 70–80 ft·lbf (95–108 N·m).



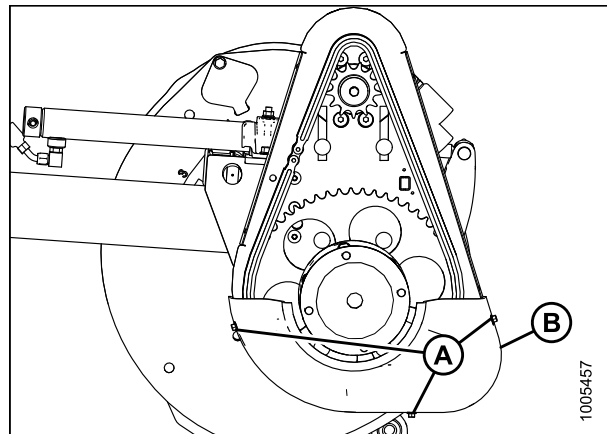
**Figure 7.277**

5. Remove temporary reel support.



**Figure 7.278**

6. Install lower cover (B) and secure it with three screws (A).



**Figure 7.279: Remove lower reel drive cover**



## MAINTENANCE AND SERVICING

7. Install upper reel drive cover (B) and secure it with six screws (A).

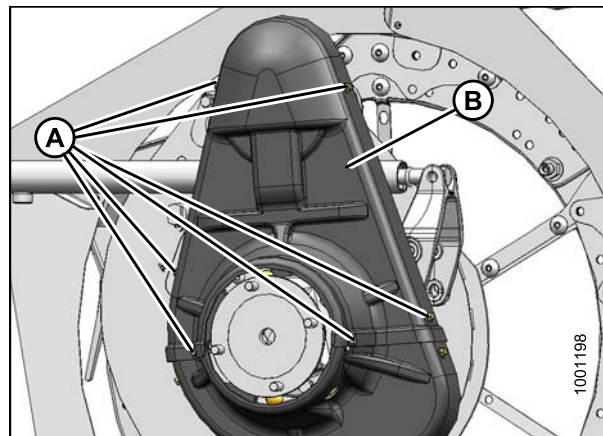


Figure 7.280: Remove upper reel drive cover

### 7.11.7 Reel Drive Motor

The reel drive motor does not require regular maintenance or servicing. If problems develop with the motor, it should be removed and serviced at your MacDon Dealer.

#### *Removing Double Reel Drive Motor*

1. Remove the reel drive covers (A) by removing the nine bolts (B) that secures it to the reel drive.

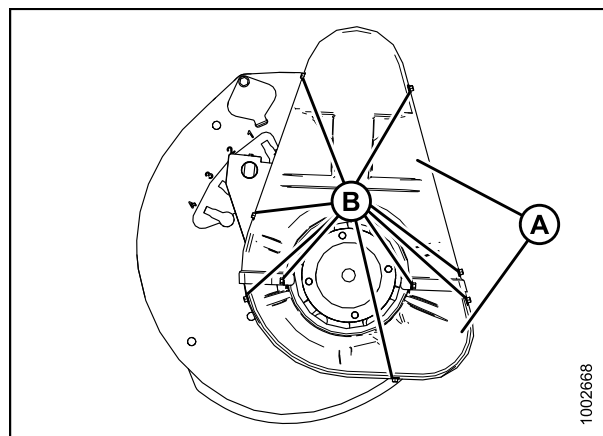


Figure 7.281

2. Loosen the drive chain (A) by loosening the six bolts (B) and sliding down the hydraulic motor assembly.
3. Remove the drive chain (A).

**NOTE:** There is no connecting link in the chain.

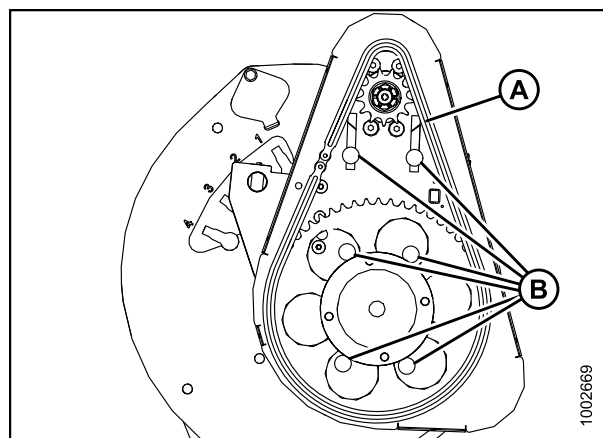


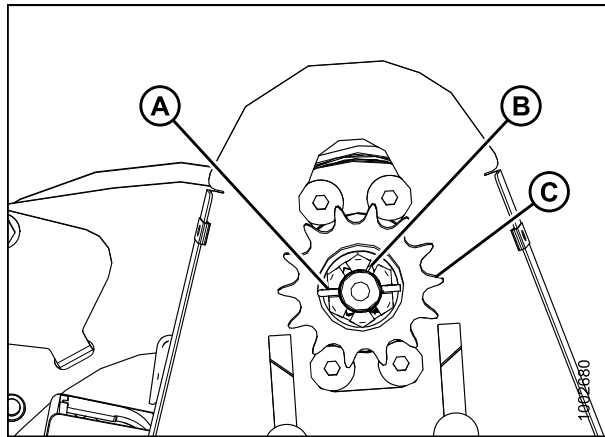
Figure 7.282

## MAINTENANCE AND SERVICING

### IMPORTANT:

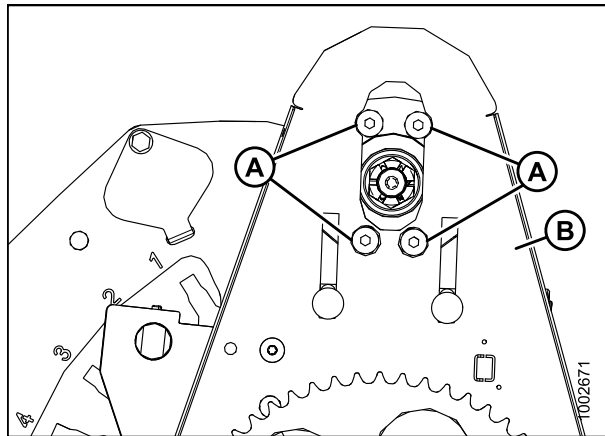
**Do not use pry bar and/or hammer to remove sprocket. This will damage the motor. Use a puller if sprocket does not come off by hand.**

4. Remove sprocket (C). Make sure not to lose the key in the shaft.
5. For high Torque, remove the cotter pin (A), slotted nut, and flat washer (B) from the motor shaft.



**Figure 7.283: High Torque**

6. Remove the bolts (A) and the hydraulic motor from the reel drive plate (B).



**Figure 7.284**

## MAINTENANCE AND SERVICING

### Installing Double Reel Drive Motor

1. Line up the motor mounting holes with the four holes that hold the motor in place on the adjustment plate (B). Once lined up, secure with bolts (A). Make sure to use a thread locking compound (Loctite® 243) on the thread of the bolts.

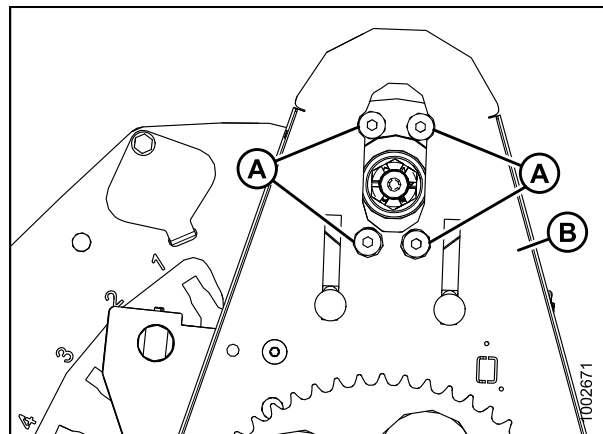


Figure 7.285

2. For high torque sprocket, align keyway in sprocket (C) with key in shaft and slide new sprocket onto shaft.
3. Install speed sensor disc (if applicable) onto the shaft.
4. Install flat washer and slotted nut (B) Torque to 40 ft·lbf (54 N·m), while turning the reel assembly to seat the bearings. Loosen the slotted nut, then re-tighten to 10–20 in·lbf (1.1–2.2 N·m). Install the cotter pin (A). If required, tighten nut to next cotter pin hole.

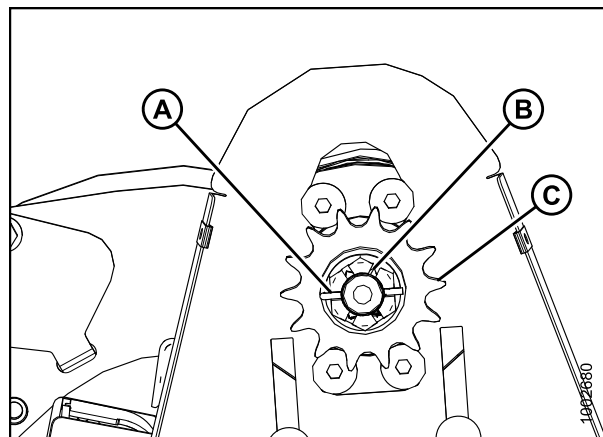


Figure 7.286: High Torque

5. Route chain (A) over sprockets.

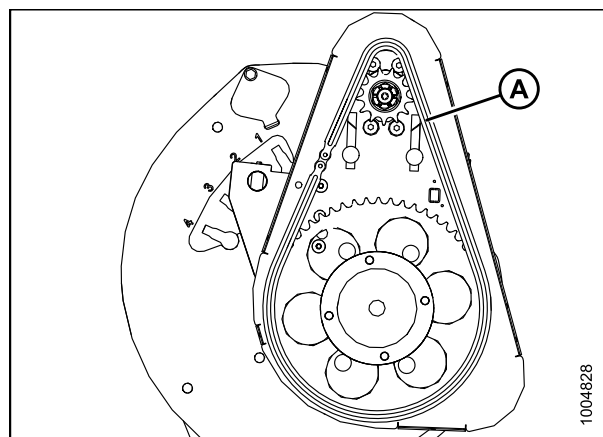


Figure 7.287

## MAINTENANCE AND SERVICING

6. If Installed, install the speed sensor (A) and its bracket (B) by installing the two bolts (C) that secure it to the reel drive plate.

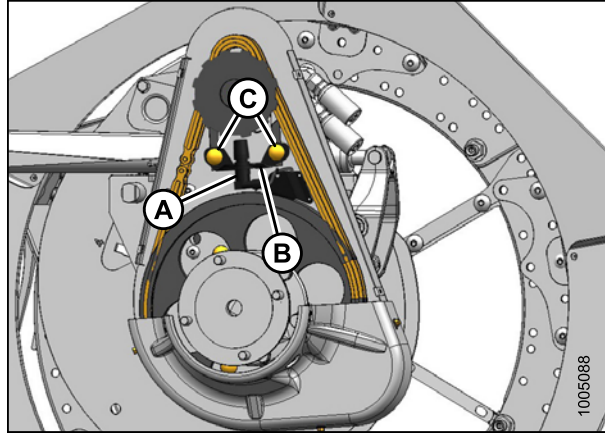


Figure 7.288

7. Adjust the chain tension (C). Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
8. Install lower cover (B) and secure with three screws (A).

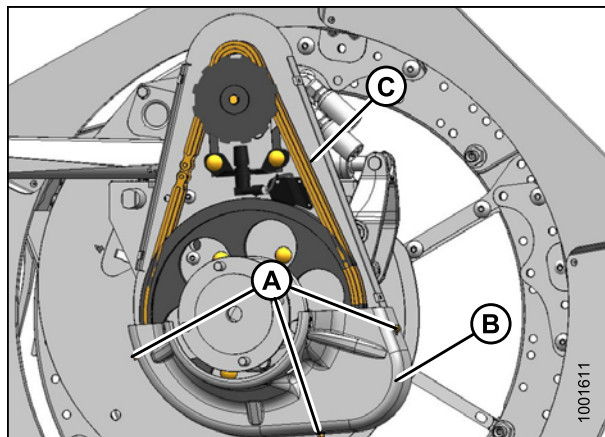


Figure 7.289

9. Install upper reel drive cover (B) and secure with six screws (A).

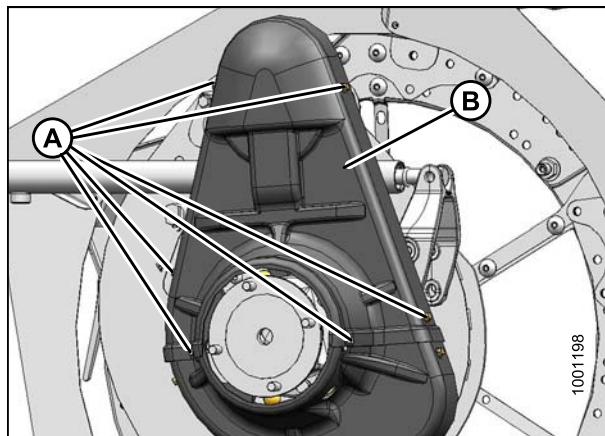


Figure 7.290

### 7.11.8 Reel Speed Sensor

The reel speed sensor is located on the reel under the reel drive plastic cover.

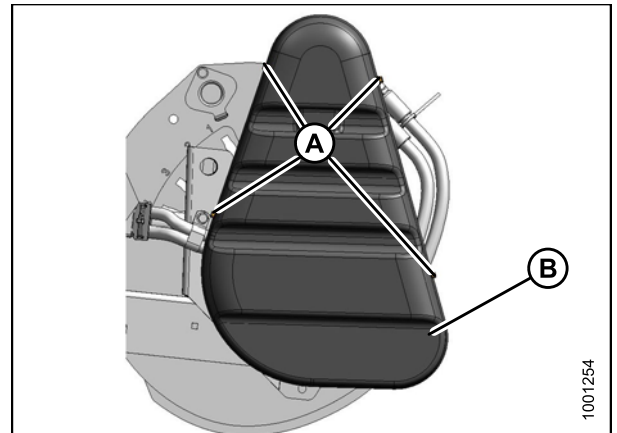
#### *Replacing John Deere Reel Speed Sensor - Single Reel*

To replace the reel speed sensor for a John Deere combine on a single reel header, follow these steps.

#### **WARNING**

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

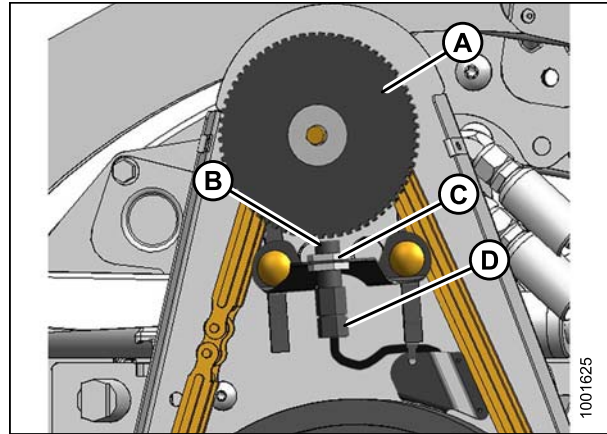
1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove cover (B).



**Figure 7.291: Remove drive cover**

## MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (C) as required.
4. Replace sensor as follows:
  - a. Disconnect connector (D).
  - b. Remove top nut (C) and remove sensor (B).
  - c. Remove top nut from new sensor (C) and position sensor in support.
  - d. Secure with top nut (C).
  - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm).with nuts (C).
  - f. Connect to harness at (D).



**Figure 7.292**

A - Sensor disc  
C - Nuts

B - Speed sensor  
D - Connector

### **IMPORTANT:**

**Ensure sensor electrical harness does NOT contact chain or sprocket.**

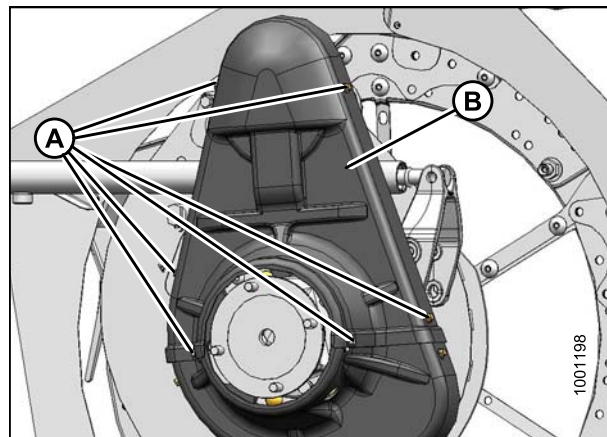
### *Replacing John Deere Reel Speed Sensor - Double Reel*

To replace the reel speed sensor for a John Deere combine on a double reel header, follow these steps.

### **⚠ WARNING**

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

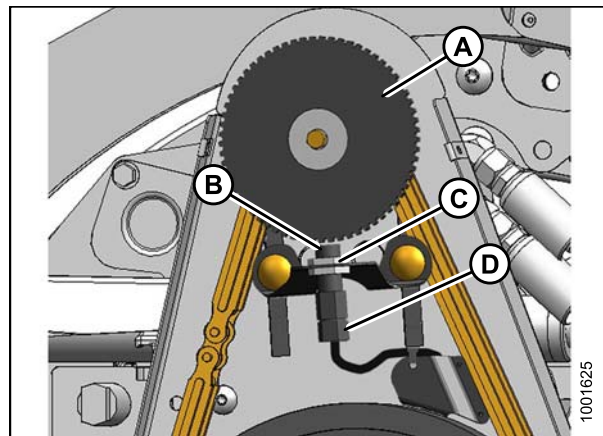
1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and remove upper cover (B).



**Figure 7.293: Remove upper drive cover**

## MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (C) as required.
4. Replace sensor as follows:
  - a. Disconnect connector (D).
  - b. Remove top nut (C) and remove sensor (B).
  - c. Remove top nut from new sensor (C) and position sensor in support.
  - d. Secure with top nut (C).
  - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) with nuts (C).
  - f. Connect to harness at (D).



**Figure 7.294**

A - Sensor disc  
C - Nuts

B - Speed sensor  
D - Connector

### IMPORTANT:

**Ensure sensor electrical harness does NOT contact chain or sprocket.**

### *Replacing Lexion 500 Series Reel Speed Sensor - Single Reel*

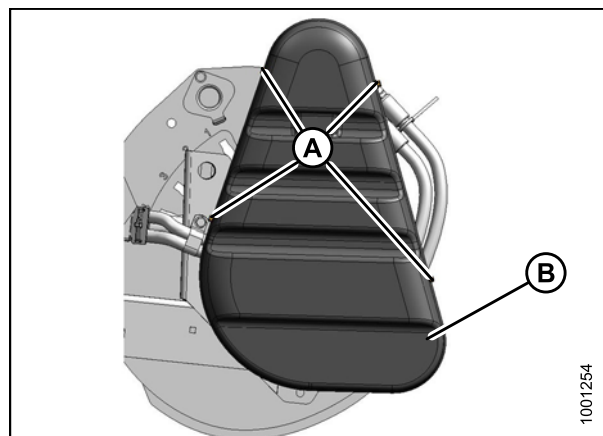
To replace the reel speed sensor for a Lexion 500 series combine on a single reel header, follow these steps:



### WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove cover (B).

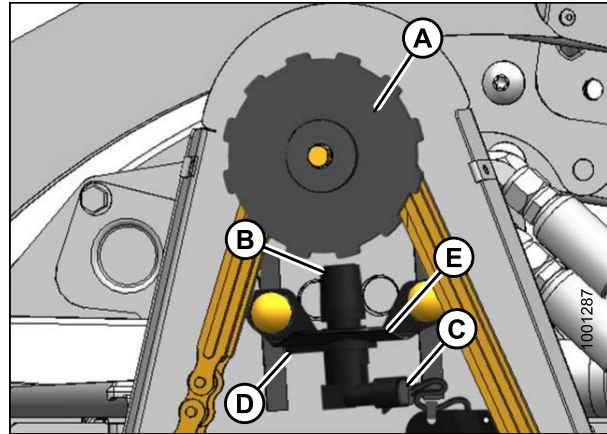


**Figure 7.295: Remove drive cover**



## MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (E).
4. Replace sensor as follows:
  - a. Disconnect connector (C).
  - b. Remove screw (D) attaching sensor and remove sensor (B).
  - c. Locate new sensor in support and secure with screw (D).
  - d. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) by bending support (E).
  - e. Connect to harness at (C).



**Figure 7.296**

A - Sensor disc  
B - Sensor  
C - Connector  
D - Screw  
E - Support

### **IMPORTANT:**

**Ensure sensor electrical harness does NOT contact chain or sprocket.**

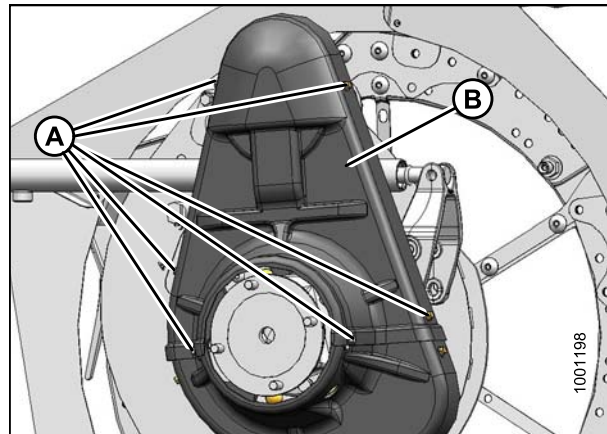
### *Replacing Lexion 500/700 Series Reel Speed Sensor - Double Reel*

To replace the reel speed sensor for a Lexion 500 or 700 series combine on a double reel header, follow these steps:

### **WARNING**

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and remove upper cover (B).

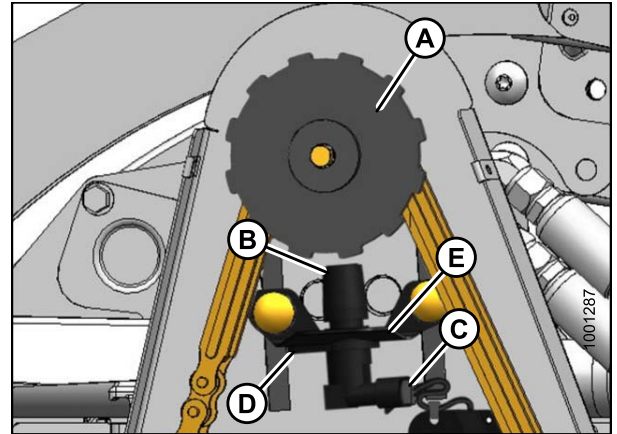


**Figure 7.297: Remove upper drive cover**



## MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (E).
4. Replace sensor as follows:
  - a. Disconnect connector (C).
  - b. Remove screw (D) attaching sensor and remove sensor (B).
  - c. Locate new sensor in support and secure with screw (D).
  - d. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) by bending support (E).
  - e. Connect to harness at (C).



**Figure 7.298**

A - Sensor disc  
C - Connector  
E - Support

B - Sensor  
D - Screw

### IMPORTANT:

**Ensure sensor electrical harness does NOT contact chain or sprocket.**

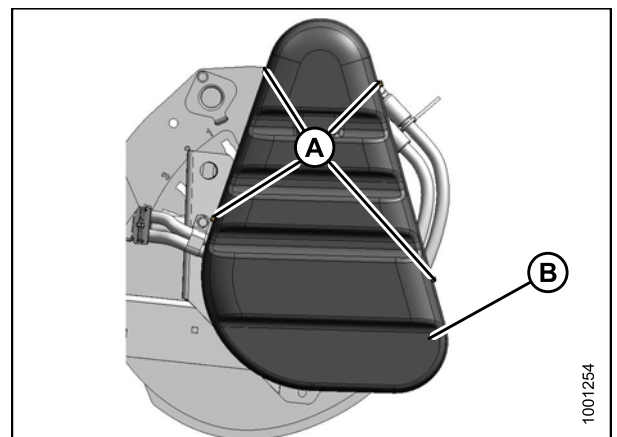
### *Replacing Lexion 400 Series Reel Speed Sensor Replacement - Single Reel*

To replace the reel speed sensor for a Lexion 400 series combine on a single reel header, follow these steps:

### **WARNING**

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

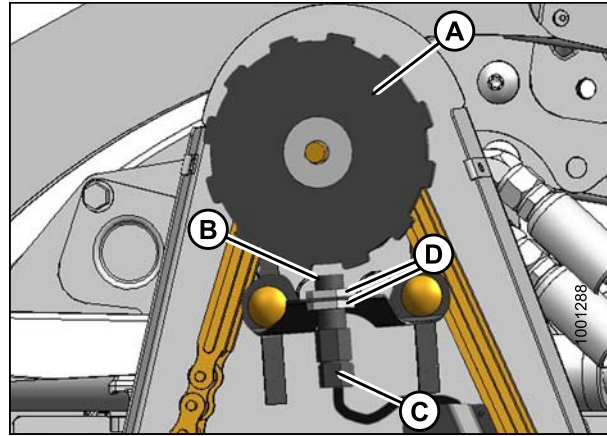
1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove cover (B).



**Figure 7.299: Remove drive cover**

## MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (D) as required.
4. Replace sensor as follows:
  - a. Disconnect connector (C).
  - b. Remove top nut (D) and remove sensor (B).
  - c. Remove top nut from new sensor and locate in support.
  - d. Secure with top nut (D).
  - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) with nuts (D).
  - f. Connect to harness at (C).



**Figure 7.300**

A - Sensor disc  
C - Connector

B - Sensor  
D - Nuts

### IMPORTANT:

**Ensure sensor electrical harness does not contact chain or sprocket.**

### *Replacing Lexion 400 Series Reel Speed Sensor - Double Reel*

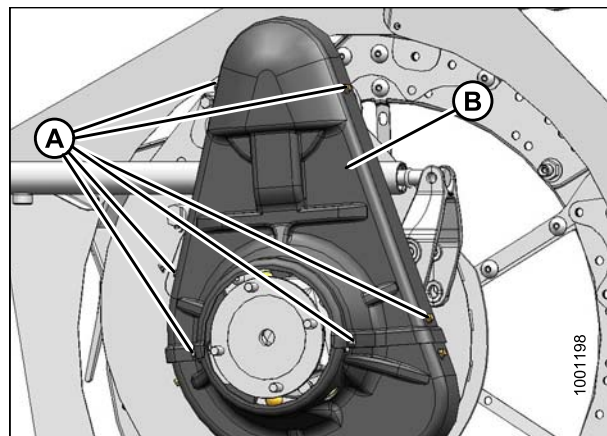
To replace the reel speed sensor for a Lexion 400 series combine on a double reel header, follow these steps:



### WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and remove upper cover (B).



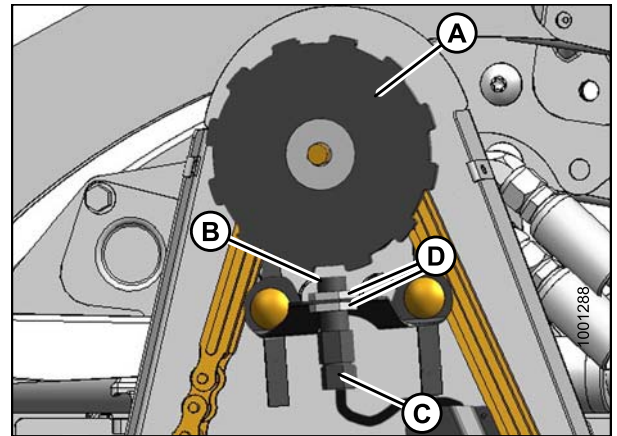
**Figure 7.301: Remove upper drive cover**

## MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (D) as required.
4. Replace sensor as follows:
  - a. Disconnect connector (C).
  - b. Remove top nut (D) and remove sensor (B).
  - c. Remove top nut from new sensor and locate in support.
  - d. Secure with top nut (D).
  - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) with nuts (D).
  - f. Connect to harness at (C).

### IMPORTANT:

**Ensure sensor electrical harness does not contact chain or sprocket.**



**Figure 7.302**

A - Sensor disc  
C - Connector

B - Sensor  
D - Nuts

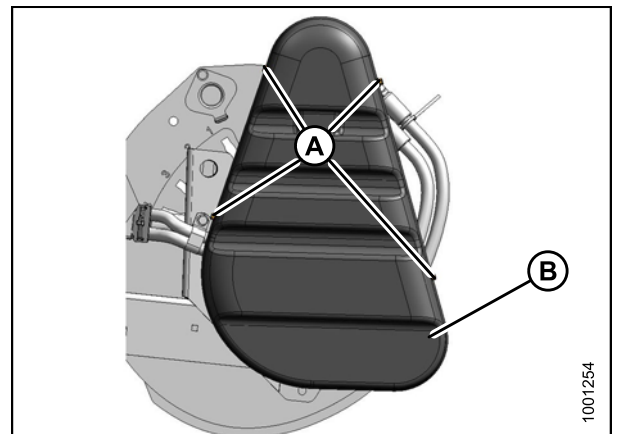
### *Replacing AGCO Reel Speed Sensor - Single Reel*

To replace the reel speed sensor for an AGCO combine on a single reel header, follow these steps.

### **WARNING**

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

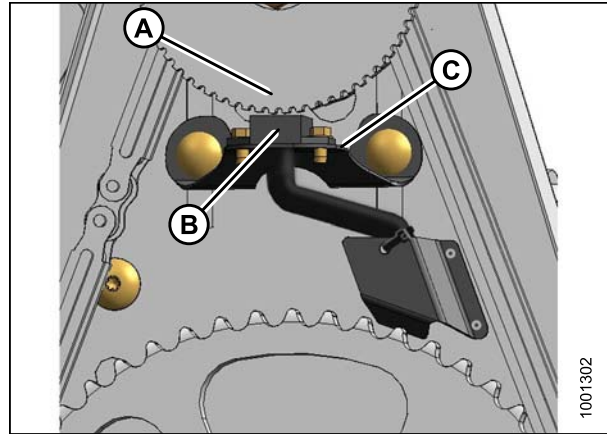
1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove reel drive cover by removing four screws (A) and remove cover (B).



**Figure 7.303: Remove reel drive cover**

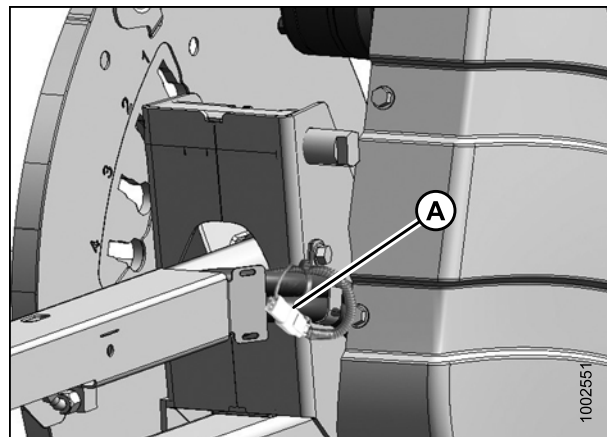
## MAINTENANCE AND SERVICING

3. Maintain a 0.02 in. (0.5 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (C).



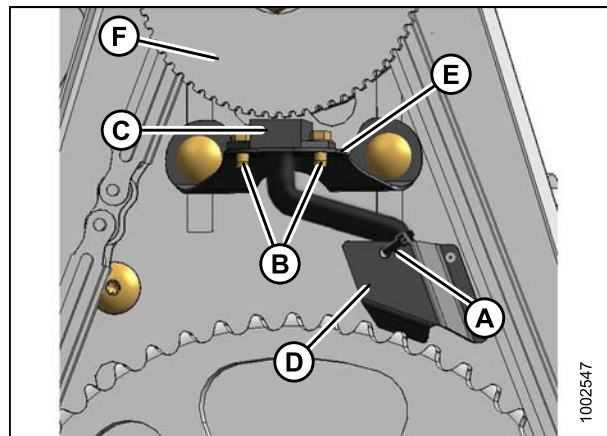
**Figure 7.304: Bend support to adjust gap**

4. Disconnect connector (A)



**Figure 7.305: Disconnect connector**

5. Cut cable tie (A) securing harness to cover.
6. Remove screws (B) and remove sensor (C) and harness. Bend cover (D) (if necessary) to remove harness.
7. Feed wire of new sensor behind cover (D) through chain case.
8. Locate new sensor in support (E) and attach with two screws (B).
9. Adjust gap between sensor disc (F) and sensor (C) to 0.02 in. (0.5 mm).



**Figure 7.306**

## MAINTENANCE AND SERVICING

10. Connect to harness at (A)

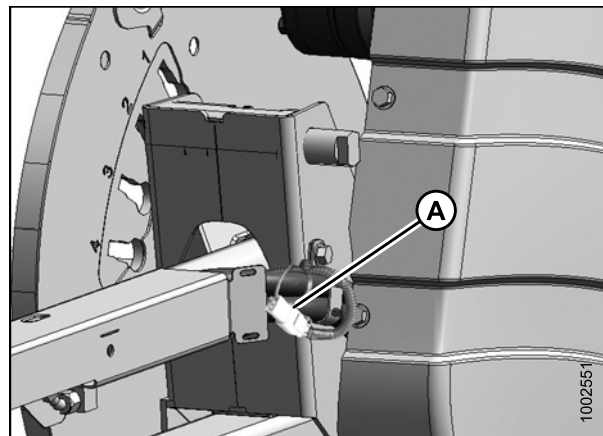


Figure 7.307: Connect to harness

### *Replacing AGCO Reel Speed Sensor - Double Reel*

To replace the reel speed sensor for an AGCO combine on a double reel header, follow these steps.

#### **WARNING**

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove reel drive cover by removing six screws (A) and remove upper cover (B).

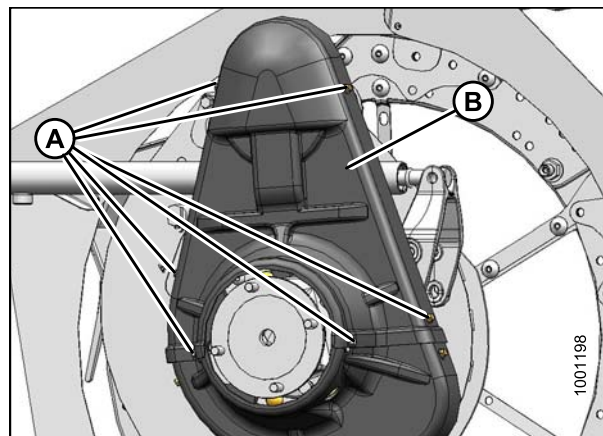
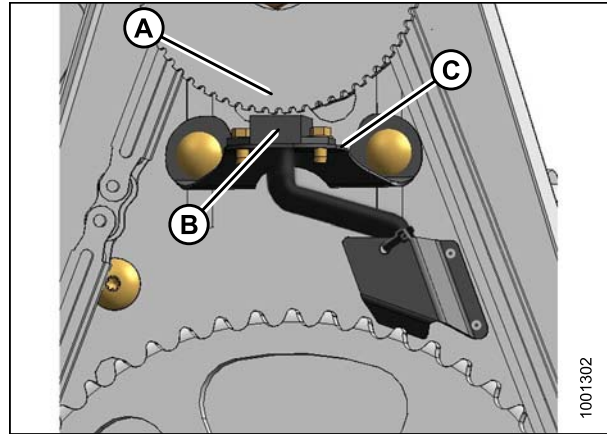


Figure 7.308: Remove reel drive cover

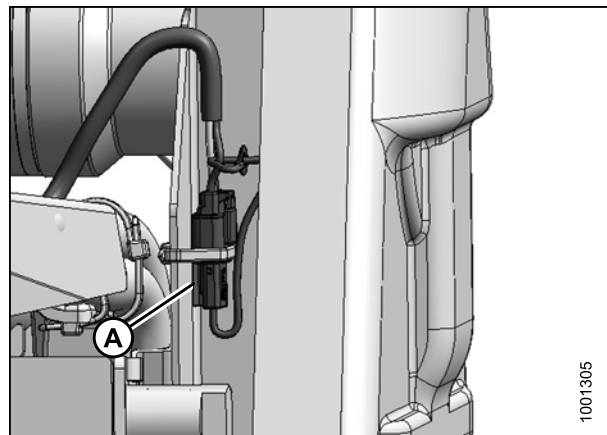
## MAINTENANCE AND SERVICING

3. Maintain a 0.02 in. (0.5 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (C).



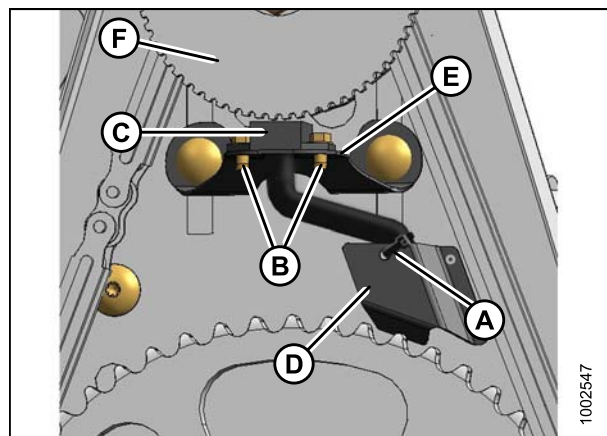
**Figure 7.309: Bend support to adjust gap**

4. Disconnect connector (A).



**Figure 7.310: Disconnect connector**

5. Cut cable tie (A) securing harness to cover.
6. Remove screws (B), sensor (C), and harness. Bend cover (D) (if necessary) to remove harness.
7. Feed wire of new sensor behind cover (D) through chain case.
8. Locate new sensor in support (E) and attach with two screws (B).
9. Adjust gap between sensor disc (F) and sensor (C) to 0.02 in. (0.5 mm).



**Figure 7.311**

A - Cable tie	B - Screws	C - Sensor
D - Cover	E - Support	F - Sensor disc



## MAINTENANCE AND SERVICING

10. Connect to harness at (A).

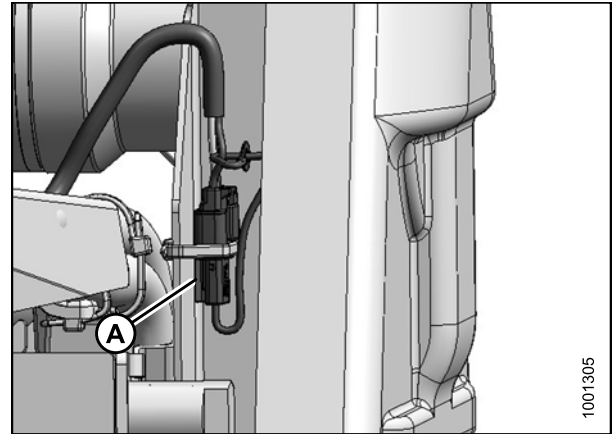


Figure 7.312: Connect to harness

### 7.11.9 Reel Tines

#### IMPORTANT:

Keep reel tines in good condition. Straighten or replace as required.

#### *Removing Steel Tines*

#### **WARNING**

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

1. Lower header and raise reel. Engage reel safety props.
2. Shut down engine and remove key from ignition.
3. Remove tine tube bushings from the applicable tine tube at center and left discs. Refer to [Removing Bushings from 5, 6 or 9 Bat Reels](#), page 366.
4. Temporarily attach reel arms (B) to reel disc, using original attachment locations (A).
5. Cut damaged tine(s) so that it can be removed from tube.
6. Remove bolts on existing tines and slide tines over to replace tine that was cut off in previous step. Remove reel arms (B) from tube as required.

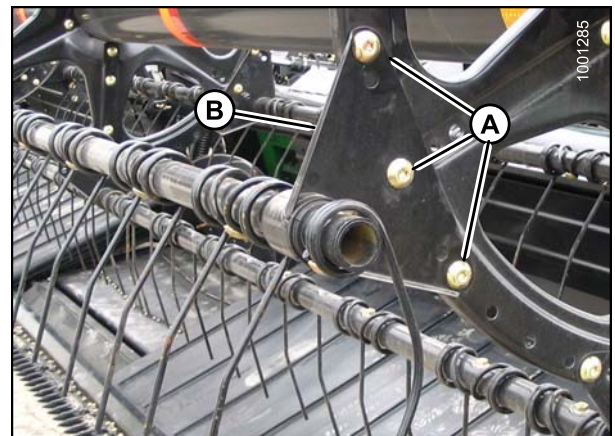


Figure 7.313

#### *Installing Steel Tines*

#### **WARNING**

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

## MAINTENANCE AND SERVICING

### IMPORTANT:

**Ensure tine tube is supported at all times to prevent damage to the tube or other components**

1. Slide new tines and reel arm (A) onto end of tube.
2. Install tine tube bushings. Refer to Section [7.11.10 Tine Tube Bushings](#), page 366.
3. Attach tines to tine bar with bolts and nuts (B).

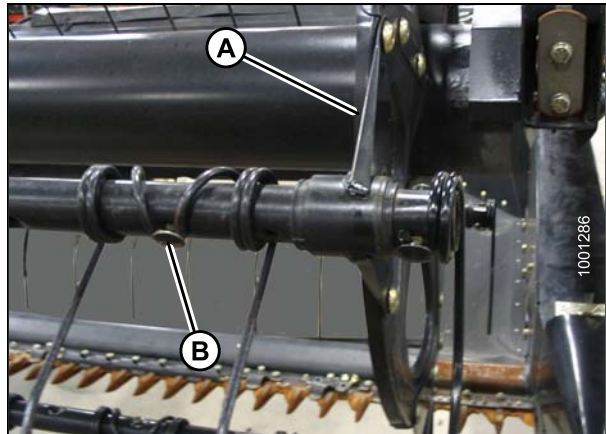


Figure 7.314

### Removing Plastic Fingers

#### **WARNING**

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

1. Remove screw (A) with a Torx® Plus 27 IP socket wrench.
2. Push finger top clip back toward reel tube and remove from finger tube.

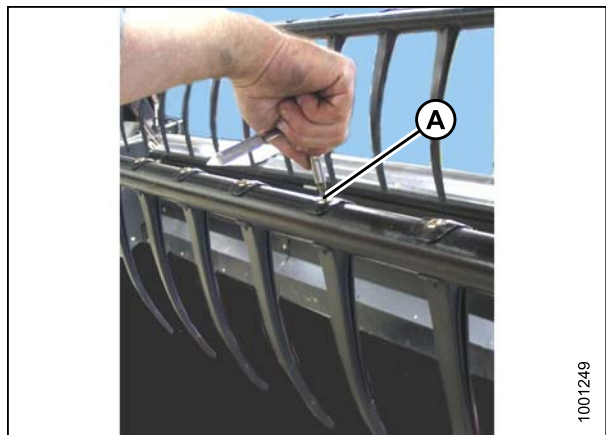


Figure 7.315

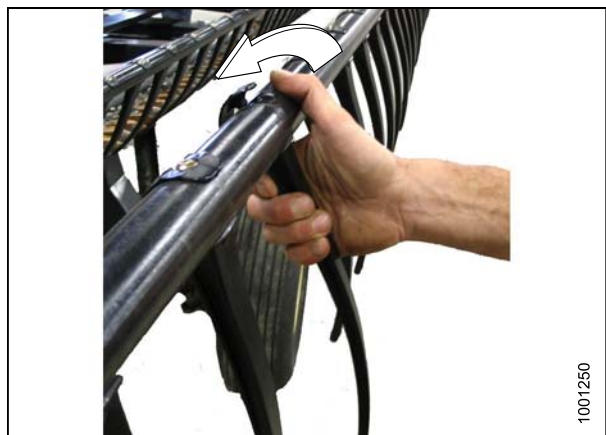


Figure 7.316



## MAINTENANCE AND SERVICING

### *Installing Plastic Fingers*

#### **WARNING**

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

1. Position finger on rear of finger tube and engage lug at bottom of finger in lower hole in finger tube.
2. Gently lift top flange and rotate finger until lug in top flange engages upper hole in finger tube.



Figure 7.317

#### **IMPORTANT:**

Do NOT apply force to finger prior to tightening mounting screw. Applying force to finger without screw tightened will break finger or shear off locating pins.

3. Install screw (A) and torque to 75–80 in·lbf (8.5–9.0 N·m) with a Torx®-Plus 27 IP socket wrench.

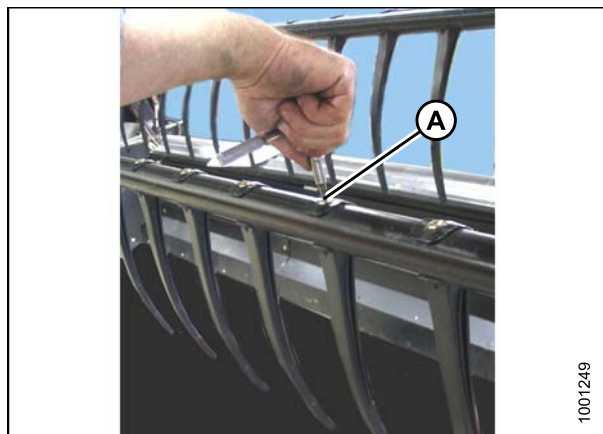


Figure 7.318

## 7.11.10 Tine Tube Bushings

### *Removing Bushings from 5, 6 or 9 Bat Reels*

**NOTE:** If only replacing the cam end bushing, Refer to Section 6., [Removing Bushings from 5, 6 or 9 Bat Reels](#), page 367

Center disc and tail end bushings

### **WARNING**

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

1. Lower header, raise reel fully, and engage reel safety props.

### **IMPORTANT:**

**Ensure tine tube is supported at all times to prevent damage to the tube or other components.**

2. Remove reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

**NOTE:** There are no endshields on the center disks.

3. Remove bolts (A) securing arm (B) to disc.

### **IMPORTANT:**

**Note the hole locations in arm and disc and ensure bolts are reinstalled at original locations.**

4. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.

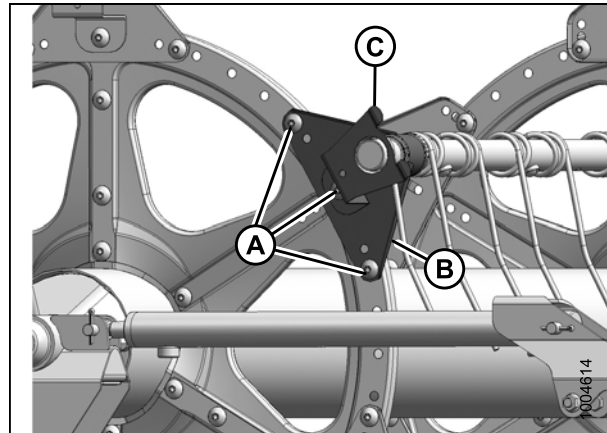


Figure 7.319

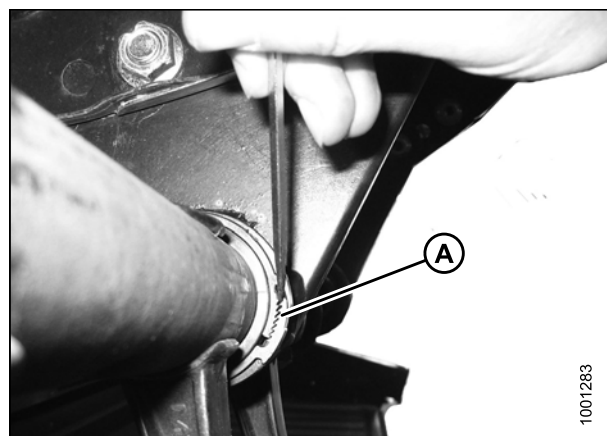


Figure 7.320

## MAINTENANCE AND SERVICING

5. Rotate arm (A) clear of disc and slide arm inboard off bushing and remove bushing halves (B). If required remove the next tine or plastic finger, so that the arm can slide off the bushing. See Section

- [Removing Plastic Fingers, page 364](#)
- [Removing Steel Tines, page 363](#)

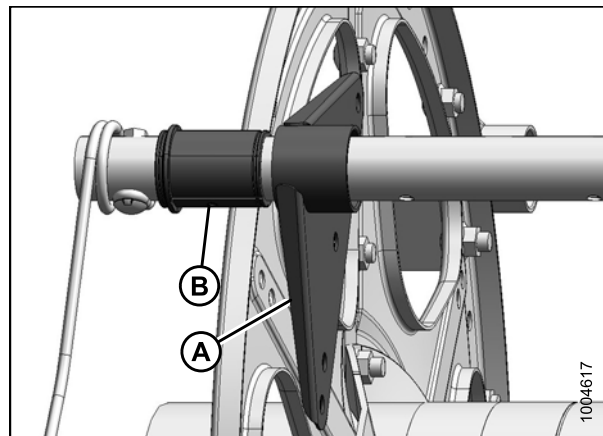


Figure 7.321

### Cam end bushings

6. On the cam end, remove endshields and endshield support (A) at applicable tine tube location on the cam end.
7. On the tail end, remove reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

**NOTE:** There are no endshields on the center disks.

8. On the tail and center discs, remove bolts (A) securing arm (B) to disc.

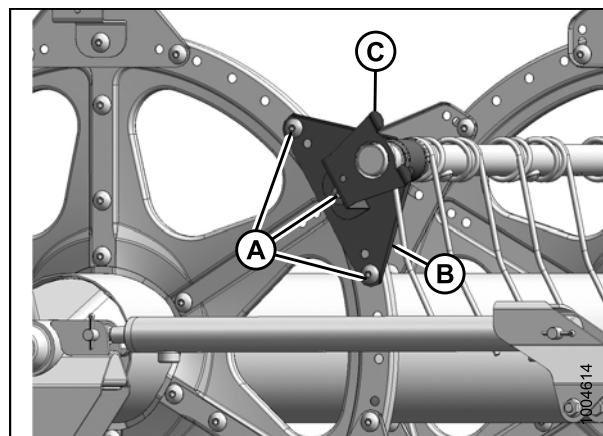


Figure 7.322

9. Remove bolt (A) at on cam linkage so that tine tube (B) is free to rotate.

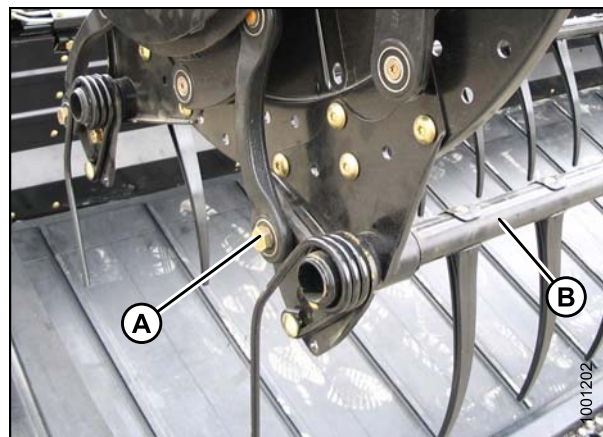
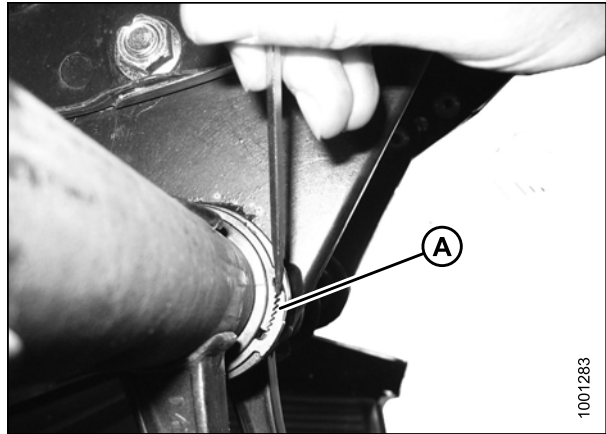


Figure 7.323

## MAINTENANCE AND SERVICING

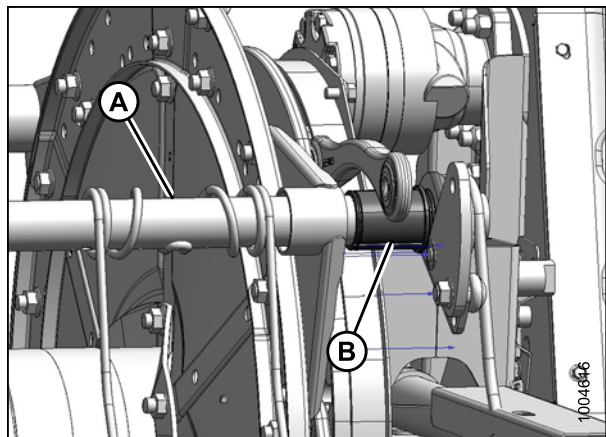
10. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.



**Figure 7.324**

11. Slide tine tube (A) outboard to expose the bushing. Remove the bushing halves (B). If required remove the next tine or plastic finger, so that the arm can slide off the bushing. Refer to

- [Removing Plastic Fingers, page 364](#)
- [Removing Steel Tines, page 363](#)



**Figure 7.325**

## MAINTENANCE AND SERVICING

### *Installing Bushings on 5, 6, or 9 Bat Reels*

#### **⚠ WARNING**

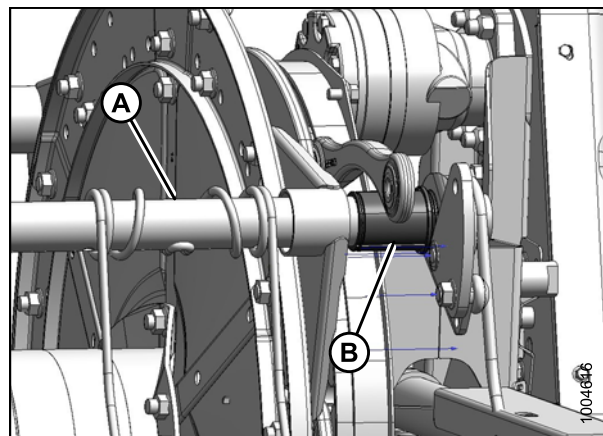
To avoid bodily injury from fall of raised reel, always engage reel safety props before going under raised reel for any reason.

#### **IMPORTANT:**

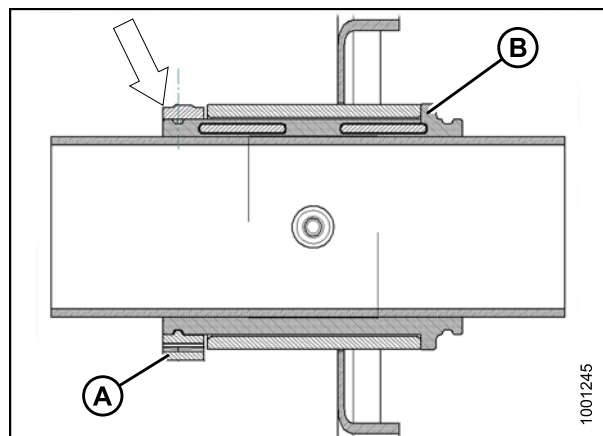
Ensure tine tube is supported at all times to prevent damage to the tube or other components.

#### Cam end bushings

1. Position bushing halves (B) on tine tube so that lug in each bushing half is positioned in hole in tine tube.
2. Slide tine tube (A) inboard to cover the bushing (B). If any fingers were removed reinstall them at this time. See Section
  - [Installing Steel Tines, page 363](#)
  - [Installing Plastic Fingers, page 365](#)
3. Install bushing clamps (A) by spreading clamp (A) and slip over tine tube adjacent to flangeless end of bushing.
4. Position clamp on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.



**Figure 7.326**



**Figure 7.327**

A - Bushing clamp

B - Bushing



## MAINTENANCE AND SERVICING

5. Tighten clamp (A) with modified channel lock pliers (B) so that finger pressure will **NOT** move clamp.

**NOTE:** To modify channel lock pliers – secure in a vice and grind out centre of arms to accommodate clamps (as shown in image).

### IMPORTANT:

Over-tightening clamp may result in breakage.

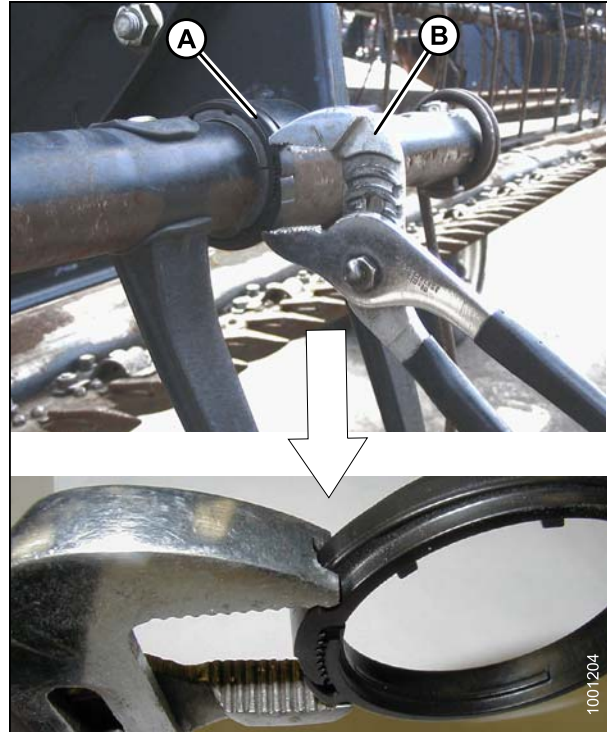


Figure 7.328

A - Bushing clamp

B - Channel lock pliers

6. Line up tine bar (B) with cam arm and install bolt (A). Torque bolt to 120 ft·lbf (165 N·m).

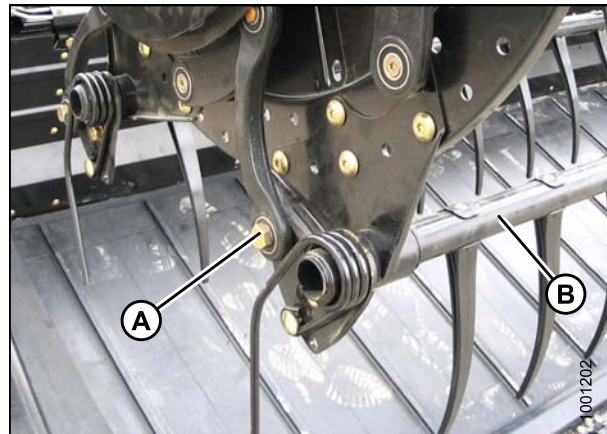


Figure 7.329

## MAINTENANCE AND SERVICING

7. On the tail and center discs, install the bolts (A) securing arm (B) to disc.
8. On the tail end, install reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

**NOTE:** There are no endshields on the center disks.

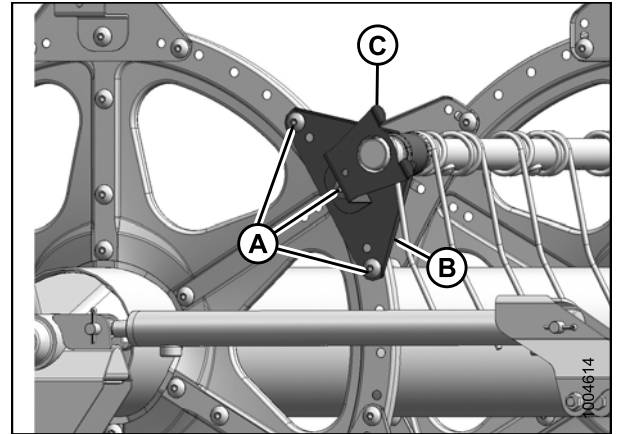


Figure 7.330

9. On the cam end, install endshields and endshield support (A) at applicable tine tube location on the cam end.

### Center disc and tail end bushings

10. Position bushing halves (B) on tine tube so that lug in each bushing half is positioned in hole in tine tube.
11. Slide reel arm (A) onto bushing (B) and position against disc at original location.
12. Install bolts (A) in original holes and tighten.
13. Reinstall any fingers or tines that were removed. Refer to
  - [Installing Steel Tines, page 363](#)
  - [Installing Plastic Fingers, page 365](#)

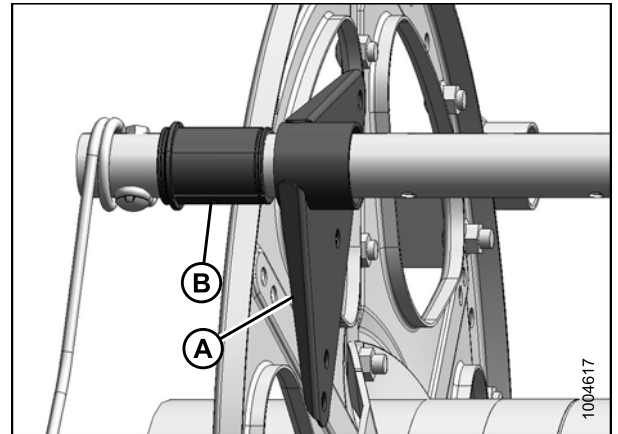


Figure 7.331

14. Install bushing clamps (A) by spreading clamp (A) and slip over tine tube adjacent to flangeless end of bushing.
15. Position clamp on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.

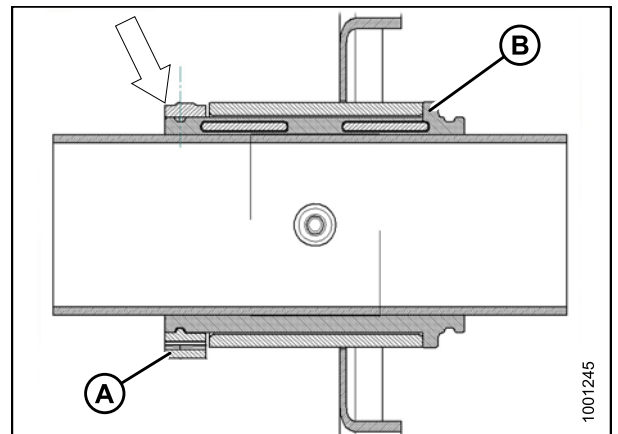


Figure 7.332

A - Bushing clamp

B - Bushing

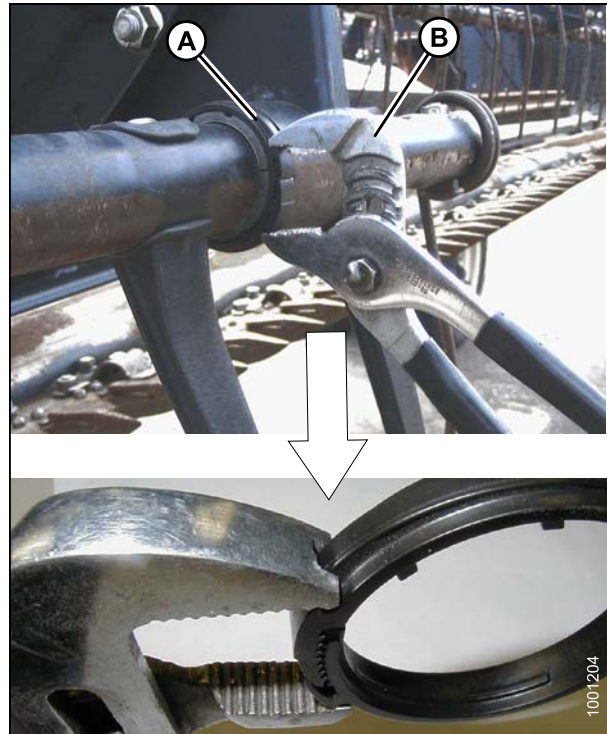


## MAINTENANCE AND SERVICING

16. Tighten clamp (A) with modified channel lock pliers (B) so that finger pressure will **NOT** move clamp.

### IMPORTANT:

Over-tightening clamp may result in breakage.



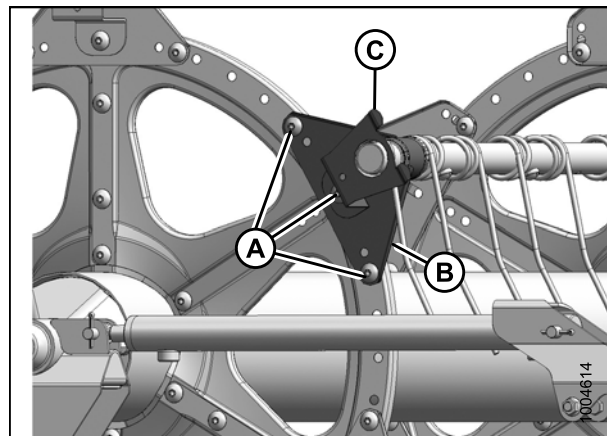
**Figure 7.333**

A - Bushing clamp

B - Channel lock pliers

17. On the tail and center discs, install the bolts (A) securing arm (B) to disc.
18. On the tail end, install reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

**NOTE:** There are no endshields on the center disks.



**Figure 7.334**

## MAINTENANCE AND SERVICING

### 7.11.11 Reel Endshields

The reel endshields and supports do not require regular maintenance but should periodically be checked for damage and loose or missing fasteners. Endshields or supports that are slightly dented or deformed may be repaired. Severely damaged components should be replaced.

#### *Replacing Endshield*

1. Lower header and reel, and shutdown engine. Remove key from ignition.
2. Manually rotate reel for access to endshield (A) to be replaced.
3. Remove three bolts (B).

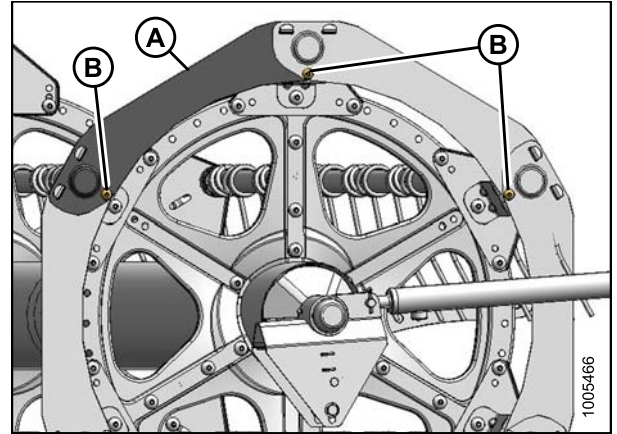


Figure 7.335

4. Lift end of endshield (A) off support (B).

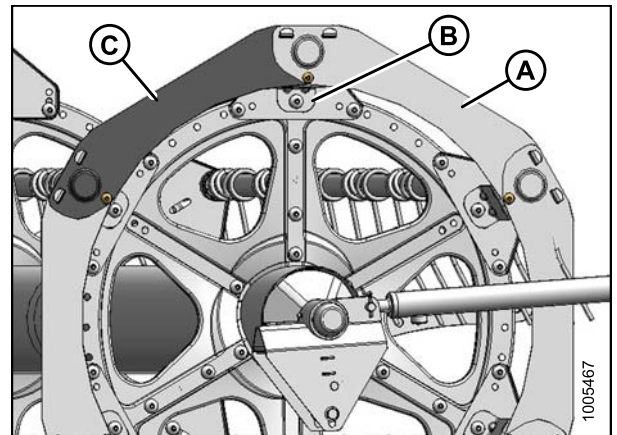


Figure 7.336

## MAINTENANCE AND SERVICING

5. Lift endshield off supports.

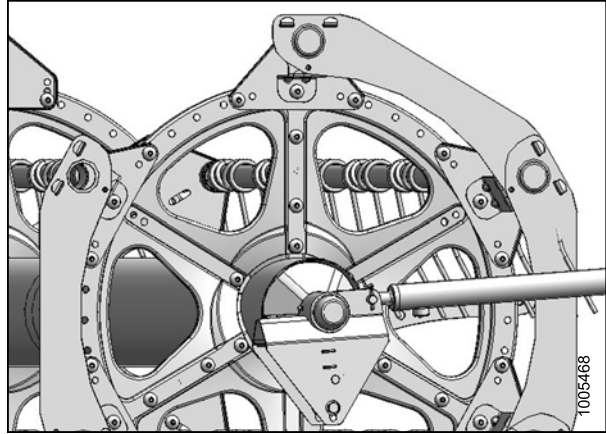


Figure 7.337

6. Move endshield (A) away from support (B) and place new endshield (C) onto supports.
7. Reattach end of endshield (A) to support (B).
8. Reinstall bolts (D).
9. Tighten all hardware.

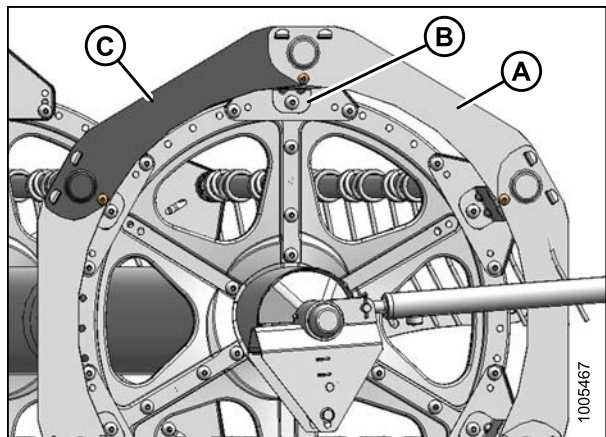


Figure 7.338

### *Replacing Support*

1. Lower header and reel, and shutdown engine. Remove key from ignition.
2. Manually rotate reel for access to endshield support (A) to be replaced.
3. Remove bolt (B) from support (A).
4. Remove bolts (C) from support (A) and two adjacent supports.

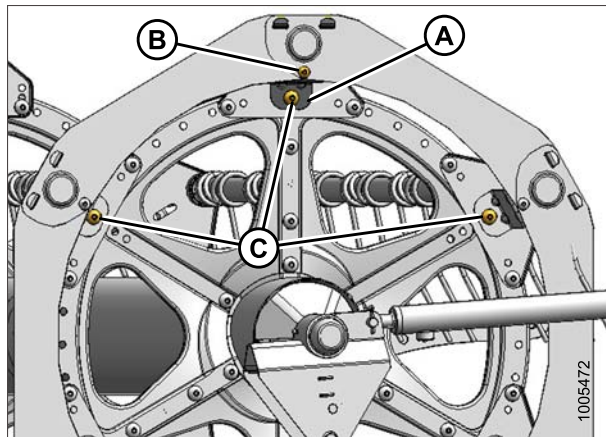


Figure 7.339

## MAINTENANCE AND SERVICING

5. Move endshields (A) away from tine tube and rotate support (B) towards reel to remove it.
6. Insert tabs of new support (B) into slots in endshields and rotate into endshields. Ensure tabs engage both endshields.
7. Secure support (B) to disc with bolt (C) and nut. Do not tighten.
8. Secure endshields (A) to support (B) with bolt (C) and nut. Do not tighten.
9. Reattach supports with bolts (C) and nuts.
10. Check clearance between tine tube and endshield support, and adjust if necessary.
11. Torque nuts to 20 ft·lbf (27 N·m).

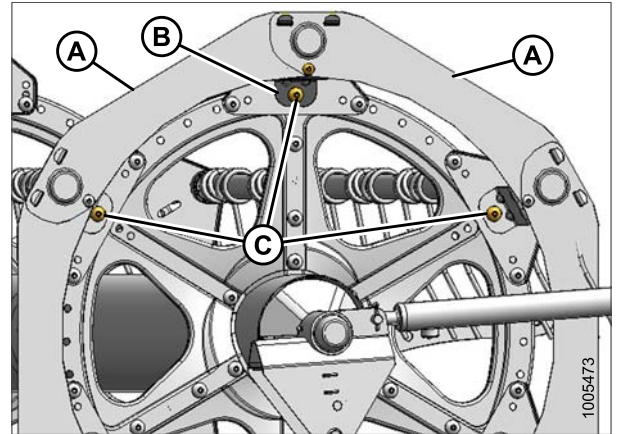


Figure 7.340

### 7.11.12 Checking and Adjusting Header Wing Float

Header wing float is the ability of the header's "wing" to react to changing ground conditions. If set too LIGHT, the wing will bounce on the ground. If set too HEAVY, the wing will dig into the ground.

#### CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to [Section 7.1 Preparation for Servicing, page 205](#).

#### *Checking Wing Balance*

If a wing has a tendency to be in a 'smile' or 'frown' position, wing balance may require adjusting.

1. Extend the header angle hydraulic cylinder (A) to 'B 1/2' on indicator.
2. Park combine on level ground and raise header until cutterbar is 6–10 in. (152–254 mm) off the ground.
3. Stop engine and remove key.
4. If installed, move transport/stabilizer wheels so that they are supported by header. See step [4.7.1 Cutting Height, page 55](#).

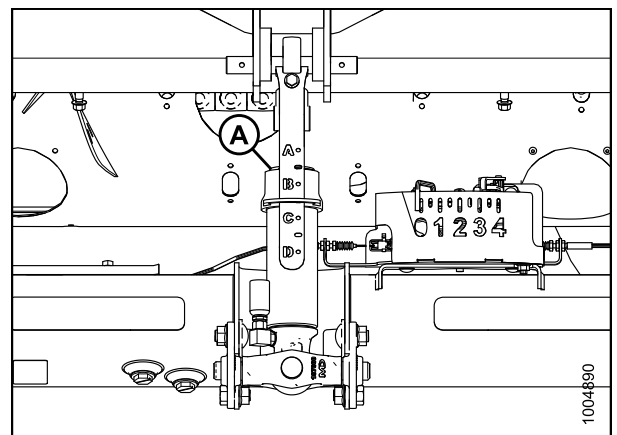


Figure 7.341

## MAINTENANCE AND SERVICING

5. Remove linkage cover (A) by removing bolt (B) and rotating cover upward until inboard end can be lifted off.

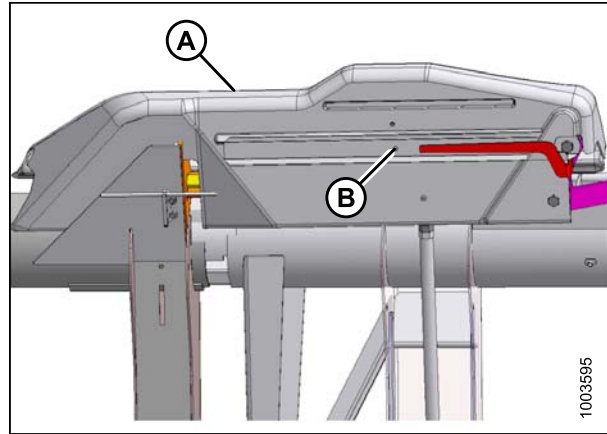


Figure 7.342: Linkage Cover

**NOTE:** See decal (A) inside each linkage cover.

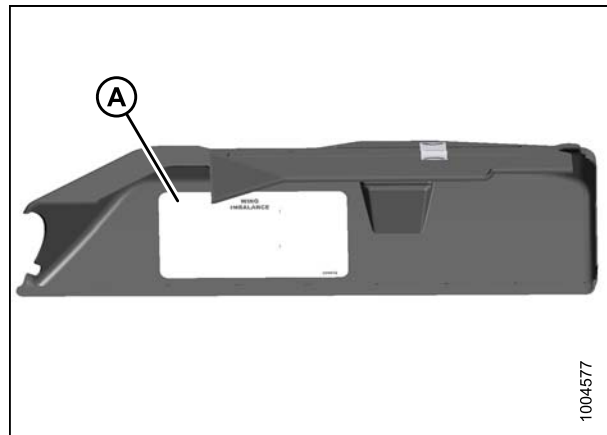


Figure 7.343

6. Unlock the wings by moving spring handle (A) to lower UNLOCK position.
7. Retrieve wrench (A) from right-hand adapter leg.

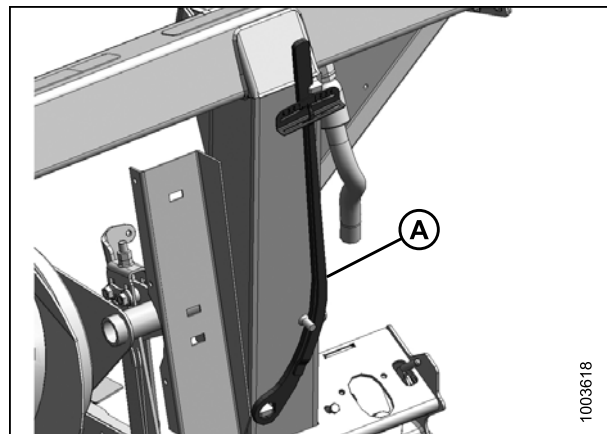
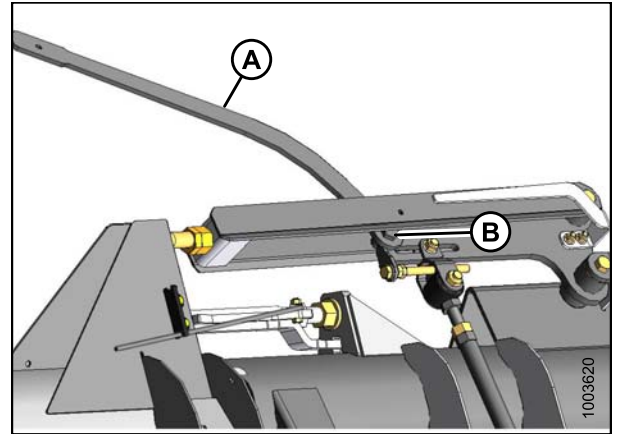


Figure 7.344



## MAINTENANCE AND SERVICING

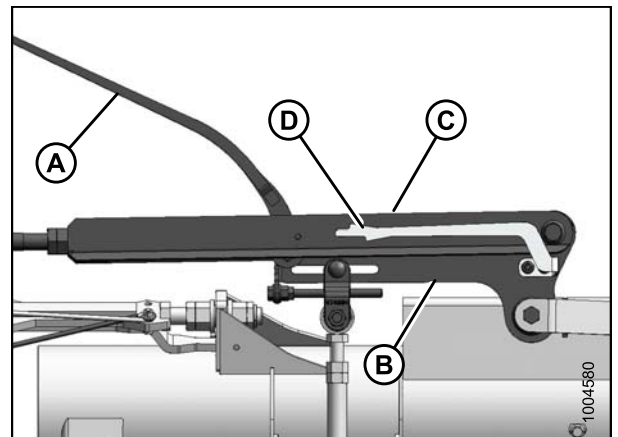
8. Place torque wrench (A) on bolt (B).



**Figure 7.345**

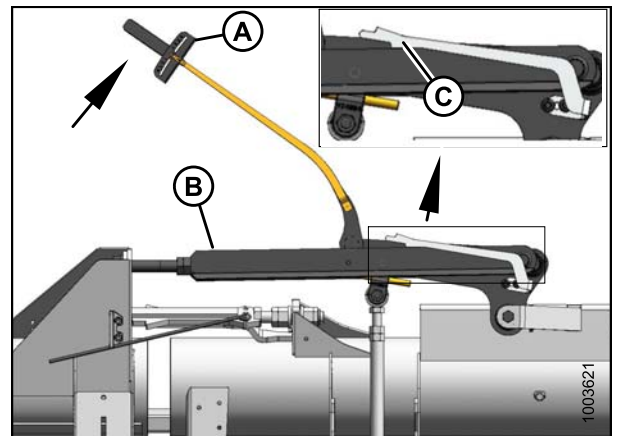
9. Check that pointer (D) is properly positioned as follows:

- a. Use wrench (A) to move bell crank (B) so that lower edge of bell crank is parallel to top-link (C).
- b. Check that pointer (D) is lined up with the top-link (C). Bend pointer if necessary.



**Figure 7.346: Position Pointer**

10. Move wing upward with torque wrench (A) until pointer lower alignment tab (C) lines up with upper edge of top-link (B). Note indicator reading (A) on wrench and record it.



**Figure 7.347: Wing Up**

## MAINTENANCE AND SERVICING

11. Move wing downward with torque wrench (A) until pointer upper alignment tab (C) lines up with the lower edge of the top-link (B). Note indicator reading (A) on the wrench and record it.

- If the difference between the readings is 1 or less, the wing is balanced and no further adjustment is required. Follow the steps below to reinstall the linkage cover.
- If the difference between the readings is more than 1, the wing is not balanced. See step [Adjusting Wing Balance](#), page 380.

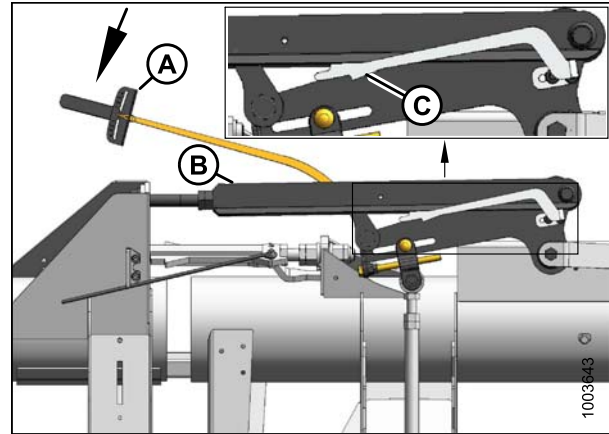


Figure 7.348: Wing Down

- If the indicator range is as shown at right, the wing is too light.

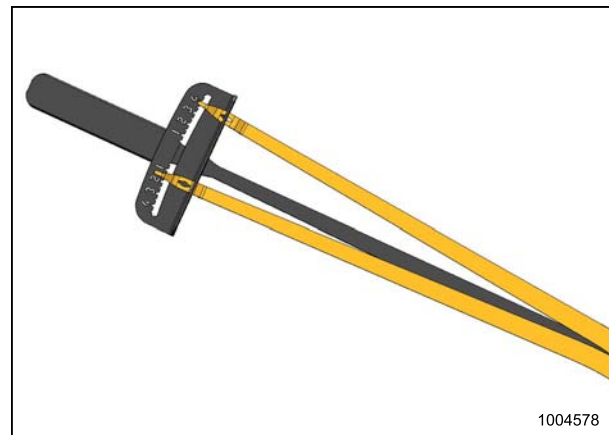


Figure 7.349: Wing is Too Light

- If the indicator range is as shown at right, the wing is too heavy.

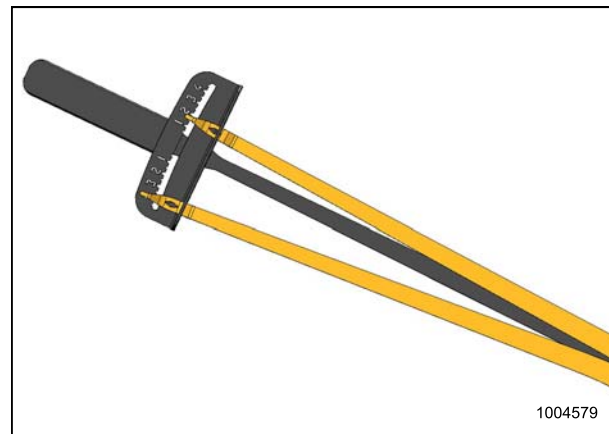
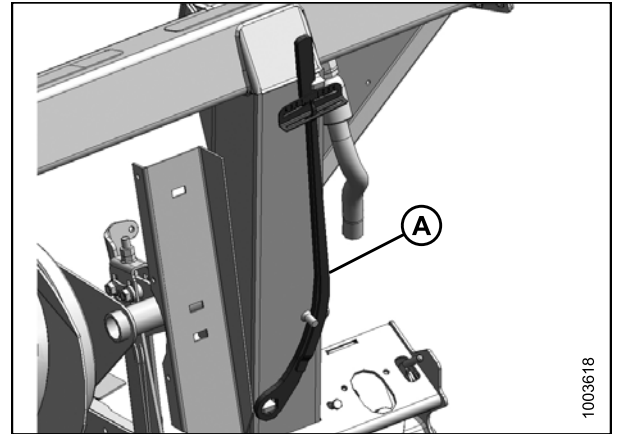


Figure 7.350: Wing is Too Heavy



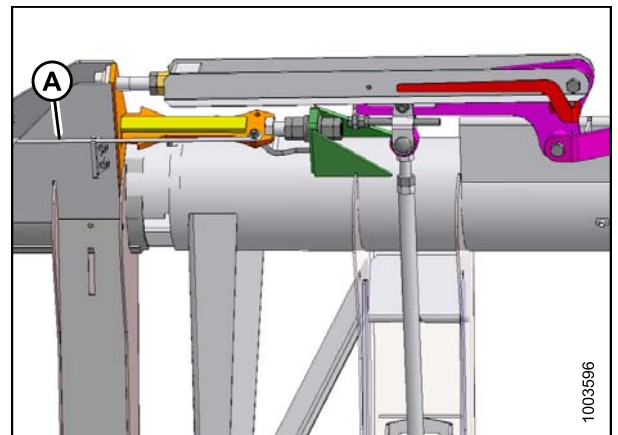
## MAINTENANCE AND SERVICING

12. Place wrench (A) back onto the right-hand adapter leg.



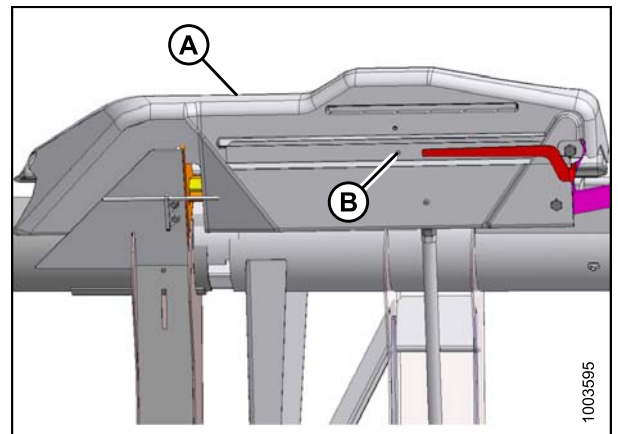
**Figure 7.351**

13. Lock the wings by moving spring handle (A) to upper LOCK position.



**Figure 7.352**

14. Install linkage cover (A), secure with bolt (B).



**Figure 7.353: Linkage Cover**

## MAINTENANCE AND SERVICING

### Adjusting Wing Balance

Before proceeding you will need to check the wing balance to verify which way you need to adjust the wing. See step [Checking Wing Balance, page 375](#).

**NOTE:** Left-hand side is shown.

1. Extend the header angle hydraulic cylinder to 'B 1/2' on indicator (A).
2. Park combine on level ground and raise header until cutterbar is 6–10 in. (152–254 mm) off the ground.
3. Stop engine and remove key.
4. If installed, move transport/stabilizer wheels so that they are supported by header. See step [4.7.1 Cutting Height, page 55](#).
5. Remove linkage cover (A) by removing bolt (B).

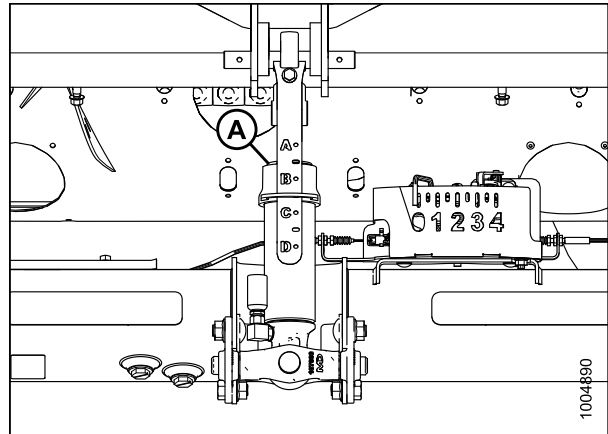


Figure 7.354

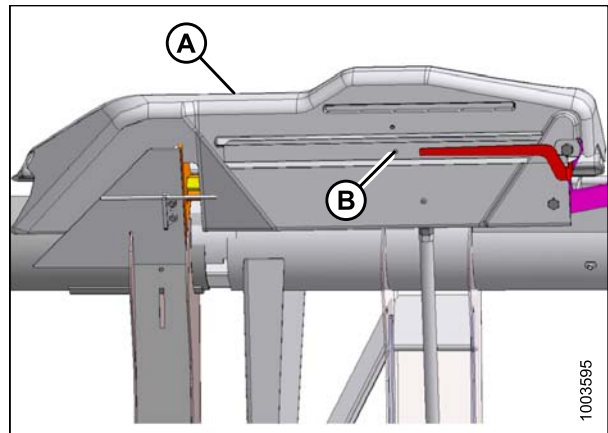


Figure 7.355: Linkage Cover

**NOTE:** See decal (A) inside each linkage cover.

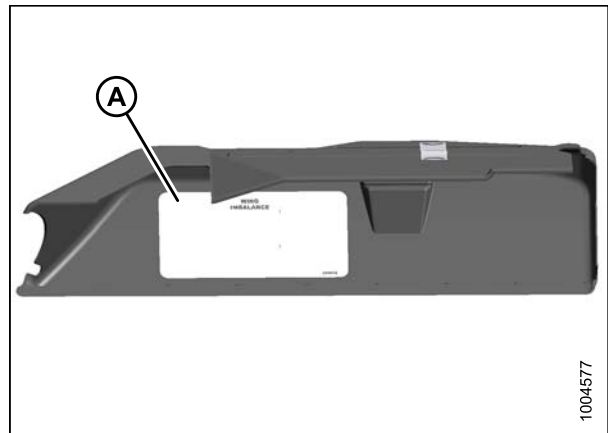
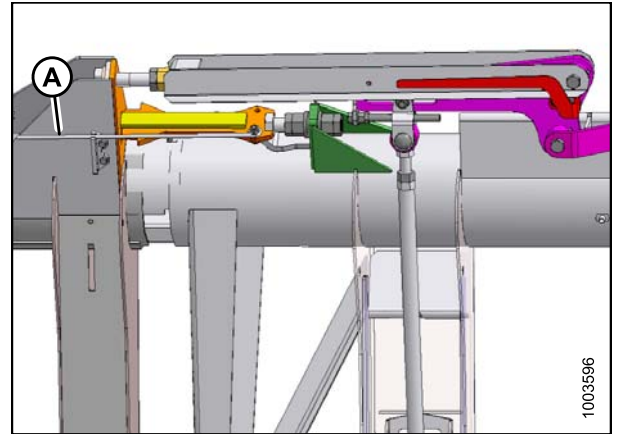


Figure 7.356: Decal Inside Linkage Cover

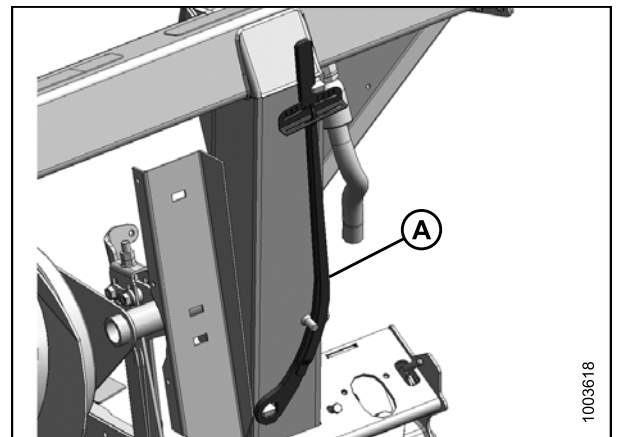
## MAINTENANCE AND SERVICING

6. Lock the wings by moving handle (A) to upper LOCK position.



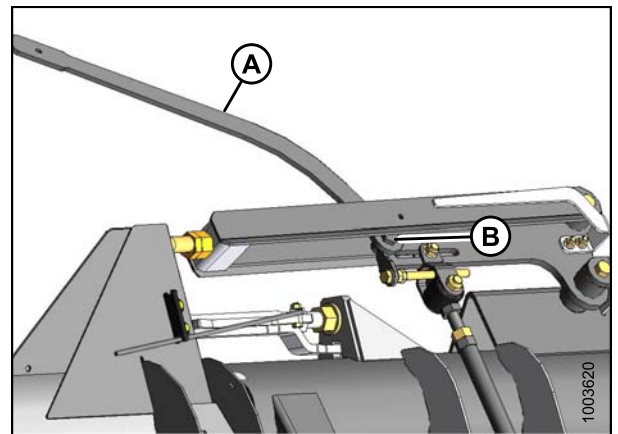
**Figure 7.357**

7. Retrieve wrench (A) from right-hand adapter leg.



**Figure 7.358**

8. Place torque wrench (A) on bolt (B).

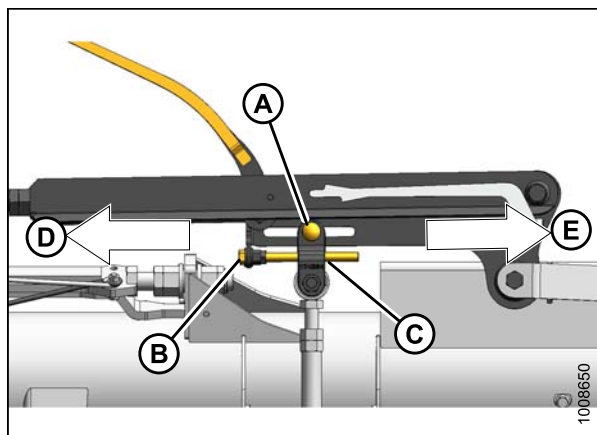


**Figure 7.359**

## MAINTENANCE AND SERVICING

9. Loosen the clevis bolt (A) for the wing requiring adjustment. This is determined by the float check.

**NOTE:** Do not loosen any other hardware as it does not need to be adjusted.

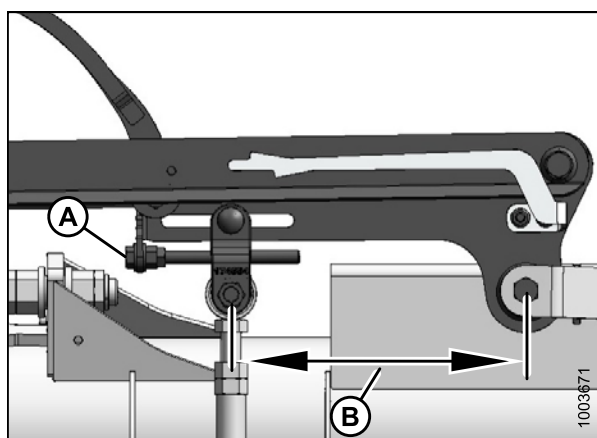


**Figure 7.360**

A - Clevis Nut  
B - Adjuster Bolt  
C - Clevis  
D - Wing Is Too Heavy  
E - Wing Is Too Light

10. Adjust bolt (A) and set dimension (B) from table [7.15 Wing Balance Chart](#), page 382.

- If the wing is too heavy, turn adjuster bolt (A) to move clevis outboard.
- If the wing is too light, turn adjuster bolt (A) to move clevis inboard.



**Figure 7.361**

**NOTE:** The dimension listed are to be used as a starting point, additional adjustment will be required if any kits have been installed by the Dealer.

**Table 7.15 Wing Balance Chart**

Header Configuration	Left-Hand Dimension in. (mm)	Right-Hand Dimension in. (mm)
30-foot	11.4 (290)	285
35-foot	11.8 (300)	11.8 (300)
40-foot Single Knife Drive (SKD)	12 (305)	12.6 (320)
40-foot Double Knife Drive (DKD)	12 (305)	12.2 (310)
40-foot Double Knife Drive (DKD) Split Frame	12 (305)	12.2 (310)
45-foot Double Knife Drive (DKD) Split Frame	12.2 (310)	12.2 (310)

## MAINTENANCE AND SERVICING

11. Lock the wing by moving handle to the upper LOCK position.
12. Using the torque wrench, move the wing up and down until it locks. When locked there will be some movement in the linkage. Check that the bottom edge of the top-link (A) and the bottom edge of the bell crank (B) are parallel to each other within the movement of the wrench. If they are, tighten clevis bolt. If not, bolt (C) will require more adjustment, see substep 10., [Adjusting Wing Balance](#), page 382.

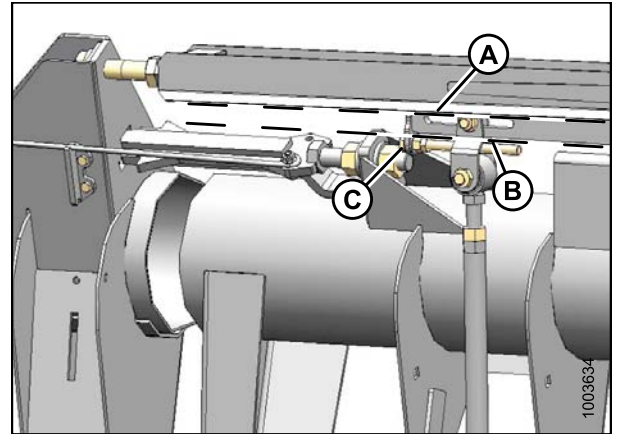


Figure 7.362

13. Reinstall linkage cover (A), secure with bolt (B).
14. See step [4.8 Levelling the Header](#), page 88. If the cutterbar is not straight when wings are in lock mode, then further adjustments are required. Contact your MacDon Dealer.



### CAUTION

Adjustment to the main float may be required to maintain good wing balance when operating in the field. See step [Adjusting Header Float on Ground](#), page 65.

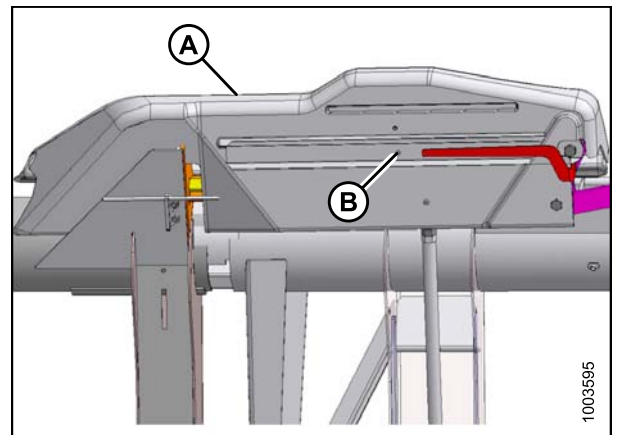


Figure 7.363: Linkage Cover

### 7.11.13 Transport System (Optional)

See Section [9.1.16 Stabilizer/Slow Speed Transport Wheels](#), page 410 for more information.

#### *Torquing Transport System Wheel Bolts*

If a Transport System is installed, follow procedure for torquing the wheel bolts.

#### **IMPORTANT:**

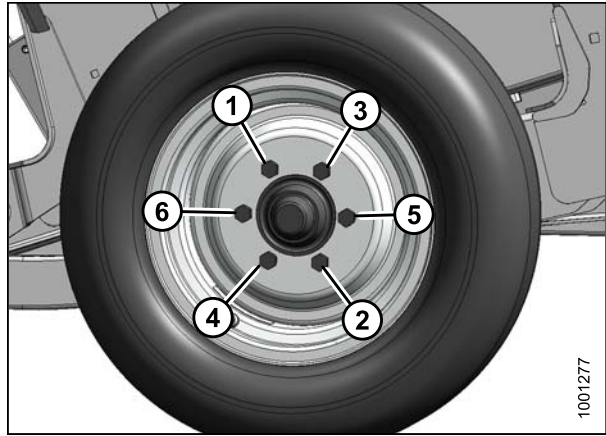
Whenever a wheel is removed and reinstalled, check torque after one hour of operation. Maintain 80–90 ft·lbf (110–120 N·m) torque.

#### **IMPORTANT:**

Follow proper bolt tightening sequence shown below.

## MAINTENANCE AND SERVICING

Check and tighten wheel bolts after the first hour of operation and every 100 hours thereafter. Maintain 80–90 ft·lbf (110–120 N·m) torque.



**Figure 7.364: Bolt tightening sequence**

### *Axle Bolts*

If a Transport System is installed, follow procedure for torquing the axle bolts.

## MAINTENANCE AND SERVICING

Check and tighten axle bolts **DAILY** until torque is maintained as follows:

- (A): 180 ft·lbf (244 N·m)
- (B): 150 ft·lbf (203 N·m)
- (C): 180 ft·lbf (244 N·m)

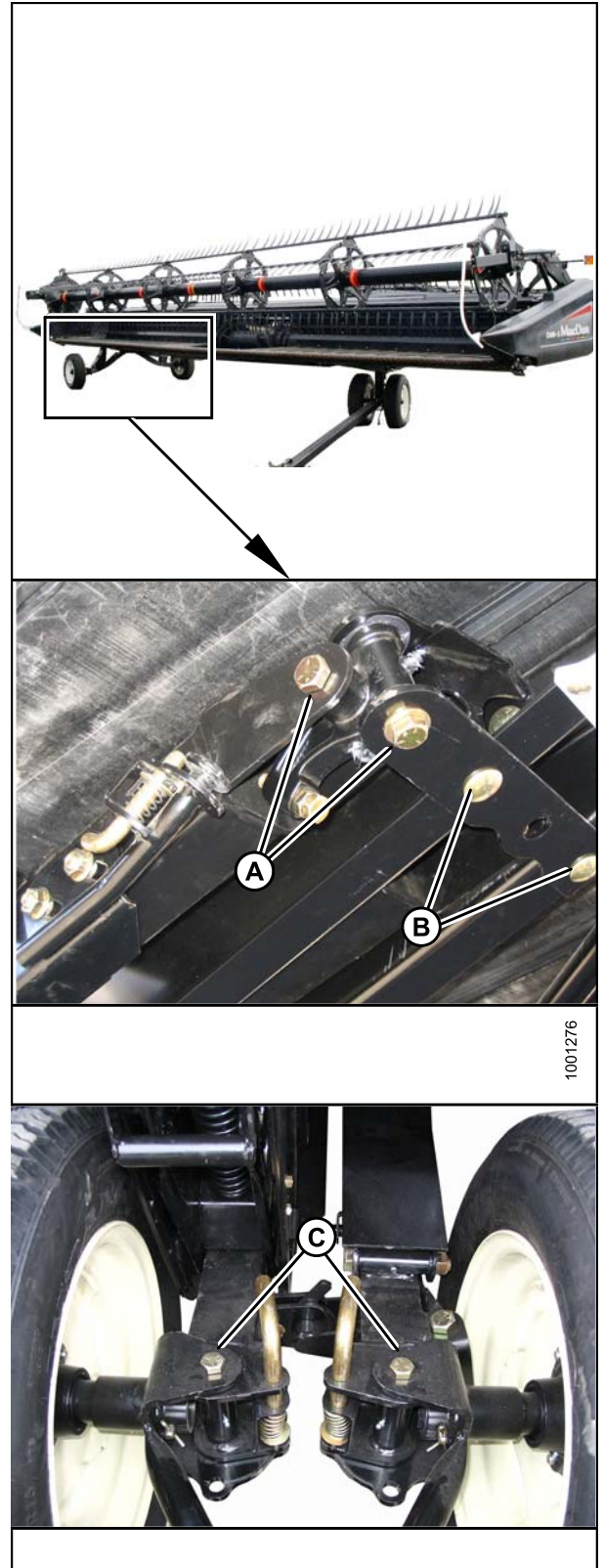


Figure 7.365



## MAINTENANCE AND SERVICING

### Checking Tire Inflation/Pressure

Check tire pressure daily. Maintain pressure recommended in following table:

Size	Load Range	Pressure
ST205/75 R15	D	65 psi (448 kPa)
	E	80 psi (552 kPa)

### WARNING

- Service tires safely.
- A tire can explode during inflation and cause serious injury or death.
- Do NOT stand over tire. Use a clip-on chuck and extension hose.
- Never increase air pressure beyond pressure specified on tire sidewall to seat the bead on the rim.
- Replace the tire if it has a defect.
- Replace a wheel rim, which has cracks, wear or severe rust.
- Never weld a wheel rim.
- Never use force on an inflated or partially inflated tire.
- Make sure the tire is correctly seated before inflating to operating pressure.
- If the tire is not in correct position on the rim, or is too full of air, the tire bead can loosen on one side, causing air to leak at high speed and with great force. An air leak of this nature can thrust the tire in any direction, endangering anyone in the area.
- Make sure all the air is removed from a tire before removing the tire from a rim.
- Do NOT remove, install or make repairs to a tire on a rim unless you have the proper equipment and experience to perform the job. Take the tire and rim to a qualified tire repair shop.

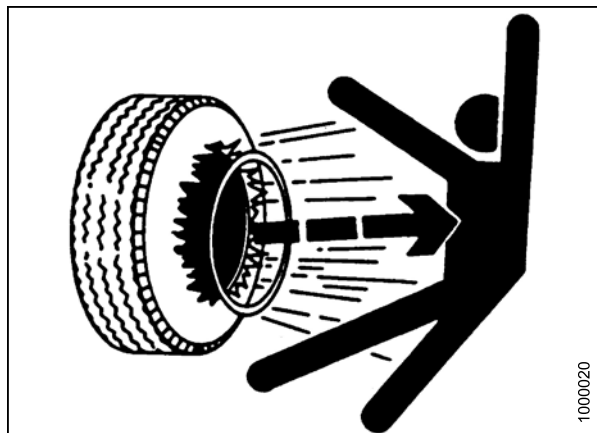


Figure 7.366

## 8 Troubleshooting

### 8.1 Crop Loss at Cutterbar

Symptom	Problem	Solution	Section
<b>Does not pick up down crop</b>	Cutterbar too high	Lower cutterbar	<a href="#">4.7.1 Cutting Height, page 55</a>
	Header angle too flat	Steepen header height	<a href="#">4.7.3 Header Angle, page 68</a>
	Reel too high	Lower reel	<a href="#">4.7.8 Reel Height, page 74</a>
	Reel too far back	Move reel forward	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
	Ground speed too fast for reel speed	Reduce ground speed or increase reel speed	<a href="#">4.7.4 Reel Speed, page 69</a> and <a href="#">4.7.5 Ground Speed, page 71</a>
	Reel fingers not lifting crop sufficiently	Increase finger pitch aggressiveness	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
		Install lifter guards	See your MacDon Dealer
<b>Heads shattering or breaking off</b>	Reel speed too fast	Reduce reel speed	<a href="#">4.7.4 Reel Speed, page 69</a>
	Reel too low	Raise reel	<a href="#">4.7.8 Reel Height, page 74</a>
	Ground speed too fast	Reduce ground speed	<a href="#">4.7.5 Ground Speed, page 71</a>
	Crop too ripe	Operate at night when humidity is higher	—
<b>Cut grain falling ahead of cutterbar</b>	Ground speed too slow	Increase ground speed	<a href="#">4.7.5 Ground Speed, page 71</a>
	Reel speed too slow	Increase reel speed	
	Reel too high	Lower reel	<a href="#">4.7.8 Reel Height, page 74</a>
	Cutterbar too high	Lower cutterbar	<a href="#">4.7.1 Cutting Height, page 55</a>
	Reel too far forward	Move reel back on arms	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
	Cutting at speeds over 6 mph (10 km/h) with high torque (10-tooth) reel drive sprocket	Replace with standard torque (19-tooth) reel drive sprocket	
	Worn or broken knife components	Replace components	

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Strips of uncut material</b>	Crowding uncut crop	Allow enough room for crop to be fed to cutterbar	—
	Broken knife sections	Replace broken sections	<a href="#">7.8.1 Replacing Knife Section, page 263</a>
<b>Excessive bouncing at normal field speed</b>	Float set too light	Adjust header float	<a href="#">4.7.2 Header Float, page 61</a>
<b>Divider rod running down standing crop</b>	Divider rods too long	Remove divider rod	<a href="#">4.7.12 Crop Divider Rods, page 86</a>
<b>Bushy or tangled crop flows over divider rod, builds up on endsheets</b>	Divider rods providing insufficient separation	Install long divider rods	<a href="#">4.7.12 Crop Divider Rods, page 86</a>
<b>Crop not being cut at ends</b>	Reel not frowning or not centered in header	Adjust reel frown or reel horizontal position	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a> and <a href="#">7.11.2 Reel Frown, page 333</a>
	Knife hold-downs not adjusted properly	Adjust hold-downs so knife works freely, but still keep sections from lifting off guards	<a href="#">Knife Hold-Downs, page 272</a>
	Knife sections or guards are worn or broken	Replace all worn and broken cutting parts	<a href="#">7.8 Knife and Knife Drive, page 263</a>
	Header is not level	Level header	<a href="#">4.8 Levelling the Header, page 88</a>
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a> and <a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Divider runs down thick crop at ends, preventing proper feeding due to material bridging the cutter guards	Replace 3 or 4 end guards with stub guards	See your MacDon Dealer, <a href="#">7.8.7 Knife Guards, page 267</a> , <a href="#">Knife Hold-Downs, page 272</a> , and <a href="#">9.1.17 Stub Guard Conversion Kit, page 410</a>
<b>Crop Getting Stuffed In Gap Between Cut-out in Endsheets and Knifehead</b>	Crop heads leaning away from knifehead hole in endsheet	Add knifehead shield(s), except in damp/sticky soils	<a href="#">9.1.8 Knifehead Shield, page 406</a>

## TROUBLESHOOTING

### 8.2 Cutting Action and Knife Components

Symptom	Problem	Solution	Section
<b>Ragged or uneven cutting of crop</b>	Knife hold-downs not adjusted properly	Adjust hold-downs	<a href="#">Knife Hold-Downs, page 272</a>
	Knife sections or guards are worn or broken	Replace all worn and broken cutting parts	<a href="#">7.8 Knife and Knife Drive, page 263</a>
	Knife is not operating at recommended speed	Check engine speed of combine	Refer to your combine's operator's manual
	Ground speed too fast for reel speed	Reduce ground speed or increase reel speed	<a href="#">4.7.4 Reel Speed, page 69</a> and <a href="#">4.7.5 Ground Speed, page 71</a>
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a> and <a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Cutterbar too high	Lower cutting height	<a href="#">4.7.1 Cutting Height, page 55</a>
	Header angle too flat	Steepen header angle	<a href="#">4.7.3 Header Angle, page 68</a>
	Bent knife, causing binding of cutting parts	Straighten bent knife and align guards	<a href="#">7.8.7 Knife Guards, page 267</a>
	Cutting edge of guards not close enough, or parallel to knife sections	Align guards	
	Tangled/tough-to-cut crop	Install stub guards	See your MacDon Dealer, <a href="#">7.8.7 Knife Guards, page 267</a> , <a href="#">Knife Hold-Downs, page 272</a> , and <a href="#">9.1.17 Stub Guard Conversion Kit, page 410</a>
	Reel too far back	Move reel forward	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
	Loose knife drive belt	Adjust drive belt tension	<a href="#">7.8.8 Knife Drive Belt, page 274</a>

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Knife plugging</b>	Reel too high or too far forward	Lower reel or move reel rearward	<a href="#">4.7.8 Reel Height, page 74</a> and <a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
	Ground speed too slow	Increase ground speed	<a href="#">4.7.5 Ground Speed, page 71</a>
	Loose knife drive belt	Adjust drive belt tension	<a href="#">7.8.8 Knife Drive Belt, page 274</a>
	Improper knife hold-down adjustment	Adjust hold-down	<a href="#">Knife Hold-Downs, page 272</a>
	Dull or broken knife section	Replace knife section	<a href="#">7.8.1 Replacing Knife Section, page 263</a>
	Bent or broken guards	Align or replace guards	<a href="#">7.8.7 Knife Guards, page 267</a>
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a> and <a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Steel pick-up fingers contacting knife	Increase reel clearance to cutterbar or adjust "frown"	<a href="#">7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar, page 331</a> and <a href="#">7.11.2 Reel Frown, page 333</a>
	Float too heavy	Adjust springs for lighter float	<a href="#">4.7.2 Header Float, page 61</a>
	Mud or dirt build-up on cutterbar	Raise cutterbar by lowering skid shoes	<a href="#">Cutting On the Ground, page 59</a>
		Install cut-out sections	See your MacDon Dealer
		Flatten header angle	<a href="#">4.7.3 Header Angle, page 68</a>
<b>Excessive header vibration</b>	Knife is not operating at recommended speed	Check engine speed of combine	See your MacDon Dealer
	Knife hold-downs not adjusted properly	Adjust hold-downs	<a href="#">Knife Hold-Downs, page 272</a>
	Knife on double knife drive not timed	Adjust knife timing	<a href="#">Adjusting Double Knife Timing, page 293</a>
	Knife not operating at recommended speed	Check engine speed of combine	See your MacDon Dealer
	Excessive knife wear	Replace knife	<a href="#">7.8.2 Removing Knife, page 264</a> and <a href="#">7.8.5 Installing Knife, page 266</a>
	Loose or worn knifehead pin or drive arm	Tighten or replace parts	<a href="#">7.8.1 Replacing Knife Section, page 263</a>

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Excessive vibration of adapter and header</b>	Incorrect knife speed	Adjust knife speed	<a href="#">4.7.7 Knife Speed, page 73</a>
	Driveline U-joints worn	Replace U-joints	—
	Bent cutterbar	Straighten cutterbar	See your MacDon Dealer
<b>Excessive breakage of knife sections or guards</b>	Knife hold-downs not adjusted properly	Adjust hold-downs	<a href="#">Knife Hold-Downs, page 272</a>
	Cutterbar operating too low in stony conditions	Raise cutterbar, using skid shoes	<a href="#">Cutting On the Ground, page 59</a>
	Float is set too heavy	Adjust float springs for lighter float	<a href="#">4.7.2 Header Float, page 61</a>
	Bent or broken guard	Straighten or replace guard	<a href="#">7.8.7 Knife Guards, page 267</a>
	Header angle too steep	Flatten header angle	<a href="#">4.7.3 Header Angle, page 68</a>
<b>Knife back breakage</b>	Bent or broken guard	Straighten or replace guard	<a href="#">7.8.7 Knife Guards, page 267</a>
	Worn knifehead pin	Replace knifehead pin	<a href="#">7.8.3 Removing Knifehead Bearing, page 264</a>
	Dull knife	Replace knife	<a href="#">7.8.2 Removing Knife, page 264</a> and <a href="#">7.8.5 Installing Knife, page 266</a>

## TROUBLESHOOTING

### 8.3 Reel Delivery

Symptom	Problem	Solution	Section
<b>Reel not releasing material in normal standing crop</b>	Reel speed too fast	Reduce reel speed	
	Reel too low	Raise reel	<a href="#">4.7.8 Reel Height, page 74</a>
	Reel tines too aggressive	Reduce cam setting	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Reel too far back	Move reel forward	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
<b>Reel not releasing material in lodged and standing crop (reel fully lowered)</b>	Reel tines too aggressive for standing crop	Reduce cam setting (1 or 2)	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
<b>Wrapping on reel end</b>	Reel tines too aggressive	Reduce cam setting	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Reel too low	Raise reel	<a href="#">4.7.8 Reel Height, page 74</a>
	Reel speed too fast	Reduce reel speed	<a href="#">4.7.4 Reel Speed, page 69</a>
	Crop conditions	Install optional endshields	See your MacDon Dealer
	Reel not centered in header	Center reel in header	<a href="#">7.11.3 Reel Centering, page 334</a>
<b>Reel releases crop too quickly</b>	Reel tines not aggressive enough	Increase cam setting	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Reel too far forward	Move reel back	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
<b>Reel will not lift</b>	Reel lift couplers are incompatible or defective	Change quick coupler	—
<b>Reel will not turn</b>	Quick couplers not properly connected	Connect couplers	Refer to your combine's operator's manual
	Reel drive chain disconnected	Connect chain	<a href="#">7.11.4 Reel Drive Chain, page 334</a>
<b>Reel motion uneven under no load</b>	Excessive slack in reel drive chain	Tighten chain	<a href="#">7.11.4 Reel Drive Chain, page 334</a>



## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Reel motion is uneven or stalls in heavy crops</b>	Reel speed too fast	Reduce reel speed	<a href="#">4.7.4 Reel Speed, page 69</a>
	Reel fingers not aggressive enough	Move to a more aggressive finger pitch notch	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Reel too low	Raise reel	<a href="#">4.7.8 Reel Height, page 74</a>
	Relief valve on combine (not on combine adapter) has low relief pressure setting	Increase relief pressure to manufacturer's recommendations	Refer to your combine's operator's manual
	Low oil reservoir level on combine <b>NOTE:</b> Sometimes there is more than one reservoir.	Fill to proper level	
	Relief valve malfunction	Replace relief valve	
	Cutting tough crops with standard torque (19-tooth) reel drive sprocket	Replace with high torque (10-tooth or 14-tooth) reel drive sprocket	<a href="#">7.11.5 Reel Drive Sprocket, page 343</a>
<b>Plastic fingers cut at tip</b>	Insufficient reel to cutterbar clearance	Increase clearance on D65	<a href="#">7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar, page 331</a>
<b>Plastic fingers bent rearward at tip</b>	Reel digging into ground with reel speed slower than ground speed	Raise header	<a href="#">4.7.1 Cutting Height, page 55</a>
		Decrease header tilt	<a href="#">4.7.3 Header Angle, page 68</a>
		Move reel aft	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
<b>Plastic fingers bent forward at tip (opposite of above)</b>	Reel digging into ground with reel speed faster than ground speed	Raise header	<a href="#">4.7.1 Cutting Height, page 55</a>
		Decrease header tilt	<a href="#">4.7.3 Header Angle, page 68</a>
		Move reel aft	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
<b>Plastic fingers bent close to tine tube.</b>	Excessive plugging at cutterbar with wads of crop accumulating at cutterbar while maintaining reel operation.	Correct plugging/cutting issues.	<a href="#">4.9 Unplugging Cutterbar, page 90</a>
		Stop reel before plugging becomes excessive.	

## TROUBLESHOOTING

### 8.4 Header and Drapers

Symptom	Problem	Solution	Section
Header lift insufficient	Low relief pressure	Increase relief pressure	Refer to your combine's operator's manual
Insufficient side draper speed	Speed control set too low	Increase control setting	<a href="#">4.7.6 Draper Speed, page 72</a>
	Relief pressure too low	Increase relief pressure to recommended setting	—
	Worn out gear pump	Replace pump	—
	Combine header drive too slow	Adjust to correct speed for combine model	Refer to your combine's operator's manual
	Pressure compensator (V7) set too low	Adjust to increase setting	
Draper will not drive	Drapers are loose	Tighten drapers	<a href="#">7.10.3 Adjusting Side Draper Tension, page 320</a>
	Drive or idler roller wrapped with material	Loosen draper and clean rollers	
	Slat or connector bar jammed by frame or material	Loosen draper and clear obstruction	
	Roller bearing seized	Replace	<a href="#">7.10.6 Draper Roller Maintenance, page 323</a>
	Low hydraulic oil	Fill reservoir to full level	<a href="#">Adding Hydraulic Oil, page 239</a>
	Incorrect relief setting at flow control valve	Adjust relief setting	—
Draper stalling	Material not feeding evenly off knife	Lower reel	<a href="#">4.7.8 Reel Height, page 74</a>
		Install stub guards	<a href="#">7.8.7 Knife Guards, page 267, Knife Hold-Downs, page 272, 9.1.17 Stub Guard Conversion Kit, page 410</a> and See your MacDon Dealer
	Material accumulates inside or under front edge of draper	Adjust deck height	<a href="#">7.10.5 Adjusting Deck Height, page 322</a>

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Adapter auger back-feeds</b>	Auger set too high	Check reversing mechanism inside auger	Refer to your combine's operator's manual
		Lower auger	<a href="#">7.7.1 Adjusting Auger to Pan Clearance, page 251</a>
	<b>John Deere:</b> Feeder chain running too slow	Run feeder chain at high speed	Refer to your combine's operator's manual
	<b>John Deere:</b> Equipped with feeder chain with 4 pitches per bar	Replace with 6 pitch per bar feeder chain, or remove every other bar	
	<b>Case:</b> Stone retarding drum installed, or smooth feeder chain bars installed	Install standard drum or fill slots in stone retarding drum, or install serrated feed chain bars	
<b>Hesitation in flow of bulky crop</b>	Header angle too flat	Steepen header angle	<a href="#">4.7.3 Header Angle, page 68</a>
	Material overload on drapers	Increase side draper speed	<a href="#">4.7.6 Draper Speed, page 72</a>
		Install upper cross auger	See your MacDon Dealer
		Add flighting extensions	<a href="#">5.1.1 Flighting Extensions, page 113</a>
	Material accumulation at auger ends	Install stripper bars	<a href="#">5.1.2 Stripper Bars, page 116</a>
	<b>Case:</b> Stone retarder blocks interfering with crop flow	Adjust blocks to minimum height	Refer to your combine's operator's manual
	Side drapers running too fast, piling material in center of feeder draper	Reduce header side draper speed	<a href="#">4.7.6 Draper Speed, page 72</a>
	Feed chain drum too low	Move drum to corn position	Refer to your combine's operator's manual
<b>Adapter auger wraps crop</b>	Crop susceptible to wrapping (flax)	Add flighting extensions or stripper bars	<a href="#">5.1.1 Flighting Extensions, page 113</a> and <a href="#">5.1.2 Stripper Bars, page 116</a>
	Auger speed too fast	Install slow down kit	See your MacDon Dealer
<b>Combine feeder drum wraps crop</b>	Crop susceptible to wrapping (flax)	Add stripper bars	<a href="#">5.1.2 Stripper Bars, page 116</a>

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Crop backs up or hesitates on feed draper</b>	Feed draper stalling	Clean debris from poly pan	—
		Check feed draper tension	<a href="#">7.10.4 Adjusting Header Draper Tracking, page 320</a>
		Replace roller bearing(s)	<a href="#">Replacing Adapter Drive Roller Bearing, page 313</a>
		Check feed draper motor	—
	Heavy crop plugging between adapter auger and feed draper	Check auger clearance	<a href="#">7.7.1 Adjusting Auger to Pan Clearance, page 251</a>
		See also “Adapter auger back-feeds” earlier in this table	—
	Auger speed too low	Install auger speed up kit	See your MacDon Dealer
<b>Crop back feeds on center feed draper</b>	Excessive clearance from auger to drive roller	Lower auger	<a href="#">7.7.1 Adjusting Auger to Pan Clearance, page 251</a>
	Auger speed too slow	Install auger speed-up kit	See your MacDon Dealer
<b>Side drapers back-feed</b>	Side drapers running too slow in heavy crop	Increase side draper speed	<a href="#">4.7.6 Draper Speed, page 72</a>
<b>Crop is thrown across opening and under opposite side draper</b>	Side drapers running too fast in light crop	Reduce side draper speed	<a href="#">4.7.6 Draper Speed, page 72</a>
	Excessive overlap of feeder draper	Center side draper drive rollers over feed draper side deflectors	—
<b>Crop feeding into feeder house at sides more than at center</b>	Auger not delivering crop properly	Add flighting extensions	<a href="#">5.1.1 Flighting Extensions, page 113</a>
		Add stripper bars	<a href="#">5.1.2 Stripper Bars, page 116</a>
		Remove auger outer tines	<a href="#">Removing Feed Auger Tines, page 259</a>
		Install auger speed-up kit	See your MacDon Dealer
<b>Crop feeding into feeder house at center more than at sides</b>	Auger not delivering crop properly	Add auger outer tines	<a href="#">Removing Feed Auger Tines, page 259</a>
		Remove flighting extensions	<a href="#">5.1.1 Flighting Extensions, page 113</a>
		Remove auger stripper bars	<a href="#">5.1.2 Stripper Bars, page 116</a>
<b>Crop getting stuffed in gap between cut-out in endsheet and knife head</b>	Crop heads leaning away from knifehead hole in endsheet	Add shields, except in damp/sticky soils	<a href="#">7.8.10 Knifehead Shield, page 306</a>
<b>Material accumulates inside or under front edge of draper</b>	Deck height improperly adjusted	Adjust deck height	<a href="#">7.10.5 Adjusting Deck Height, page 322</a>

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Material wrapping at upper cross auger beater bars</b>	Crop conditions do not require beater bars	Remove beater bars	<a href="#">4.11 Upper Cross Auger (UCA), page 92</a>
<b>Material accumulating on end deflectors and releasing in bunches</b>	End deflectors too wide	Trim deflector or replace with narrow deflector (MacDon part #172381)	—
<b>Cutterbar pushes dirt across entire length</b>	Header height too low	Raise header height with float optimizer control	Refer to your combine's operator's manual
	Float locked	Unlock float	<a href="#">4.7.2 Header Float, page 61</a>
	Float set too heavy	Adjust float	
	Header angle too steep	Adjust header to optimum angle	<a href="#">4.7.3 Header Angle, page 68</a>
<b>Pushing dirt at combine adapter lower beam</b>	Combine face plate incorrectly installed	Remove adapter and check combine faceplate	Refer to your combine's operator's manual
	Header angle too flat	Increase header angle	<a href="#">4.7.3 Header Angle, page 68</a>
	Float too light, header legs do not rest on stops	Adjust to heavier float	<a href="#">4.7.2 Header Float, page 61</a>
<b>wing float assembly binding</b>	Float locked out	Disengage adapter float lockout	<a href="#">4.7.2 Header Float, page 61</a>
	Float set too heavy	Adjust adapter springs to lighter float	
<b>Reel contacts endsheet, especially in smile condition</b>	Reel not centered in header	Center reel in header	<a href="#">7.11.3 Reel Centering, page 334</a>
	Loose reel arm brace	Center reel in header and tighten brace	
<b>Reel fingers being cut at header hinge points in frown condition</b>	Reel clearance inadequate	Adjust reel clearance to cutterbar	<a href="#">7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar, page 331</a>
		Adjust reel frown at finger tubes	<a href="#">7.11.2 Reel Frown, page 333</a>
<b>Longer stubble in middle than at ends, or cutterbar pushes dirt at ends</b>	Too much weight on wings	Adjust wing balance	<a href="#">Checking Wing Balance, page 375</a>
<b>Longer stubble at ends than in middle, or cutterbar pushes dirt in middle</b>	Too much weight at middle of header		
<b>Wings will not frown without excessive down force</b>	Wings set too light	Adjust wing balance	<a href="#">Checking Wing Balance, page 375</a>

## TROUBLESHOOTING

### 8.5 Cutting Edible Beans

Symptom	Problem	Solution	Section
<b>Excessive losses at dividers</b>	Divider rod running down crop and shattering pods	Remove divider rod	<a href="#">4.7.12 Crop Divider Rods, page 86</a>
	Vines and plants build up on endsheet	Install divider rod	
<b>Reel ends wrap up with crop</b>	Uncut crop interfering on reel ends	Add reel endshields	
<b>Reel wraps up with crop</b>	Reel too low	Raise reel	<a href="#">4.7.8 Reel Height, page 74</a>
<b>Plants being stripped and complete or partial plants left behind</b>	Header being carried off ground	Lower header to ground and run on skid shoes and/or cutterbar	<a href="#">Cutting On the Ground, page 59</a>
	Float set too light—rides on high spots and does not get back down soon enough	Set float for: <ul style="list-style-type: none"> <li>• Dry ground: 100–150 lbf</li> <li>• Wet ground: 50–100 lbf</li> </ul>	<a href="#">4.7.2 Header Float, page 61</a>
	Reel being operated too high	Fully retract reel cylinders	<a href="#">4.7.8 Reel Height, page 74</a>
	Reel too high with cylinders fully retracted	Adjust reel height	<a href="#">7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar, page 331</a>
	Finger pitch not aggressive enough	Adjust finger pitch	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Reel too far back on reel support arms	Move reel forward until the fingertips skim the soil surface with header on ground and center-link properly adjusted	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
	Header angle too shallow	Lengthen center-link; if cutting on ground, header angle can be increased by fully retracting lift cylinders	<a href="#">4.7.3 Header Angle, page 68</a>
	Reel too slow	Adjust reel speed to be marginally faster than ground speed	<a href="#">4.7.4 Reel Speed, page 69</a>
	Ground speed too high	Lower ground speed	<a href="#">4.7.5 Ground Speed, page 71</a>
	Header skid shoes adjusted too low	Raise skid shoes to maximum up position	<a href="#">Cutting On the Ground, page 59</a>

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Plants being stripped and complete or partial plants left behind</b>	Dirt packs on bottom of cutterbar and raises cutterbar off the ground	Install plastic wear strips on bottom of cutterbar and skid shoes	See your MacDon Dealer
	Worn/damaged knife sections	Replace sections or complete knife	<a href="#">7.8.1 Replacing Knife Section, page 263</a> , <a href="#">7.8.2 Removing Knife, page 264</a> , and <a href="#">7.8.5 Installing Knife, page 266</a>
	Dirt packs on bottom of cutterbar with poly wear strips and raises cutterbar off the ground	Ground too wet; allow soil to dry	—
		Manually clean the bottom of cutterbar when accumulation gets unacceptable	
	Plastic wear strip for cutterbar has been installed over top of steel wear plates	Remove steel cutterbar wear plates when installing the plastic wear strips for cutterbar	
	Header is not level	Level header	<a href="#">4.8 Levelling the Header, page 88</a>
<b>Plant Vines Pinched Between Top Of Draper And Cutterbar</b>	Parts of vines get caught in pointed guard tip (occurs more in row-cropped beans that are hilled from cultivating)	Install stub guard kit	See your MacDon Dealer, <a href="#">7.8.7 Knife Guards, page 267</a> , <a href="#">Knife Hold-Downs, page 272</a> , and <a href="#">9.1.17 Stub Guard Conversion Kit, page 410</a>
	Cutterbar has filled up with trash with draper to cutterbar gap properly adjusted	Raise header fully at each end of field or as required and shift decks back and forth to help clean out cutterbar	—
<b>Crop Accumulating At Guards And Not Moving Rearward Onto Drapers</b>	Shifting of decks with header raised does not clean out cutterbar debris	Manually remove debris from cutterbar cavity to prevent damage to drapers	—
	Reel finger pitch not aggressive enough	Increase finger aggressiveness (cam position)	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Reel too high relative to knife	Readjust reel minimum height with cylinders fully retracted	<a href="#">7.11.1 Measuring and Adjusting Reel Clearance to Cutterbar, page 331</a>
	Reel too far forward of cutterbar C-section	Reposition reel	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>



## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Cutterbar Guards Breaking</b>	Float insufficient	Increase float	<a href="#">4.7.2 Header Float, page 61</a>
	Excessive amount of rocks in field	Consider installing optional stub guards <b>Tip:</b> Experiment with a few guards on a section of cutterbar to compare the performance of the two different styles of guards	<a href="#">9.1.17 Stub Guard Conversion Kit, page 410</a> , and See your MacDon Dealer
<b>Reel Shattering Pods</b>	Reel running too fast	Reduce reel speed	<a href="#">4.7.4 Reel Speed, page 69</a> ,
	Bean pods are too dry	Cut at night with heavy dew once pods have softened	—
	Reel finger pitch not aggressive enough	Increase finger aggressiveness (cam position)	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>
	Reel too far forward of cutterbar C-section	Reposition reel	
<b>Cutterbar Pushing Too Much Trash And Dirt</b>	Header too heavy	Readjust float to make header lighter	<a href="#">4.7.2 Header Float, page 61</a>
	Header angle too steep	Decrease header angle with lift cylinders	<a href="#">4.7.3 Header Angle, page 68</a>
		Shorten the center-link	
	Regular guards push dirt and plug up with trash or plug up with trash and then push dirt	Install Stub Guard Conversion kit	See your MacDon Dealer, <a href="#">7.8.7 Knife Guards, page 267</a> , <a href="#">Knife Hold-Downs, page 272</a> , and <a href="#">9.1.17 Stub Guard Conversion Kit, page 410</a>
	Improper support for header	Install center skid shoes on header	See your MacDon Dealer
<b>Cutterbar Pushing Too Much Dirt In Certain Locations For Length Of Field</b>	Tire tracks or row crop ridges caused by seeding or spraying operations	Cut at angle to ridges, or crop rows to allow knife and guards to clean out better	—
	Rolling land along length of field due to cultivating	Cut at 90° to undulations, provided knife floats across without digging in	

## TROUBLESHOOTING

Symptom	Problem	Solution	Section
<b>Cutterbar Fills Up With Dirt</b>	Excessive gap between top of front of draper and cutterbar	Adjust front deck hooks to obtain proper clearance between cutterbar and draper	<a href="#">7.10.5 Adjusting Deck Height, page 322</a>
		Raise header fully at each end of field or as required and shift decks back and forth to help clean out cutterbar	—
<b>Reel Carries Over Odd Plants In Same Location</b>	Reel fingers (steel) bent and hook plants out of the crop flow on drapers	Straighten fingers (steel)	—
	Dirt accumulation on end of fingers do not let plants slide off fingers over drapers	Raise reel	<a href="#">4.7.8 Reel Height, page 74</a>
		Adjust reel fore and aft location to move fingers out of the ground	<a href="#">4.7.9 Reel Fore-Aft Position, page 75</a>
<b>Reel Carries Over Excessive Amounts Of Plants Or Wads</b>	Excessive accumulation of crop on drapers (up to height of reel center tube)	Increase draper speed	<a href="#">4.7.6 Draper Speed, page 72</a>
	Finger pitch too retarded	Increase finger pitch	<a href="#">4.7.10 Reel Tine Pitch, page 79</a>



## 9 Options and Attachments

### 9.1 Options and Attachments

The following options and attachments are available for use with your header. Most come with installation instructions. See your MacDon Dealer for availability and ordering information.

#### 9.1.1 Cutterbar Plastic Wear Strips

Available as an attachment, they are recommended for cutting on the ground where soil adheres to steel.

Bundles by header size:

- 30 ft. – MD #B4839
- 35 ft. – MD #B4840
- 40 ft. – MD #B4841
- 45 ft. – MD #B5114



Figure 9.1: Bundle number depends on size of header

#### 9.1.2 Divider Latches

The latches attach to the endsheets. They allow for quick removal of endsheet divider cones to accommodate storage and if required, to reduce the transport width of the header. Installation instructions are included with the kit.

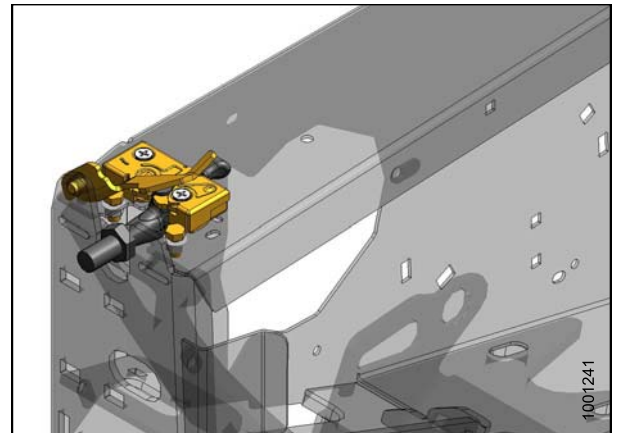


Figure 9.2: MD #B5607

## OPTIONS AND ATTACHMENTS

### 9.1.3 Draper Deflector (Narrow)

Narrow metal deflectors attach to the inboard side of the endsheets, prevent material from falling through the gap between the endsheet and draper.

See FD75 FlexDraper® Draper Header Parts Catalog for required parts.

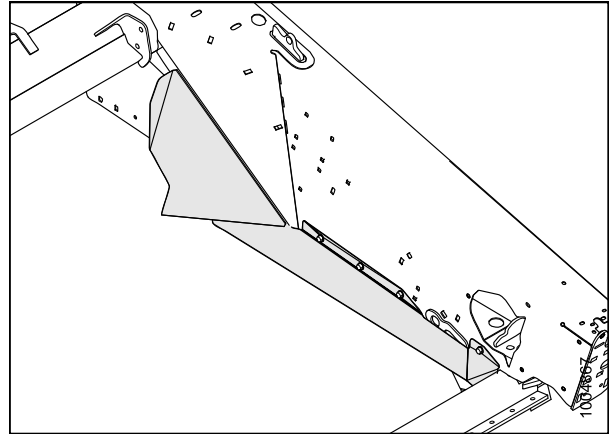


Figure 9.3: Parts are ordered individually.

### 9.1.4 Draper Deflector (Wide)

Wide metal deflectors attach to the inboard side of the endsheets, to prevent material from falling through the gap between the endsheet and draper.

See FD75 FlexDraper® Draper Header Parts Catalog for required parts.

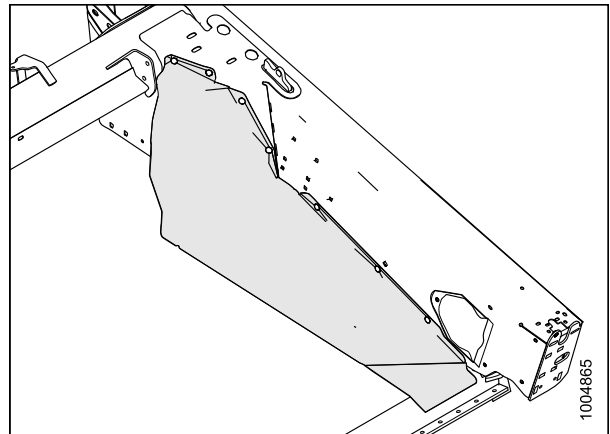


Figure 9.4: Parts are ordered individually.

## OPTIONS AND ATTACHMENTS

### 9.1.5 End Swath Deflector Rods (End Delivery)

Available as an attachment, the rods are used for double swathing – end delivery only, but can be kept on for center delivery.

Rods prevent crop coming off drapers from getting thrown up to standing crop under wide deflector (See Section 9.1.4 [Draper Deflector \(Wide\)](#), page 404). The divider would not have any room to run back between end delivered swath and standing crop when shifting drapers – draper slides between rods and wide draper deflector.

Installation and adjustment instructions are included with the kit.

Order bundles:

- LH - MD #B5088
- RH - MD #B5089

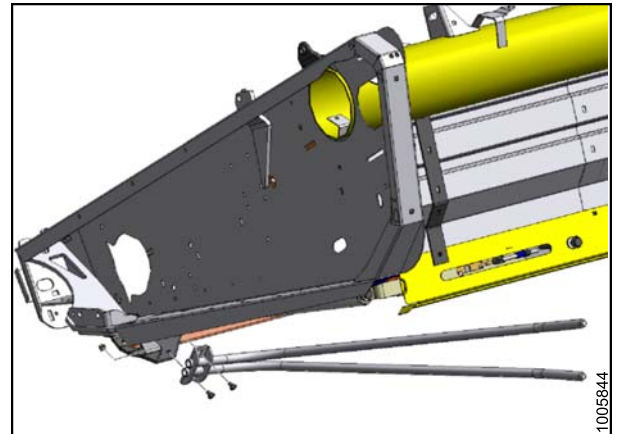


Figure 9.5: Order bundles accordingly

### 9.1.6 European Adapter Seal Kit

The European Adapter Seal kit encloses the transition area of the feed draper and side draper area near the front of the header and also includes side rubber flaps to close off areas in between the adapter and header.

This kit is **NOT RECOMMENDED** for use if there are rocks present.

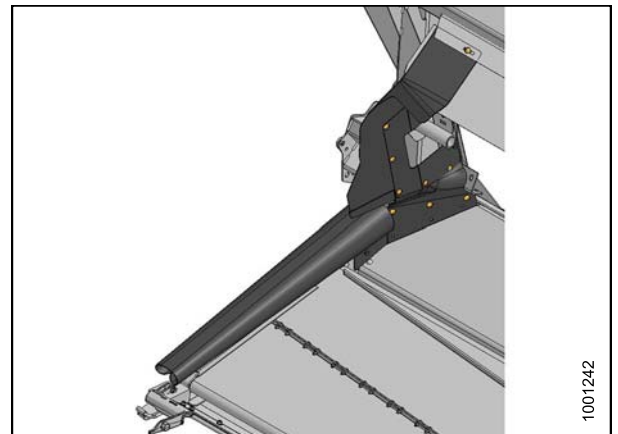


Figure 9.6: MD #B5612

## OPTIONS AND ATTACHMENTS

### 9.1.7 CA25 Feed Auger Flighting

Flighting extensions are available as an option for the CA25 feed auger.

The flighting extension kit may improve feeding in certain crops such as rice or heavy green crop. They are **not** recommended in cereal crops.

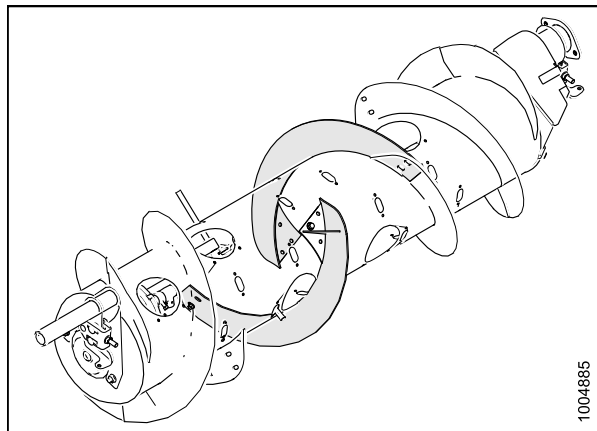


Figure 9.7: MD #B4829

### 9.1.8 Knifehead Shield

The shields attach to the endsheets and reduce the knifehead opening to prevent cut crop, particularly severely lodged crop, from accumulating over the knifehead, which could damage the knife drive box and the endsheet.

Order kit according to header size and guard type.

#### Regular Guards :

- 25 ft. and smaller – MD #220100
- 30 ft. and larger – MD #220101

#### Stub Guards :

- 25 ft. and smaller – MD #220102
- 30 ft. and larger – MD #220103

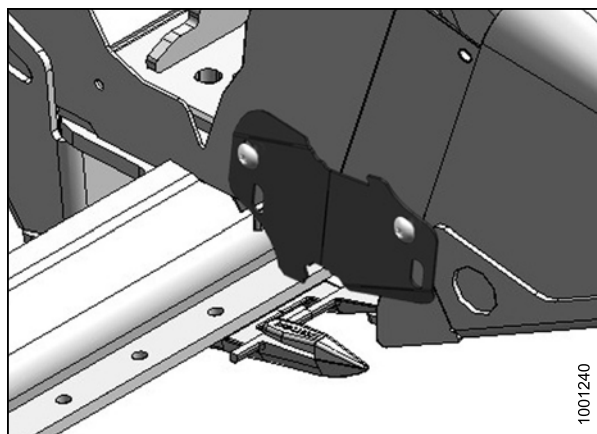


Figure 9.8: Order kit according to header size and guard type.



## OPTIONS AND ATTACHMENTS

### 9.1.9 Lodged Crop Reel Finger Kit

The steel fingers attach to ends of every other tine bar and help in clearing material in heavy, hard-to-cut crops such as lodged rice.

Two kits are required for modifying each bar of a 6-bat reel. Installation and adjustment instructions are included with the kit.



Figure 9.9: MD #B4831

### 9.1.10 Reel Endshield Kit

The steel shields attach to ends of the reel and help in clearing material in heavy, hard-to-cut crops. Installation and adjustment instructions are included with the kit.



Figure 9.10

### 9.1.11 PR15 Tine Tube Reel Conversion Kit

This kit allows conversion of a 6-bat reel to a 9-bat reel.

Bundles by header size

- 30 ft. – Plastic Fingers MD #B5278<sup>13</sup>
- 30 ft. – Steel Fingers MD #B5657<sup>13</sup>
- 35 ft. – Plastic Fingers MD #B5674

**NOTE:** Must order additional endshields when converting reel.

---

13. Double reel units only

## OPTIONS AND ATTACHMENTS

### 9.1.12 Rice Divider Rods

The rice divider rods attach to the left hand and right hand endsheet cones and perform the same function in tall and tangled rice crops as standard equipment crop dividers. Installation instructions are included with the kit.



Figure 9.11: MD #B5609

### 9.1.13 Rock Retarder

The rock retarder kit keeps rocks from rolling past the cutterbar and onto the drapers. Installation instructions are included with the kit.

Bundles by header size

- 30 and 35 ft. – MD #B5084
- 40 and 45 ft. – MD #B5085

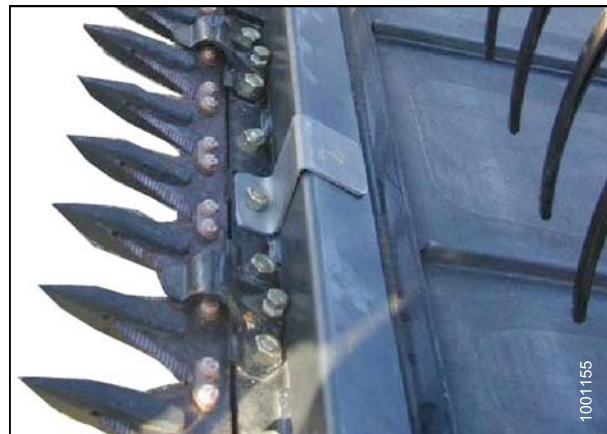


Figure 9.12: Bundle number depends on header size

## OPTIONS AND ATTACHMENTS

### 9.1.14 Short Brace Kit For Center Reel Arm

The short brace kit attaches to the center arm allowing the reel to be brought further rearward. Installation and adjustment instructions are included with the kit.

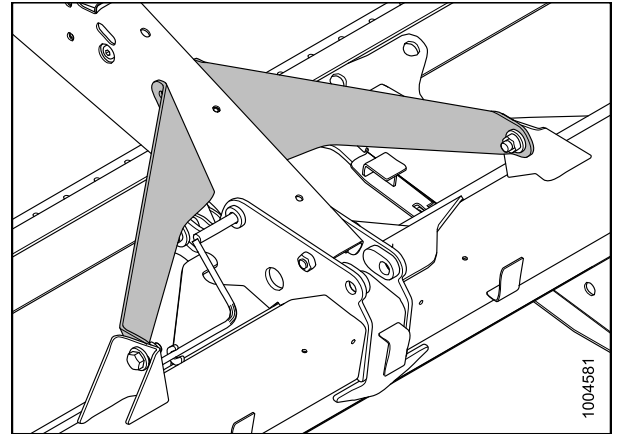


Figure 9.13: MD #B5605

### 9.1.15 Stabilizer Wheels

The stabilizer wheels help stabilize the header in field conditions that would otherwise cause the header to bounce and result in uneven cutting height. Installation and adjustment instructions are included with the kit.

Available as an attachment for use with 30, 35, 40, and 45 ft. headers.

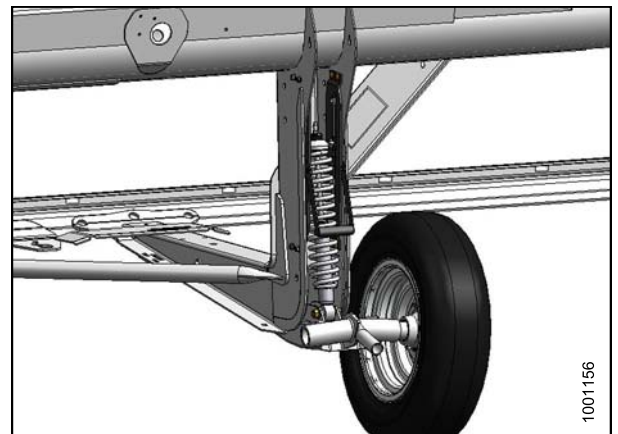


Figure 9.14: MD #C1986

## OPTIONS AND ATTACHMENTS

### 9.1.16 Stabilizer/Slow Speed Transport Wheels

Spring loaded wheels help cushion and guide the ends of larger draper headers, plus enables transportation at road speed less than 25 mph (40 km/h) for 30 ft. (9.1 m) and larger headers.

The stabilizer/transport kit will allow you to transport your draper header from farm-to-field and then quickly switch to field stabilizer wheel position by one person. The transport package is a simple self-supporting unit with very little hitch weight for simpler hitching. The transport tow pole is a two piece unit that requires no tools to assemble/disassemble and stores on the backtube of the header during harvesting operation. The stabilizer wheel application is ideal for cutting off the ground, by stabilizing the header in undulating ground conditions.

For use on 30, 35, 40, and 45 ft. headers.



Figure 9.15: MD #C1997

### 9.1.17 Stub Guard Conversion Kit

Stub guards, complete with top guides and adjuster shoes, are designed to cut tough crops.

Installation and adjustment instructions are included in the kit.

Order bundle according to header length.

- 25 ft. – MD #B5011
- 30 ft. – MD #B5012
- 35 ft. – MD #B5013

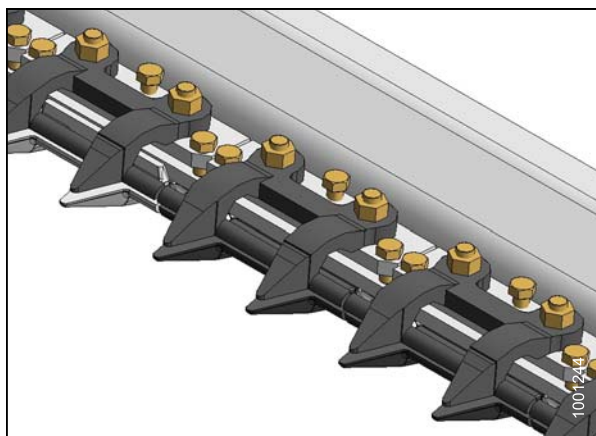


Figure 9.16: Order according to header length

## OPTIONS AND ATTACHMENTS

### 9.1.18 Upper Cross Auger (UCA)

Attaches in front of the backtube, the UCA improves feeding of crop to the center of the header in heavy crop conditions. Ideal for high volume harvesting of forages, oats, canola, mustard and other tall, bushy, hard to feed crops.

Order bundle according to header length.

- 25 ft. – MD #B4846
- 30 ft. – MD #B4847
- 35 ft. – MD #B4848
- 40 ft. – MD #B4849
- 45 ft. – MD #B4849



Figure 9.17: Order according to header length

### 9.1.19 Vertical Knife Mounts

The vertical knife<sup>14</sup> mounts allow installation of vertically oriented knives onto both ends of the header.

Installation and adjustment instructions are included with the bundle.

Order bundles

- LH – MD #B5757
- RH – MD #B5758

**NOTE:** If mounting on multiple headers, you will also require the auxiliary vertical knife plumbing kit MD #B5406.

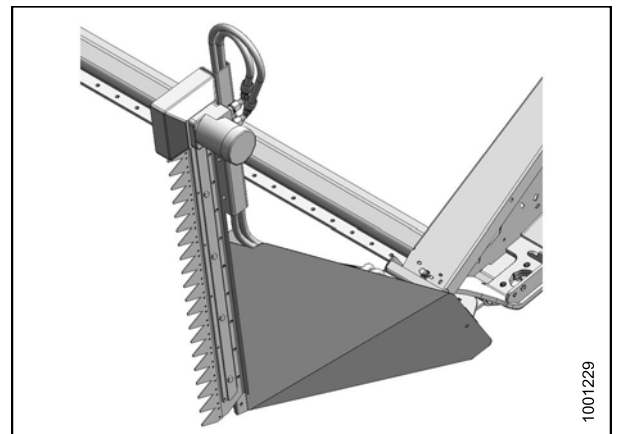


Figure 9.18: Order bundle accordingly

<sup>14</sup>. Must be purchased from a separate supplier.



## 10 Unloading and Assembly

Refer to the header specific instructions for unloading, assembly, and setup procedures that are included with your shipment. The instruction part numbers are shown in the table below:

Shipping destination	Header description	MacDon instruction part number
North America	FD75 FlexDraper® and CA25 Combine Adapter	MD #169606
Export (that is, anywhere except North America)	FD75 FlexDraper® and CA25 Combine Adapter	MD #169607





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