



MacDon

FD75 FlexDraper[®] Combine Header

**IMPORTANT: PAGE 33 HAS BEEN
UPDATED SINCE THIS MANUAL WAS
PUBLISHED.**

Operator's Manual

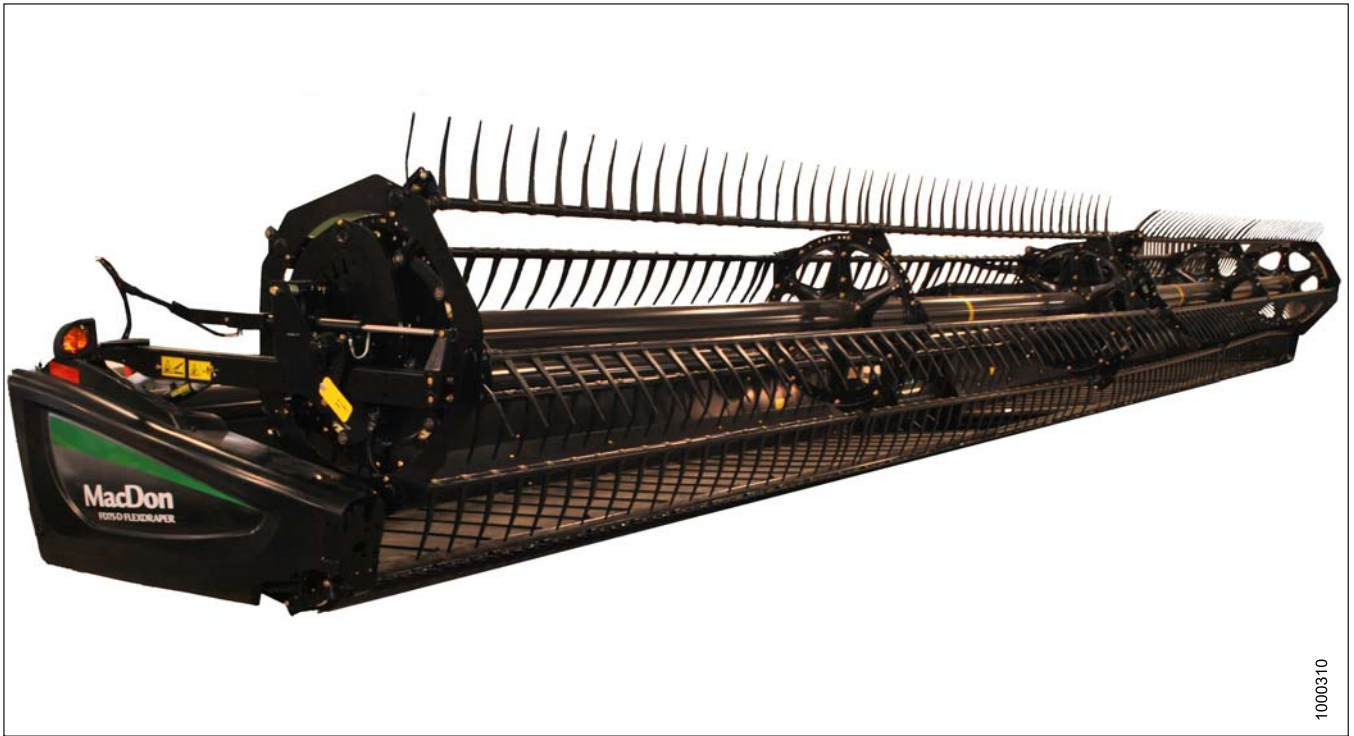
169894 Revision A

Original Instruction

Featuring MacDon FLEX-FLOAT Technology™

The harvesting specialists worldwide.

FD75 FlexDraper® FlexDraper® Header for Combines



Published: July, 2014

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
Schwarzwald Strasse 67
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.

NOTE:

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

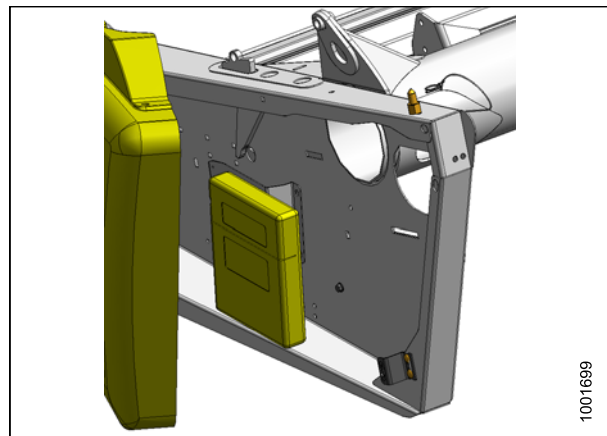


Figure 1: Manual Storage Location

List of Revisions

The following lists the changes from the previous version (169595 Revision D) of this document.

Summary of Change	Refer To
Note regarding access to updated manuals added to Introduction	Introduction, page ii
25 ft. FD75 deleted	All locations
Specifications table revised	3 Specifications, page 27
CA25 oil change interval revised	Changing Oil in Header Drive Gearbox, page 273
Optimizing the header for straight combining canola section added	4.6.3 Optimizing Header for Straight Combining Canola, page 48
Wing Float procedure revised	6.14 Checking and Adjusting Header Wing Balance, page 390
Operating in flex mode and in rigid mode sections added	Operating In Flex Mode, page 143 Operating In Rigid Mode, page 144
John Deere combine coupler attachment procedure revised	5.3.1 Attaching Header to John Deere Combine, page 198
Optional attachments section updated	8 Options and Attachments, page 415
Cutting on the ground section revised	Cutting On the Ground, page 55
Header Float section revised	4.7.3 Header Float, page 137
AHHC section reorganized	4.7.2 Auto Header Height Control, page 56
Reel Speed, Ground Speed, Draper Speed and Knife Speed sections revised	4.7.5 Reel Speed, page 146 4.7.6 Ground Speed, page 147 4.7.7 Draper Speed, page 148 4.7.8 Knife Speed, page 150
References to HC10 Hay Conditioner deleted	All locations
CR Feeder Deflector section revised	5.5.3 CR Feeder Deflectors, page 220
Multicoupler topic deleted	Various locations
Installing and removing flighting extensions, feed deflectors, and stripper bars moved to Maintenance and Servicing.	6.7.6 Flighting Extensions, page 298 6.10 Adapter Stripper Bars and Feed Deflectors, page 332
Auger to Plan Clearance, and Auger Drive Chain Tension revised	6.7 Auger, page 286 6.7.2 Adjusting Auger Drive Chain Tension, page 287
Major changes to Knife and Knife Drive sections	Various locations including 6.8 Knife and Knife Drive, page 300
Knife hold-down clearances revised	Knife Hold-Downs, page 309

Installing knife drive box revised	<i>Installing Knife Drive Box, page 317</i>
Header Draper Tracking section revised	<i>6.11.4 Adjusting Header Draper Tracking, page 337</i>
Wing Balance section revised	<i>6.14 Checking and Adjusting Header Wing Balance, page 390</i>
General text and formatting revisions to improve readability	Various locations throughout
Revision Page added	<i>List of Revisions, page iii</i>
Figure titles added and revised	Various locations throughout

Model and Serial Number

Record the model number, serial number, and model year of the header, combine adapter, and 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: _____

The serial number plate (A) is located beside the knife drive motor on the left hand endsheet.

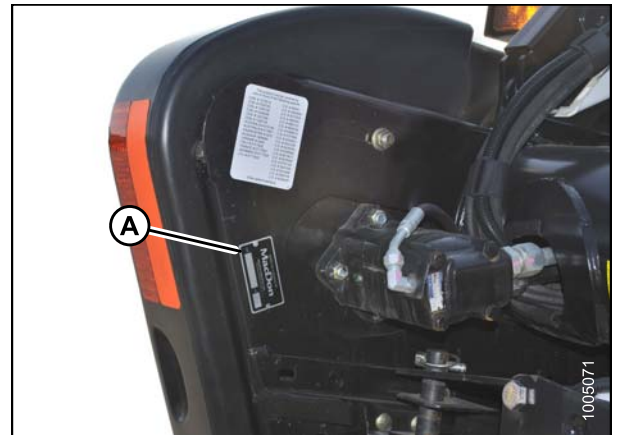


Figure 2: Header

Combine Adapter

Adapter Model: _____

Serial Number: _____

Year: _____

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

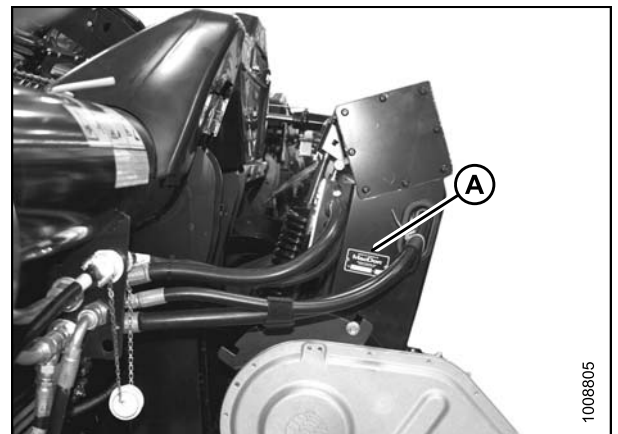


Figure 3: Adapter

Slow Speed Transport/Stabilizer Wheel Option

Serial Number: _____

Year: _____

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

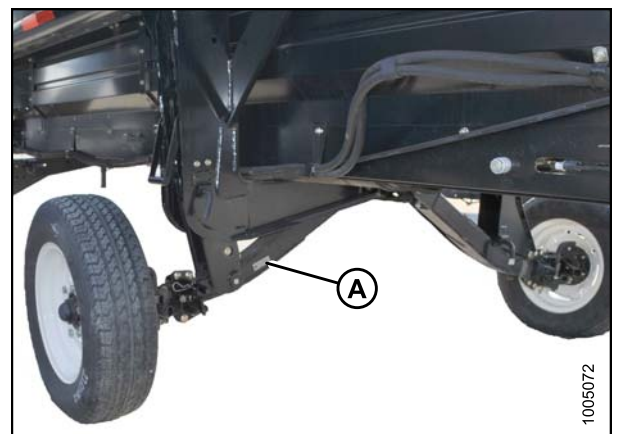


Figure 4: Transport/Stabilizer Option

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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: Safety Symbol

1.2 Signal Words

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

DANGER

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

WARNING

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

CAUTION

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

1.3 General Safety

CAUTION

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

Protect yourself

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

- You may need:

- 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.

- 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.

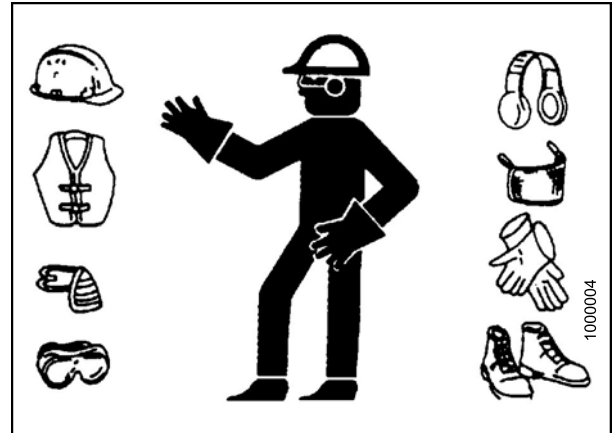


Figure 1.2: Safety Equipment

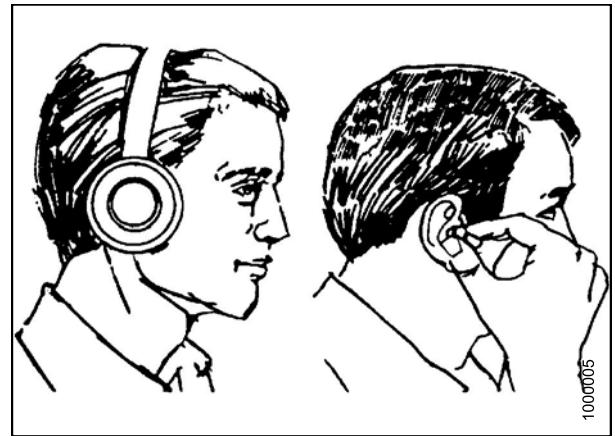


Figure 1.3: Safety Equipment

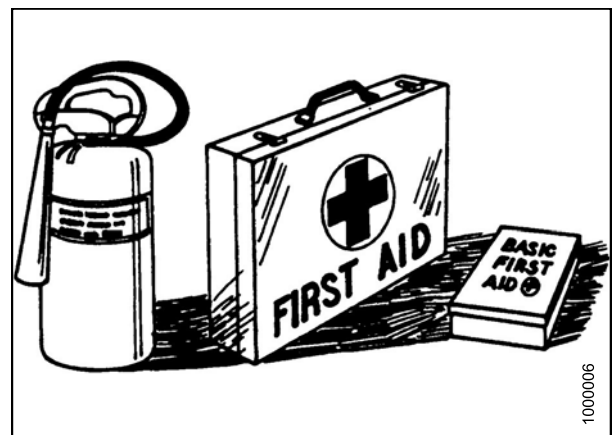


Figure 1.4: Safety Equipment

SAFETY

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



Figure 1.5: Safety around Equipment

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

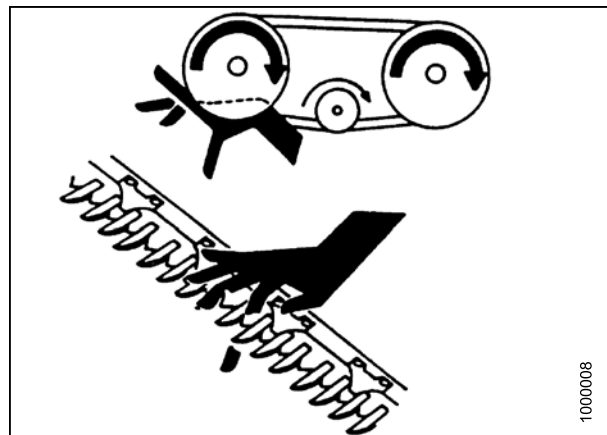


Figure 1.6: Safety around Equipment

- Keep the 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: Safety around Equipment

1.4 Maintenance Safety

To ensure your safety while maintaining the machine:

- Review the operator's manual and all safety items before operation and/or maintenance of the machine.
- Place all controls in Neutral, stop the engine, set the park brake, remove the ignition key, and wait for all moving parts to stop before servicing, adjusting, and/or repairing.
- Follow good shop practices:
 - Keep service 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: Safety around Equipment

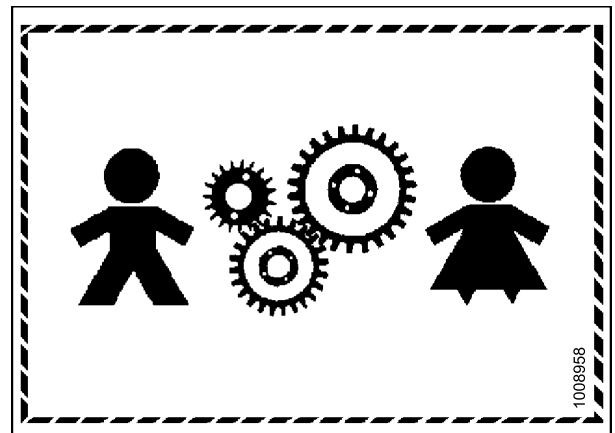


Figure 1.9: Equipment NOT Safe for Children

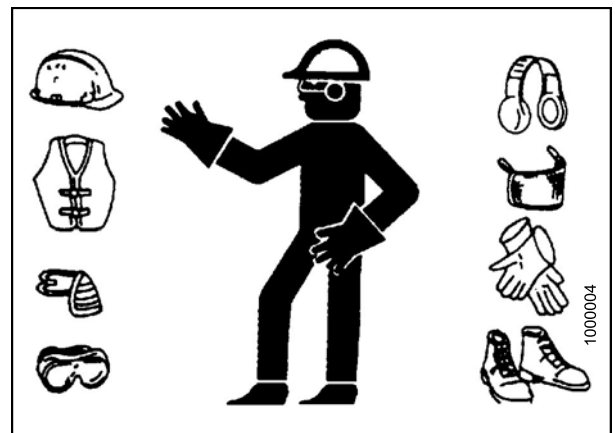


Figure 1.10: Safety Equipment

1.5 Hydraulic Safety

- Always place all hydraulic controls in Neutral before dismounting.
- Make sure that all components in the hydraulic system are kept 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.

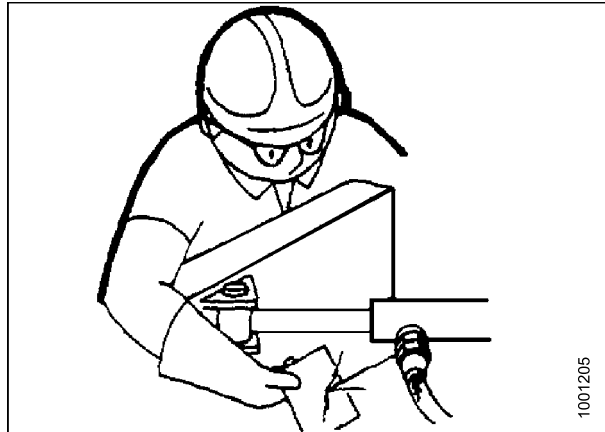


Figure 1.11: Checking Hydraulic Leaks

- 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.

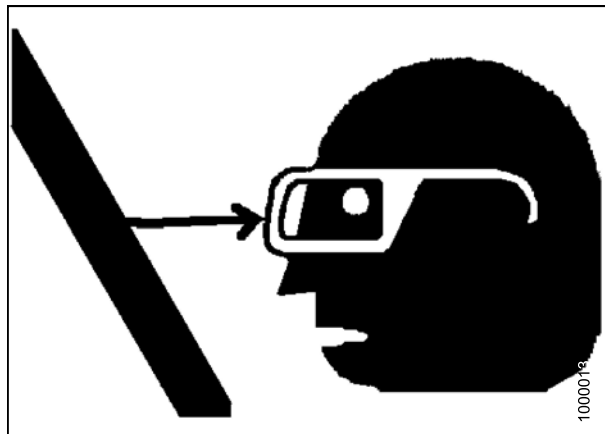


Figure 1.13: Safety Glasses

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.

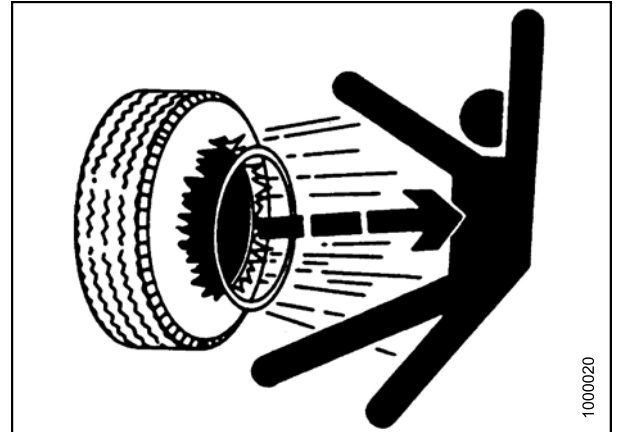


Figure 1.14: Over-Inflated Tire

- Do **NOT** attempt to mount a tire unless you have the proper training and equipment.
- Have a qualified tire dealer or repair service perform required tire maintenance.

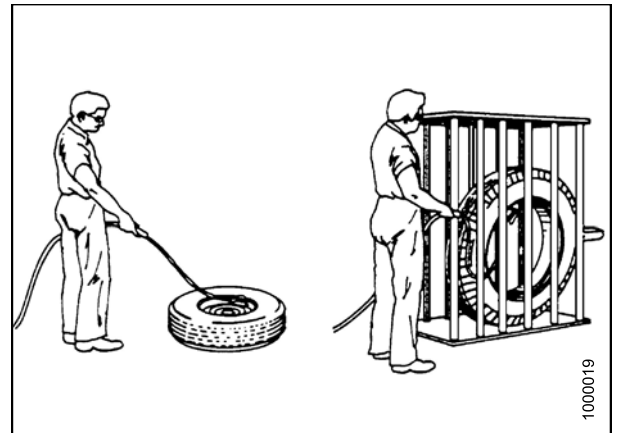


Figure 1.15: Safely Filling a Tire with Air

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.

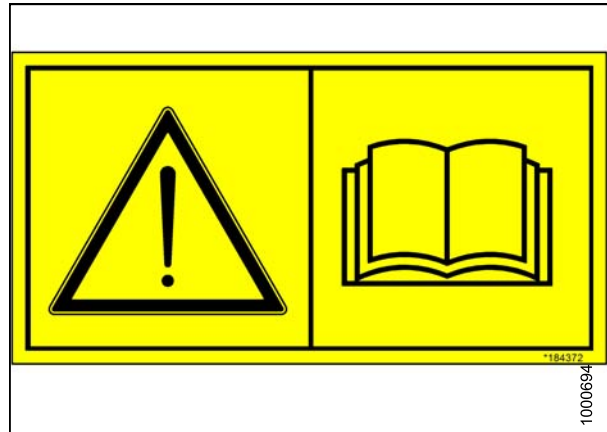


Figure 1.16: Operator's Manual Decal

1.7.1 Installing Safety Decals

To install a safety decal, follow these steps:

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

1.8 Safety Decal Locations

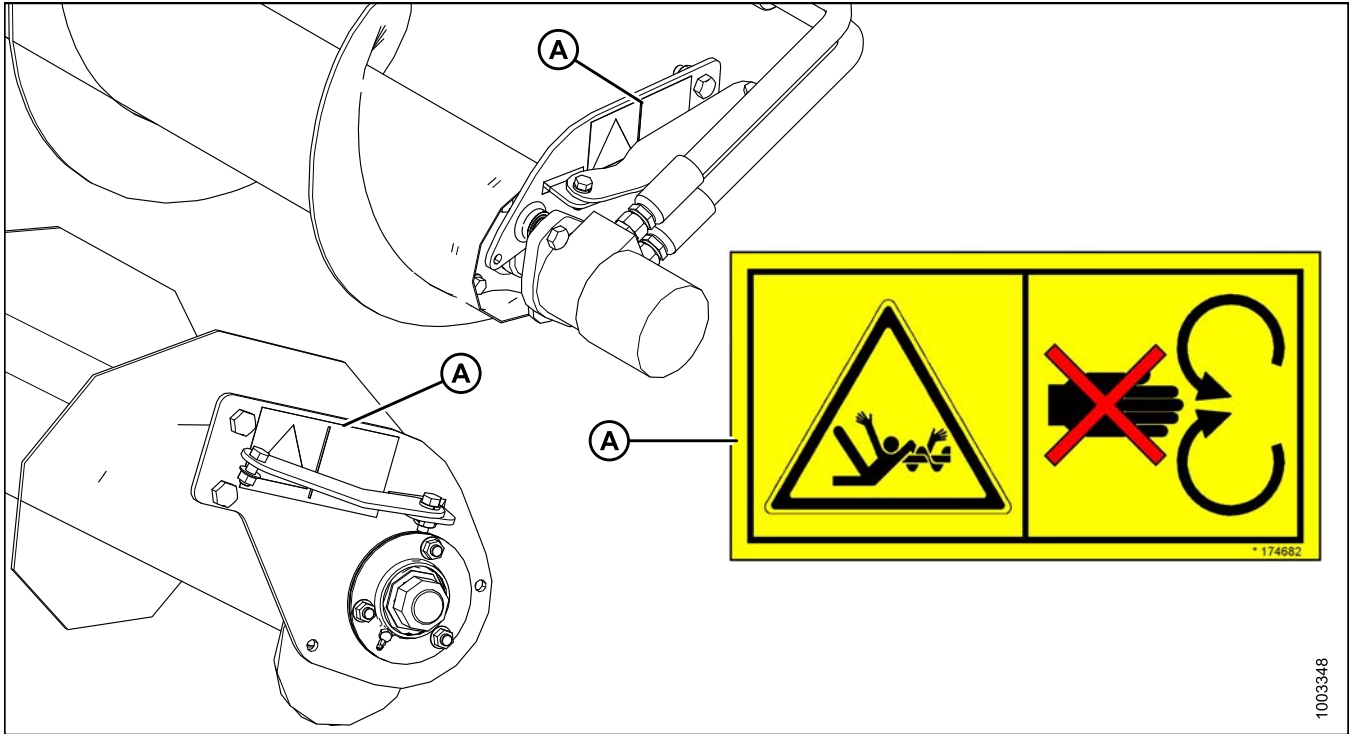


Figure 1.17: Upper Cross Auger

A - MD #174682

1003348

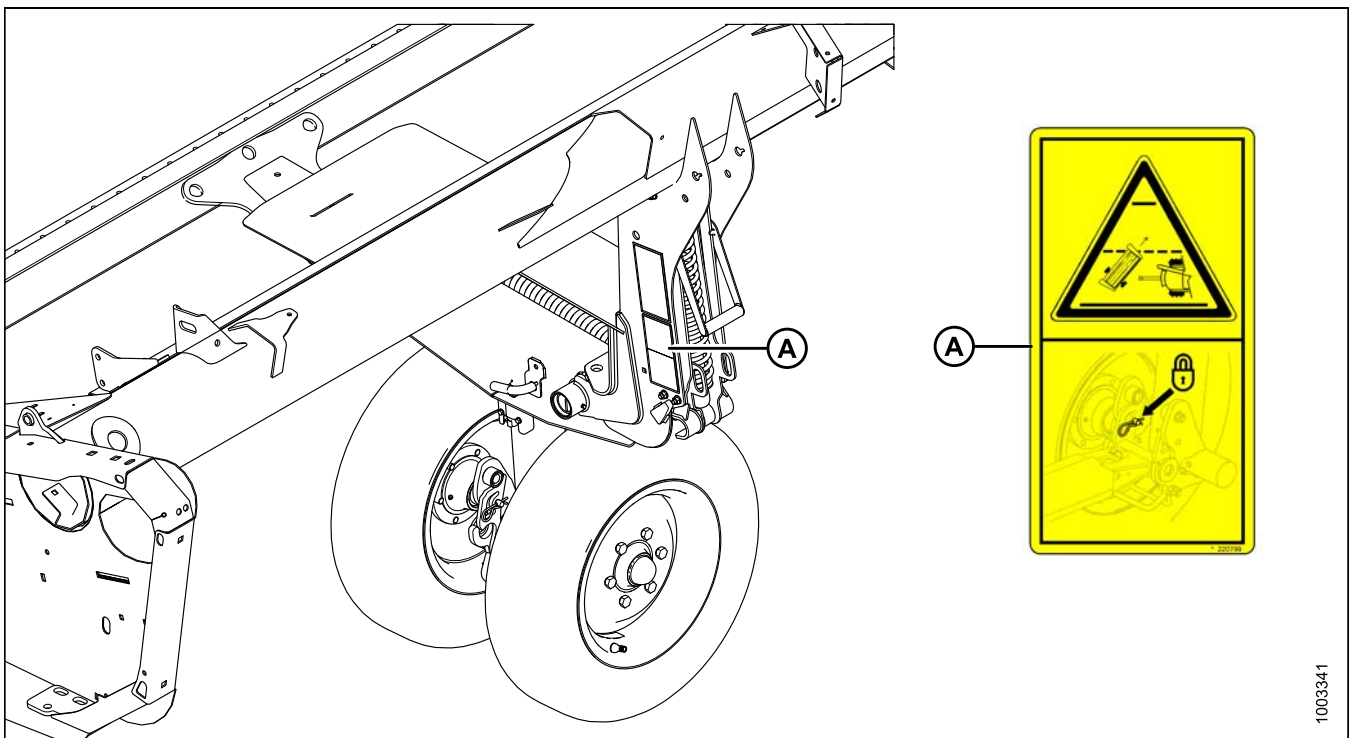


Figure 1.18: Slow Speed Transport

A - MD #220799

1003341

SAFETY

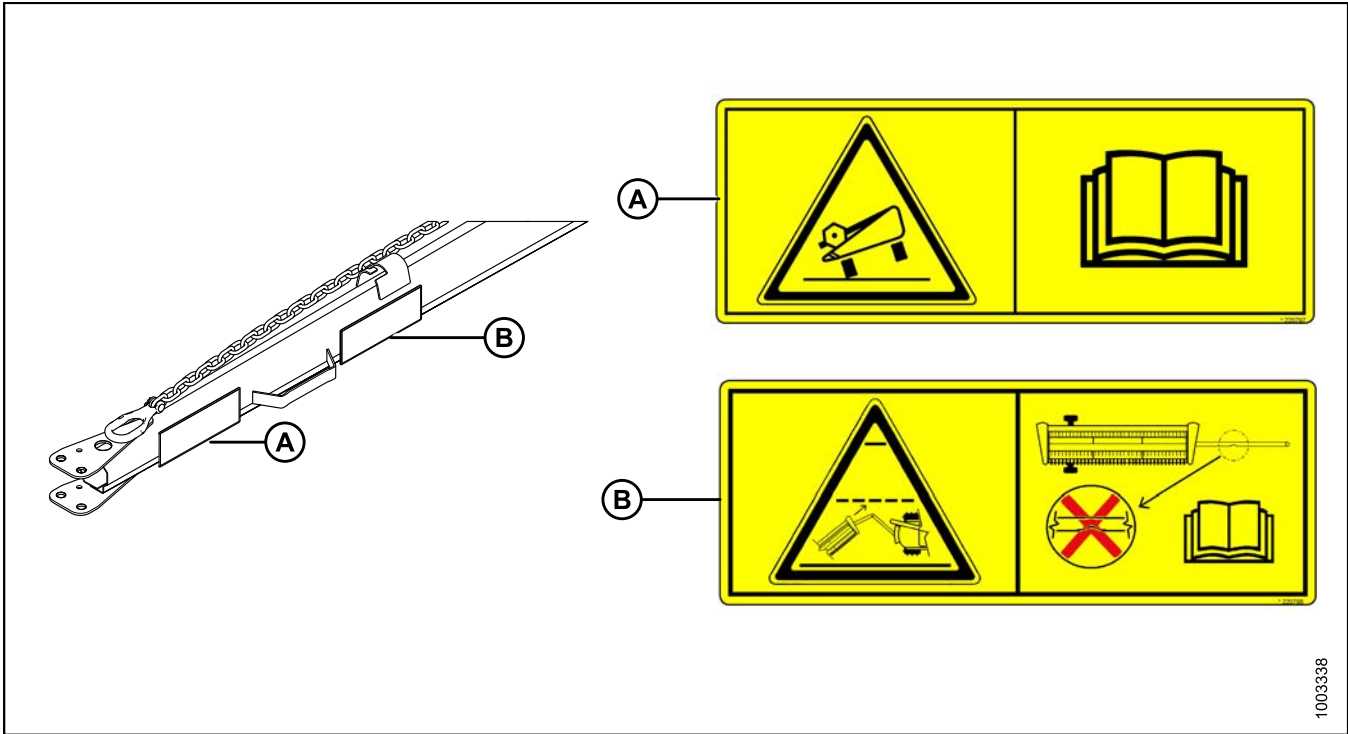


Figure 1.19: Slow Speed Transport Tow-Bar

A - MD #220797

B - MD #220798

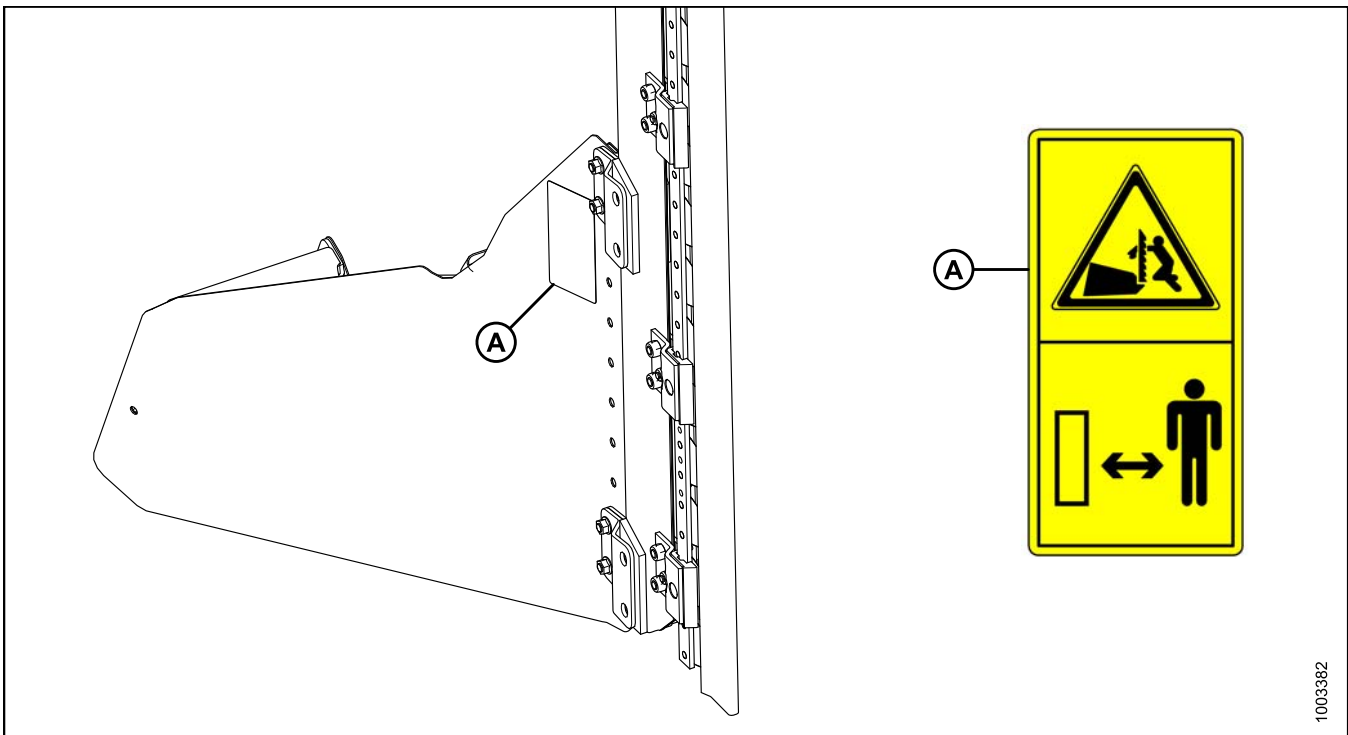


Figure 1.20: Vertical Knife

A - MD #174684

SAFETY

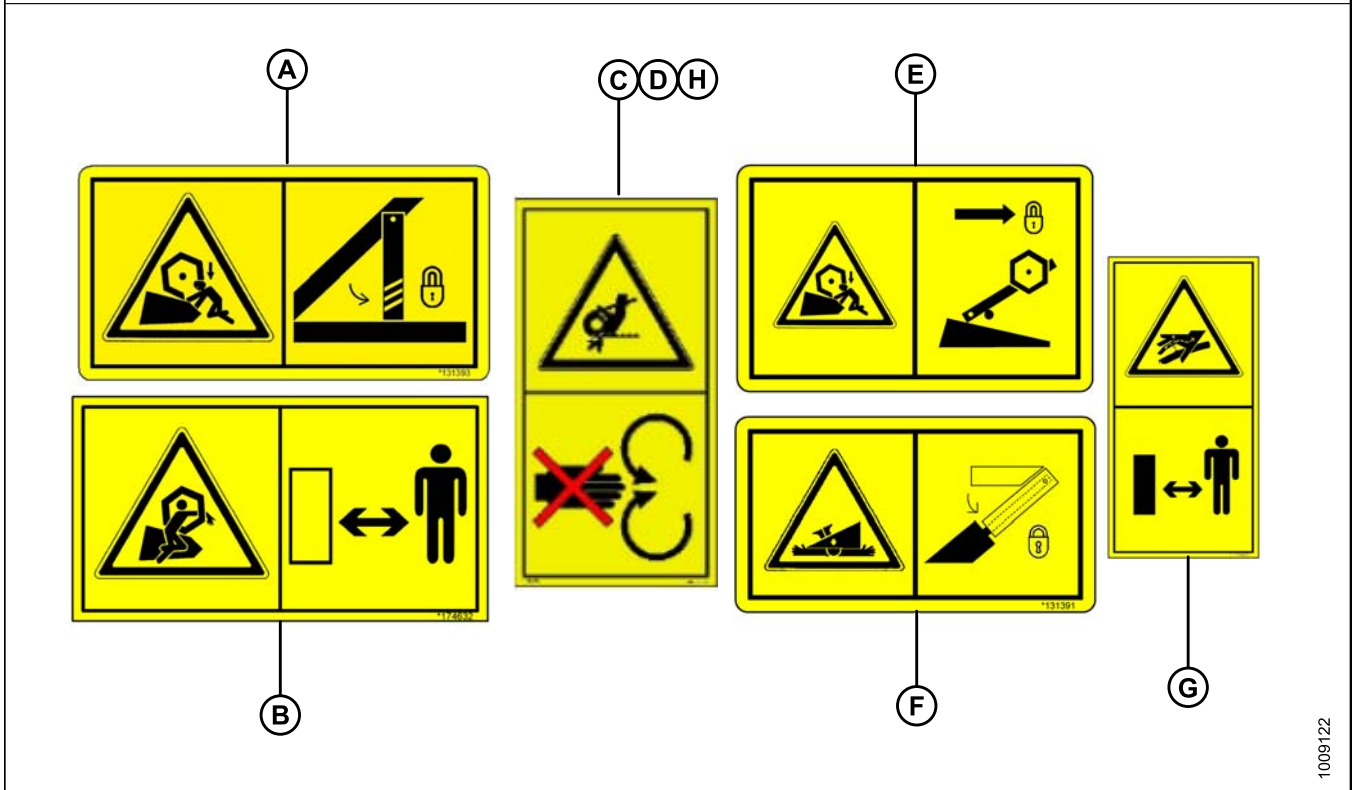
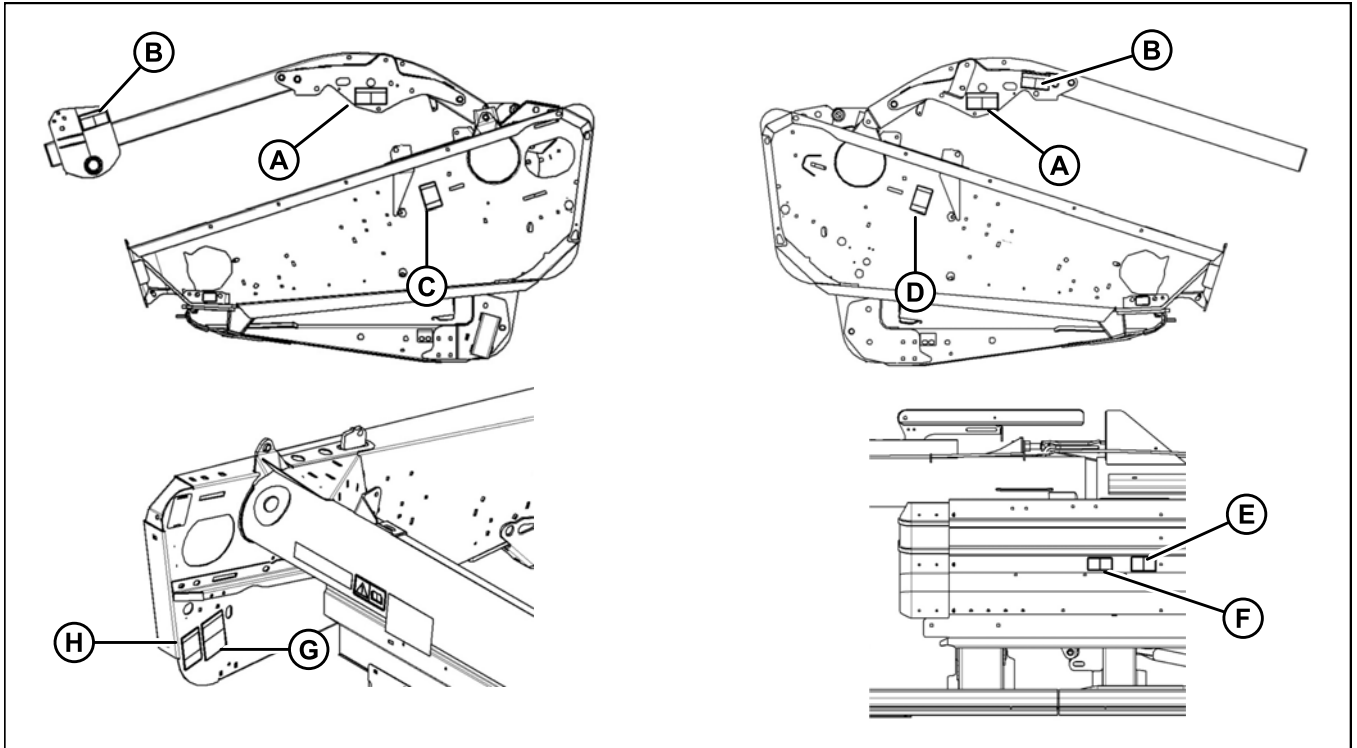


Figure 1.21: Endsheets, Reel Arms, Backsheet

A - MD #131393
E - MD #131392 (2 PLC's)

B - MD #174632
F - MD #131391 (2 PLC's)

C - MD #184371
G - MD #174436

D - MD #184371 (DK Only)
H - MD #184371 (DK 2 PLC's)

SAFETY

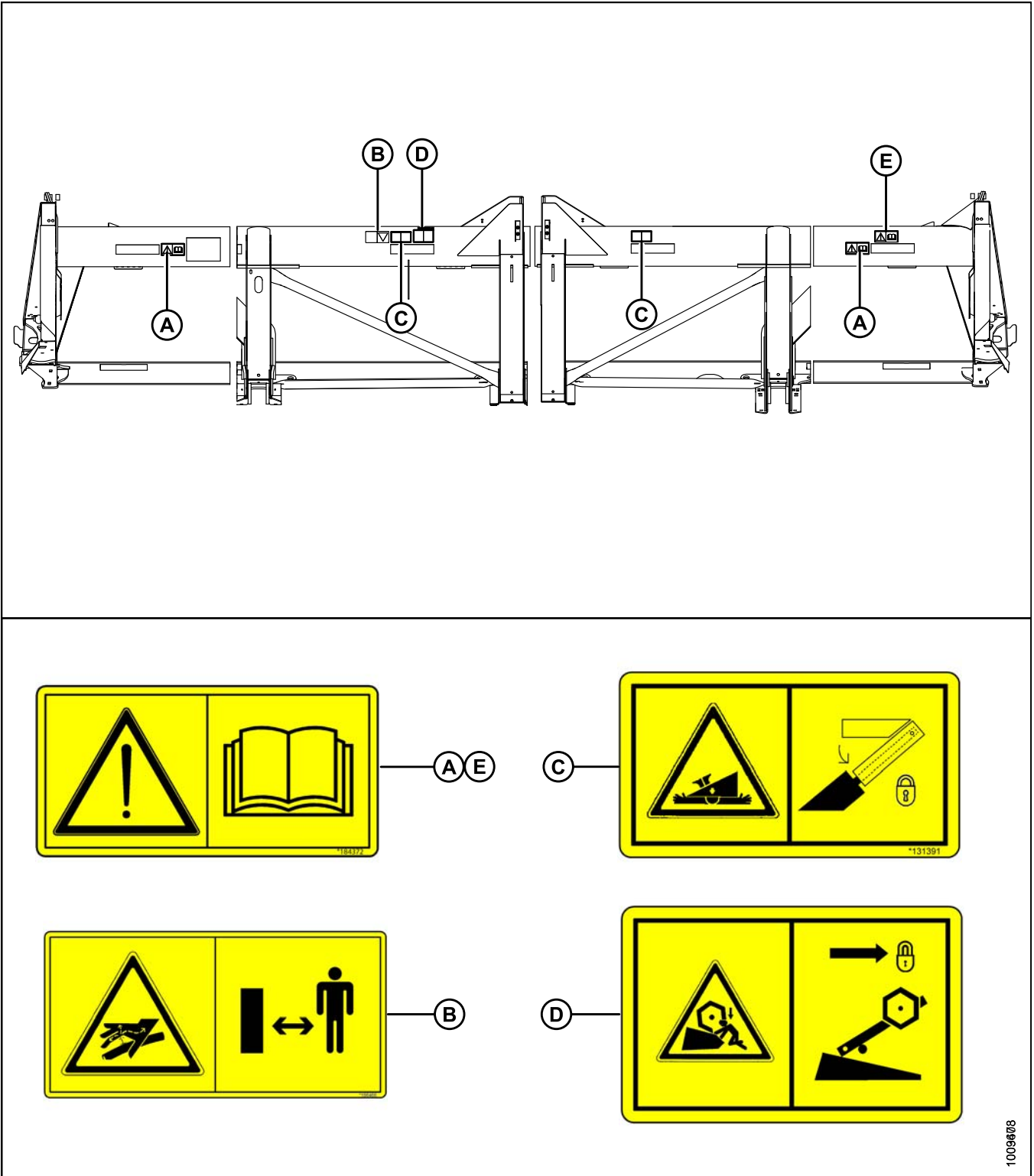


Figure 1.22: Back Tube

A - MD #184372
D - MD #131392

B - MD #166466
E - MD #184372 (Split Frame)

C - MD #131391

1009608

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.

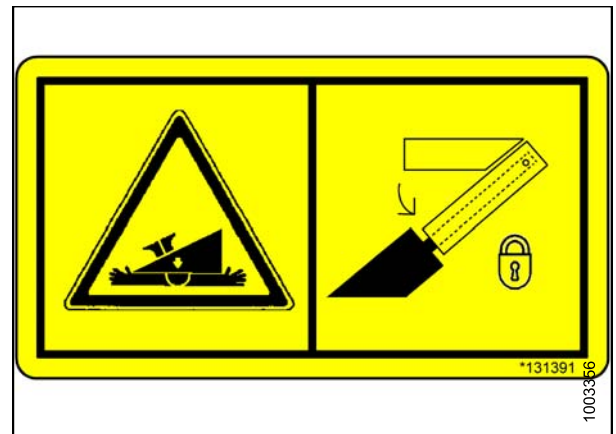


Figure 1.23: MD #131391

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.
 - Refer to header operator's manual.

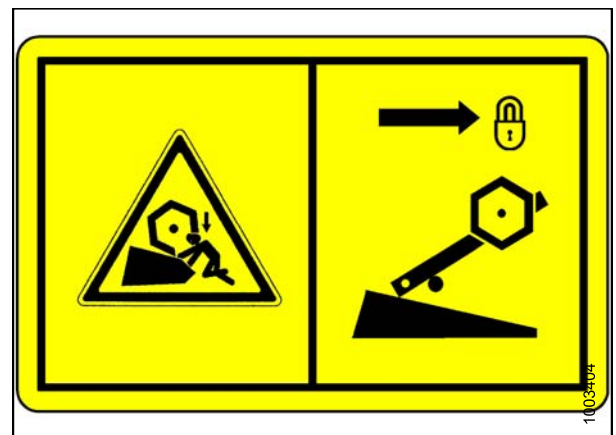


Figure 1.24: MD #131392

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.
- Refer to header operator's manual.



Figure 1.25: 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 1.26: 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 1.27: MD #174432

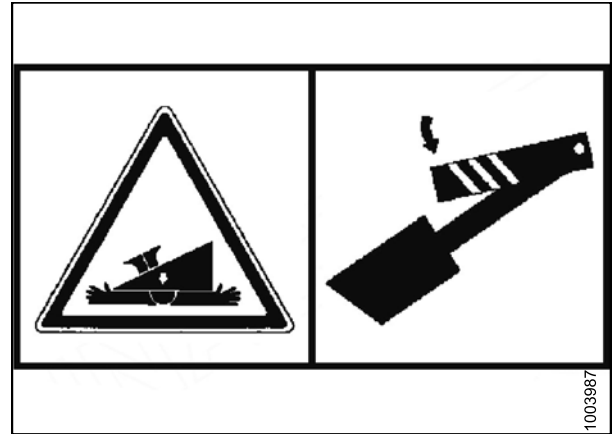
SAFETY

6. MD #174434

a. Header hazard.

b. **DANGER**

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



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.



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.



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.

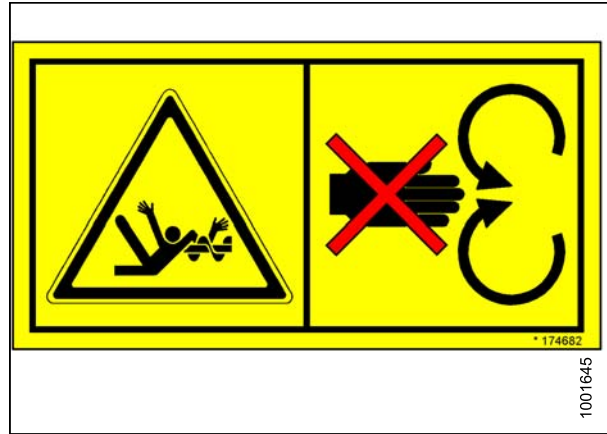


Figure 1.31: MD #174682

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 1.32: 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.

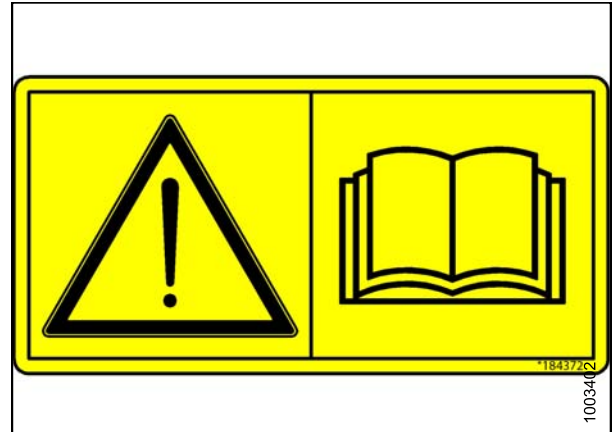


Figure 1.33: MD #184372

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 1.34: 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.

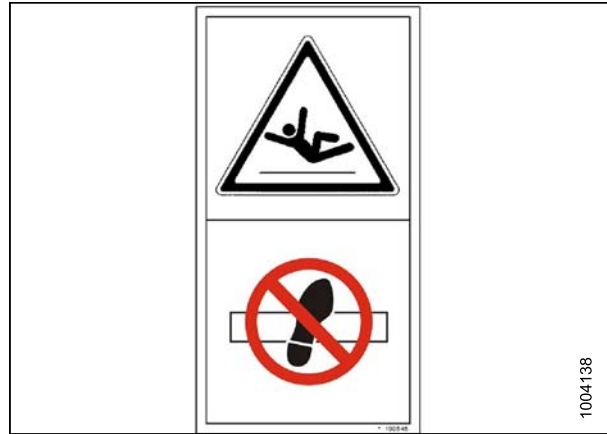


Figure 1.35: MD #190546

14. MD #193147

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

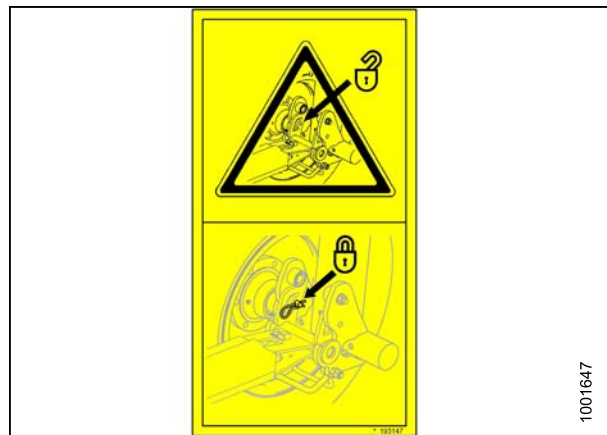


Figure 1.36: MD #193147

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.

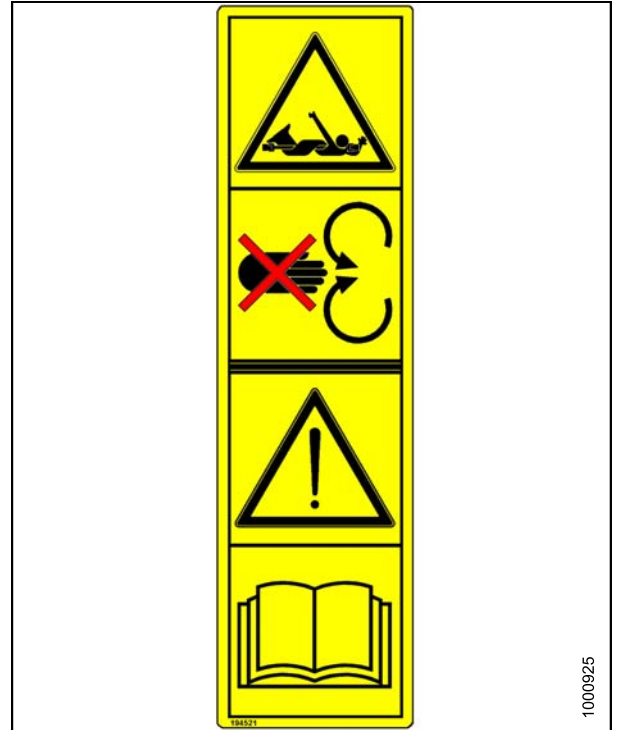


Figure 1.37: MD #194521

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.

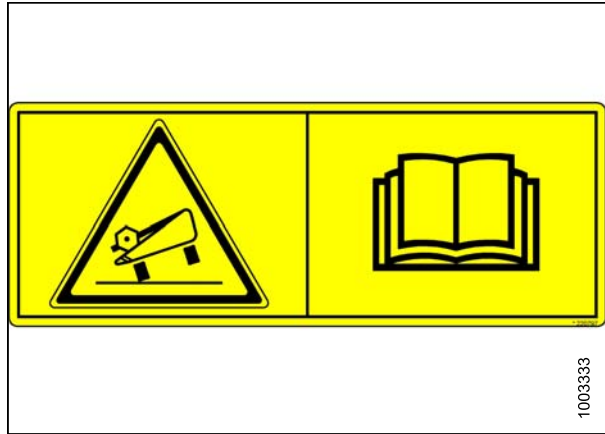


Figure 1.38: MD #220797

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.

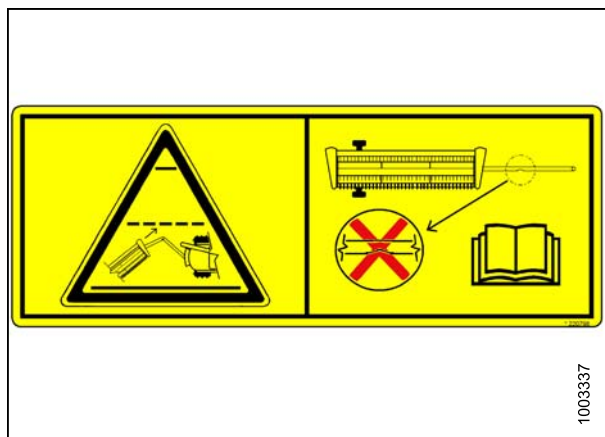


Figure 1.39: MD #220798

18. MD #220799

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



Figure 1.40: 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.
ASTM	American Society of Testing and Materials.
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut.
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 rigid draper header.
DK	Double knife.
DKD	Double-knife drive.
DDD	Double draper drive.
DR	Double reel.
FD-Series header	MacDon FlexDraper® header.
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.
FFFT	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 crop and feeds it into an attached combine.
Hex key	A hex key or Allen key (also known by various other synonyms) is a tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in the head (internal-wrenching hexagon drive).
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.
Nut	An internally threaded fastener that is designed to be paired with a bolt.

REFERENCE

Term	Definition
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.
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 knife drive	Synchronized motion applied at the cutterbar to two separately driven knives from a single hydraulic motor.
Tension	Axial load placed on a bolt or screw, usually measured in pounds (lb) or Newtons (N).
TFFT	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 knife drive	Unsynchronized motion applied at the cutterbar to two separately driven knives from a single hydraulic motor or two hydraulic motors.
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.
Windrower	Power unit of a self-propelled header.

2.2 Component Identification

2.2.1 FD75 FlexDraper®

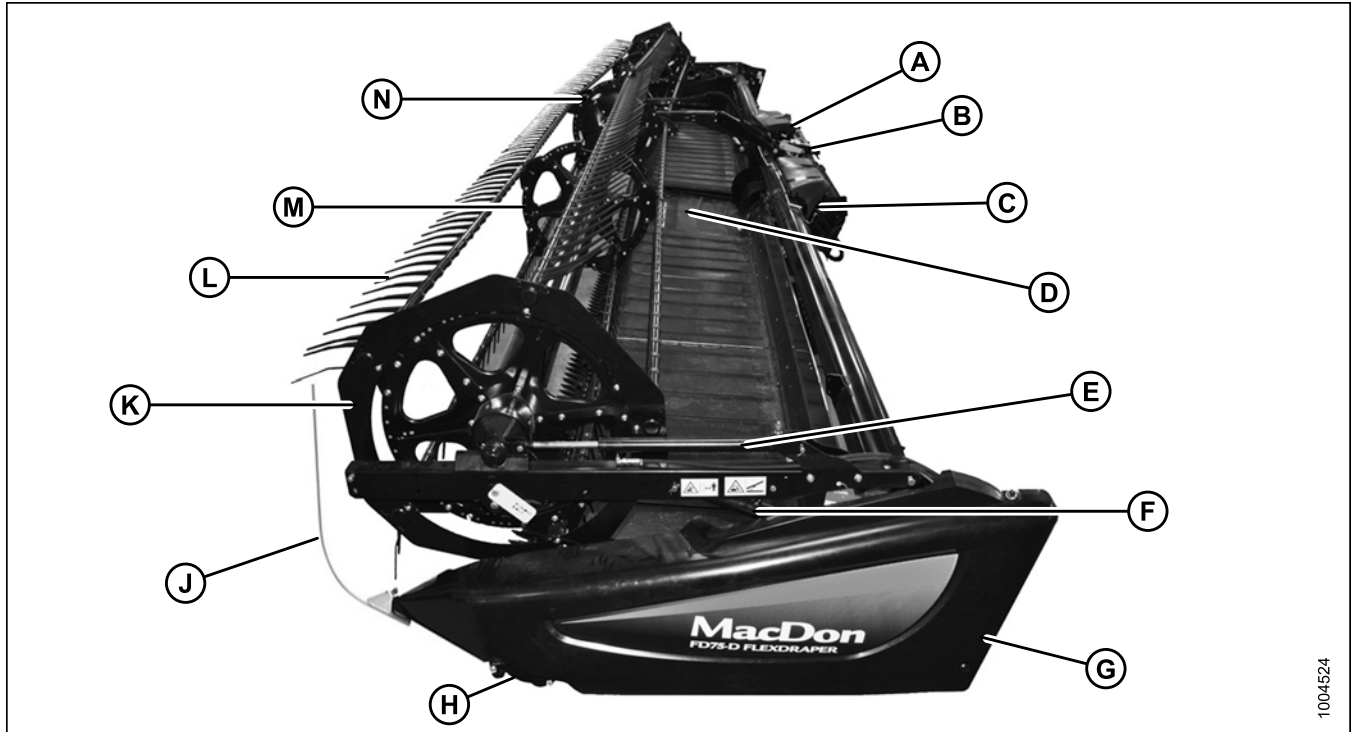


Figure 2.1: FD75 FlexDraper® Components

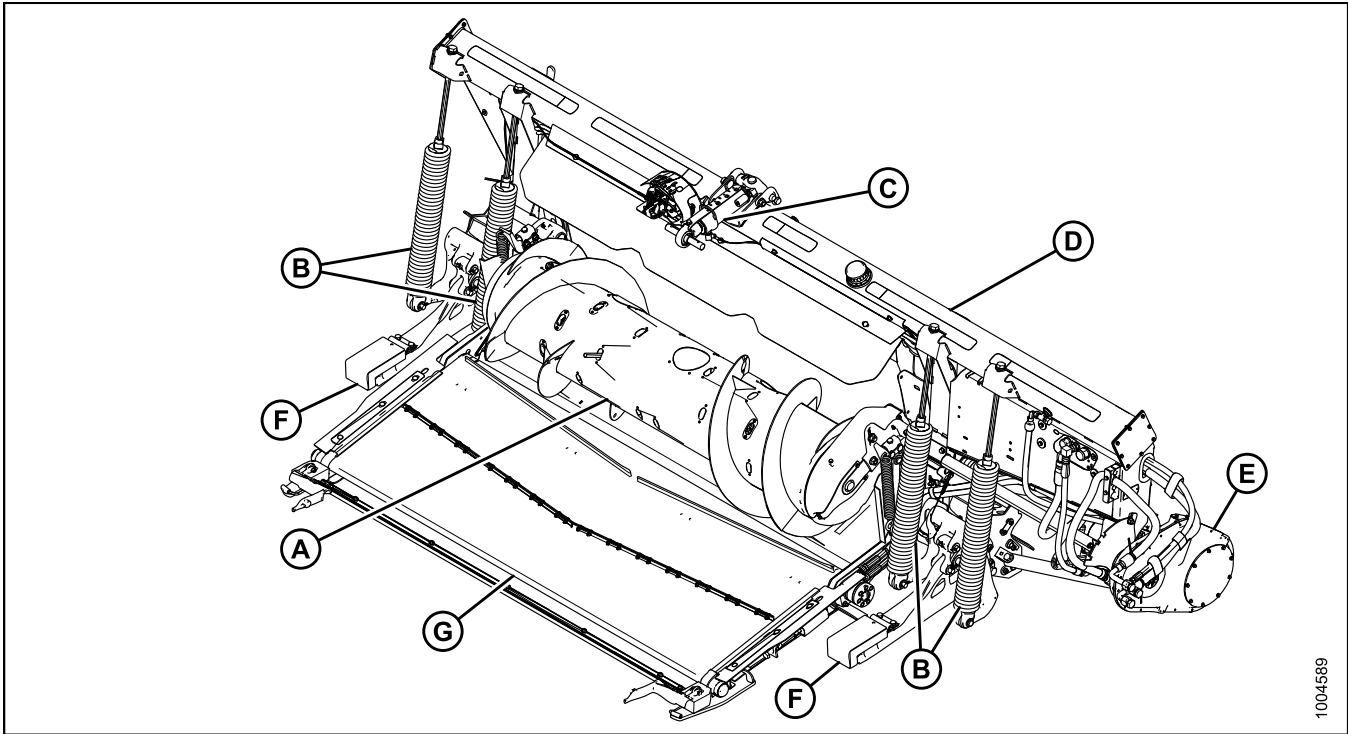
A - Wing Float Linkage
 D - Transition Pan
 G - Endshield
 K - Reel Endshield
 N - Reel Cam

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



1004589

Figure 2.2: Header Side of CA25 Combine Adapter

- A - Feed Auger
- D - Hydraulic Reservoir
- G - Feed Draper

- B - Header Float Springs
- E - Gearbox

- C - Center-Link
- F - Header Support Arm

REFERENCE

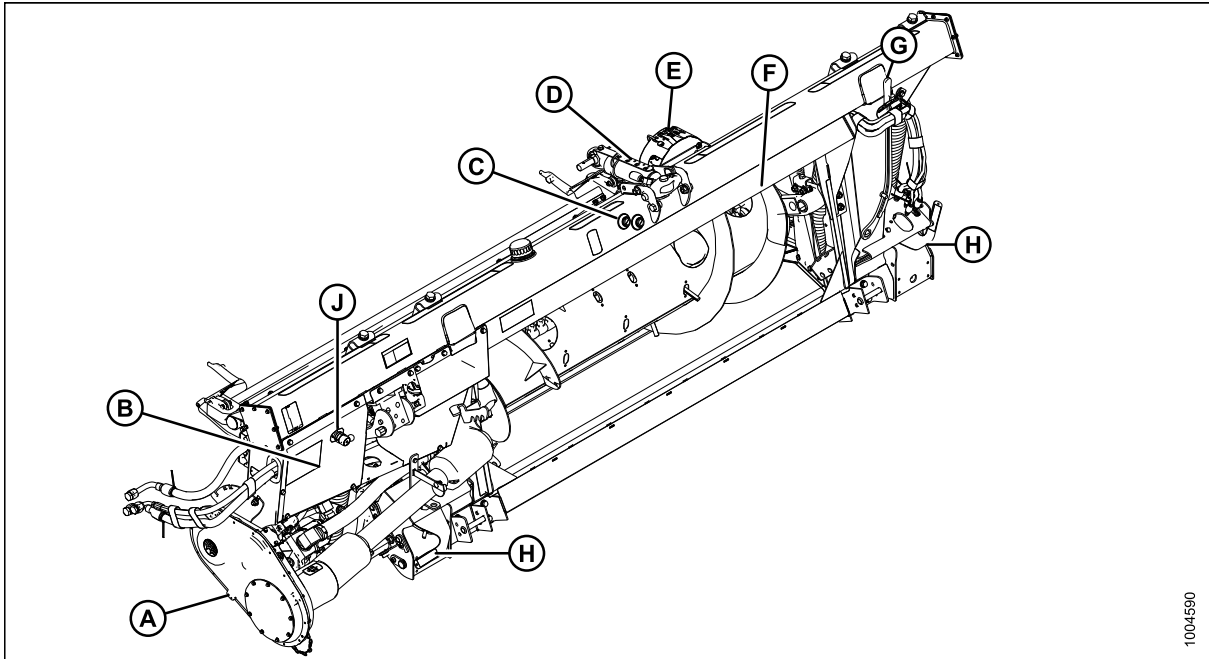


Figure 2.3: Combine Side of CA25 Combine Adapter

A - Adapter Gearbox
D - Center-Link
G - Torque Wrench

B - Hydraulic Compartment Cover
E - Header Height Control Indicator
H - Header Float Lock

C - Reservoir Oil Level Sight Glass
F - Transition Frame
J - Side Draper Speed Control

1004590

3 Specifications

| FD75 | CA25 | Attachments

S: standard / O_F: optional (factory installed) / O_D: optional (dealer installed) / -: not available

		FD75	
CUTTERBAR			
Effective Cutting Width (distance between crop divider points)			
30 ft header		30 ft. (360 in. [9144 mm])	S
35 ft header		35 ft. (420 in. [10668 mm])	S
40 ft header		40 ft. (480 in. [12192 mm])	S
45 ft header		45 ft. (540 in. [13716 mm])	S
Cutterbar Lift Range		Varies With Combine Model	S
Knife			
Single Knife Drive (all sizes): One hydraulic motor with V-belt to one heavy duty (MD) knife drive box			O _F
Double Knife Drive (40, 45 ft only, untimed): Two hydraulic motors with banded-belts, to two heavy duty (MD) knife drive boxes.			O _F
Knife Stroke		3 in. (76 mm)	S
Single Knife Speed (strokes per minute)	30 ft.	1200–1400 spm	S
	35 ft.	1100–1300 spm	S
	40 ft.	1050–1200 spm	S
Double Knife Speed (strokes per minute)	40, 45 ft.	1100–1400 spm	S
Knife Sections			
Over-serrated / Solid / Bolted / 9 serrations per inch			S
Knife Overlap at Center (Double Knife Headers)		1/8 in. (3 mm)	S
Guards and Hold-Downs			
Guard: Pointed / Forged / Double Heat Treated (DHT) Hold-Down: Sheet Metal / Adjustment Bolt			S
Guard Angle (Cutterbar on Ground)			
Center-Link Retracted		2.0 Degrees	S
Center-Link Extended		7.4 Degrees	S
CONVEYOR (Draper) and DECKS			
Draper Width		41-19/32 in. (1057 mm)	S
Draper Drive		Hydraulic	S
Draper Speed: CA25 (Combine Adapter) Controlled		0–464 fpm (141 m/min.)	S
Delivery Opening Width		73-19/32 in. (1870 mm)	S

SPECIFICATIONS

			FD75
PR15 PICK-UP REEL			
Quantity of Tine Tubes		5-, 6-, or 9-tine tubes	
Center Tube Diameter		8 in. (203 mm)	
Finger Tip Radius	Factory-Set	31-1/2 in. (800 mm)	
	Adjustment Range	30-3/16 – 31-1/2 in. (766–800 mm)	
Effective Reel Diameter (via cam profile)		65 in. (1650 mm)	
Finger Length		11 in. (290 mm)	
Finger Spacing (staggered on alternate bats)		6 in. (150 mm)	
Reel Drive		Hydraulic	
Reel Speed (adjustable from cab, varies with combine model)		0–67 rpm	
FRAME and STRUCTURE			
Header Width	Field Mode		Cut Width + 15-1/8 in. (384 mm)
	Transport Position - reel fore-aft fully retracted (shortest center-link)	(A) Long Dividers Installed (refer to figure 3.1: Header Width, page 28)	106 in. (2684 mm)
		(B) Long Dividers Removed (refer to figure 3.1: Header Width, page 28)	98 in. (2500 mm)

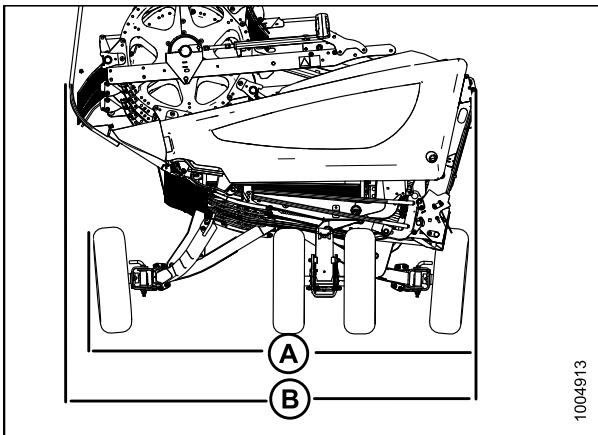


Figure 3.1: Header Width

SPECIFICATIONS

ATTACHMENTS				
CA25 Combine Adapter			S	
Feed Draper	Width	78-11/16 in. (2000 mm)	S	
	Speed	350–400 fpm (107–122 m/min)	S	
Feed Auger	Width	65-5/16 in. (1660 mm)	S	
	Outside Diameter	22 in. (559 mm)	S	
	Tube Diameter	14 in. (356 mm)	S	
	Speed (varies with combine model)	150 rpm	S	
Oil Reservoir Capacity		16 US Gallons (60 Litres)	S	
Oil Type		15W40		
Driveline Overall Length ¹	Case, New Holland	Maximum (Extended)	48-7/16 in. (1230 mm)	O _F
		Minimum (Compressed)	38-3/16 in. (970 mm)	
	John Deere, Lexion, AGCO	Maximum (Extended)	49-11/16 in. (1262 mm)	
		Minimum (Compressed)	36-1/16 in. (916 mm)	
Upper Cross Auger			O _D	
Outside Diameter		12 in. (305 mm)		
Tube Diameter		6 in. (152 mm)		
Stabilizer Wheel / Slow Speed Transport			O _D	
Wheels		15 in.		
Tires		P205/75 R-15		

WEIGHT		
Estimated Weight Range – Base Header, No Adapter – Variances are due to different package configurations.		
30 ft. header		6746–6971 lb (1981–2178 kg)
35 ft. header		7167–7430 lb (2181–2480 kg)
40 ft. header	North America Frame	7589–7789 lb (2352–2593 kg)
	Export Frame	7824 lb (3549 kg)
45 ft. header	North America Frame	8218 lb (3728 kg)
	Export Frame	8253 lb (3744 kg)

1. Subtract 10-7/16 in. (265 mm) for length between yoke pins.

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.

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 44](#).
- Operate only in daylight or good artificial light.

4.2.1 Header Safety Props

The header safety props are located on the header lift cylinders beneath the combine feeder house. The safety props prevent the lift cylinders from inadvertently retracting and lowering the header. Refer to your combine operator's manual.

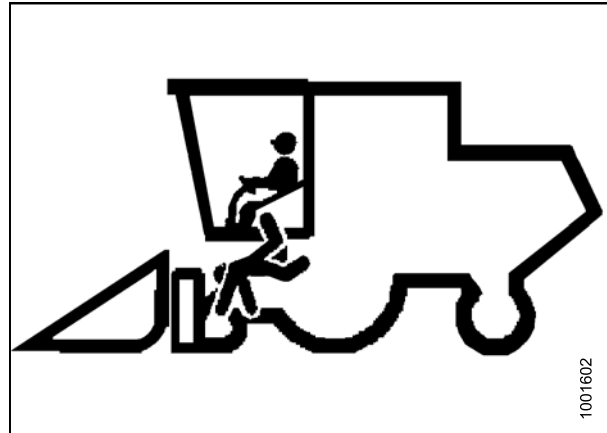


Figure 4.1

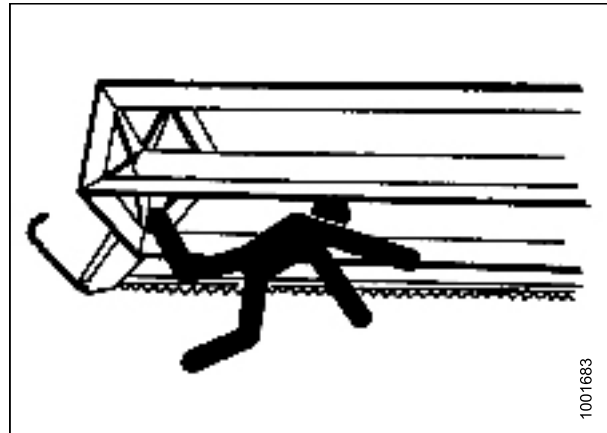


Figure 4.2

⚠ 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. Refer to the combine operator's manual for instructions regarding the proper 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

Engage the reel safety props whenever you intend to work on or around a raised reel. When engaged, the reel safety props prevent the reel from falling unexpectedly.

⚠ 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 (169894 REVISION A) WAS PUBLISHED.

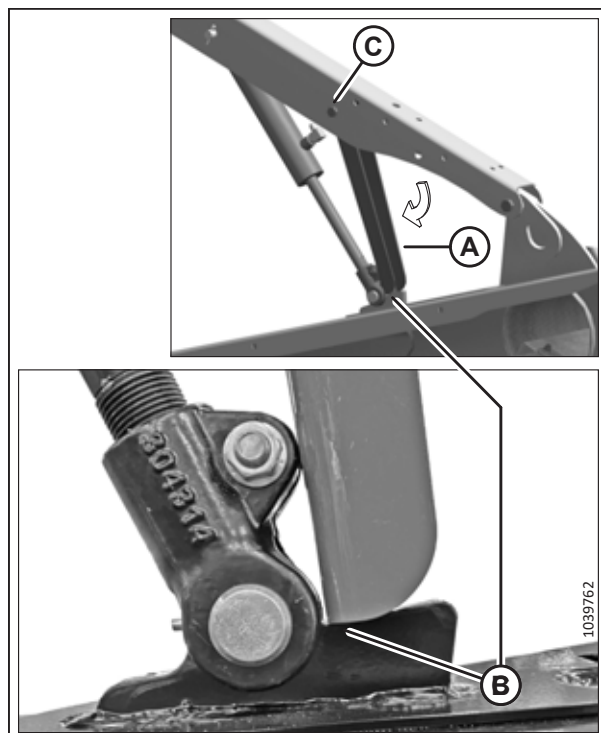


Figure 4.3: Reel Arm Safety Prop

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.

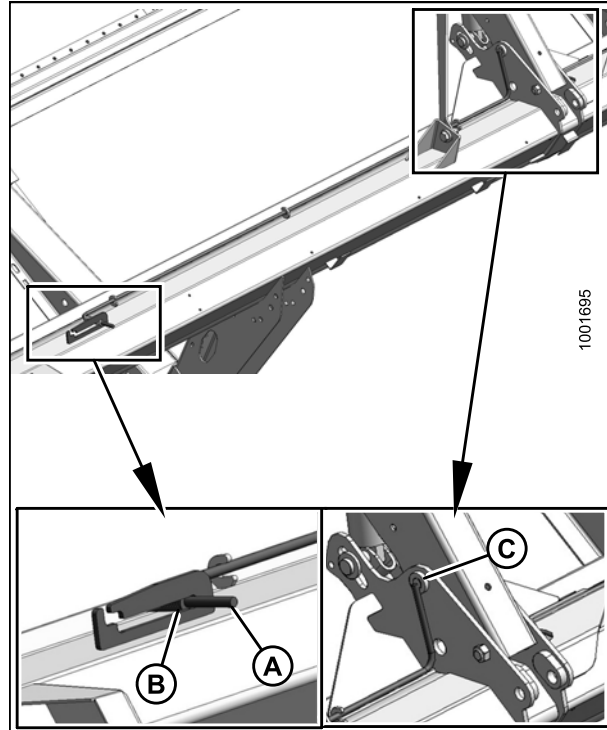


Figure 4.4: Center Arm Reel Prop

Disengaging Reel Safety Props

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

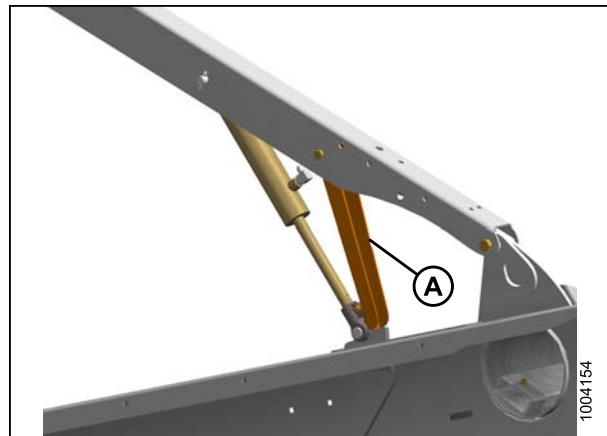


Figure 4.5: Reel Arm Safety Prop

OPERATION

3. Use handle (B) to move lock rod (A) to outboard position.

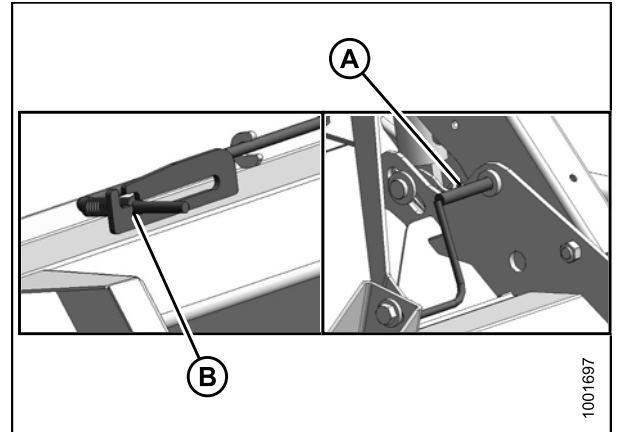


Figure 4.6: Center Arm Safety Prop

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.

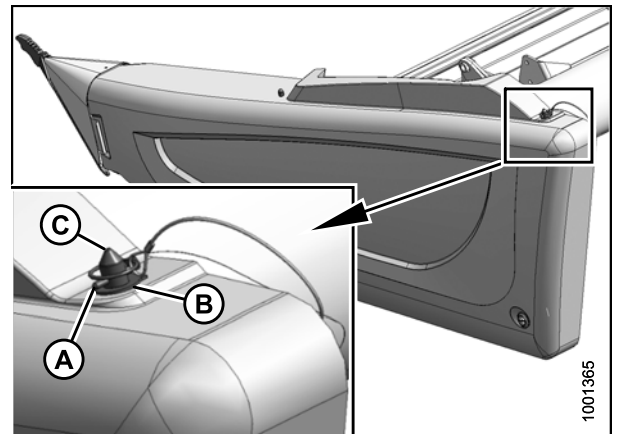


Figure 4.7: Endshield

OPERATION

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. Refer to [Removing Endshields, page 37](#).

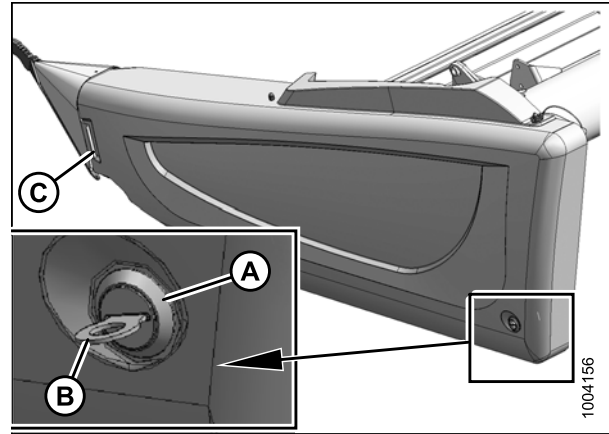


Figure 4.8: Endshield

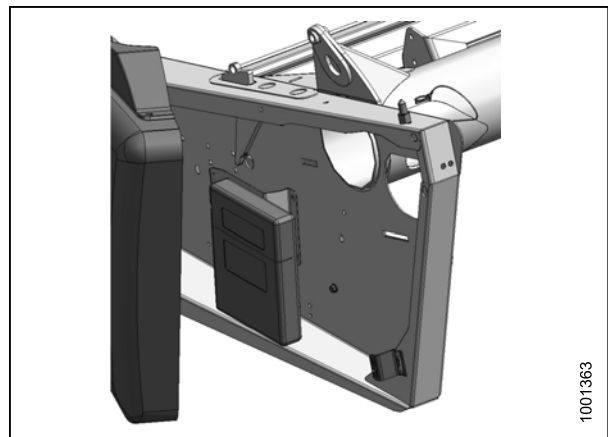


Figure 4.9: Endshield Open

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.

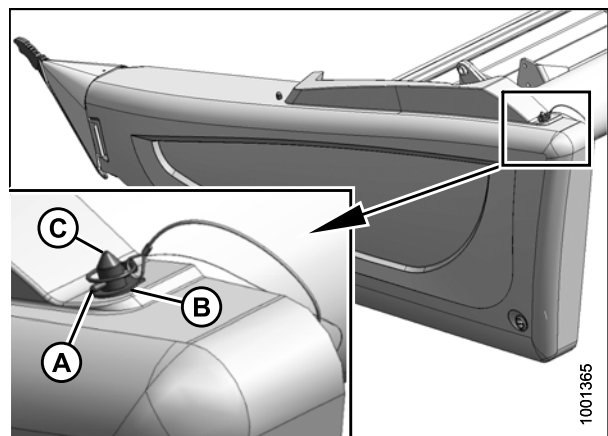


Figure 4.10: Endshield

OPERATION

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

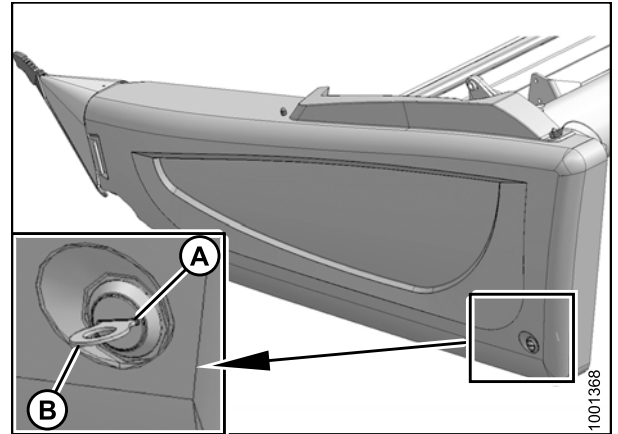


Figure 4.11: Endshield

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

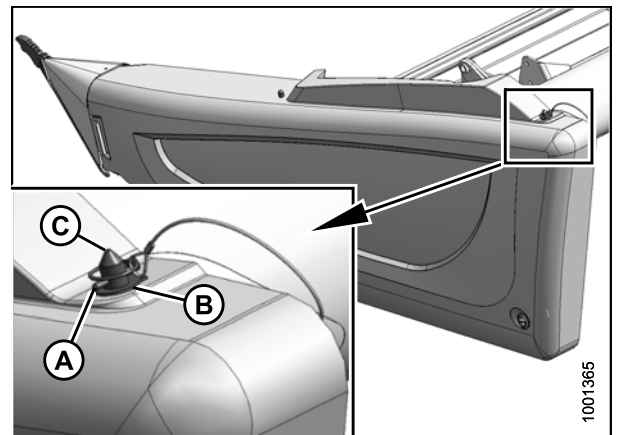


Figure 4.12: Endshield Pin

Removing Endshields

To remove an endshield, follow these steps:

1. Open endshield. Refer to [Opening Endshields, page 35](#).
2. Remove acorn nut (A) that secures the endshield to support (B).
3. Lift endshield off support (B).

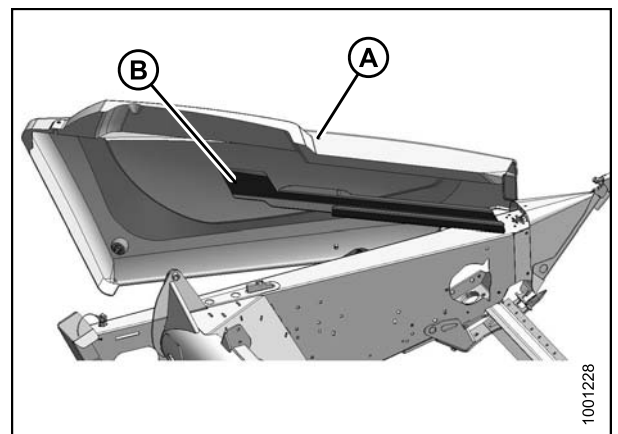


Figure 4.13: Removing Endshield

OPERATION

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.

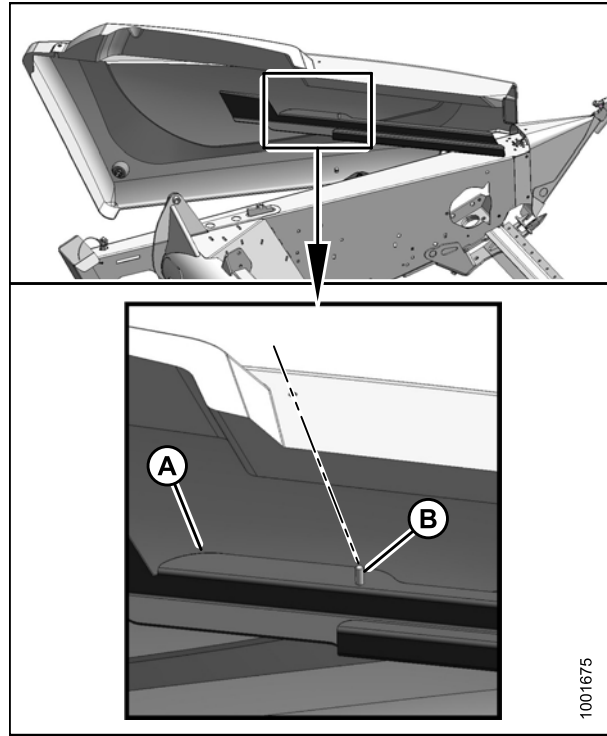


Figure 4.14: Installing Endshield

2. Secure endshield to the support with acorn nut (A).
3. Close endshield. Refer to [Closing Endshields, page 36](#).

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. Refer to [Adjusting Endshields, page 39](#).

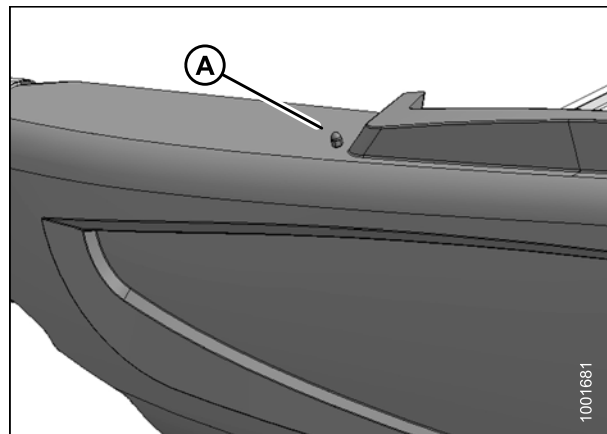


Figure 4.15: Installing Endshield

OPERATION

Adjusting Endshields

Plastic endshields are subject to expansion or contraction from large temperature variations. The position of the top pin and lower catch can be adjusted to compensate for dimensional changes.

To adjust the endshield, perform the following:

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 (24)
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

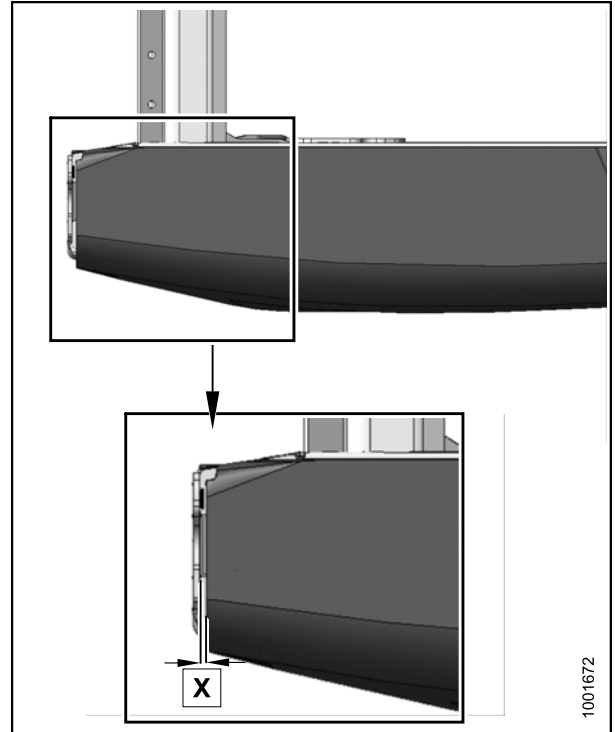


Figure 4.16: Endshield

If adjustments are required, proceed as follows:

2. Open endshield. Refer to [Opening Endshields, page 35](#).
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. Refer to [Closing Endshields, page 36](#).

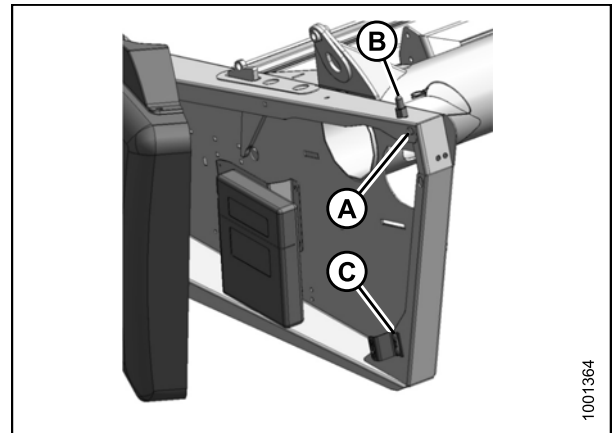


Figure 4.17: Adjustments

4.2.4 Linkage Covers

Plastic covers that are attached to the header frame protect the header wing balance mechanism from debris and weather.

Removing Linkage Covers

To remove a linkage cover, follow these steps:

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

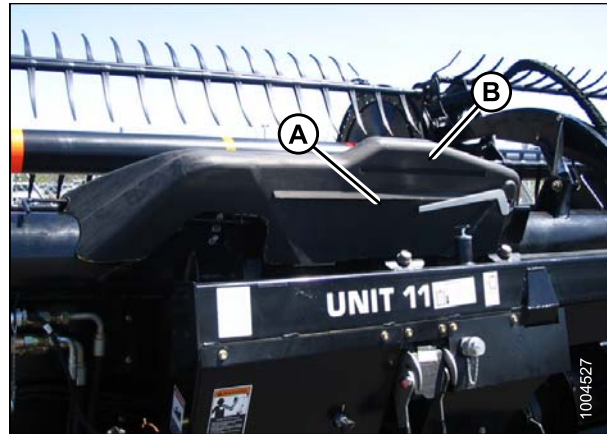


Figure 4.18: Linkage Cover

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

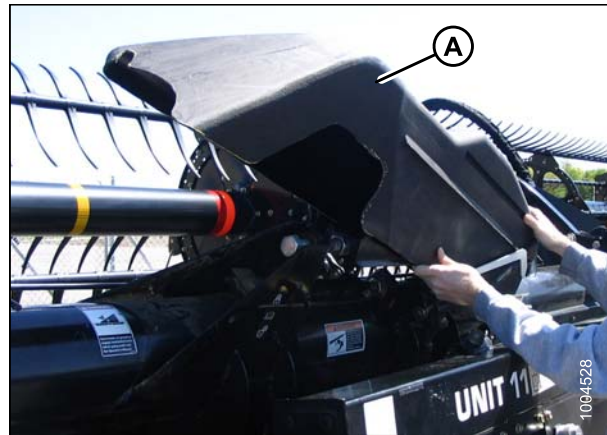


Figure 4.19: Removing Cover

OPERATION

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.

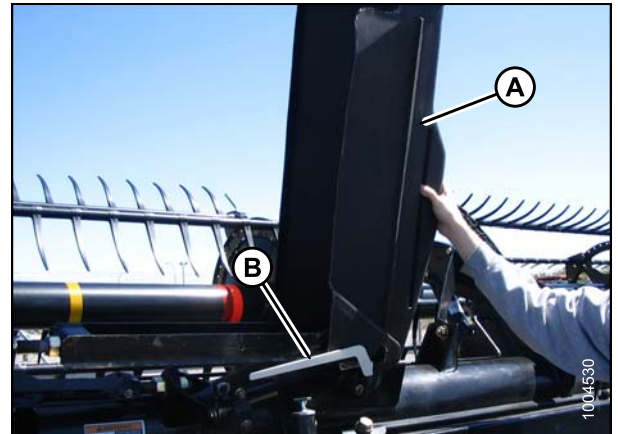


Figure 4.20: Installing Cover

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

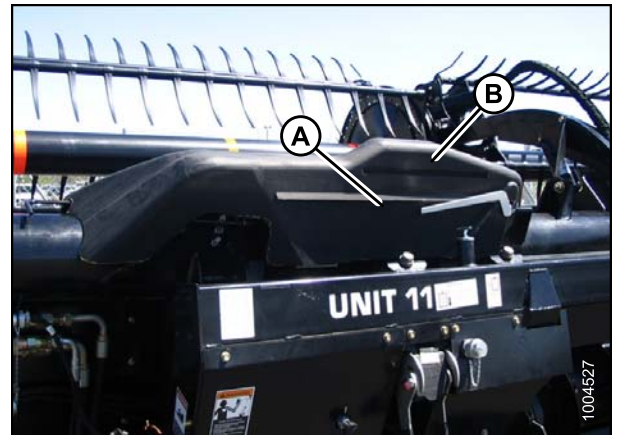


Figure 4.21: Attached Cover

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. Do NOT 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.

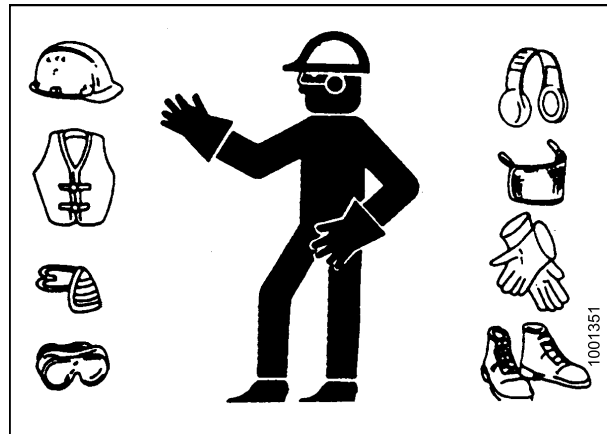


Figure 4.22: Safety Devices

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 [6.4 Hydraulics, page 274](#).

2. Clean all lights and reflective surfaces on the machine.
3. Perform all daily maintenance. Refer to [6.3.1 Maintenance Schedule/Record, page 258](#).

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 [6.3.2 Break-In Inspection, page 260](#).



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/disengage control
- Header height
- Header angle
- Ground speed
- Reel speed
- Reel height
- Reel fore-aft position

4.6 Header Setup

4.6.1 Header Attachments

Several attachments to improve performance of your FlexDraper® header are available as options that can be installed at your MacDon dealer. Refer to [8.1 Options and Attachments, page 415](#) in this manual for a description of each item.

OPERATION

4.6.2 Header Settings

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

Crop Type	Stubble Height (In.)	Crop Condition	OPERATING VARIABLES										Notes		
			Divider Rods	Draper Speed (Note 7)	Header Angle (Notes 1 and 4)	Knife Speed (Note 2)	ReelCam Setting	Reel Speed % (Note 3)	Reel Position	Skld Shoe Position (Note 4)	Stabilizer Wheels (Notes 4 and 5)	Upper Cross Auger			
Cereals	<4	Light	Off	8	B - C	6007650	3	10715	6 or 7	Up or Center	Storage	Not Required	<p>Note 1: Set header angle as shallow as possible (setting A) with center-link and skid shoes while maintaining cutting height.</p> <p>Note 2: Minimum knife drive pulley rpm. Applicable only to single-knife headers.</p> <p>Note 3: Percentage above ground speed.</p> <p>Note 4: Cutting height is controlled with a combination of skid shoes and header angle.</p> <p>Note 5: Stabilizer wheels are used to limit the side to side movement when cutting off the ground in rolling terrain, and to minimize bouncing.</p> <p>Note 6: Available through your Dealer. Rice Divider Rod not required on both ends of header.</p> <p>Note 7: Setting on CA25 draper control.</p>		
		Normal	On	7		5507600	2	10				Recommended			
		Heavy	Off	7		5257600	3 or 4	5710				4 or 5		Not Required	
		Lodged	Off	7		5257600	3 or 4	5710				4 or 5		Not Required	
	4?8	Light	Off	8	B - C	6007650	4	10715	6 or 7	Center or Down	Note 5	Not Required			
		Normal	On	7	A	5507600	2	10				Recommended			
		Heavy	Off	7	D	5257600	3 or 4	5710				4 or 5		Not Required	
		Lodged	Off	7	D	5257600	3 or 4	5710				4 or 5		Not Required	
	10 +	Light	Off	8	A	6007650	4	10715	6 or 7	Not Applicable	Note 5	Not Required			
		Normal	On	7		5507600	2	10							
		Heavy	Off	7	B - C	5257600	3 or 4	5710						4 or 5	
		Lodged	Off	7		5257600	3 or 4	5710						4 or 5	
Canola	4?8	Light	On	7	A	6007650	2	5710	6 or 7	Down Center or Down	Note 5	Recommended			
		Normal			B - C	5507600	1	10							
		Heavy			8	D	5257600	2					5710	3 or 4	Down Center or Down
		Lodged			7		5257600	2					5710		
	10 +	Light	On	7	A	6007650	2	5710	6 or 7	Not Applicable	Note 5	Recommended			
		Normal			B - C	5507600	1 or 2	10							
		Heavy			8	D	5257600	2 or 3					5710	3 or 4	
		Lodged			7		5257600	2 or 3					5710		
California rice	<4	Light	Rice Divider Rod (Note 6)	4	D	6007650	2	10715	6 or 7	Up or Center	Storage	Not Required			
		Normal			B - C	5507600		10							
		Heavy			D	5257600		5710					4 or 5		
		Lodged			D	5257600		5710					4 or 5		
	4?8	Light	Rice Divider Rod (Note 6)	4	D	6007650	3	10715	6 or 7	Center or Down	Note 5	Not Required			
		Normal			B - C	5507600		10							
		Heavy			D	5257600		4					5710		
		Lodged			D	5257600		4					5710		
	10 +	Light	Rice Divider Rod (Note 6)	4	A	6007650	3	10715	6 or 7	Not Applicable	Note 5	Not Required			
		Normal			B - C	5507600		10							
		Heavy			D	5257600		4					5710		
		Lodged			D	5257600		4					5710		
Delta rice	2?6	Light	Off	6	D	6007650	2 or 3	10715	6 or 7	Center or Down	Note 5	Not Required			
		Normal			B - C	5507600		10							
		Heavy			D	5257600		3 or 4					5710	4 or 5	
		Lodged			D	5257600		3 or 4					5710	4 or 5	
	8 +	Light	Off	6	A	6007650	2 or 3	10715	6 or 7	Not Applicable	Note 5	Not Required			
		Normal			B - C	5507600		10							
		Heavy			D	5257600		3 or 4					5710	4 or 5	
		Lodged			D	5257600		3 or 4					5710	4 or 5	
Soybeans	Light	On	8	D	6007650	2	5710	6 or 7	Up or Center	Storage	Not Required				
	Normal			B - C	5507600		10								
	Heavy			D	5257600		5710								
	Lodged			D	5257600		5710								
Flax	Light	On	8	B - C	6007650	2	5710	6 or 7	Center or Down	Note 5	Not Required				
	Normal			A			10								
	Heavy			B - C			5710					Down			
	Lodged			D											
Peas	Light	On	7	B - C	6007650	2	5710	6 or 7	Up or Center	Storage	Recommended				
	Normal				5507600		10								
	Heavy				5257600		5710					4 or 5			
	Lodged				5257600		5710					4 or 5			
Lentils	Light	On	8	B - C	6007650	2	5710	6 or 7	Up or Center	Storage	Not Required				
	Normal				5507600		10								
	Heavy				5257600		5710								
	Lodged				5257600		5710								

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4.6.3 Optimizing Header 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 FD75 headers for straight combining canola.

The optimization process includes the following modifications to the header:

Each kit includes installation instructions and necessary hardware. Refer to [8.1 Options and Attachments, page 415](#).

- 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.

Table 4.1 Optimizing for Straight Combining Canola

Feeder Opening	Quantity Installed at Factory		Total Quantity 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

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 Cylinders, page 153](#).
- Adjusting reel fore-aft position. Refer to [Adjusting Reel Fore-Aft Position, page 152](#).
- Adjusting reel height so that fingers just engage the crop. Refer to [4.7.9 Reel Height, page 151](#).
- Setting reel cam to position 1. Refer to [Adjusting Reel Cam, page 158](#).
- Setting reel speed equal to ground speed and increase as required. Refer to [4.7.5 Reel Speed, page 146](#).
- Decreasing feed auger spring tension by loosening tension bolt by 1–1-3/8 in. (25–35 mm). Refer to [Adjusting Feed Auger Springs, page 48](#).
- Setting side draper speed to position 9 on CA25 control. Refer to [4.7.7 Draper Speed, page 148](#).

Adjusting Feed Auger Springs

The CA25 feed auger has an adjustable spring tensioning system that allows the auger to float on the crop instead of crushing and damaging it. The tension is set at the factory setting is adequate for most crop conditions.

If necessary, adjust the auger tension springs as follows:

OPERATION

1. Raise header to full height, shut down combine and remove key from ignition.
2. Engage header lift cylinder safety props.
3. Loosen upper jam nut (A) on spring tensioner.
4. Turn lower nut (B) to decrease tension until length of protruding thread (C) on tensioner decreases 1—1-3/8 in. (25–35 mm) from its original position.
5. Tighten jam nut (A).
6. Repeat above for opposite side.

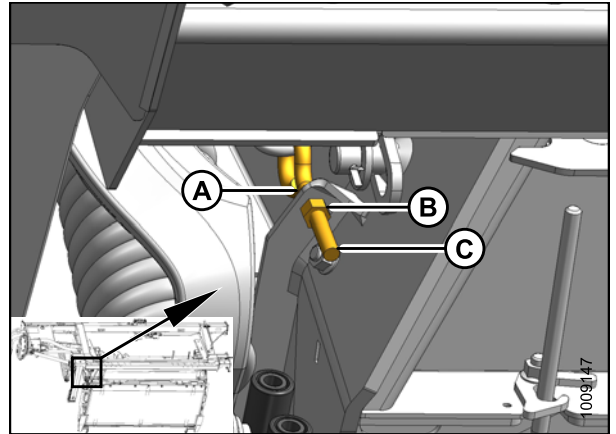


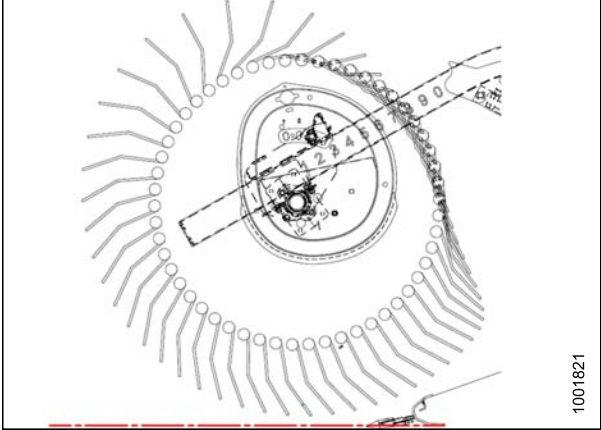
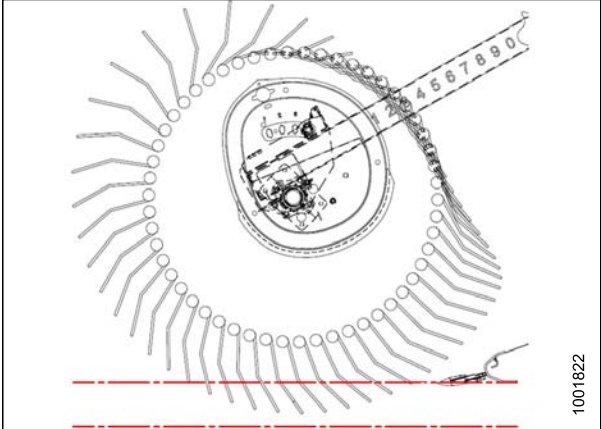
Figure 4.23: Tensioner

4.6.4 Reel Settings

Table 4.2 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 above.

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	4.7.1 Cutting Height, page 51
Header float	4.7.3 Header Float, page 137
Header angle	4.7.4 Header Angle, page 145
Reel speed	4.7.5 Reel Speed, page 146
Ground speed	4.7.6 Ground Speed, page 147
Draper speed	4.7.7 Draper Speed, page 148
Knife speed	4.7.8 Knife Speed, page 150
Reel height	4.7.9 Reel Height, page 151
Reel fore-aft position	4.7.10 Reel Fore-Aft Position, page 152
Reel tine pitch	4.7.11 Reel Tine Pitch, page 156
Crop divider rods	4.7.13 Crop Divider Rods, page 163

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 the combine header height control and a stabilizer wheel system, or a stabilizer/slow speed transport wheel system.

If stabilizer wheels are installed, refer to [Adjusting Stabilizer Wheels, page 53](#) to change the wheel position.

If stabilizer/slow speed transport wheels are installed, refer to [Adjusting Stabilizer/Slow Speed Transport Wheels, page 52](#) to change the wheel position.

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 [4.6.2 Header Settings, page 47](#) 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 right 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 wheel back into field position and ensure latch (B) is engaged.
8. Secure latch with hairpin (A).
9. On the left 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.

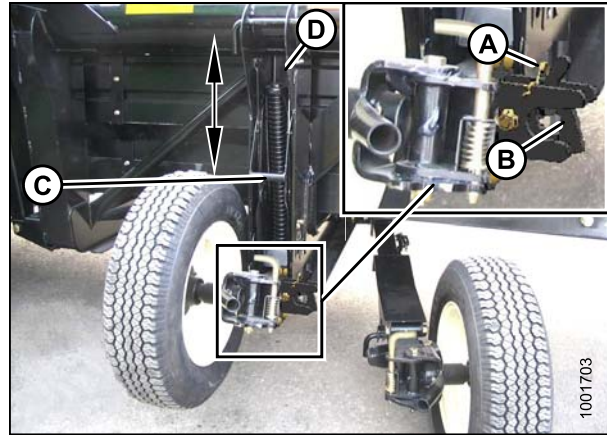


Figure 4.24: Right Wheel

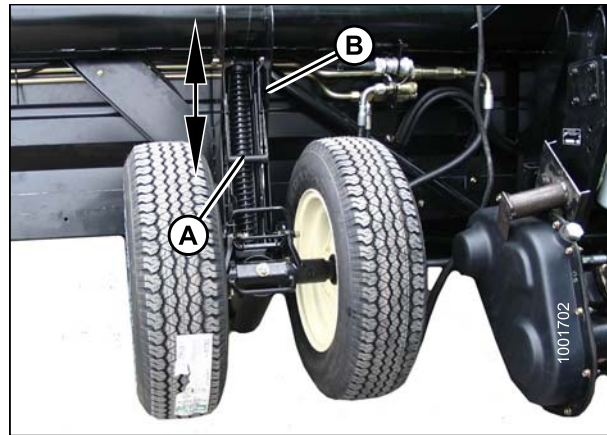


Figure 4.25: Left Wheel

OPERATION

- 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.

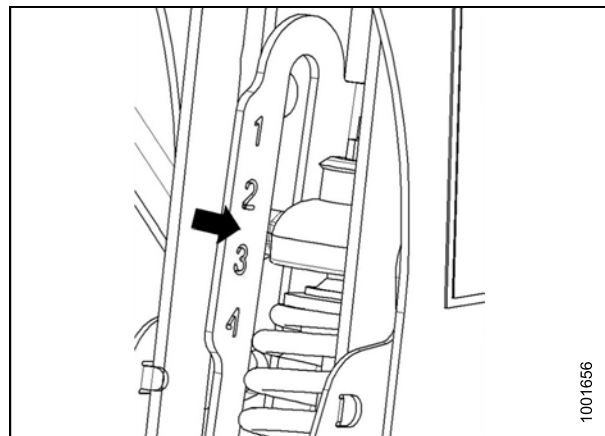


Figure 4.26: Load Indicator

IMPORTANT:

Continuous operation with excessive spring compression (i.e., load indicator reading greater than '4' or a compressed length (A) less than 11-5/8 in. [295 mm]) can result in damage to suspension system.

- Adjust header angle to desired working angle with the machine's header angle controls. If angle is not critical, set it to mid-position.
- Use the combine's Auto Header Height Control (AHHC) to automatically maintain cutting height. Refer to [4.7.2 Auto Header Height Control, page 56](#) and your combine operator's manual for details.

NOTE:

The height sensor on the CA25 adapter must be connected to the combine header control module in the cab.

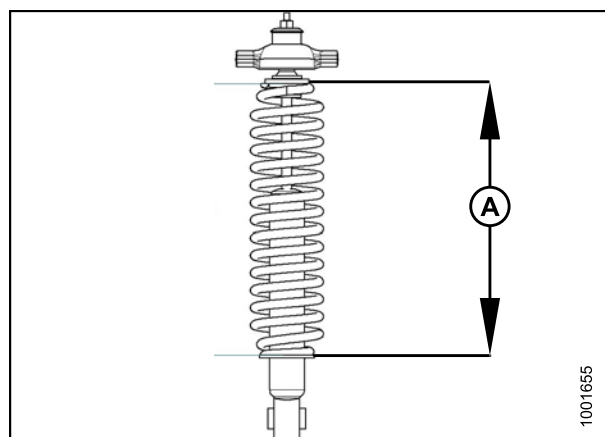


Figure 4.27: Spring Compression

Adjusting Stabilizer Wheels

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

Refer to [4.6.2 Header Settings, page 47](#) for recommended use in specific crops and crop conditions.

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

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.

OPERATION

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.

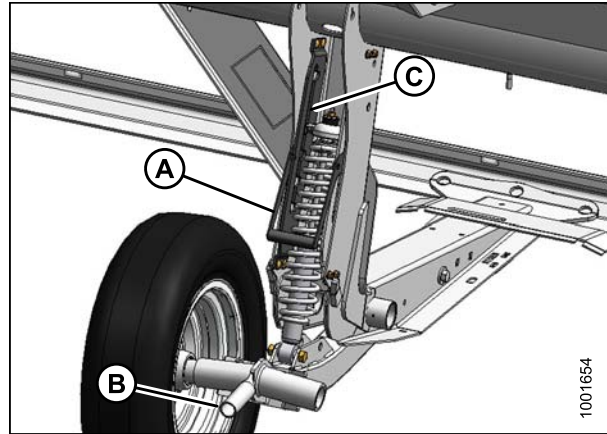


Figure 4.28: Stabilizer Wheel

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.

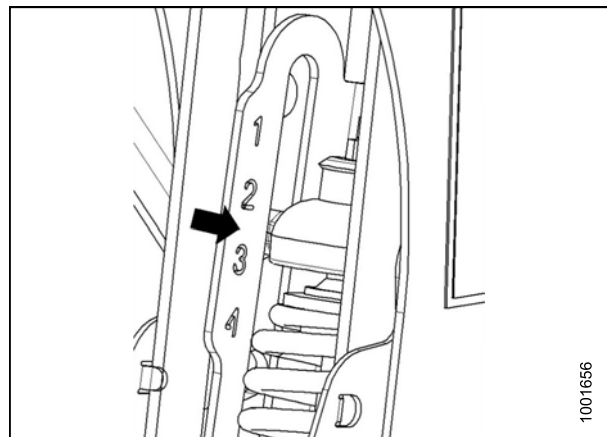


Figure 4.29: Load Indicator

IMPORTANT:

Continuous operation with excessive spring compression (i.e., load Indicator reading greater than '4' or a compressed length less than 11-5/8 in. [295 mm]) (A) 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 [4.7.2 Auto Header Height Control, page 56](#) and your combine operator's manual for details.

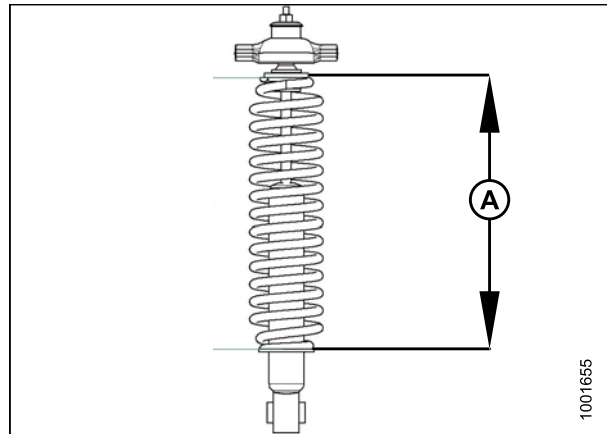


Figure 4.30: Spring Compression

NOTE:

The height sensor on the CA25 adapter must be connected to the combine height control system in the cab.

OPERATION

Cutting On the Ground

Cutting on the ground is performed with the header fully lowered so that the cutterbar is on the ground. The orientation of the sickle and sickle guards relative to the ground (or header angle) is controlled with the skid shoes, and center-link, and **NOT** with the header lift cylinders. These two features allow the operator to adjust to field conditions to maximize the amount of material cut and to reduce damage to the sickle from stones and debris.

The header is equipped with a type of suspension system that floats the header over the surface to compensate for ridges, trenches, or other variations in ground contour instead of pushing the cutterbar into the ground or leaving uncut crop.

Refer to the following sections for further information about each feature:

- [Adjusting Inner Skid Shoe, page 55.](#)
- [Adjusting Outer Skid Shoe, page 56.](#)
- [4.7.4 Header Angle, page 145.](#)
- [4.7.3 Header Float, page 137.](#)

Also see [4.6.2 Header Settings, page 47.](#)

Adjusting Inner Skid Shoe

1. Fully raise the stabilizer wheels or slow speed transport wheels (if installed). Refer to:
 - [Adjusting Stabilizer Wheels, page 53,](#) or
 - [Adjusting Stabilizer/Slow Speed Transport Wheels, page 52](#)



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. Refer to the combine operator's manual for instructions regarding the proper 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.

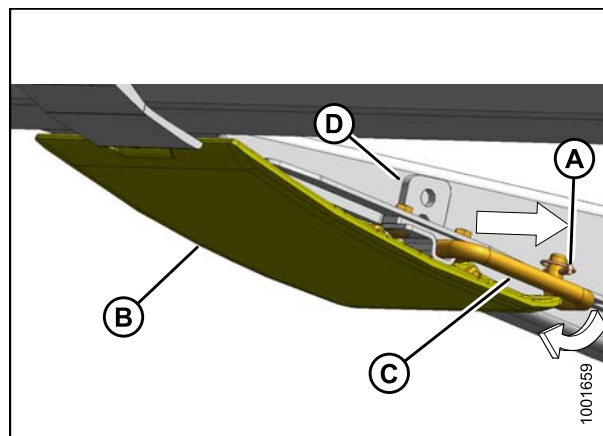


Figure 4.31: Inner Skid Shoe

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 [4.7.3 Header Float, page 137](#).

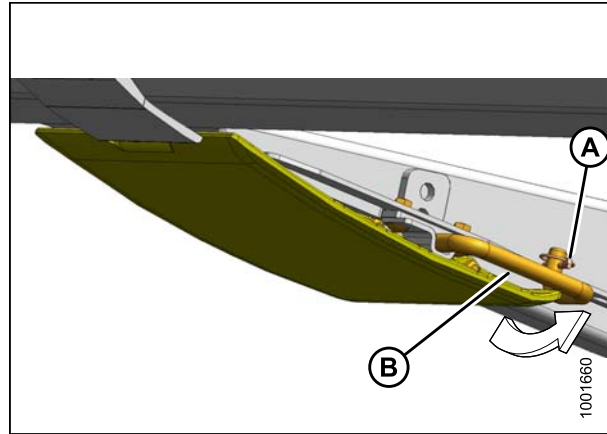


Figure 4.32: Inner Skid Shoe

Adjusting Outer Skid Shoe

1. Fully raise the stabilizer wheels or slow speed transport wheels if installed. Refer to:
 - [Adjusting Stabilizer Wheels, page 53](#) or
 - [Adjusting Stabilizer/Slow Speed Transport Wheels, page 52](#)

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. Refer to the combine operator's manual for instructions regarding the proper 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 138](#).

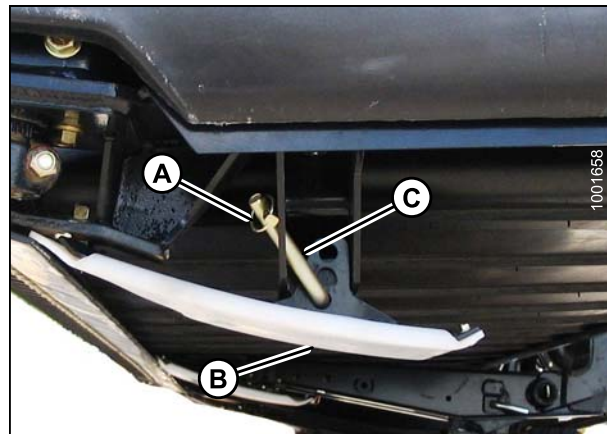


Figure 4.33: Outer Skid Shoe

4.7.2 Auto 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.

OPERATION

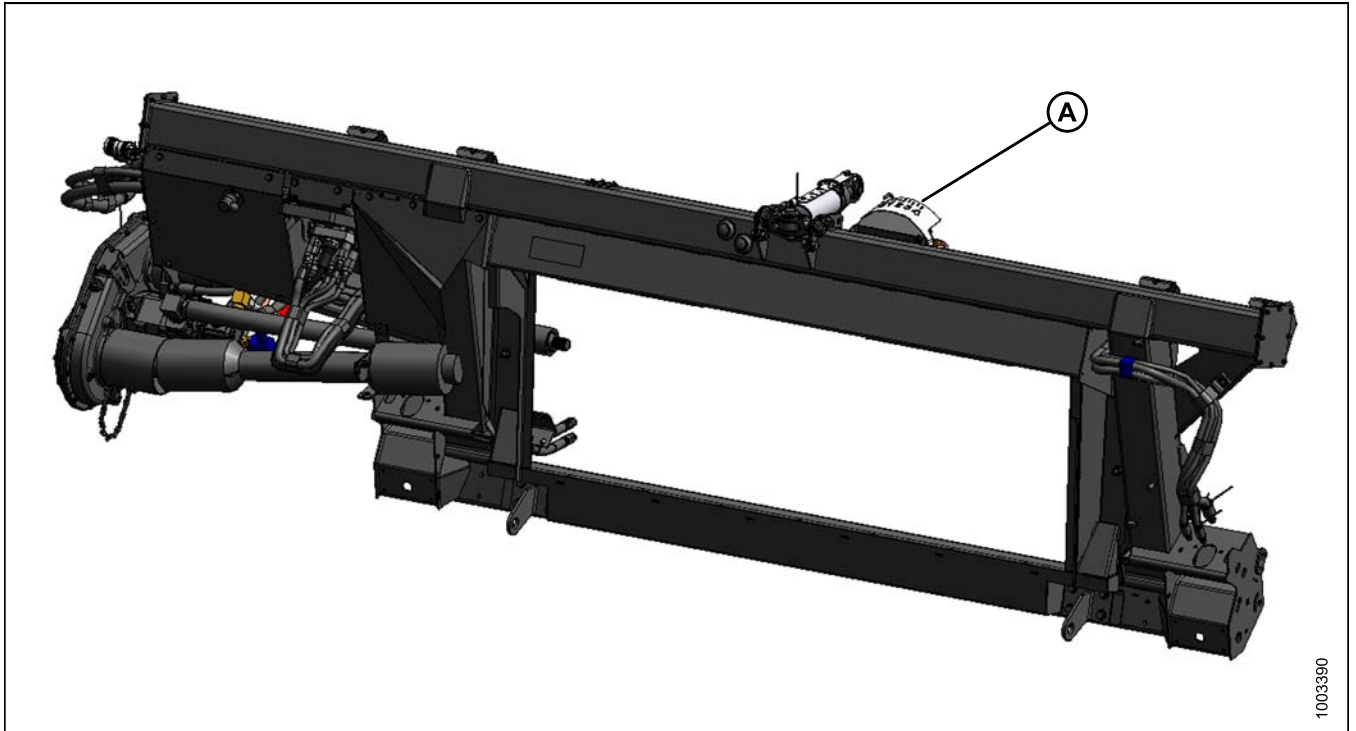


Figure 4.34: CA25 Combine Adapter

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. For more information, refer to [Height Sensor Output Voltage Range – Combine Requirements, page 58](#).
2. Prepare the combine to use the Auto Header Height feature (only applies to some combine models; refer to the instructions for your combine).
3. Calibrate the Auto Header Height system so that the combine can correctly interpret data from the height sensor on the combine adapter (refer to the instructions for your combine).
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 (refer to the instructions for your combine).

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.

OPERATION

Combine specific instructions are available here:

- [AGCO 6 and 7 Series Combines, page 61](#)
- [Case IH 2300/2500 Combines, page 68](#)
- [Case IH 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines, page 70](#)
- [Gleaner R62/R72 Combines, page 77](#)
- [Gleaner R65/R75 Combines, page 80](#)
- [John Deere 50 Series Combines, page 89](#)
- [John Deere 60 Series Combines, page 92](#)
- [John Deere 70 Series Combines, page 98](#)
- [John Deere S Series Combines, page 104](#)
- [Lexion 500 Series Combines, page 112](#)
- [Lexion 700 Series Combines, page 122](#)
- [New Holland Combines, page 128](#)

Height Sensor Output Voltage Range – Combine Requirements

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

Table 4.3 Combine Voltage Limits

Combine	Low Voltage Limit	High Voltage Limit	Range (Difference between High and Low Limits)
Challenger, Gleaner A, Massey Ferguson	0.5 V	4.5 V	3.0 V
Case IH 7/8010, 5/6/7088, 7/8/9120, 5/6/7130, 7/8/9230	0.5 V	4.5 V	2.0 V
Case IH 2300/2500	2.8 V	7.2 V	4.0 V
Gleaner R and S Series	1.0 V	4.0 V	2.0 V
John Deere 50/60/70/S Series	0.5 V	4.5 V	3.0 V
Lexion 500/600/700 Series	0.5 V	4.5 V	2.5 V
New Holland CR/CX - 5 V system	0.7 V	4.3 V	2.5 V
New Holland CR/CX - 10 V system	2.8 V	7.2 V	4.1–4.4 V
<p>NOTE: Some combine models do not support checking sensor output voltage from the cab (early 23/2588 series, Lexion 500/700 series.) For these models, check output voltage manually – Refer to Manually Checking Voltage Range, page 59.</p>			

OPERATION

Manually Checking Voltage Range

You can manually check the output voltage range of the auto header height sensor at the float indicator box. Some combines will allow you to check the voltage range from the cab. For instructions, refer to your combine operator's manual or the auto header height instructions for your combine model later in this document.

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

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.
3. Using a voltmeter (A), measure the voltage between the ground and signal wires at the Auto Header Height sensor in the float indicator box. It should be at the high voltage limit for the combine, Refer to [Height Sensor Output Voltage Range – Combine Requirements, page 58](#).

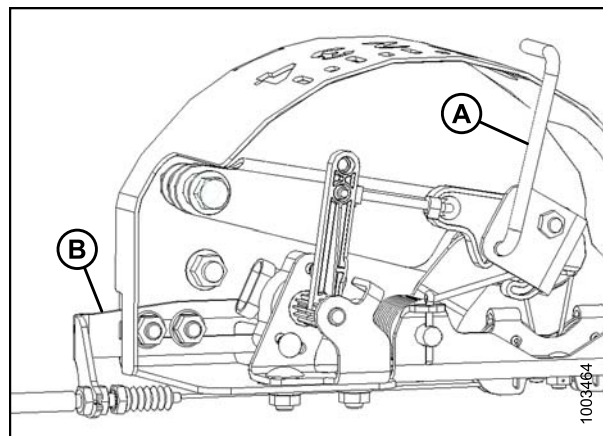


Figure 4.35: Float Indicator Box

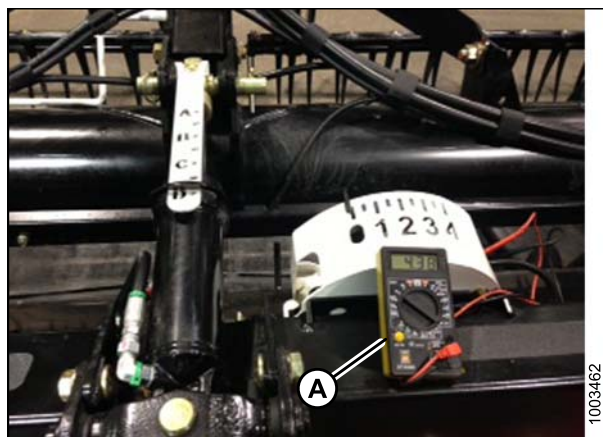


Figure 4.36: Measuring Voltage Between Ground and Signal Wires with a Voltmeter

OPERATION

4. Fully lower the combine feeder house and float the header up off the down stops (float indicator should be on 4 and the adapter should be fully separated from the header).

NOTE:

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

5. Using a voltmeter (A), measure the voltage between the ground and signal wires at the Auto Header Height sensor in the float indicator box. It should be at the low voltage limit for the combine, Refer to *Height Sensor Output Voltage Range – Combine Requirements, page 58*.
6. If the sensor voltage is not within the low and high limits, Refer to *Height Sensor Output Voltage Range – Combine Requirements, page 58*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 60* for instructions.

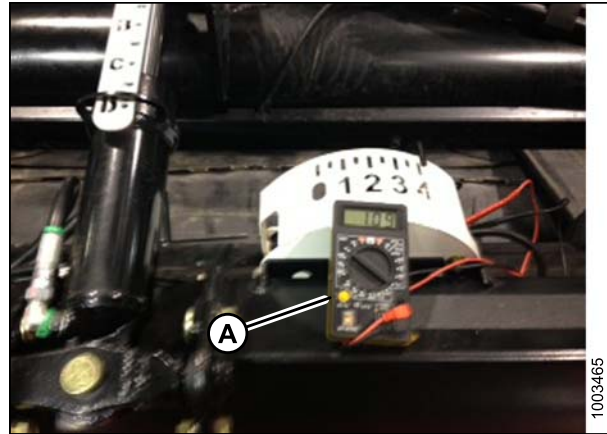


Figure 4.37: Measuring Voltage Between Ground and Signal Wires with a Voltmeter

Adjusting Voltage Limits

Procedure for adjusting voltage limits.

NOTE:

The sensor assemblies used with Lexion and some New Holland combines are slightly different from the sensor assemblies used with other combine models. All three assemblies are illustrated here.

1. To adjust high voltage limit, follow these steps:
 - a. Fully extend guard angle; the header angle indicator should be at D.
 - b. Position header 6–10 in. above the ground; the float indicator should be at 0.
 - c. Loosen sensor mounting bolts (A).
 - d. Slide sensor support (B) to the right to increase the high voltage limit and to the left to decrease it.
 - e. Tighten sensor mounting bolts (A).

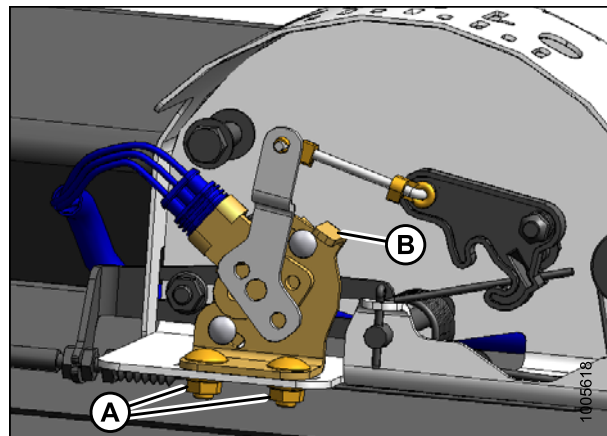


Figure 4.38: Auto Header Height Sensor Assembly for Use with Lexion Combines

OPERATION

2. To adjust low voltage limit, follow these steps:
 - a. Fully extend guard angle; the header angle indicator should be at D.
 - b. Lower header fully on the ground; the float indicator should be at 4.
 - c. Loosen mounting bolts (A).
 - d. Rotate potentiometer (B) clockwise to increase the low voltage limit and counterclockwise to decrease it.
 - e. Tighten sensor mounting bolts (A).

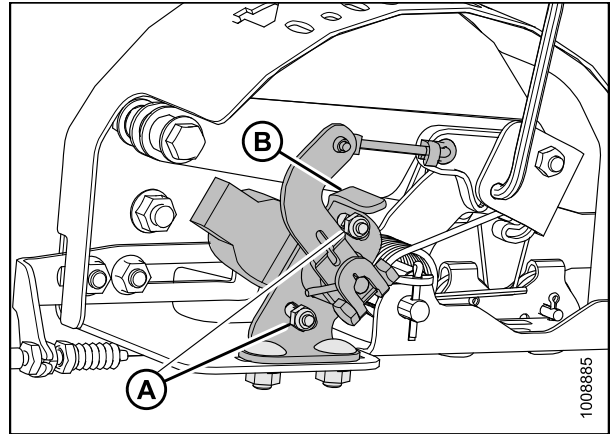


Figure 4.39: 10 Volt Auto Header Height Sensor Assembly for Use with Some New Holland Combines

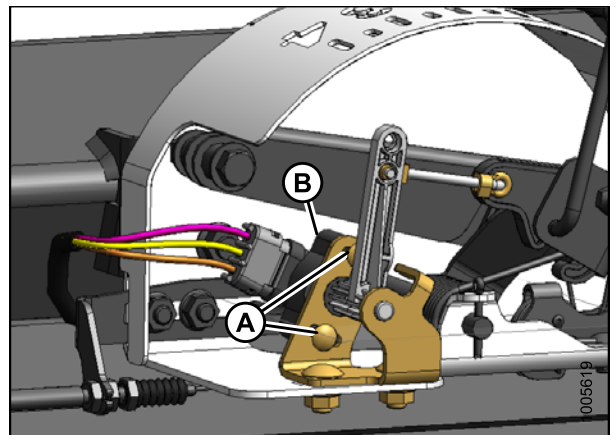


Figure 4.40: Most Common 5 Volt Auto Header Height Sensor Assembly

AGCO 6 and 7 Series Combines

Checking Voltage Range from the Combine Cab (AGCO 6 and 7 Series)

NOTE:

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

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

OPERATION

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

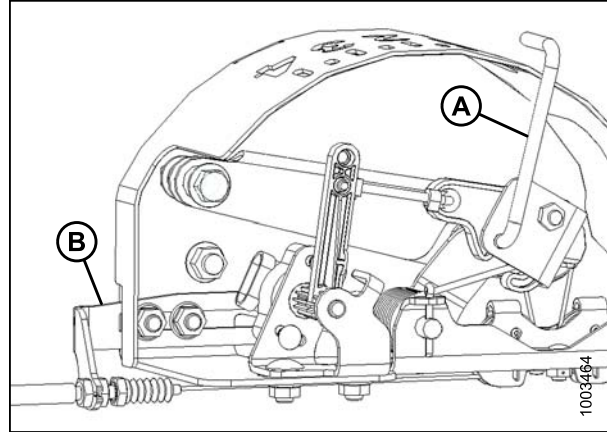


Figure 4.41: Float Indicator Box

3. On the combine monitor, go to the FIELD page, and then press the diagnostics icon. The MISCELLANEOUS page displays.
4. Press the VMM DIAGNOSTIC button (A). The VMM DIAGNOSTIC page displays.

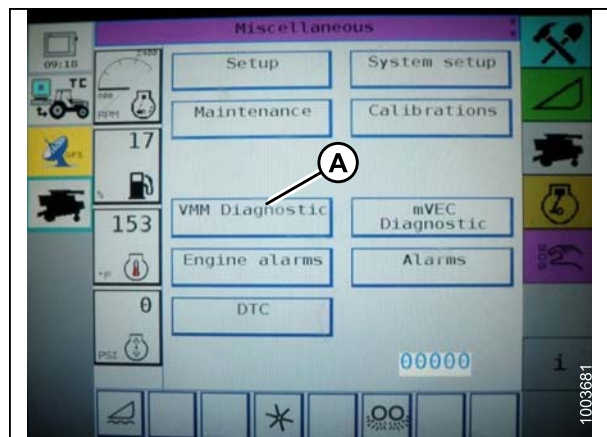


Figure 4.42: Combine Display

5. Go to the ANALOG IN tab, and then select VMM MODULE 3 by pressing the text box below the four tabs. The voltage from the Auto Header Height sensor is now displayed in the header height right pot and header height left pot. Both readings should be identical.

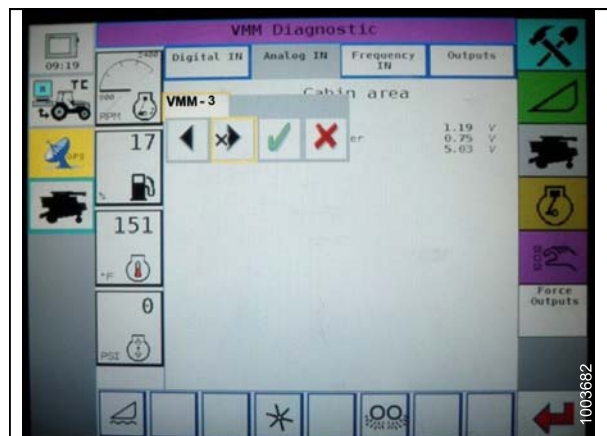


Figure 4.43: Combine Display

OPERATION

6. Fully lower the combine feeder house and float the header up off the down stops (float indicator should be on 4 and the adapter should be fully separated from the header).

NOTE:

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

7. Read voltage.
8. Raise header so cutterbar is 6 in. (150 mm) off the ground.
9. Read voltage.
10. If the sensor voltage is not within the low and high limits refer to [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 60](#) for instructions.

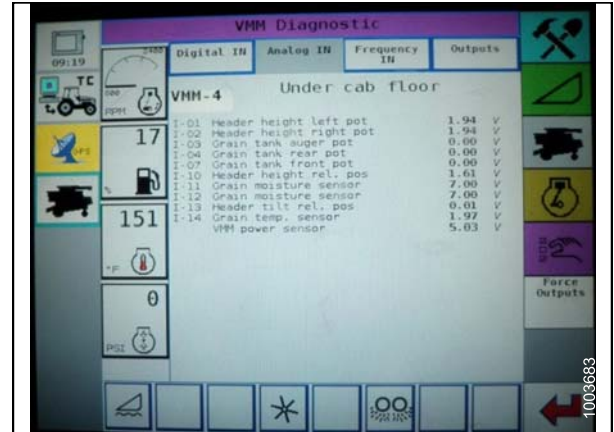


Figure 4.44: Combine Display

Engaging the Auto Header Height System (AGCO 6 Series)

NOTE:

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

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.

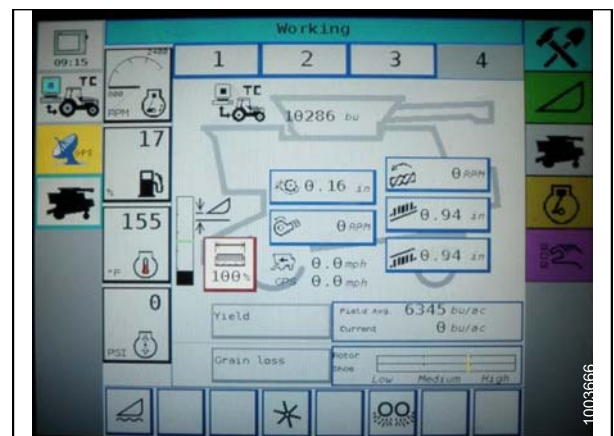


Figure 4.45: Combine Display

OPERATION

Calibrating the Auto Header Height System (AGCO 6 Series)

NOTE:

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

For best performance of the Auto Header Height system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration is complete, adjust the center-link back to desired header angle. Refer to "Header Angle" in Operation section of the header operator's manual.

To calibrate the system, follow these steps:

1. On the FIELD page, press the DIAGNOSTICS icon. The MISCELLANEOUS page appears.

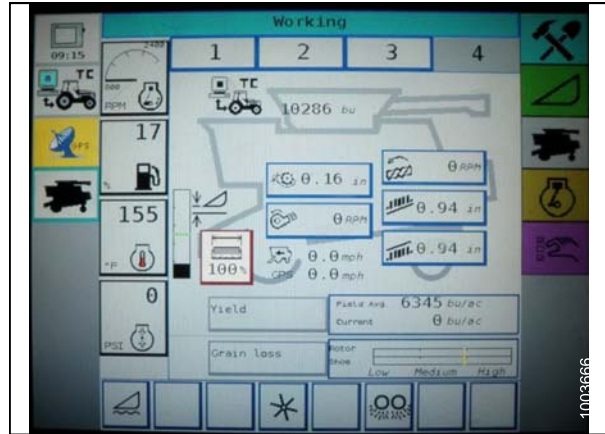


Figure 4.46: Combine Display

2. Press the CALIBRATIONS button. The CALIBRATIONS page appears.

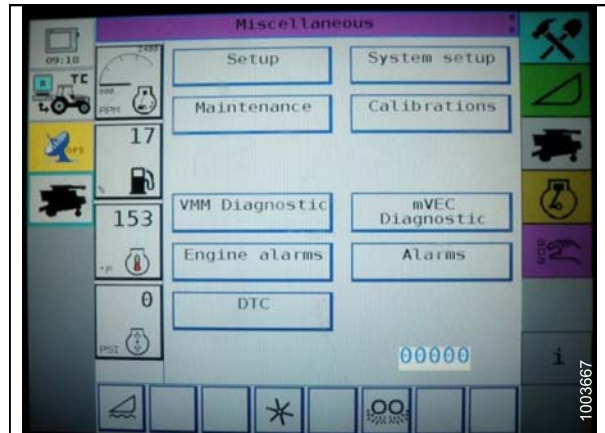


Figure 4.47: Combine Display

OPERATION

3. Press the HEADER button. The HEADER CALIBRATION page displays a warning.

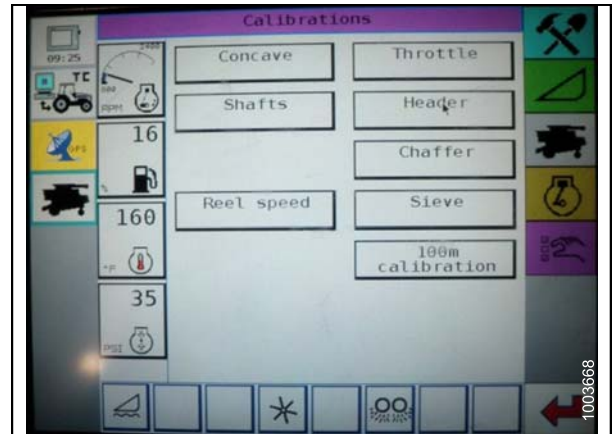


Figure 4.48: Combine Display

4. Read the warning message, and then press the green check mark button.

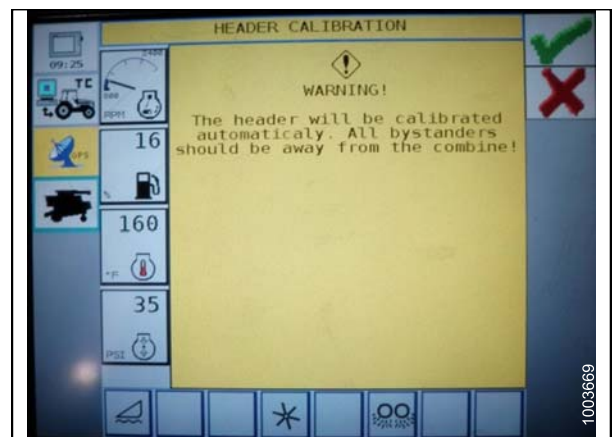


Figure 4.49: Combine Display

5. Follow the on-page prompts to complete calibration.

NOTE:

The calibration procedure can be cancelled at anytime by pressing the cancel button in the bottom, right corner of the page. While the header calibration is running, the calibration can also be canceled by using the up, down, tilt right, or tilt left buttons on the control handle.

NOTE:

If the combine does not have header tilt installed or if it is inoperable, you may receive warnings during calibration. Press the green check mark if these warnings appear. This will not affect the AHHC calibration.

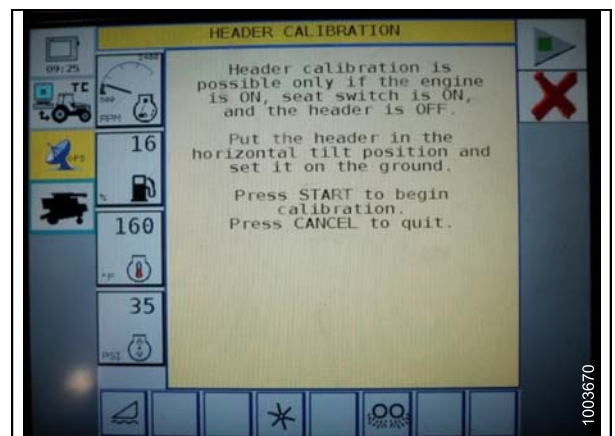


Figure 4.50: Combine Display

OPERATION

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.

NOTE:

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

To 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 4.51: Height Adjustment Knob on the Combine Control Console

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

NOTE:

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

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

1. On the FIELD page, press the Header icon. The HEADER page displays.



Figure 4.52: Combine Display

OPERATION

2. Press HEADER CONTROL(A). The HEADER CONTROL page displays.

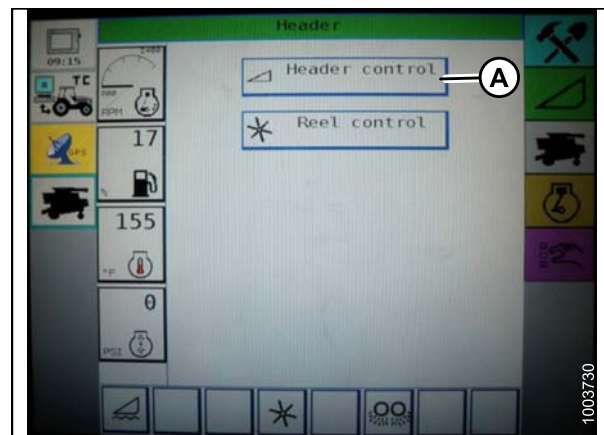


Figure 4.53: Combine Display

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.

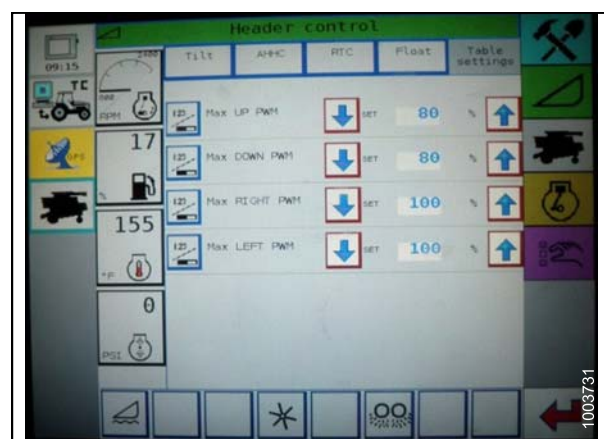


Figure 4.54: Combine Display

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.

NOTE:

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

To 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.

OPERATION

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.

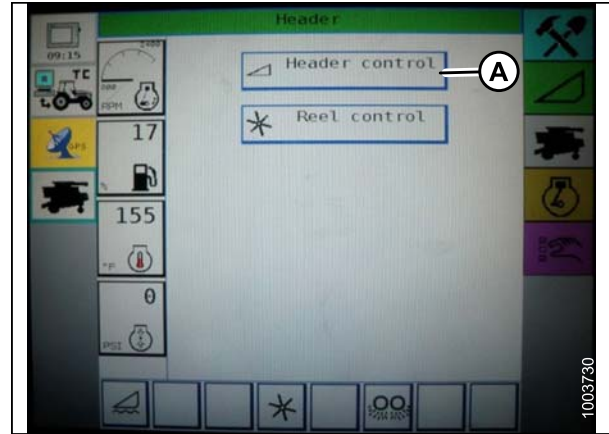


Figure 4.55: Combine Display

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

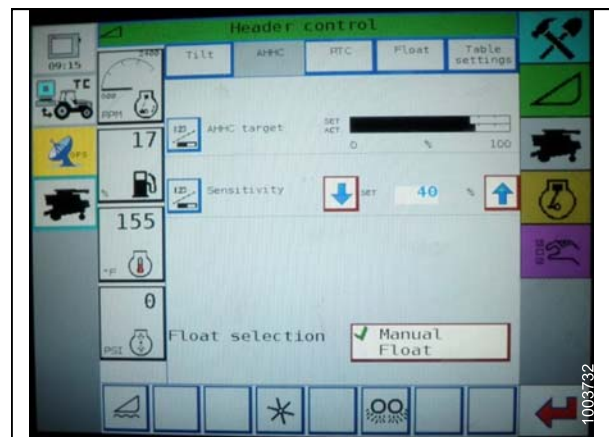


Figure 4.56: Combine Display

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.

Case IH 2300/2500 Combines

Engaging the Auto Header Height System (Case IH 2300)

NOTE:

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

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

OPERATION

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.

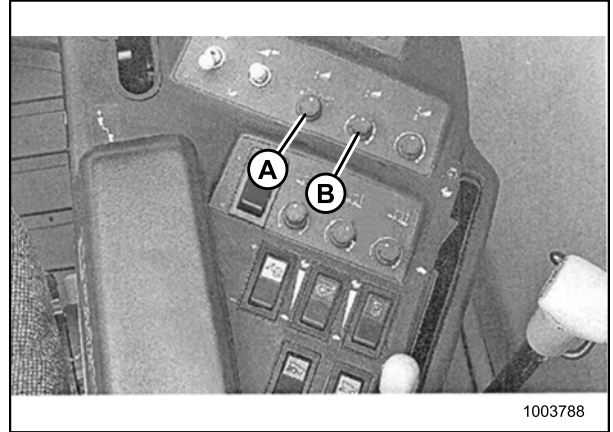


Figure 4.57: Combine Controls

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 4.58: Combine Controls

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

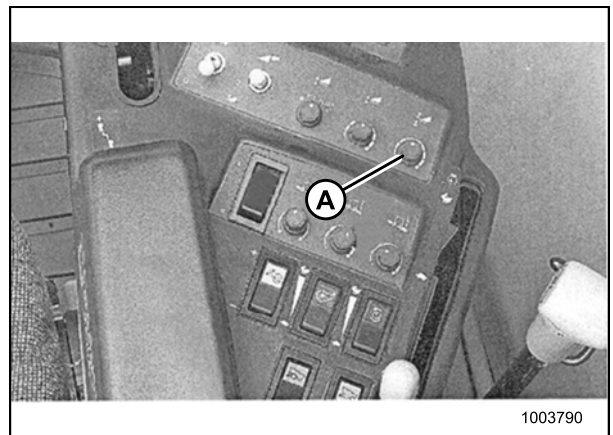


Figure 4.59: Combine Controls

Calibrating the Auto Header Height System (Case IH 2300/2500)

NOTE:

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

OPERATION

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

1. Set the flotation on the header and adapter package (refer to operator's manual for instructions). Position fore-aft and center-link in mid span.
2. Combine engine should be running. There is no need to have separator or feeder house engaged.
3. On right-hand console, set header control switch (A) to "HT" (this is Auto Header Height mode).

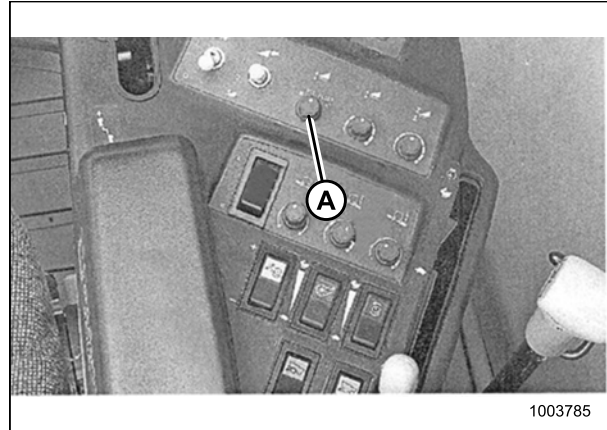


Figure 4.60: Right-Hand Console

4. On the propulsion lever, hold the lower switch (A) down until the adapter and header are lowered. Hold the switch down for five seconds.
5. Engage header raise switch (A) and hold the header raise switch up. The header should stop at about the halfway point. Keep holding the header raise switch, and the header will automatically rise until the feeder reaches the top of its limitations. The Auto Header Height system is now calibrated.

NOTE:

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

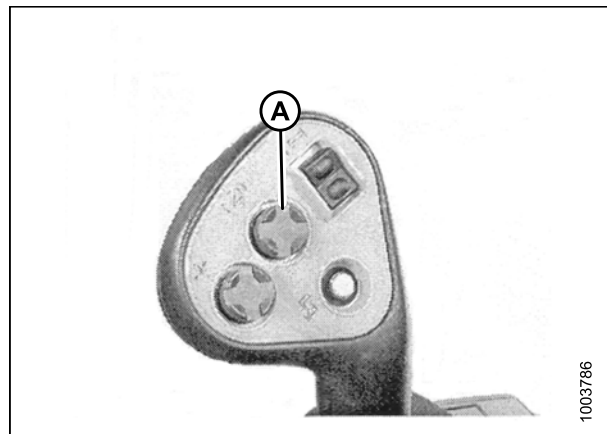


Figure 4.61: Propulsion Lever

Case IH 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines

Checking Voltage Range from the Combine Cab (Case 8010)

NOTE:

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

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

OPERATION

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

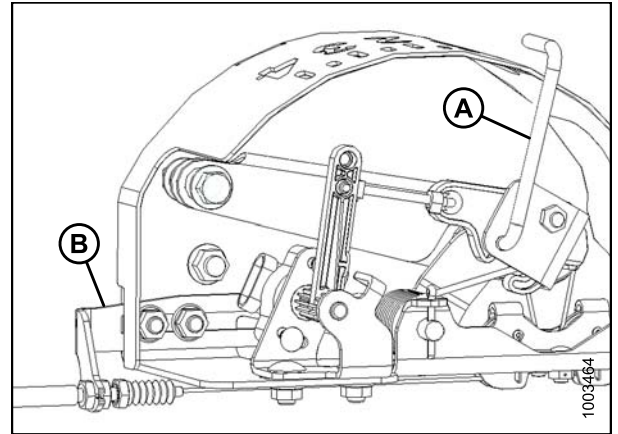


Figure 4.62: Float Indicator Box

3. Ensure header float is unlocked.
4. On the Universal display, MAIN screen, select DIAG (A). The DIAG screen displays.

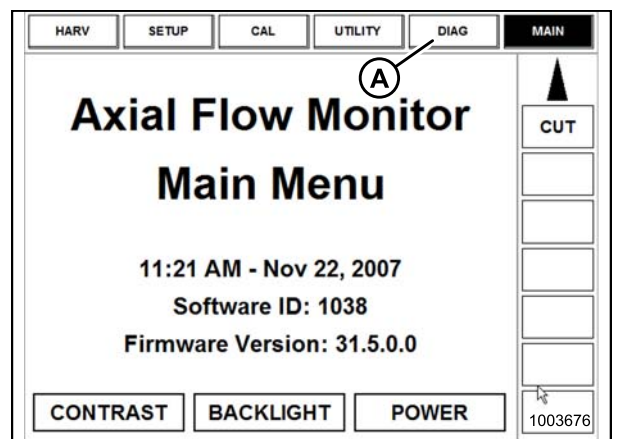


Figure 4.63: Combine Display

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

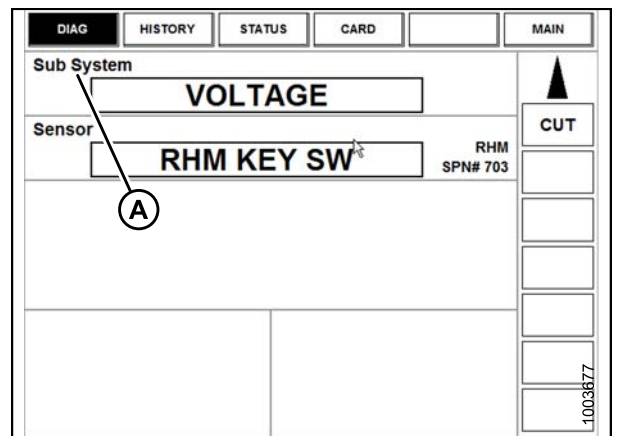


Figure 4.64: Combine Display

OPERATION

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

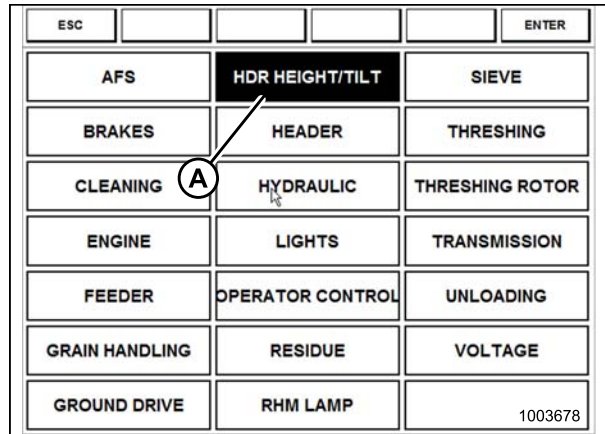


Figure 4.65: Combine Display

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

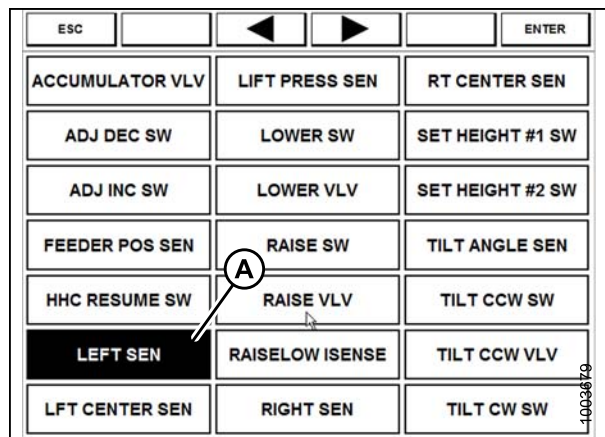


Figure 4.66: Combine Display

8. If the sensor voltage is not within the low and high limits shown in [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to [Adjusting Voltage Limits, page 60](#).



Figure 4.67: Combine Display

Checking Voltage Range from the Combine Cab (Case IH 7/8010; 7/8/9120; 7/8/9230)

NOTE:

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

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

OPERATION

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

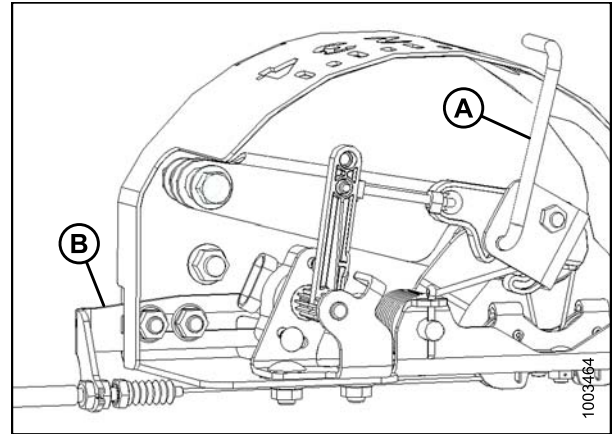


Figure 4.68: Float Indicator Box

3. Ensure header float is unlocked.
4. On the MAIN screen, select DIAGNOSTICS (A). The DIAGNOSTICS screen displays.
5. Select SETTINGS. The SETTINGS screen displays.

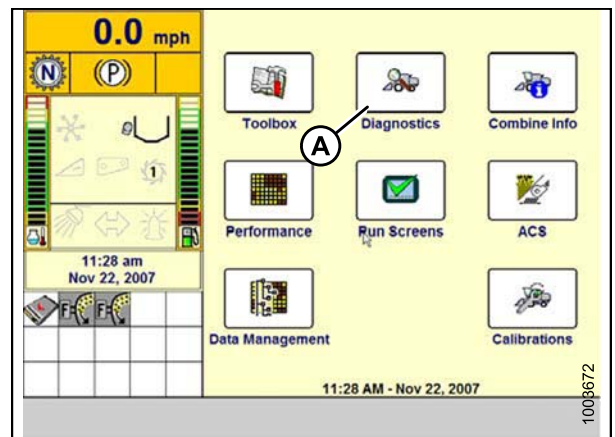


Figure 4.69: Combine Display

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

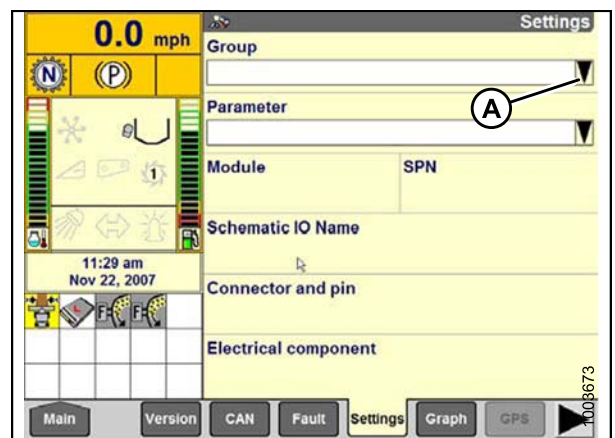


Figure 4.70: Combine Display

OPERATION

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

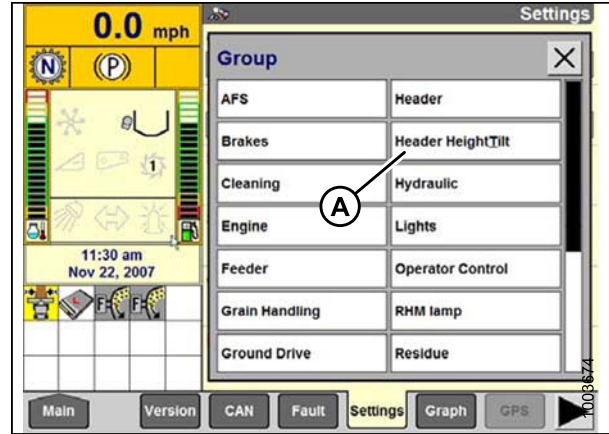


Figure 4.71: Combine Display

8. Select Left header height sen (A), and then select the Graph button at the bottom of the screen. The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
9. If the sensor voltage is not within the low and high limits, refer to [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 60](#).

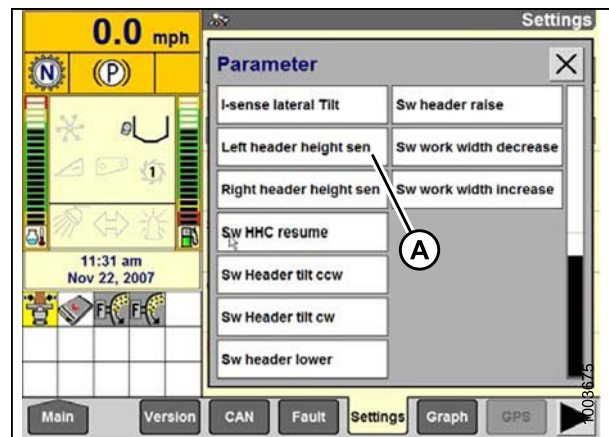


Figure 4.72: Combine Display

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

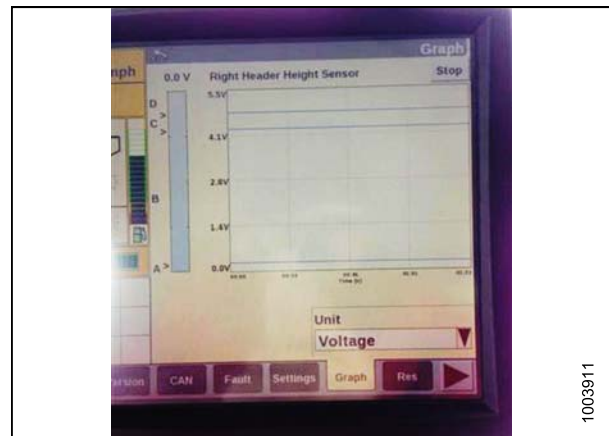


Figure 4.73: Combine Display

OPERATION

Calibrating the Auto Header Height System (Case 7/8010; 7/8/9120; 7/8/9230)

For best performance of the Auto Header Height system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration is complete, adjust the center-link back to desired header angle. Refer to “Header Angle” in Operation section of the header operator’s manual.

NOTE:

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

To calibrate the system, follow these steps:

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

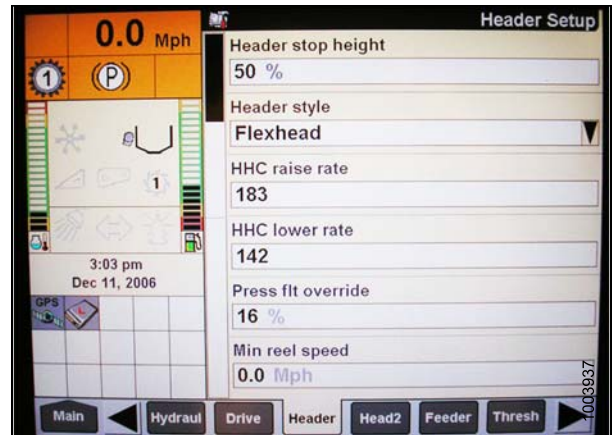


Figure 4.74: Combine Display

4. Set Auto reel speed slope.
5. Set HEADER PRESSURE FLOAT to YES if equipped, and ensure REEL DRIVE is HYDRAULIC.

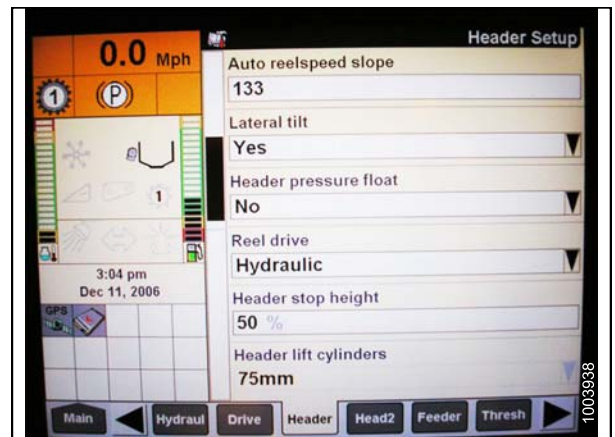


Figure 4.75: Combine Display

OPERATION

6. If applicable, install REEL FORE-BACK.
7. Set HEIGHT SENSITIVITY to desired value. 180 is recommended as a starting point.

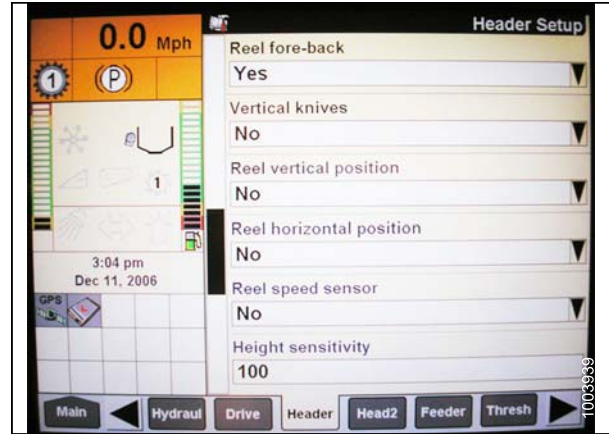


Figure 4.76: Combine Display

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

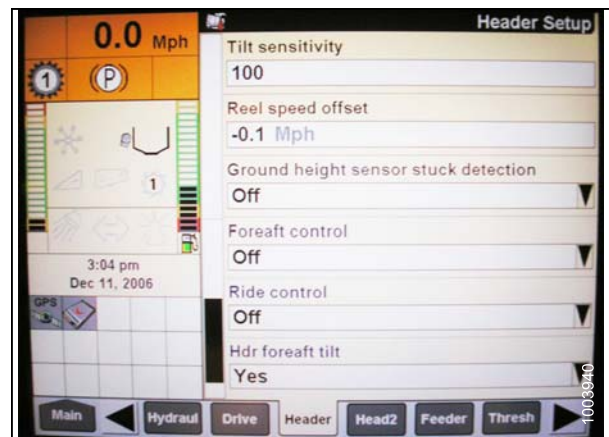


Figure 4.77: Combine Display

9. Once complete press HEAD2 at bottom of screen.
10. Ensure HEADER TYPE is DRAPER.

NOTE:

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

11. Cutting type should be set to PLATFORM.
12. Set appropriate HEADER WIDTH and HEADER USAGE.



Figure 4.78: Combine Display

OPERATION

Gleaner R62/R72 Combines

System Requirements (Gleaner R62/R75)

NOTE:

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

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.

Calibrating the Auto Header Height System (Gleaner R62/R72)

For best performance of the Auto Header Height system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration is complete, adjust the center-link back to desired header angle. Refer to "Header Angle" in Operation section of the header operator's manual.

NOTE:

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

To calibrate the auto header height system, follow these steps:

1. Ensure the center-link is as short as possible, and that the adapter float is unlocked.
2. Turn on the combine, and then press and hold the hidden C1 button (A) until the LED light (B) flashes momentarily.
3. Lower the feeder house as far as it will go.
4. Press and hold the hidden L2 button (C) until the LED light (B) flashes momentarily. The auto header height system is now calibrated.

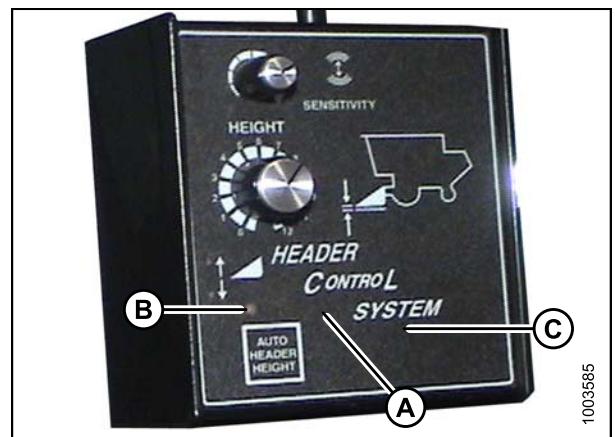


Figure 4.79: Combine Header Control System

Operation Settings (Gleaner R62/R72 Series)

NOTE:

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

OPERATION

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).

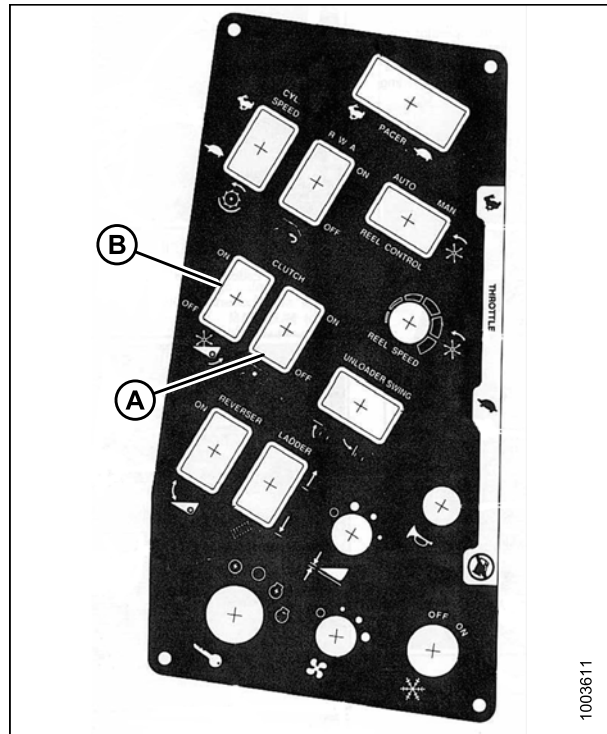


Figure 4.80: Combine Control Console

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

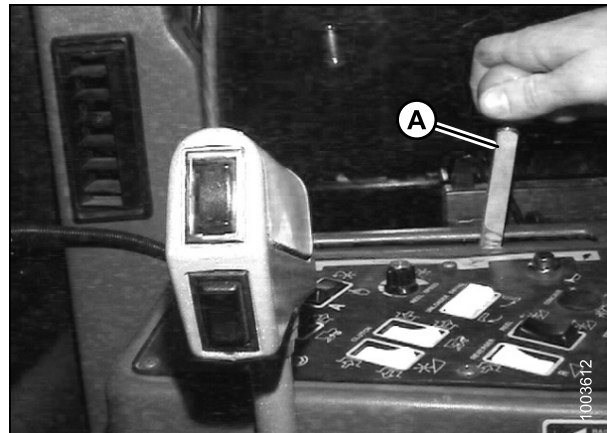


Figure 4.81: Throttle

OPERATION

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.

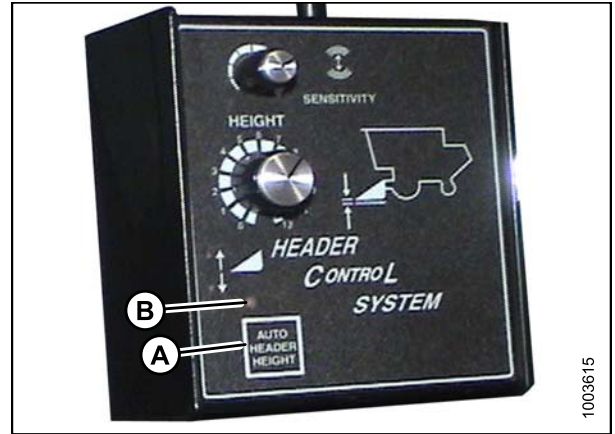


Figure 4.82: Combine Header Control System

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 4.83: Header Down Button

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).

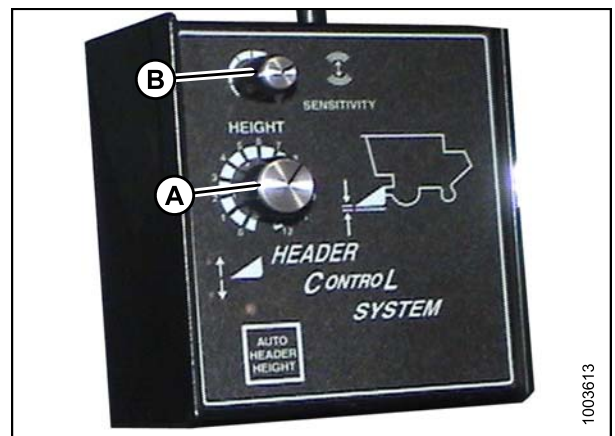


Figure 4.84: Combine Header Control System

OPERATION

Gleaner R65/R75 Combines

Checking Voltage Range from the Combine Cab (Gleaner R65/R75)

NOTE:

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

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

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

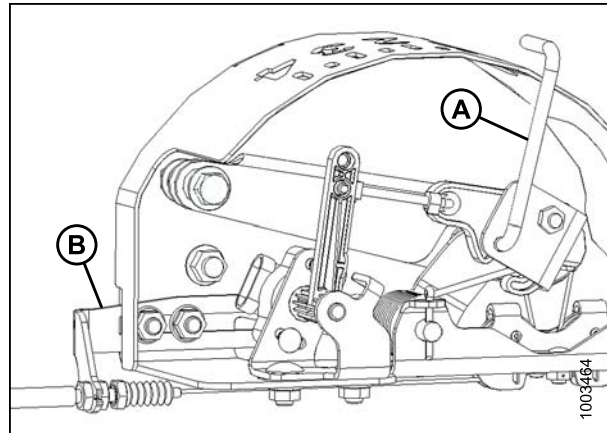


Figure 4.85: Float Indicator Box

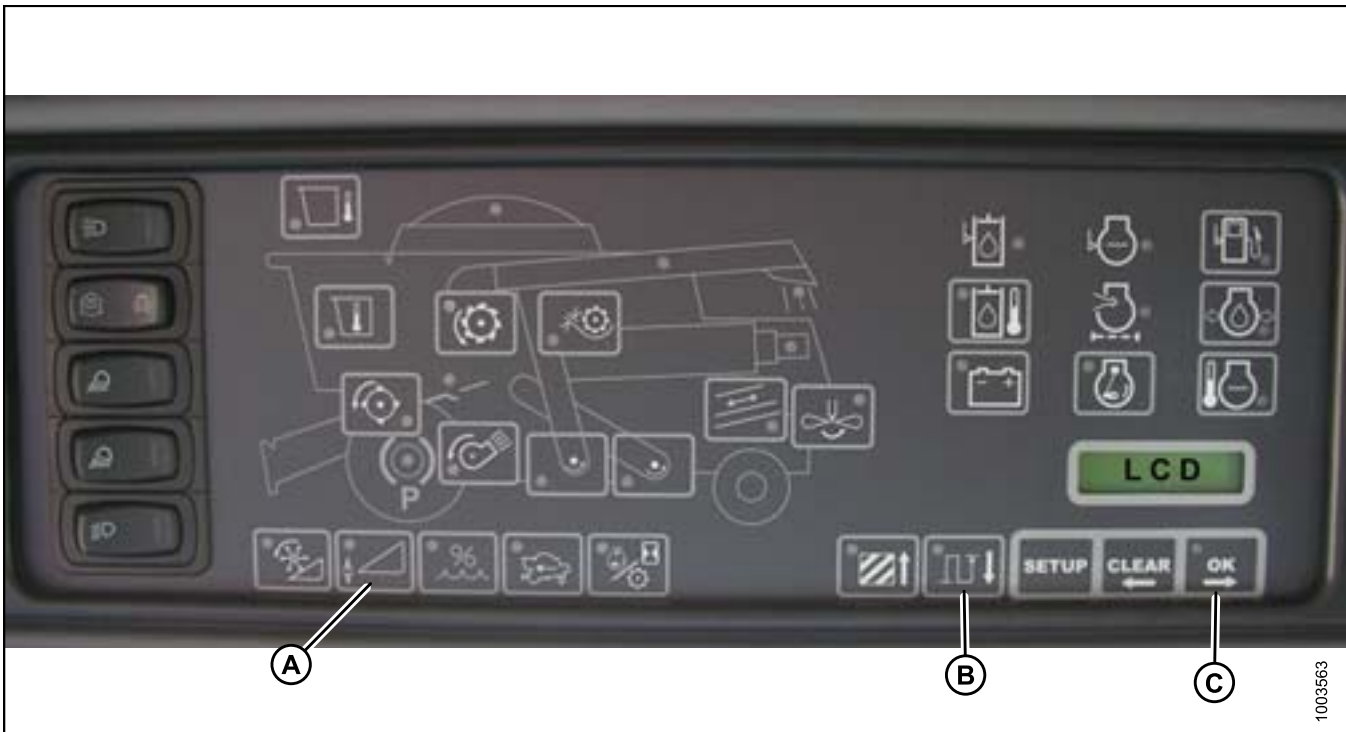


Figure 4.86: Combine Heads Up Display

OPERATION

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

NOTE:

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

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:

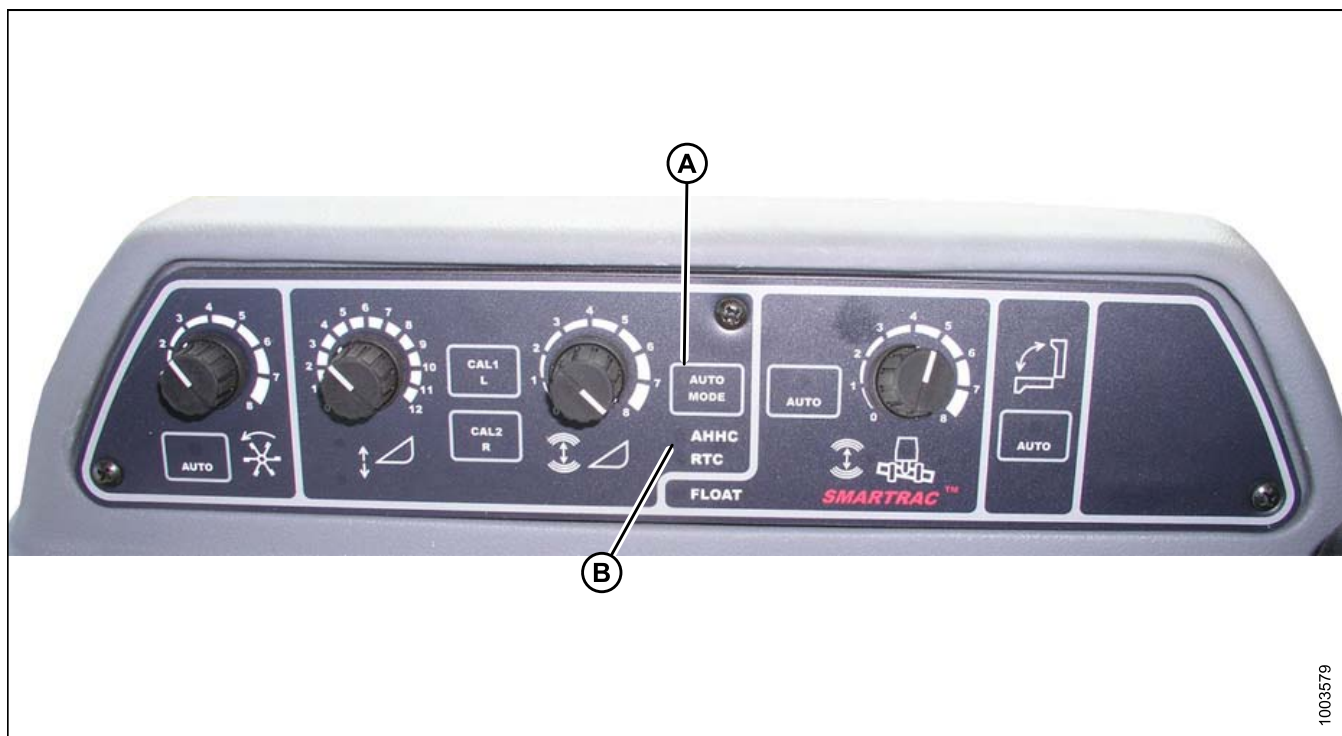


Figure 4.87: Combine Auto Header Height Controls

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.

OPERATION

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.

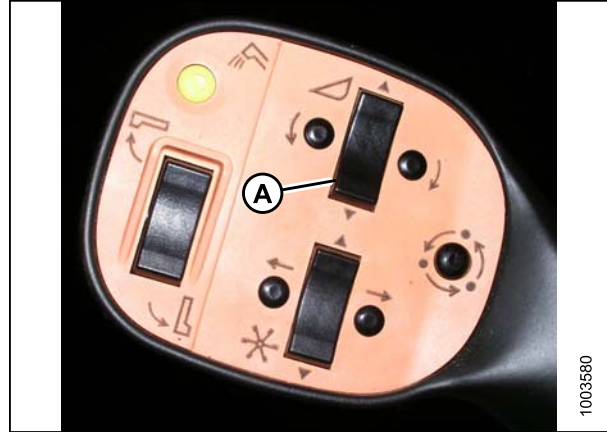


Figure 4.88: Control Handle

Calibrating the Auto Header Height System (Gleaner R65/R75)

Calibration should be done on flat, level ground without the header clutches engaged. Header height and header tilt must not be in auto or standby modes. The engine rpm must also be above 2000 rpm. The Header Tilt option on 2004, and prior combines does not work with MacDon headers. This system will have to be removed, and disabled in order to calibrate the Auto Header Height. Refer to combine manual for instructions.

NOTE:

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



Figure 4.89: Combine Auto Header Height Controls

A - AUTO MODE Button
D - Raise Header

B - AHHC Light
E - Lower Header

C - CAL1 Button
F - Auto Mode

OPERATION

To calibrate the header, follow these steps:

1. Press AUTO MODE button (A) until the AHHC light (B) is illuminated.
2. Press and hold CAL1 button (C) until you see the following lights flash: raise header (D), and lower header (E), tilt auto mode (F), and AHHC (B).
3. Lower header all the way down, and continue to hold for 5–8 seconds to ensure adapter has separated from header.
4. Press CAL2 button (G) until lower header light (E) stops flashing, and release it when the raise header light (D) starts to flash.
5. Raise header to its maximum height (ensure the header is resting on the down-stop pads).
6. Press CAL2 button (G) until the raise header light (D) turns off.

NOTE:

The following steps are only applicable to 2005, and newer combines with the Smartrac feeder house.

7. Wait for the header tilt left light to start flashing, and then tilt header to the maximum left position.
8. Press CAL2 button (G) until the tilt header left light stops flashing (not present in picture), and release button when the right header tilt light (not present in picture) starts to flash.
9. Tilt the header to the maximum right position.
10. Press CAL2 button (G) until all of the following lights flash: Raise header (D), lower header (E), height auto mode (A), right header, left header (not present), and tilt auto mode (F).
11. Center the header.
12. Press CAL1 button (C) to exit calibration, and save all values to the memory. All lights should stop flashing.

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 4.90: Combine Accumulator On/Off Switch
A - Accumulator Lever (Off Position)

OPERATION

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

NOTE:

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

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.

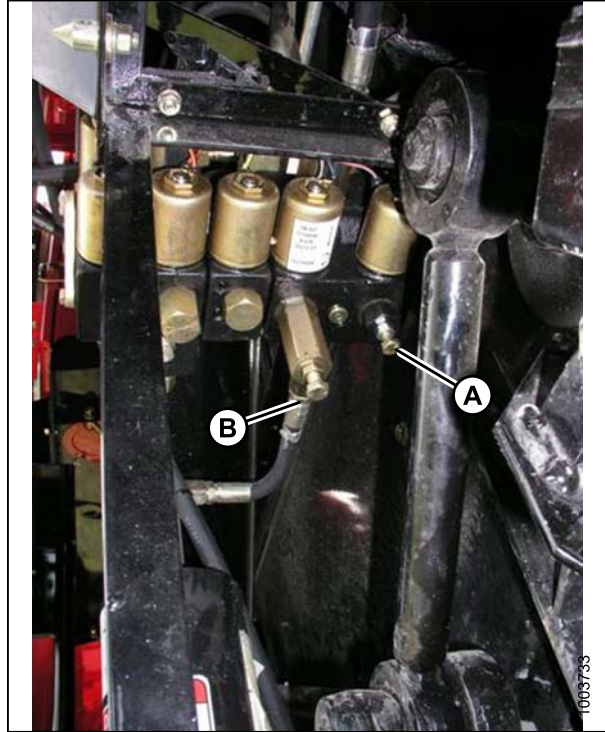


Figure 4.91: Header Raise and Lower Adjustable Restrictors

Adjusting Ground Pressure (Gleaner R65/R75)

NOTE:

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

OPERATION

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.

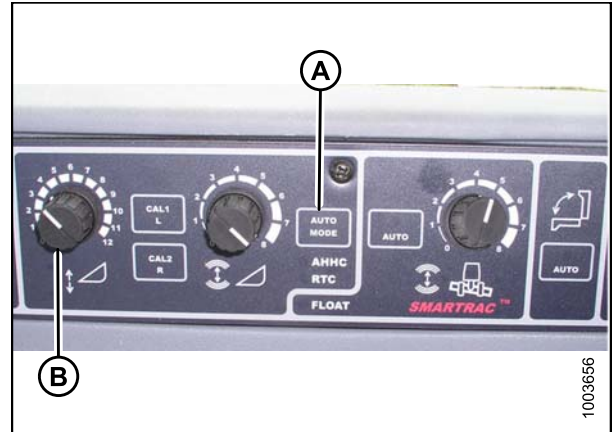


Figure 4.92: Auto Header Height Control Console

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).

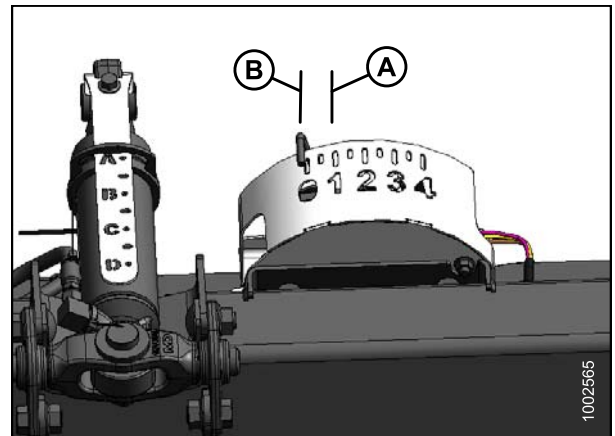


Figure 4.93: Float Indicator Box

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

NOTE:

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

OPERATION



Figure 4.94: Auto Header Height Control Console

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.

Diagnostics (Gleaner R65/R75)

NOTE:

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

OPERATION

Display type:

Displayed on tachometer (A) as "XX" or "XXX".



Figure 4.95: Tachometer

Displayed on LCD (A) as "XX in" or "XXX cm".

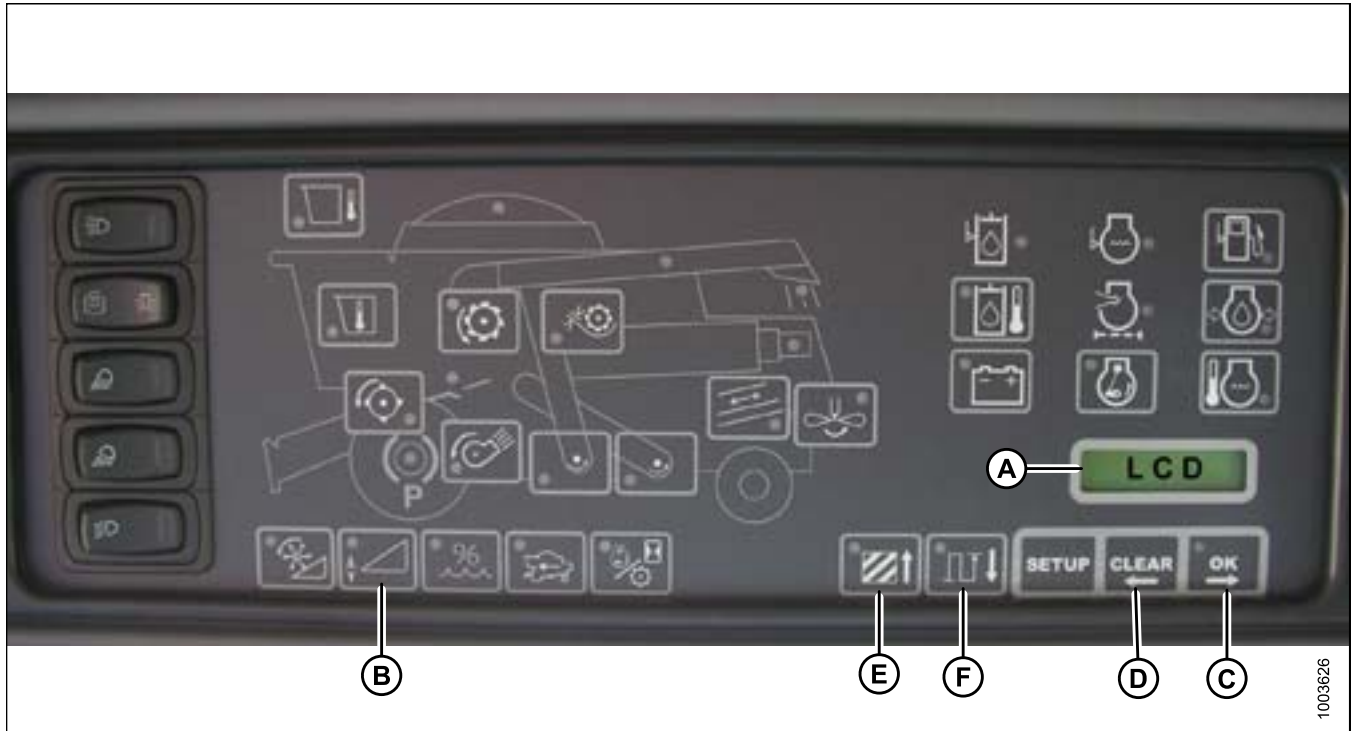


Figure 4.96: Combine LCD Display

OPERATION

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.

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 [Sensor Operation, page 136](#).

OPERATION

John Deere 50 Series Combines

Checking Voltage Range from the Combine Cab (John Deere 50 Series)

NOTE:

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

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

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

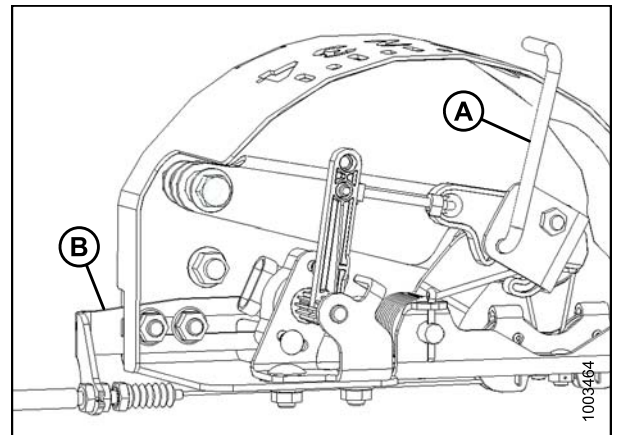


Figure 4.97: Float Indicator Box

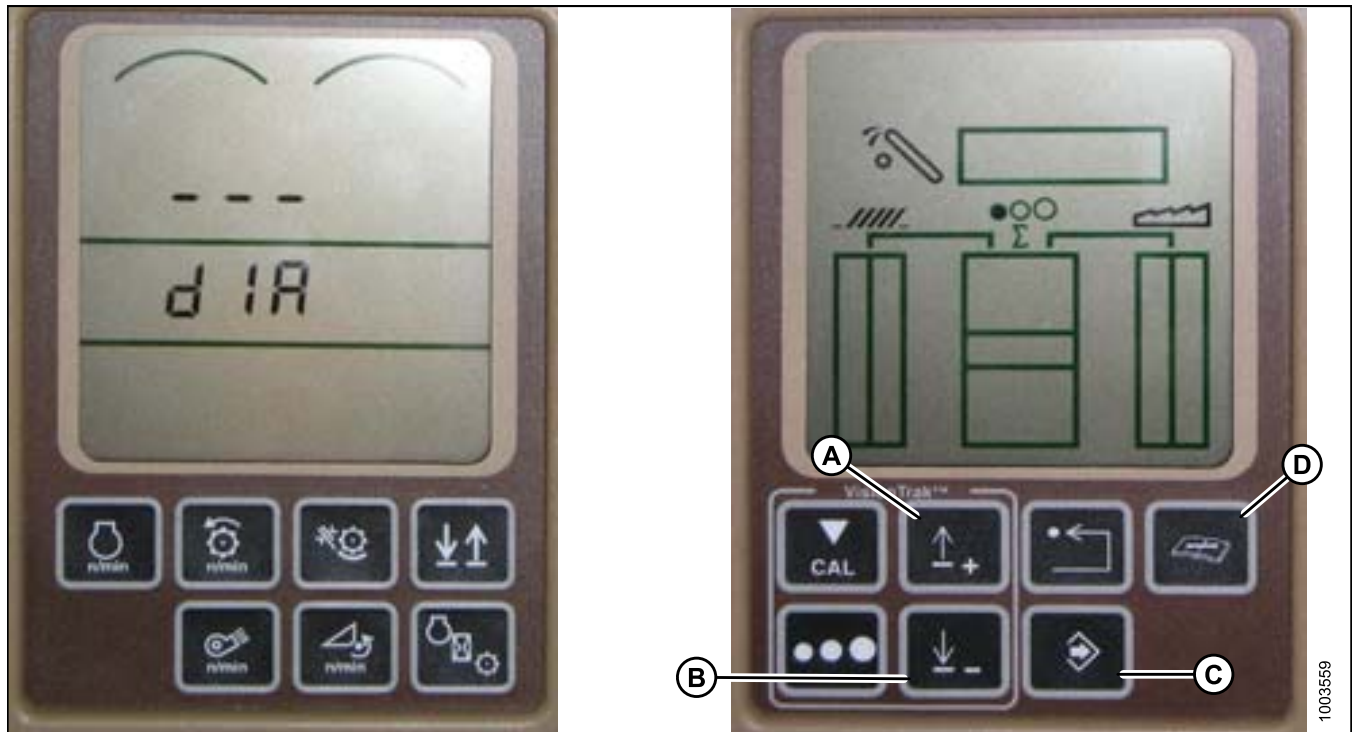


Figure 4.98: Combine HHS Monitor

3. Press the DIAGNOSTIC button on the (HHS) monitor – the button with the open book with the wrench on top of it (D) dIA appears on the monitor.
4. Press the UP button (A) until EO1 appears on the monitor (these are all your header adjustments).

OPERATION

5. Press the ENTER button (C).
6. Press the UP (A) or DOWN button (B) until 24 is displayed on the top portion of the monitor. This is the voltage reading of the sensor.
7. Ensure header float is unlocked.
8. Start the combine, lower feeder house to the ground until the feeder house stops moving.

NOTE:

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

9. Check the sensor reading on the monitor.
10. Raise the header so it is just off the ground, check the sensor reading again.
11. If the sensor voltage is not within the low and high limits, refer to [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 60](#) for instructions.

Calibrating the Auto Header Height System (John Deere 50 Series)

NOTE:

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

1. Rest header on down stops, and unlock adapter float.
2. Put wings in locked position.
3. Start the combine.
4. Press the diagnostic button on the monitor (this is the button with the open book with the wrench on top of it (A) dIA appears on the monitor).
5. Press the CAL button (B) DIA - CAL appears on the monitor.

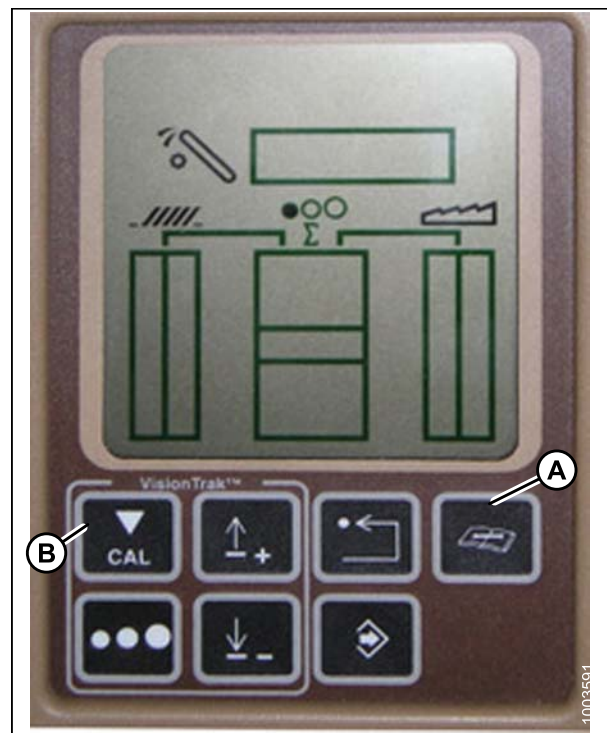


Figure 4.99: Combine Display

OPERATION

6. Press the UP or DOWN buttons until `hdr` appears on the monitor.
7. Press the enter button, `hdr H-dn` appears on the monitor.

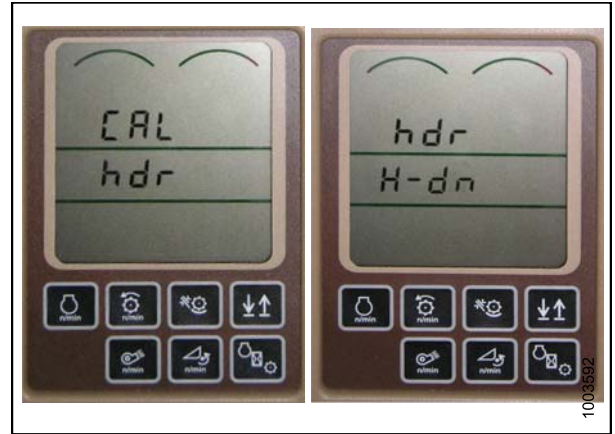


Figure 4.100: Combine Display

8. Lower the feeder house all the way (after the header hits the ground you will have to continue to hold the header lower button for 5–8 seconds in order to accomplish this).
9. Once the feeder house is all the way down, press the CAL button (A). This will save the lower calibration in the computer, `hdr H-UP` appears on the monitor.
10. Raise the header 3 feet off the ground, and again press the CAL (A) button. `EOC` appears on the monitor. Press the enter button (B) to save the calibration of the header. Your Auto Header Height is now calibrated.

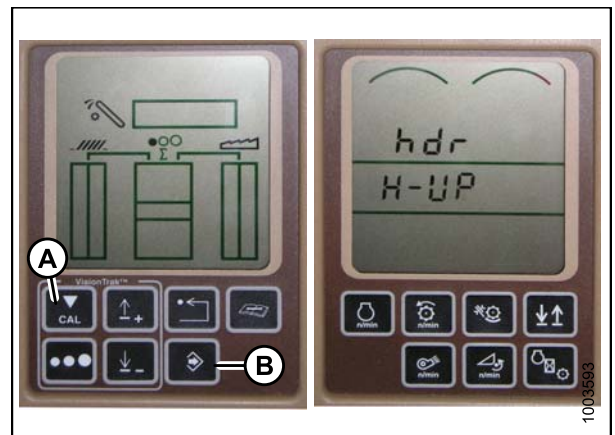


Figure 4.101: Combine Display

NOTE:

If the sensor voltage is not within the low and high limits, refer to [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 60](#) for instructions.

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

OPERATION

John Deere 60 Series Combines

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

NOTE:

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

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

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

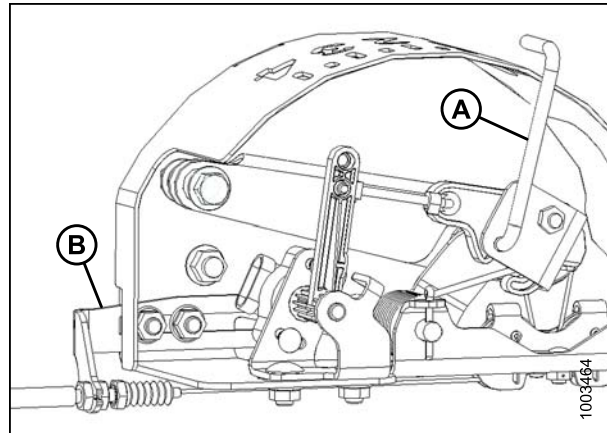


Figure 4.102: Float Indicator Box

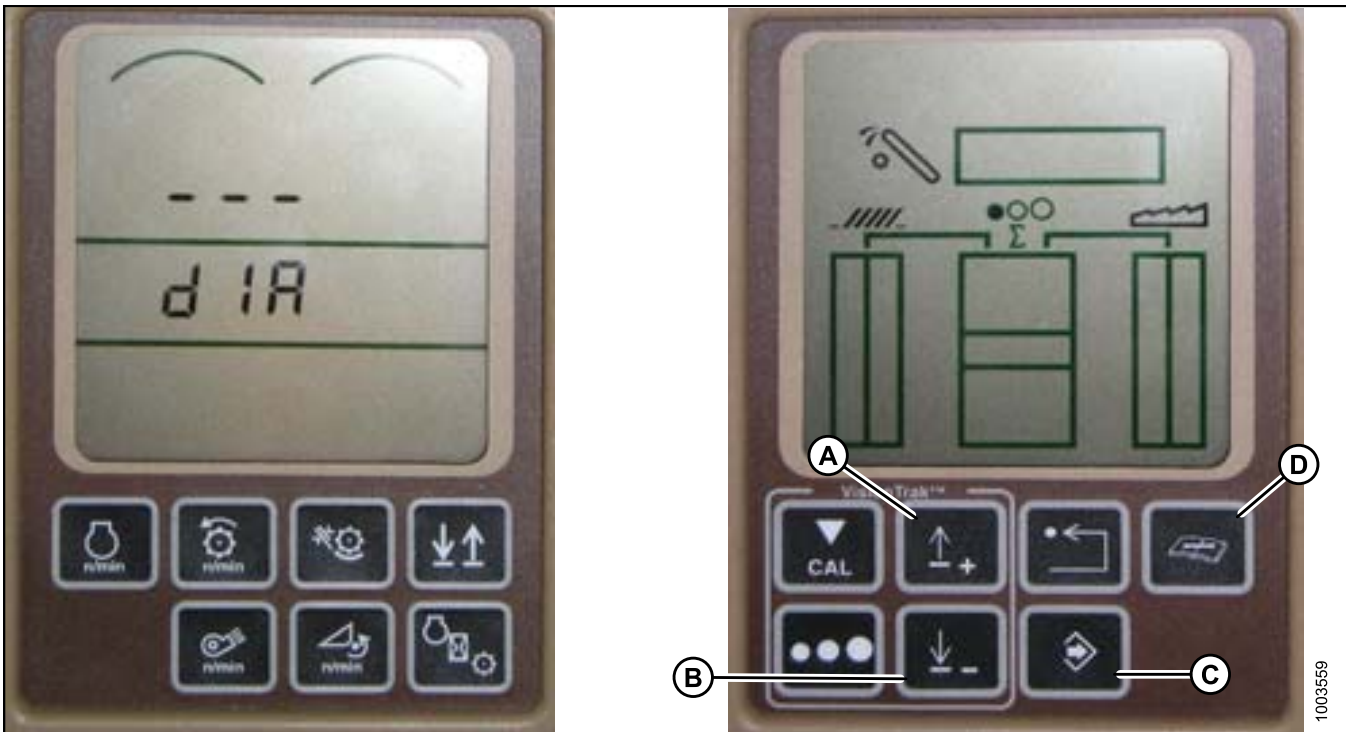


Figure 4.103: Combine HHS Monitor

OPERATION

Calibrating the Auto Header Height System (John Deere 60 Series)

NOTE:

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

1. Rest header on down stops, and unlock adaptor float.
2. Put wings in locked position.
3. Start the combine.
4. Press the DIAGNOSTIC button on the monitor (this is the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
5. Press the CAL button (B) DIA - CAL appears on the monitor.

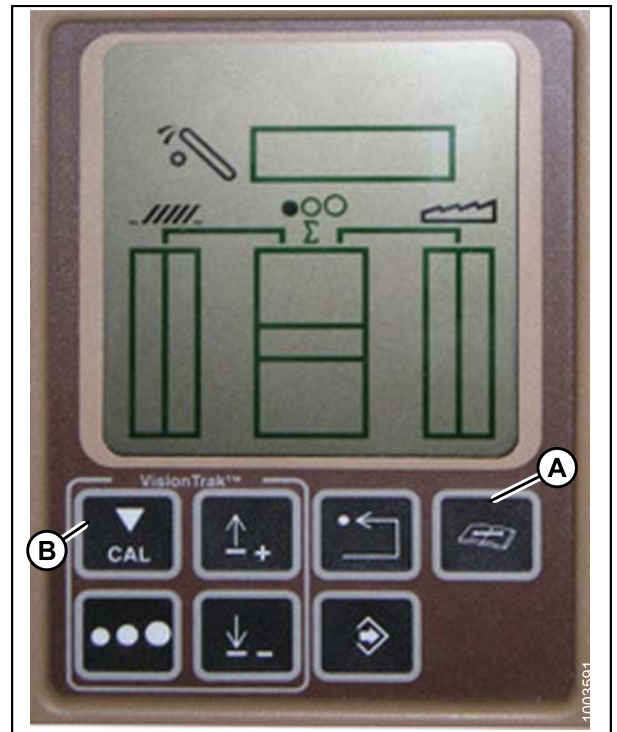


Figure 4.104: Combine Display

6. Press the UP or DOWN buttons until hdr appears on the monitor.
7. Press the ENTER button, hdr H-dn appears on the monitor.



Figure 4.105: Combine Display

OPERATION

8. Lower the feeder house all the way (after the header hits the ground you will have to continue to hold the header lower button for 5–8 seconds in order to accomplish this).
9. Once the feeder house is all the way down, press the CAL button (A). This will save the lower calibration in the computer. `hdr H-UP` appears on the monitor.
10. Raise the header 3 feet off the ground, and again press the CAL (A) button. `EOC` appears on the monitor. Press the enter button (B) to save the calibration of the header. Your Auto Header Height is now calibrated.

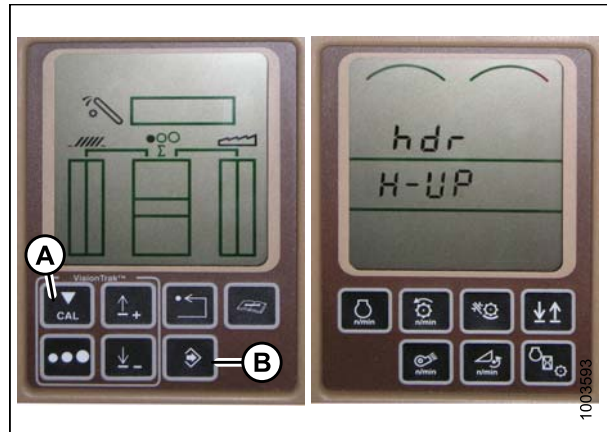


Figure 4.106: Combine Display

NOTE:

If an error code comes up on the screen the sensor is not in the correct working range. Refer to [Checking Voltage Range from the Combine Cab \(John Deere 60 Series\), page 92](#) to check and adjust the range.

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

Turning the Accumulator Off (John Deere 60 Series)

NOTE:

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

To turn the accumulator off, follow these steps:

OPERATION

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.

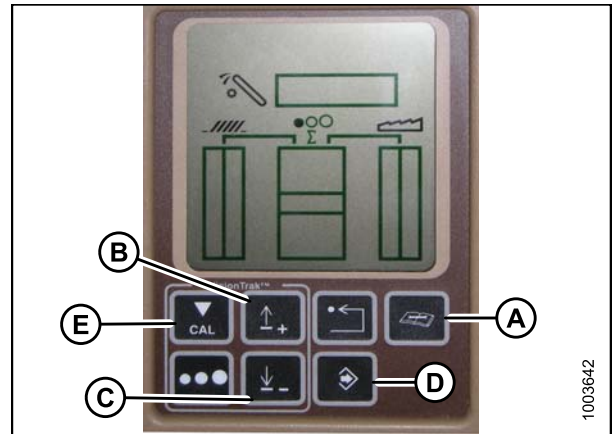


Figure 4.107: Combine Display

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

NOTE:

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

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

1. Press the DIAGNOSTIC button 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.

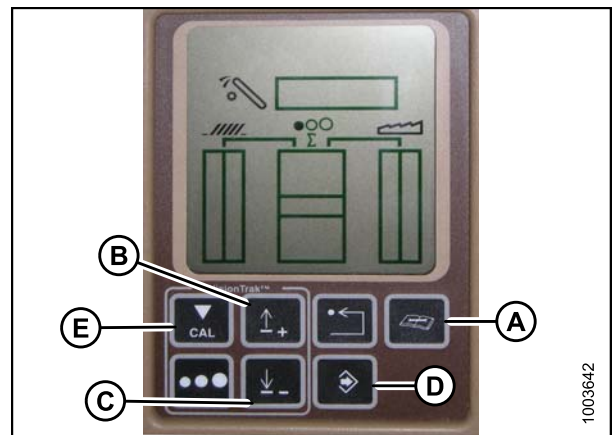


Figure 4.108: Combine Display

OPERATION

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.

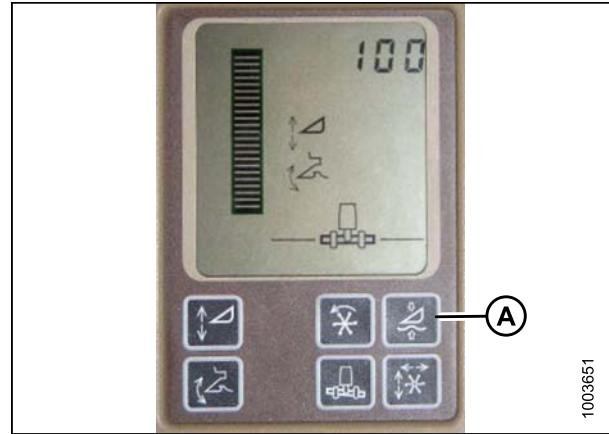


Figure 4.109: Combine Display

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

This is also known as dead band adjustment.

NOTE:

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

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

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.

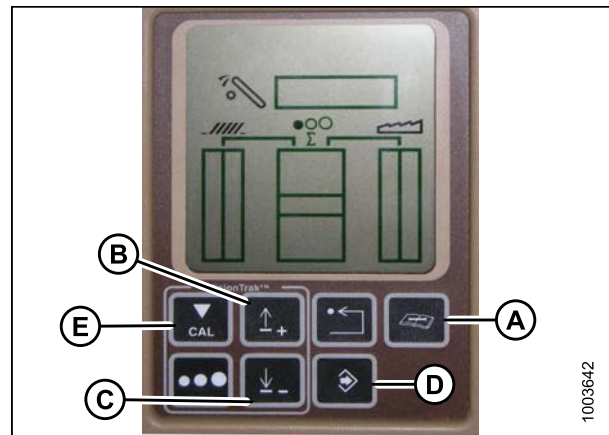


Figure 4.110: Combine Display

OPERATION

NOTE:

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

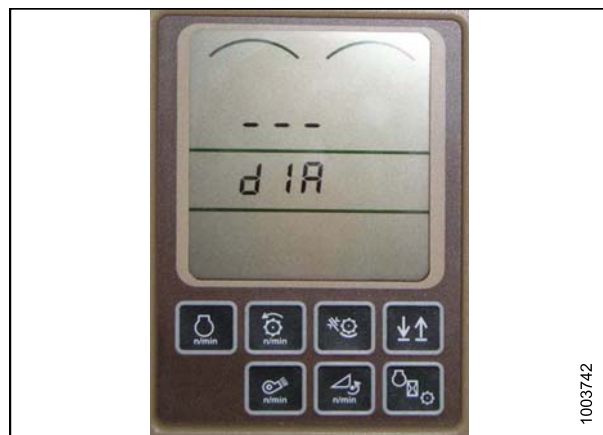


Figure 4.111: Combine Display

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

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

NOTE:

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

To increase the flow rate sooner, follow these steps:

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.

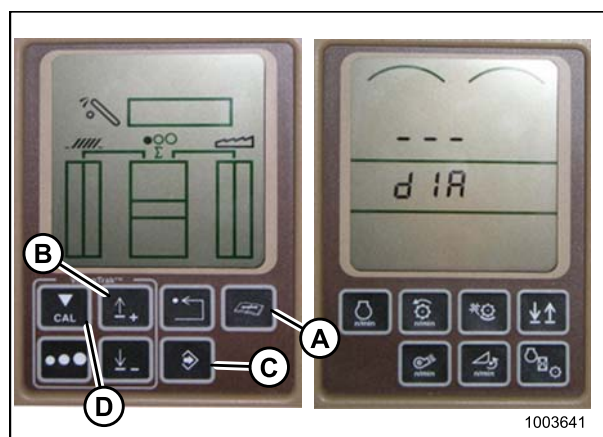


Figure 4.112: Combine Display

NOTE:

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

OPERATION

John Deere 70 Series Combines

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

NOTE:

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

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

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

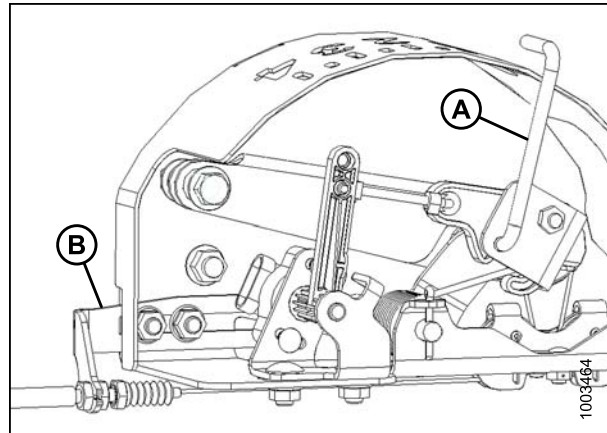


Figure 4.113: Float Indicator Box

3. From the main page of the Command Center, press the HOME PAGE button (A).



Figure 4.114: Combine Display

OPERATION

- Three icons (A) will appear on the screen.



Figure 4.115: Combine Display

- Scroll down using the scroll knob (A) until you reach the middle icon, the green i. Once the middle icon is selected, push the check mark button (B). This will bring up the Message Center.

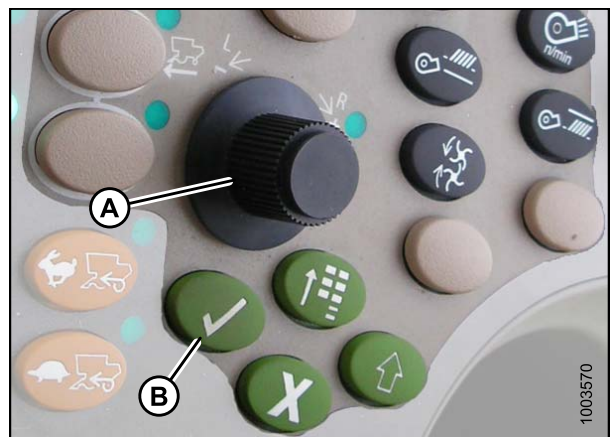


Figure 4.116: Combine Controls

- Highlight the DIAGNOSTIC ADDRESSES from the right hand column, the second icon from the top (A), using the scroll knob. Press the check mark button to select.
- Scroll over the drop down box (B) and press the check mark button.



Figure 4.117: Combine Display

OPERATION

- Scroll down, using the scroll knob, until LC 1.001 Vehicle (A) is highlighted. Press the check mark button to select.



Figure 4.118: Combine Display

- Scroll to the small bottom arrow (A) and press the check mark button to scroll down the list until 029 Data (B) is displayed, this is where the voltage reading (C) is located.

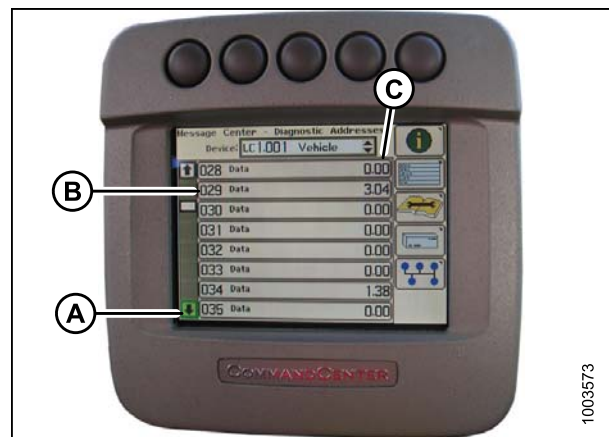


Figure 4.119: Combine Display

- Ensure header float is unlocked.
- Start the combine, lower feeder house to the ground until the feeder house stops moving.

NOTE:

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

- Check the sensor reading on the monitor.
- Raise the header so it is just off the ground, and then check the sensor reading on the monitor again.
- If the sensor voltage is not within the low and high limits, refer to [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 60](#).

OPERATION

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.

Calibrating the Auto Header Height System (John Deere 70 Series)

NOTE:

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

NOTE:

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

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

1. Rest header on downstops, and unlock adaptor float.
2. Put wings in locked position.
3. Start the combine.
4. Press the fourth button on the top of the monitor (A) to select the icon showing an open book with a wrench on it (B).
5. Press the top button (A) a second time to enter diagnostics and calibration mode.

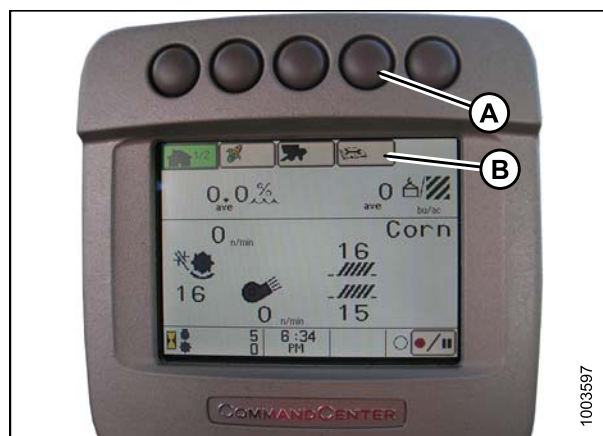


Figure 4.120: Combine Display

6. Select the option HEADER in the box (A) by scrolling down to the box using the scroll knob and check mark button.



Figure 4.121: Combine Display

OPERATION

7. Scroll, using knob (A), to the option Header and select it by pressing the check mark button (B).
8. Scroll down, using the scroll knob (A), to the right-hand corner icon the arrow in the diamond, and again hit the check mark button (B) to select.
9. Follow the steps listed on the monitor to perform the calibration.

NOTE:

If an error code comes up on the monitor, the sensor is not in the correct working range. Refer to [Checking Voltage Range from the Combine Cab \(John Deere 70 Series\)](#), page 98 to check and adjust the range.

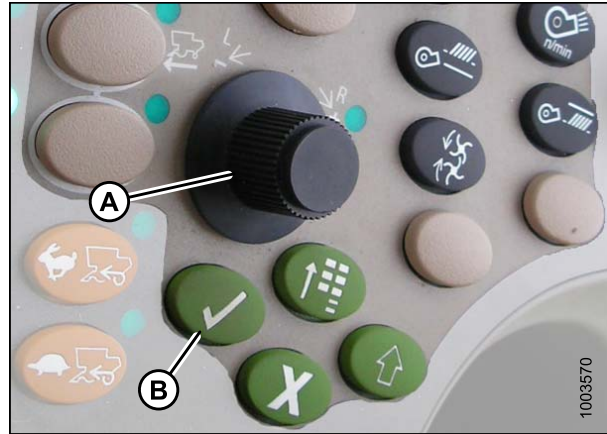


Figure 4.122: Combine Console

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

NOTE:

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

To 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.

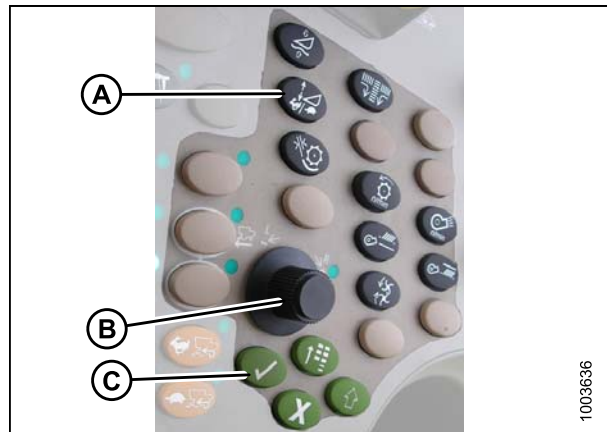


Figure 4.123: Combine Control Console

OPERATION

NOTE:

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



Figure 4.124: Combine Display

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

NOTE:

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

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.

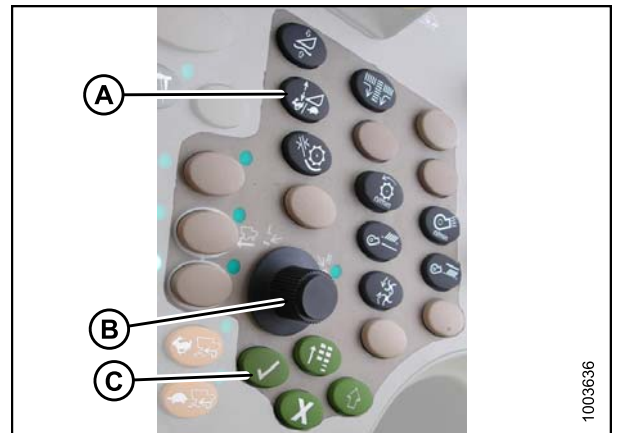


Figure 4.125: Combine Control Console

OPERATION

NOTE:

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



Figure 4.126: Combine Display

John Deere S Series Combines

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

NOTE:

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

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

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

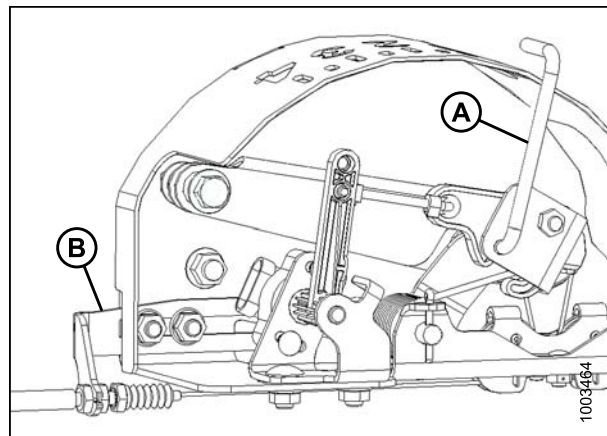


Figure 4.127: Float Indicator Box

OPERATION

- From the Command Center main page press the icon with wrench on the open book (A). The CALIBRATION page appears.

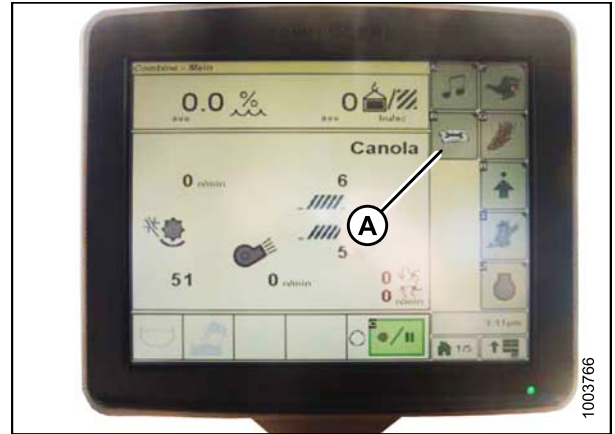


Figure 4.128: Combine Display

- On the CALIBRATION page, press the icon with wrench on the open book (A). The DIAGNOSTIC READINGS page appears. This page is where you will be able to complete calibrations, modify header option and read diagnostic information.

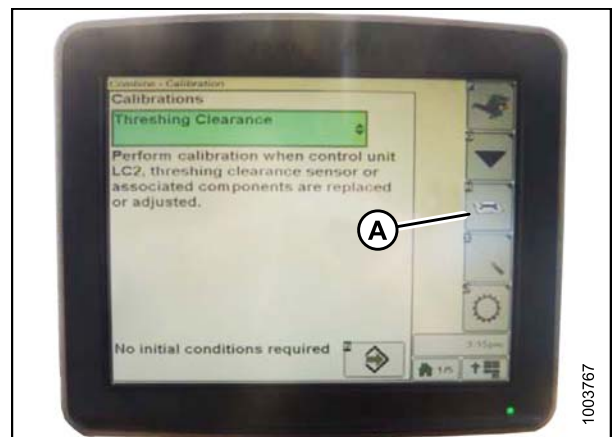


Figure 4.129: Combine Display

- When you select a heading in the selection box (A) a list of different diagnostic readings appears. Select the AHC SENSING OPTION which will bring up the Automatic Height Control sensor.

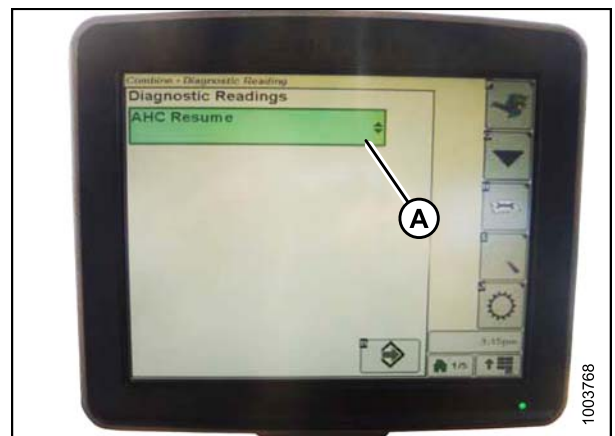


Figure 4.130: Combine Display

OPERATION

- With AHC SENSING selected, select the icon with the arrow in the box (A) on the bottom right of the page. AHC SENSING appears and provides five pages of information.



Figure 4.131: Combine Display

- Scroll to Page 5 by pressing icon (A) until it reads Page 5 near the top of the page. On Page 5 you will see sensor readings:
 - LEFT HEADER HEIGHT
 - CENTER HEADER HEIGHT
 - RIGHT HEADER HEIGHT

There is only a reading on the center Header Height sensor. On the MacDon header there is only one sensor, it is located in the float indicator box on top of the CA25.

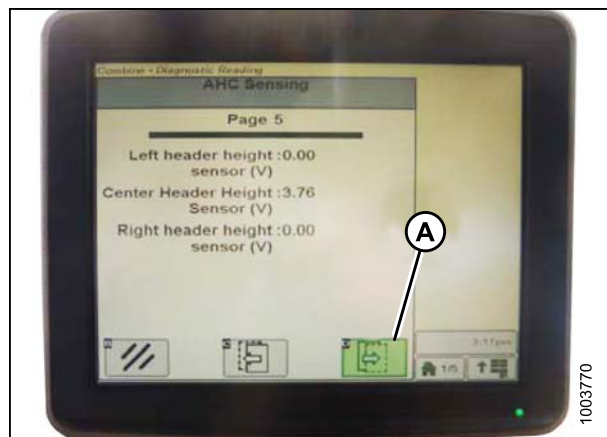


Figure 4.132: Combine Display

- Ensure header float is unlocked.
- Start the combine, lower feeder house to the ground until the feeder house stops moving.

NOTE:

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

- Check the sensor reading.
- If the sensor voltage is not within the low and high limits shown in [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to [Adjusting Voltage Limits, page 60](#).

Calibrating the Auto Header Height System (John Deere S Series)

NOTE:

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

OPERATION

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

1. Rest header on down stops, and unlock adaptor float.
2. Put wings in locked position.
3. From the main page of the Command Center, press the DIAGNOSTIC button (A). This is the button with the wrench on an open book. A CALIBRATION page appears (middle picture) this is the DIAGNOSTIC page where you will be able to complete calibrations.

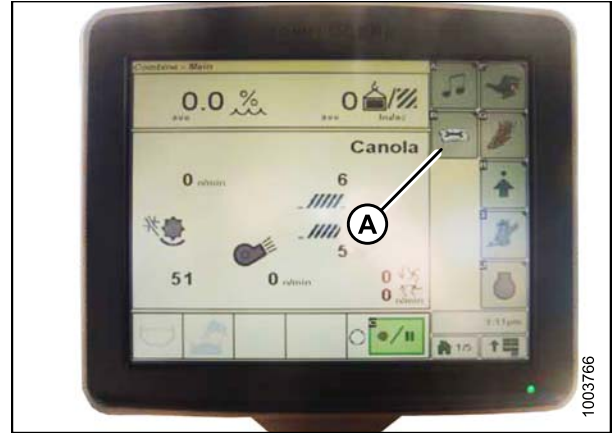


Figure 4.133: Combine Display

4. Press the green box near the top of the page (A). The CALIBRATION page appears.

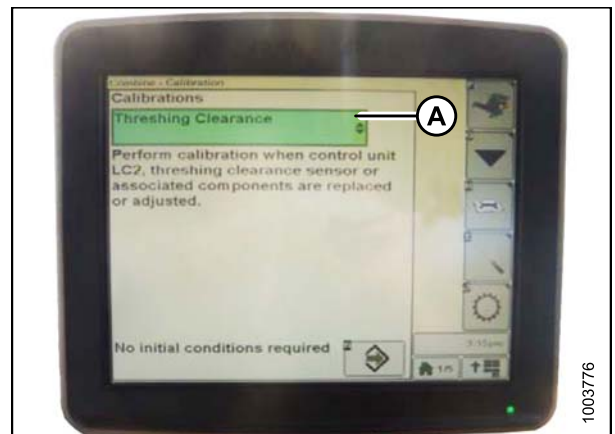


Figure 4.134: Combine Display

5. Select FEEDER HOUSE SPEED (A) as your first calibration. Once you calibrate feeder house speed you will then need to calibrate header.

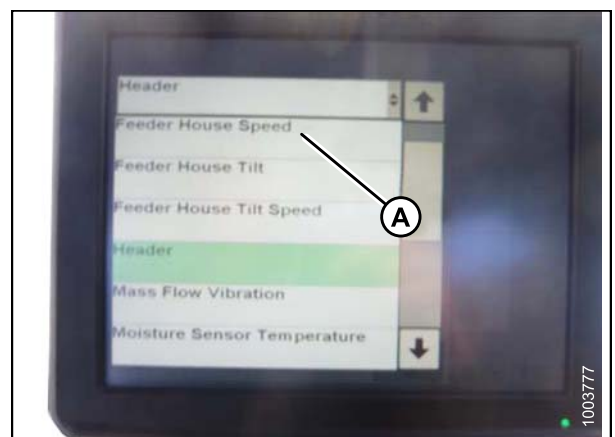


Figure 4.135: Combine Display

OPERATION

- After selecting feeder house speed or header for calibration, click the arrow inside a box button (A) on the bottom right corner of the page. The button turns green.

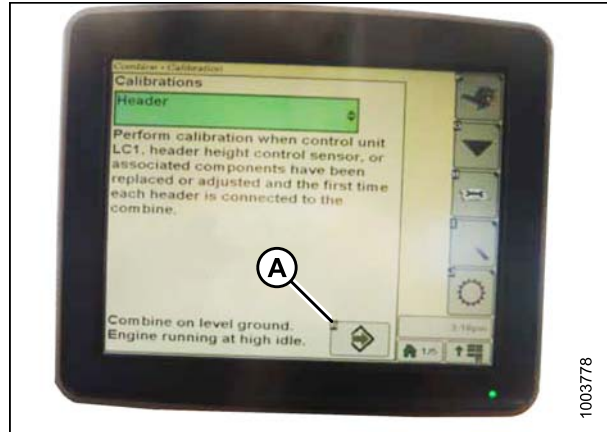


Figure 4.136: Combine Display

- Click the button (A) again. Instructions on the page will guide you through the steps to complete with the calibration.

NOTE:

If an error code pops up during the calibration the sensor is out of voltage range and will require adjustment. Refer to [Checking Voltage Range from the Combine Cab \(John Deere S Series\)](#), page 104.

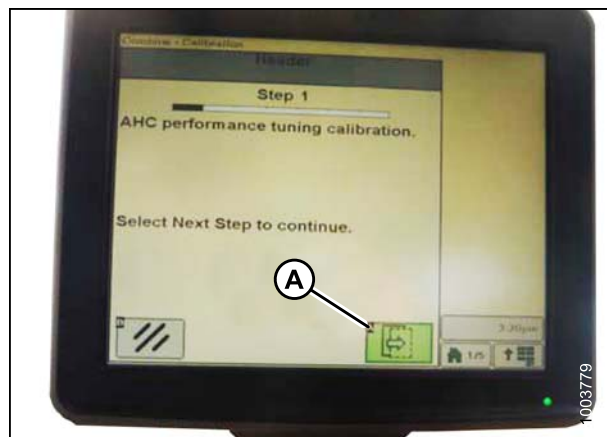


Figure 4.137: Combine Display

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

NOTE:

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

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

OPERATION

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



Figure 4.138: Combine Command Center

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

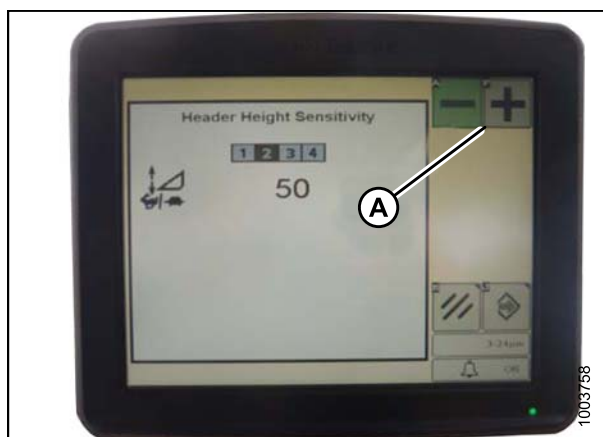


Figure 4.139: Combine Display

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

NOTE:

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

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

OPERATION

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



Figure 4.140: Combine Command Center

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

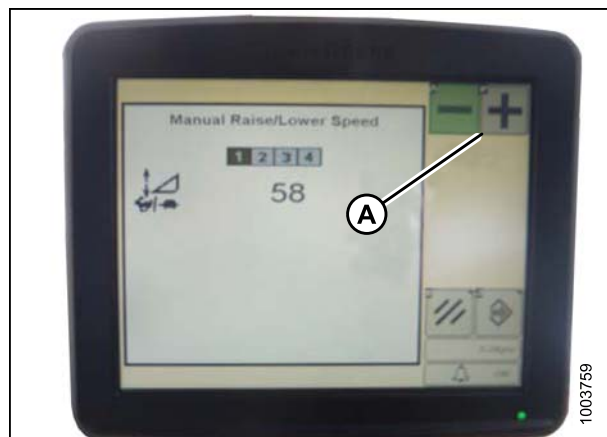


Figure 4.141: Combine Display

Setting Preset Cutting Height (John Deere S Series)

NOTE:

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

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 4.142: Combine Display

OPERATION

- 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 4.143: Combine Display

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

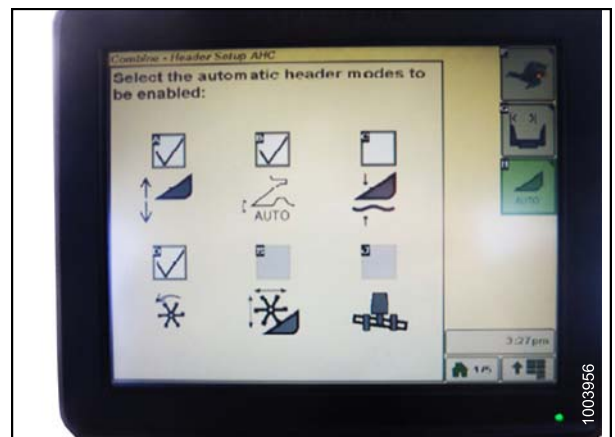


Figure 4.144: Combine Display

- 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 4.145: Use the Joystick to Set the Ground Pressure Presets

OPERATION

- Adjustment for selecting the different button settings is done by control knob (A).



Figure 4.146: Combine Control Console

- When the header height is engaged, the Auto header height icon appears on the monitor with the number from which button is pressed.



Figure 4.147: Combine Display

Lexion 500 Series Combines

Calibrating the Auto Header Height System (Lexion 500 Series)

NOTE:

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

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

- Use the "<" key or the ">" key to select "Auto header". Once selected, press the "OK" key to confirm your selection. Window (E5) displays whether the automatic header height is on or off.

OPERATION

- Use the “-” key (A) or the “+” key (B) to turn the automatic header height on. Press the “OK” key (C) to confirm the setting.
- Engage the threshing mechanism and the header.

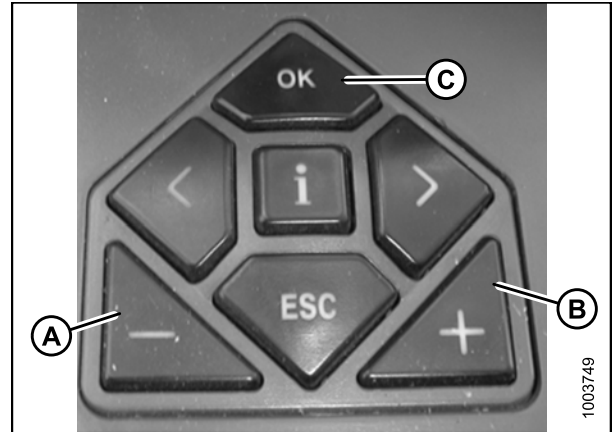


Figure 4.148: Auto Header Height System Controls

- Use the “<” key or use the “>” key to select “Cutt.height limits”. To confirm the selection, press the “OK” key.
- Follow the procedure displayed on the screen. This teaches CEBIS the upper and lower limits of the header.

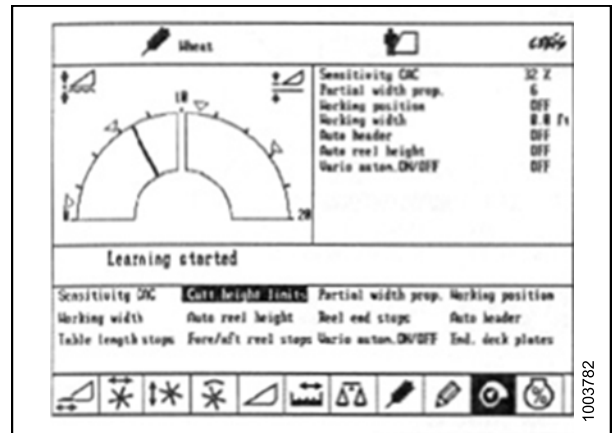


Figure 4.149: Combine Display

- Use the “<” key or the “>” key to select “Sensitivity CAC”. To confirm the selection, press the “OK” key. Setting the sensitivity of the AHHC system influences the reaction speed of the AHHC on the header.
- Use the “-” key or the “+” key to change the setting of the reaction speed. Press the “OK” key to confirm the setting.

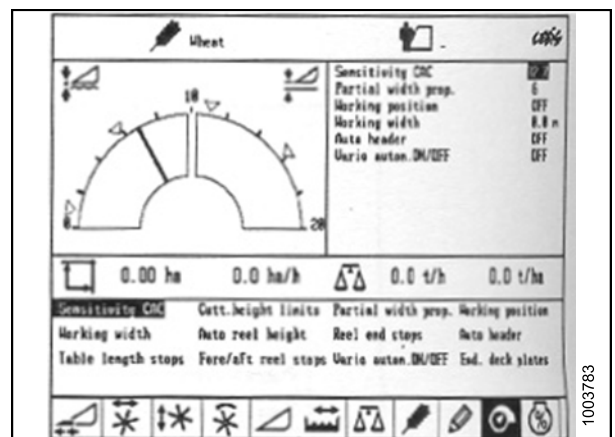


Figure 4.150: Combine Display

OPERATION

8. Line (A) indicates the setting of the sensitivity. Window (B) displays the (A). Also value (C) indicates the sensitivity. Window (D) displays value (C).

NOTE:

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

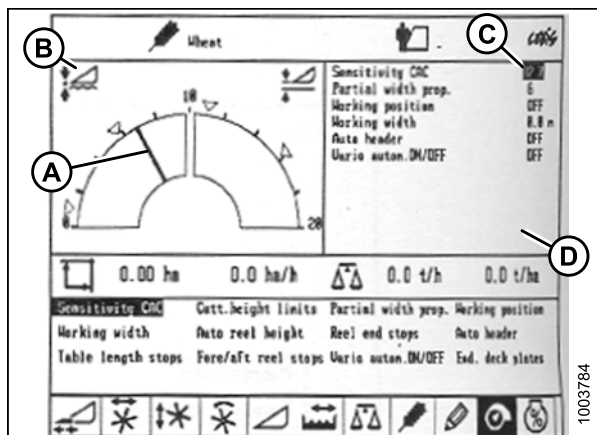


Figure 4.151: Combine Display

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).

NOTE:

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

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)

NOTE:

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

To program the settings of the preset cutting height, follow these steps:

1. Start the engine.
2. Activate the machine enable switch.
3. Engage the threshing mechanism.
4. Engage the header.

OPERATION

- 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.

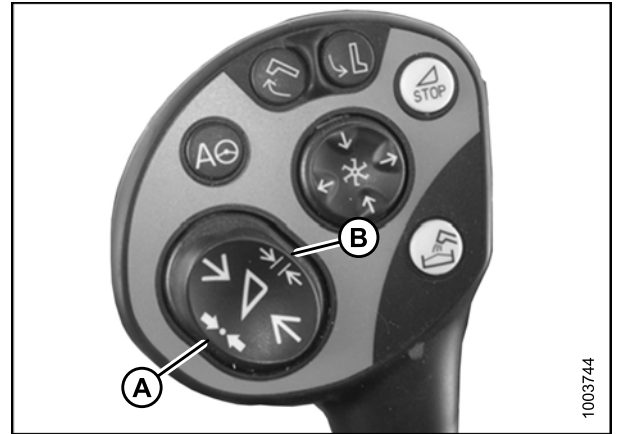


Figure 4.152: Activate the Auto Contour System, and the Preset Cutting Height

- 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.

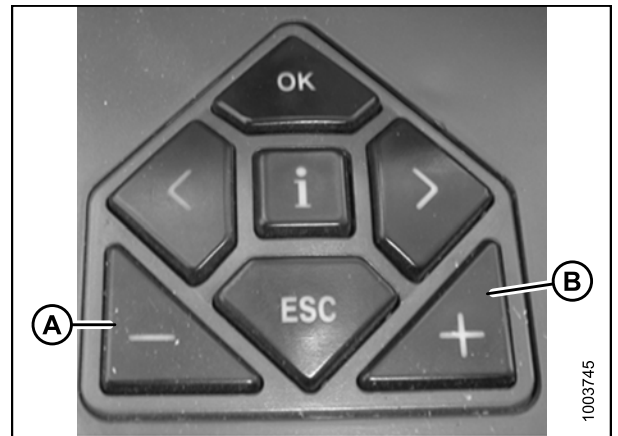


Figure 4.153: Set the Desired Cutting Height

- Briefly press button (A) or button (B) in order to select the set point.
- Repeat Step 6., [Setting Preset Cutting Height \(Lexion 500 Series\)](#), page 115 for the set point.



Figure 4.154: Select the Set Point

Setting Cut Height Manually (Lexion 500 Series)

NOTE:

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

To set the cutting height manually, follow these steps:

OPERATION

- 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.
- 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.
- Repeat Step 9., *Setting Cut Height Manually (Lexion 500 Series)*, page 116 for the second set point.



Figure 4.155: Set the Cutting Height Manually

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.

NOTE:

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

- Use the "<" key or the ">" key to select "Sensitivity CAC". Press the "OK" key to confirm the selection.
- Use the "-" key or the "+" key to change the reaction speed setting. Press the "OK" key in order to confirm the setting.



Figure 4.156: Combine Controls

OPERATION

- 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).

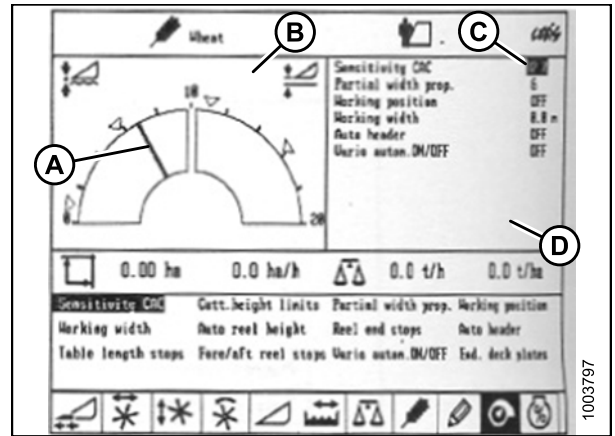
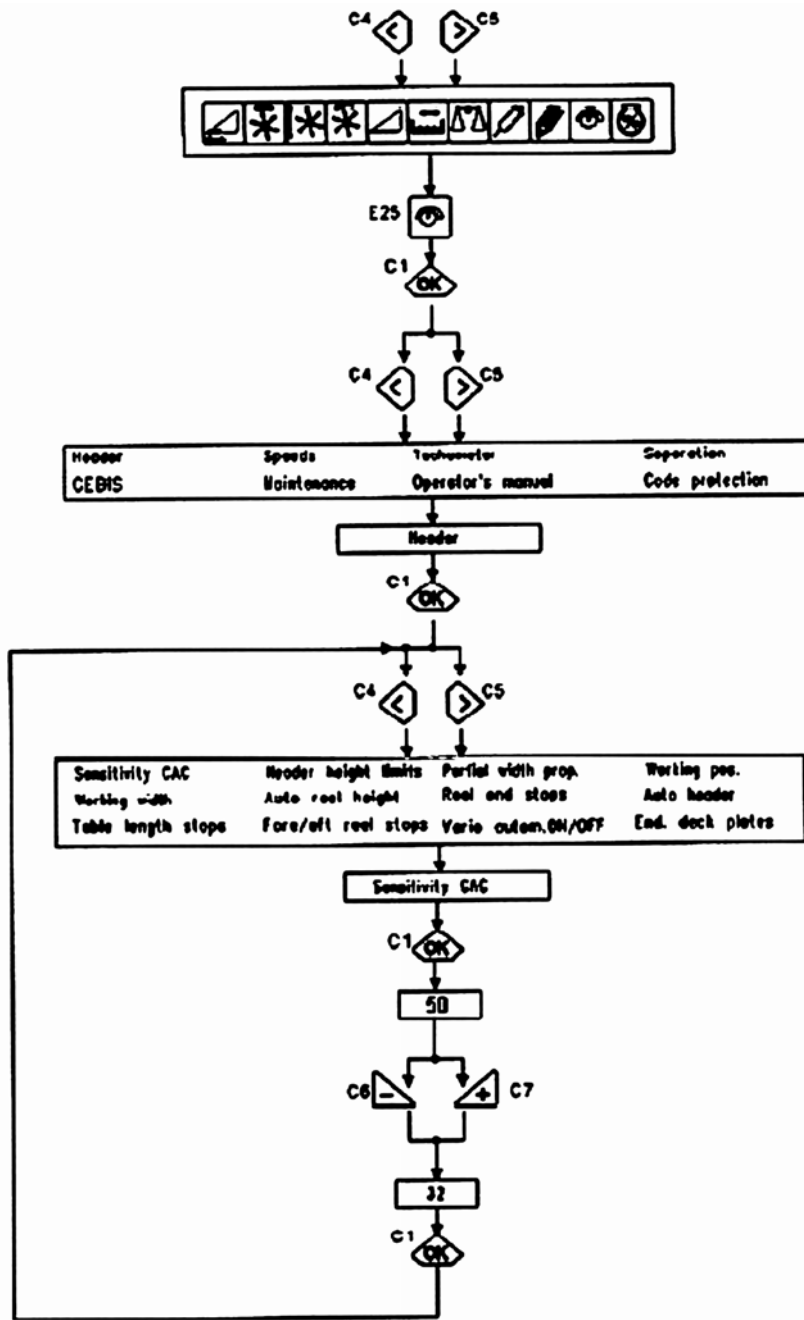


Figure 4.157: Combine Display

OPERATION



1003798

Figure 4.158: Flow Chart for Setting the Sensitivity of the Float Optimizer

OPERATION

Adjusting Auto Reel Speed (Lexion 500 Series)

The preset reel speed can be set when the automatic header functions are activated.

NOTE:

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

To set the 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.

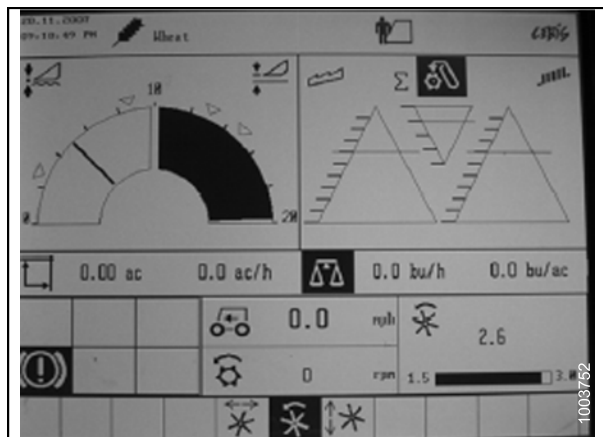


Figure 4.159: Combine Display

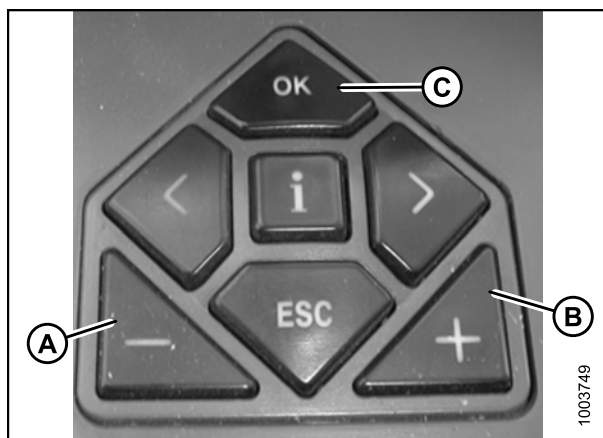


Figure 4.160: Combine Controls

OPERATION

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.

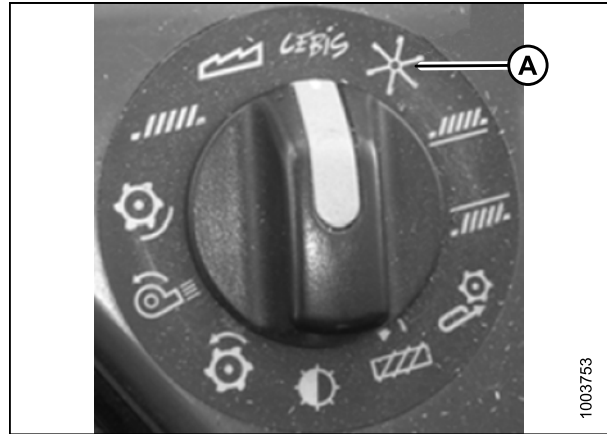


Figure 4.161: Combine Rotary Switch

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 4.162: Press A or B Button to Store Settings

OPERATION

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.

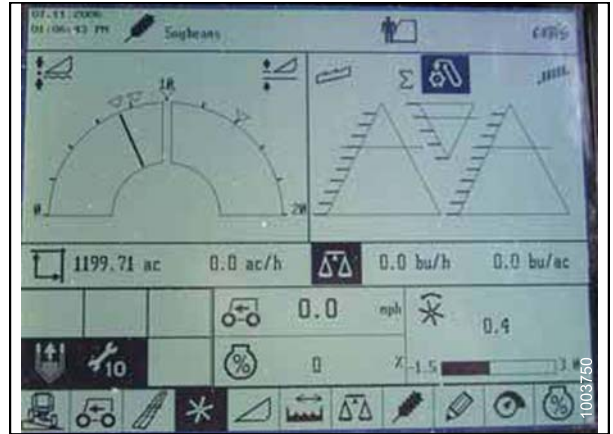


Figure 4.163: Combine Display

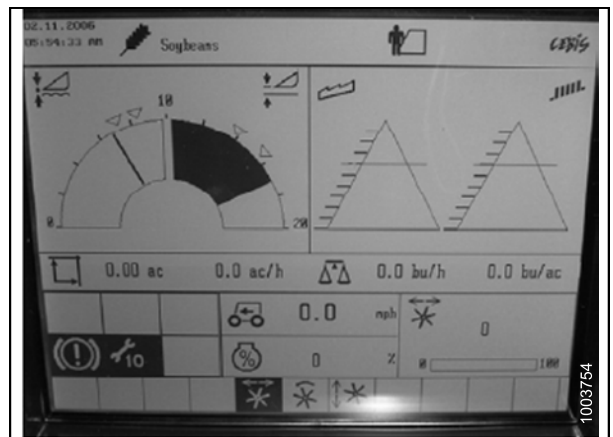


Figure 4.164: Combine Display

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.

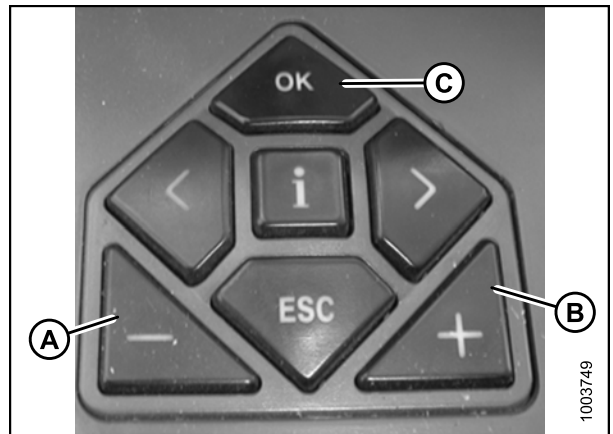


Figure 4.165: Set the Fore-Aft Position of the Reel

OPERATION

NOTE:

You can also use button (A) or (B) to set the fore-aft position of the reel.

- 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.

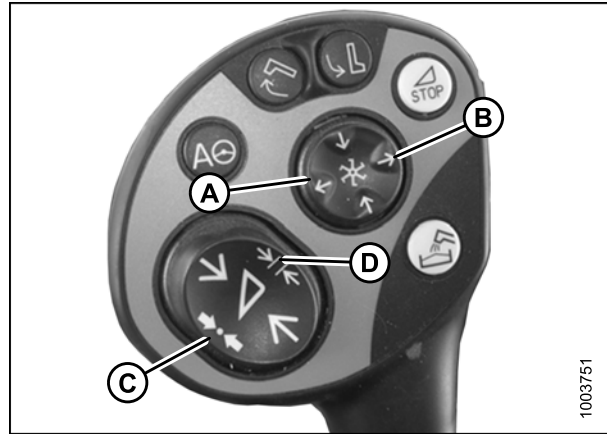


Figure 4.166: Set and Store the Fore-Aft Position of the Reel

Lexion 700 Series Combines

Calibrating the Auto Header Height System (Lexion 700 Series)

NOTE:

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

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

- To calibrate the Auto Contour, select the icon with the reel in the header by pushing control knob (A). The control knob (A) is used to scroll left and right in top row (B). Once you find symbol you want to work with push (A) to select this field.

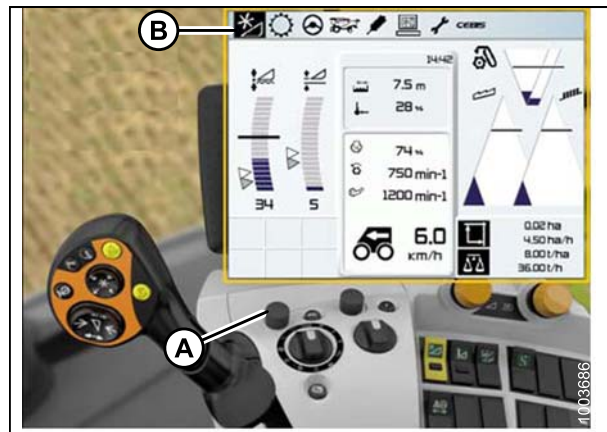


Figure 4.167: Combine Display, Console, and Propulsion Lever

OPERATION

- When the header with up and down arrows is highlighted push control knob (A). The following screen will show up with the header icon highlighted (B).



Figure 4.168: Combine Display, Console, and Propulsion Lever

- The following screen will show up with A highlighted (B). Scroll right using the control knob (A) to highlight the icon of the header with up and down arrows (C) behind it.

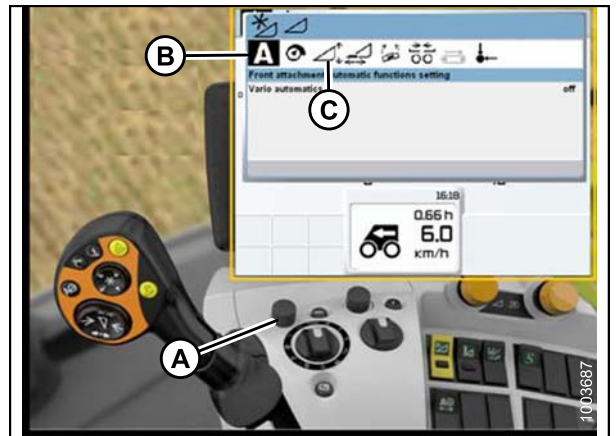


Figure 4.169: Combine Display, Console, and Propulsion Lever

- The Letter A and the screwdriver icon appear. Rotate control knob (A) until the screwdriver is highlighted (B).
- Once this icon appears engage the combine separator and feeder house.
- Push the control knob (A) and the following graph will appear with a percentage value at 0.



Figure 4.170: Combine Display, Console, and Propulsion Lever

OPERATION

7. Raise the feeder house all the way up. This will allow the graph to go to 25% (A).
8. Lower the feeder house all the way down until header stops moving. Ensure header float is unlocked. The graph will now be at 50%.
9. Raise the feeder house (a second time) all the way up. This will allow the graph to go to 75%.
10. Lower the feeder house all the way down until header stops moving. The graph will now be at 100%.



Figure 4.171: Combine Display, Console, and Propulsion Lever

11. Once the calibrations are complete, the graph will indicate the unit is calibrated successfully by showing 100% (A).

NOTE:

At any time through the calibration, if the voltage is not within the voltage settings (0.5–4.5 volts) the monitor will indicate learning procedure not concluded.

NOTE:

If the float is set to light, an error will appear. Back float off three more turns on the coil springs. This should make float around 100–125 lbs.

12. The calibration procedure is now complete.



Figure 4.172: Combine Display, Console, and Propulsion Lever

Setting Cutting Height (Lexion 700 Series)

To set cutting height, follow these steps:

NOTE:

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

To set 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.

OPERATION

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 4.173: Combine Display, Console, and Propulsion Lever

Adjusting Sensitivity of the Auto Header Height (Lexion 700 Series)

NOTE:

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

To 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.

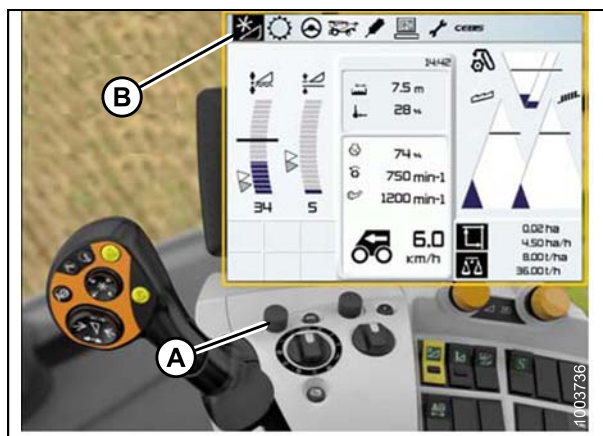


Figure 4.174: Combine Display, Console, and Propulsion Lever

OPERATION

3. Select the Front attachment parameter settings icon (A). A list of settings appears.
4. Select Sensitivity CAC (B) from the list.



Figure 4.175: Combine Display, Console, and Propulsion Lever

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

When you are cutting on the ground and the reaction between the header and the adapter is too slow, increase the Cutting Height Adjustment setting.

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)

NOTE:

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

To adjust the auto reel speed, follow these steps:



Figure 4.176: Combine Display

OPERATION

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.

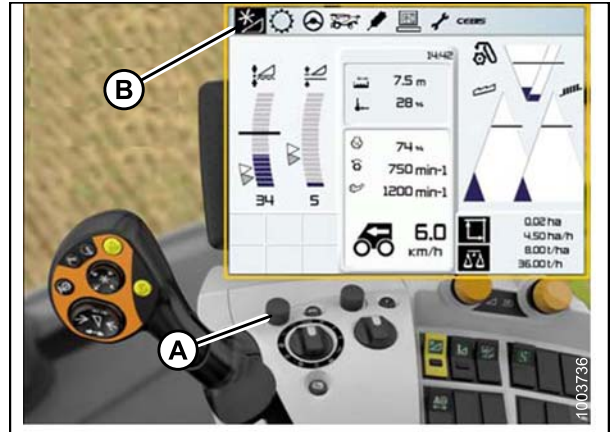


Figure 4.177: Combine Display, Console, and Propulsion Lever

3. 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 4.178: Combine Display, Console, and Propulsion Lever

4. 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 4.179: Combine Display, Console, and Propulsion Lever

OPERATION

5. Use control knob (A) to reduce or increase the reel speed.



Figure 4.180: Combine Display, Console, and Propulsion Lever

New Holland Combines

Checking Voltage Range from the Combine Cab (New Holland)

NOTE:

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

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

OPERATION

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

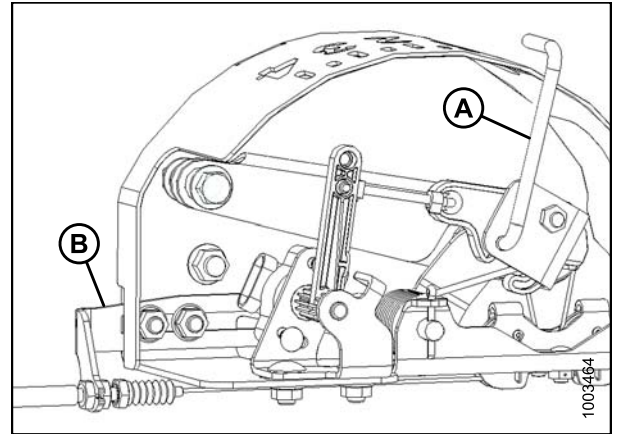


Figure 4.181: 5 Volt Auto Header Height Sensor Assembly

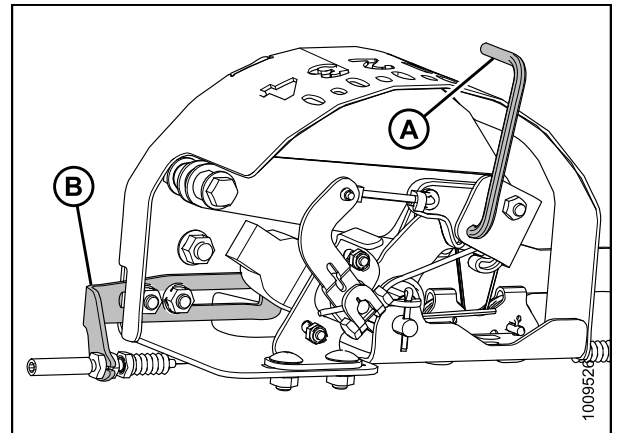


Figure 4.182: 10 Volt Auto Header Height Sensor Assembly

3. Ensure header float is unlocked.
4. On the MAIN screen, select DIAGNOSTICS (A). The DIAGNOSTICS screen displays.
5. Select SETTINGS. The SETTINGS screen displays.

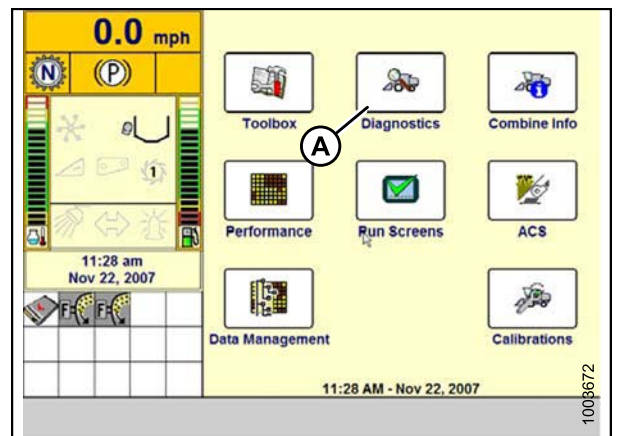


Figure 4.183: Combine Display

OPERATION

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

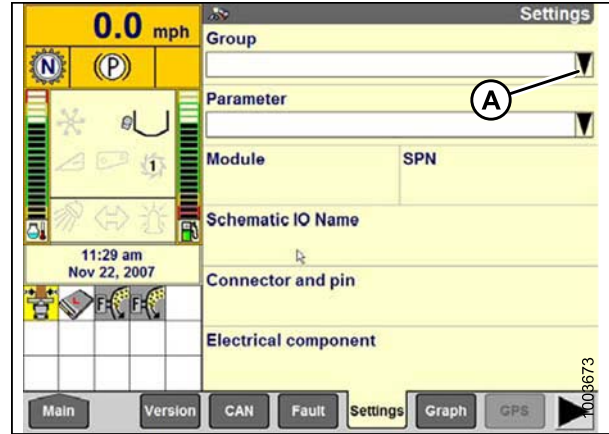


Figure 4.184: Combine Display

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

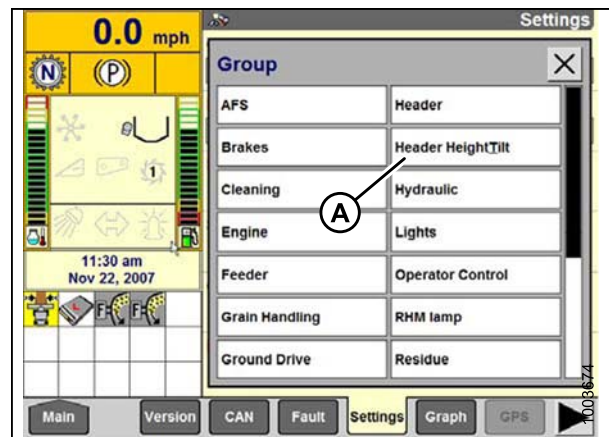


Figure 4.185: Combine Display

8. Select LEFT HEADER HEIGHT SEN (A), and then select the GRAPH button at the bottom of the screen. The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
9. If the sensor voltage is not within the low and high limits shown in [Height Sensor Output Voltage Range – Combine Requirements, page 58](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to [Adjusting Voltage Limits, page 60](#).

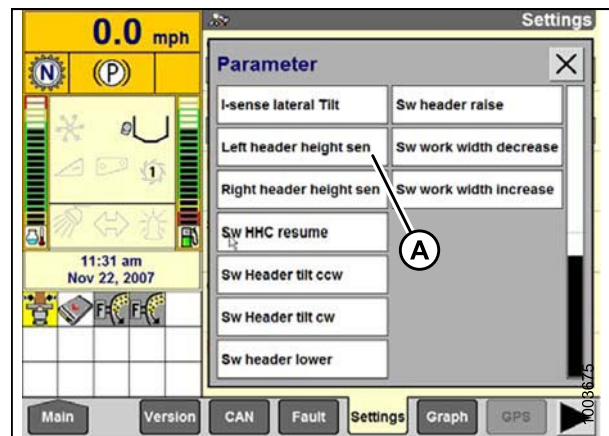


Figure 4.186: Combine Display

OPERATION

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



Figure 4.187: Combine Display

Configuring Combine (New Holland CR/CX Series)

NOTE:

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

To 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.

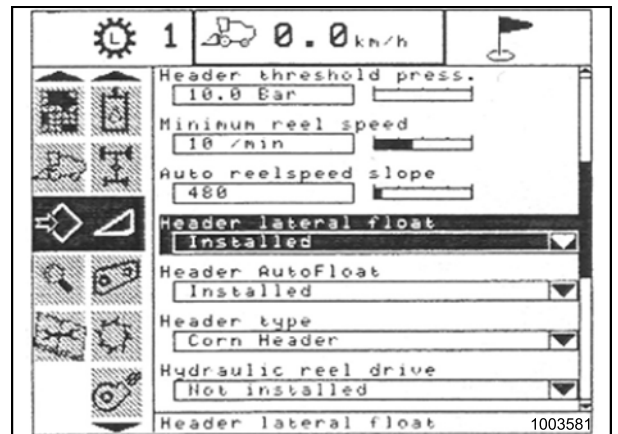


Figure 4.188: Combine Display

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

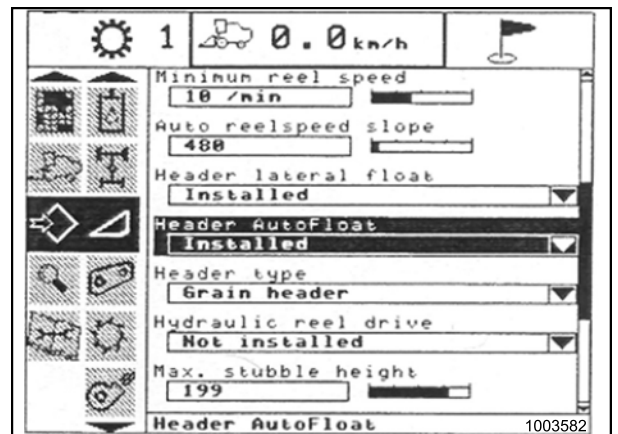


Figure 4.189: Combine Display

OPERATION

Calibrating the Auto Header Height System (New Holland CR/CX Series)

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle.

NOTE:

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

Check the following conditions before starting the header calibration procedure:

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

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

1. On the combine display, select the calibration sub-menu, and then press the "right arrow" navigation key to enter the information box.
2. Select Header.
You can use the "up" and/or "down" navigation keys to navigate through the list of items to calibrate.

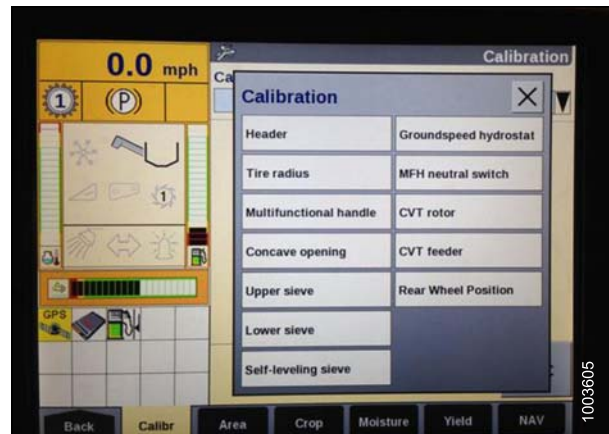


Figure 4.190: Combine Display

3. Press ENTER. The calibration window opens. You are now in Calibration mode.

OPERATION

- At the top of the calibration window is a description of the item to be calibrated. Below that, there is a description of the calibration conditions and procedure. Follow the steps as described in the window. As you proceed through the calibration process, the display will automatically update to show the next step. For example, when the delay says “First press ENTER, then pulse header down switch”, you should press ENTER, and then press the header down key.

Pressing the ESC key in one of the steps will cause the calibration procedure to stop.

Not reacting to the system within three minutes, will cause the calibration procedure to stop.

NOTE:

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

- When all steps have been completed, “Calibration successful” is displayed on the screen. Leave the calibration by pressing the ENTER or ESC key.
- If unit does not function properly, conduct the maximum stubble height calibration.

NOTE:

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

Maximum Stubble Height Calibration

This is necessary to know from which height the area counter should stop or start counting. When the header is raised before this level the area counter assumes you are not cutting crop. You have to put the header at a certain height you will always exceed when not cutting and at a certain height you will always stay below when cutting.

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

IMPORTANT:

- If the value is set too low, area may be counted since sometimes the header is raised above this threshold although the combine is still cutting.
- If the value is set too high, the area counter will keep cutting even when the header is raised (but below this threshold) and the combine is not cutting crop any more.

To calibrate the maximum stubble height, proceed as follows:



Figure 4.191: Combine Display

OPERATION

7. Select the "Maximum Stubble Height" calibration window.

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

Message: "Then press enter".

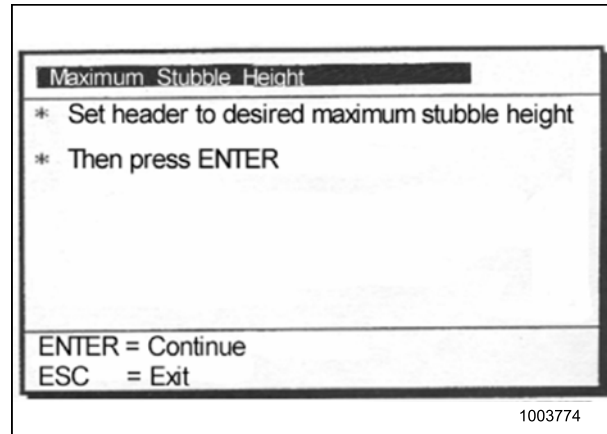


Figure 4.192: Calibration Window

8. Put header to the correct position using the header up or down control switch on the multifunction handle.
9. Press "enter" to continue.
Message: "Calibration successful".
10. The calibration is done. Press ENTER or ESC to close the calibration window.

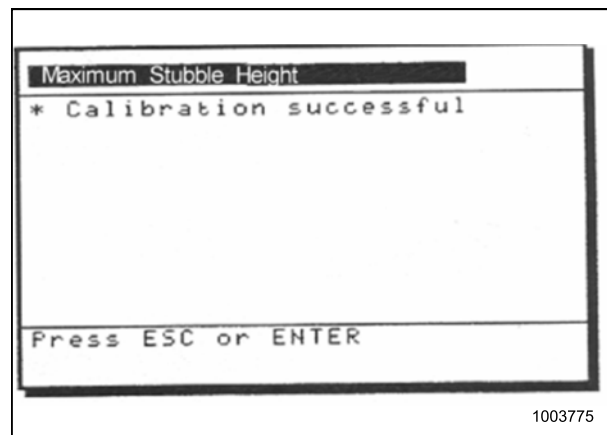


Figure 4.193: Calibration Window

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.

NOTE:

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

To adjust the header raise rate, follow these steps:

OPERATION

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.

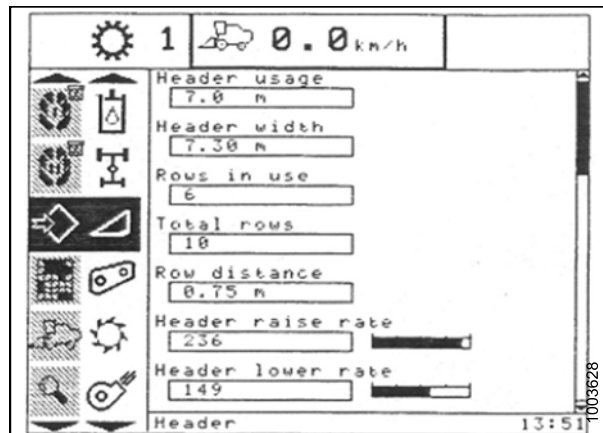


Figure 4.194: Combine Display

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.

NOTE:

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

To set the 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%.

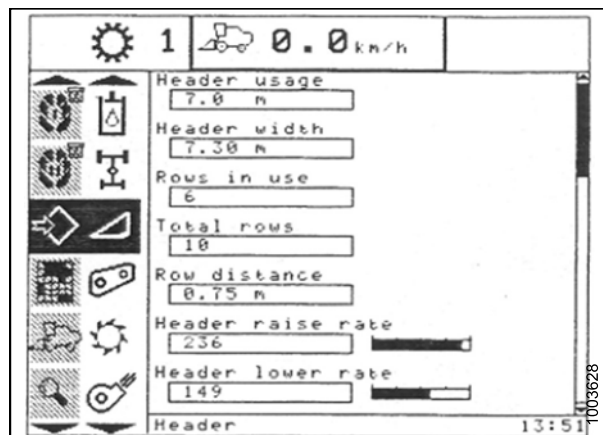


Figure 4.195: Combine Display

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

NOTE:

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

OPERATION

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.

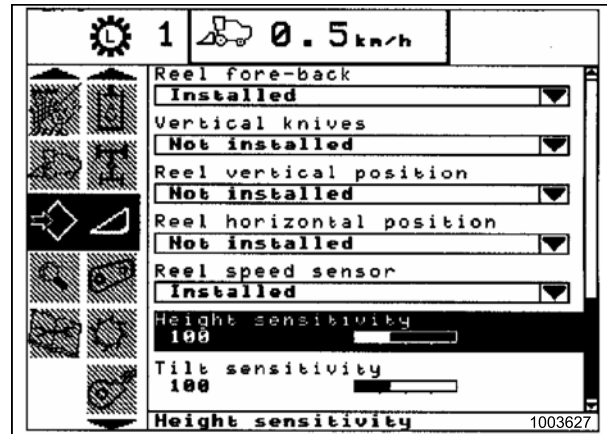


Figure 4.196: Combine Display

Sensor Operation

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

Below 5%, a sensor is considered to be shorted; above 95%, open. An increase in sensor voltage correlates to an increase in header height. Each sensor is constructed with a power wire and a ground wire. Inside the sensor, these two wires are connected by a high resistance filament band (C). The resistance measured across the power (A) and ground (B) wires, should read a constant value between 800 and 1200 ohms (0.8-1.2 k) with the nominal reading being 1000 ohms (1 k).

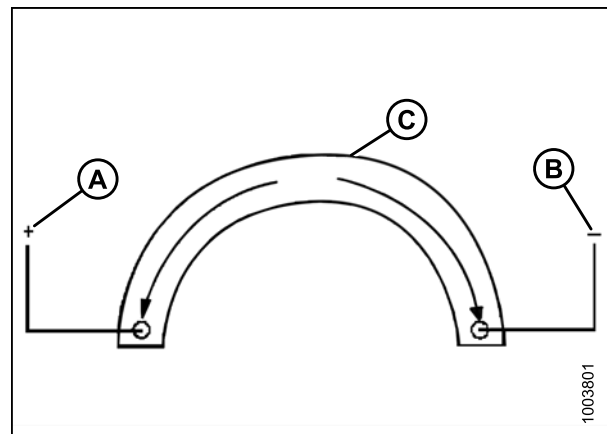


Figure 4.197: Power, Ground, and Signal Wires

OPERATION

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

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

NOTE:

Ground and power wires may differ depending on combine.

4.7.3 Header Float

Float reduces the header weight and allows it to more easily follow the ground and quickly respond to sudden ground contour changes or obstacles.

Header float is indicated on the CA25 float indicator (A) and the values 0 to 4 represent the force of the cutterbar on the ground, with ‘0’ being the least and ‘4’ the maximum.

The maximum force is determined by the tension on the adapter float springs which are adjustable. The tension is factory set but can be changed to suit field and crop conditions. Refer to [Checking and Adjusting Header Float, page 138](#)

The FD75 FlexDraper® combine header performs best with minimum ground pressure, under normal conditions. Re-adjust the float if adding optional attachments that affect the weight of the wings.

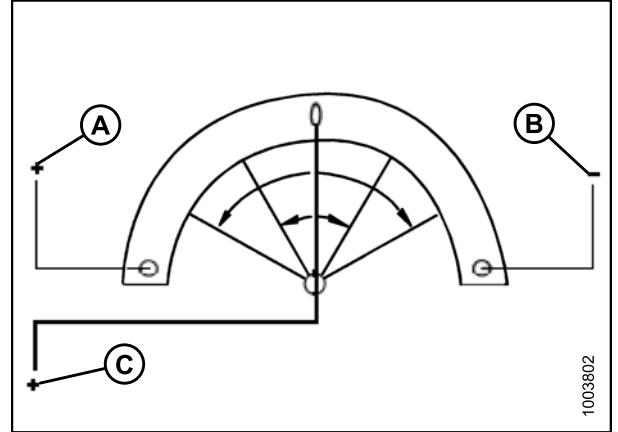


Figure 4.198: Power, Ground, and Signal Wires

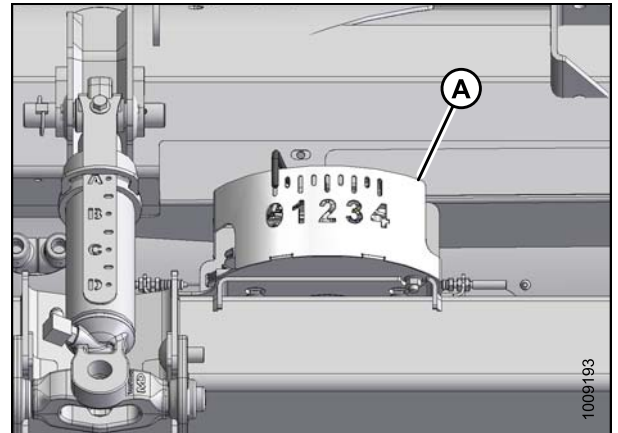


Figure 4.199: Float Indicator

OPERATION

1. To set the float for cutting on the ground:
 - a. Ensure that the header float locks are disengaged. Refer to [Locking/Unlocking Header Float, page 142](#).
 - b. Lower feeder house with combine header controls until float indicator (A) reaches the desired float value (cutterbar ground force). Use “2” initially and adjust accordingly.

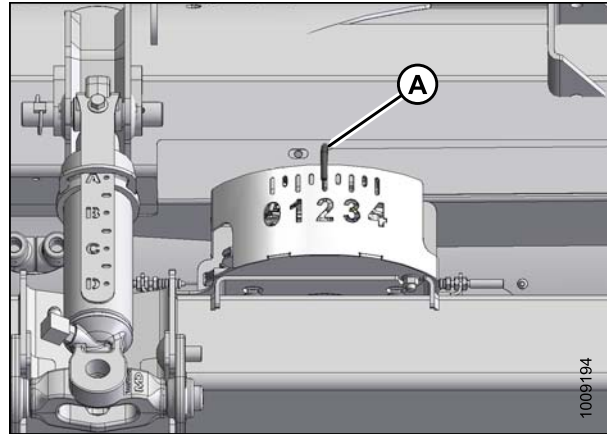


Figure 4.200: Cutting on the Ground

2. To set the float for cutting off the ground:
 - a. Set up the stabilizer wheels. Refer to [Cutting Off The Ground, page 51](#).
 - b. Note the float value on the float indicator and maintain this value during operation, disregarding minor fluctuations on the indicator.

Checking and Adjusting Header Float

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

1. Park combine on level surface.
2. Fully lower the reel, and adjust the fore-aft position to '5' on decal on the right side reel arm.

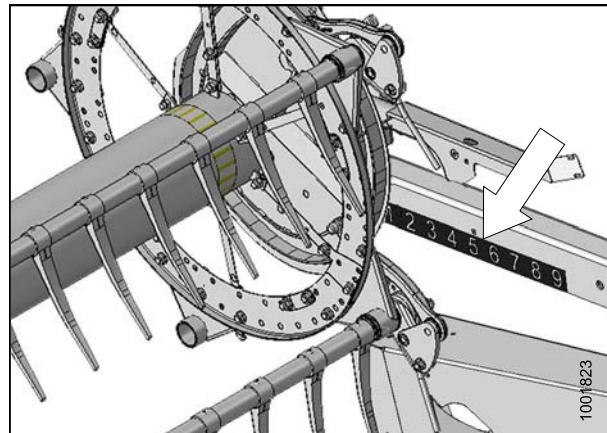


Figure 4.201: Fore-Aft Position

OPERATION

3. Adjust center-link to mid-range (between 'B' and 'C' on the indicator).
4. 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.

5. Stop engine, and remove key from ignition.

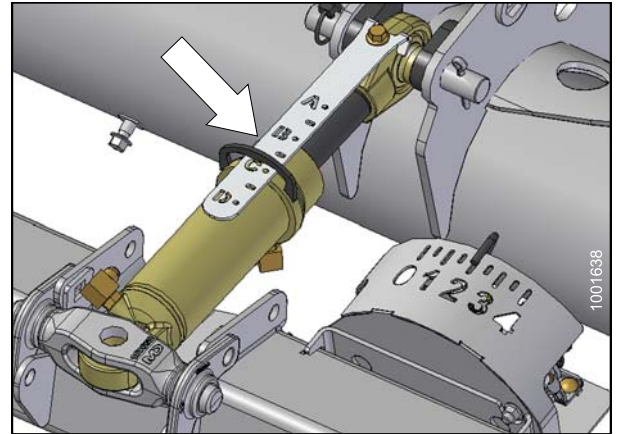


Figure 4.202: Center-Link between 'B' and 'C'

IMPORTANT:

Do **NOT** use the adapter float springs to level the header.

6. Check that adapter is level. If the adapter is **NOT** level, perform the following checks prior to adjusting the levelling linkages:
 - a. Check combine tire pressures.
 - b. Check that the combine feeder house is level. Refer to combine operator's manual for instructions.
 - c. Check that top of adapter is level with combine axle.
7. Ensure both wing locks (A) are engaged. Spring handle is in LOCK (upper) position.

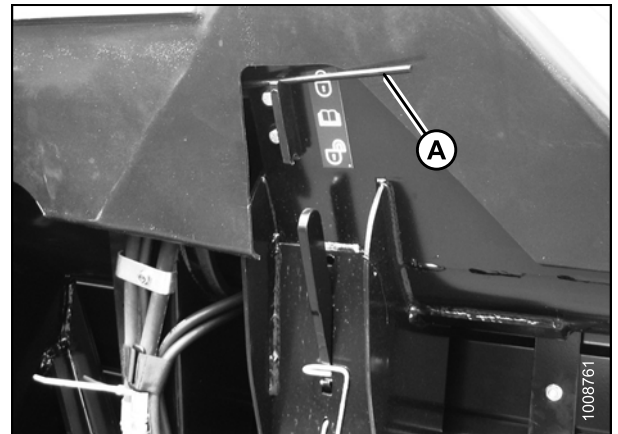


Figure 4.203: Wing Lock

OPERATION

8. Move both header float lock levers (A) down (UNLOCK).

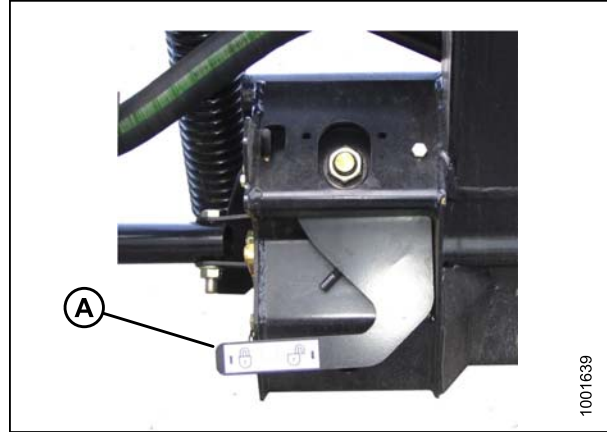


Figure 4.204: Header Float Lock

9. If header is equipped with stabilizer wheels or slow speed transport wheels, place them in storage position as follows:
 - a. On the left wheel assembly, support wheel weight by lifting slightly with one hand. Pull up on handle (A) to release lock.
 - b. Lift wheels to desired height and engage support channel into slot (B) in upper support.
 - c. Push down on handle (A) to lock.

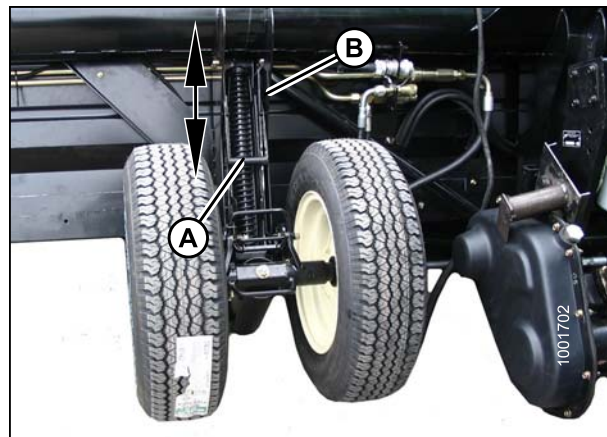


Figure 4.205: Left Wheels Shown – Right Wheels Similar

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

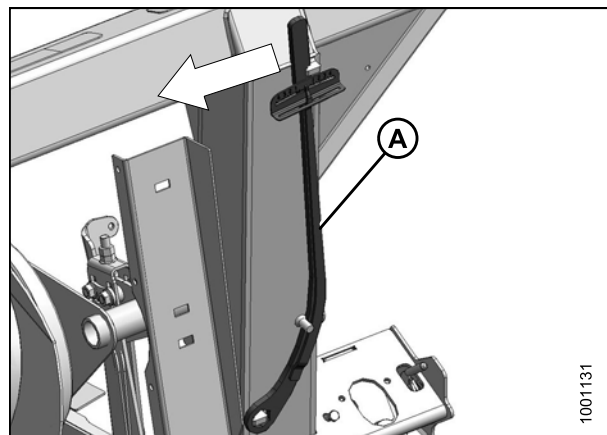


Figure 4.206: Torque Wrench

OPERATION

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

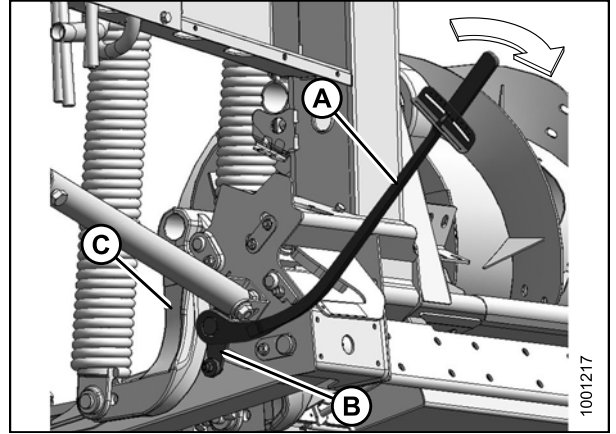


Figure 4.207: Left Side

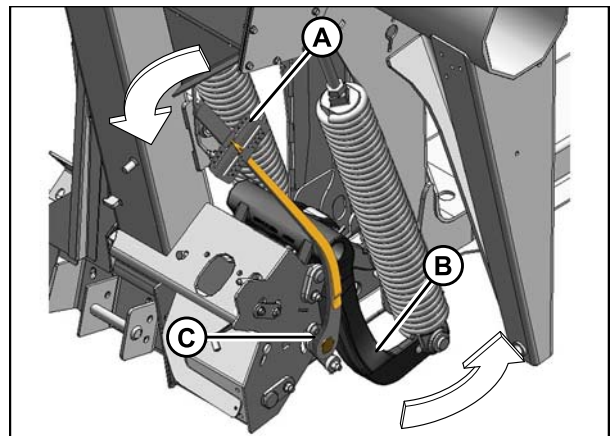


Figure 4.208: Right Side

13. 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.
14. 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**.

Table 4.4 Float Settings

Header Size	Torque Settings	
	Cutting on the Ground	Cutting off the Ground
30 and 35 ft.	1-1/2 to 2	2 to 2-1/2
40 and 45 ft.	2 to 2-1/2	2-1/2 to 3

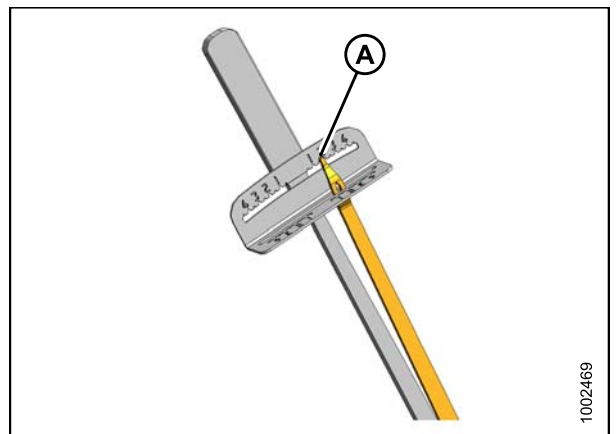


Figure 4.209: Indicator

OPERATION

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

NOTE:

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

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

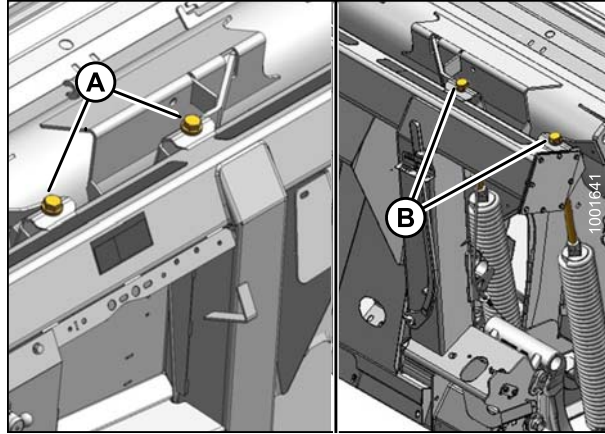


Figure 4.210: Float Adjustment

A - Left Side Adjustment

B - Right Side Adjustment

17. Use the following guidelines when adjusting float:

- Adjust the float on **30-, 35- and 40-foot single-knife** headers so that the wrench reading is equal at both sides.
- Adjust the float on **40- and 45-foot double-knife** headers so that wrench readings are equal for both sides, and then loosen both right side spring bolts two turns.
- Turn each bolt pair equal amounts. After adjustment has been made, repeat torque wrench reading procedure.
- Header float should be set as light as possible to avoid frequent breakage of knife components, scooping soil, or soil build-up at cutterbar in wet conditions, without causing excessive bouncing.
- Use a slower ground speed if necessary with a light float setting to avoid excessive bouncing and leaving a ragged cut.
- Use the stabilizer wheels and the float to minimize bouncing at the header ends and to control cut height when cutting off the ground. Refer to [4.7.1 Cutting Height, page 51](#) 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.

Locking/Unlocking Header Float

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.

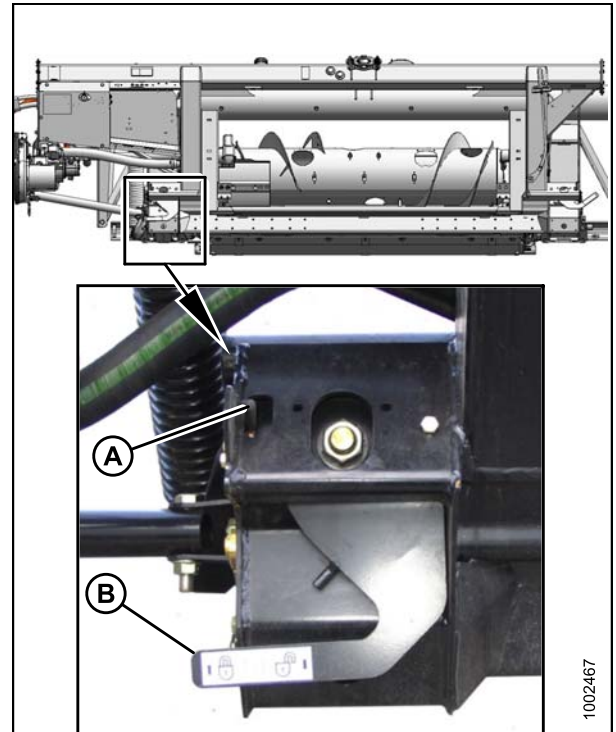


Figure 4.211: Float Lock

Locking/Unlocking Header Wings

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, each wing is **unlocked** and is free to move up and down.

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 is **locked**.

Operating In Flex Mode

The three sections move independently to follow the ground contours.

Unlock the wings as follows:

1. Move spring handle (A) in the lower slot to unlock the wing. The unlocking should be audible.
2. If the lock link does not disengage, move the wing by raising and lowering the header, changing the header angle, or driving the combine until it disengages.

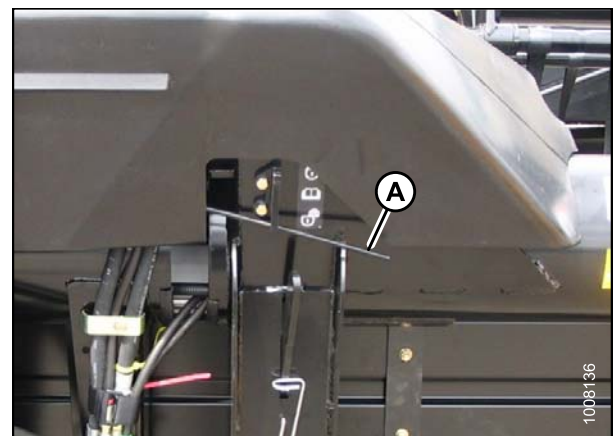


Figure 4.212: Wing Lock

OPERATION

NOTE:

The following steps are only required if the above has not worked.

3. Remove the linkage cover. Refer to [Removing Linkage Covers, page 40](#).
4. Retrieve the supplied torque wrench (A) that is stored on the adapter frame on the right-hand side.
5. Place the torque wrench (A) on bolt (B) and use it to move the wing until the lock disengages.
6. Replace the torque wrench (A) and reinstall the linkage cover.
7. The wings should now freely move up and down with equal hand force and the cutterbar should be straight. Otherwise, the wings are not balanced.
8. If necessary, balance the wing. Refer to [6.14 Checking and Adjusting Header Wing Balance, page 390](#).

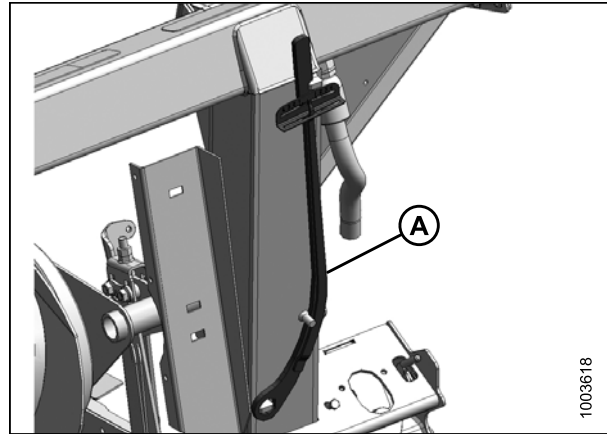


Figure 4.213

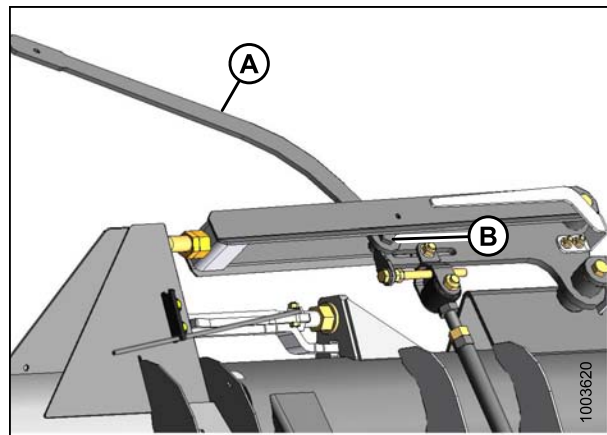


Figure 4.214

Operating In Rigid Mode

The three sections will be locked and operate as a rigid cutterbar.

Lock the wings as follows:

1. Move spring handle (A) in the upper slot to lock the wing. The locking should be audible.
2. If the lock link does not engage, move the wing by raising and lowering the header, changing the header angle, or driving the combine until it engages.

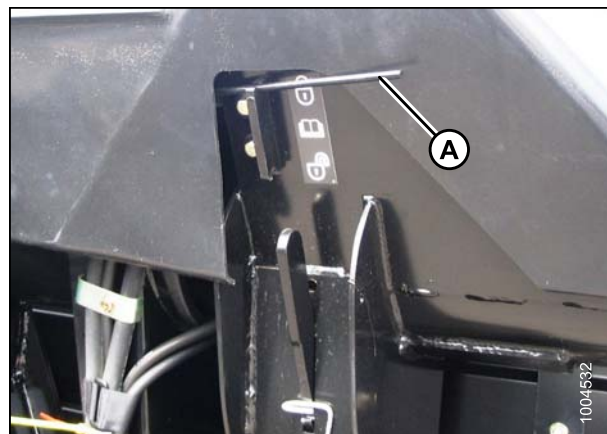


Figure 4.215: Wing Lock

OPERATION

NOTE:

The following steps are only required if the above has not worked.

3. Remove the linkage cover. Refer to [Removing Linkage Covers, page 40](#).
4. Retrieve the supplied torque wrench (A) that is stored on the adapter frame on the right-hand side.

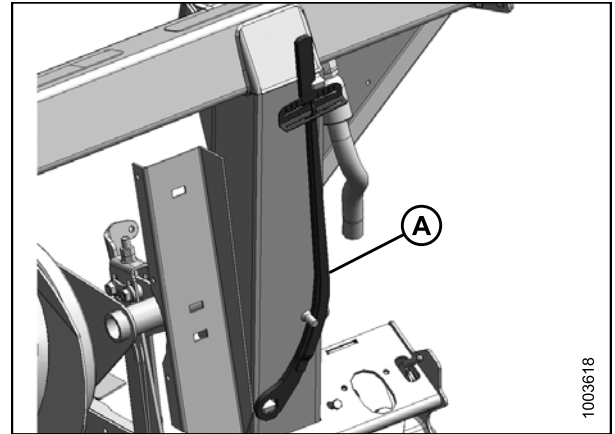


Figure 4.216

5. Place the torque wrench (A) on bolt (B) and use it to move the wing until the lock engages.
6. Replace the torque wrench (A) and reinstall the linkage cover.
7. The wings will not move relative to the header.

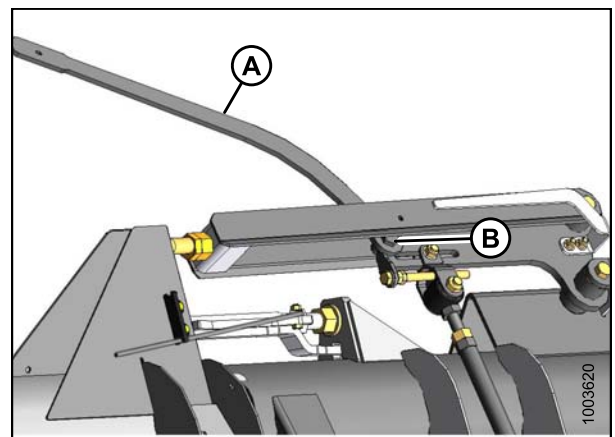


Figure 4.217

4.7.4 Header Angle

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

The header angle (A) is a critical factor for effective cutting on the ground applications because it determines the actual distance (B) between the sickle and the ground. The header rotates about the point of skid shoe/ground contact (C) by adjusting the length of the center-link thereby adjusting the position of the guards and sickle.

Header angle (A) is synonymous with guard angle (D) which is the angle between the guard upper surface and the ground.

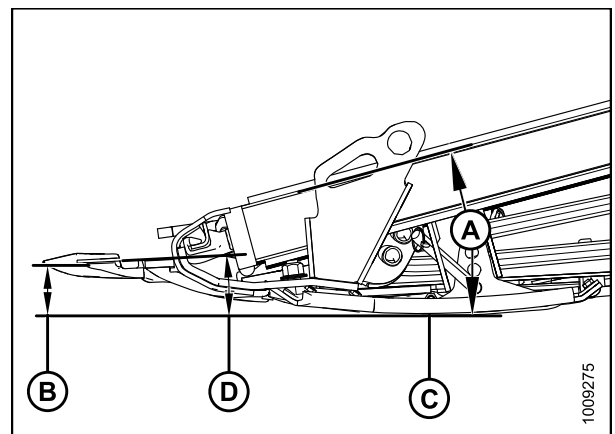


Figure 4.218: Header Angle

OPERATION

Controlling Header Angle

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

The header/guard angle is controlled from the combine cab with a switch on the operator's control console, and an indicator on the center-link.

Set the header angle according to the type and condition of crop, and soil conditions. Use a lower angle setting ('A' on the indicator) for normal cutting conditions and wet soil to reduce soil build-up at the cutterbar. Also lower angle settings minimize damage to the knife in stony fields.

Use steeper settings ('D' on the indicator) for crops that have lodged or are close to the ground, such as soybeans.

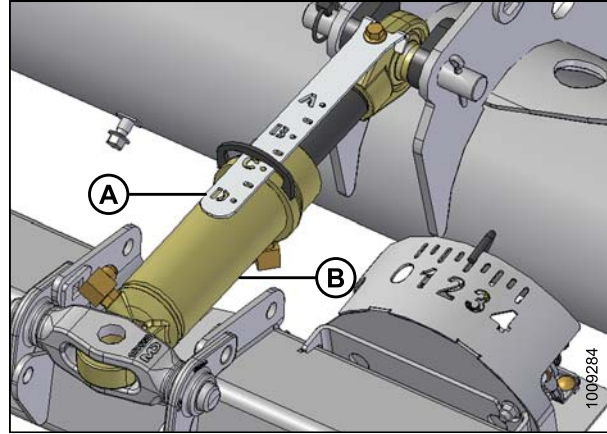


Figure 4.219: Center-Link

The shallowest angle "A" (center-link fully retracted) provides highest stubble when cutting on the ground.

The steepest angle "D" (center-link fully extended) provides lowest stubble when cutting on the ground.

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

Table 4.5 FD75 Header Angle

Header Size	Guard Angle
30–45 ft.	2.0°–7.4°

Refer to [4.6.2 Header Settings, page 47](#) for recommended header/guard angle settings for your particular crop conditions.

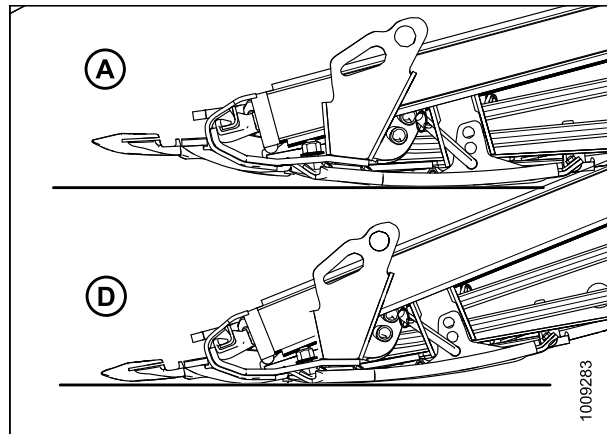


Figure 4.220: Guard Angles

4.7.5 Reel Speed

Reel speed is one of the factors that determines the manner in which the crop is moved from the cutterbar onto the drapers..

The reel performs best when it appears to be driven by the ground. It should move the cut crop evenly through the cutterbar and onto the drapers without bunching and with minimal disturbance.

In standing crop, reel speed should be slightly higher than or equal to ground speed.

In flattened crop or a crop that is leaning away from the cutterbar the reel speed needs to be higher than the ground speed, either by increasing the reel speed or decreasing the ground speed.

Excessive shattering of grain heads or crop loss over the header backtube may be indications that the reel speed is too high. Excessive reel speed also increases wear of reel components and overloads the reel drive.

Lower reel speeds can be used with 9-bat reels which is an advantage in shatter prone crops.

OPERATION

NOTE:

A conversion kit to change a 6-bat reel to a 9-bat reel for 30 and 35 foot headers. Refer to [8.1.10 PR15 Tine Tube Reel Conversion Kit, page 418](#) for more information.

Refer to [4.6.2 Header Settings, page 47](#) 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

Optional reel drive sprockets are available as an alternative to the factory-installed sprocket for use in special crop conditions.

The header is factory equipped with a 19 tooth sprocket to drive the reel which is satisfactory for most crops. Other sprockets are available to provide more torque to the reel in heavy cutting conditions, or to allow higher reel speeds in light crops where increased ground speeds are used. Refer to the following table and contact your MacDon dealer for ordering information.

Machine Hydraulics	Combine	Application	Optional Drive Sprocket
2000–2100 psi (13.79–14.48 MPa)	AGCO Transverse Rotary	Combining Down Rice	10-Tooth
2500 psi (17.24 MPa)	Lexion 500, 700 Series, AGCO Axial Rotary		12-Tooth
3000 psi (20.68 MPa)	NH CR, CX, Case IH 7010, 8010, 7120, 8120, 88 Series		14-Tooth
Low Flow (under 11 gpm)	—	Combining Light Crops above 10 mph (16 km/hr)	21-Tooth

For installation details, Refer to [6.12.5 Reel Drive Sprocket, page 359](#).

4.7.6 Ground Speed

Using the proper ground speed will result in cleanly cut crop and even delivery of material into the combine.

Reduce ground speed in difficult cutting conditions to reduce loads on cutting components and drives.

Use lower ground speeds in very light crops (for example, short soybeans), to allow the reel to pull in short plants. Start at 3.0–3.5 mph (4.8–5.8 km/h) and adjust as required.

Higher ground speeds may require heavier float settings to prevent abnormal bouncing that would cause uneven cutting and possible cutting component damage. Generally, if ground speed is increased, draper and reel speeds should be increased to handle the extra material.

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

OPERATION

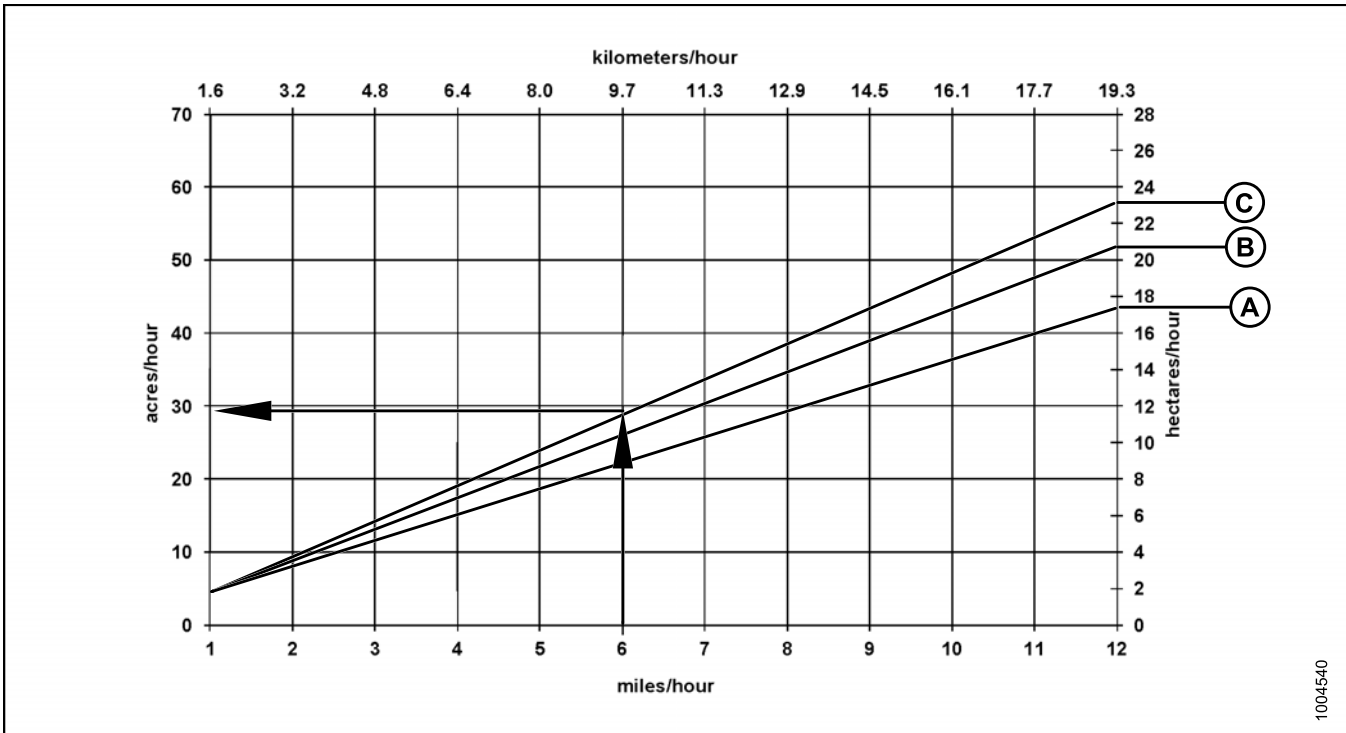


Figure 4.221: Ground Speed vs Acres

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).

4.7.7 Draper Speed

Adjusting Side Draper Speed

The side drapers carry the cut crop to the adapter feed draper which then feeds it into the combine. The speed is adjustable to suit crops and crop conditions.

The side drapers (A) are driven by hydraulic motors from a pump which is powered by the combine feeder house drive through a gearbox on the adapter. A flow control valve on the adapter regulates the flow to the draper motors to set the speed.

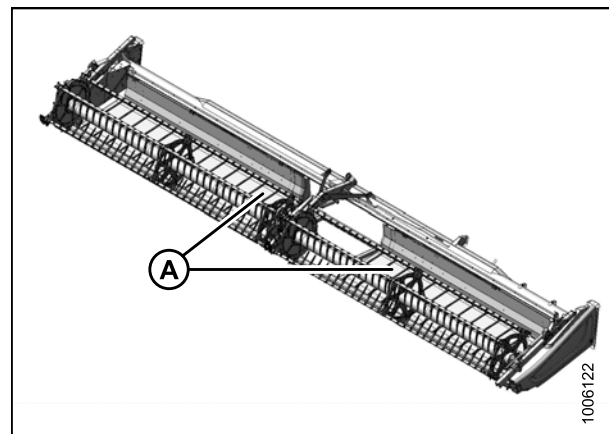


Figure 4.222: Side Drapers

OPERATION

The flow control (A) has values 0–9 on the barrel, that line up with a notch on the hydraulic compartment cover to indicate the draper speed. The draper speed control is factory-set to '6' which should satisfy normal crop feeding.

To change the draper speed, shut down the combine, and adjust the control accordingly by simply rotating the dial.

Refer to the following for recommended draper speed settings:

- [4.6.2 Header Settings, page 47](#), or
- [4.6.3 Optimizing Header for Straight Combining Canola, page 48](#)

NOTE:

Insufficient draper speed may be caused by low relief pressure. See your MacDon dealer for checking and adjusting relief pressure in the CA25 hydraulics.

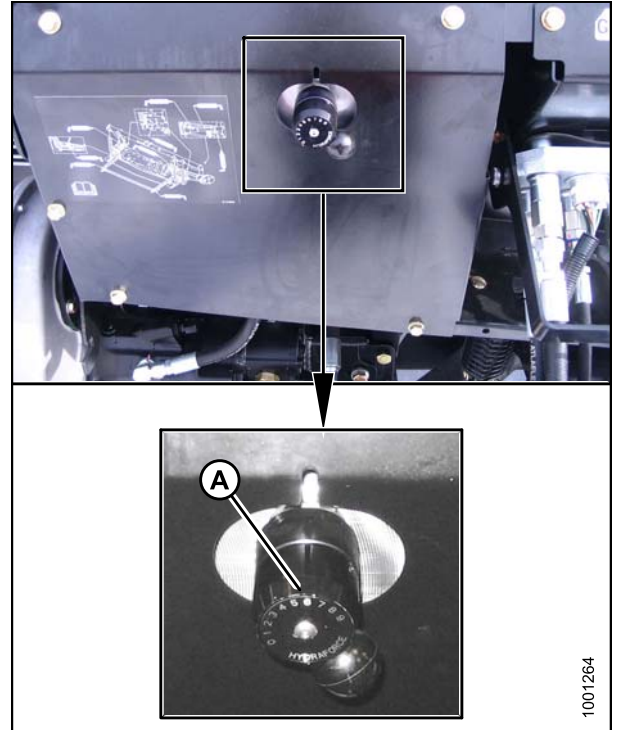


Figure 4.223: Speed Control

Adjusting Feed Draper Speed

The feed draper moves the cut crop from the side drapers into the adapter feed auger.

The adapter feed draper (A) is driven by a hydraulic motor from a pump which is powered by the combine feeder house drive through a gearbox on the adapter.

The feed draper speed is fixed to the combine feeder house speed and cannot be independently adjusted.

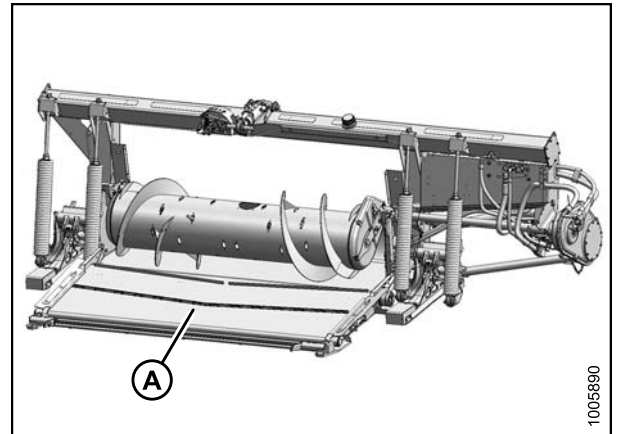


Figure 4.224

OPERATION

4.7.8 Knife Speed

The header knife drive is driven by the adapter hydraulic pump which is driven by the combine feeder house. There is no separate adjustment to control the knife speed.

IMPORTANT:

For variable speed feeder houses, the values in the table are the MINIMUM feeder house speeds. Reduce the flow to the knife drive motor if operating above these values to prevent over-speeding the knife and knife failure.

Combine	Feeder House Speed (rpm)
John Deere	490
CIH	575
Gleaner	624
Massey	624
Challenger	624
New Holland	575
Lexion ²	420

IMPORTANT:

Check that the knife speed is within the values in the Table. Refer to [Checking Knife Speed, page 151](#).

Table 4.6

Header Size	Recommended Knife Drive Speed Range (rpm)	
	SKD	DKD
30 ft	600–700	—
35 ft	550–650	—
40 ft	525–600	550–700
45 ft	—	550–700

2. 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

Checking Knife Speed

This section contains the procedure for checking the knife speed. If it is higher than the specified range, contact your MacDon dealer.

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 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. Measure the rpm of the knife drive box pulley (A) with a hand-held tachometer.
5. Shut down the combine.
6. Compare measured pulley rpm with the values in the knife speed chart. Refer to [4.7.8 Knife Speed, page 150](#).
7. If it is higher than the specified range for your header, contact your MacDon dealer.



Figure 4.225: Left Endshield

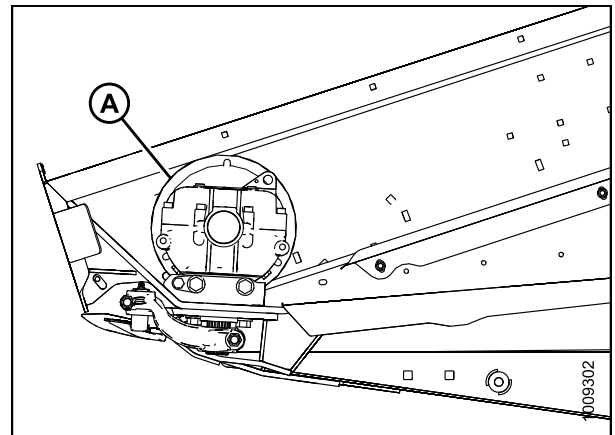


Figure 4.226: Knife Drive Pulley

4.7.9 Reel Height

The crop type and condition determine the operating height of the reel.

Set reel height to carry material past the knife onto the drapers with minimal disturbance and damage to the cut crop. Also see [4.7.10 Reel Fore-Aft Position, page 152](#).

Table 4.7 Reel Height

Crop Condition	Reel Position
Lodged rice	Lowered (also change reel speed and/or cam setting)
Bushy or heavy standing (all)	Raised

Indications that reel may be too low are:

- Crop loss over header backtube
- Disturbance of crop on drapers by the reel fingers

OPERATION

- Crop being pushed down by the tine tubes

Indications that the reel may be too high:

- Cutterbar plugging
- Leaving uncut lodged crop
- Grain stalks dropping ahead of cutterbar

Refer to [4.6.2 Header Settings, page 47](#) for recommended reel height in specific crops and crop conditions.

IMPORTANT:

Maintain adequate clearance to prevent fingers contacting the knife or the ground. Refer to [6.12.1 Reel Clearance to Cutterbar, page 348](#).

4.7.10 Reel Fore-Aft Position

Reel position is a critical factor for good results in adverse conditions. The reel position is factory-set for normal conditions and can be adjusted forward or backward as required.

A decal (A) is provided on the reel right support arm for identifying reel position. The cam disc aft edge (B) 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 (lower number on decal).

IMPORTANT:

When difficulty is encountered picking up flattened crop, adjust header angle to a steeper position. See [4.7.4 Header Angle, page 145](#) for adjustment details. Adjust reel position only if header angle adjustments are not satisfactory.

Refer to [4.6.2 Header Settings, page 47](#) 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. Refer to [4.7.11 Reel Tine Pitch, page 156](#) for adjustment details.

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.

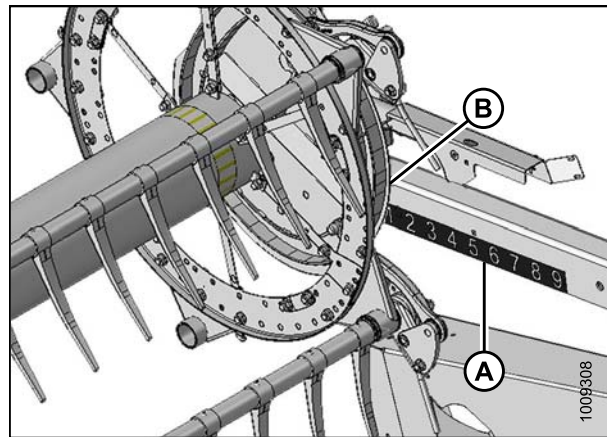


Figure 4.227: Fore-Aft Decal

OPERATION

3. Check reel clearance to cutterbar after making changes to cam setting. Refer to:

- [6.12.1 Reel Clearance to Cutterbar, page 348](#)
- [6.12.2 Reel Frown, page 350](#) for measurements and adjustment procedures.

IMPORTANT:

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

Repositioning Fore-Aft Cylinders

The reel can be moved approximately 9 in (227 mm) further aft by repositioning the fore-aft 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.

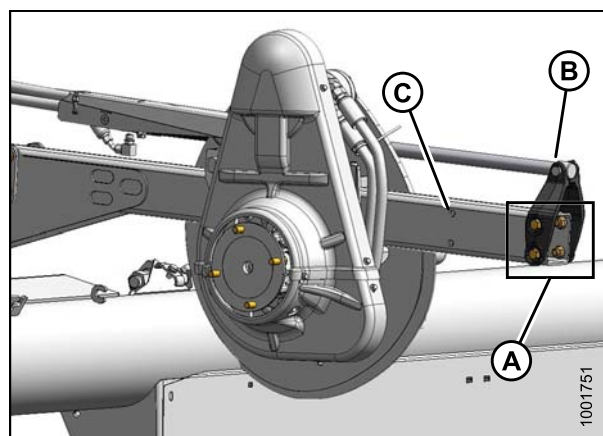


Figure 4.228: Forward Position

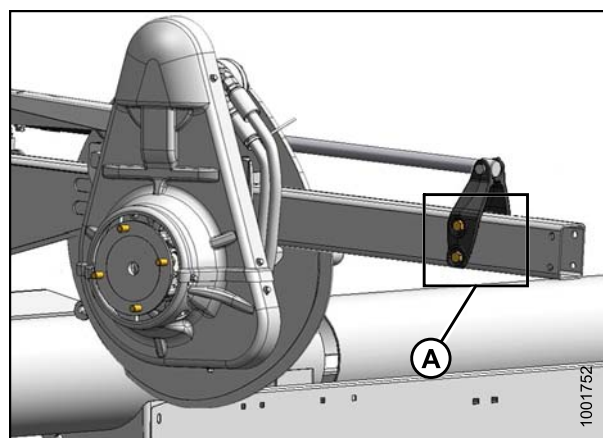


Figure 4.229: Rearward Position

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.

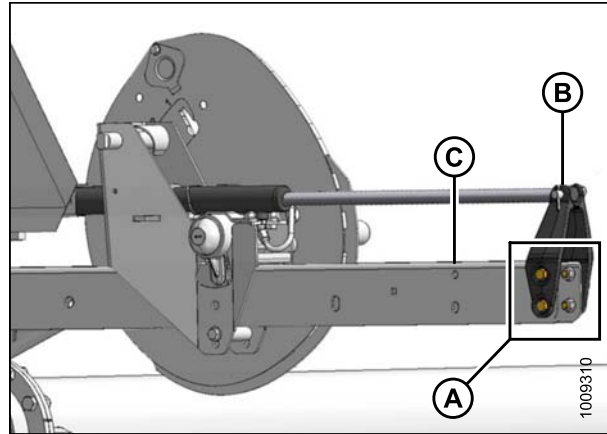


Figure 4.230: Forward Position

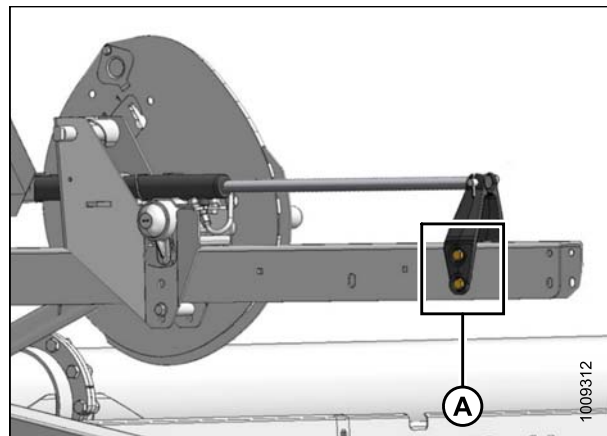


Figure 4.231: Rearward Position

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.

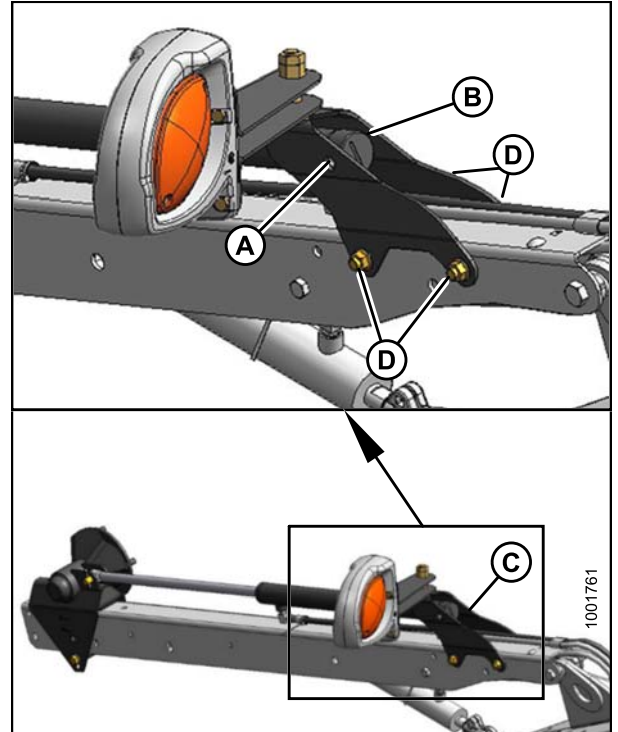


Figure 4.232: Forward Position

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:
 - [4.7.11 Reel Tine Pitch, page 156](#) or
 - [6.12.1 Reel Clearance to Cutterbar, page 348](#)

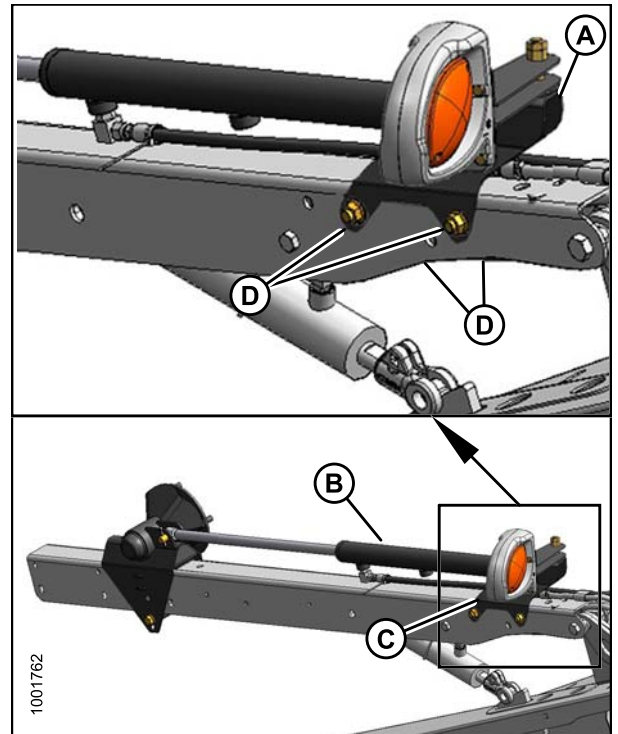


Figure 4.233: Rearward Position

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

OPERATION

4.7.11 Reel Tine Pitch

IMPORTANT:

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

The pick-up 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.

Choosing a Reel Cam Setting

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 158](#).

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.

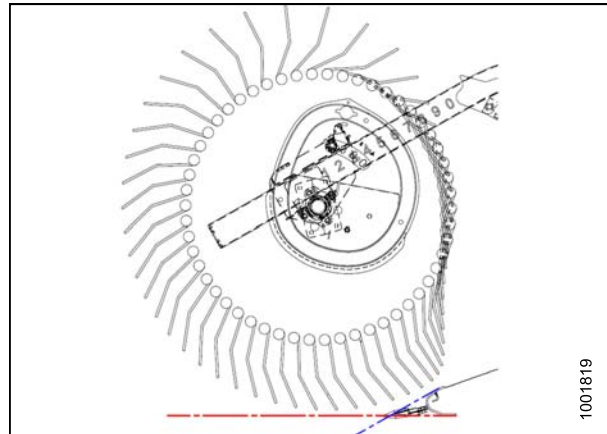


Figure 4.234: Finger Profile - Position 1

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.

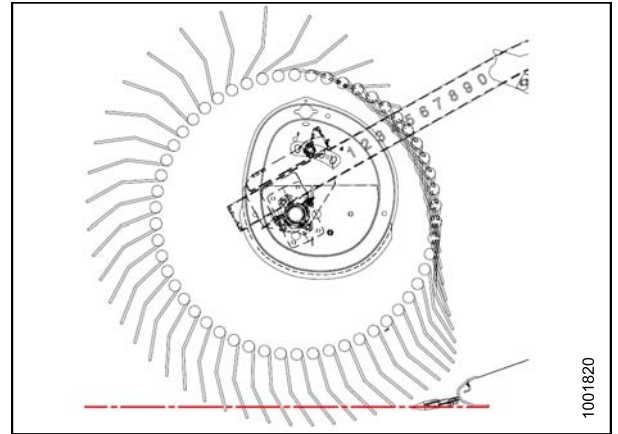


Figure 4.235: Finger Profile - Position 2

Cam Position 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.

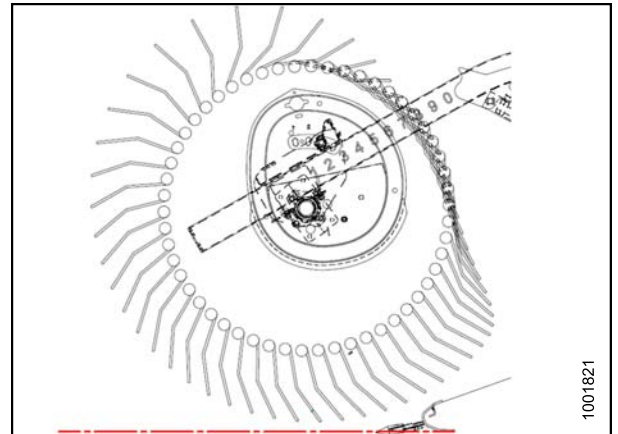


Figure 4.236: Finger Profile - Position 3

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.

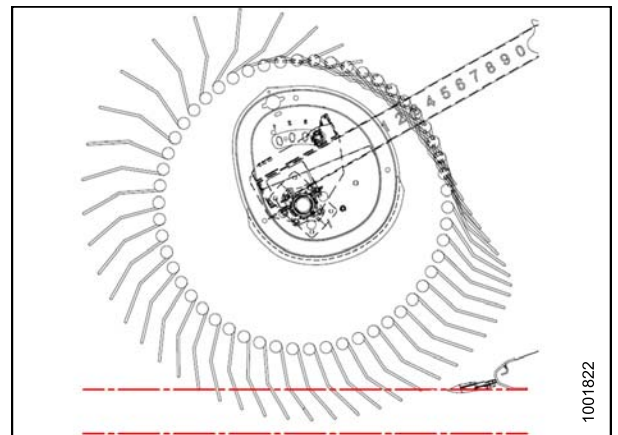


Figure 4.237: Finger Profile - Position 4

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.

IMPORTANT:

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

Refer to [4.6.2 Header Settings, page 47](#) 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.

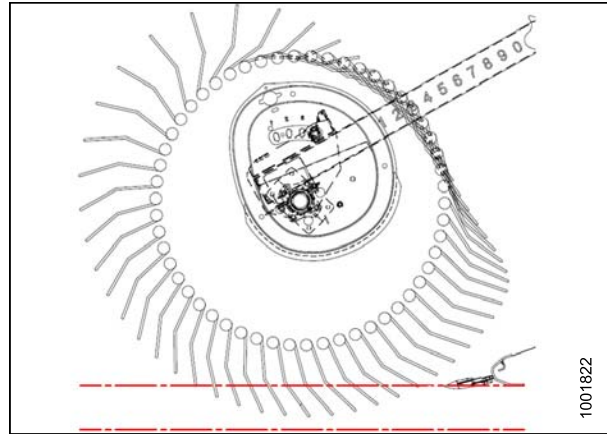


Figure 4.238: Finger Profile - Position 4

OPERATION

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.

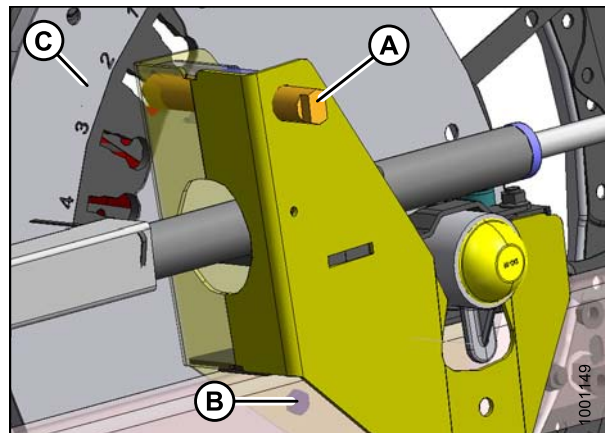


Figure 4.239

4.7.12 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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

1. Lower reel, 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. Refer to [4.2.3 Endshields, page 35](#).
3. Lift safety lever (A).
4. Hold onto divider (B), push lever (C) to open latch and lower divider.

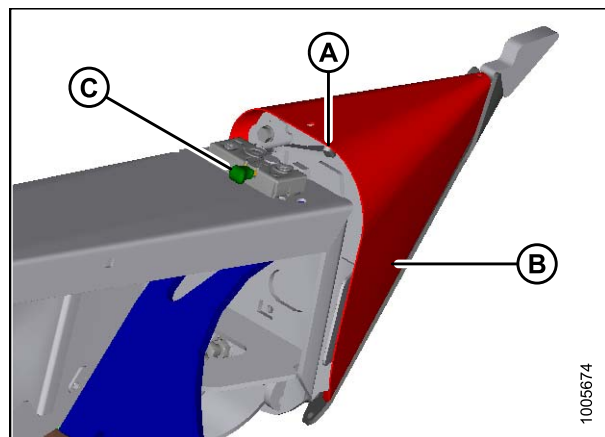


Figure 4.240: Crop Divider

OPERATION

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. Refer to [4.2.3 Endshields, page 35](#).

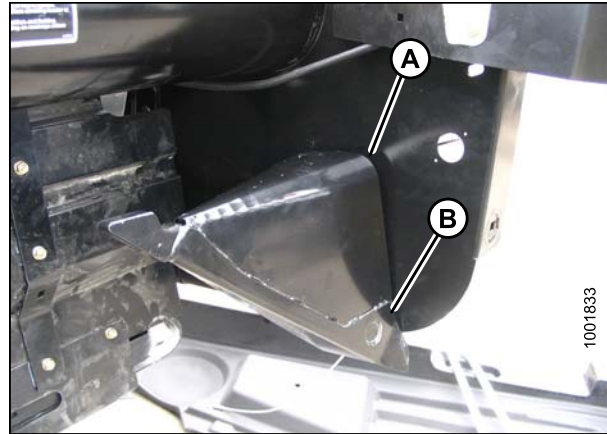


Figure 4.241: Stored Crop Divider

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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

1. Lower reel, raise header, stop engine, remove key, and engage safety props. For instructions, see your combine operator's manual.
2. Open/remove header endshields. Refer to [4.2.3 Endshields, page 35](#).
3. Remove bolt (A), lock washer and flat washer.
4. Lower divider (B) and lift off endsheet.
5. Close/replace header endshields. Refer to [4.2.3 Endshields, page 35](#).

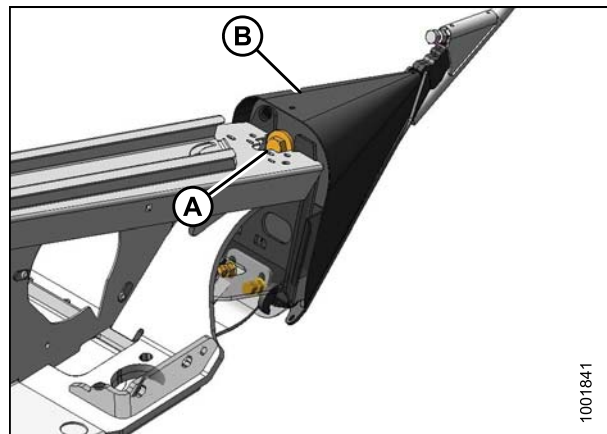


Figure 4.242: Crop Divider

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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

OPERATION

1. Lower reel, raise header, stop engine, remove key, and engage safety props. For instructions, see the combine operator's manual.
2. Open header and remove endshields.
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.

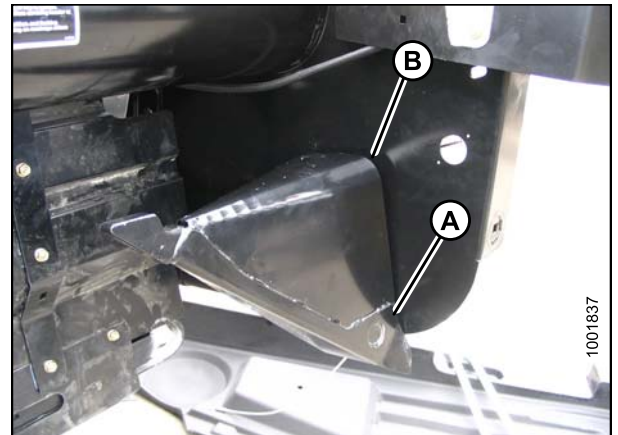


Figure 4.243: Stored Crop Divider

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.

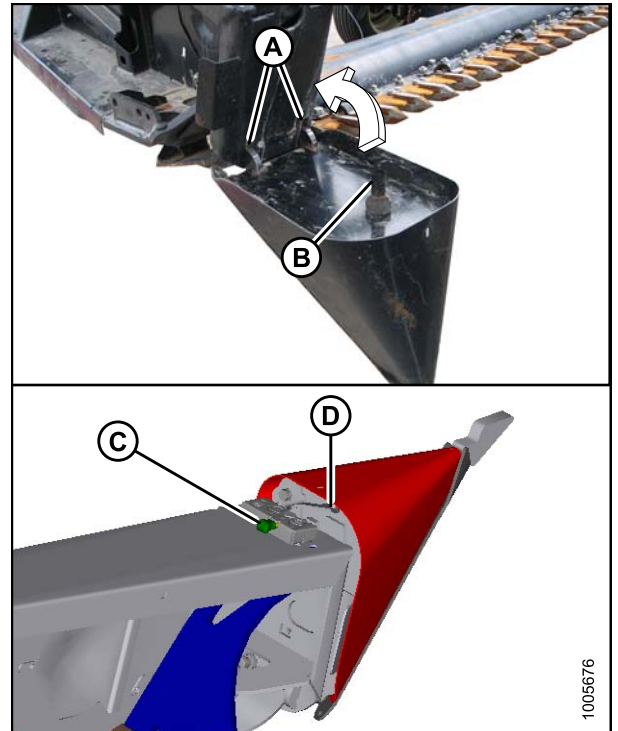


Figure 4.244: Crop Divider

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/install endshields.



Figure 4.245: Crop Divider

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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

1. Lower reel, raise header, stop engine, remove key, and engage safety props. For instructions, see the combine operator's manual.
2. Open/remove endshields. Refer to [4.2.3 Endshields, page 35](#).
3. Remove crop divider from storage.
4. Position crop divider as shown by locating lugs (A) in holes in endsheet.

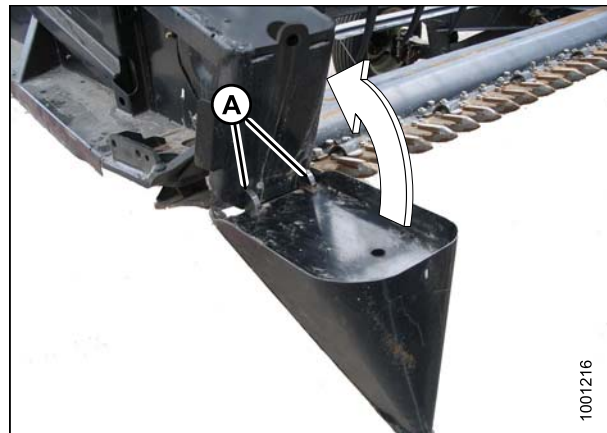


Figure 4.246: Crop Divider

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. Refer to [4.2.3 Endshields, page 35](#).

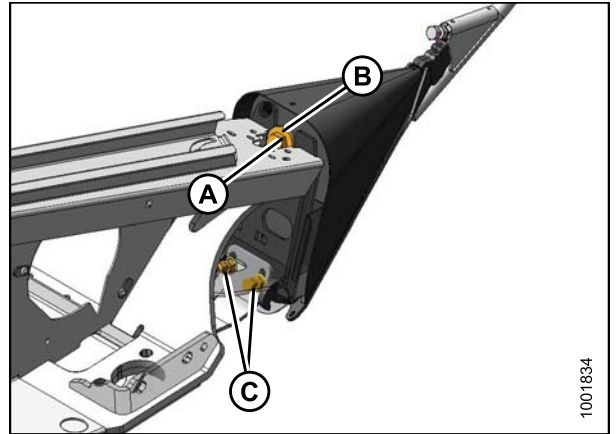


Figure 4.247: Crop Divider

4.7.13 Crop Divider Rods

Crop divider rods are used with the crop dividers. The removable divider rods are suitable when crop is down, but in standing crops, the crop dividers alone are recommended.

Table 4.8 Recommended Use of 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).

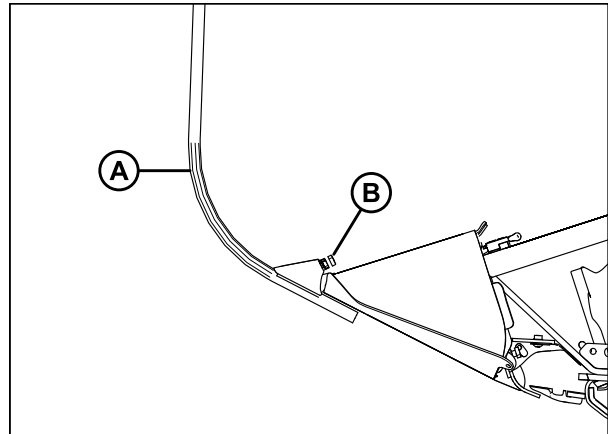


Figure 4.248: Crop Divider Rod

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

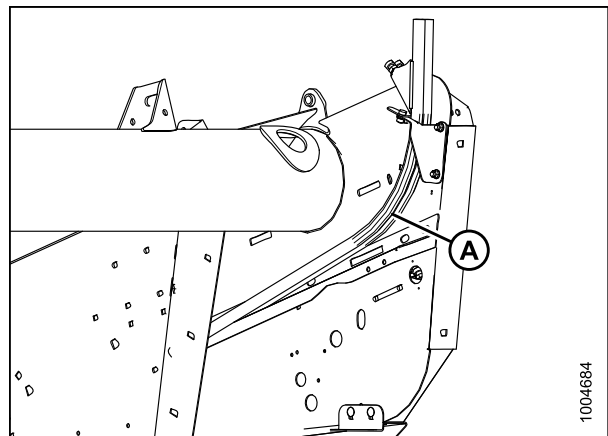


Figure 4.249: Stored Divider Rod

Using Rice Dividers

Optional special rice dividers can be installed and used when required. Refer to [8.1.11 Rice Divider Rods, page 418](#).

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

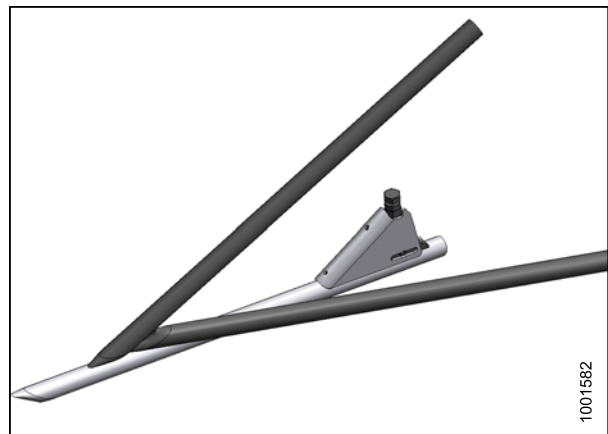


Figure 4.250: Divider Rod for Rice

4.8 Leveling 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 adapter is level and parallel with the feeder house.

NOTE:

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 header approximately 6 in. (150 mm) off ground, and check that float linkage is against down stops. Note high and low end of header.
3. Set wing float lock (A) to engaged. Refer to [6.14 Checking and Adjusting Header Wing Balance, page 390](#).
4. Check and set float adjustment. Refer to [Checking and Adjusting Header Float, page 138](#).
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.

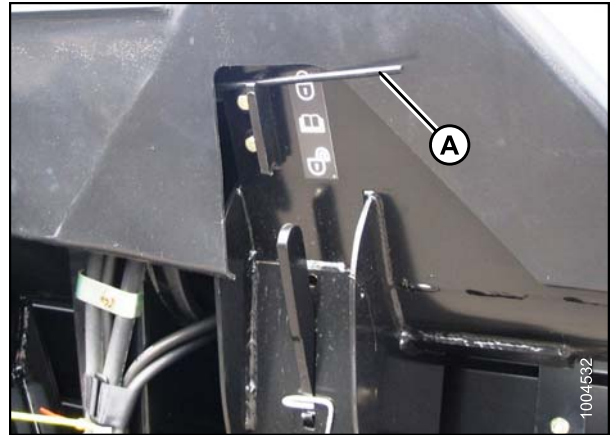


Figure 4.251: Wing Lock

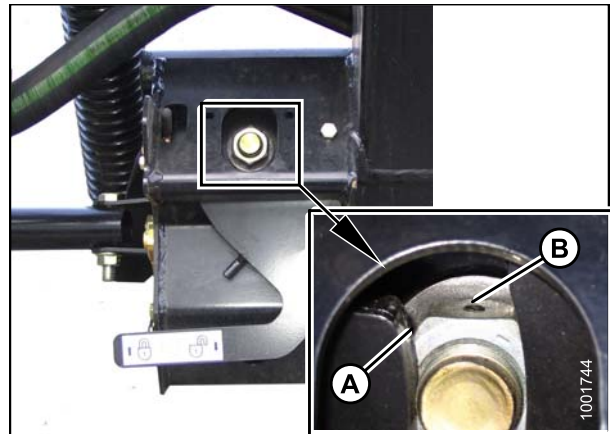


Figure 4.252: Float Lock

OPERATION

NOTE:

Always be sure there is a minimum 1/8 in. (2–3mm) clearance (A) between frame and back of bell crank lever.

NOTE:

Float should be checked after levelling header. Refer to [Checking and Adjusting Header Float, page 138](#).

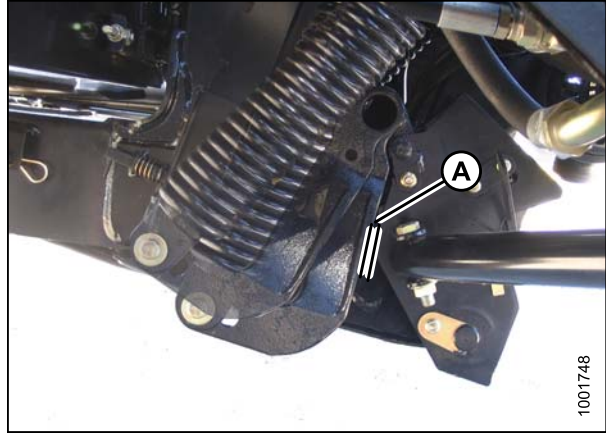


Figure 4.253: Bell Crank

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, refer to [7 Troubleshooting, page 399](#).

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 improves delivery of 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 4.254: 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.

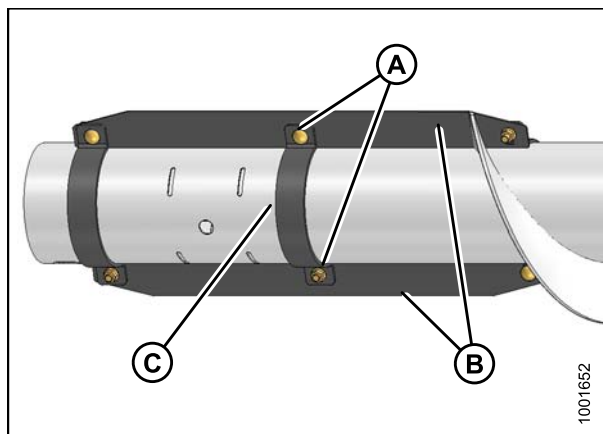


Figure 4.255: Beater Bars

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.

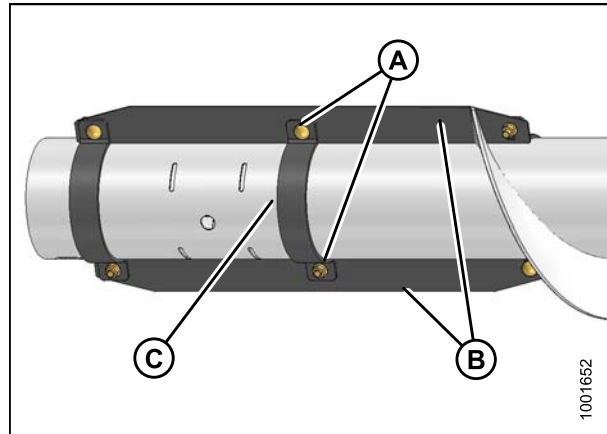


Figure 4.256: Beater Bars

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).

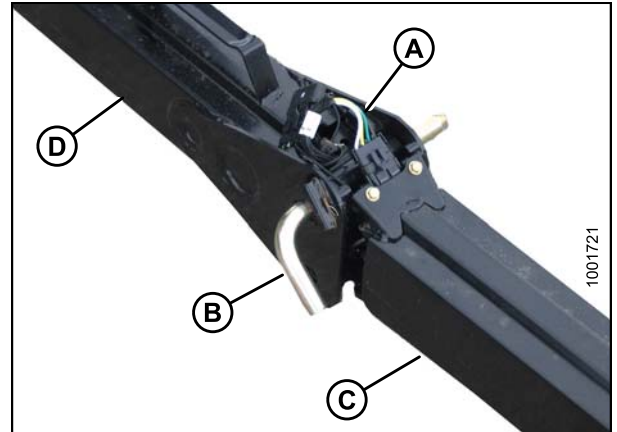


Figure 4.257: Tow-Bar Assembly

A - Wiring Connector

B - Pin

C - Outer Section

D - Inner Section

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

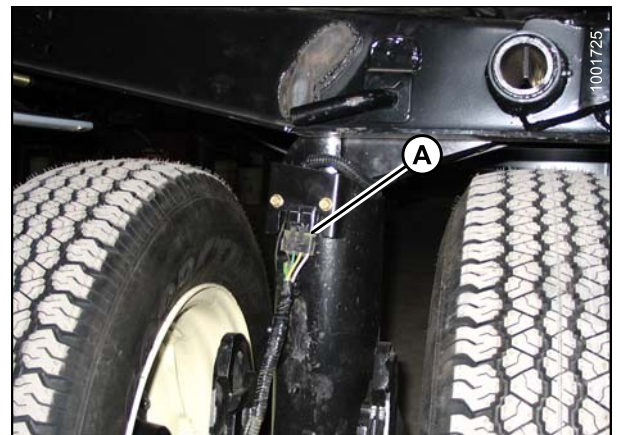


Figure 4.258: Wiring Connector

OPERATION

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

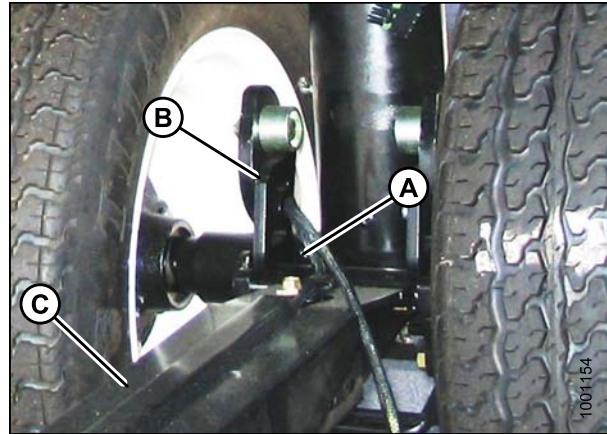


Figure 4.259: Tow-Bar Latch

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).

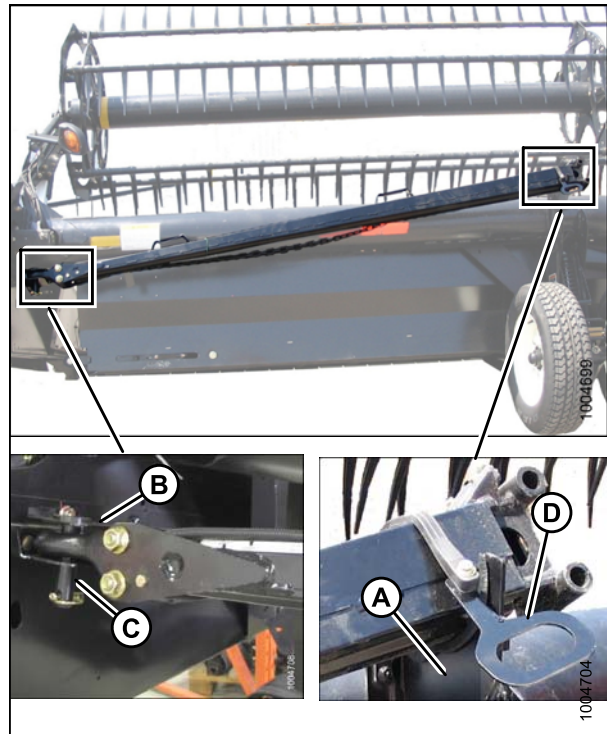


Figure 4.260: Tow-Bar Storage

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).

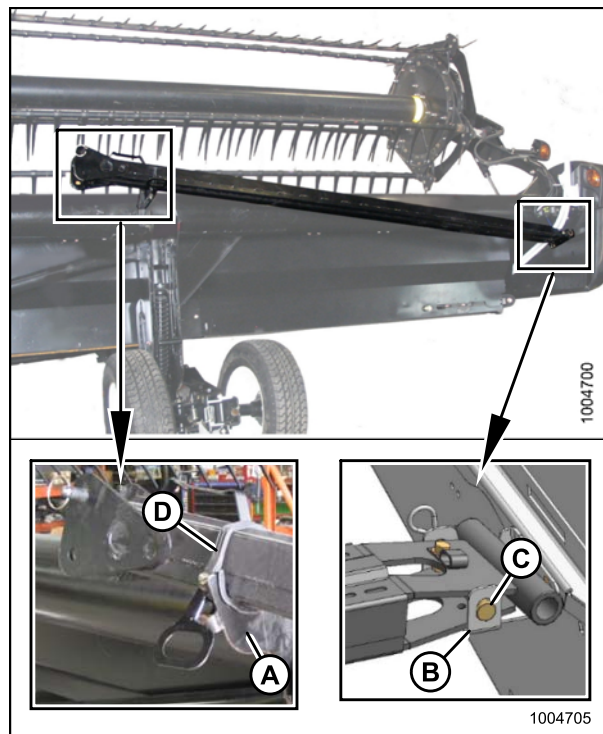


Figure 4.261: Tow-Bar Storage

A - Cradle
C - Clevis Pin

B - Support
D - Rubber Strap

7. Attach header to combine. Refer to [5 Header Attachment/Detachment, page 189](#).
8. Put front and rear transport wheels into field position. Refer to:
 - [Moving Front \(Left\) Wheels into Field Position, page 175](#)
 - [Moving Rear \(Right\) Wheels into Field Position, page 177](#)

Moving Front (Left) Wheels into Field Position

To move the front (left) transport wheels into field 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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

1. Raise header fully. Engage header safety props.

OPERATION

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.

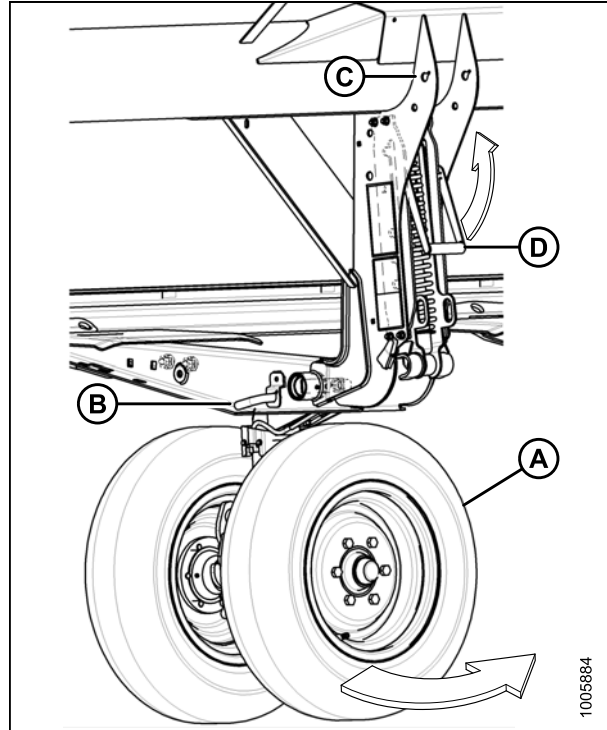


Figure 4.262: Front (Left) Wheels

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.

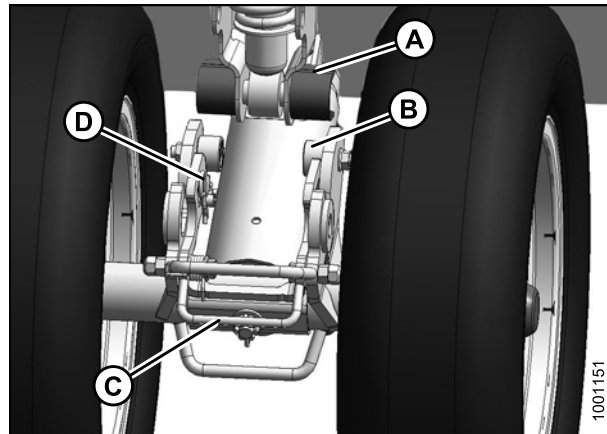


Figure 4.263: Securing Wheels

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.

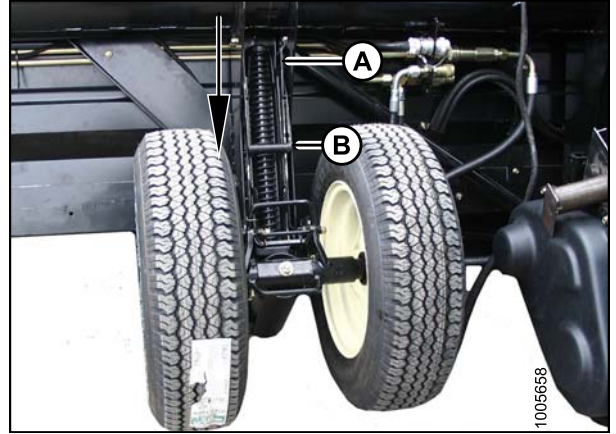


Figure 4.264: Positioning Wheels

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).

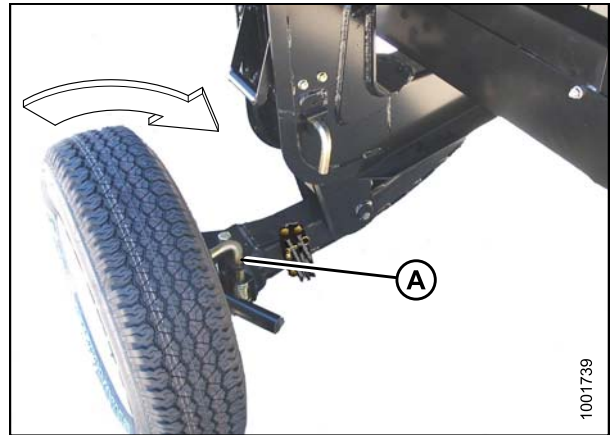


Figure 4.265: Swivelling Rear Wheel

2. Remove pin (A) and store 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.

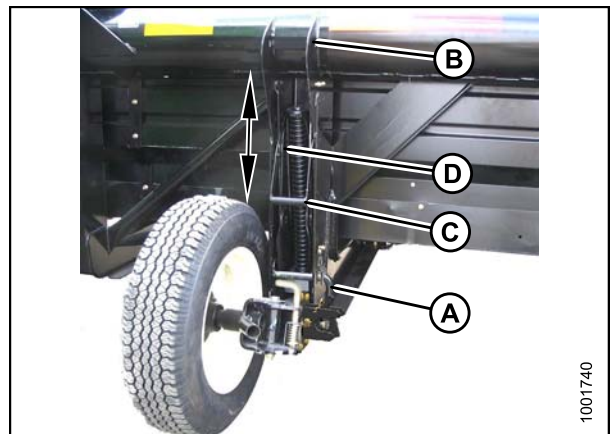


Figure 4.266: Positioning Wheel

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 (C) clockwise towards the rear of the header.

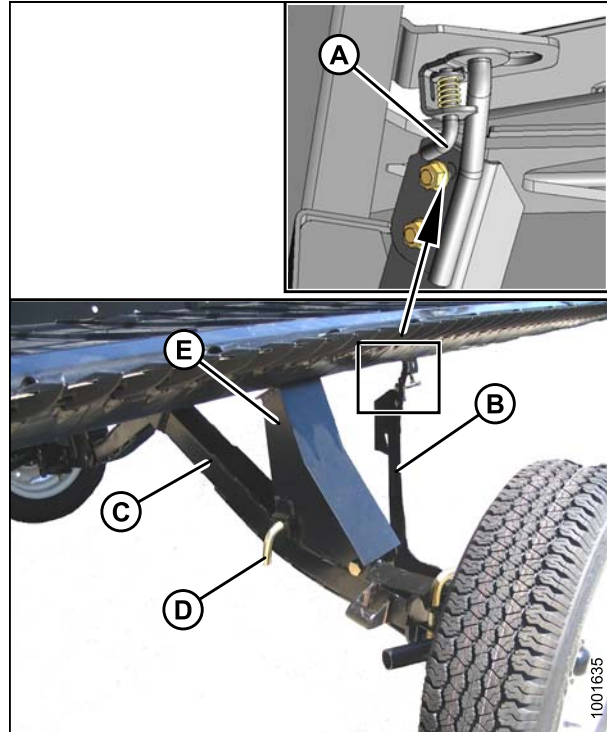


Figure 4.267: Swivelling Rear Axle

A - Pin B - Brace C - Axle
D - Pin E - Support

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.

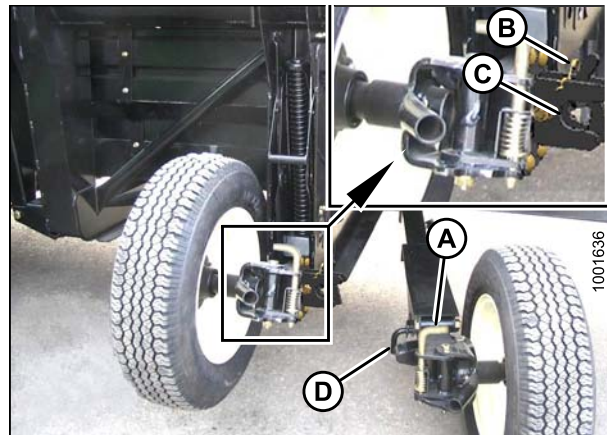


Figure 4.268: Locking Axles

A - Pin B - Hairpin
C - Latch D - Lug

OPERATION

13. The conversion is complete when the wheels are as shown.

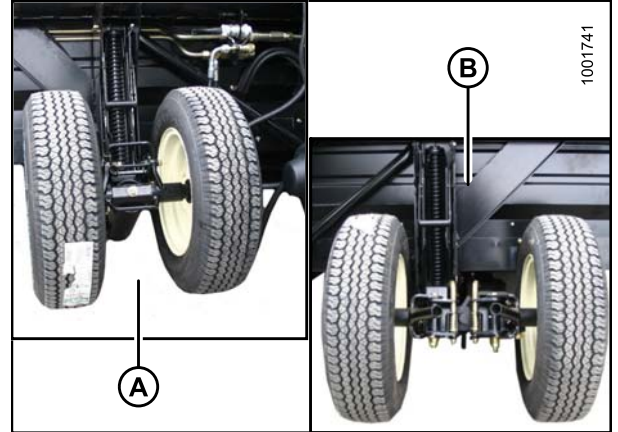


Figure 4.269: Field Position

A - Left Side

B - 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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

Moving Front (Left) Wheels into Transport Position

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

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, stop engine, and remove key from ignition. Engage header safety props.

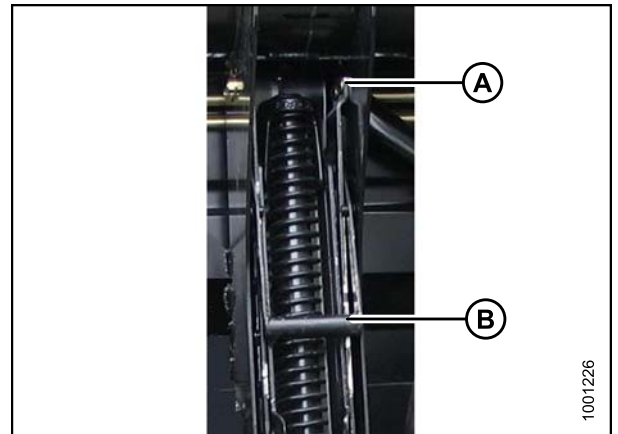


Figure 4.270: Raising Linkage

OPERATION

3. Remove hair pin and clevis pin (A).
4. Pull latch handle (B) to release suspension linkage (C) and pull suspension linkage (C) away from spindle (D).
5. Slowly lower the wheels.

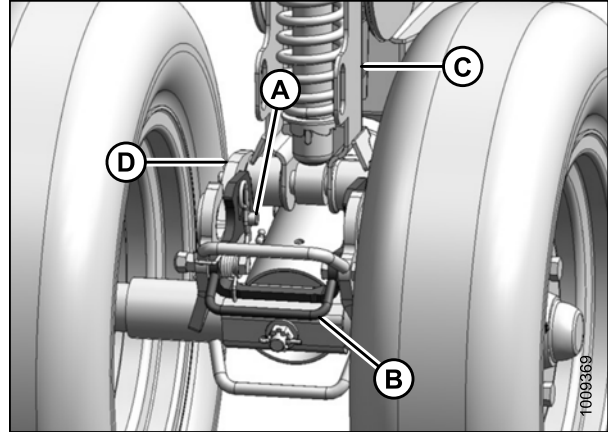


Figure 4.271: Lowering Wheels

A - Clevis Pin B - Latch Handle
C - Suspension Linkage D - Spindle

6. Lower handle (B) to lock.

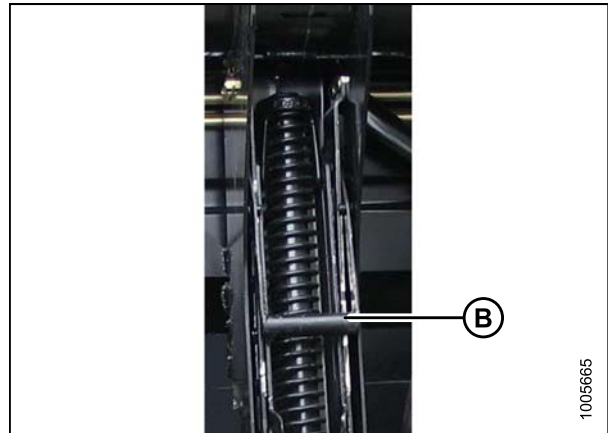


Figure 4.272: Locking Linkage

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

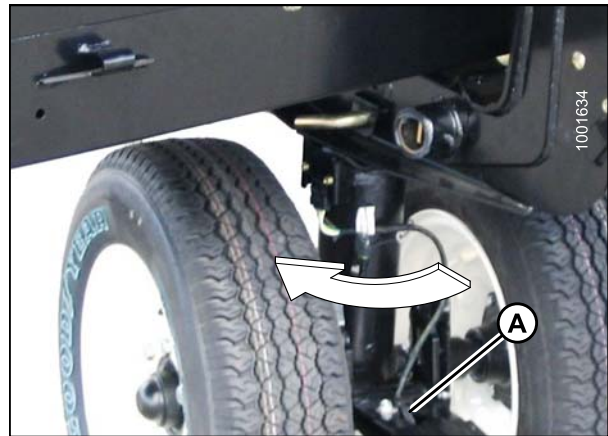


Figure 4.273: Swivelling Wheels

OPERATION

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



Figure 4.274: Locking Wheels

Moving Rear (Right) Wheels into Transport Position

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

1. Remove hairpin (A) from latch (B).
2. Lift latch (B), disengage right axle (C), 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 (D) to release the spring and let the wheel drop to the ground.
4. Lift wheel and linkage with handle (E) and position linkage in second slot from bottom.
5. Lower handle (C) to lock.

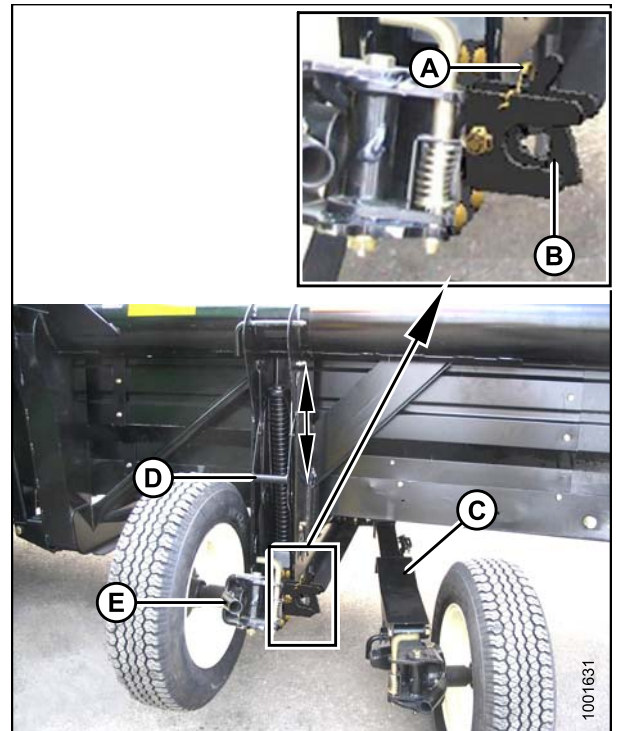


Figure 4.275: Separating Axles

OPERATION

- Remove pin (A) and install at (B) to secure linkage. Turn pin (A) to lock.
- Pull pin (D), swivel wheel (C) counterclockwise 90 degrees, and re-lock with pin (D).

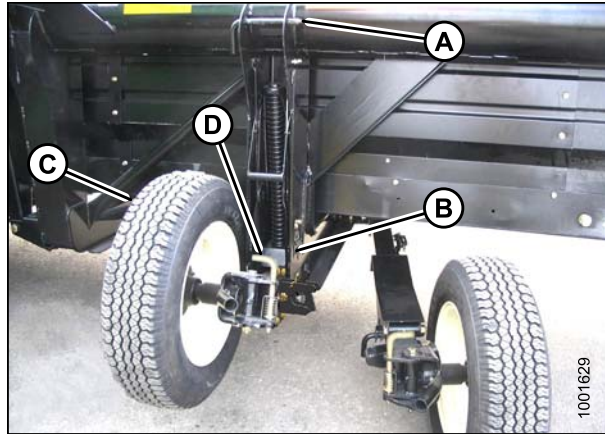


Figure 4.276: Positioning Wheel

A - Pin
B - Pin Installation Location
C - Left Wheel
D - Pin

- Left wheel is now in Transport position as shown.



Figure 4.277: Transport Position

- Pull pin (A), and swivel wheel (B) clockwise 90 degrees.

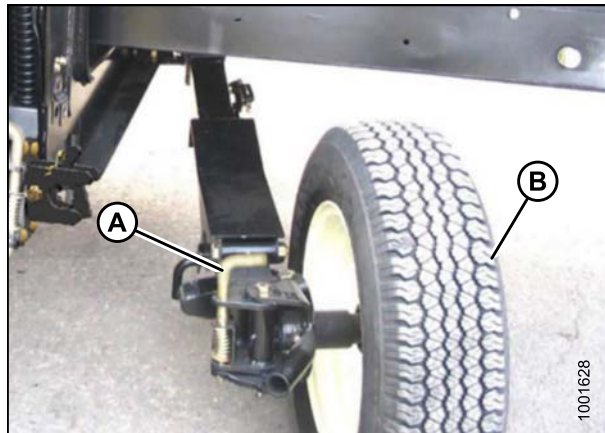


Figure 4.278: Right Rear Wheel

OPERATION

10. Lock wheel (A) with pin (B). Move the right axle (C) to front of header.

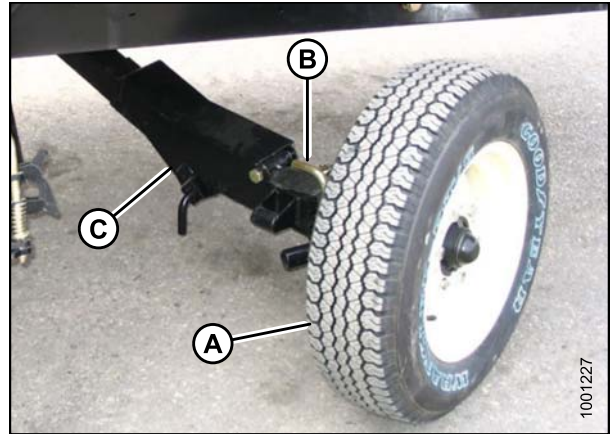


Figure 4.279: Right Rear Wheel

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 (E) 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 [5 Header Attachment/Detachment, page 189](#).
15. Start combine and lower header to the ground.

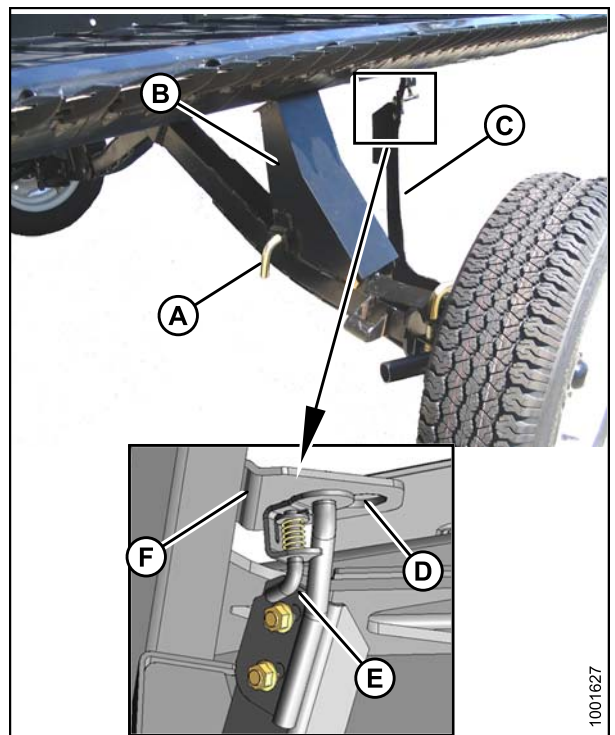


Figure 4.280: Positioning Right Rear Wheel

OPERATION

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. Remove clevis pin (C). Detach tube end from support (B).
3. Replace clevis pin.
4. Lift inner half of tow-bar off of header, and place it near the left side of the header.

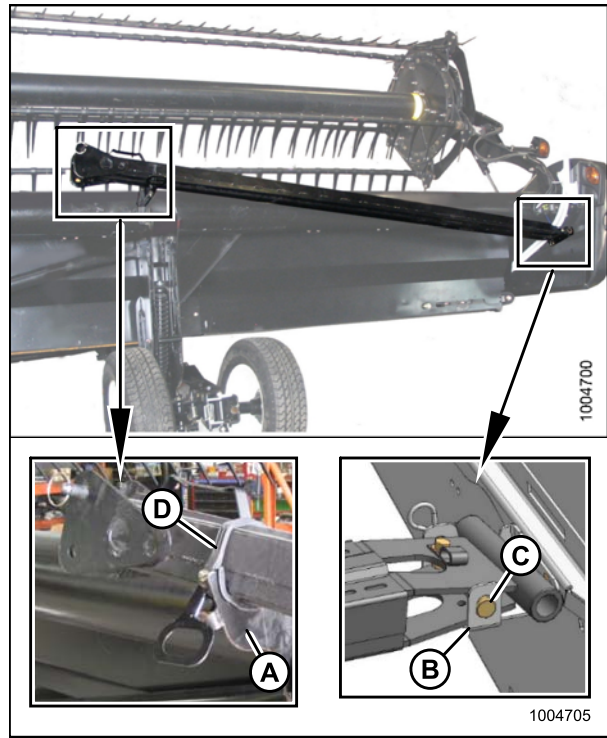


Figure 4.281: Removing Tow-Bar

5. At left side of the header, unhook rubber strap (D) on cradle (A).
6. Remove hitch pin (C) from support (B), and remove tow-bar.
7. Install rubber strap (D) on cradle (A).

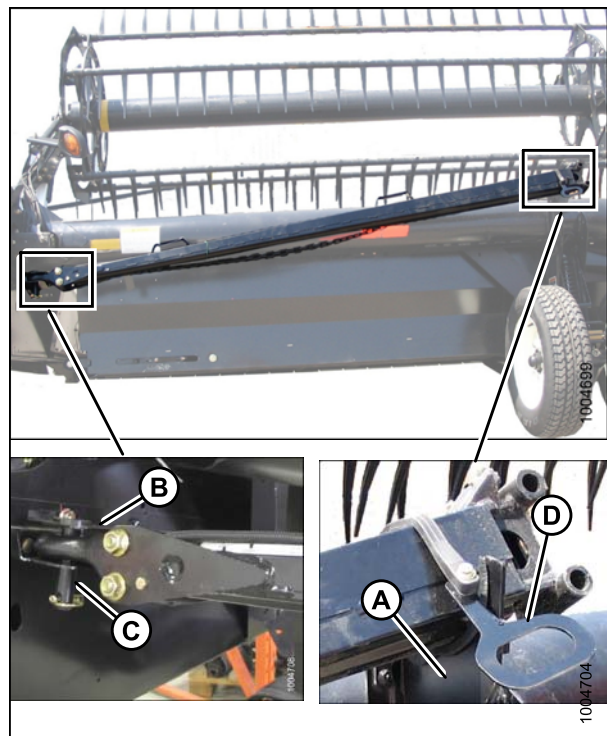


Figure 4.282: Removing Tow-Bar

OPERATION

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

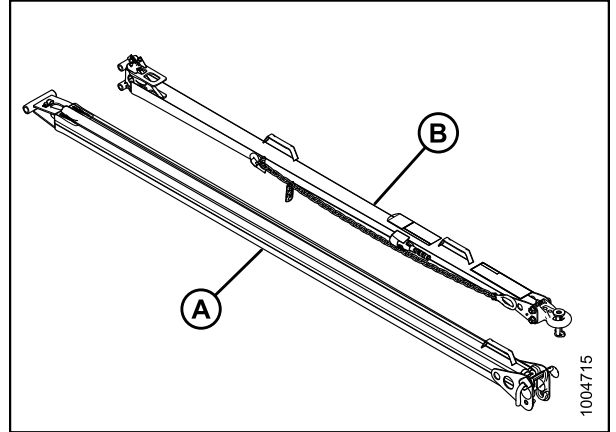


Figure 4.283: Assembling Tow-Bar

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

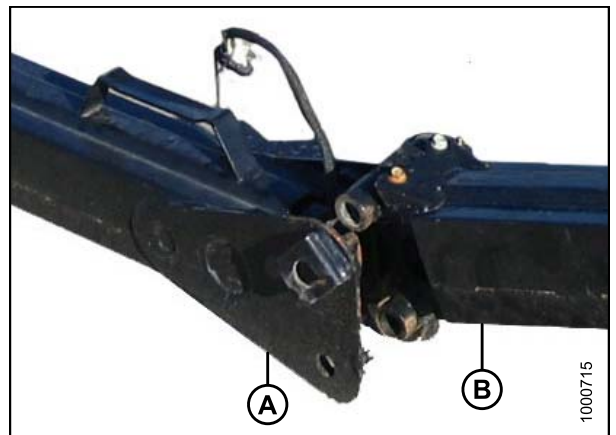


Figure 4.284: Assembling Tow-Bar

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

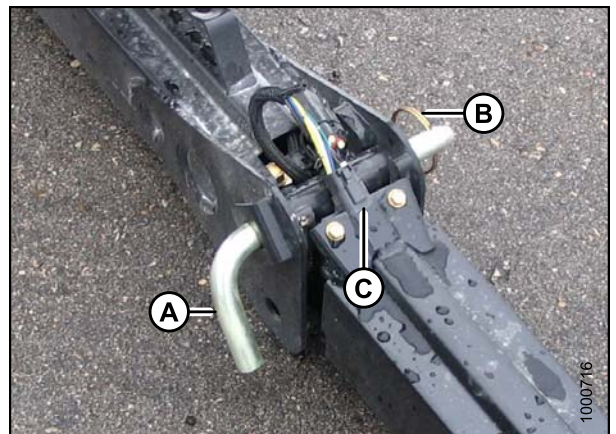


Figure 4.285: Assembling Tow-Bar

OPERATION

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.

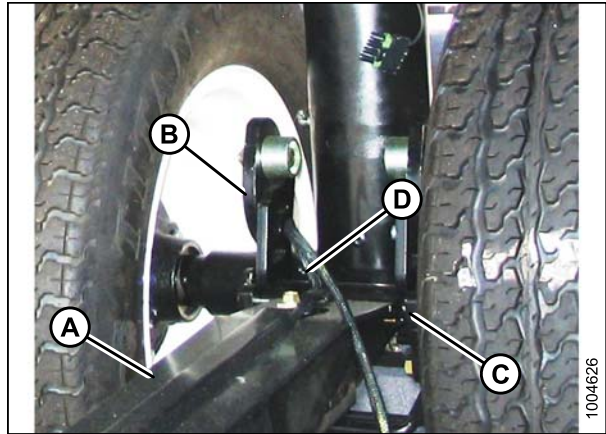


Figure 4.286: Attaching Tow-Bar

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



Figure 4.287: Connecting Harness

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	5.2 Case IH Combines, page 191
John Deere 60, 70, and S Series	5.3 John Deere Combines, page 198
Lexion 500, 700 (R Series)	5.4 Lexion Combines, page 205
New Holland CR, CX	5.5 New Holland Combines, page 213
AGCO Gleaner R and S Series, Challenger 660, 670, 680B, 540C, 560C, Massey 9690, 9790, 9895, 9520, 9540, 9560	5.6 AGCO Combines, page 221

NOTE:

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 [7 Troubleshooting, page 399](#).

5.1.1 Using Flighting Extensions

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

Refer to [8.1.6 CA25 Feed Auger Flighting, page 417](#) for more information.

For servicing information, refer to:

- [Installing Flighting Extensions, page 298](#)
- [Removing Flighting Extensions, page 299](#)

5.1.2 Using 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.

For servicing information, refer to [6.10 Adapter Stripper Bars and Feed Deflectors, page 332](#).

5.1.3 Adjusting Auger Speed

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.

5.2 Case IH Combines

5.2.1 Attaching Header to Case IH Combine

To attach the FD75 header to a Case IH combine, follow these steps.

1. Start engine and slowly drive combine up to header until feeder house saddle (A) is directly under the adapter top cross member (B).
2. Raise feeder house slightly to lift header, 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.

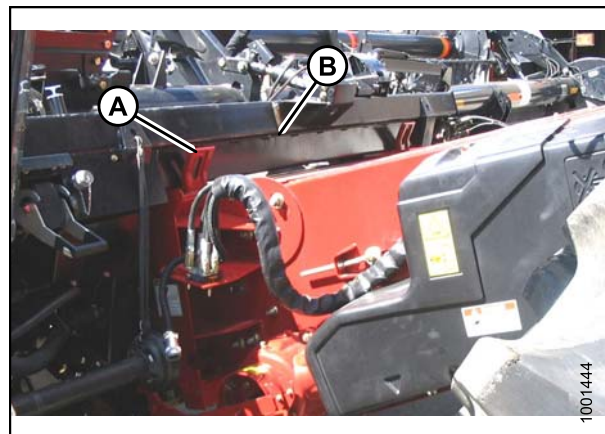


Figure 5.1: Combine and Adapter

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.

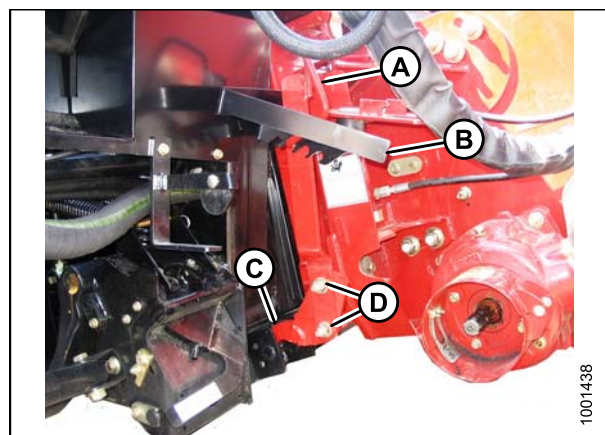


Figure 5.2: Combine and Adapter

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

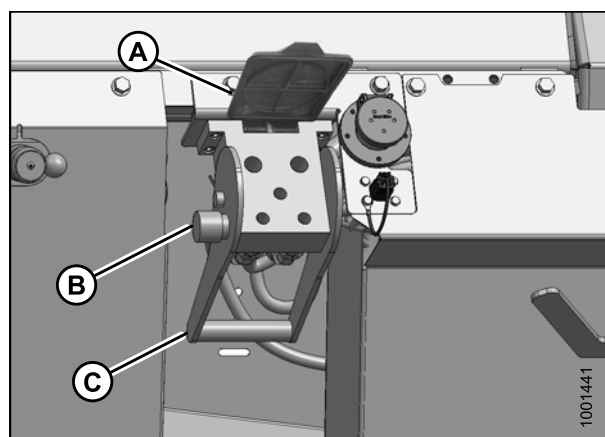


Figure 5.3: Hydraulic Receptacle

HEADER ATTACHMENT/DETACHMENT

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

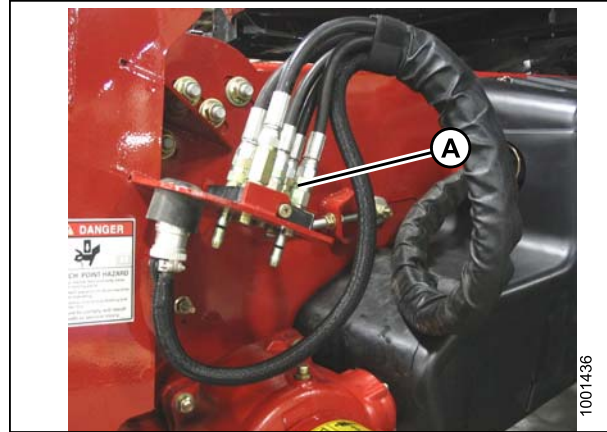


Figure 5.4: Combine

10. Position onto header 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.

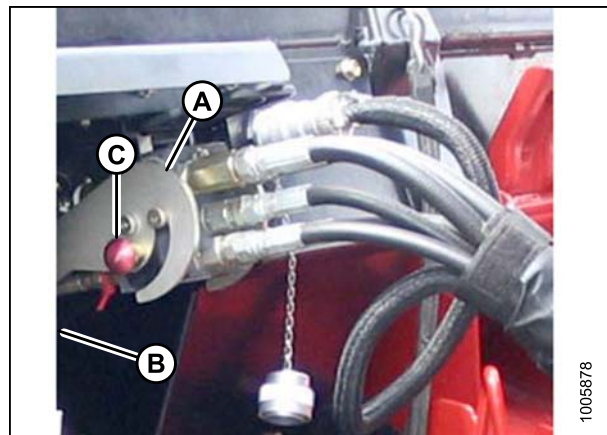


Figure 5.5: Hydraulic Connection

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

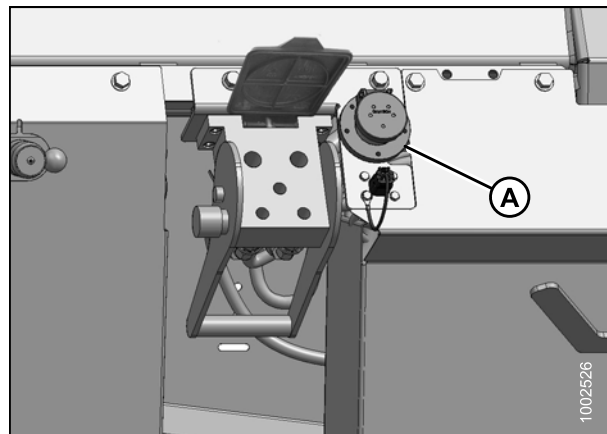


Figure 5.6: Electrical Receptacle

HEADER ATTACHMENT/DETACHMENT

13. Remove electrical connector (A) from storage cup on combine, and route to adapter receptacle.

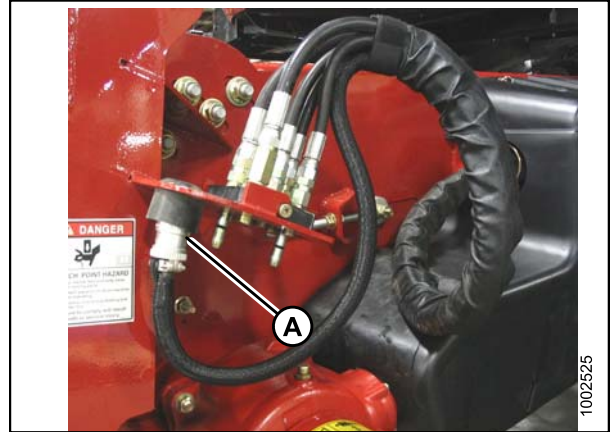


Figure 5.7: Combine

14. Align lugs on connector (A) with slots in receptacle (B), push connector onto receptacle, and turn collar on connector to lock it in place.

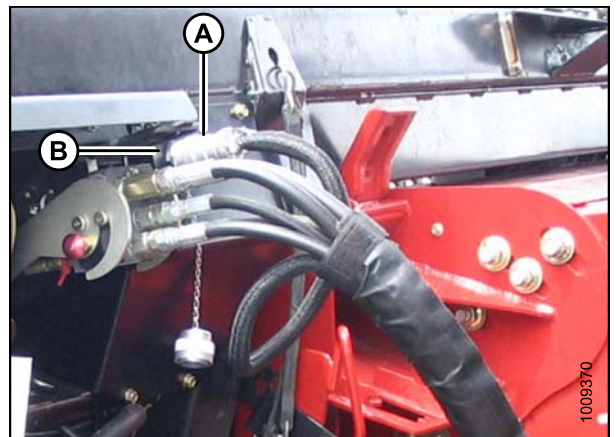


Figure 5.8: Electrical Connection

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

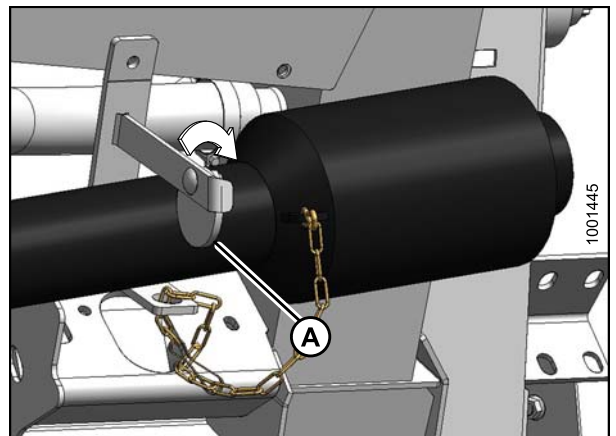


Figure 5.9: Disc on Adapter Driveline Storage Hook

HEADER ATTACHMENT/DETACHMENT

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

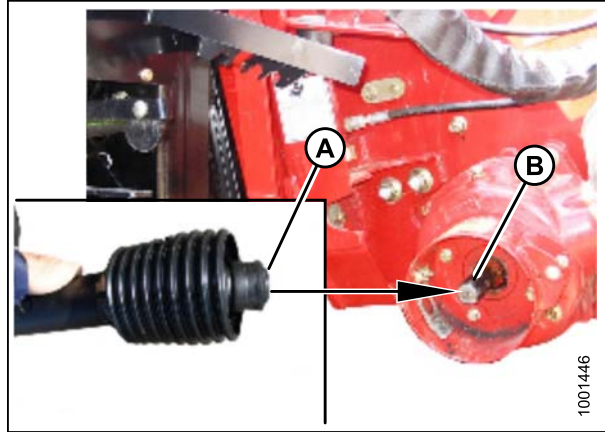


Figure 5.10: Combine Output Shaft

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

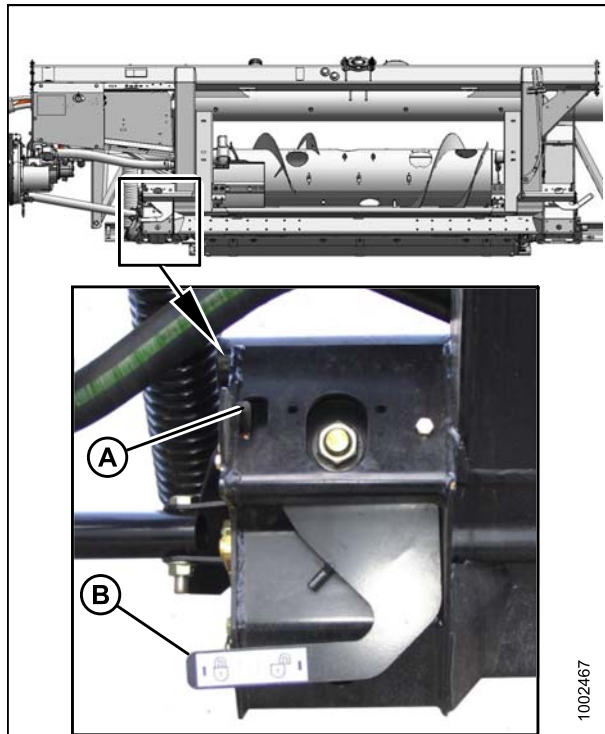


Figure 5.11: Float Lock

5.2.2 Detaching Header from Case IH Combine

To detach the header from a Case IH combine, 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. Refer to the combine operator's manual for instructions regarding the proper 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 float locks by moving lever (A) upwards 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 [4.7.1 Cutting Height, page 51](#).

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 [4.7.1 Cutting Height, page 51](#).



Figure 5.12: Detaching Header

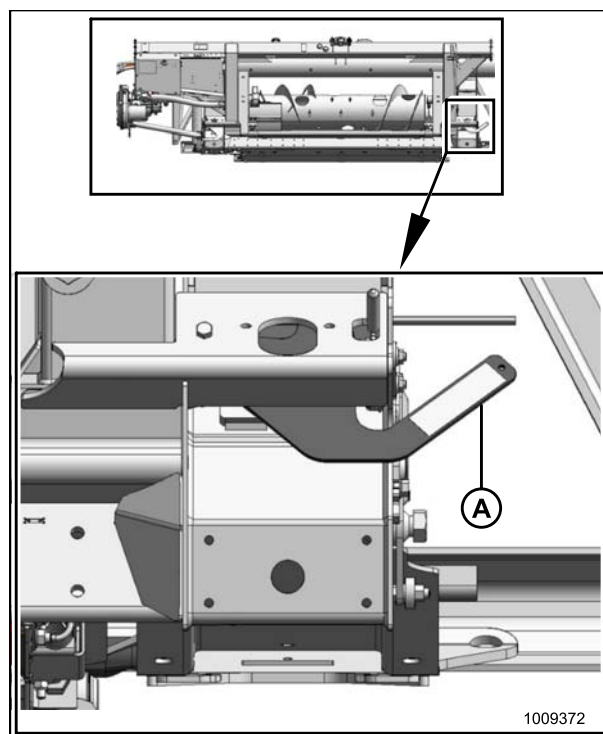


Figure 5.13: Float Locked

HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveline (A) from combine.

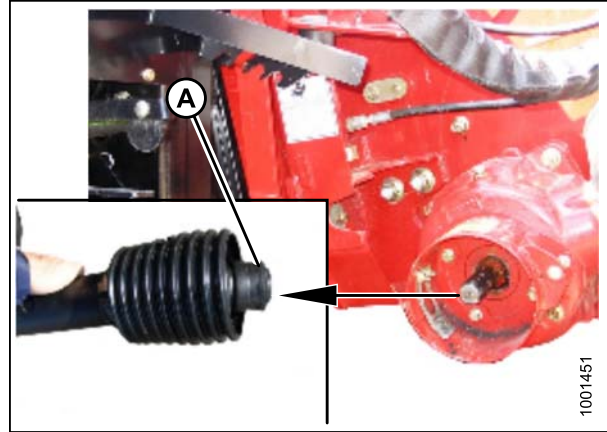


Figure 5.14: Driveline

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

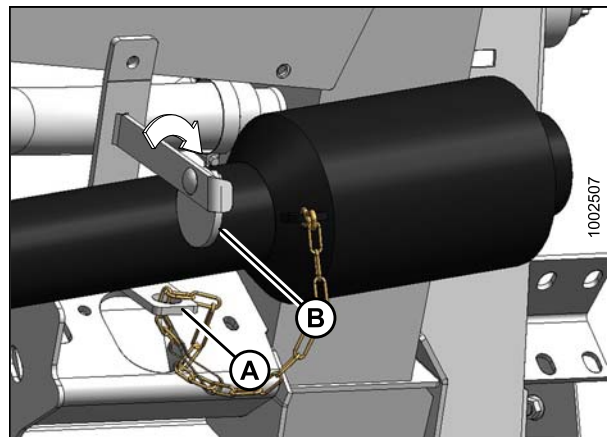


Figure 5.15: Driveline

5. Remove electrical connector (A), and replace cover (B).
6. Push in lock button (C), and pull handle (D) to release coupler (E).

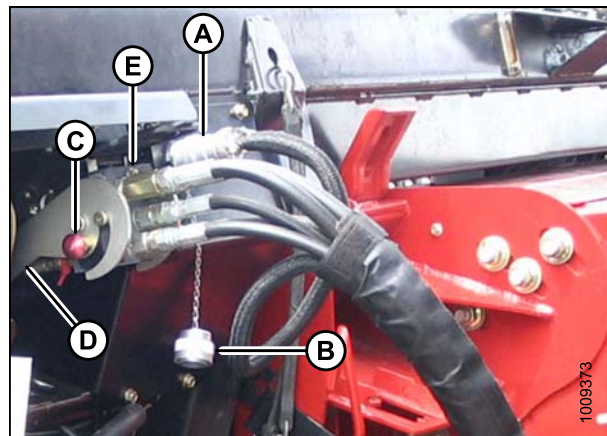


Figure 5.16: Multicoupler

HEADER ATTACHMENT/DETACHMENT

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

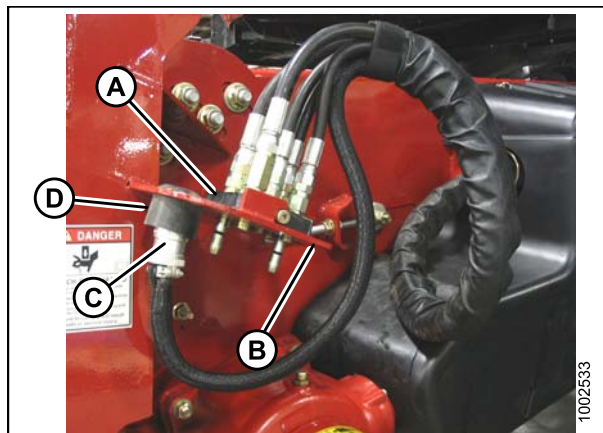


Figure 5.17: Coupler Storage

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

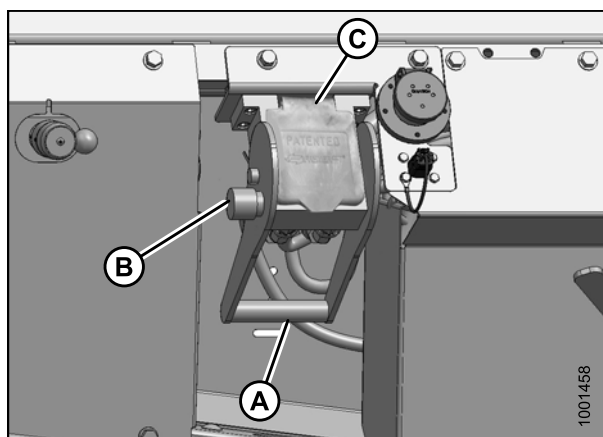


Figure 5.18: Header Receptacle

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

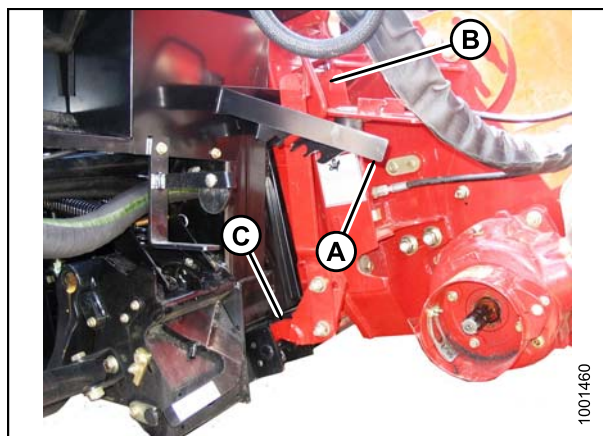


Figure 5.19: Feeder House Locks

5.3 John Deere Combines

5.3.1 Attaching Header to John Deere Combine

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

1. Push handle (A) on combine coupler receptacle toward feeder house to retract pins (B) at bottom corners of feeder house. Clean receptacle.
2. Start engine and slowly drive combine up to header until feeder house saddle (C) is directly under the adapter top cross member (D).
3. Raise feeder house to lift header, 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. Stop engine and remove key from ignition.
6. Pull handle (A) on adapter to release coupler (B) from storage position. Remove coupler, and push handle back into adapter to store.

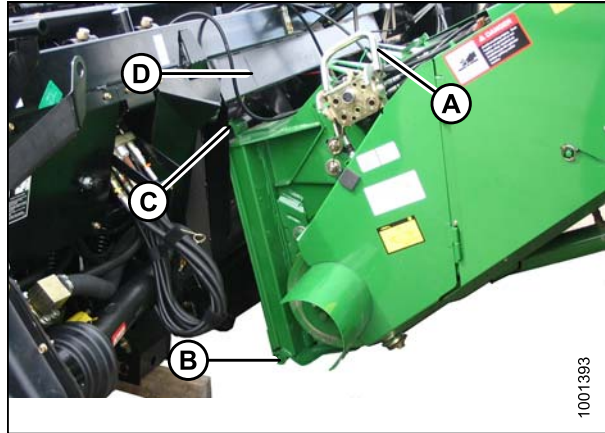


Figure 5.20: Combine and Adapter

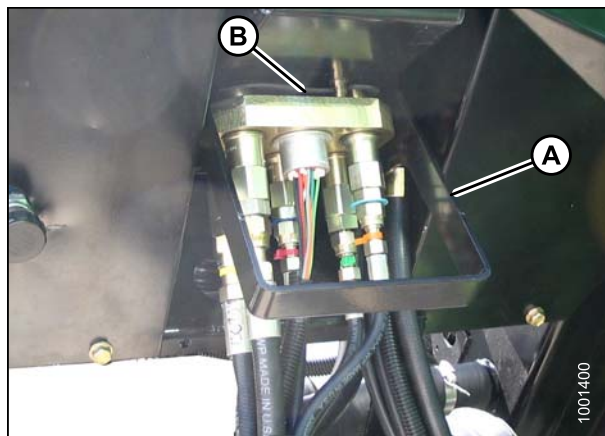


Figure 5.21: Coupler Storage

HEADER ATTACHMENT/DETACHMENT

7. Position coupler (A) onto receptacle, and pull handle (B) so that lugs on coupler are engaged into handle.
8. Pull handle (B) to full horizontal position to fully engage coupler (A) into receptacle and the two feeder house pins (C) into adapter brackets.
9. Check that bolts (D) are tight.

NOTE:

If pins (C) do not fully engage adapter brackets, loosen bolts (D) and adjust bracket as required. Retighten bolts.

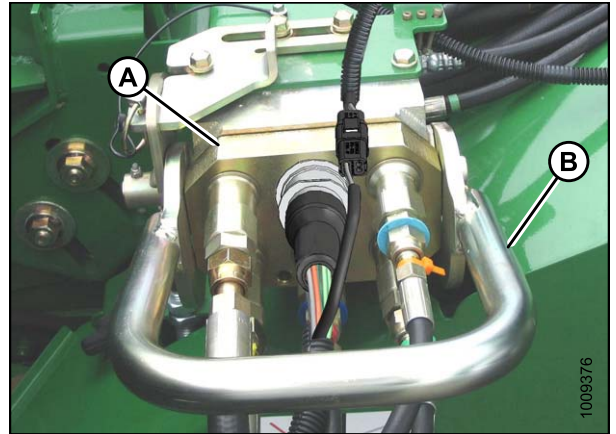


Figure 5.22: Coupler

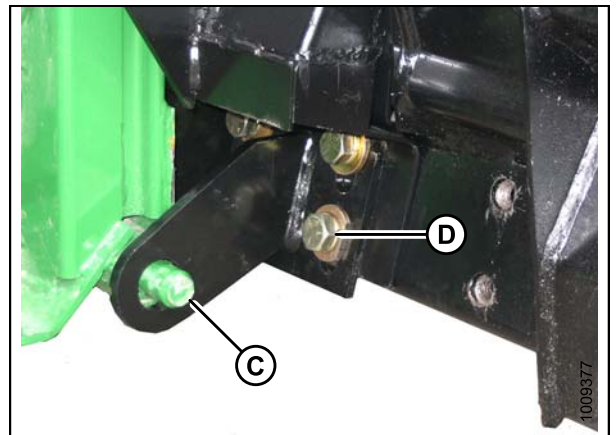


Figure 5.23: Feeder House Pin

10. Slide latch (A) to lock handle (B) in position, and secure with lynch pin (C).
11. If adapter is equipped with reel fore-aft/header tilt selector, connect harness (D) to combine connector (E).

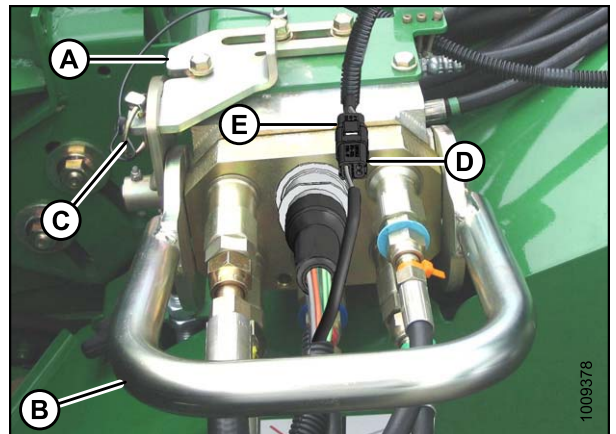


Figure 5.24: Coupler

HEADER ATTACHMENT/DETACHMENT

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

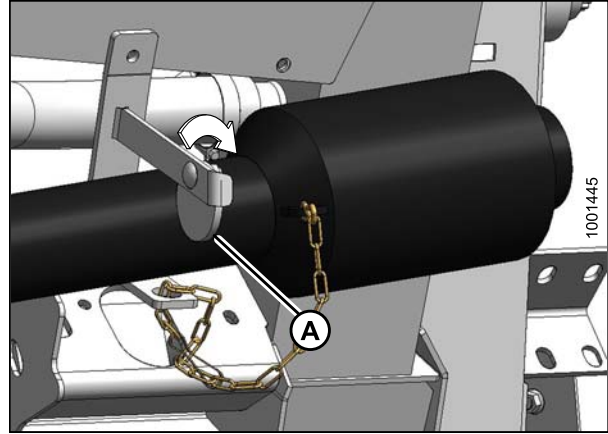


Figure 5.25: Driveline

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

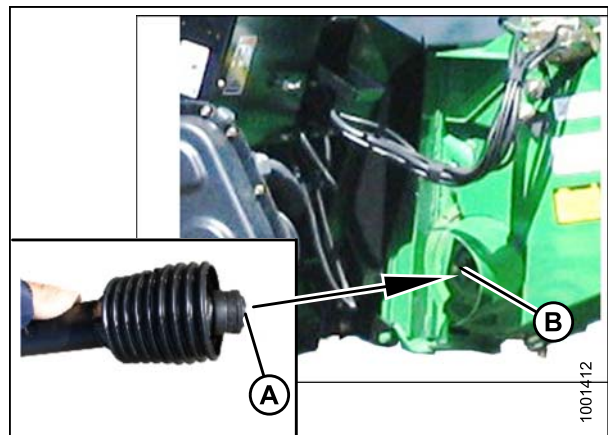


Figure 5.26: Driveline

5.3.2 Detaching Header from John Deere Combine

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. Refer to the combine operator's manual for instructions regarding the proper 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 header float locks by lifting lever (A) at each 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 [4.7.1 Cutting Height, page 51](#).

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 [4.7.1 Cutting Height, page 51](#).



Figure 5.27: Detaching Header

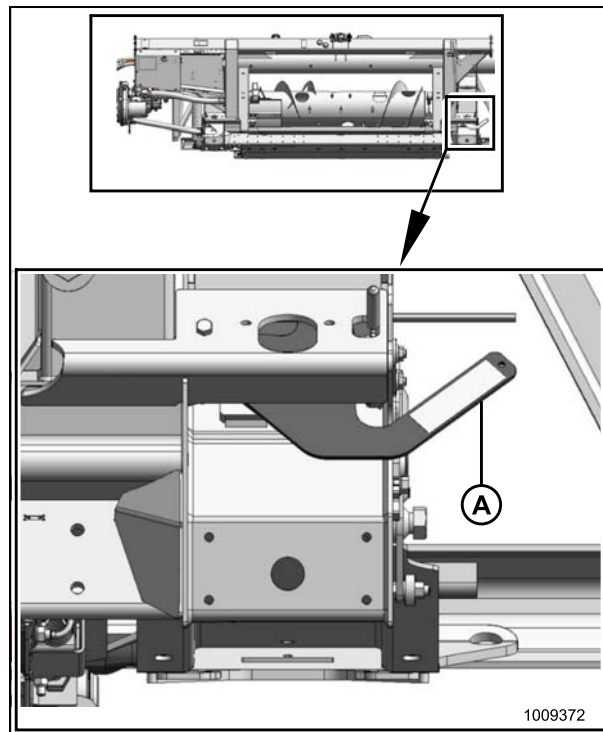


Figure 5.28: Float Locked

HEADER ATTACHMENT/DETACHMENT

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

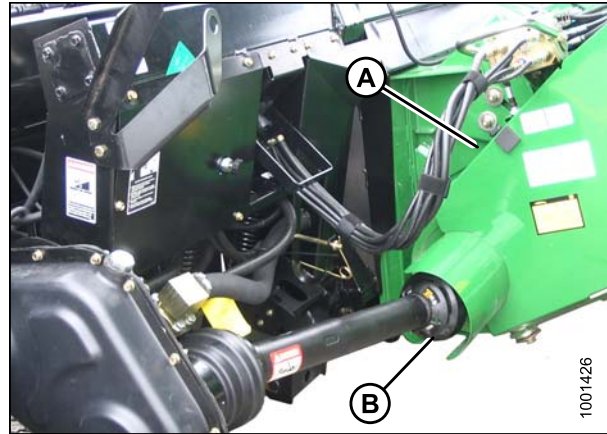


Figure 5.29: Driveline

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

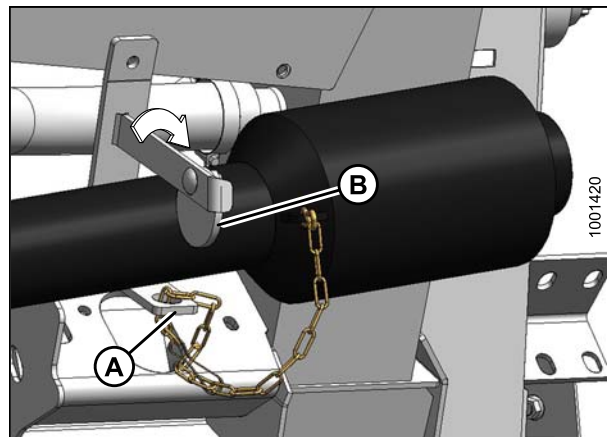


Figure 5.30: Driveline

5. Lift handle (A) on adapter.

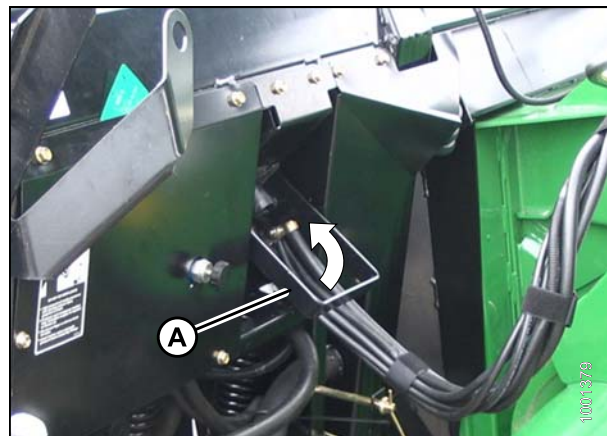


Figure 5.31: Coupler Storage

HEADER ATTACHMENT/DETACHMENT

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

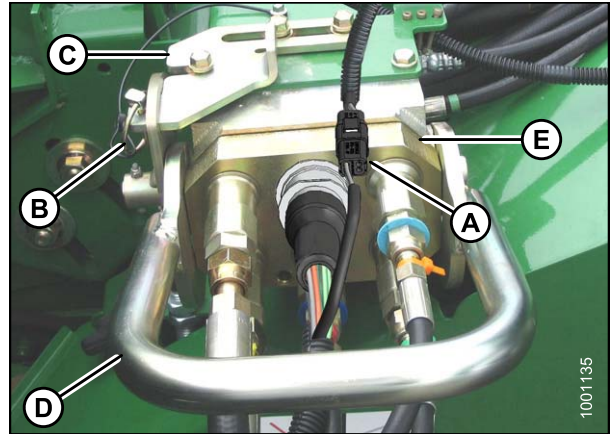


Figure 5.32: Multicoupler

A - Connector
B - Lynch pin
C - Lock
D - Handle
E - Hydraulic/electrical Coupler

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

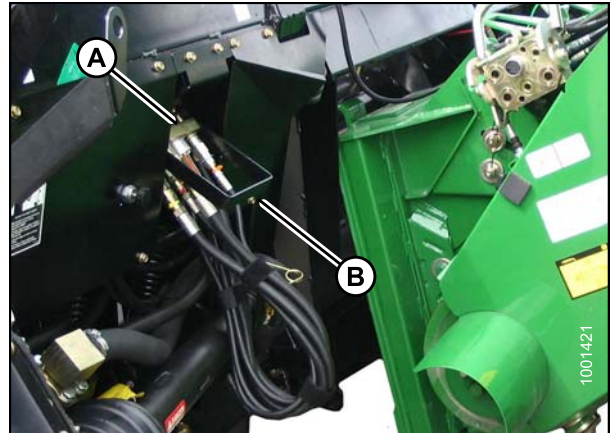


Figure 5.33: Coupler Storage

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

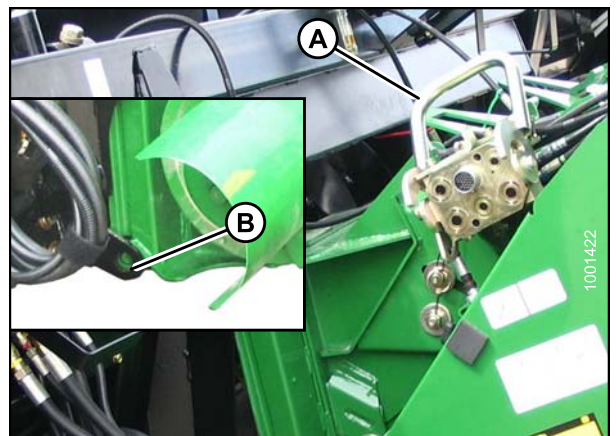


Figure 5.34: Feeder House Locks

HEADER ATTACHMENT/DETACHMENT

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

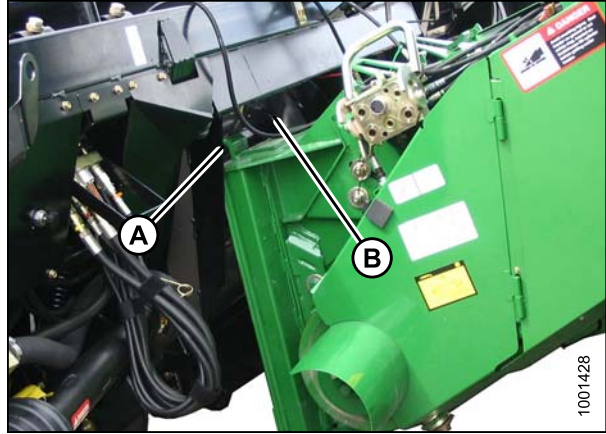


Figure 5.35: Header/Feeder House

5.4 Lexion Combines

5.4.1 Attaching Header to Lexion Combine

To attach header to the combine, follow these steps:

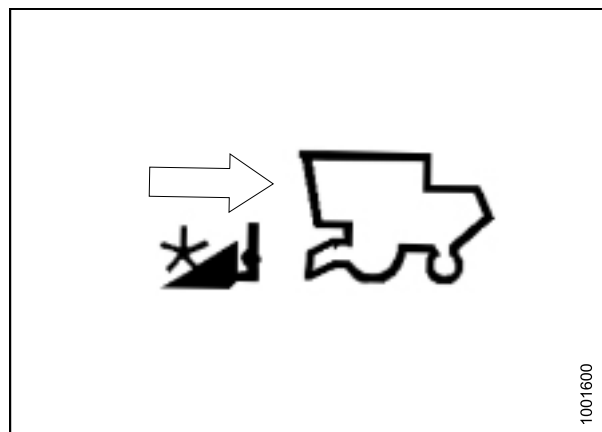


Figure 5.36: Attaching Header

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

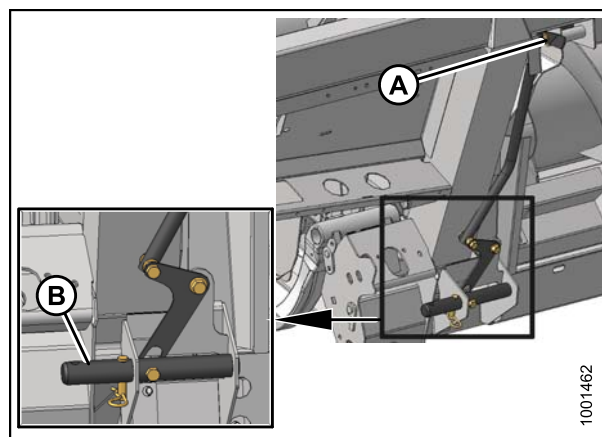


Figure 5.37: Pins Retracted

3. Raise feeder house to lift header, 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.

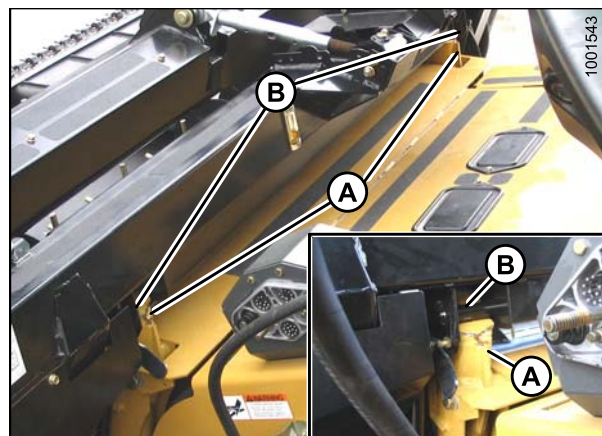


Figure 5.38: Header on Combine

HEADER ATTACHMENT/DETACHMENT

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

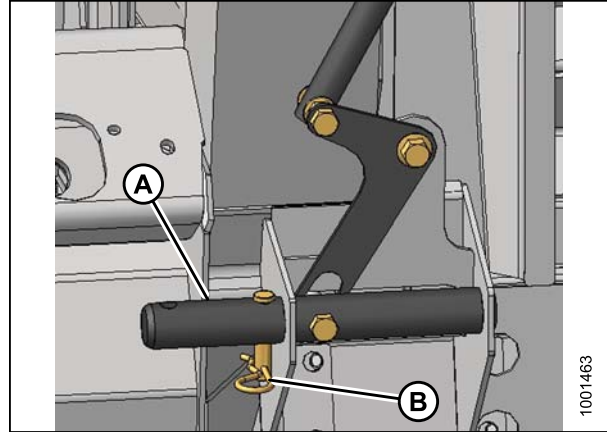


Figure 5.39: Locking Pins

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

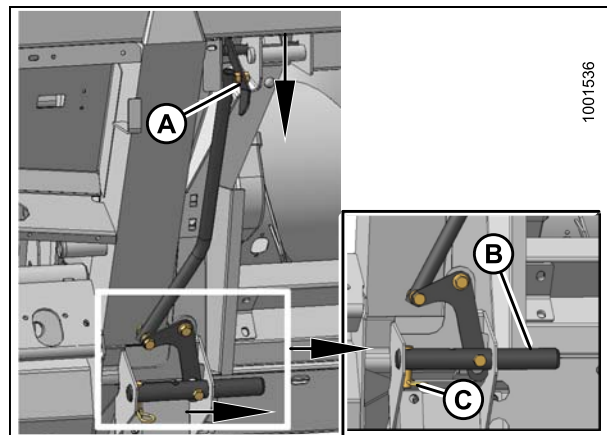


Figure 5.40: Engaging Pins

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

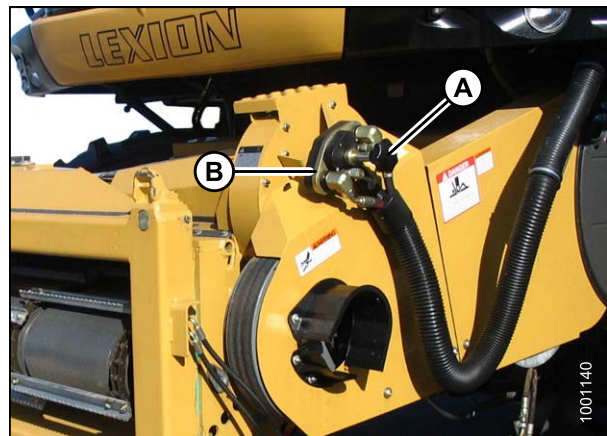


Figure 5.41: Combine Coupler

HEADER ATTACHMENT/DETACHMENT

- Place cover (A) onto combine receptacle.

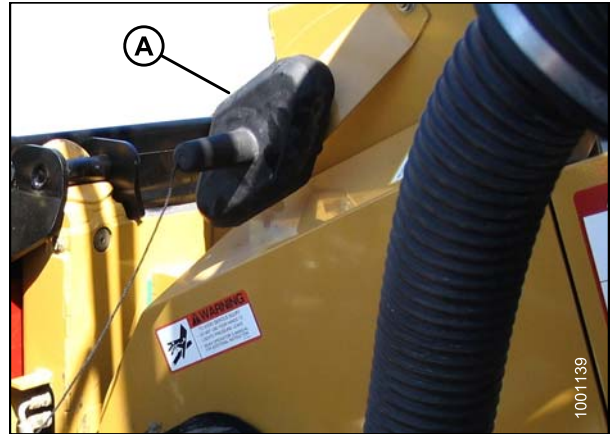


Figure 5.42: Receptacle Cover

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

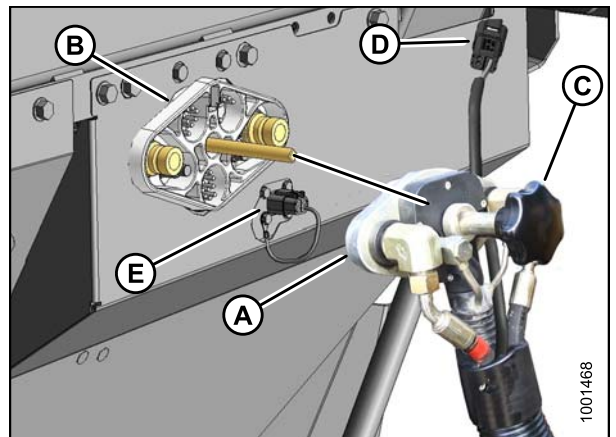


Figure 5.43: Coupler

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

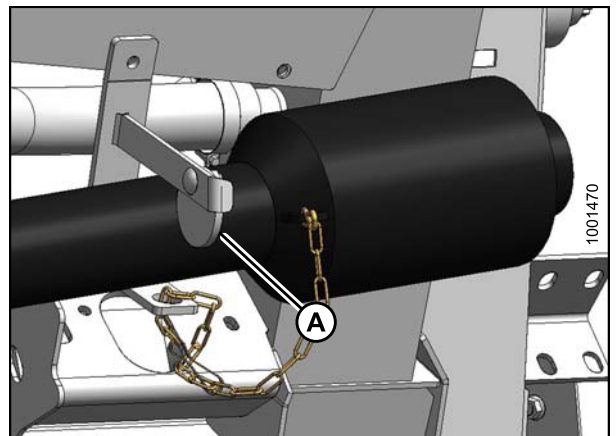


Figure 5.44: Driveline

HEADER ATTACHMENT/DETACHMENT

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



Figure 5.45: Driveline and Output Shaft

5.4.2 Detaching Header from Lexion Combine

To detach a header from combine, 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. Refer to the combine operator's manual for instructions regarding the proper 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 [4.7.1 Cutting Height, page 51](#).

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 [4.7.1 Cutting Height, page 51](#).



Figure 5.46: Detaching Header

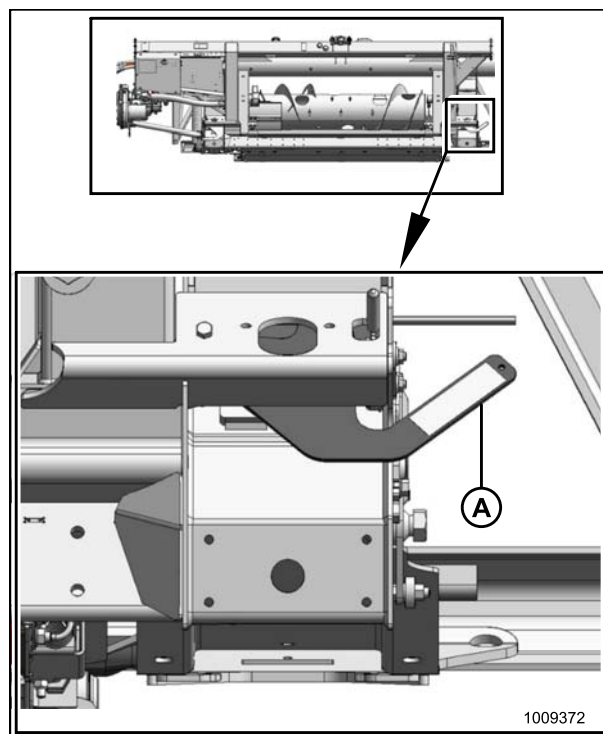


Figure 5.47: Float Locked

HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveline (A) from combine.



Figure 5.48: Driveline

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

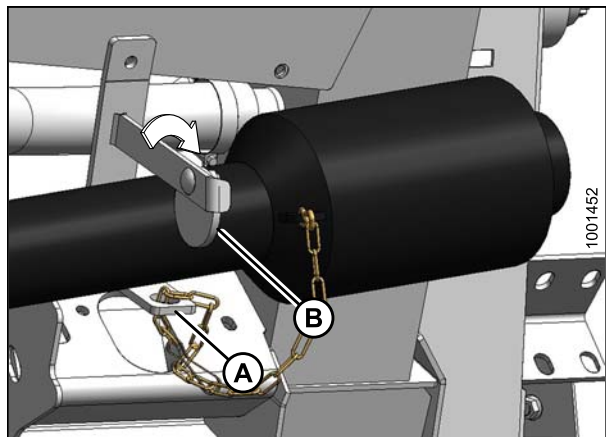


Figure 5.49: Driveline

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

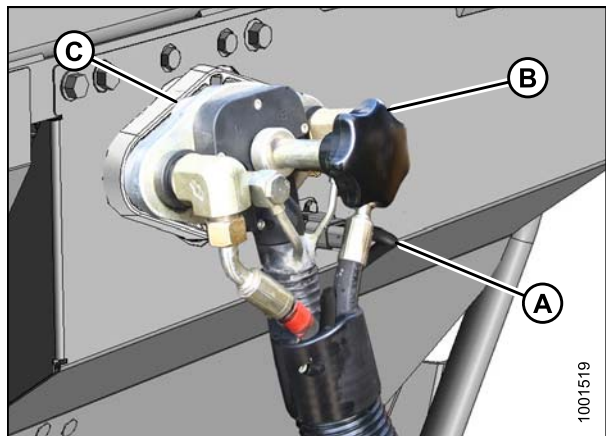


Figure 5.50: Coupler

HEADER ATTACHMENT/DETACHMENT

7. Remove cover (A) from combine receptacle.

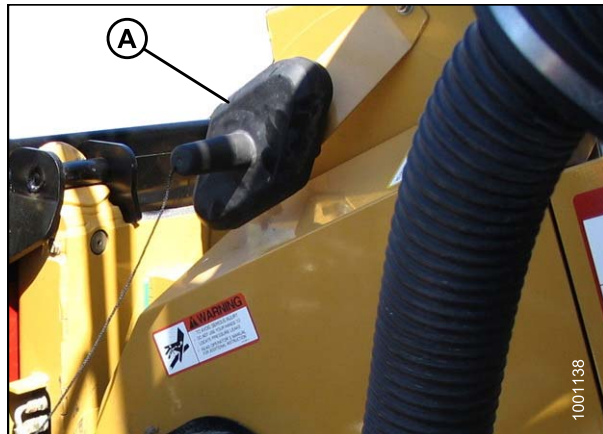


Figure 5.51: Cover

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

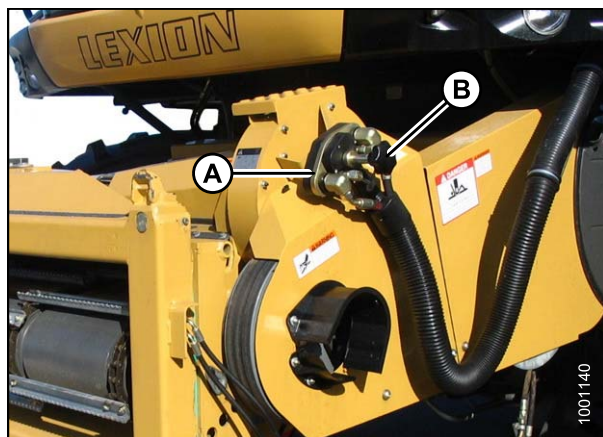


Figure 5.52: Combine Coupler

9. Place cover (A) on adapter receptacle.

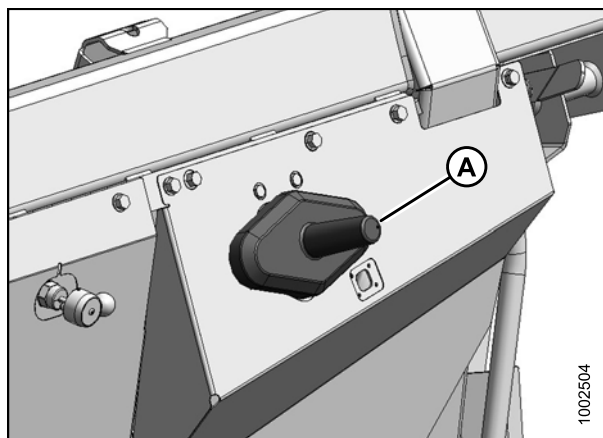


Figure 5.53: Adapter

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.

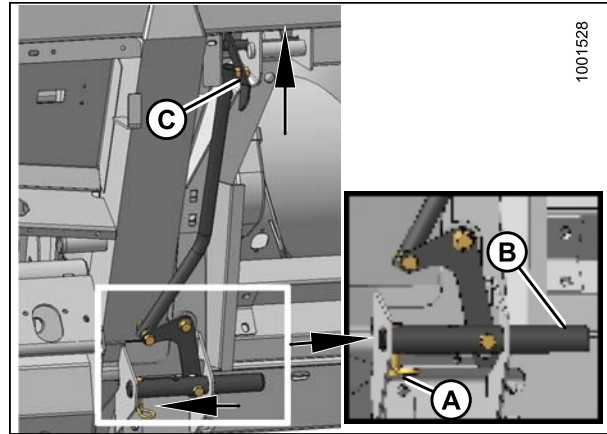


Figure 5.54: Feeder House Locks

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

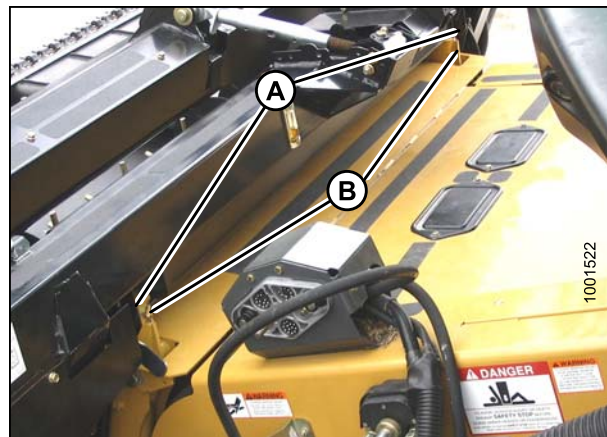


Figure 5.55: Header on Combine

5.5 New Holland Combines

5.5.1 Attaching Header to New Holland CR/CX Combine

To attach header to New Holland combines, follow these steps:

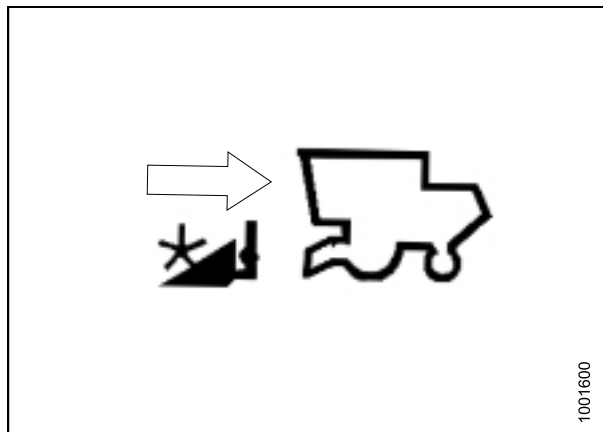


Figure 5.56: Attaching Header

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

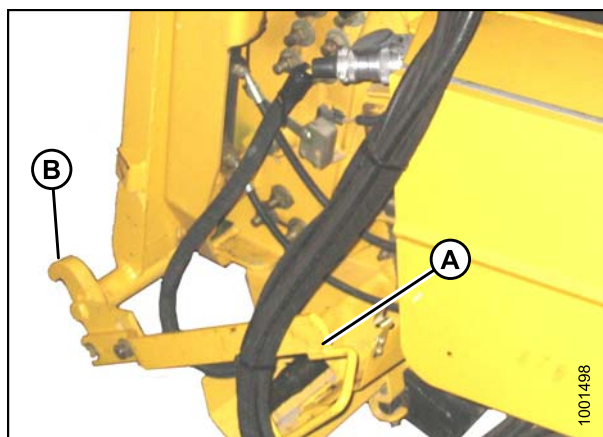


Figure 5.57: Feeder House Locks

2. Start engine and slowly drive combine up to header until feeder house saddle (A) is directly under the adapter top cross member (B).
3. Raise feeder house to lift header, 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.

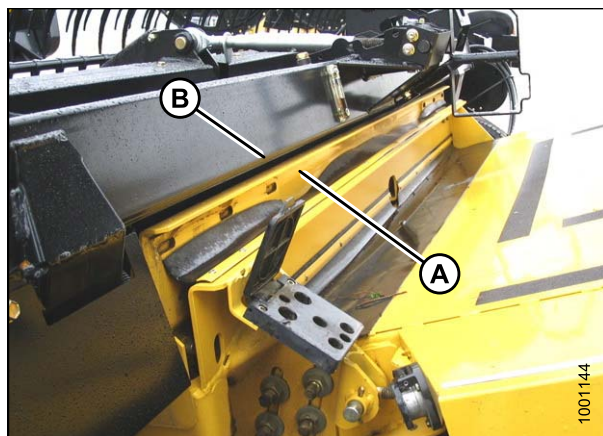


Figure 5.58: Header on Combine

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.

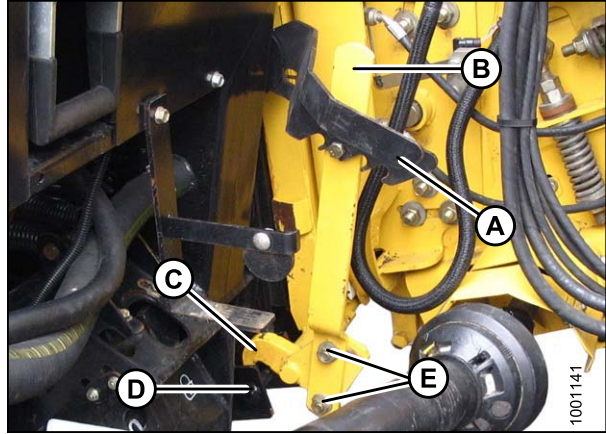


Figure 5.59: Feeder House Locks

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

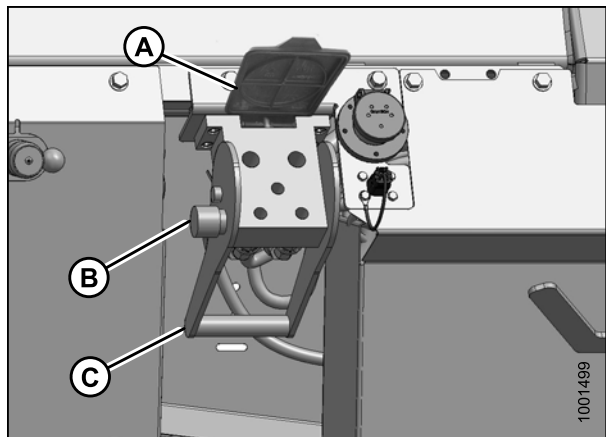


Figure 5.60: Adapter Receptacle

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

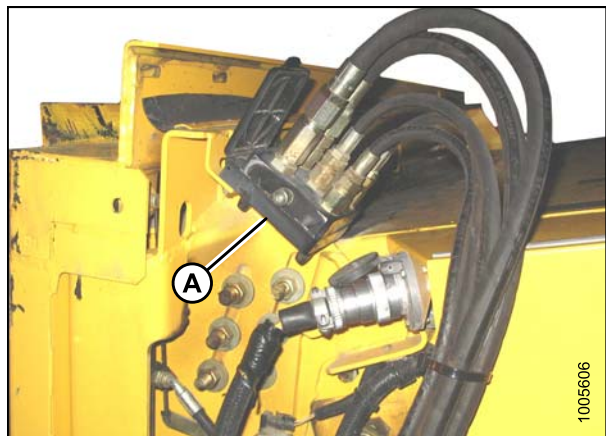


Figure 5.61: Combine Coupler

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.

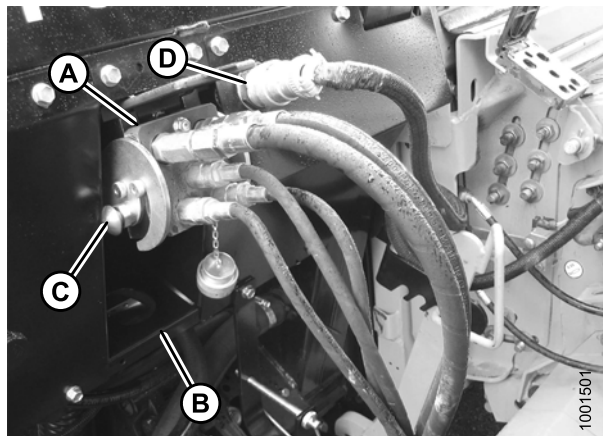


Figure 5.62: Connections

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

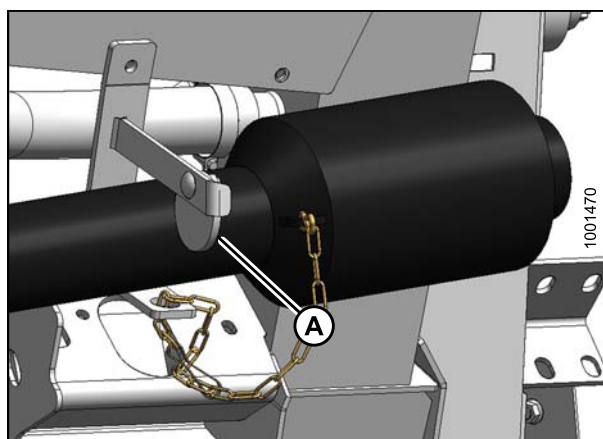


Figure 5.63: Driveline

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

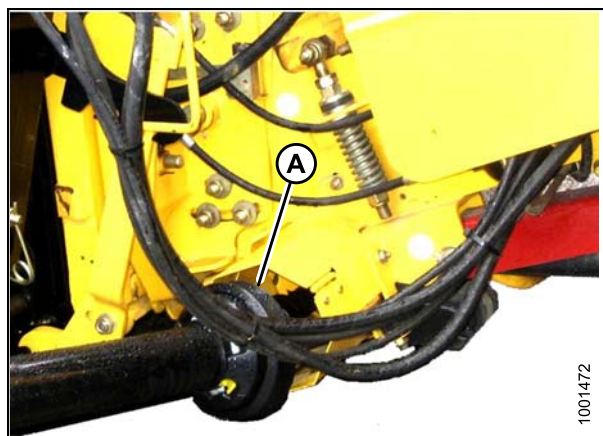


Figure 5.64: Driveline and Output Shaft

5.5.2 Detaching Header from New Holland Combine

To detach the header from a New Holland combine, 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. Refer to the combine operator's manual for instructions regarding the proper 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 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 [4.7.1 Cutting Height, page 51](#).

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 [4.7.1 Cutting Height, page 51](#).

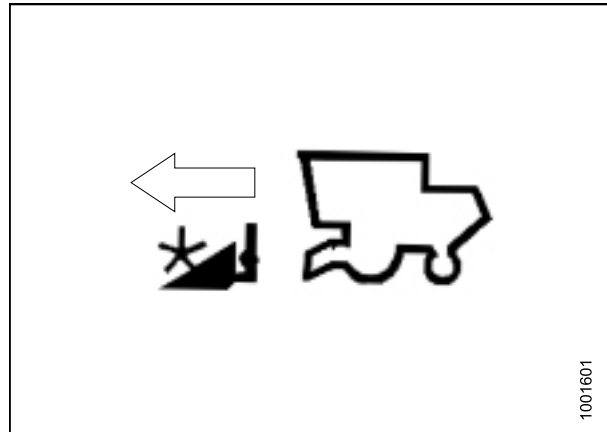


Figure 5.65: Detaching Header

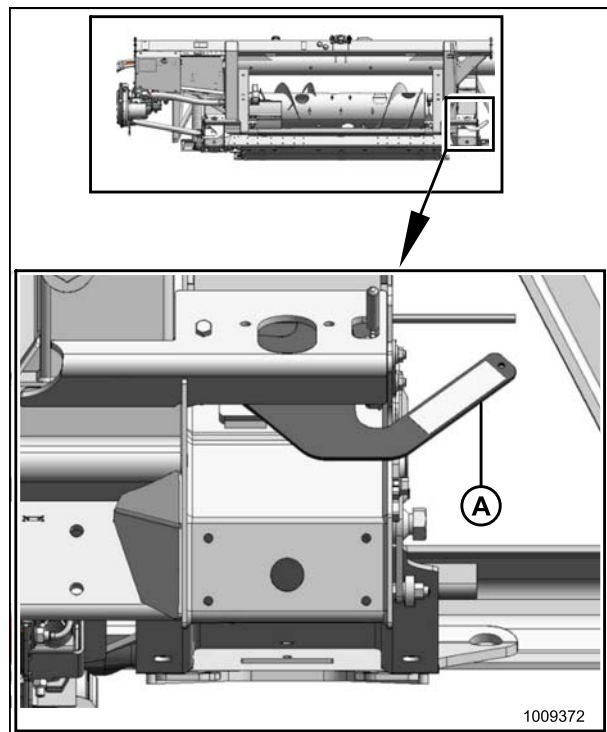


Figure 5.66: Float Locked

HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveshaft (A) from combine.

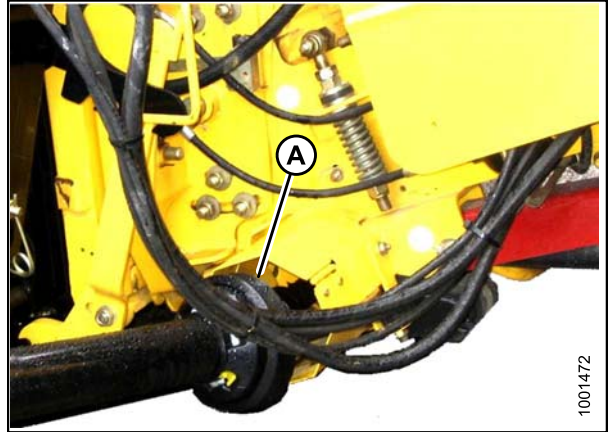


Figure 5.67: Driveline

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

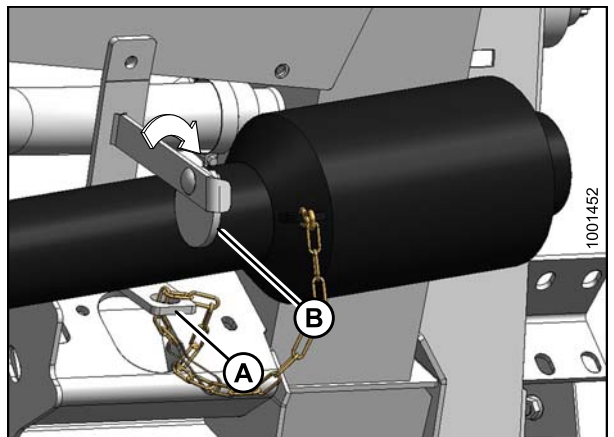


Figure 5.68: Driveline

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

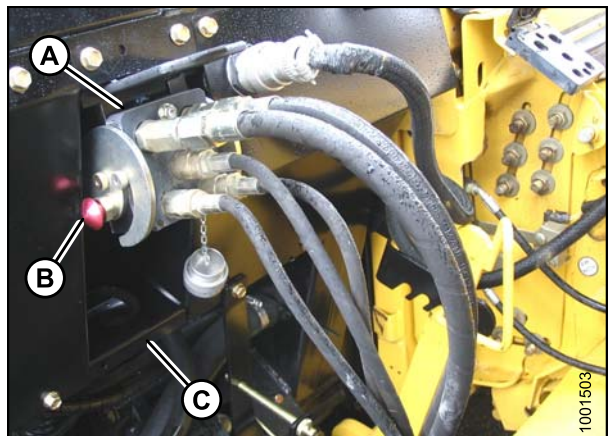


Figure 5.69: Adapter Connections

HEADER ATTACHMENT/DETACHMENT

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

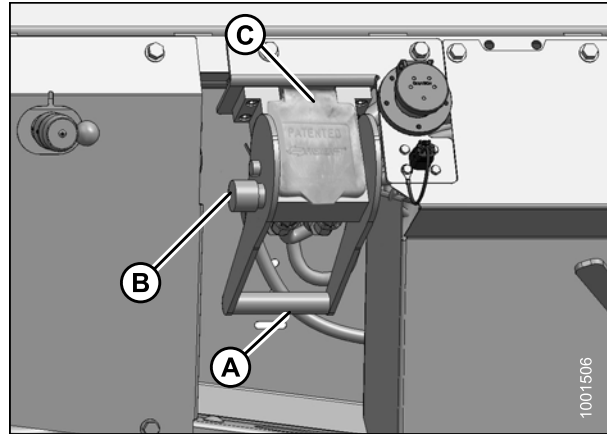


Figure 5.70: Adapter Receptacles

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

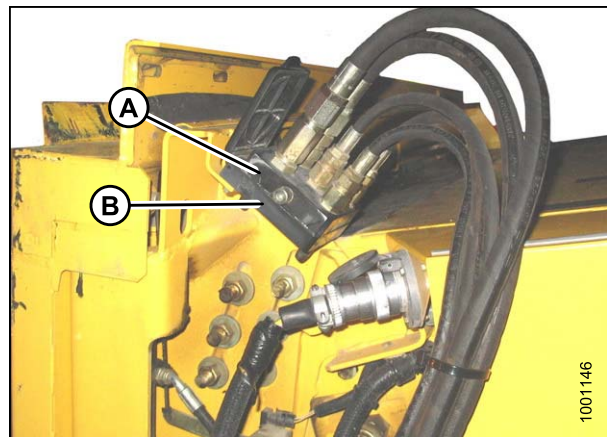


Figure 5.71: Combine Coupler

8. Remove electrical connector (A) from adapter.

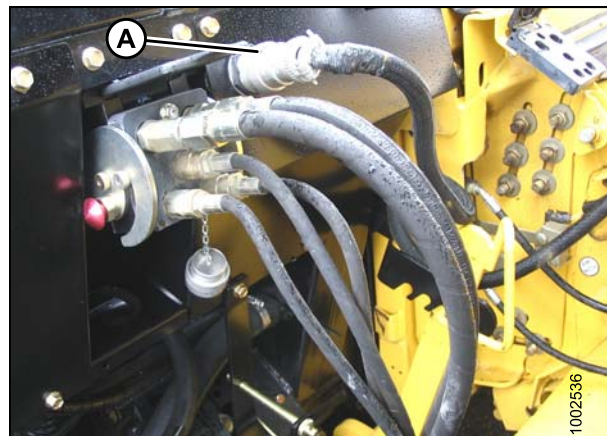


Figure 5.72: Adapter Connections

HEADER ATTACHMENT/DETACHMENT

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



Figure 5.73: Combine Couplers

10. Replace cover (A) on adapter receptacle.

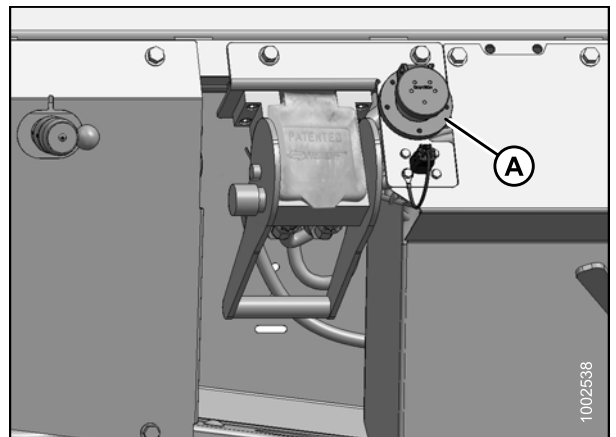


Figure 5.74: Adapter Receptacles

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

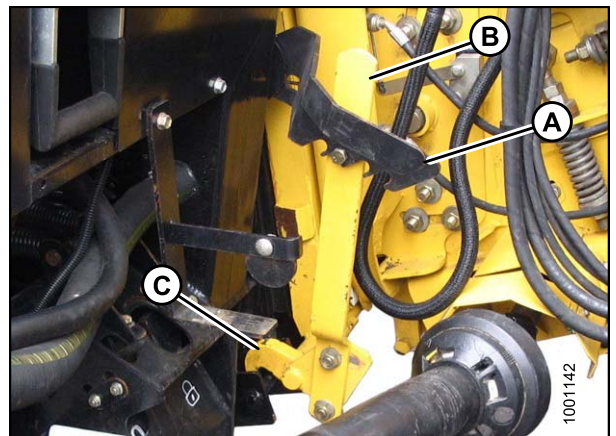


Figure 5.75: Feeder House Locks

HEADER ATTACHMENT/DETACHMENT

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

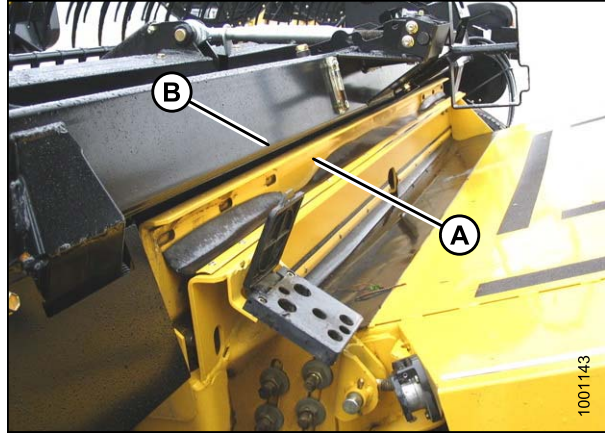


Figure 5.76: Header on Combine

5.5.3 CR Feeder Deflectors

For New Holland combines: Feeder short deflectors have been factory-installed on the adapter 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. Refer to [6.10.3 Replacing Feed Deflectors, page 333](#).

Long feeder kits are provided for narrow feeder house combines, and can be installed to replace the short feeder deflectors.

Combine Model	Feeder House Size	Feeder Kit Size	Part Number
CR970, 9070, 9080, 9090	Wide	Short: 7-7/8 in. (200 mm)	MD #B5405
CR960, 9060, 940, 9040	Narrow	Long: 12-13/16 in. (325 mm)	MD #B5404

5.6 AGCO Combines

5.6.1 Attaching Header to AGCO Combine

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

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

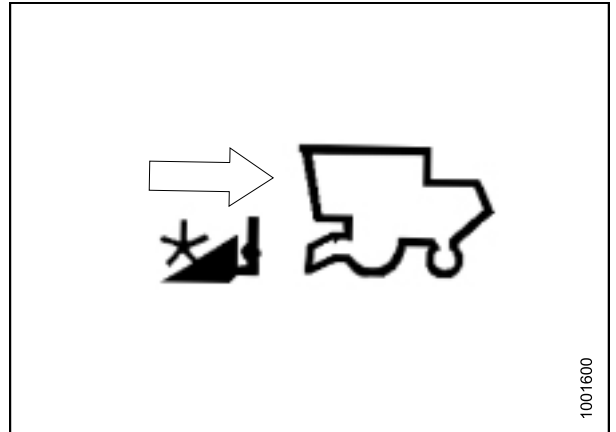


Figure 5.77: Attaching Header

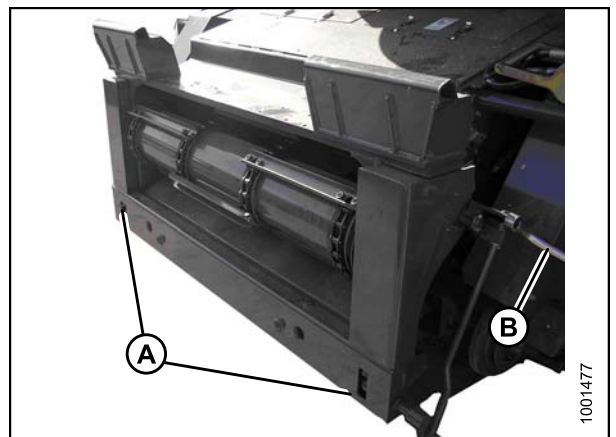


Figure 5.78: All AGCO except Gleaner R and S Series

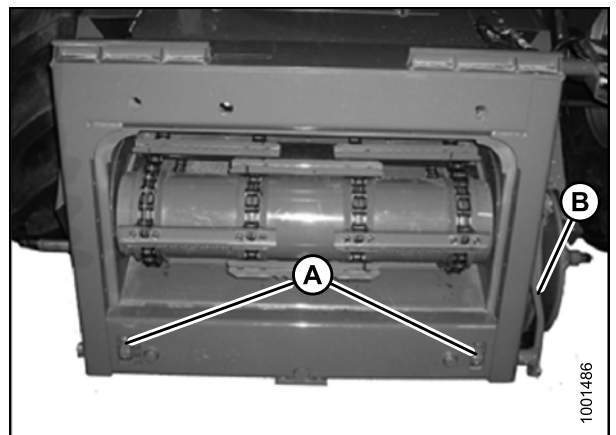


Figure 5.79: Gleaner R and S Series

HEADER ATTACHMENT/DETACHMENT

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

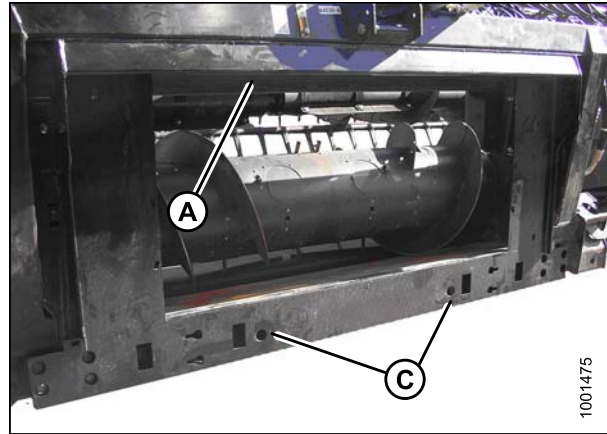


Figure 5.80: Adapter

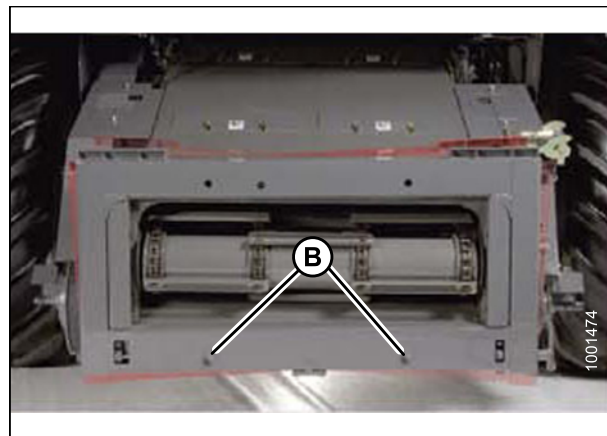


Figure 5.81: AGCO except Gleaner R and S Series and LL Models

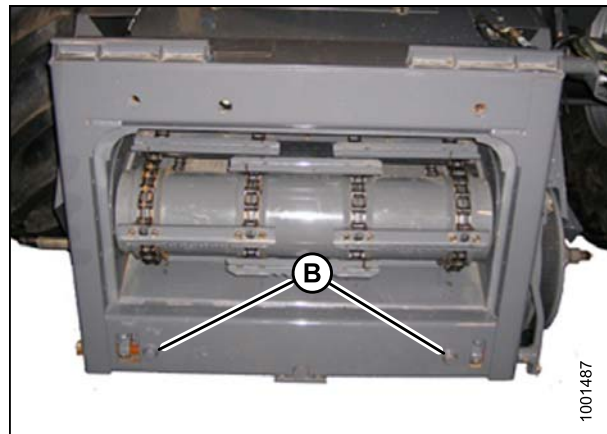


Figure 5.82: Gleaner R and S Series

HEADER ATTACHMENT/DETACHMENT

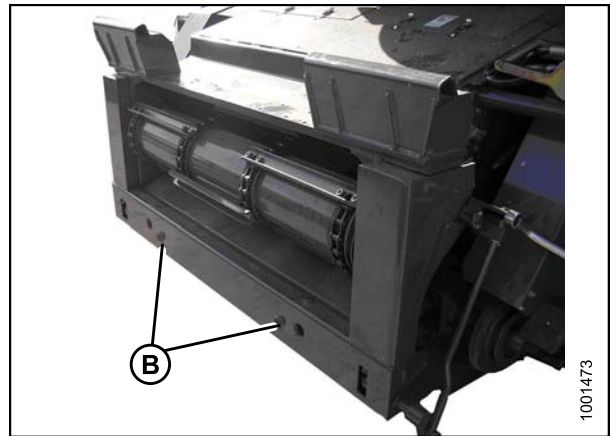


Figure 5.83: AGCO LL Model

3. Raise feeder house to lift header, 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.

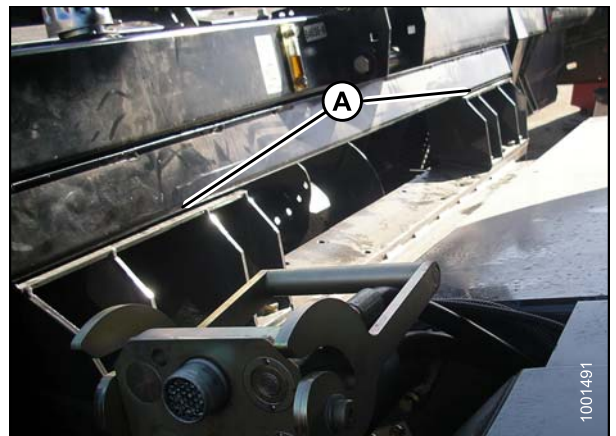


Figure 5.84: Feeder House and Adapter

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

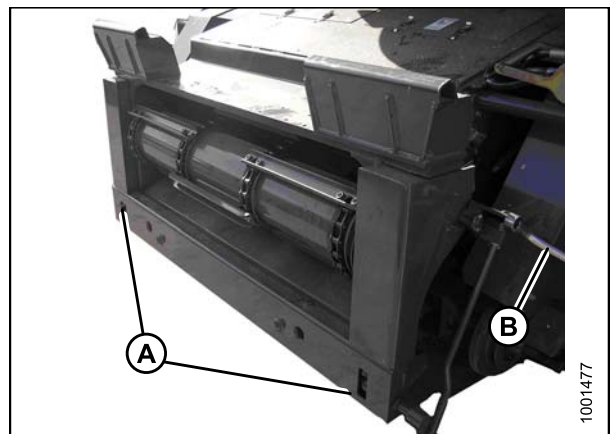


Figure 5.85: All AGCO except Gleaner R and S Series

HEADER ATTACHMENT/DETACHMENT

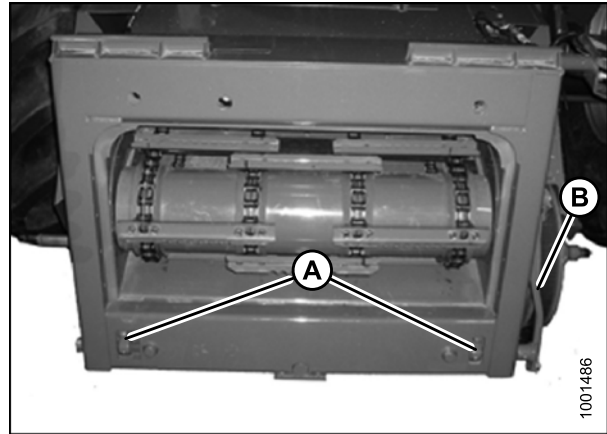


Figure 5.86: Gleaner R and S Series

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

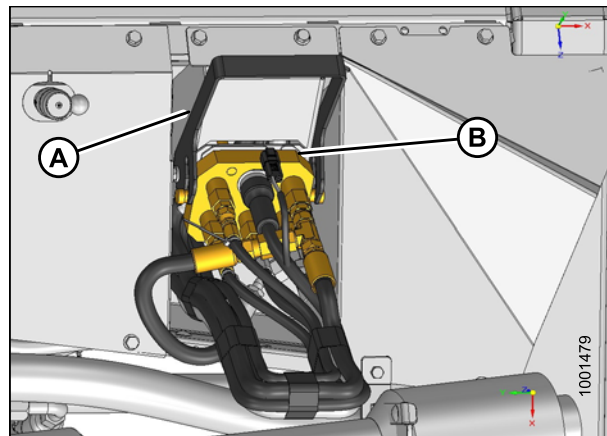


Figure 5.87: Adapter Coupler

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

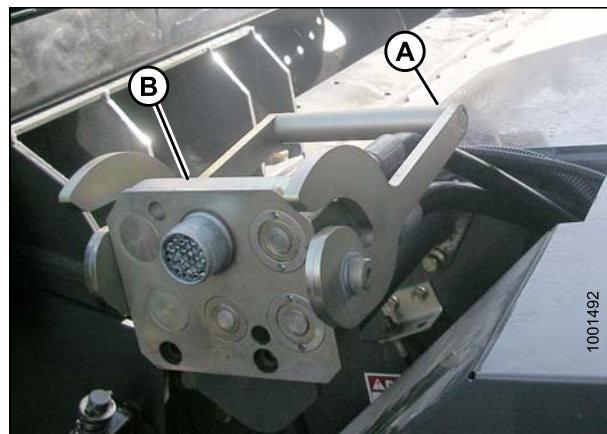


Figure 5.88: Combine Receptacle

HEADER ATTACHMENT/DETACHMENT

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).

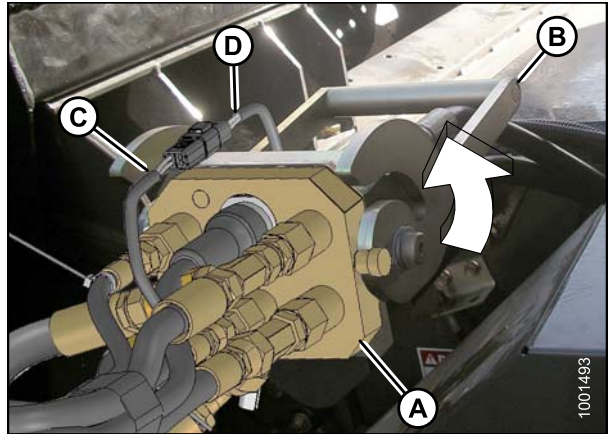


Figure 5.89: Coupler

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

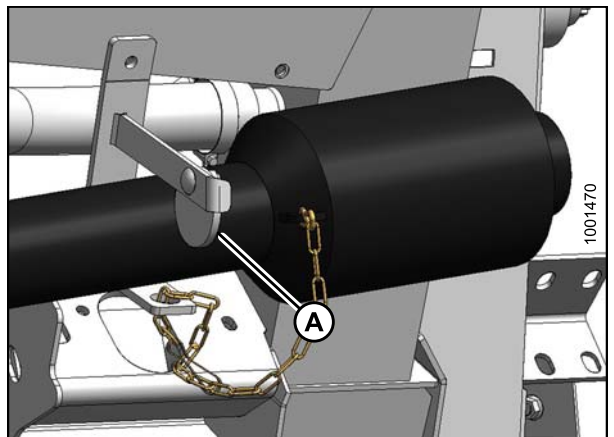


Figure 5.90: Driveline

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

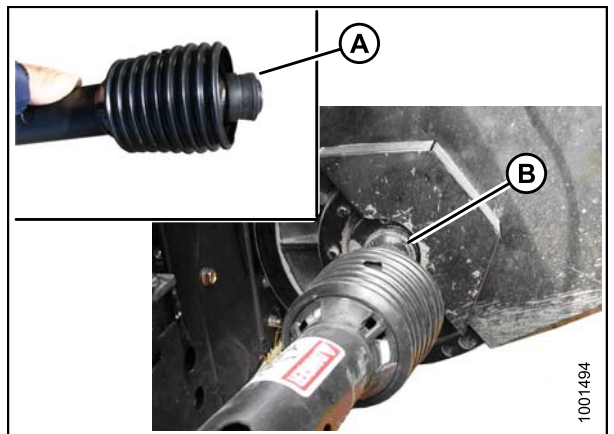


Figure 5.91: Driveline

5.6.2 Detaching Header from AGCO Combine

To detach a header from an AGCO combine, 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. Refer to the combine operator's manual for instructions regarding the proper 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 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 [4.7.1 Cutting Height, page 51](#).

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 [4.7.1 Cutting Height, page 51](#).

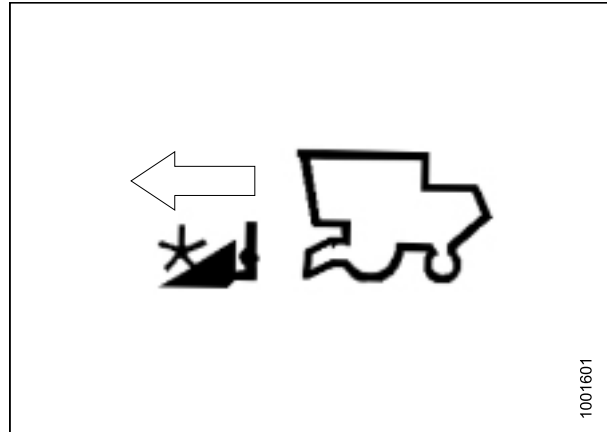


Figure 5.92: Detaching Header

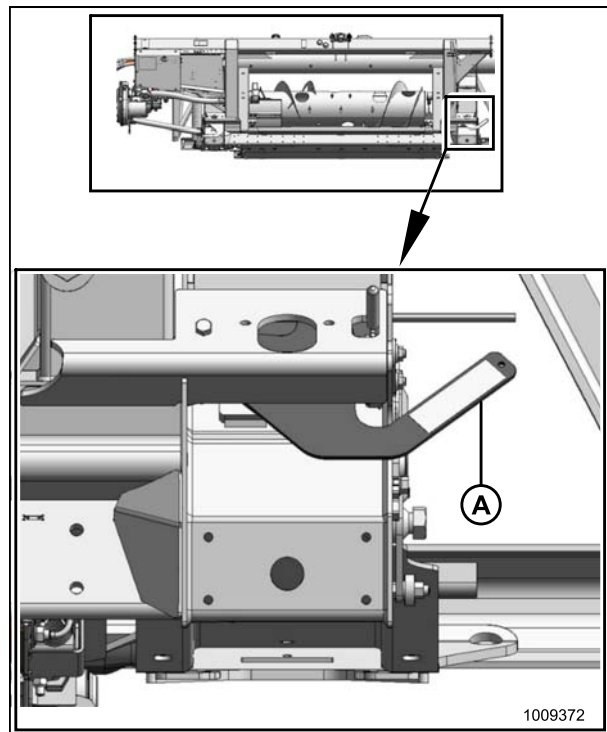


Figure 5.93: Float Locked

HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveline from combine output shaft (A).



Figure 5.94: Disconnect Driveline

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

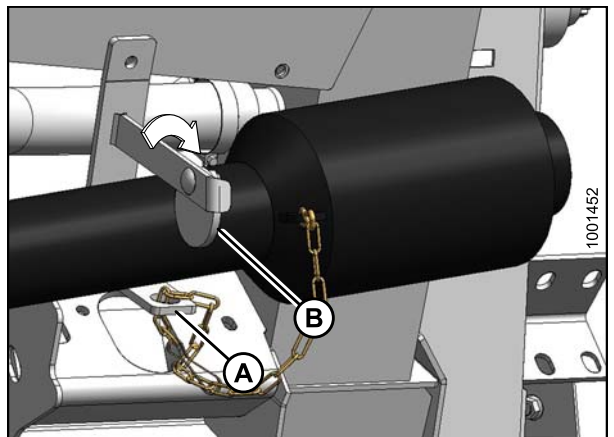


Figure 5.95: Driveline

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

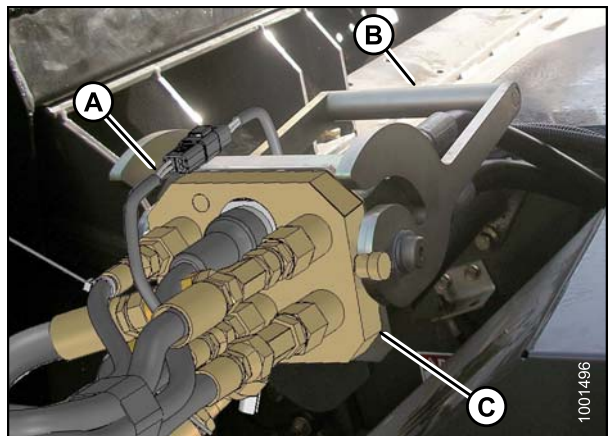


Figure 5.96: Couplers

HEADER ATTACHMENT/DETACHMENT

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

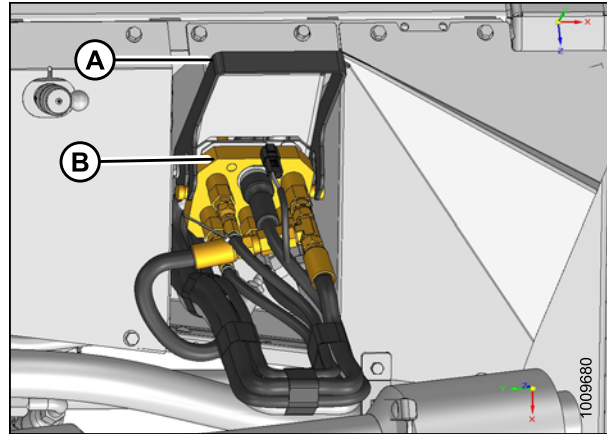


Figure 5.97: Adapter Couplers

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

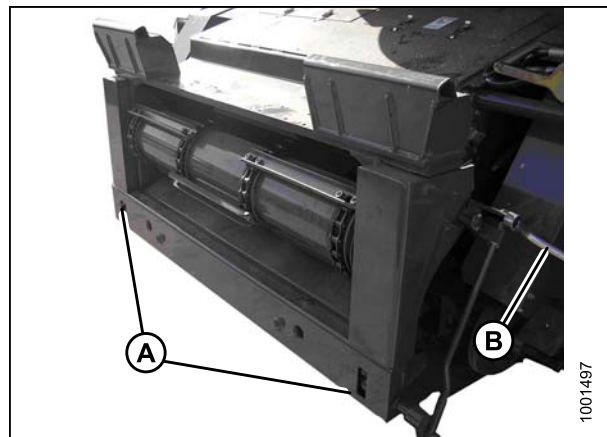


Figure 5.98: All AGCO except Gleaner R and S Series

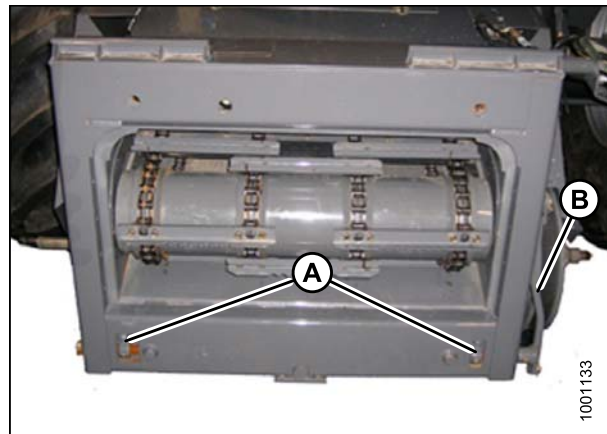


Figure 5.99: Gleaner R and S Series

HEADER ATTACHMENT/DETACHMENT

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

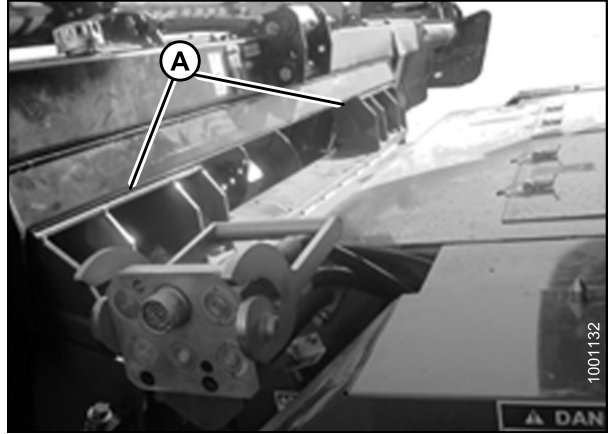


Figure 5.100: Header on Combine

5.7 Attaching and Detaching Header From Adapter and Combine

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

To detach the header from the adapter and combine:

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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

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

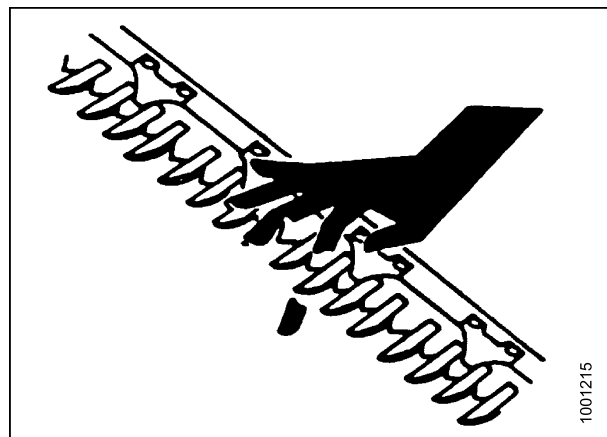


Figure 5.101: Cutterbar Hazard

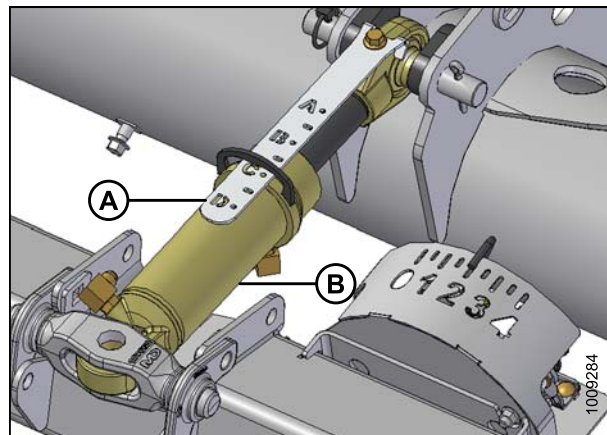


Figure 5.102: Center-Link

HEADER ATTACHMENT/DETACHMENT

- Engage the 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.

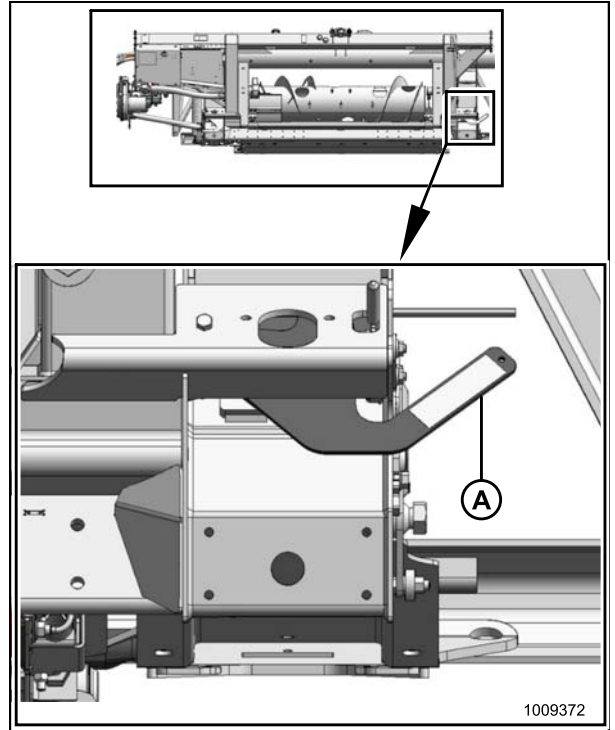


Figure 5.103: Float Locked

- 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.

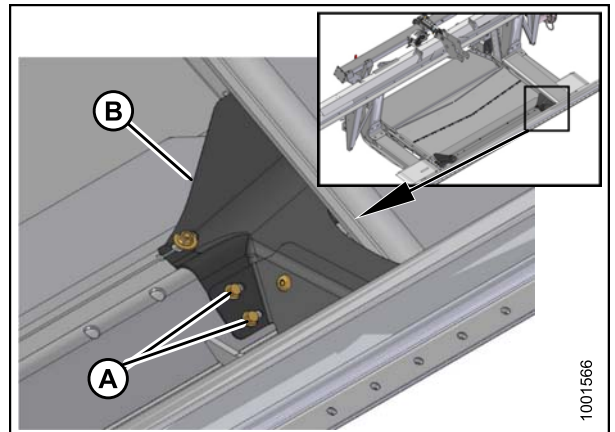


Figure 5.104: Fillers

HEADER ATTACHMENT/DETACHMENT

7. Remove 9/16 in. nut from bolt (C).
8. 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.
9. Rotate latch (A) up and back to lower adapter deck and disengage transition pan tube (D).
10. Reinstall bolt (C).
11. Repeat for other side of the feed draper deck.
12. Disengage reel safety props, start engine, lower reel and raise header fully. Stop engine, remove key, and engage combine lift safety props.

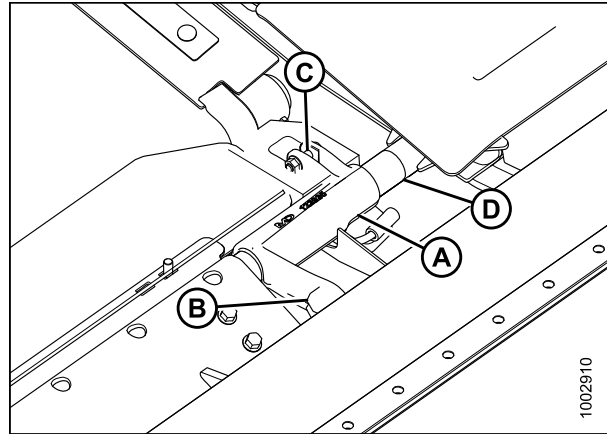


Figure 5.105: Adapter Latch

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

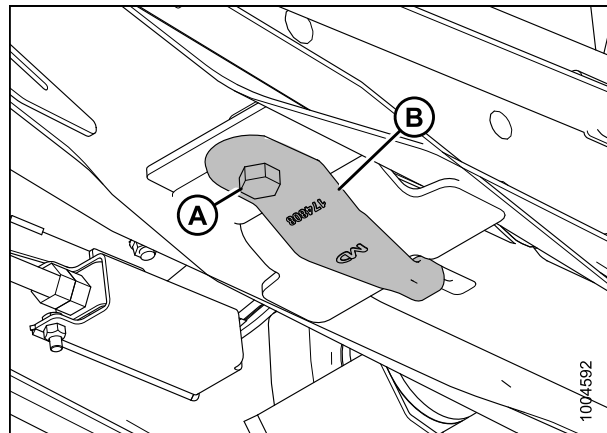


Figure 5.106: Adapter Underside

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

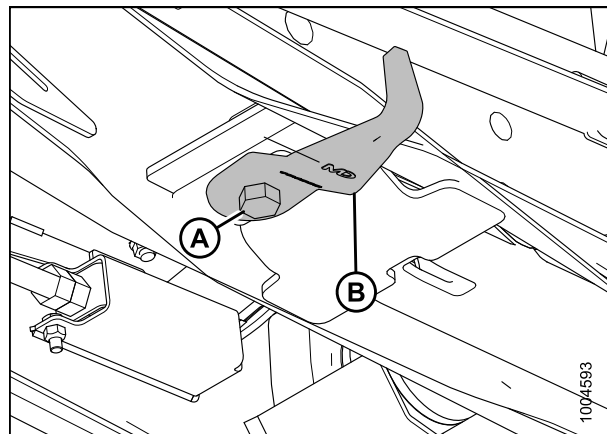


Figure 5.107: Adapter Underside

HEADER ATTACHMENT/DETACHMENT

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.

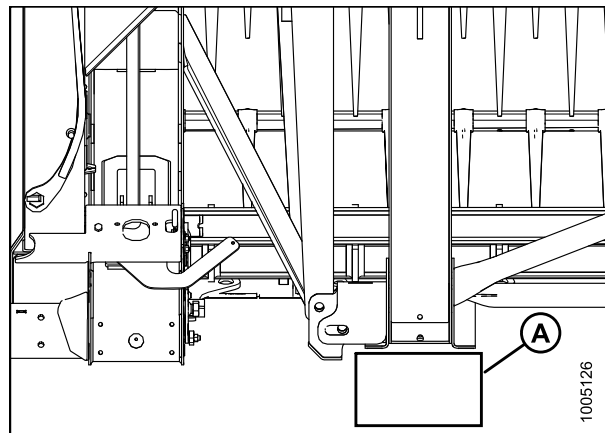


Figure 5.108: Supporting Header

17. Disconnect hydraulic center-link:
 - a. Remove lynch pin and clevis pin (A), and then lift center-link (B) clear of bracket.
 - b. 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.

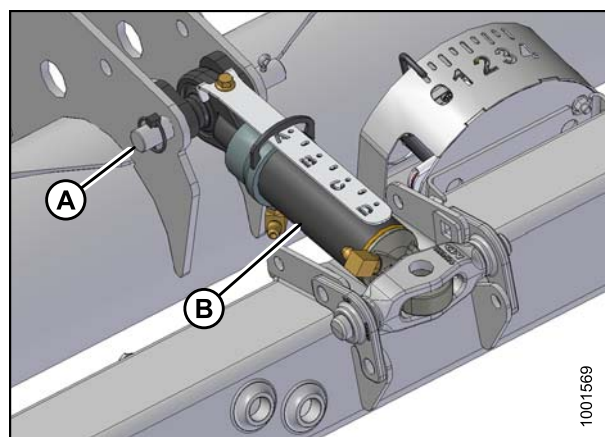


Figure 5.109: Hydraulic Center-Link

18. Disconnect electrical connector (B).
19. 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.

20. Store and secure hoses on adapter frame.

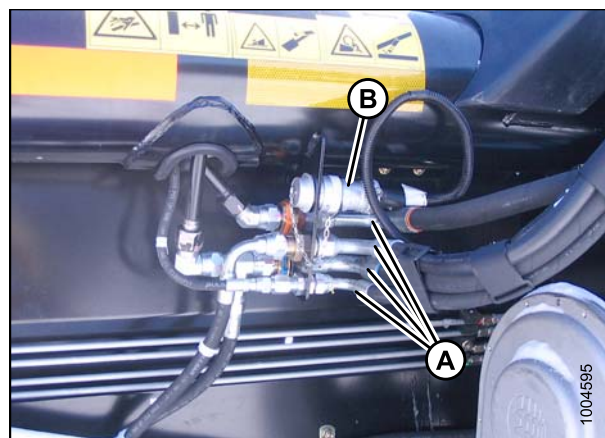


Figure 5.110: Header Connections

HEADER ATTACHMENT/DETACHMENT

21. If quick disconnects are installed, disconnect as follows:
 - a. Line up slot (A) in collar with pin (B) on connector.
 - b. Push collar toward pin, and pull connector to disengage.
 - c. Install plugs or caps on hose ends (if equipped).

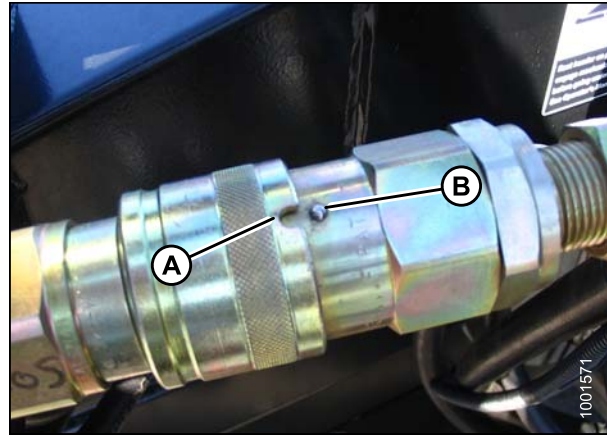


Figure 5.111: Quick Disconnect

22. Disconnect reel hydraulics (A). Cap off end immediately to avoid loss of oil.

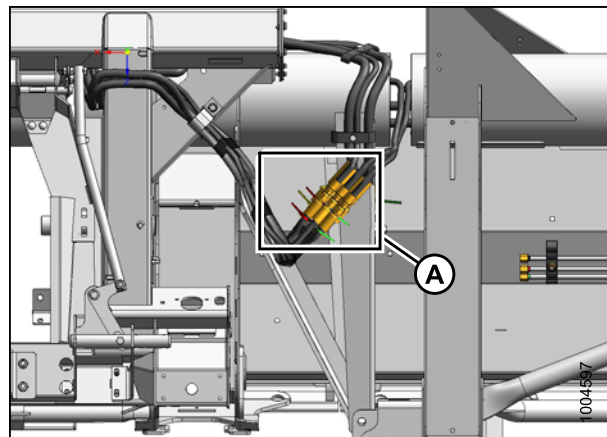


Figure 5.112: Reel Hydraulics

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



Figure 5.113: Hose Storage

5.7.2 Attaching Header to Adapter and Combine

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 [4.7.1 Cutting Height, page 51](#).

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

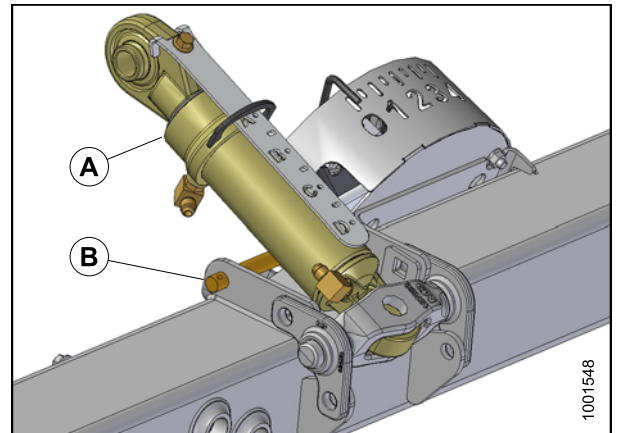


Figure 5.114: Center-Link

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

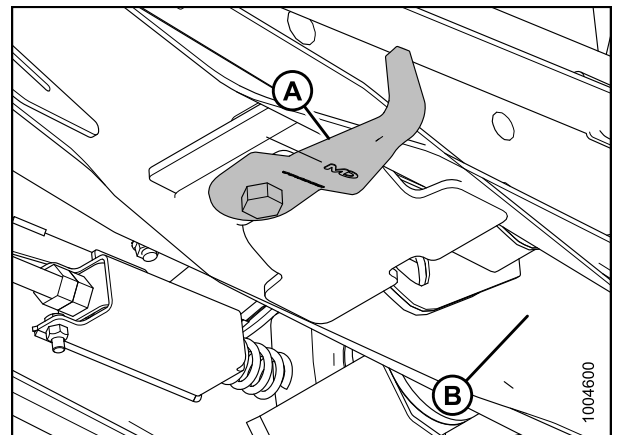


Figure 5.115: Header Underside

HEADER ATTACHMENT/DETACHMENT

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.

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.

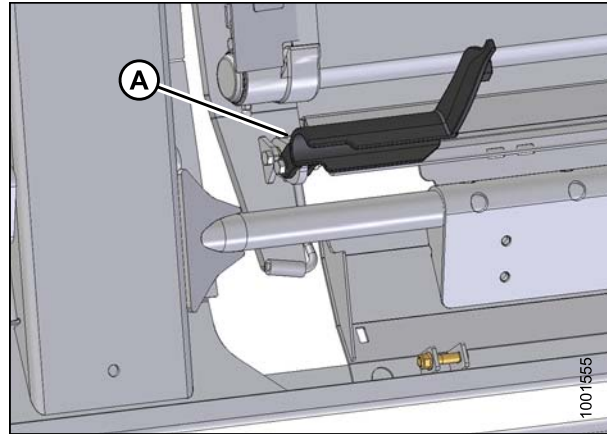


Figure 5.116: Latches

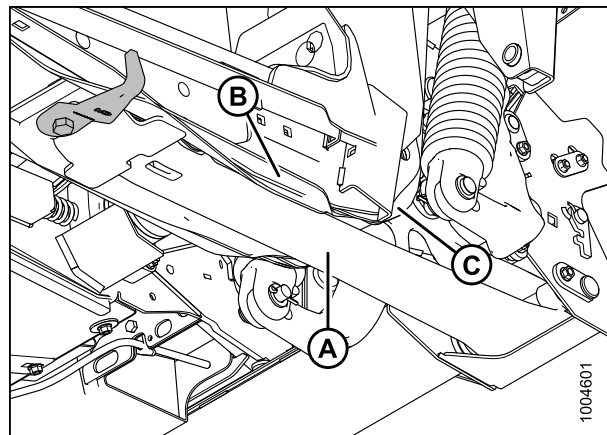


Figure 5.117: Adapter Underside

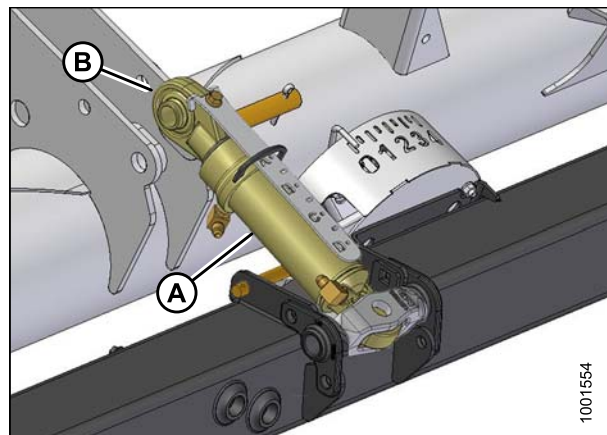


Figure 5.118: Center-Link

HEADER ATTACHMENT/DETACHMENT

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.

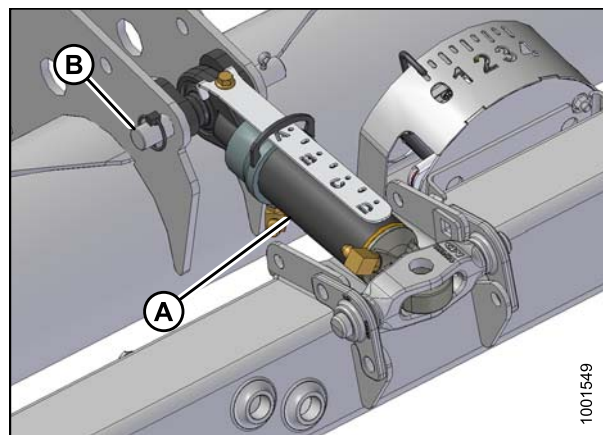


Figure 5.119: Center-Link

11. Connect reel hydraulics (A) 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.

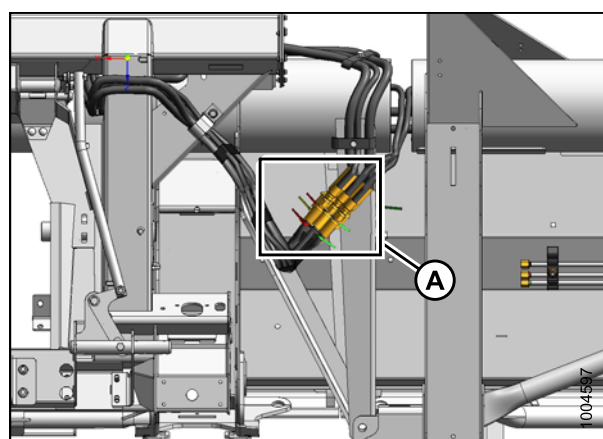


Figure 5.120: Reel Hydraulics

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. Refer to the combine operator's manual for instructions regarding the proper 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.

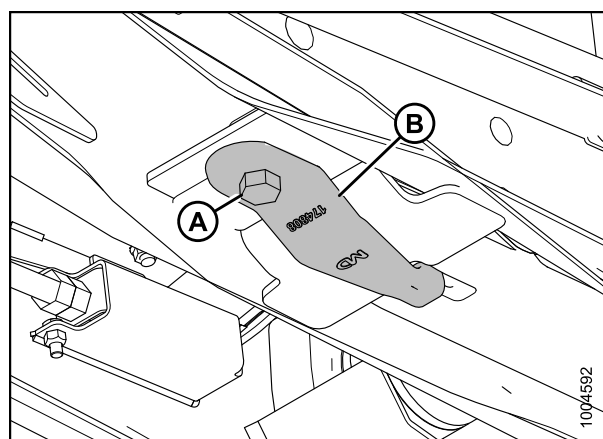


Figure 5.121: Adapter Underside

HEADER ATTACHMENT/DETACHMENT

WARNING

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

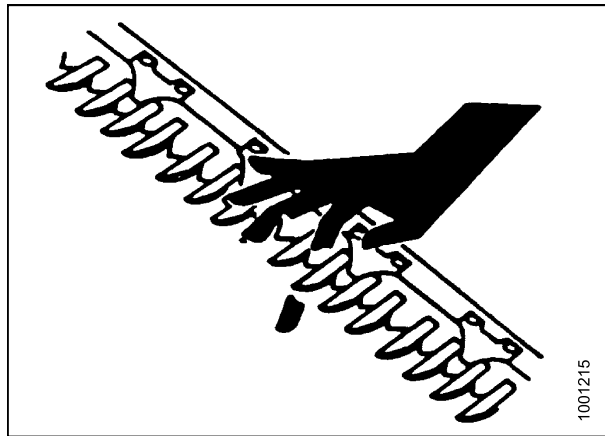


Figure 5.122: Cutterbar Hazard

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).

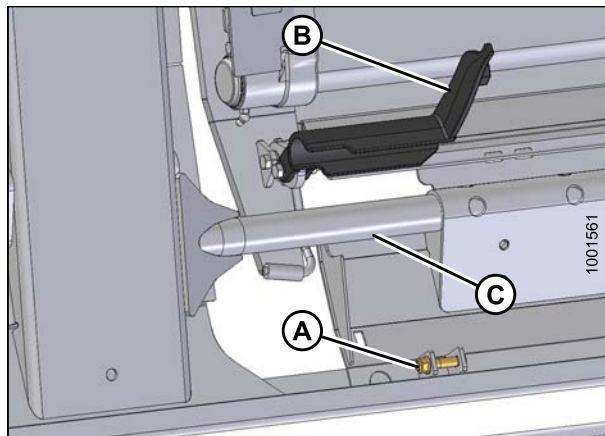


Figure 5.123: Adapter Latch

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.

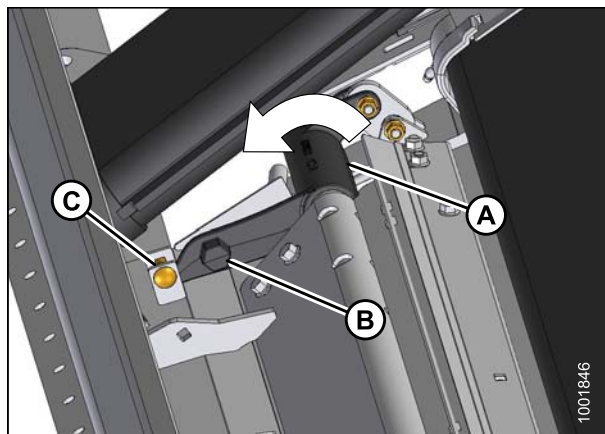


Figure 5.124: Adapter Latch

HEADER ATTACHMENT/DETACHMENT

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.

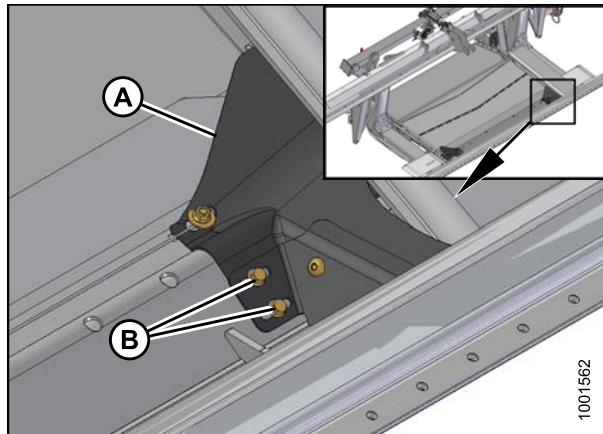


Figure 5.125: Fillers

25. Connect knife and draper drive hydraulic hoses (B) at bracket.
26. Attach electrical connector (B).

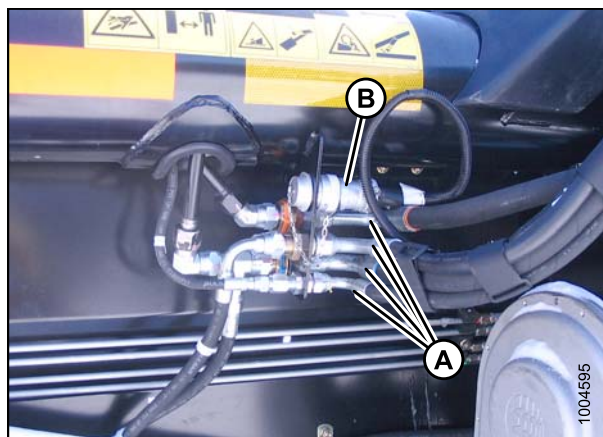


Figure 5.126: Header Connections

HEADER ATTACHMENT/DETACHMENT

27. If quick disconnects are installed, connect as follows:
 - a. Remove covers (if installed) from receptacles and hose ends.
 - b. Check connectors, and clean if required.
 - c. 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.

28. Check float, and confirm that the header is level. Refer to:
 - [Checking and Adjusting Header Float Checking and Adjusting Header Float, page 138.](#)
 - [4.8 Leveling the Header, page 165.](#)
29. Start combine and perform the following:
 - Raise and lower reel to ensure hoses are properly connected.
 - Run the header to ensure hoses are properly connected.
30. Check for leaks.



Figure 5.127: Quick Disconnect

6 Maintenance and Servicing

6.1 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.**

6.2 Maintenance Specifications

MAINTENANCE AND SERVICING

6.2.1 Conversion Chart

Quantity	Inch-Pound Units		Factor	SI Units (Metric)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	acres	acres	$\times 0.4047 =$	hectares	ha
Flow	US gallons per minute	gpm	$\times 3.7854 =$	liters per minute	L/min
Force	pounds force	lbf	$\times 4.4482 =$	Newtons	N
Length	inch	in.	$\times 25.4 =$	millimeters	mm
	foot	ft.	$\times 0.305 =$	meters	m
Power	horsepower	hp	$\times 0.7457 =$	kilowatts	kW
Pressure	pounds per square inch	psi	$\times 6.8948 =$	kilopascals	kPa
			$\times .00689 =$	megapascals	MPa
			$\div 14.5038 =$	bar (non-SI)	bar
Torque	pound feet or foot pounds	ft·lbf	$\times 1.3558 =$	newton meters	N·m
	pound inches or inch pounds	in·lbf	$\times 0.1129 =$	newton meters	N·m
Temperature	degrees fahrenheit	°F	$(^{\circ}\text{F}-32) \times 0.56 =$	Celsius	°C
Velocity	feet per minute	ft/min	$\times 0.3048 =$	meters per minute	m/min
	feet per second	ft/s	$\times 0.3048 =$	meters per second	m/s
	miles per hour	mph	$\times 1.6063 =$	kilometres per hour	km/h
Volume	US gallons	US gal	$\times 3.7854 =$	liters	L
	ounces	oz.	$\times 29.5735 =$	milliliters	ml
	cubic inches	in. ³	$\times 16.3871 =$	cubic centimetres	cm ³ or cc
Weight	pounds	lbs	$\times 0.4536 =$	kilograms	kg

6.2.2 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.

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)

6.2.3 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.

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.

MAINTENANCE AND SERVICING

Table 6.1 SAE Grade 5 Bolt and Grade 5 Free Spinning Nut

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

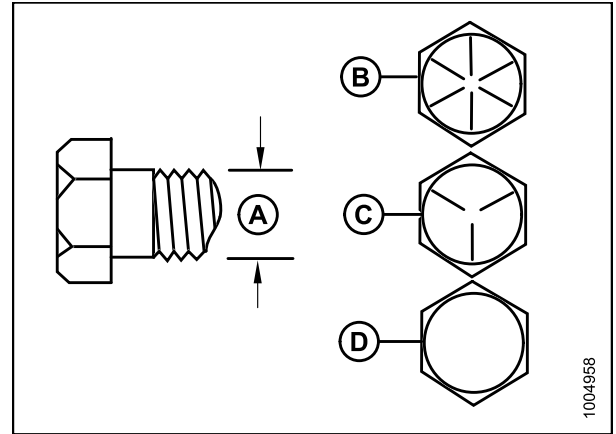


Figure 6.1: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

Table 6.2 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

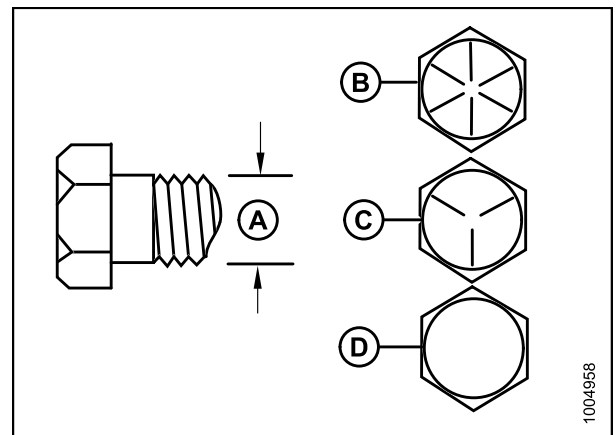


Figure 6.2: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

MAINTENANCE AND SERVICING

Table 6.3 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

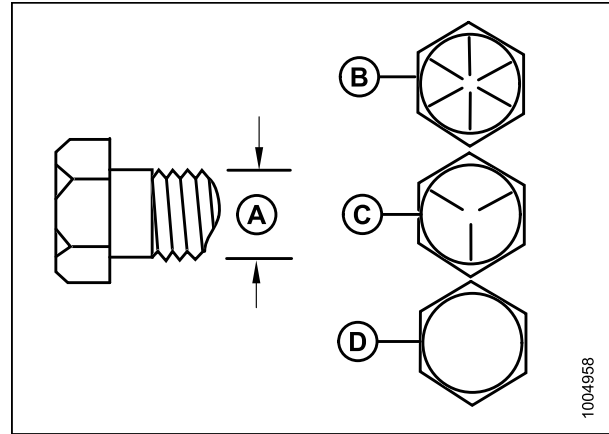


Figure 6.3: Bolt Grades

A - Nominal Size
 B - SAE-8
 C - SAE-5
 D - SAE-2

Table 6.4 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

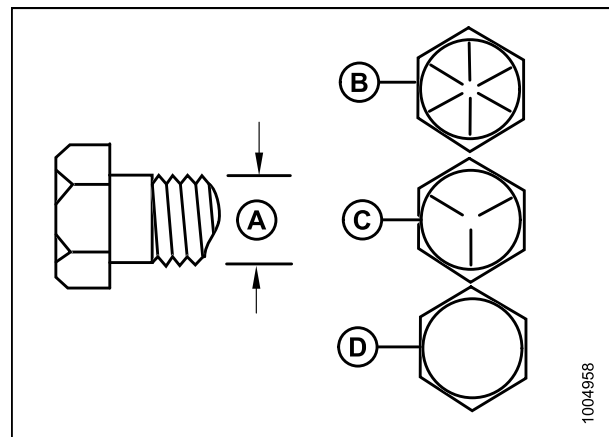


Figure 6.4: Bolt Grades

A - Nominal Size
 B - SAE-8
 C - SAE-5
 D - SAE-2

MAINTENANCE AND SERVICING

Metric Bolt Specifications

Table 6.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

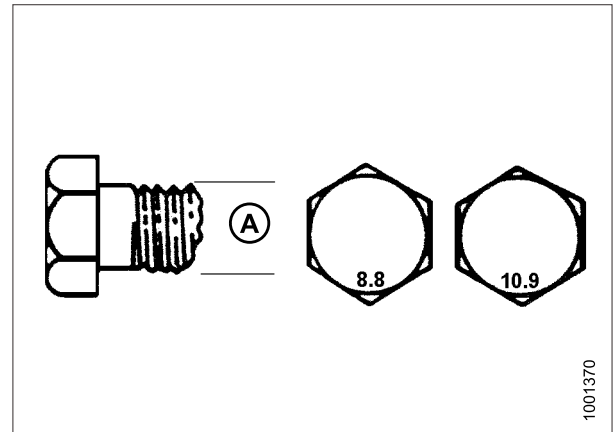


Figure 6.5: Bolt Grades

Table 6.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

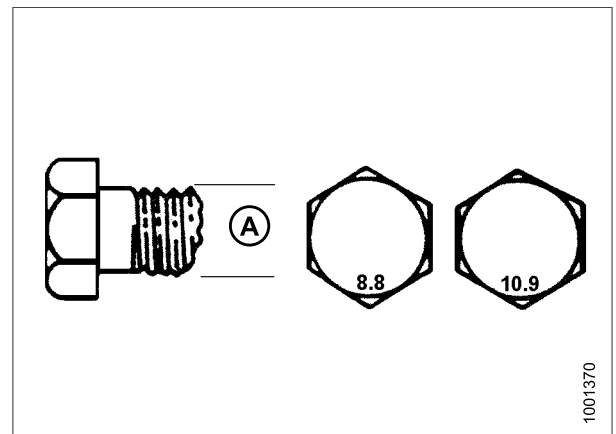


Figure 6.6: Bolt Grades

MAINTENANCE AND SERVICING

Table 6.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

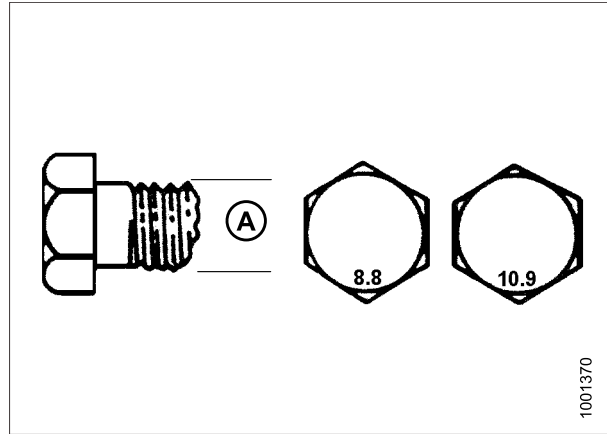


Figure 6.7: Bolt Grades

Table 6.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

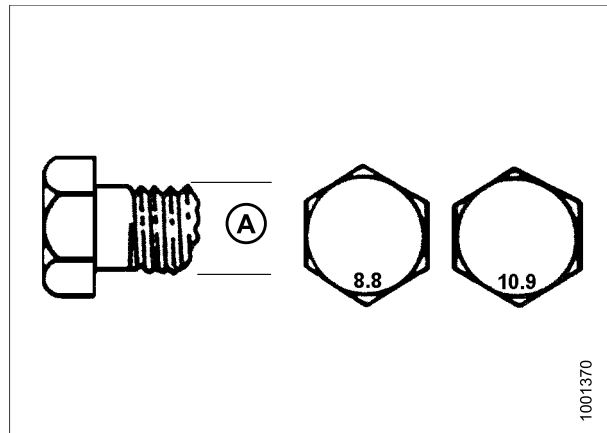


Figure 6.8: Bolt Grades

Metric Bolt Specifications Bolting into Cast Aluminum

Table 6.9 Metric Bolt Bolting into Cast Aluminum

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

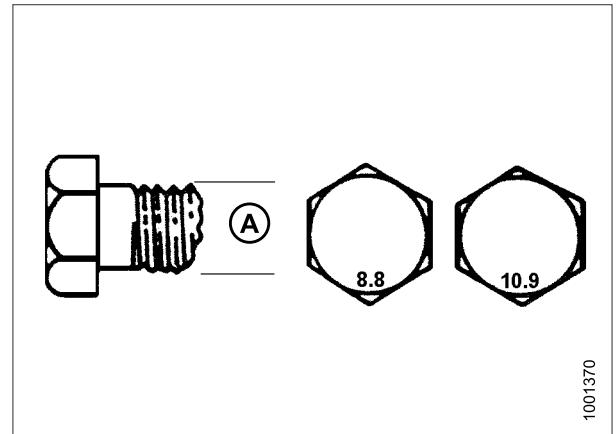


Figure 6.9: Bolt Grades

Flare-Type Hydraulic Fittings

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D) and thread nut (E) onto fitting without lubrication until contact has been made between the flared surfaces.
3. Torque the fitting nut (E) to the specified number of flats from finger tight (FFFT) or to a given torque value shown in 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.

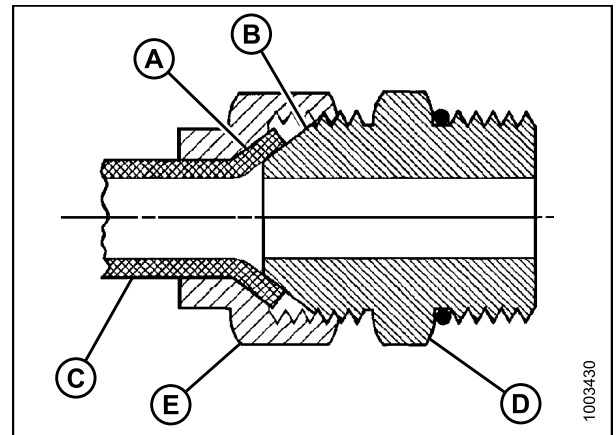


Figure 6.10: Hydraulic Fitting

MAINTENANCE AND SERVICING

Table 6.10 Flare-Type Hydraulic Tube Fittings

SAE No.	Tube Size O.D. (in.)	Thread Size (in.)	Nut Size across Flats (in.)	Torque Value ³		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

3. 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).

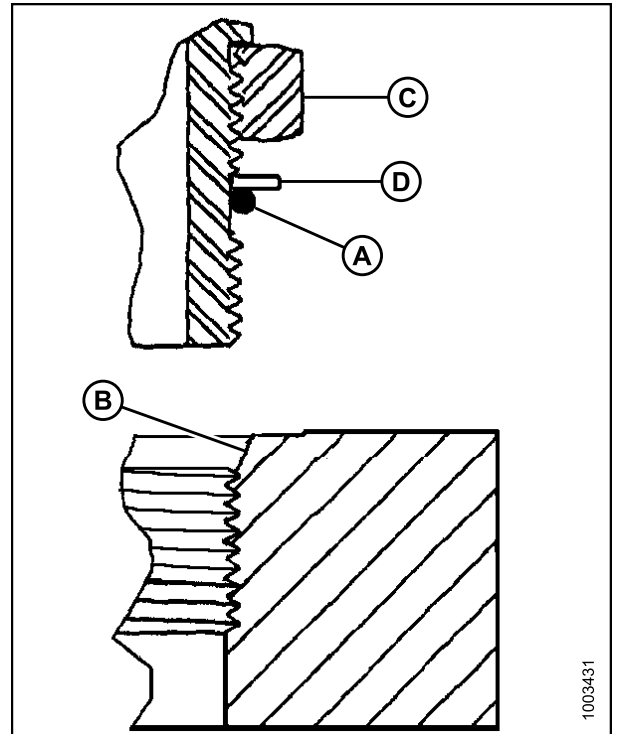


Figure 6.11: Hydraulic Fitting

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.

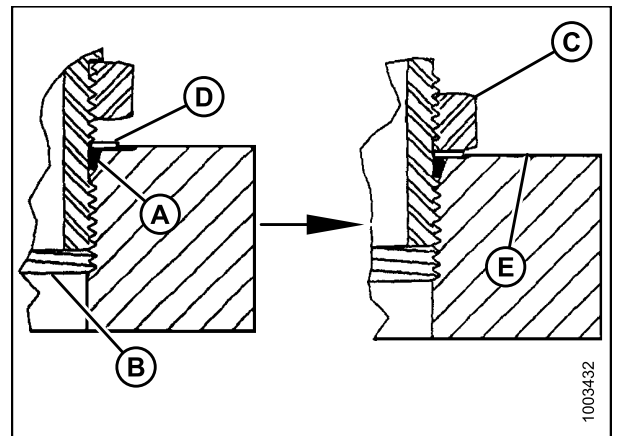


Figure 6.12: Hydraulic Fitting

MAINTENANCE AND SERVICING

Table 6.11 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ⁴	
		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

4. 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 6.12 O-Ring Boss \(ORB\) Hydraulic Fittings \(Non-Adjustable\)](#), page 253.
6. Check the final condition of the fitting.

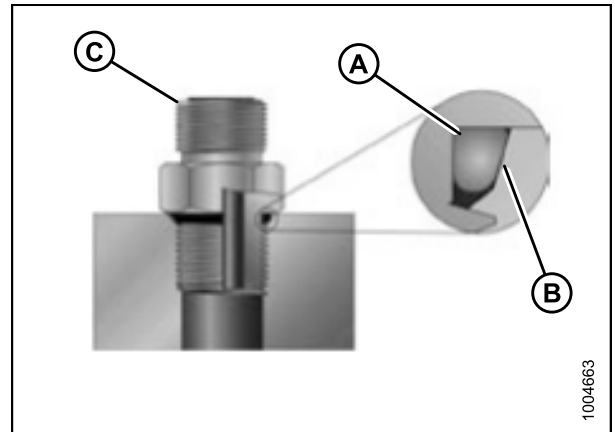


Figure 6.13: Hydraulic Fitting

Table 6.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ⁵	
		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

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

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 6.14: Hydraulic Fitting

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

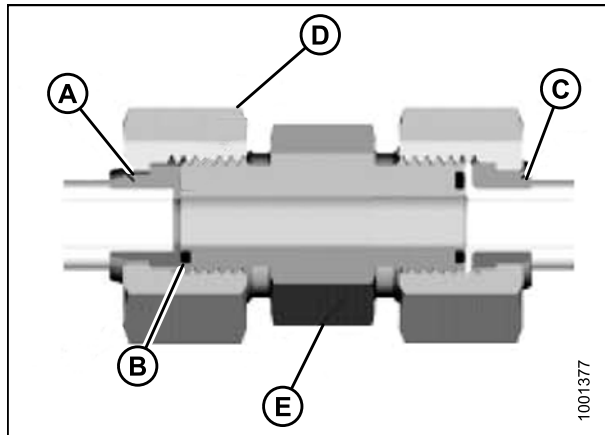


Figure 6.15: Hydraulic Fitting

Table 6.13 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Torque Value ⁶	
		ft·lbf (*in·lbf)	N·m
-3	Note ⁷	–	–
-4	9/16–18	18–21	25–28
-5	Note ⁷	–	–
-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 ⁷	–	–
-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

6.2.4 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.

-
- 6. Torque values and angles shown are based on lubricated connection, as in reassembly.
 - 7. O-ring face seal type end not defined for this tube size.

MAINTENANCE AND SERVICING

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.

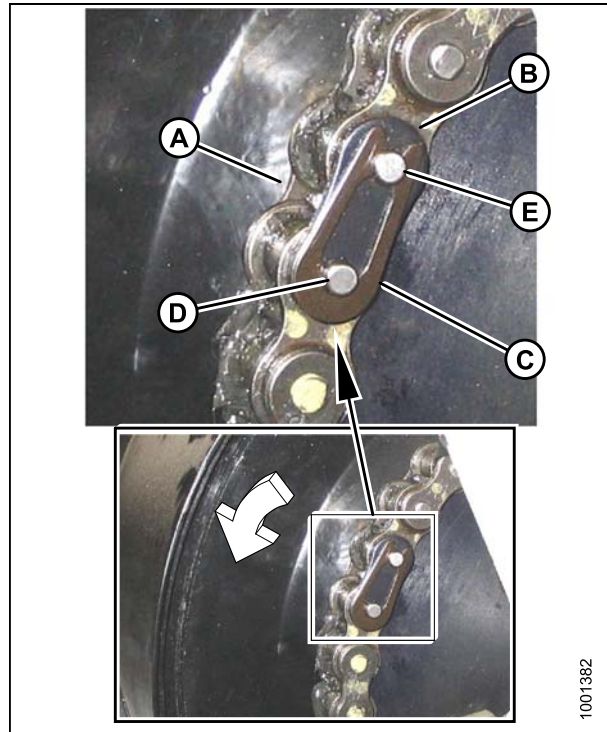


Figure 6.16: Arrow Shows Direction of Rotation

A - Pin Connector
B - Connector
C - Spring Clip
D - Front Pin
E - Aft Pin

6.2.5 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.

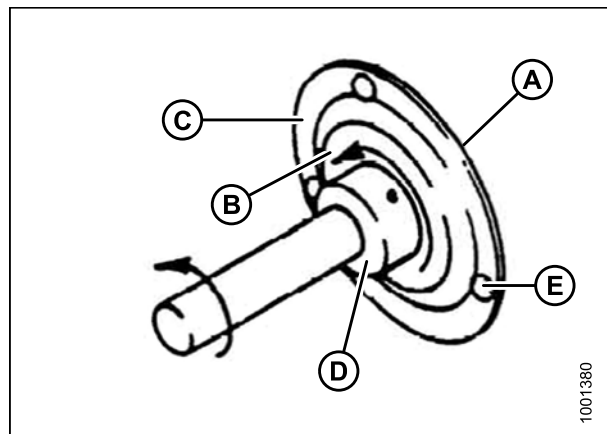


Figure 6.17

A - Flangette
B - Bearing
C - Flangette
D - Lock Collar
E - Flangette Bolt

6.3 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, Refer to [6.2.2 Recommended Fluids and Lubricants, page 244](#).

Log hours of operation and use the Maintenance Record on the next page to keep a record of scheduled maintenance. Make copies of the Maintenance Record page as required.

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.

NOTE:

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. Refer to [6.1 Preparation for Servicing, page 241](#) and Maintenance Safety ([1 Safety, page 1](#)).

MAINTENANCE AND SERVICING

6.3.1 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 6.3.2 Break-In Inspection, page 260				
END OF SEASON, Refer to 6.3.4 End of Season Service, page 260				
10 HOURS OR DAILY⁸				
✓ Hydraulic Hoses and Lines ⁹				
✓ Knife Sections, Guards, and Hold-Downs ⁹				
✓ Tire Pressure ⁹				
◆ Knife (except in sandy conditions) ⁹				
25 HOURS				
✓ Hydraulic Oil Level at Reservoir ⁹				
◆ Knifehead(s) ⁹				
50 HOURS				
✱ Draper Roller Bearings				
◆ Driveline and Driveline Universals				
▲ Knife Drive Box Oil - First 50 Hours Only				
100 HOURS OR ANNUALLY⁸				
✓ Auger to Pan and Feed Draper Clearance				
✓ Draper Seal				
✓ Gearbox Lubricant Level				
✓ Reel Drive Chain Tension				
✓ Reel Tine/Cutterbar Clearance				
✓ Knife Drive Belt Tension				

8. Whichever occurs first.

9. 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																		
250 HOURS OR ANNUALLY⁸																			
✓	Draper Seal																		
◆	Adapter Auger Pivots																		
◆	Upper Cross Auger Center Support																		
◆	Reel Drive U-joint																		
◆	Bell crank Linkage																		
◆	Transport Axle Pivot Bushings																		
▲	Hydraulic Oil Filter																		
500 HOURS OR ANNUALLY⁸																			
✓	Draper Seal																		
◆	Reel Shaft Bearings																		
◆	Stabilizer/Slow Speed Transport Wheel Bearings																		
✓	Gearbox Chain Tension																		
1000 HOURS OR 3 YEARS⁸																			
▲	Knife Drive Box Lubricant																		
▲	Gearbox Lubricant																		
▲	Hydraulic Oil																		

6.3.2 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.	Checking Oil Level, page 274
At 5 hours	Check for loose hardware. Tighten to required torque.	6.2.3 Torque Specifications, page 244
	Check knife drive belt tension. Periodically check for first 50 hours.	Tensioning Knife Drive Belts, page 313
At 10 hours	Check knife drive box mounting bolts.	Mounting Bolts, page 314
At 50 hours	Change adapter gearbox oil.	Changing Oil in Header Drive Gearbox, page 273
	Change adapter hydraulic oil filter.	6.4.2 Changing Oil Filter, page 276
	Change knife drive box lubricant.	Changing Oil in Knife Drive Box, page 320
	Check gearbox chain tension.	6.6.5 Adjusting Tension on Gearbox Drive Chain, page 285

6.3.3 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. Refer to [Tensioning Knife Drive Belts, page 313](#).
 2. Perform all annual maintenance. Refer to [6.3.1 Maintenance Schedule/Record, page 258](#).

6.3.4 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.

MAINTENANCE AND SERVICING

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 [6.2 Maintenance Specifications, page 242](#).

6.3.5 Checking Hydraulic Hoses and Lines

Check hydraulic hoses and lines daily for signs of leaks.

WARNING

- Avoid high-pressure fluids. Escaping fluid can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure.
- If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.
- 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 6.18

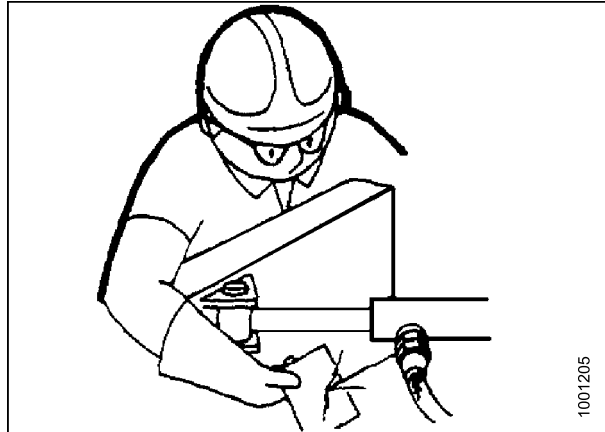


Figure 6.19

6.3.6 Lubrication and Servicing

CAUTION

To avoid personal injury, before servicing header or opening drive covers, follow procedures in [6.1 Preparation for Servicing, page 241](#).

Refer to [6.2.2 Recommended Fluids and Lubricants, page 244](#) for recommended lubricants.

Log hours of operation and use the Maintenance Record provided to keep a record of scheduled maintenance. Refer to [6.3.1 Maintenance Schedule/Record, page 258](#).

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.

IMPORTANT:

Unless otherwise specified, use High Temperature Extreme Pressure (EP2) Performance with 1% Maximum Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

Knife:



Figure 6.20: Every 10 Hours or Daily

Knifehead:

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. Refer to [6.8.3 Removing Knifehead Bearing, page 302](#).

NOTE:

Check for signs of excessive heating on first few guards after greasing. If required, relieve pressure by pressing check-ball in grease fitting.

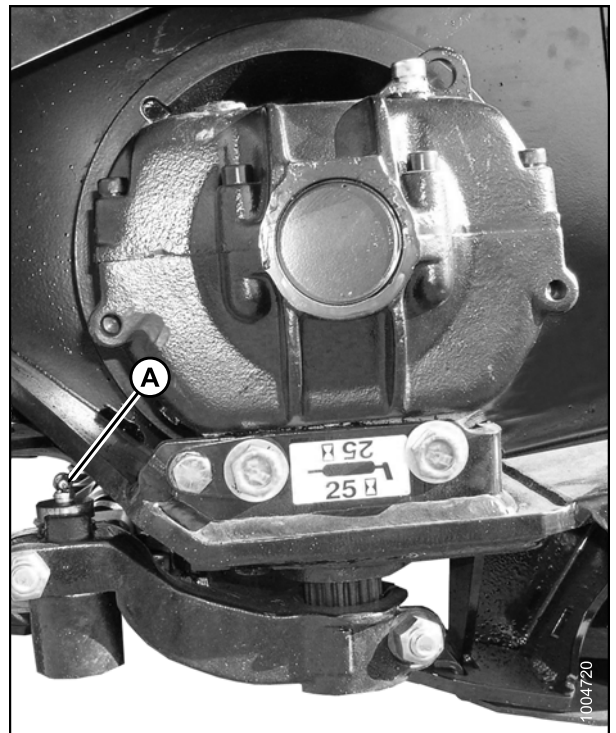


Figure 6.21: Every 25 Hours

A - Knifehead (Single Knife (1 PLC) (Double Knife - 2 PLCs)

MAINTENANCE AND SERVICING

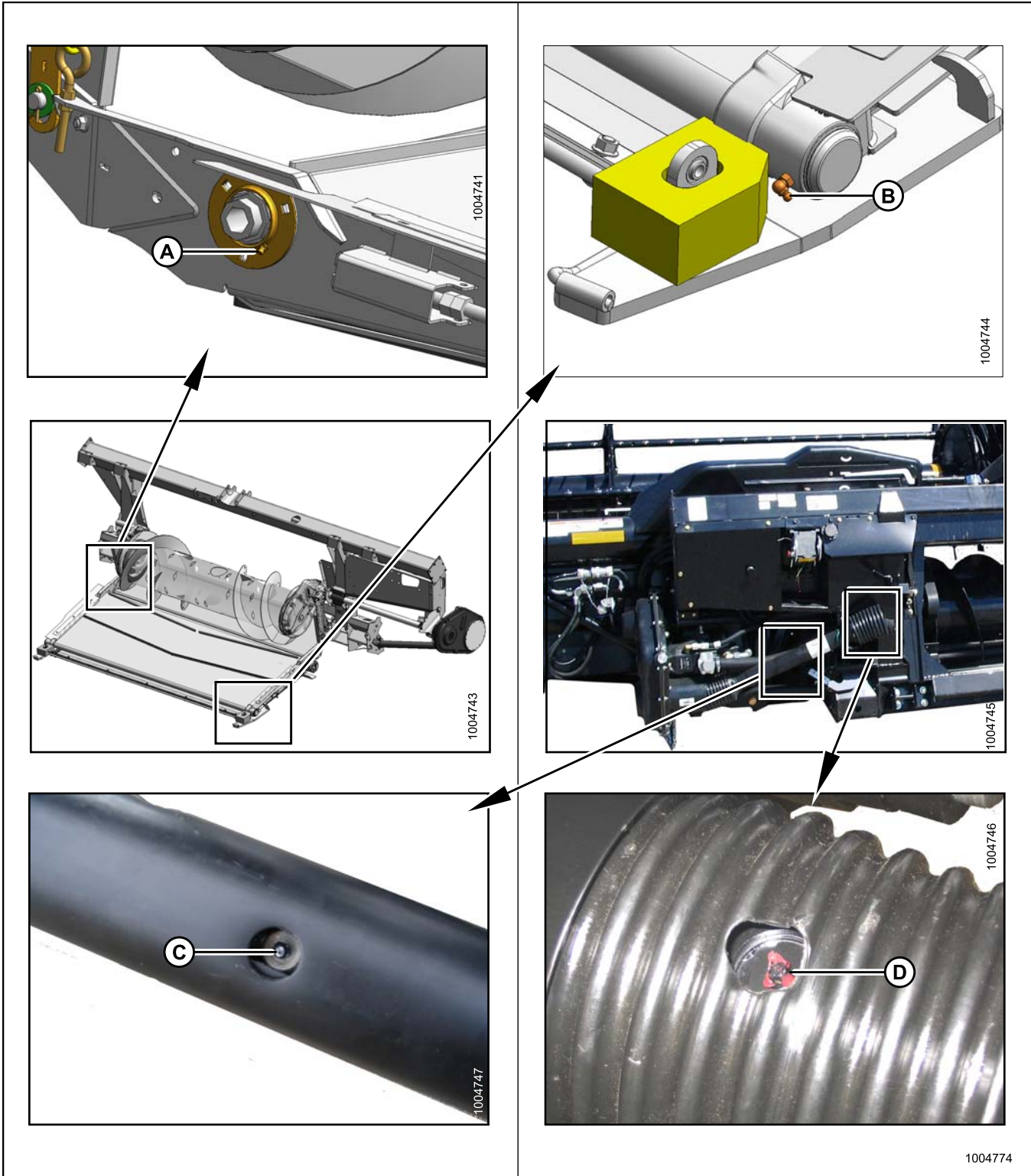


Figure 6.22: Every 50 Hours

A - Drive Roller Bearing

B - Idler Roller Bearing (Both Sides)

C - Driveline Slip Joint¹⁰

D - Driveline Universal (2 PLCS)

10. Use High Temperature Extreme Pressure (EP2) Performance With 10% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base

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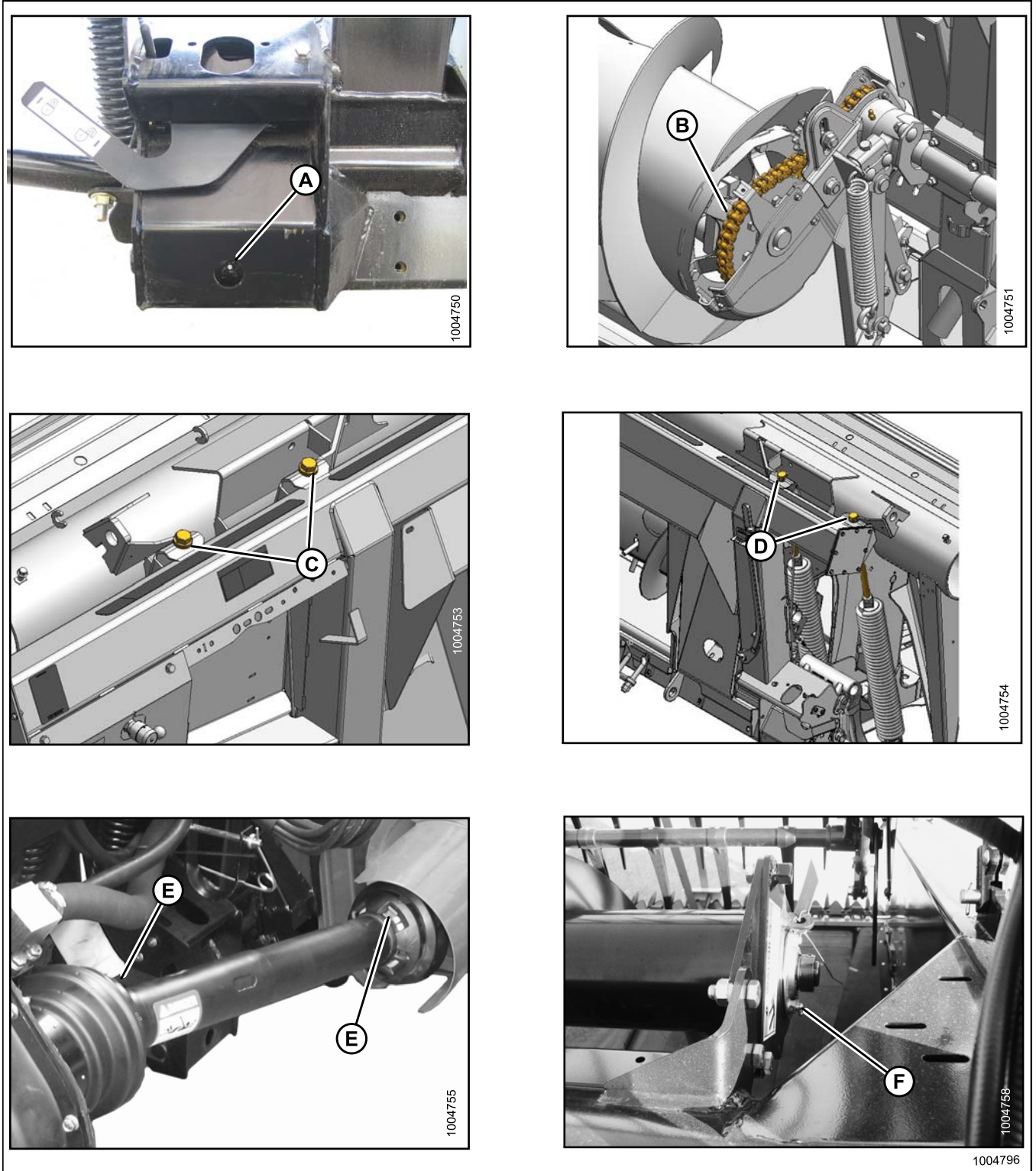


Figure 6.23: Every 100 Hours

A - Float Pivot - RH and LH

B - Auger Drive Chain - Refer to [Lubricating Auger Drive Chain, page 271](#)

C - LH Float Spring Tensioners

D - RH Float Spring Tensioners

E - Driveline Guard - 2 PLCS

F - Upper Cross Auger Bearing - 1 PLC

MAINTENANCE AND SERVICING

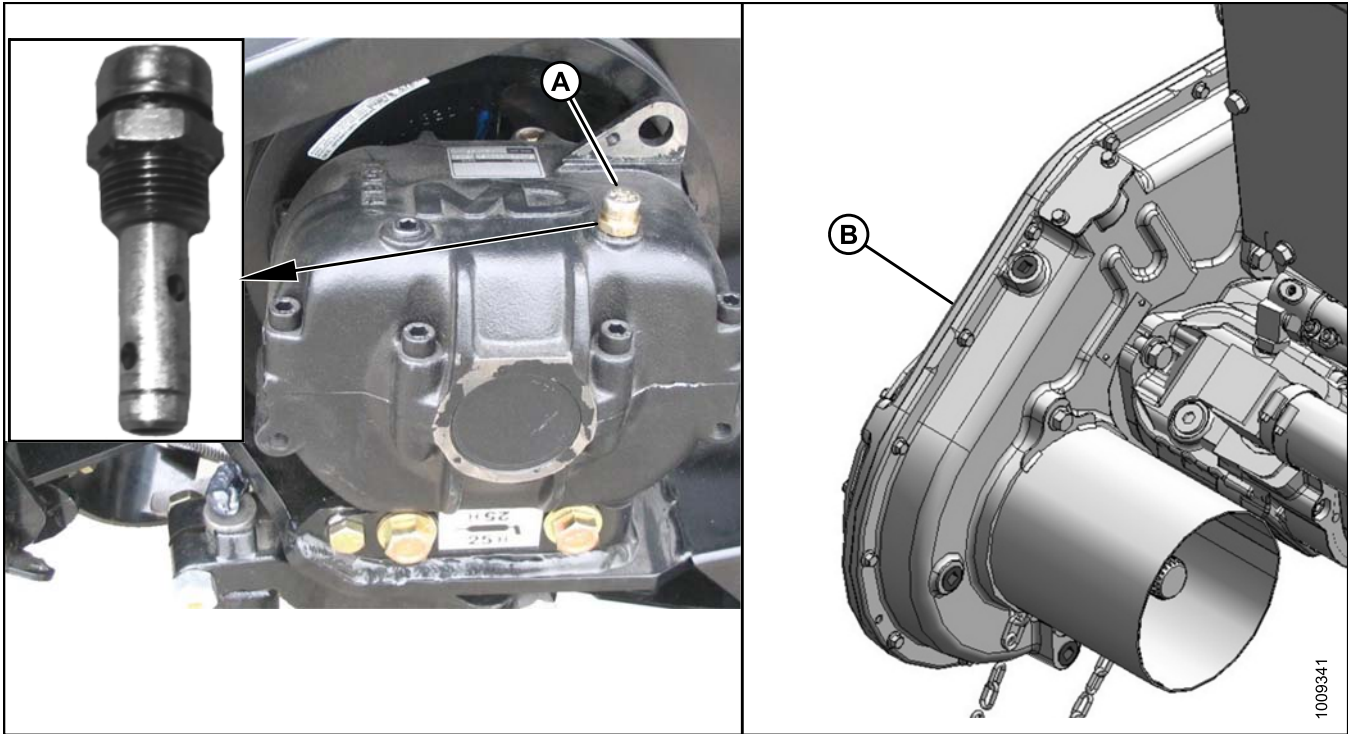


Figure 6.24: Every 100 Hours (Continued)

A - Knife Drive Box (Check Oil Level Between Lower Hole and End of Dipstick)

B - Main Drive Gearbox Oil Level - Refer to [Lubricating Header Drive Gearbox, page 272](#)

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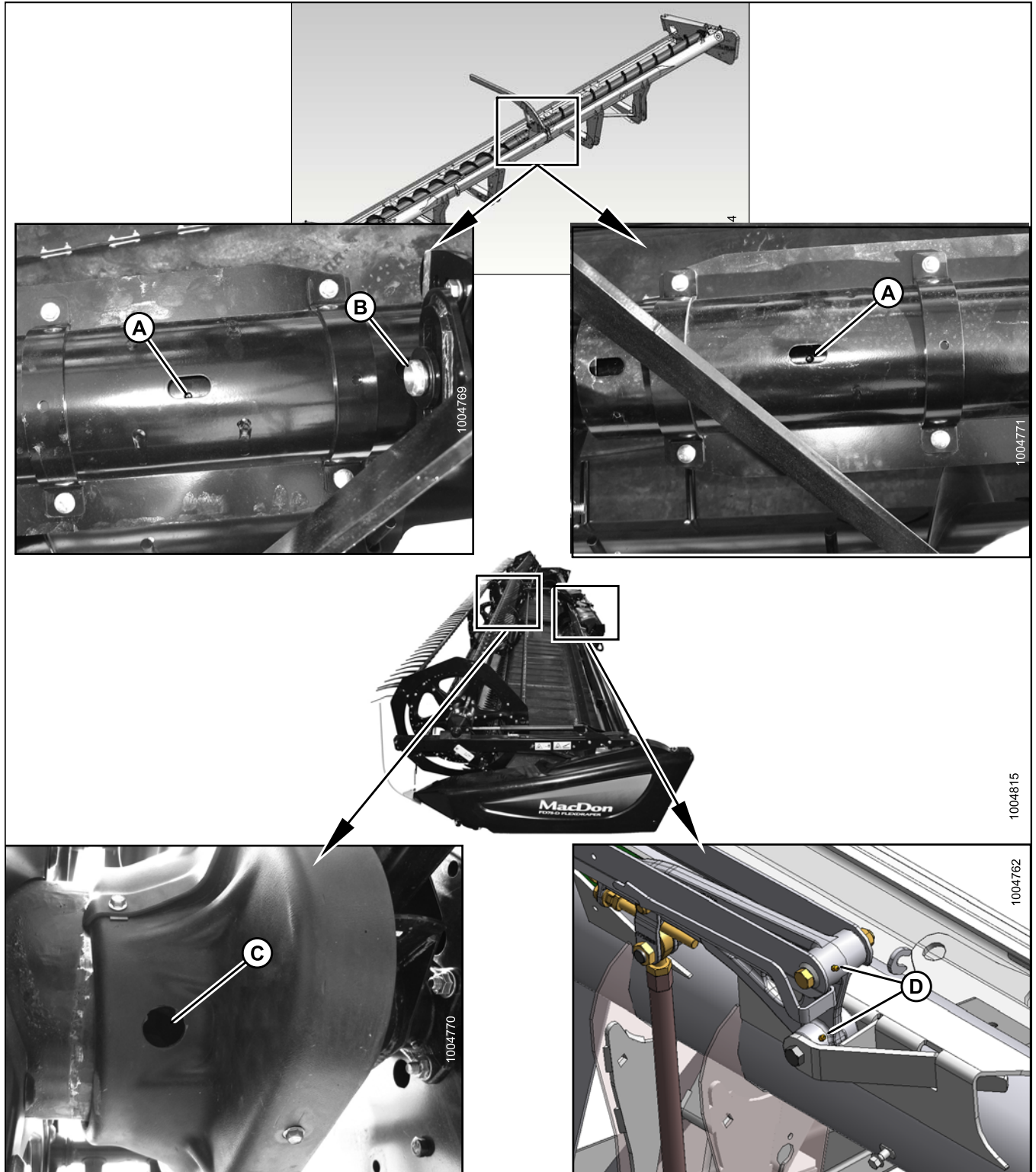


Figure 6.25: Every 250 Hours

A - Upper Cross Auger U-joint and Bearing¹¹
 C - Reel U-joint (1 PLC)

B - Upper Cross Auger Bearing (2 PLCS)
 D - Flex Linkage (2 PLCS) - Both Sides

11. 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

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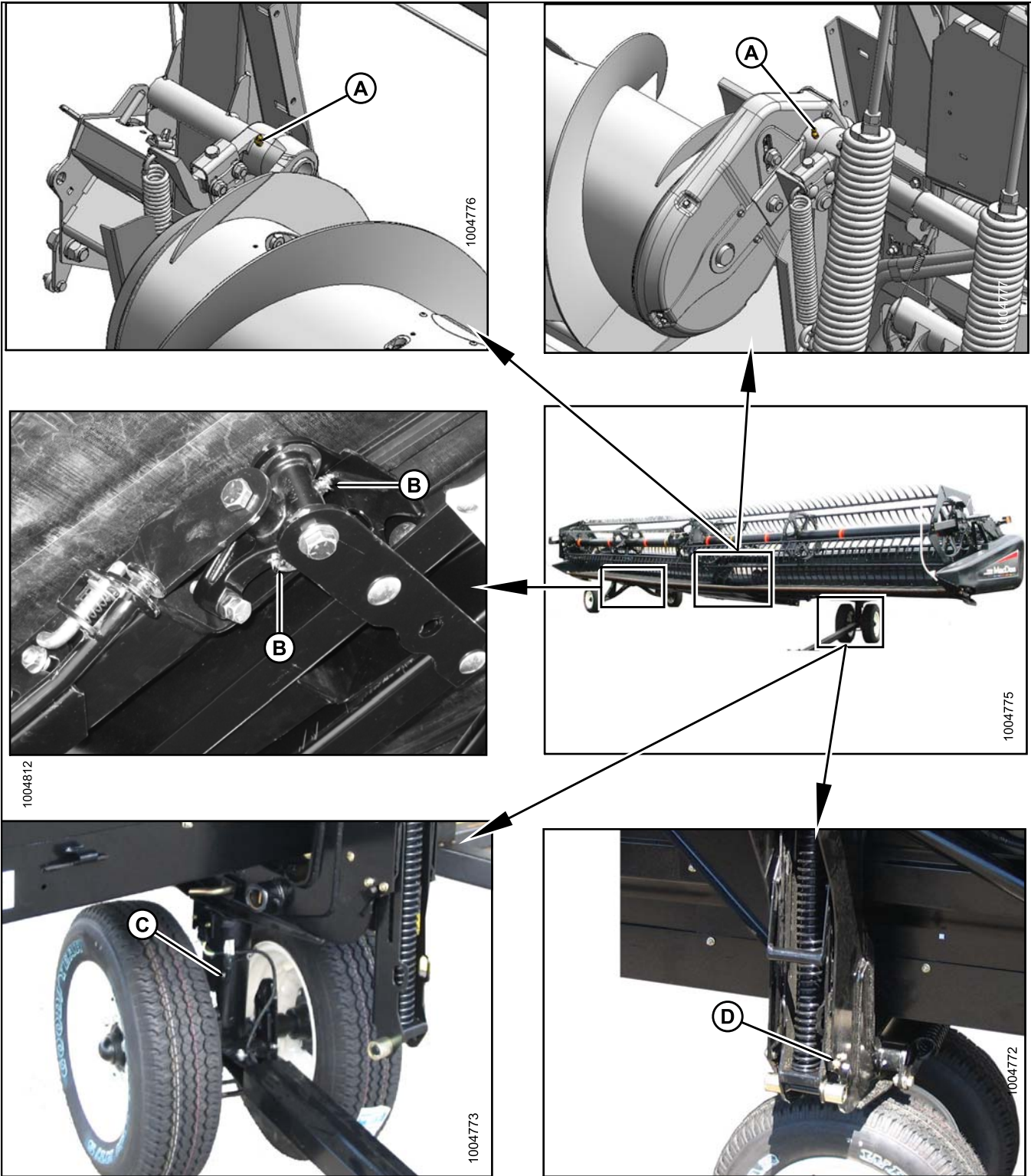


Figure 6.26: Every 250 Hours (Continued)

A - Auger Pivots

C - Front Wheel Pivot (1 PLC)

B - Rear Axle Pivots

D - Frame/Wheel Pivot (1 PLC) - Both Sides

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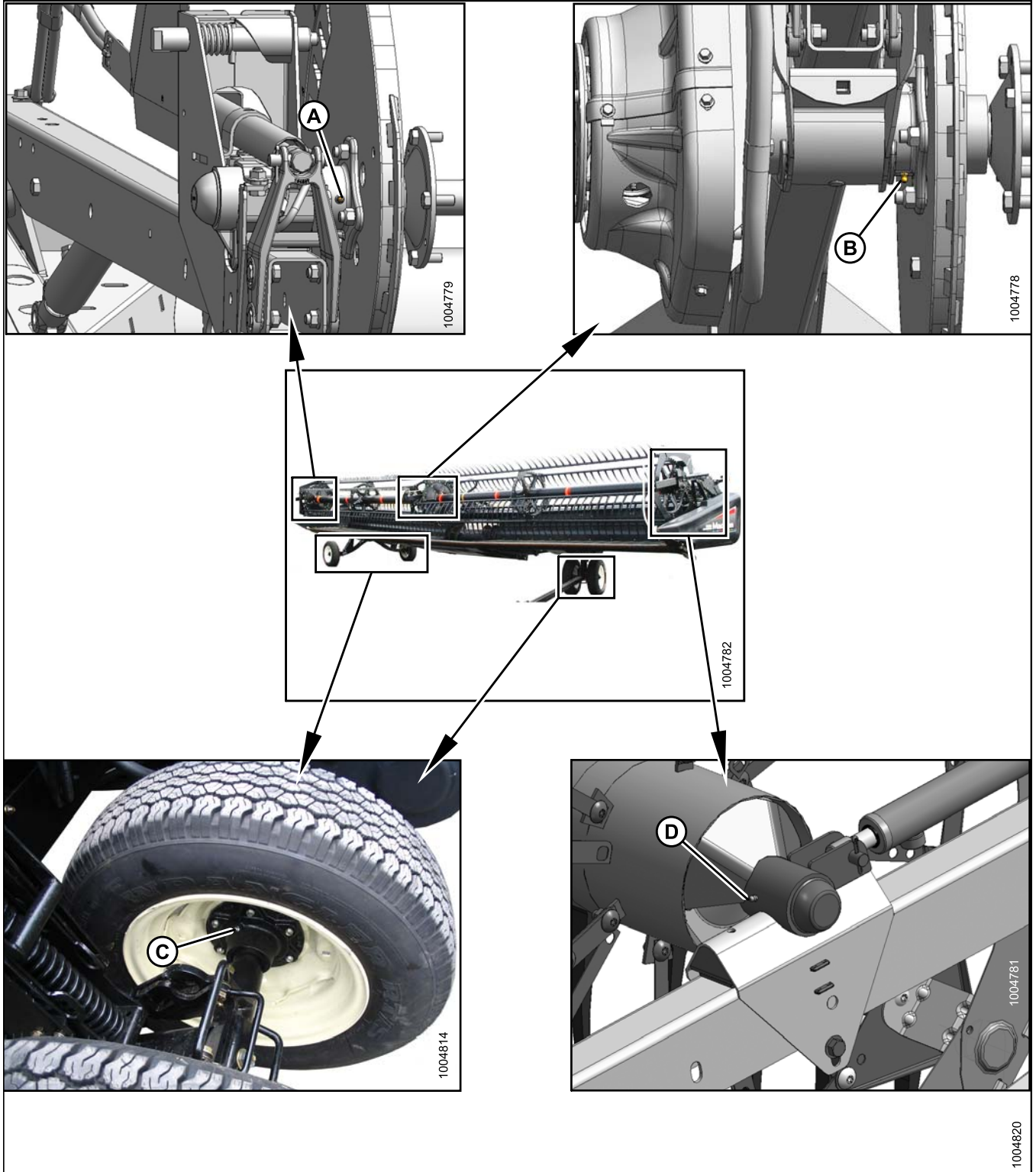


Figure 6.27: Every 500 Hours

A - Reel Right Bearing (1 PLC)

B - Reel Center Bearing (1 PLC)

C - Wheel Bearings (4 PLCS)

D - Reel Left 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. Refer to [6.2.2 Recommended Fluids and Lubricants, page 244](#).

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. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
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.

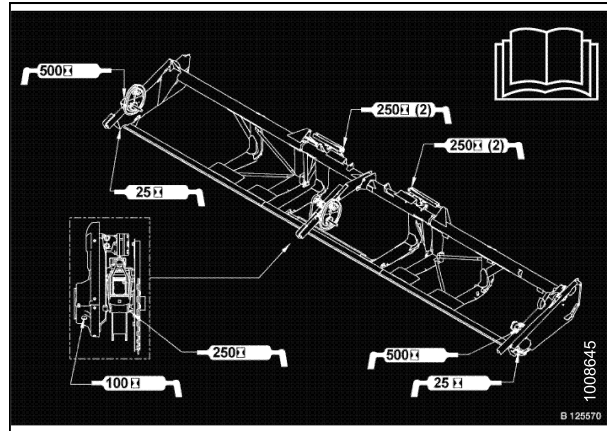


Figure 6.28: FD75

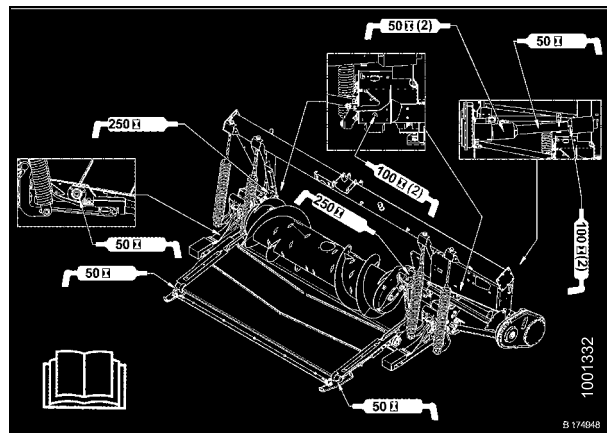


Figure 6.29: CA25 Adapter

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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 two bolts (B) at the rear of the cover.
3. Rotate upper half (C) forward to remove.

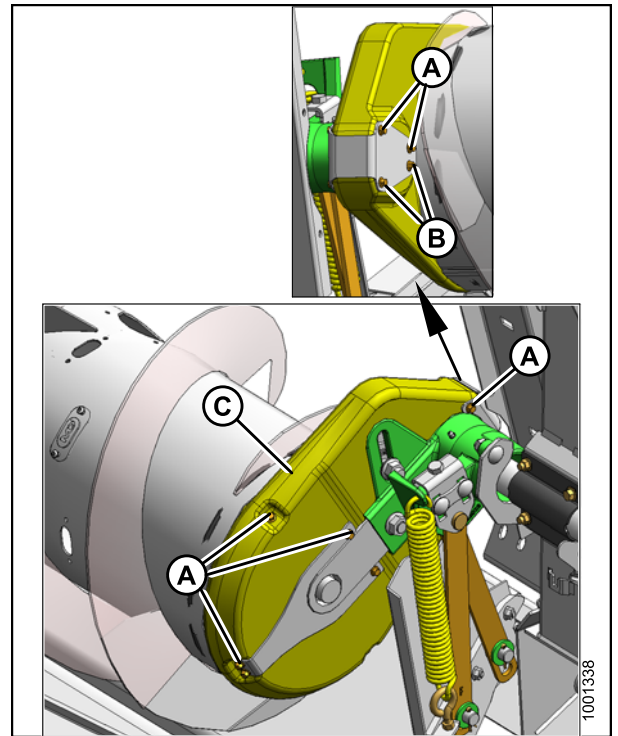


Figure 6.30: Auger Drive

4. Liberally apply grease to chain (A).

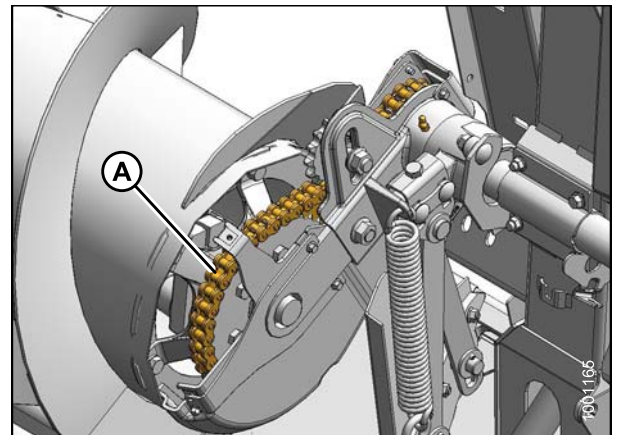


Figure 6.31: Auger Drive

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5. Reinstall cover (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).

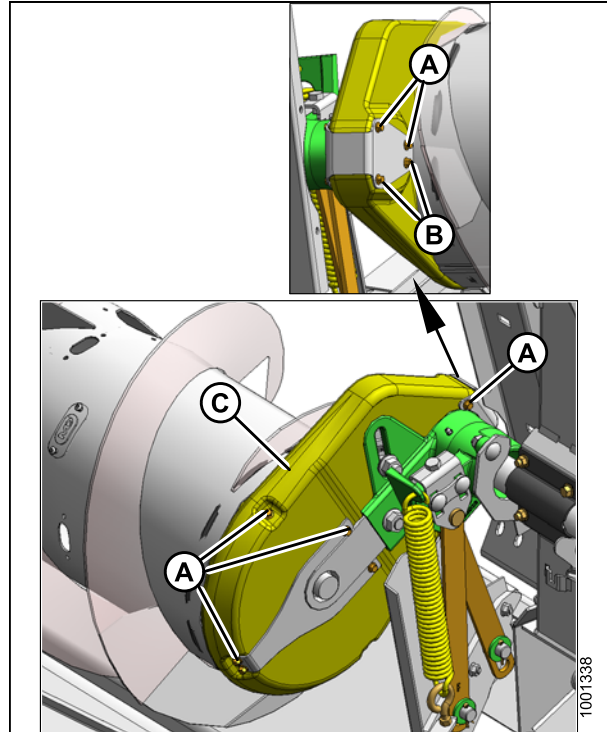


Figure 6.32: Auger Drive

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). Oil 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 273](#).

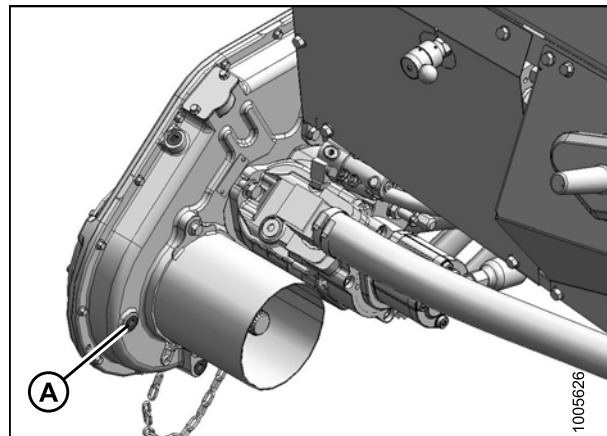


Figure 6.33: Gearbox

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. Shut down 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).

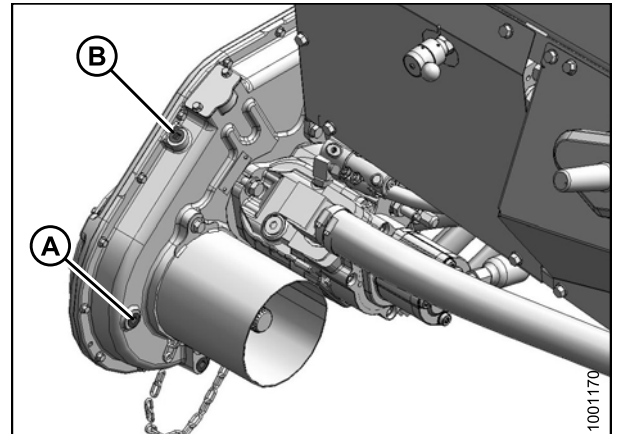


Figure 6.34: Gearbox

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 1 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).

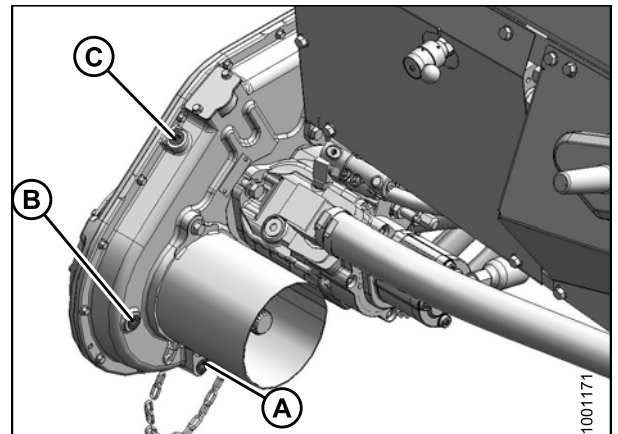


Figure 6.35: Gearbox

6.4 Hydraulics

The CA25 Combine Adapter's hydraulic system drives the adapter feed draper, the header drapers, and knife drive(s). Reel hydraulics are provided by the combine.

6.4.1 Reservoir

The adapter frame is used as a reservoir.

Refer to [6.2.2 Recommended Fluids and Lubricants, page 244](#) for oil requirements.

Checking 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 slightly higher.

NOTE:

When ambient temperatures are above 95°F (35°C), it may be necessary to lower oil level slightly to prevent overflow at breather under operating temperatures.

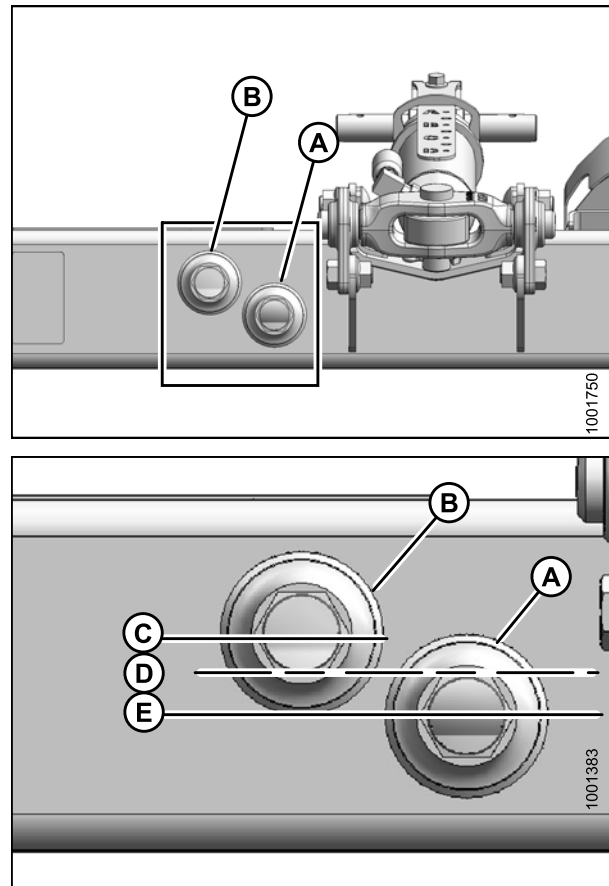


Figure 6.36: Oil Level Sights

Adding Oil

To add oil to the 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 (approximately 70°F [21°C.]) oil and fill to required level. Refer to [6.2.2 Recommended Fluids and Lubricants, page 244](#) for specifications.

IMPORTANT:

Warm oil will flow through the screen better than cold oil. DO NOT REMOVE THE SCREEN.

4. Re-install filler cap (A).

Changing Oil

To change the oil in the reservoir, follow these steps.

Change oil every 1000 hours or 3 years.

1. Detach header from adapter. Refer to [5 Header Attachment/Detachment, page 189](#).
2. Raise feeder house and engage lift cylinder safety props.



Figure 6.37: Oil Reservoir

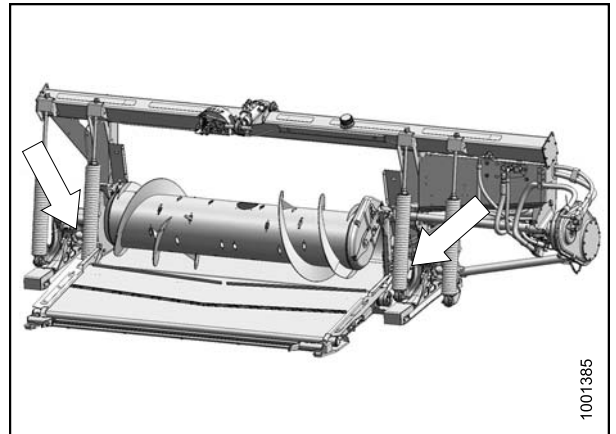


Figure 6.38: Adapter

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3. Place a suitable container (at least 8 US gallons [30 liters]) under each of the two drains (A) located at the base of each side frame.
4. Remove drain plugs (A) with a 1-1/2 in. hex socket and allow the oil to drain.
5. Replace drain plugs when reservoir is empty.
6. Change filter if required. Refer to [6.4.2 Changing Oil Filter, page 276](#).
7. Add approximately 16 US gallons (60 liters) of oil to the reservoir. Refer to [Adding Oil, page 275](#).

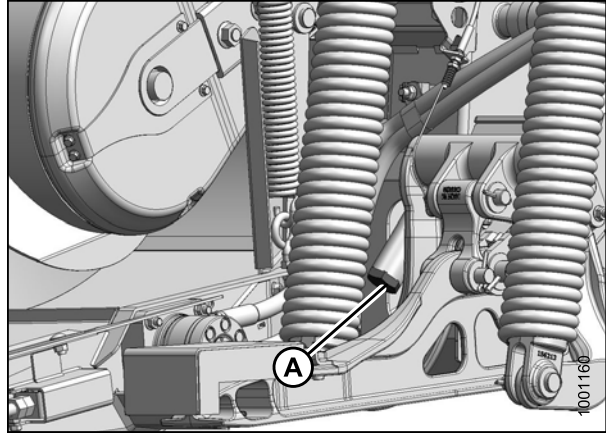


Figure 6.39: Reservoir Drain

6.4.2 Changing Oil Filter

To change the oil filter, follow these steps:

Change 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 screws (A), and remove cover (B).

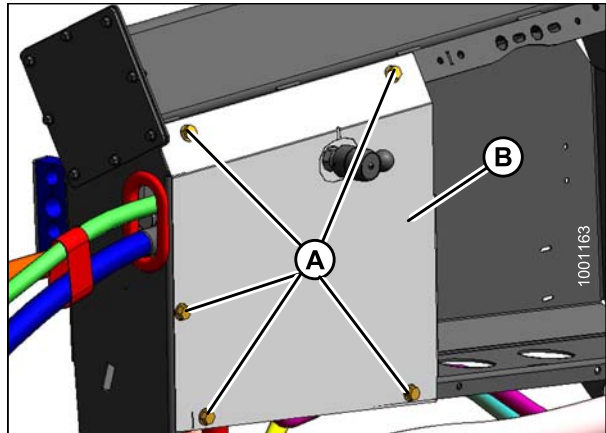


Figure 6.40: Adapter Hydraulics

MAINTENANCE AND SERVICING

2. Clean around mating surfaces of filter (B) 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 cover (B) with screws (A).

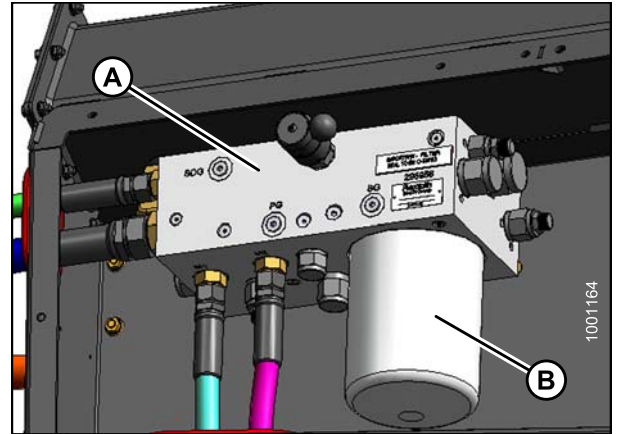


Figure 6.41: Adapter Hydraulics

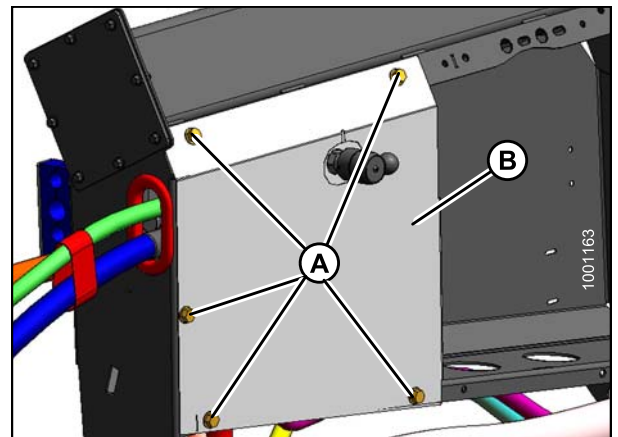


Figure 6.42: Adapter Hydraulics

6.5 Electrical

Use electrical tape and wire clips as required to prevent wires from dragging or rubbing.

Keep lights clean and replace defective bulbs.

6.5.1 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:

Use bulb trade #1156 for amber clearance lights and #1157 for red tail light (Slow Speed Transport option).

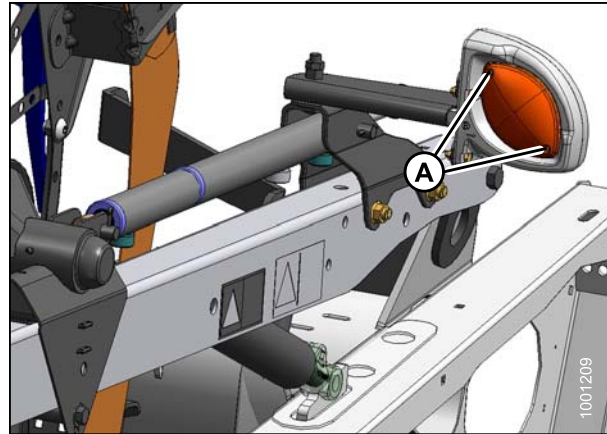


Figure 6.43: Clearance Light

6.6 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.

6.6.1 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.
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.

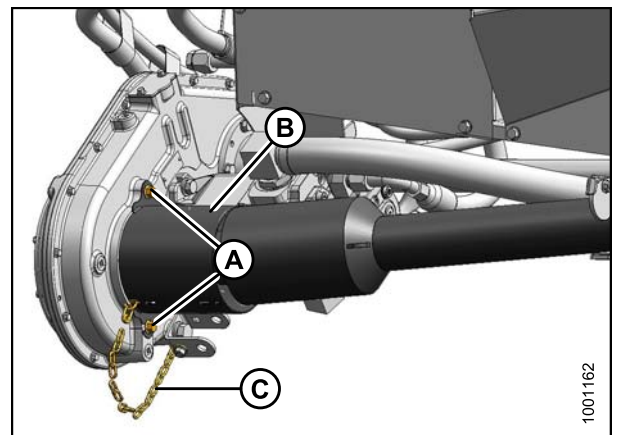


Figure 6.44: Driveline

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

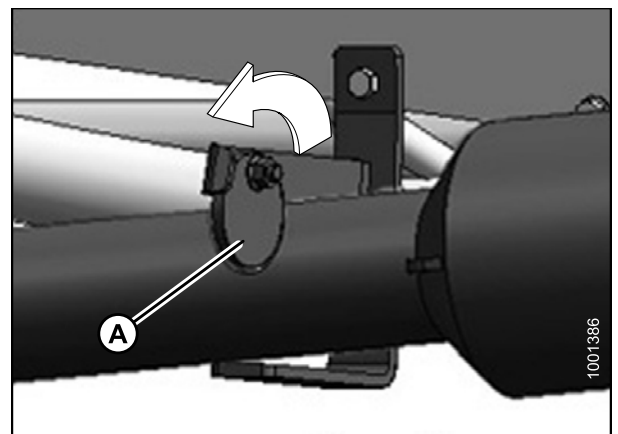


Figure 6.45: Driveline

6.6.2 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.

IMPORTANT:

Ensure driveline is concurrent with length specifications. Refer to [3 Specifications, page 27](#).

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

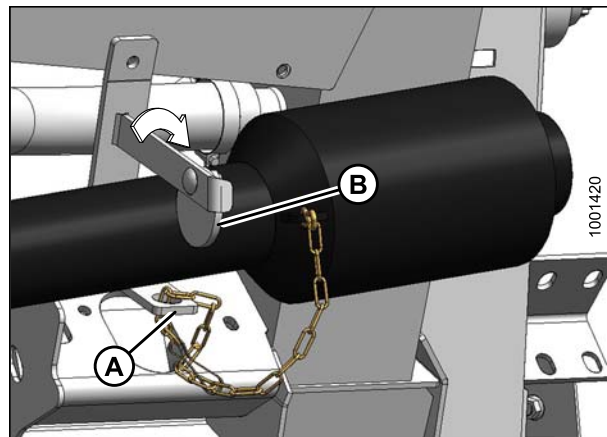


Figure 6.46: Driveline

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.

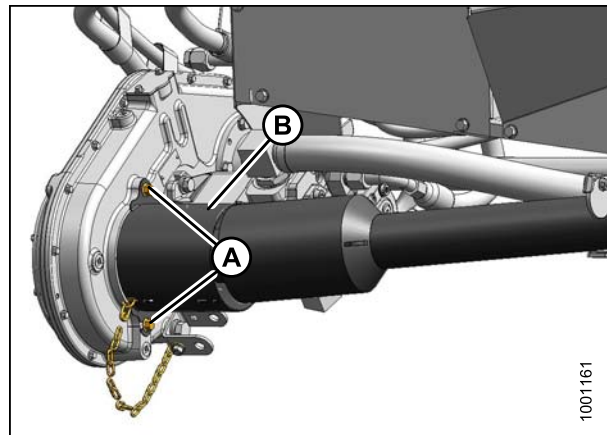


Figure 6.47: Driveline

6.6.3 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.

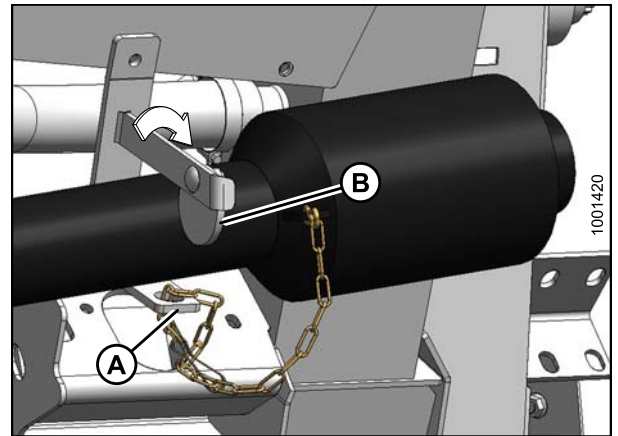


Figure 6.48: Driveline

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 6.49: Guard

MAINTENANCE AND SERVICING

3. Release grease zerk/lock (A) with a screwdriver.

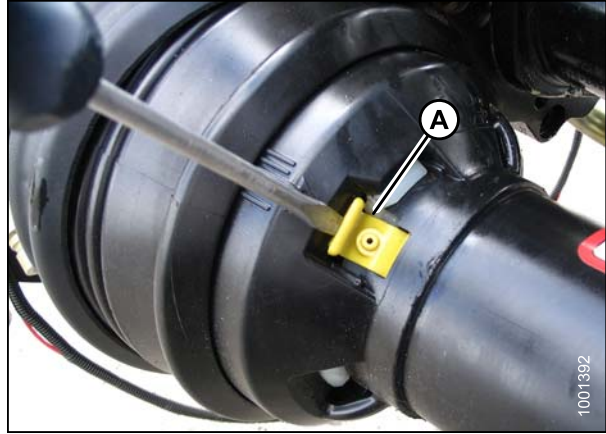


Figure 6.50: Guard

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

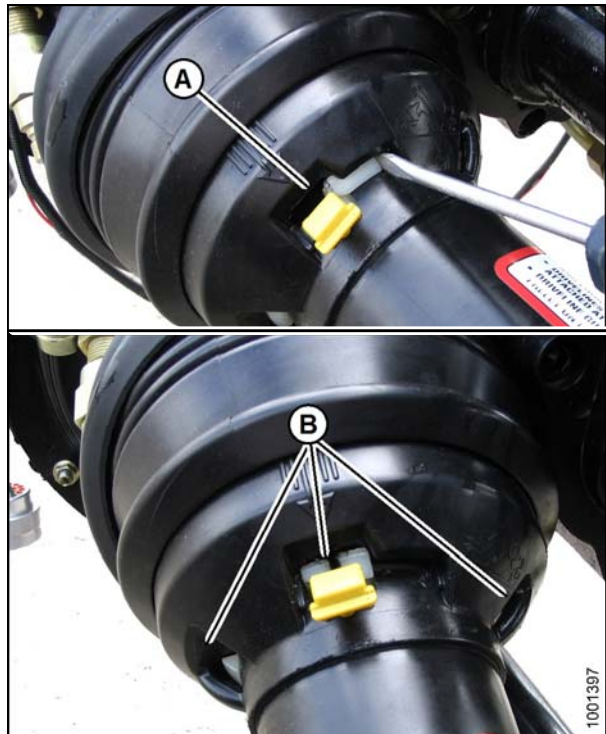


Figure 6.51: Guard

6.6.4 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 6.52: Guard

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

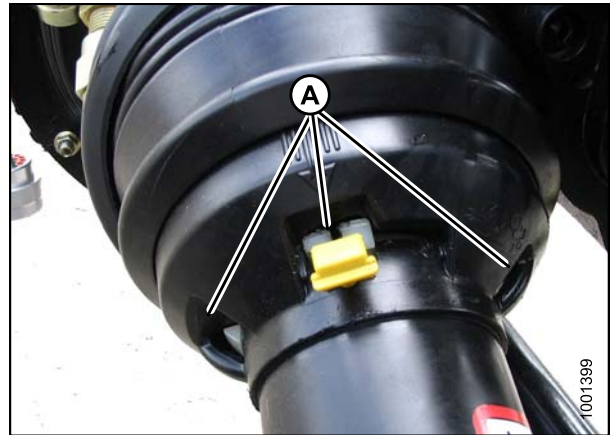


Figure 6.53: Guard

3. Rotate ring (A) clockwise with a screwdriver to lock ring in guard.

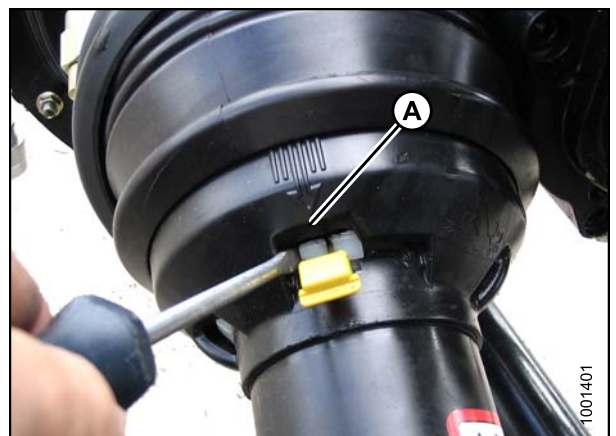


Figure 6.54: Guard

MAINTENANCE AND SERVICING

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



Figure 6.55: Guard

5. Reassemble driveline.

NOTE:

The splines are keyed so that universals are aligned. Align weld (A) with missing spline (B) when assembling.

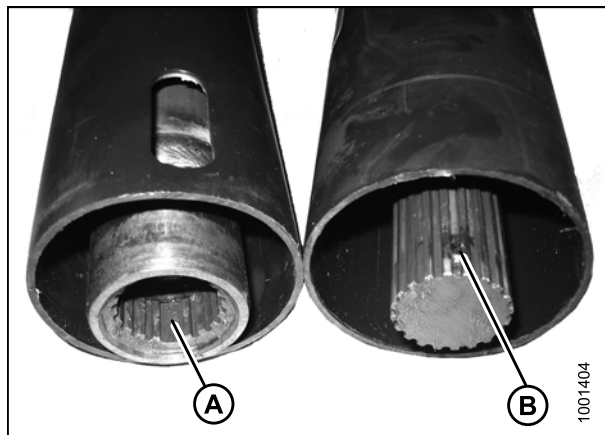


Figure 6.56: Driveline

6. Slide driveshaft in hook (A) so that disc (B) drops to secure driveshaft, or connect to combine.

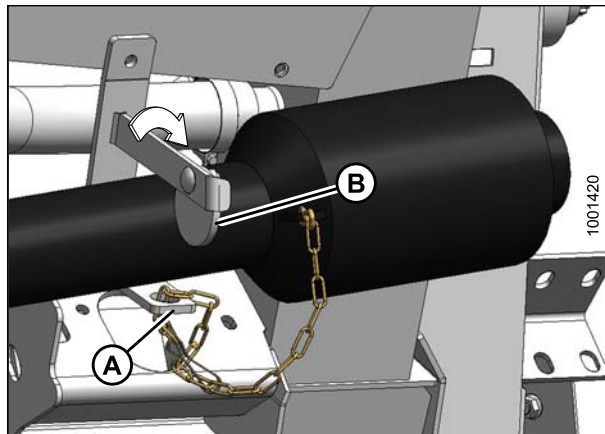


Figure 6.57: Driveline

6.6.5 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.

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).

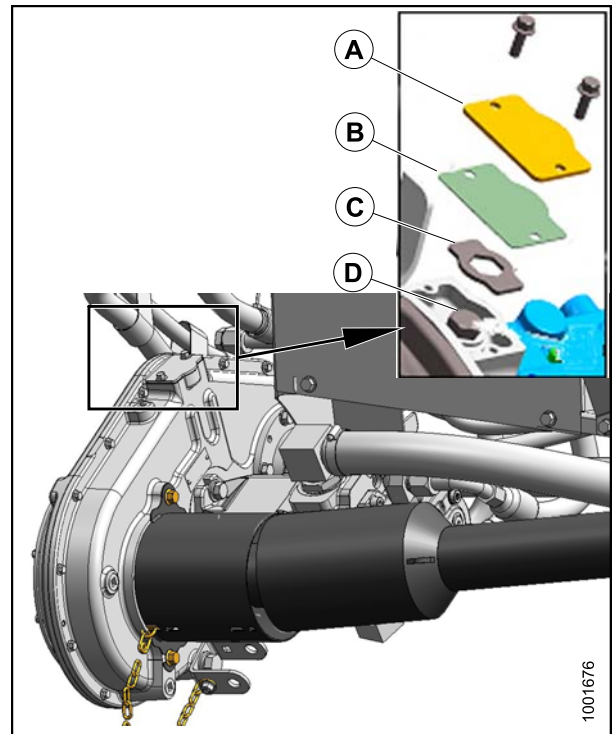


Figure 6.58

A - Cover
C - Retainer Plate

B - Gasket
D - Bolt

6.7 Auger

The CA25 Combine Adapter auger feeds the cut crop from the draper decks into the combine feeder house.

6.7.1 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. 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 position the header 6–10 in. (150–254 mm) off the ground.
2. Shut down combine and remove key from ignition.
3. Check that float lock linkage is on downstops (washer (A) and nut (B) cannot be moved) at both locations.

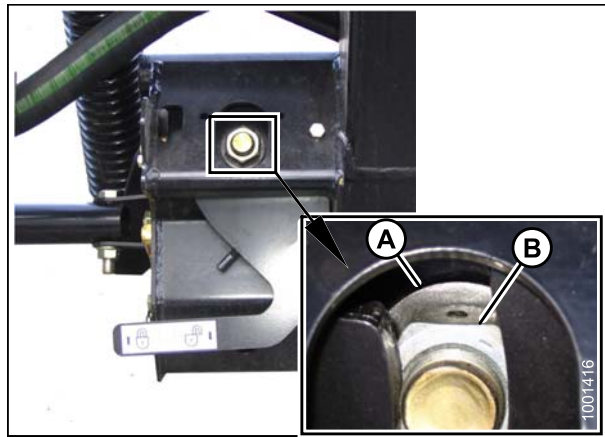


Figure 6.59: Float Lock

4. Check that linkage bars (A) are against studs (B) at lower end of bars at both ends of the auger.

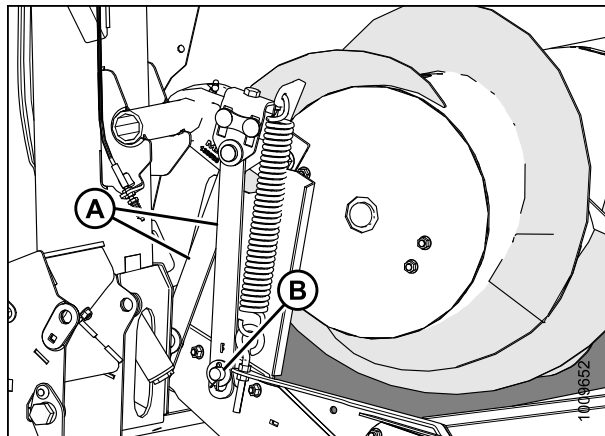


Figure 6.60: Linkage Bars

MAINTENANCE AND SERVICING

- Loosen two nuts (B).
- Set clearance (C) to 3/16–3/8 in. (5–10 mm) with adjuster bolt (A). Clockwise to increase clearance, counter-clockwise to decrease.

NOTE:

The clearance increases to 1–1-1/2 in. (25–40 mm) when the center-link fully retracts for a flatter header angle.

- Repeat above two steps for other end of auger.
- Tighten nuts (B) on both ends of auger.

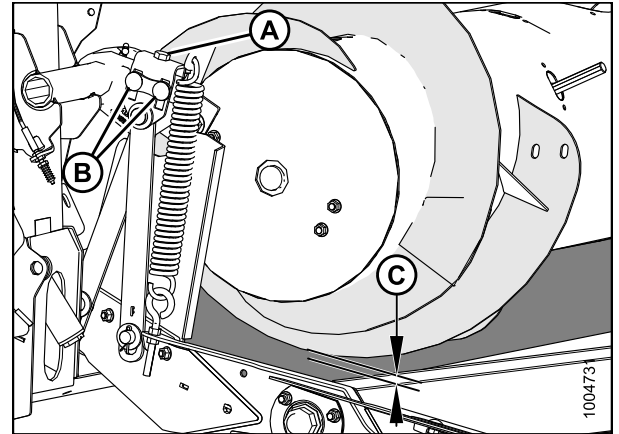


Figure 6.61: Auger Clearance

6.7.2 Adjusting Auger Drive Chain Tension

The auger is chain-driven from the adapter drive system by a sprocket that is attached to side of the auger.

To adjust chain slack, 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.

- Detach header from combine. For instructions, refer to [5 Header Attachment/Detachment, page 189](#).
- Remove the six bolts (A) that secure the top cover on the auger chain case.
- Remove the three bolts (B) and loosen two bolts (E) that secure the bottom cover.
- Remove cover retainer (F).
- Rotate covers (C) and (D) forward to remove.

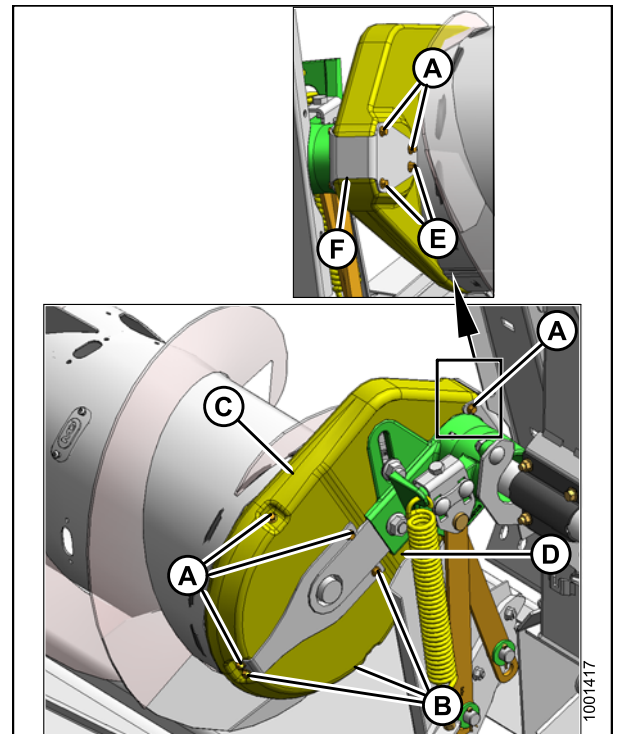


Figure 6.62: Auger Drive

MAINTENANCE AND SERVICING

- Loosen the bolt (A) that secures the idler sprocket.
- Rotate auger in reverse to take up slack in lower strand of chain (B).
- Push idler sprocket down to eliminate remaining slack in upper strands.
- 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.

- Tighten idler bolt (A), and torque to 215 ft-lbf (290 N·m).
- Reinstall covers (C) and (D), engage inboard lip of cover into auger tube and rotate cover back to engage rear support.
- Install cover retainer (F).
- Replace and tighten bolts (A), (B) and (E).

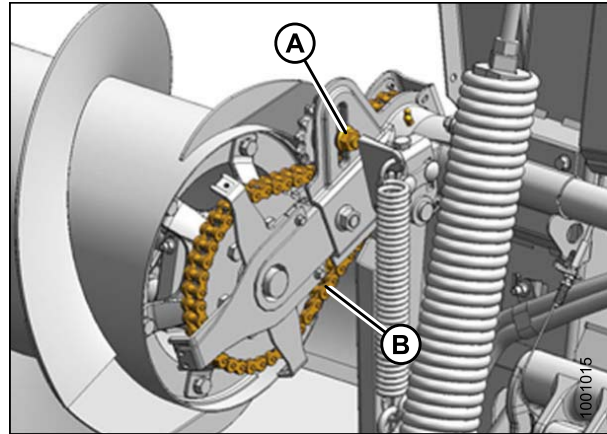


Figure 6.63: Auger Drive

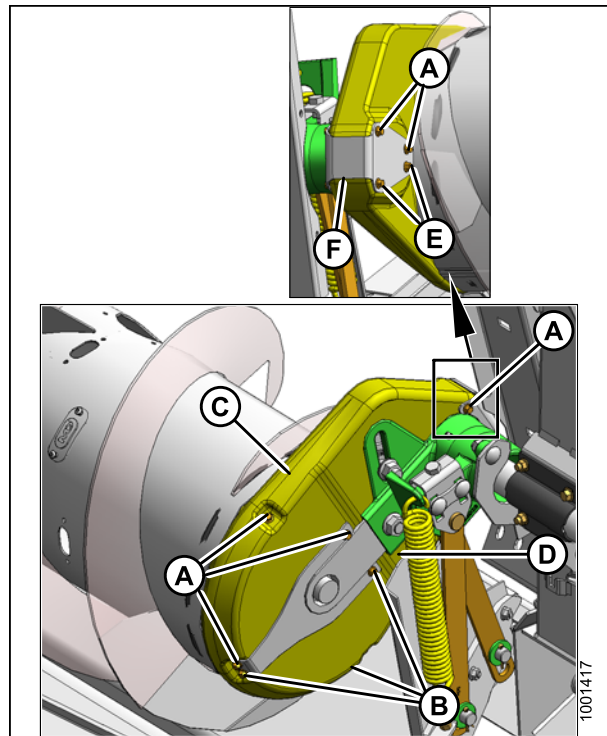


Figure 6.64: Auger Drive

6.7.3 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 header from combine. For instructions, refer to [5 Header Attachment/Detachment, page 189](#).
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. Rotate covers (C) and (D) forward to remove.

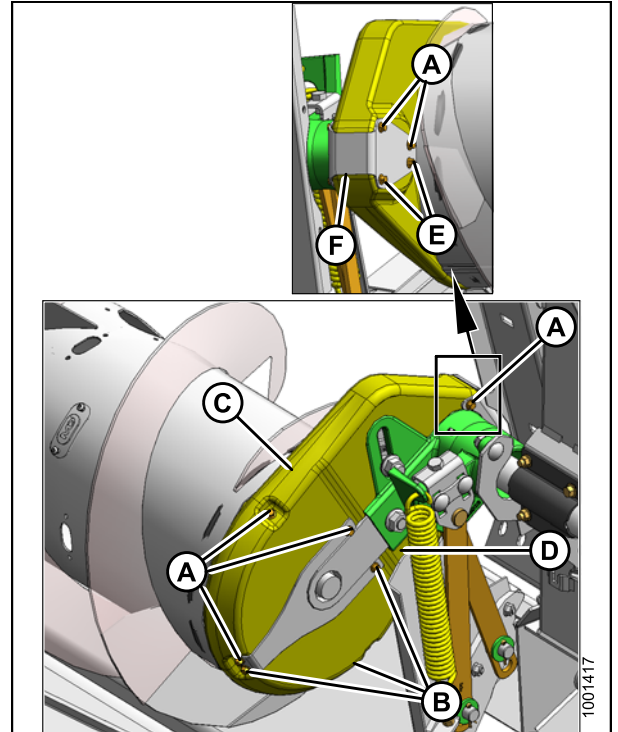


Figure 6.65: Auger Drive

6. Loosen idler sprocket bolt (A), and raise sprocket (B) to uppermost position to release tension on chain. Tighten bolt (A) to hold sprocket.

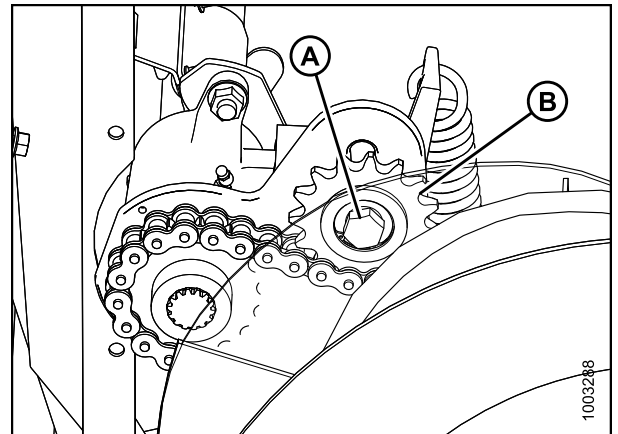


Figure 6.66: Auger Drive

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.

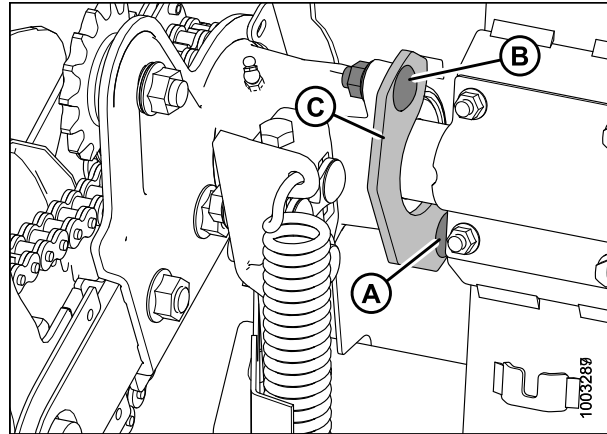


Figure 6.67: Auger Support

8. Using a pry bar (A), slide drum assembly to the right side of the CA25.

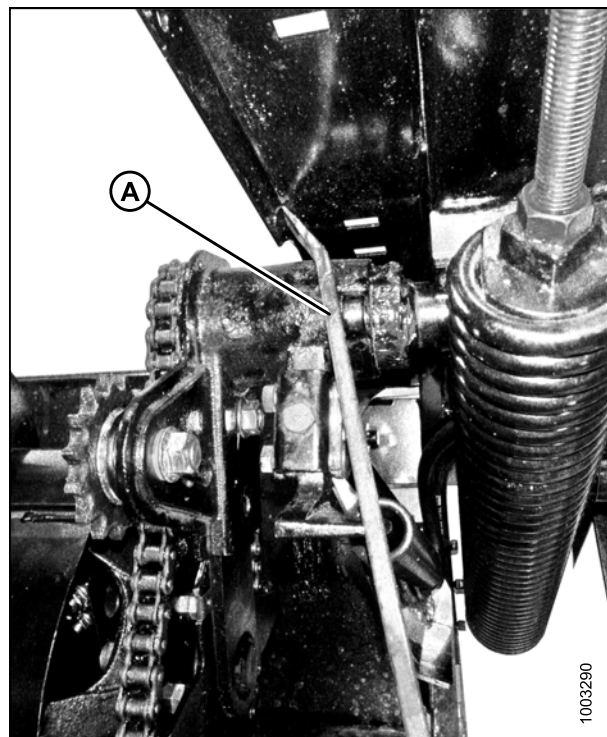


Figure 6.68: Auger Drive

MAINTENANCE AND SERVICING

NOTE:

Once the drum starts sliding to the right, the drive sprocket will fall off.

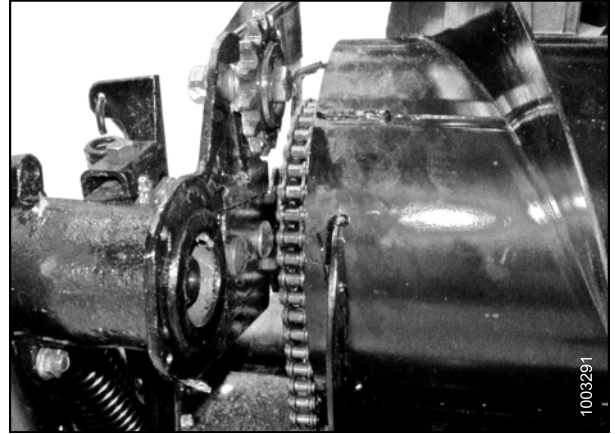


Figure 6.69: Auger Drive

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.

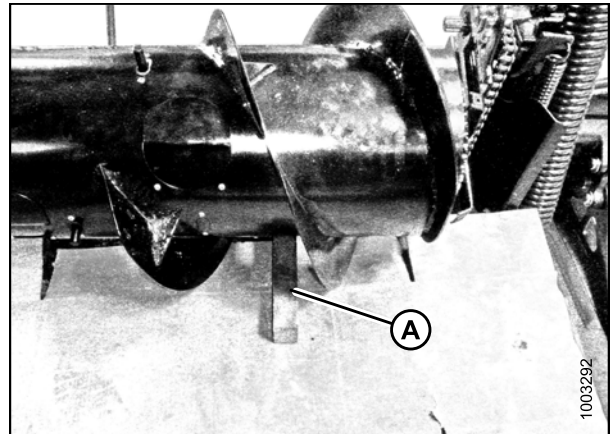


Figure 6.70: Auger

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.

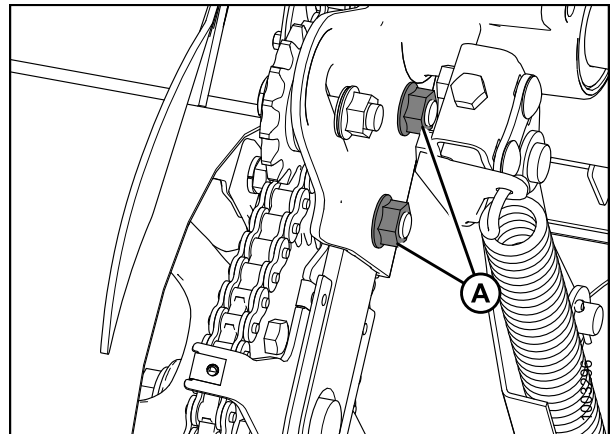


Figure 6.71: Auger Support

MAINTENANCE AND SERVICING

- Slide left housing (A) back into position so the endless chain (B) can be removed.

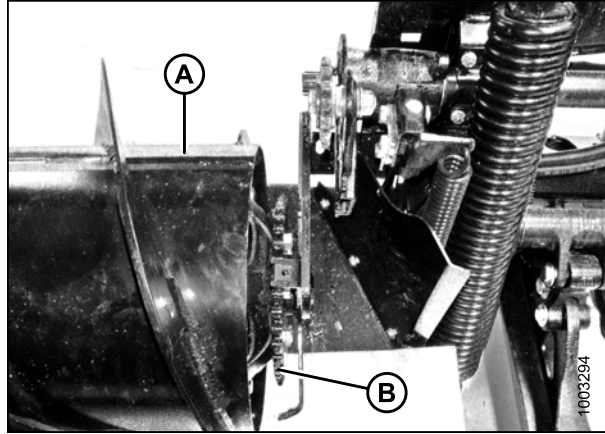


Figure 6.72: Auger Drive

6.7.4 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.

- 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.

- Align sprocket on shaft, and put drive sprocket (A) into chain (B).

NOTE:

The shoulder of the drive sprocket (A) faces the auger.

- Slide entire drum assembly back in place, and bolt down the C-clamp (C) over the housing.

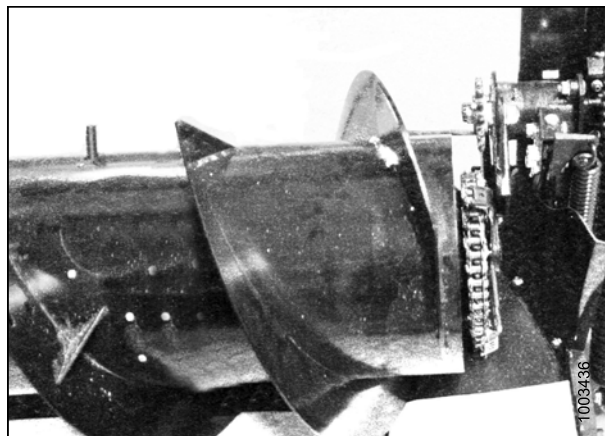


Figure 6.73: Auger Drive

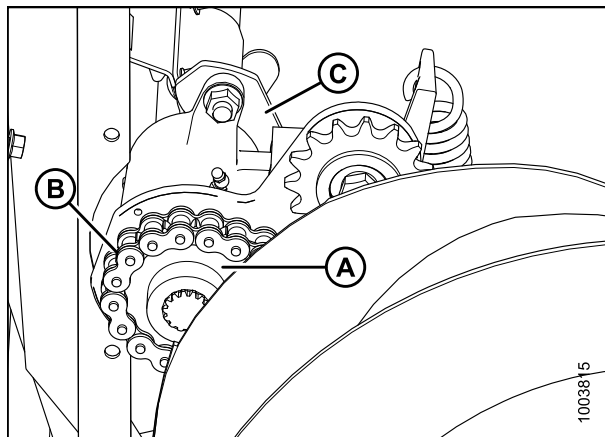


Figure 6.74: Auger Drive

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).

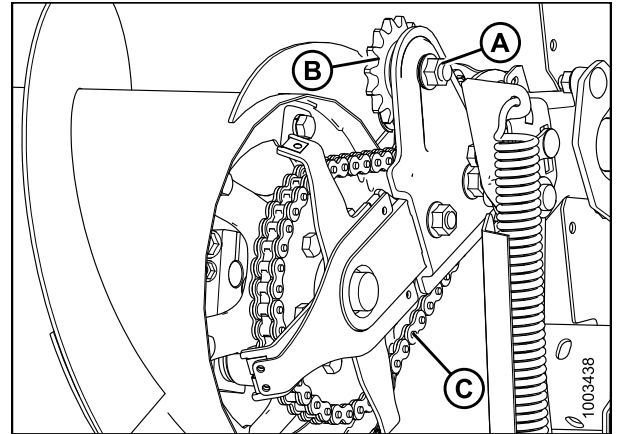


Figure 6.75: Auger Drive

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).

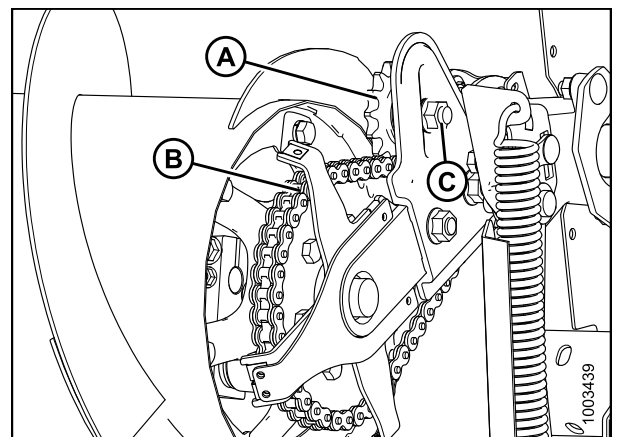


Figure 6.76: Auger Drive

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).

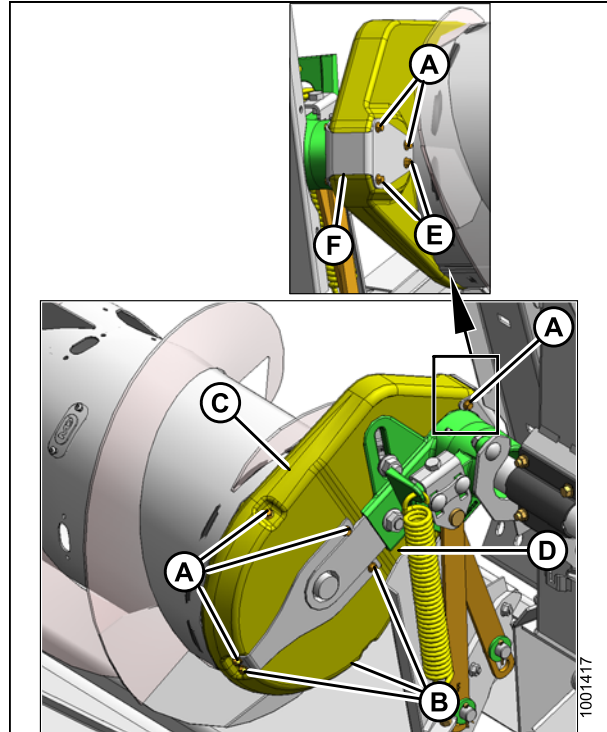


Figure 6.77: Auger Drive

6.7.5 Auger Tines

The CA25 Combine Adapter auger uses retracting tines to feed the 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. Raise reel, shutdown combine and remove key from ignition.
2. Engage reel safety props.
3. Remove screws (A), and remove access cover (B).

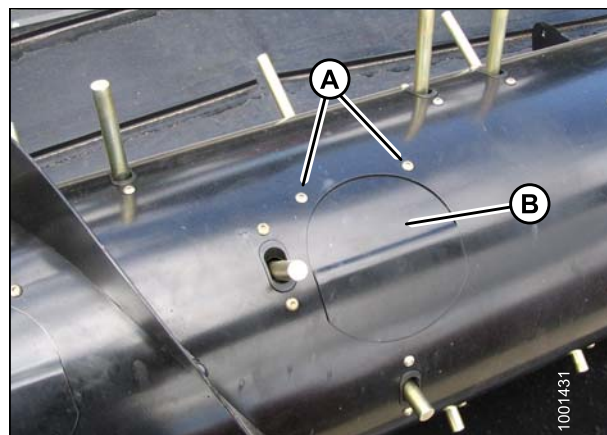


Figure 6.78: Auger

MAINTENANCE AND SERVICING

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

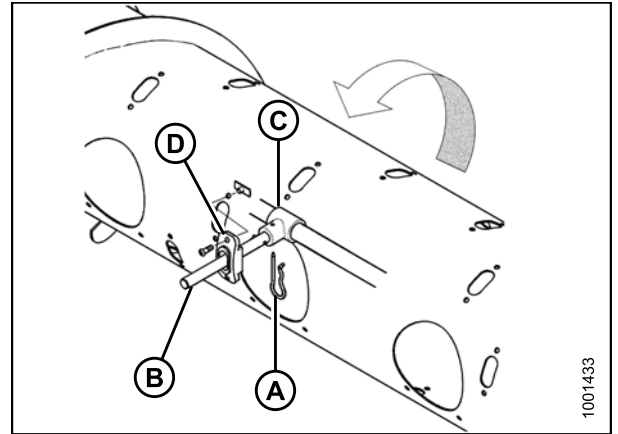


Figure 6.79: Auger

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.

6. If tine is not reinstalled, proceed to next step. Otherwise, Refer to [Installing Feed Auger Tines, page 296](#).

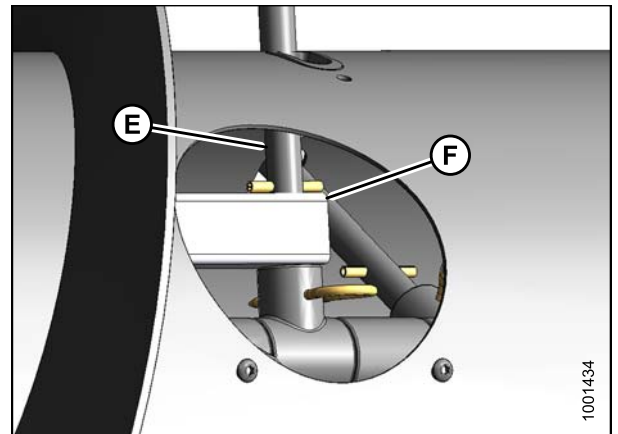


Figure 6.80: Inside Auger

7. Remove screws (A) securing plastic guide (B) to auger, and remove guide from inside auger.

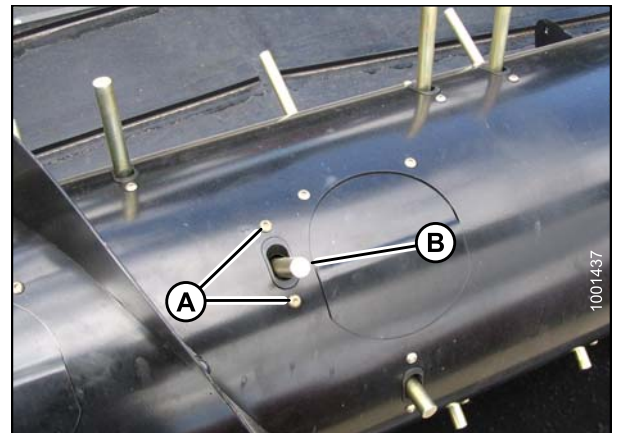


Figure 6.81: Auger

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).

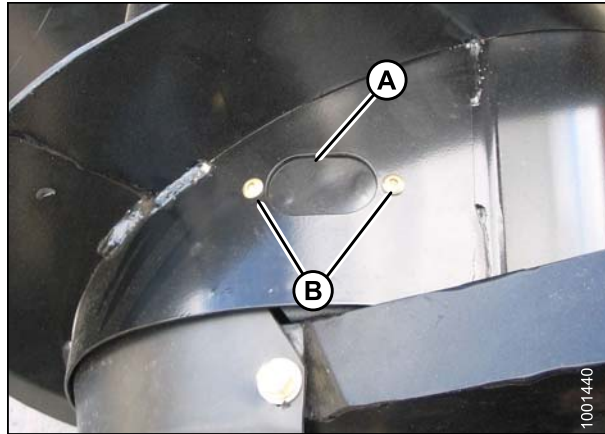


Figure 6.82: Auger

Installing Feed Auger Tines

- Remove access cover (if applicable).
- Insert tine (B) through plastic guide (D) from inside the auger.
- Insert tine into bushing (C).

NOTE:

The #6 tine (E) must also be inserted through the square tube (F).

- Secure tine (B) in bushing (C) with hairpin (A). Install hairpin with closed end leading with respect to auger forward rotation.

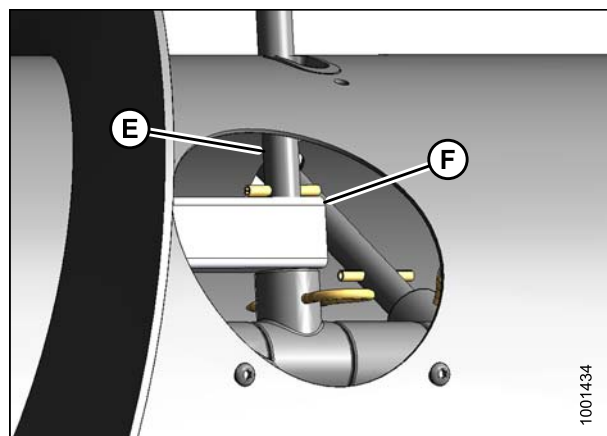
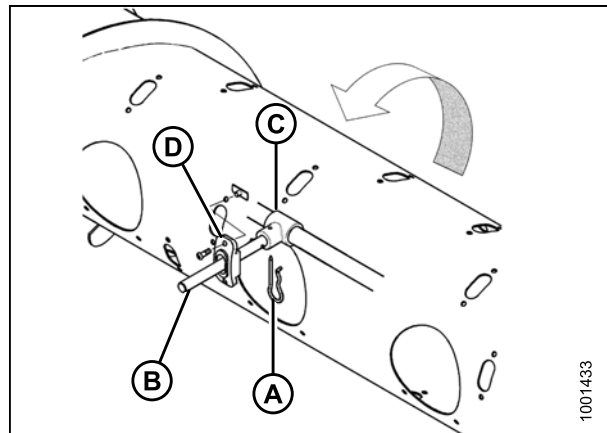


Figure 6.83: Installing Tine

A - Hairpin	B - Tine
C - Bushing	D - Plastic Guide
E - Tine	F - Square Tube

MAINTENANCE AND SERVICING

5. 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).

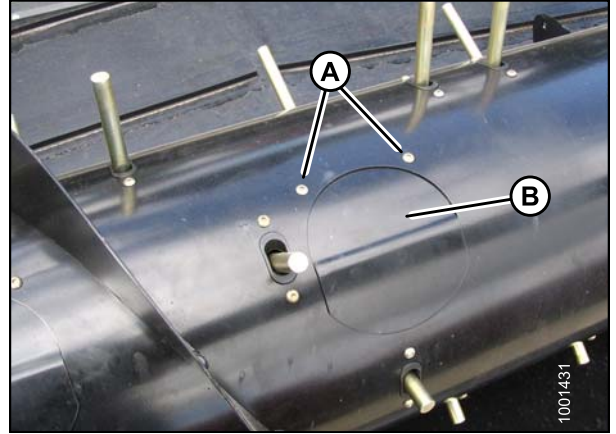


Figure 6.84: Auger

Replacing Auger Tine Guides

1. Remove tine (B) and plastic guide (D). Refer to [Removing Feed Auger Tines, page 294](#)

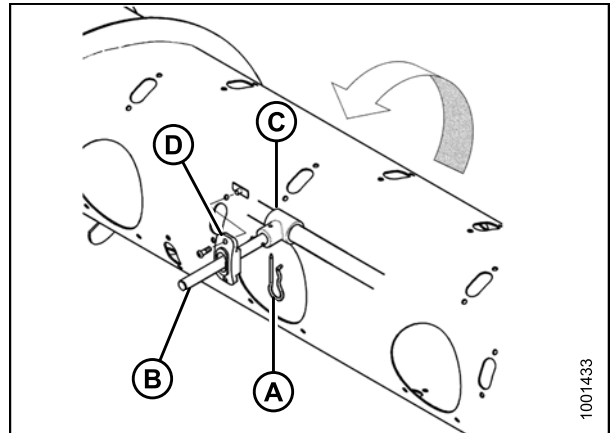


Figure 6.85: Auger

2. Position plastic guide (B) from inside auger and secure with screws (A). Coat screws with Loctite® #243 (or equivalent), and torque to 75 in·lbf (8.5 N·m).

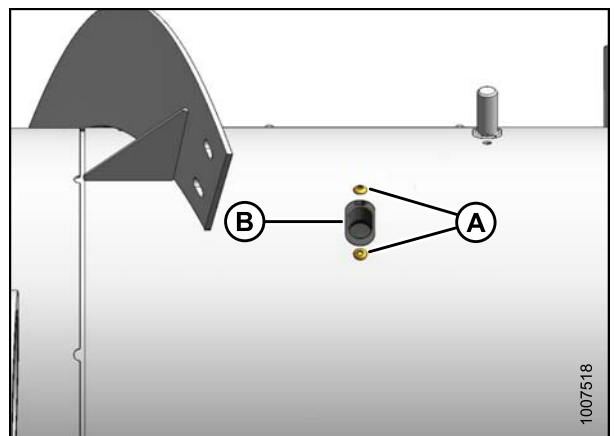


Figure 6.86: Auger

6.7.6 Flighting Extensions

Installing Flighting Extensions

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

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

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

3. With flighting in desired place, mark holes (A) (three per extension), and drill $\frac{3}{8}$ in. (76 mm) holes in auger tube.

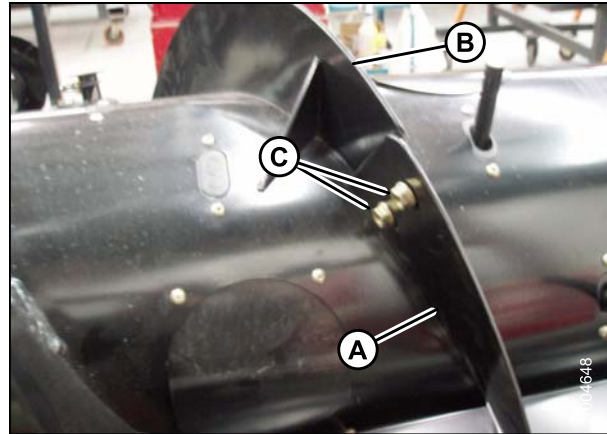


Figure 6.87: Flighting Extension

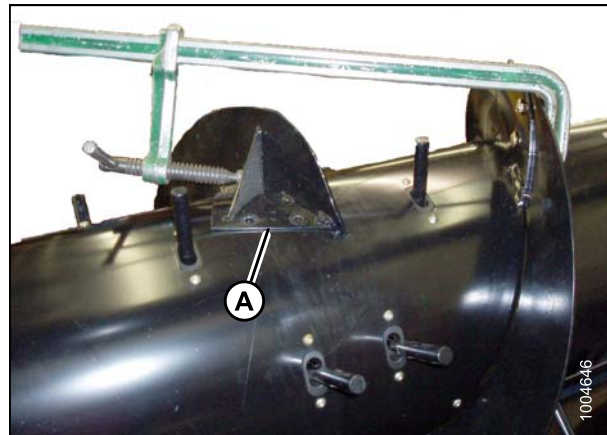


Figure 6.88: Flighting Extension

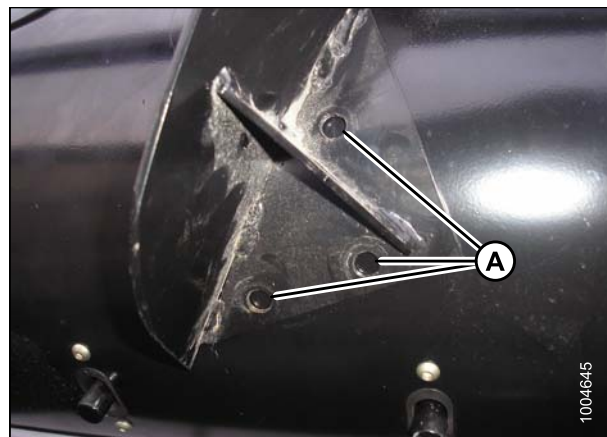


Figure 6.89: Flighting Extension

MAINTENANCE AND SERVICING

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.

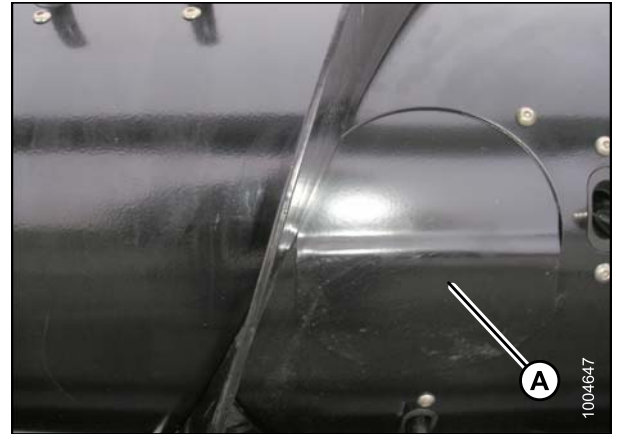


Figure 6.90: Auger Access Cover

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).

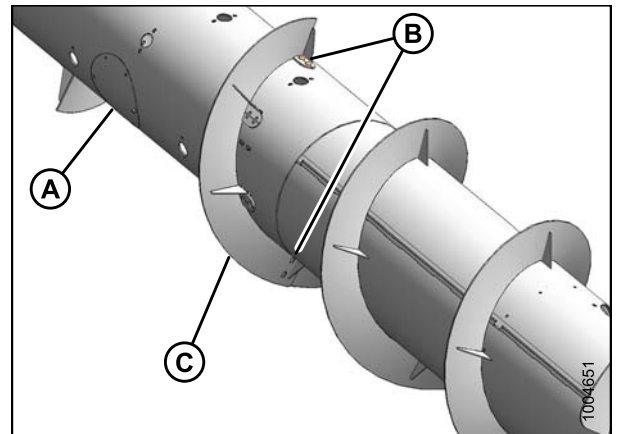


Figure 6.91: Auger Flighting Extensions

6.8 Knife and Knife Drive

WARNING

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

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 241](#).

CAUTION

Wear heavy gloves when working around or handling knives.

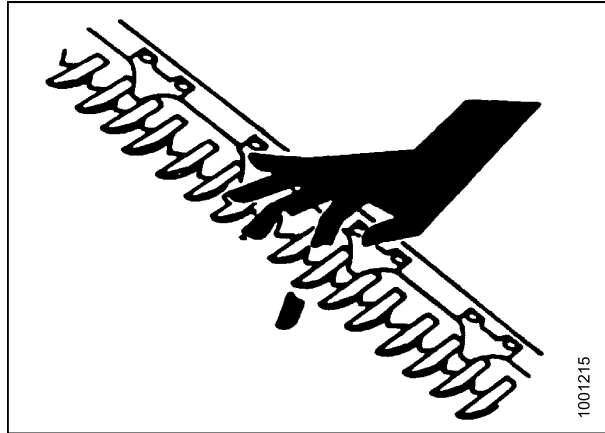


Figure 6.92: Cutterbar Hazard

6.8.1 Replacing Knife Section

Check daily that knife sections are firmly bolted to the knife back and are not worn or broken. Damaged or worn sections leave behind uncut plants. A worn or broken section can be replaced without removing knife from cutterbar.

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.

MAINTENANCE AND SERVICING

To replace a section, follow these steps:

1. Stroke knife as required to center the section (A) between guards.
2. Remove nuts (B).
3. Remove bars (C) and lift section off the knife bar.
4. If section is under a splice bar (D), remove the bar.
5. Clean any dirt off of knife back and position new section on knife.

IMPORTANT:

Do NOT mix fine or coarse sections on same knife.

6. Reposition bars (C) and/or (D) 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.

7. Torque nuts to 7 ft-lbf (9.5 N-m).

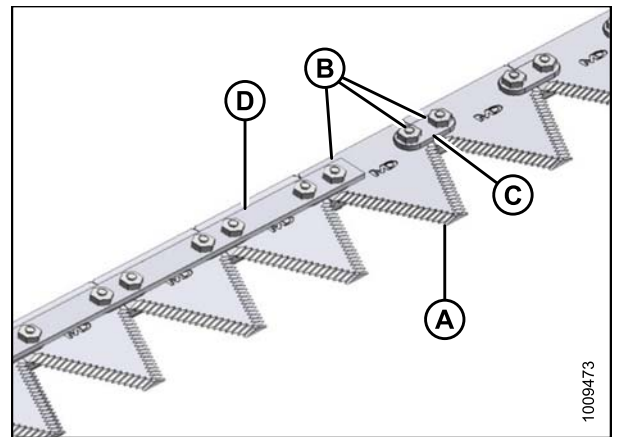
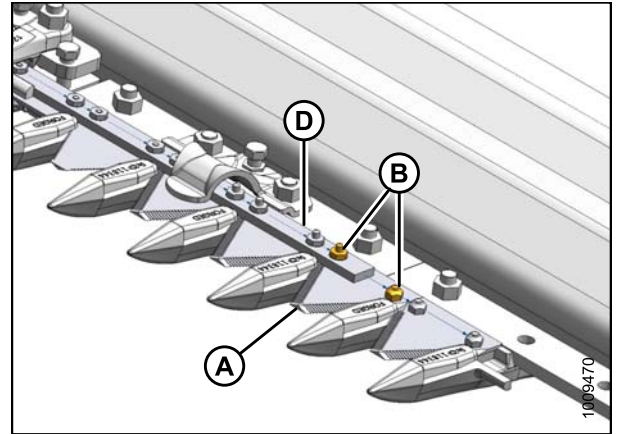


Figure 6.93: Cutterbar

6.8.2 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. Manually stroke knife to its outer limit and clean area around the knifehead.
2. Remove bolt (A).
3. Remove the grease zerk (B) from the pin.
4. Use a screwdriver or a chisel in slot (C) to release load on knifehead pin.
5. Pry pin upward with a screwdriver in pin groove until pin is clear of knifehead.
6. Push the knife assembly inboard until it is clear of the output arm.
7. Seal bearing in knifehead with plastic or tape.
8. Wrap a chain around knifehead and pull knife out.

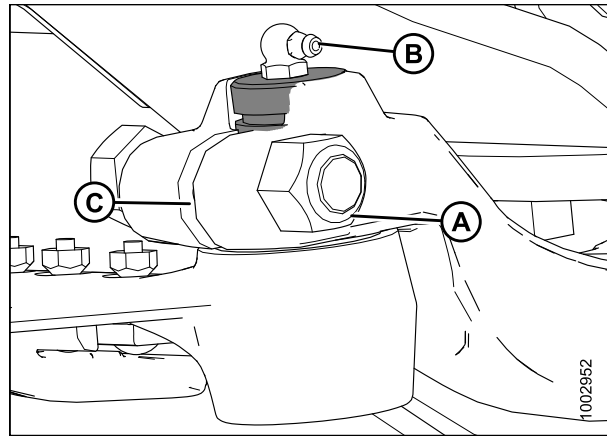


Figure 6.94: Knifehead

NOTE:

For single knife drive with splice plate, remove bolts from splice plate and pull knife out from both ends.

6.8.3 Removing Knifehead Bearing

WARNING

Stand to rear of knife during removal to reduce risk of injury from cutting edges. Wear heavy gloves when handling knife.

IMPORTANT:

The following procedure applies to single knife headers. Repeat this procedure for each knife on double knife headers .

1. Remove the knife. Refer to previous section.

NOTE:

It is not necessary to wrap the knifehead to protect the bearing as it is being replaced.

MAINTENANCE AND SERVICING

- Using a flat-ended tool with approximately the same diameter as pin (A). Tap the seal (B), bearing (C), plug (D), and O-ring (E) from the underside of 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.

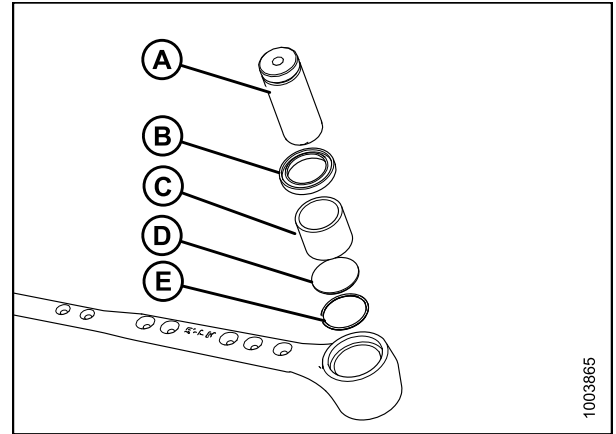


Figure 6.95: Removing Bearing

A - Flat-ended tool B - Seal C - Bearing
D - Plug E - O-ring

6.8.4 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. Refer to [6.8.5 Installing Knife, page 303](#).

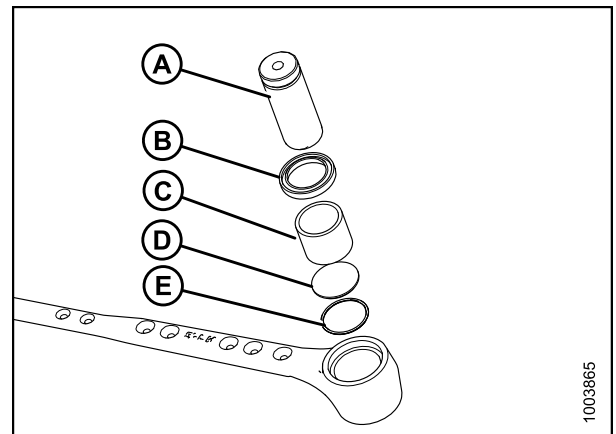


Figure 6.96: Knifehead

A - Flat-Ended Tool B - Seal C - Bearing
D - Plug E - O-ring

6.8.5 Installing Knife

WARNING

Stand to rear of knife during installation to reduce risk of injury from cutting edges. Wear heavy gloves when handling knife.

MAINTENANCE AND SERVICING

To install a knife, follow these steps:

1. If knifehead pin is installed in knifehead (A), remove it.
2. Slide knife into place and align knifehead (A) with the pitman arm (B).
3. Install knifehead pin in pitman arm (B), and tap it down into knifehead, ensuring pin is bottomed out in knifehead.
4. Tap underside of knifehead (A) until the pin is flush with upper face (C) of pitman arm and until it just contacts pitman arm (0.010 in. [0.25 mm]) gap (D).
5. Re-install bolt and nut (E) .Tighten nut to 160 lbf-ft (220 N·m).
6. Re-install grease zerk (F) in pin and position the zerk for easy access.
7. Grease bearing.

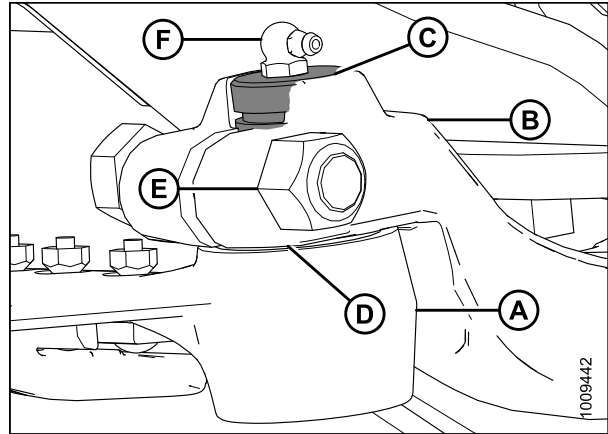


Figure 6.97: Installing Knife

6.8.6 Spare Knife

A spare knife may be stored in the header frame tube at the left end. Ensure knife is secured in place.



Figure 6.98: Spare Knife

6.8.7 Knife Guards

Check **DAILY** that guards are aligned and that knife sections are contacting 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 6.99: Upward Adjustment

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 [8.1.16 Stub Guard Conversion Kit](#), page 420.



Figure 6.100: Downward Adjustment

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 (B) and bolts that attach guard (A) and hold-down (C) (if applicable) to cutterbar.
3. Remove guard, hold-down, and poly wear plate (if installed).
4. Position new guard (A) and poly wear plate (if applicable) on cutterbar, and install bolts.

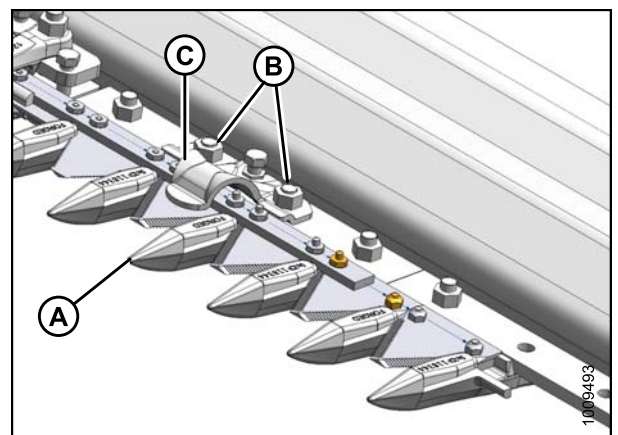


Figure 6.101: Cutterbar

MAINTENANCE AND SERVICING

IMPORTANT:

The first four outboard guards (B) 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 309*.

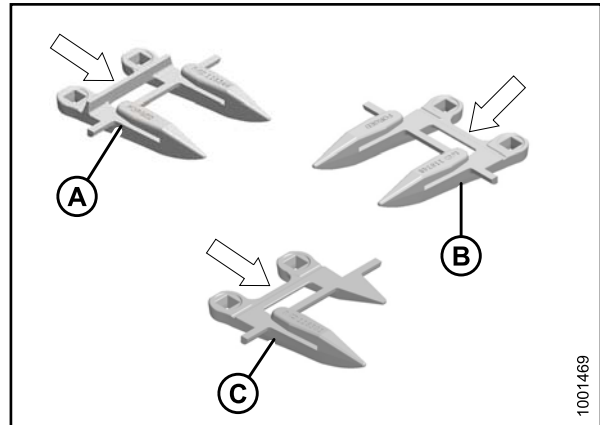


Figure 6.102: Guards

A - Normal

B - Drive Side

C - Half Guard (End)

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 305* 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).

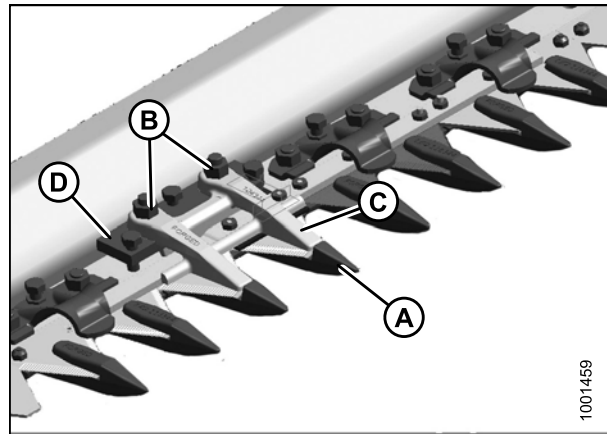


Figure 6.103: Double Knife Guard

A - Knife Guard
C - Top Guide

B - Nuts
D - Adjuster bar

MAINTENANCE AND SERVICING

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 (A) (right of cutterbar split) has offset cutting surfaces.

NOTE:

Top guide (B) 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 309](#).

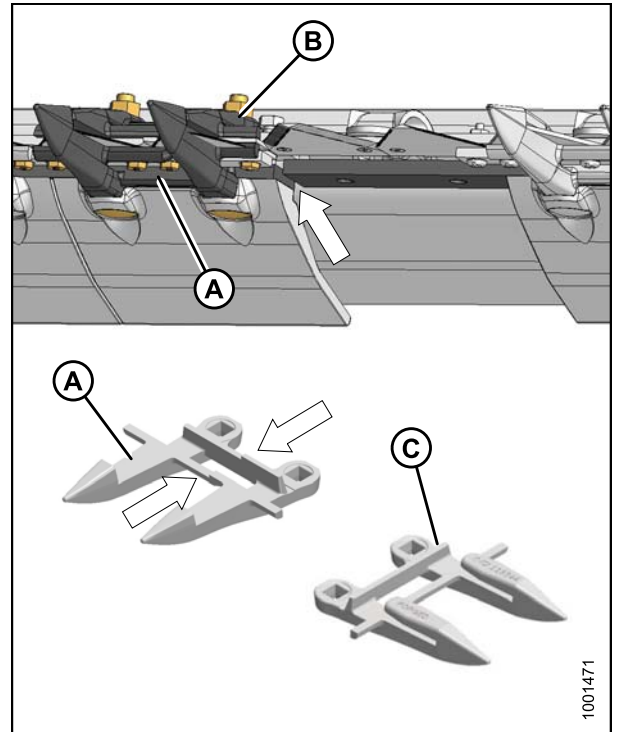


Figure 6.104: Double Knife Guard

A - Knife Guard

B - Top Guide

C - Normal Guard

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 are designed for cutting tough crops and are factory installed at the outer ends of specific headers.

MAINTENANCE AND SERVICING

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 and nuts (A). 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.

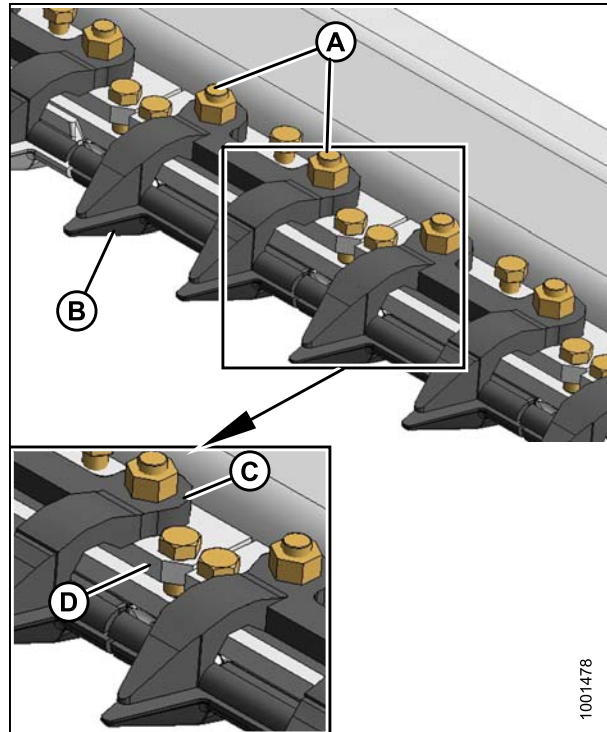


Figure 6.105: Stub Guards

A - Nuts

B - Stub Guard

C - Top Guide

D - Adjuster Bar

1001478

IMPORTANT:

The first four outboard guards (B) on the drive side(s) of the header do **NOT** have a ledger plate like the normal guards (A). Ensure that the proper replacement is installed.

4. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs, page 309](#).

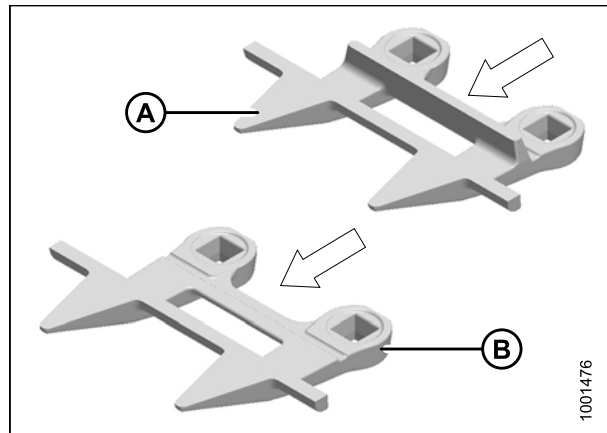


Figure 6.106: Stub Guards

A - Normal Guard

B - Drive Side Guard

1001476

Replacing Stub Guards on a Double-Knife Header

Refer to [Replacing Stub Guards on a Single-Knife Header, page 307](#) 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:

MAINTENANCE AND SERVICING

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. The 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 replacements are correct part.

4. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs, page 309](#).

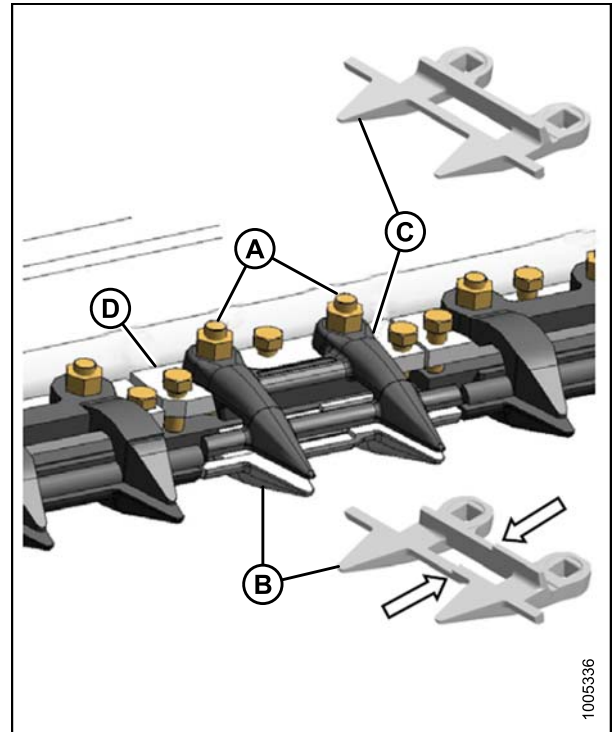


Figure 6.107: Stub Guards

A - Nuts
B - Center Guard
C - Normal Top Guide
D - Adjuster Bar

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 there is obvious evidence that the hold downs are not properly adjusted, check the clearance between the hold down and knife section with a feeler gauge.

Refer to:

- [Adjusting Hold-Downs with Pointed Guards, page 310](#) or
- [Adjusting Hold-Downs with Stub Guards, page 311](#)

NOTE:

Guards should be aligned prior to adjusting hold-downs. See [Adjusting Knife Guards, page 305](#).

Adjusting Hold-Downs with Pointed Guards

To adjust the clearance between hold-downs and knife on header with pointed guards, follow these steps:

1. Check the clearance (A) between the normal hold-down and knife section with a feeler gauge. The clearance should be
 - 0.004–0.024 in. (0.1–0.6 mm).
2. Adjust as required by turning bolt (B).

NOTE:

For larger adjustments, it may be necessary to loosen nuts (C), turn adjuster bolt (B), then retighten nuts (C).

3. Check the clearances between the center guard hold-down (A) and knife section with a feeler gauge. The clearances should be:
 - 0.004–0.016 in. (0.1–0.4 mm) at guide tip (B)
 - 0.004–0.040 in. (0.1–1.0 mm) at rear of guide (C)
4. If required, adjust clearances as follows:
 - a. Torque nuts (D) to 35 ft·lbf (46 N·m).
 - b. Turn the three adjuster bolts (E) as required.
 - c. Torque nuts (D) 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. Re-adjust as necessary.

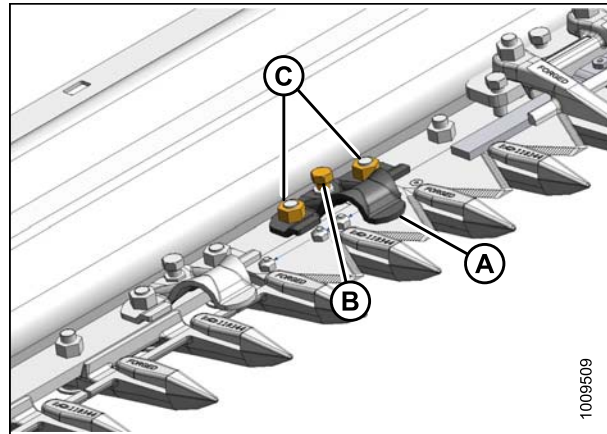


Figure 6.108: Hold-Down Clearance

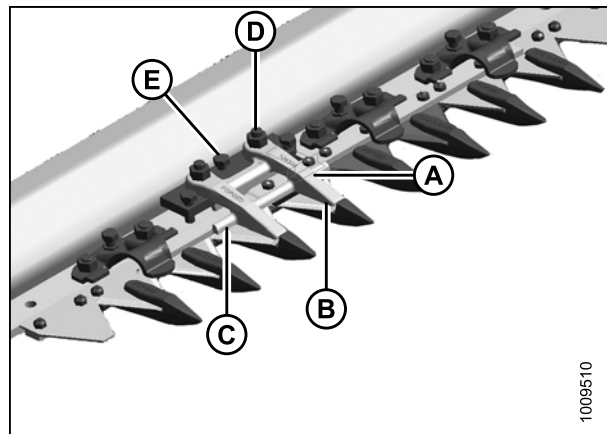


Figure 6.109: Hold-Down Clearance

A - Hold-Down B - Clearance C - Clearance
 D - Nuts E - Adjuster Bolt

Adjusting Hold-Downs with Stub Guards

To adjust the clearance between hold-downs and knife for all stub guards, follow these steps:

1. Check the clearances between the center guard hold-down (A) and knife section with a feeler gauge. The clearances should be:
 - 0.004–0.016 in. (0.1–0.4 mm) at guide tip (B)
 - 0.004–0.040 in. (0.1–1.0 mm) at rear of guide (C)
2. If required, adjust clearances as follows:
 - a. Torque nuts (D) to 35 ft·lbf (46 N·m).
 - b. Turn the three adjuster bolts (E) as required.
 - c. Torque nuts (D) to 53 ft·lbf (72 N·m).
3. 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. Re-adjust as necessary.

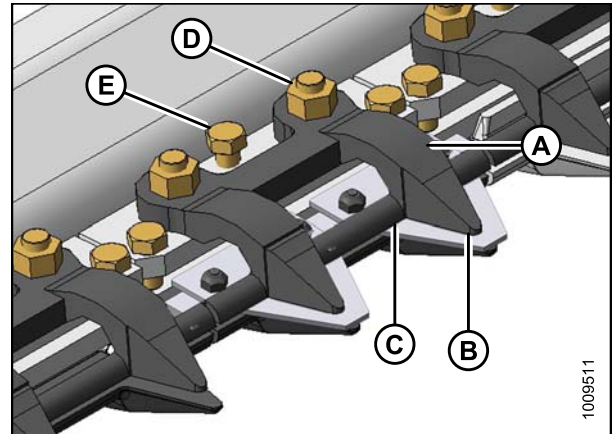


Figure 6.110: Stub Guards

A - Hold-Down
 B - Clearance
 C - Clearance
 D - Nut
 E - Adjuster Bolt

6.8.8 Knife Drive Belt

The knife drive box is driven with a V-belt from a hydraulic motor on the header left endsheet. An identical drive system is used at the opposite end for double knife headers.

Removing Knife Drive Belt (Non-Timed)

This procedure describes the removal of the knife drive belt on single knife headers and double knife headers with non-timed drives.

NOTE:

Procedure is the same for both sides of a double knife header.

1. Open endshield. Refer to [Opening Endshields, page 35](#).
2. Loosen the two bolts (A) that secure the motor assembly to header endsheet.
3. Loosen the belt by turning the tensioning bolt (B) counterclockwise.

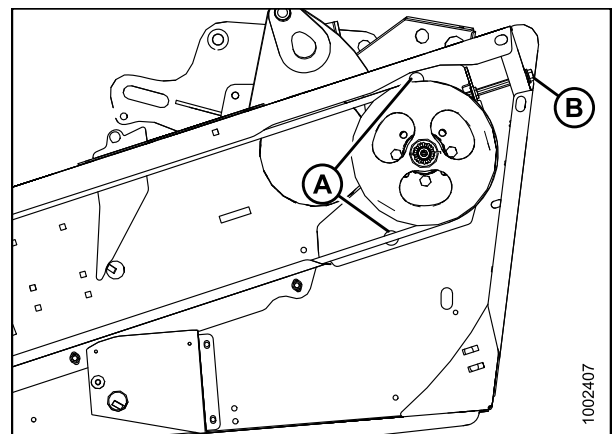


Figure 6.111: Knife Drive

MAINTENANCE AND SERVICING

4. Open the access cover (A) on the endsheet behind cutterbar to provide clearance between the knife drive box pulley and the endsheet.

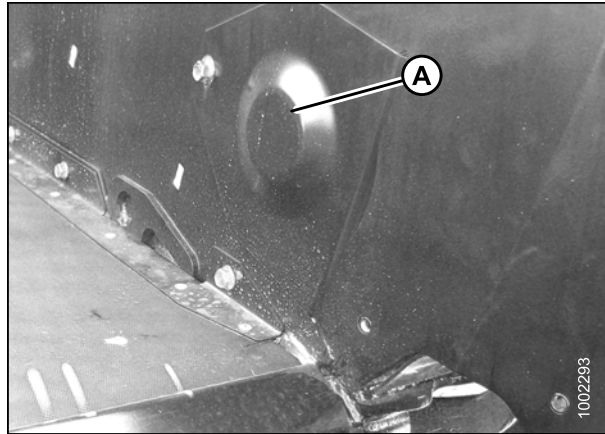


Figure 6.112: Access Cover

5. Remove belt (A) from drive pulley (B).
6. Slip belt (A) over and behind the knife drive box pulley (C). Utilize notch in pulley to assist in removing belt.

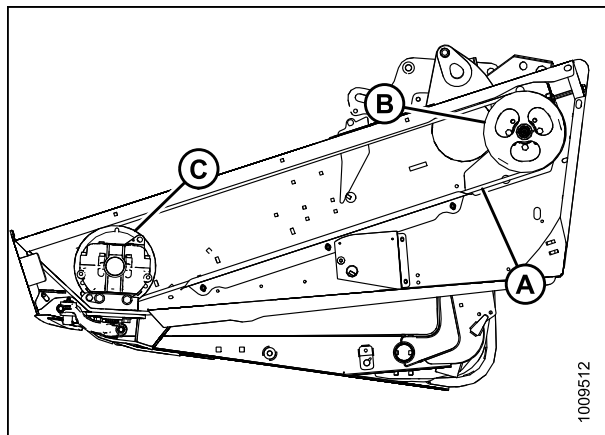


Figure 6.113: Knife Drive

Installing Knife Drive Belt

NOTE:

Procedure is the same for both sides of the double knife header.

1. Route knife drive belt (A) around knife drive box pulley (C) and knife drive pulley (B). Utilize notch in pulley (C) to assist in installing belt.

NOTE:

When installing new belt, never pry belt over pulley. Be sure drive motor is fully forward.

2. Tension knife drive belt. Refer to [Tensioning Knife Drive Belts, page 313](#).

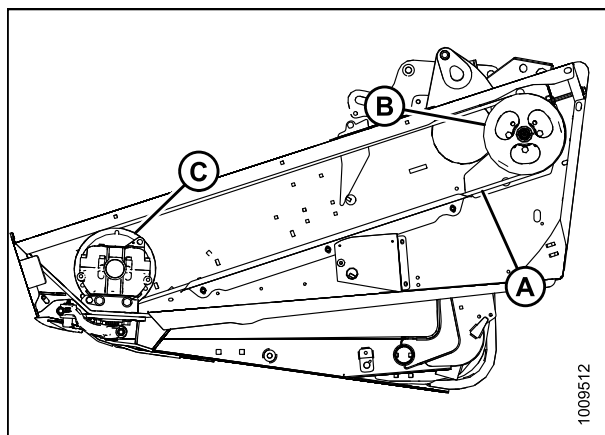


Figure 6.114: Knife Drive

MAINTENANCE AND SERVICING

3. Reinstall the access cover (A) and secure it with bolt.
4. Close endshield. Refer to [Closing Endshields, page 36](#).

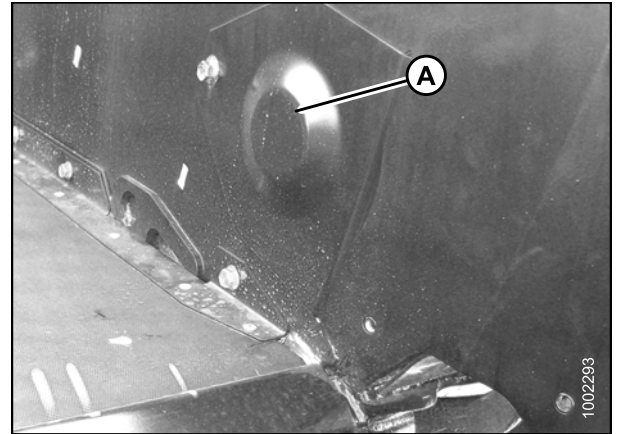


Figure 6.115: Access Cover

Tensioning Knife Drive Belts

IMPORTANT:

To prolong belt and drive life, do not overtighten belt.

1. Open endshield. Refer to [Opening Endshields, page 35](#).
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 lbf (80 N) deflects belt (C) 3/4 in. (18 mm) at mid-span.

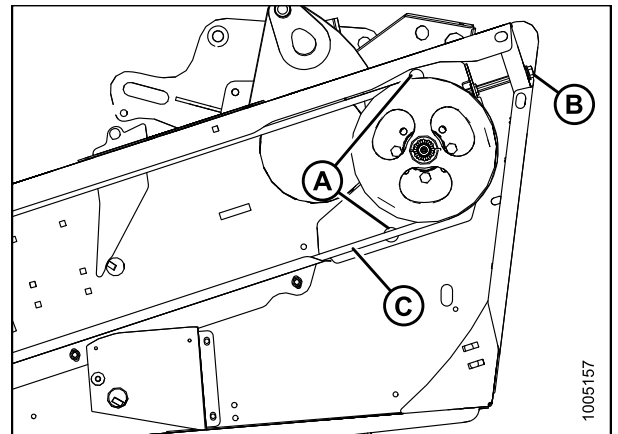


Figure 6.116: Knife Drive

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. Refer to [Closing Endshields, page 36](#).
8. Readjust tension of a new belt after a short run-in period (about 5 hours).

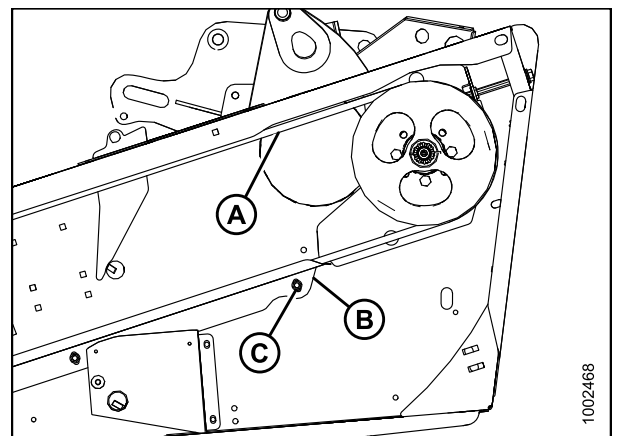


Figure 6.117: Knife Drive

6.8.9 Knife Drive Box

The knife drive box converts rotational motion into reciprocating motion to the knife. It is belt driven from a hydraulic motor that is powered by the adapter hydraulic pump.

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 241](#).

Mounting Bolts

Check the torque on the four knife drive box mounting bolts (A) and (B) after the first 10 hours operation and every 100 hours thereafter.

1. Torque side bolts (A) first, then the bottom bolts (B).
Torque to 200 ft·lbf (271 N m).

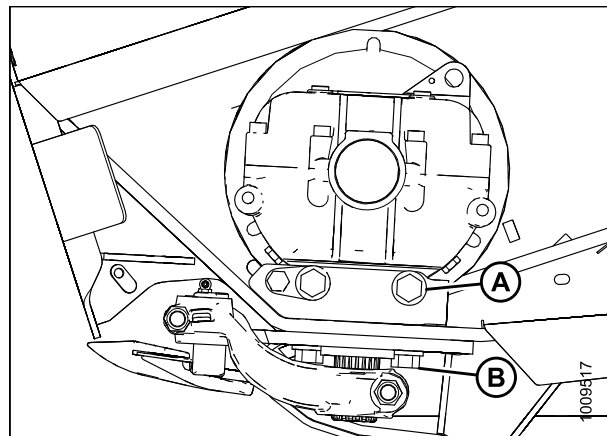


Figure 6.118: Knife Drive Box

Removing Knife Drive Box

NOTE:

Procedure is the same for both ends of the untimed double knife header.

1. Open endshield. Refer to [Opening Endshields, page 35](#).
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.

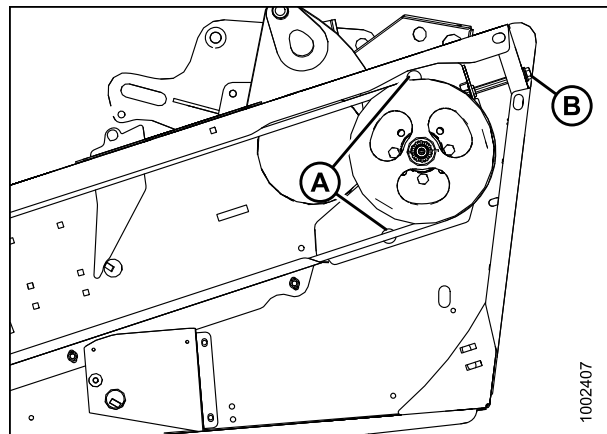


Figure 6.119: Knife Drive

MAINTENANCE AND SERVICING

4. Open the access cover (A) on the endsheet behind cutterbar to provide clearance between the knife drive box pulley and the endsheet.

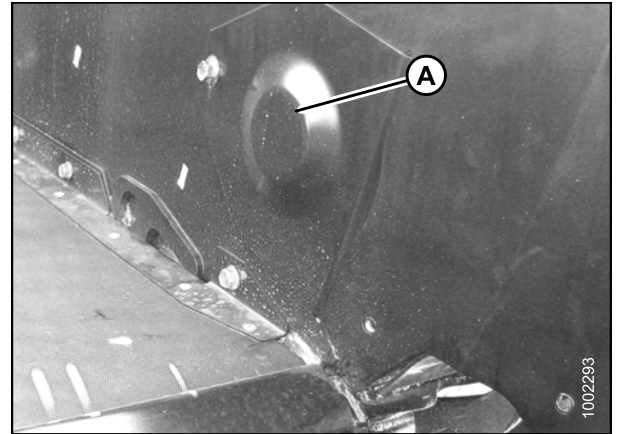


Figure 6.120: Cover

5. Remove belt (A) from drive pulley (B).
6. Slip belt (A) over and behind the knife drive box pulley (C). Utilize notch in pulley to assist in removing belt.

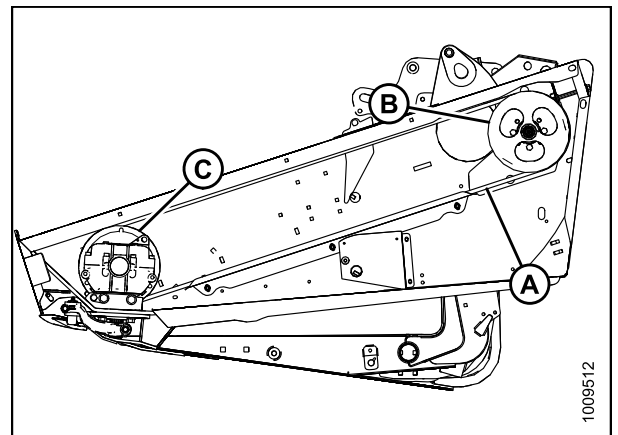


Figure 6.121: Knife Drive

7. Manually stroke knife to its outer limit and clean area around the knifehead.
8. Remove bolt (A).
9. Remove the grease zerk (B) from the pin.
10. Use a screwdriver or a chisel in slot (C) to release load on knifehead pin.
11. Pry pin upward with a screwdriver in pin groove until pin is clear of knifehead.
12. Push the knife assembly inboard until it is clear of the output arm.
13. Seal bearing in knifehead with plastic or tape.

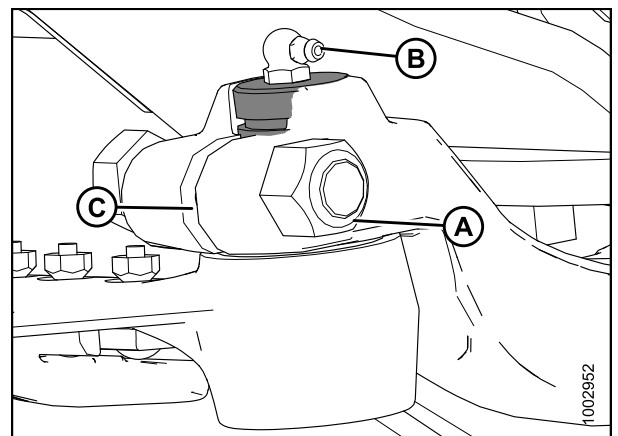


Figure 6.122: Knifehead

MAINTENANCE AND SERVICING

14. Remove bolt (A) that clamps the knife drive arm to the knife drive box output shaft.
15. Remove the knife drive arm (B) from the knife drive box output shaft.
16. Remove the four knife drive box mounting bolts (C) and (D).

NOTE:

Do **NOT** remove bolt (E), this is factory set. It is used to position the knife drive box in the proper fore-aft position.

17. 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.

18. For double knife headers, repeat procedure for opposite end.

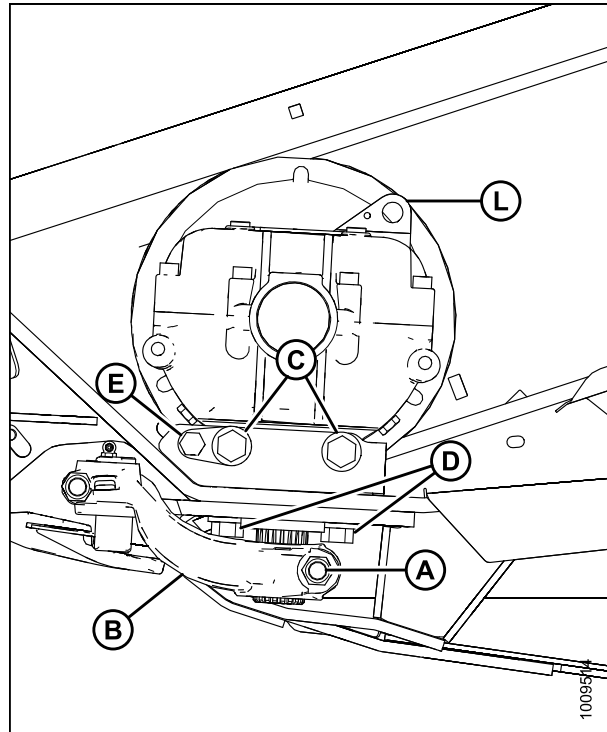


Figure 6.123: Knife Drive Box

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.

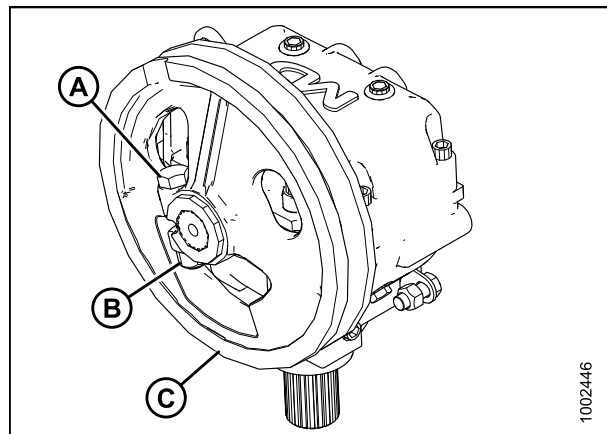


Figure 6.124: Knife Drive Box and Pulley

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).

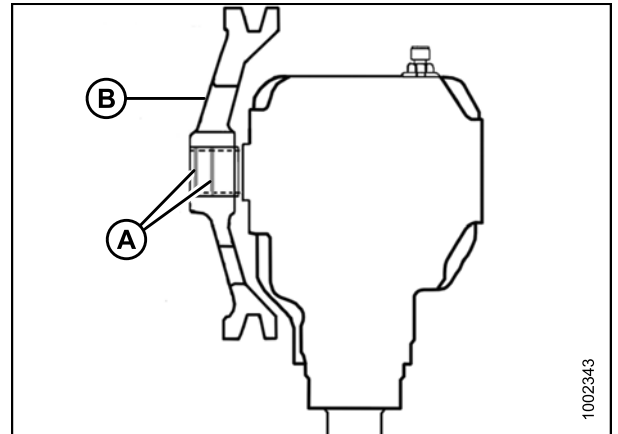


Figure 6.125: Knife Drive Box

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 and locate belt on pulley.
2. Install two 5/8 in. X 1.75 in. grade 8 hex head bolts (A) at the side and two 5/8 in. X 2.25 in. grade 8 hex head bolts (B) underneath to mount knife drive box to frame.
3. Slightly 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.

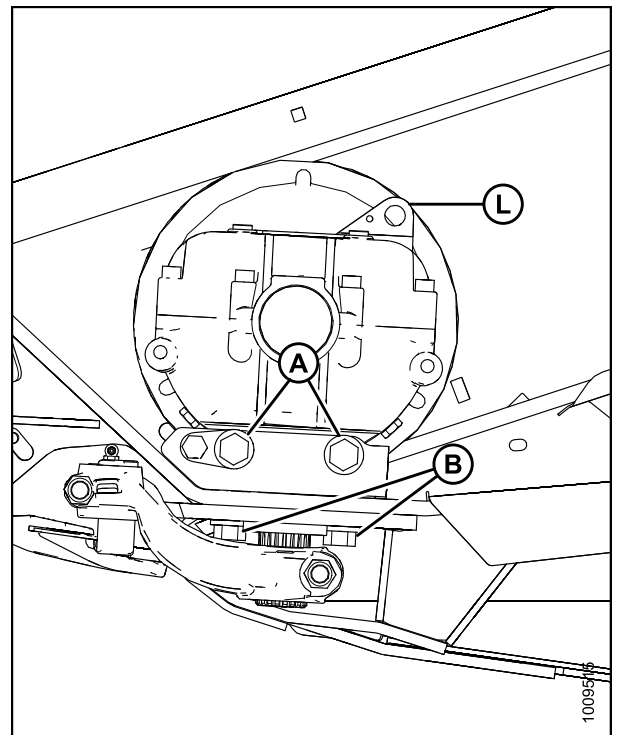


Figure 6.126: Knife Drive Box

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.

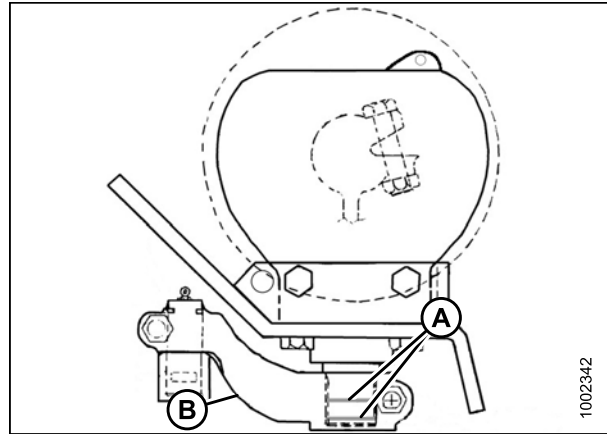


Figure 6.127: Knife Drive Box

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). Exact clearance (C) will be set when installing knifehead pin.

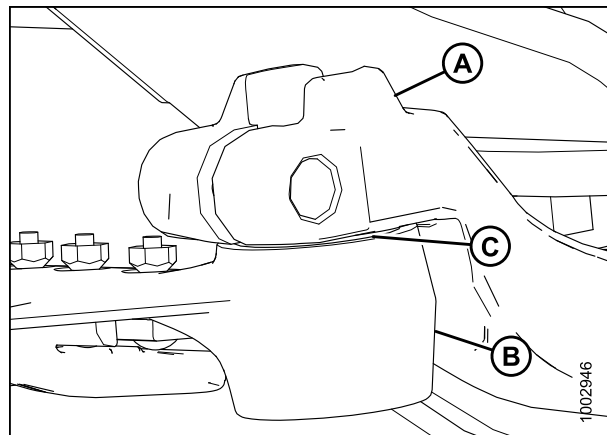


Figure 6.128: Knifehead

7. Torque output arm bolt (B) to 160 ft-lbf (217 N-m) to secure arm to knife drive output shaft.

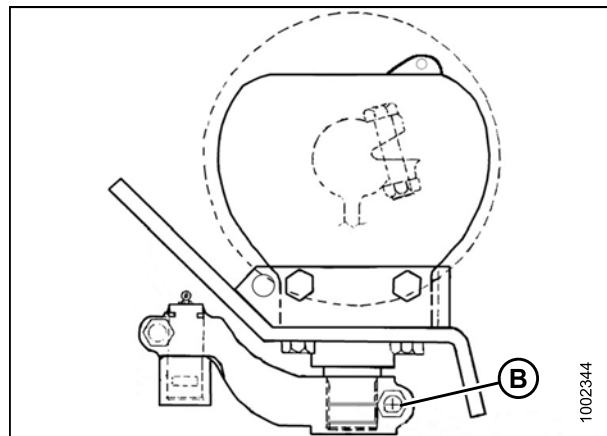


Figure 6.129: Knife Drive Box

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.
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 and nut (D) and torque to 160 ft-lbf (217 N·m).

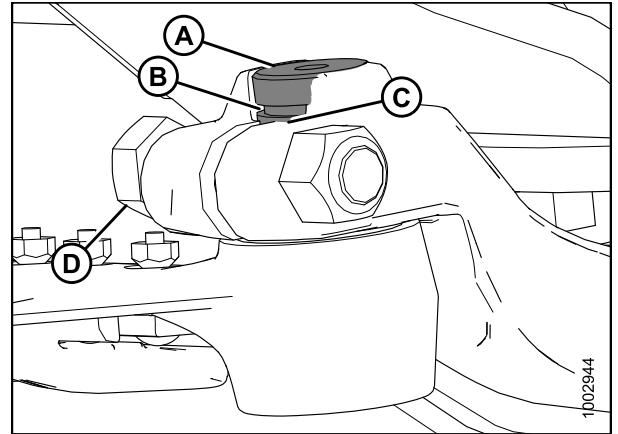


Figure 6.130: Knifehead

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 misalign knife, causing guards to overheat and overload the drive system.

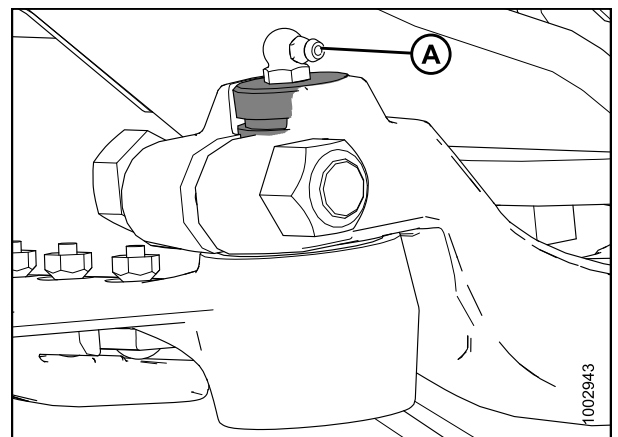


Figure 6.131: Knifehead

11. Check the knife drive box pulley and drive pulley alignment. If adjustment is required, contact your MacDon Dealer.
12. Tighten knife drive box side bolts (A) first, then the bottom bolts (B). Torque to 200 ft-lbf (271 N·m).
13. Stroke the output arm to mid stroke, check and ensure that the knife bar does not contact the front of the first guard. If adjustment is required, contact your MacDon Dealer.
14. Install and tension the knife drive belt(s). Refer to [Tensioning Knife Drive Belts, page 313](#).
15. Close endshield. Refer to [Closing Endshields, page 36](#).

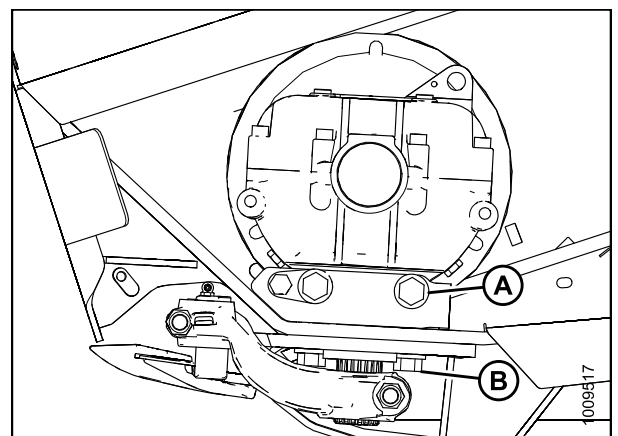


Figure 6.132: Knife Drive Box

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). Refer to [Opening Endshields, page 35](#).
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. Refer to [6.2.2 Recommended Fluids and Lubricants, page 244](#) for quantity.
7. Close endshield(s). Refer to [Closing Endshields, page 36](#).

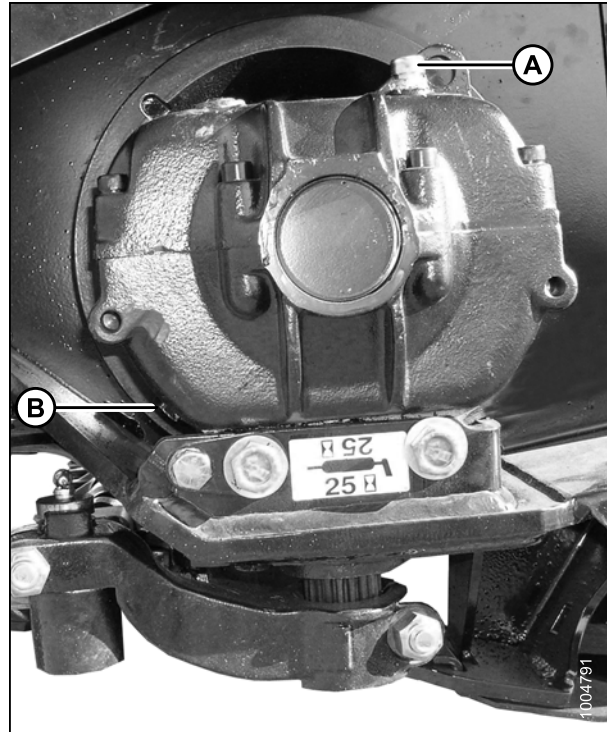


Figure 6.133: Knife Drive Box

6.8.10 Knifehead Shield

The shield attaches to the endsheet and reduces the knifehead opening to prevent cut crop from accumulating in the knifehead cut-out, especially in severely lodged crops.

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.

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. Refer to the combine operator's manual for instructions regarding the proper 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.

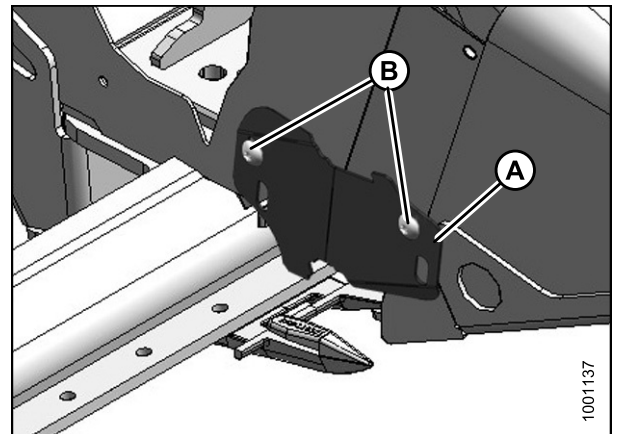


Figure 6.134: Knifehead Shield

6.9 Adapter Feed Draper

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 241](#).

6.9.1 Replacing Adapter Feed Draper

The draper should be replaced or repaired if it is torn, missing slats, or cracked.

1. If header is attached to combine, detach the header from the adapter. Refer to [5.7.1 Detaching Header from Adapter and Combine, page 230](#).
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.

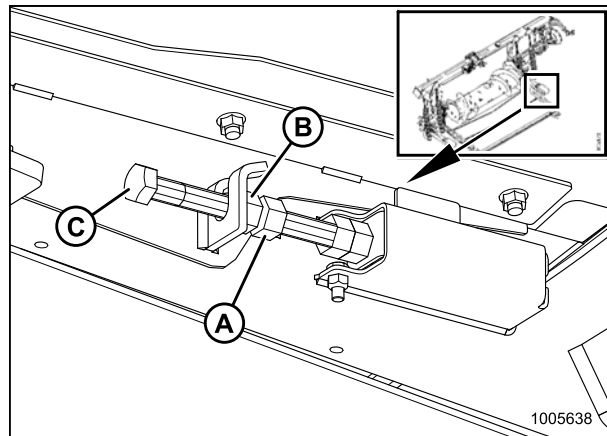


Figure 6.135: Tensioner

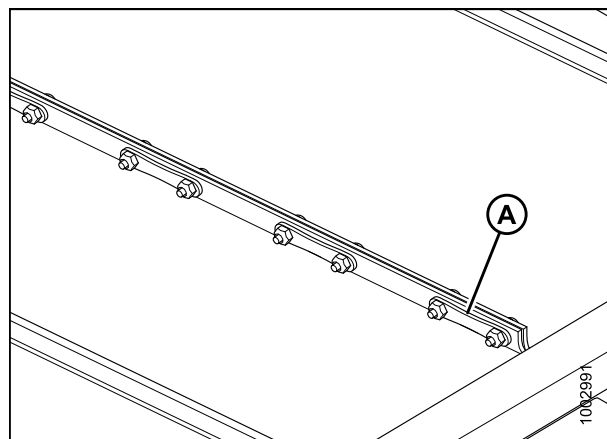


Figure 6.136: Draper Connector

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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).

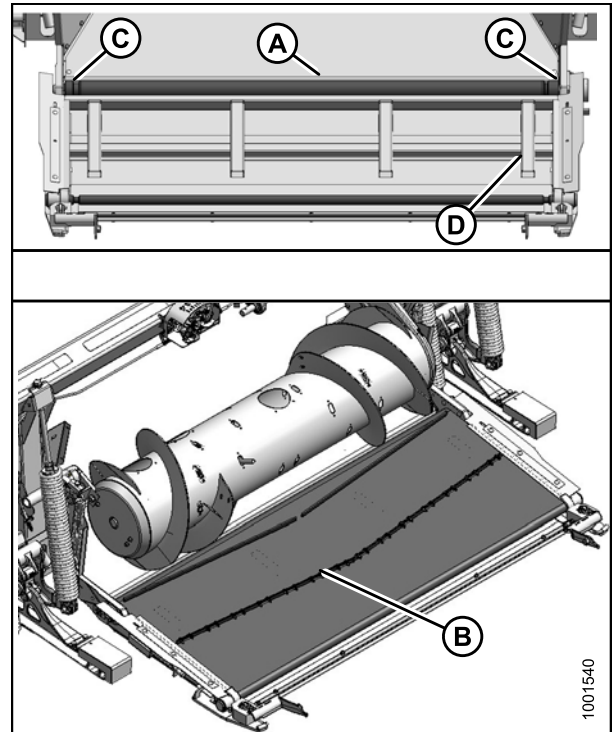


Figure 6.137

A - Drive Roller

C - Drive Roller Grooves

B - Chevron Cleat

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 [6.9.2 Adjusting Feed Draper Tension, page 323](#).

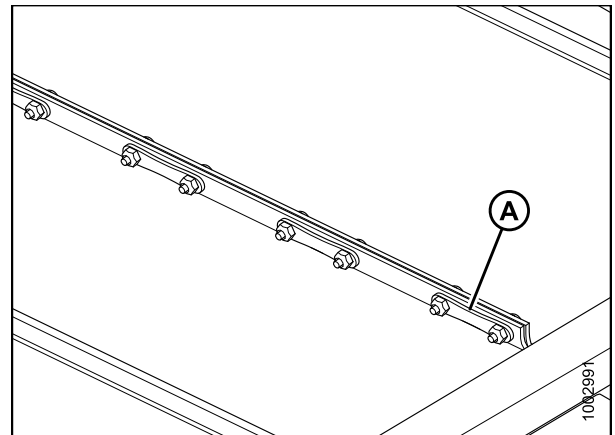


Figure 6.138

6.9.2 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. Refer to the combine operator's manual for instructions regarding the proper 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).

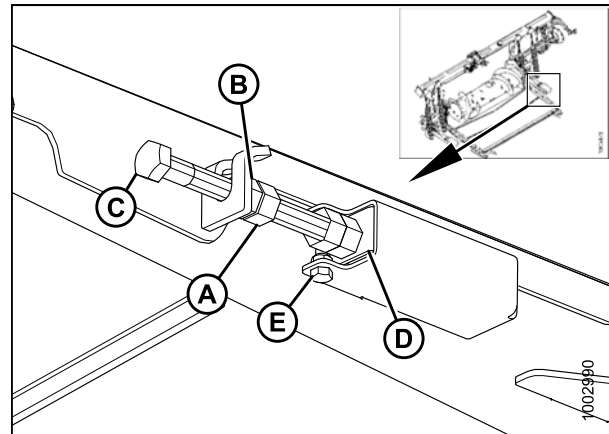


Figure 6.139: Tensioner

- | | | |
|--------------|----------|----------|
| A - Jam Nut | B - Nut | C - Bolt |
| D - Retainer | E - Bolt | |

6.9.3 Adapter Drive Roller

Removing Adapter Feed Draper Drive Roller

1. If header is attached to combine, detach header from the adapter. See [5.7.1 Detaching Header from Adapter and Combine, page 230](#).
2. Raise header fully, stop engine, and remove key. Engage header safety props.
3. Loosen jam nut (A).
4. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Repeat for opposite side.

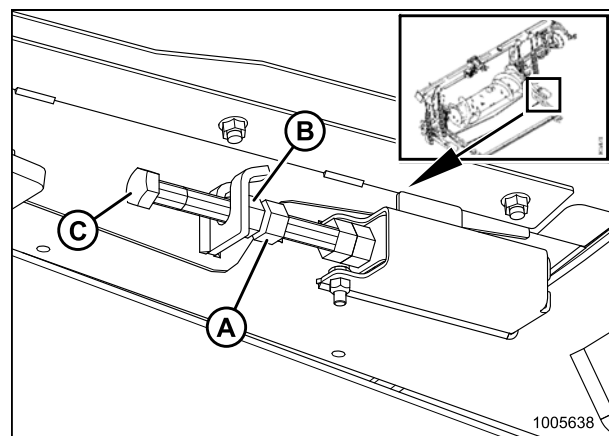


Figure 6.140: Tensioner

MAINTENANCE AND SERVICING

5. Remove the draper connector straps (A). along the draper joint.
6. Open the draper.

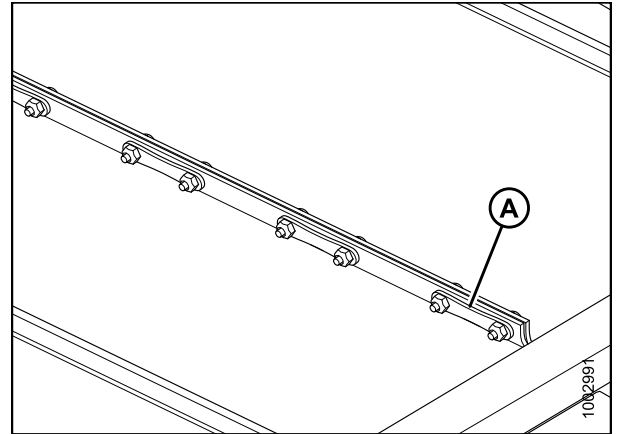


Figure 6.141: Draper Connection

7. Loosen setscrew and unlock the bearing lock collar (A).
8. Remove three bolts (B).
9. Remove bearing flangettes (C) and bearing.

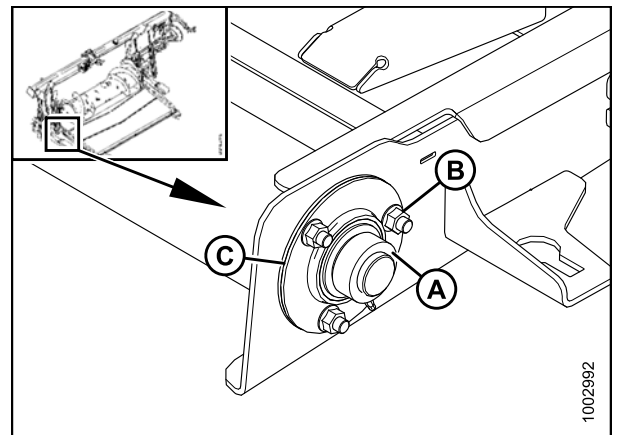


Figure 6.142: Bearing

10. Remove four bolts (A) that secure motor (B) to the frame. Slide motor (B) away from the drive roller.
11. Remove roller (C).

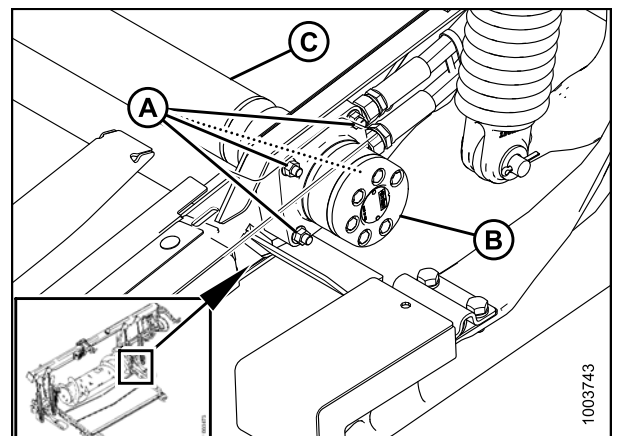


Figure 6.143: Motor

Installing Adapter Feed Draper Drive Roller

1. Position roller (C) in adapter frame.
2. Slide motor (B) into the drive roller. Secure the motor to the feed deck with four bolts (A).

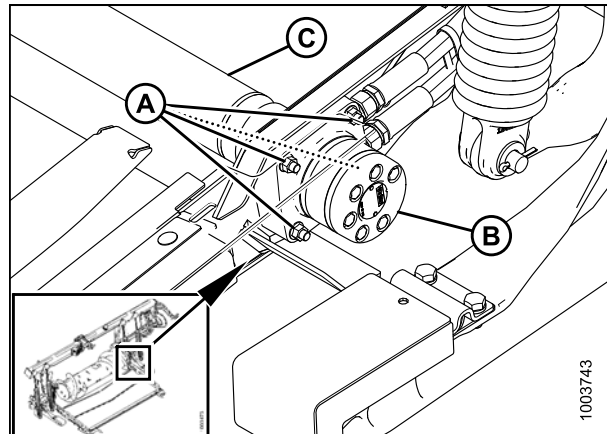


Figure 6.144: Motor

3. Install bearing flangettes (C) and 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. Refer to [6.9.1 Replacing Adapter Feed Draper, page 322](#).
7. Tension the feed draper. Refer to [6.9.2 Adjusting Feed Draper Tension, page 323](#).
8. Attach the header to the adapter. Refer to [5.7.2 Attaching Header to Adapter and Combine, page 235](#) for procedure.

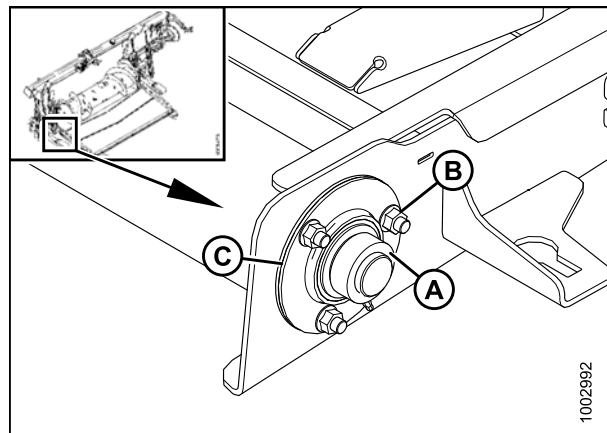


Figure 6.145: Bearing

Replacing Adapter Drive Roller Bearing

Removing Adapter Feed Draper Drive Roller Bearing

1. Remove the header from the adapter. Refer to [5.7.1 Detaching Header from Adapter and Combine, page 230](#) for procedure.
2. Raise header fully, stop engine, and remove key. Engage header safety props.

MAINTENANCE AND SERVICING

3. Loosen jam nut (A).
4. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Repeat for opposite side.

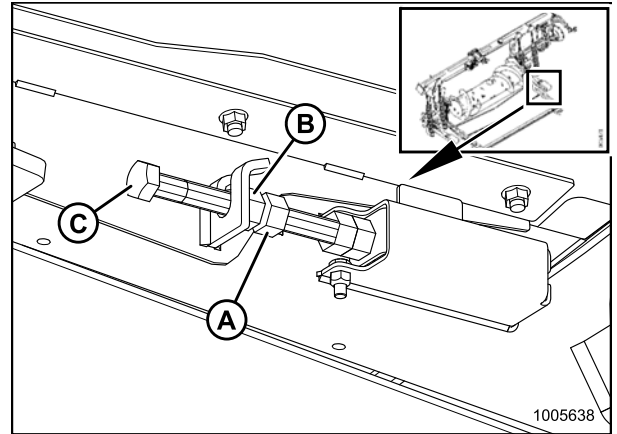


Figure 6.146: Tensioner

5. Loosen setscrew and unlock the bearing lock collar (A).
6. Remove three bolts (B)
7. Remove bearing flangettes (C) and bearing.

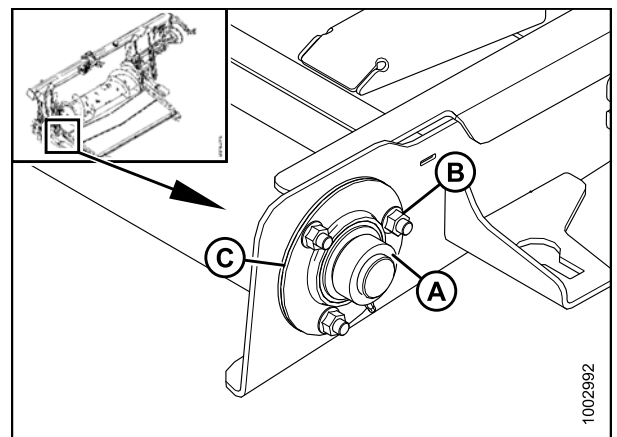


Figure 6.147: Bearing

Installing Adapter Feed Draper 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. Refer to [5.7.2 Attaching Header to Adapter and Combine, page 235](#) [6.9.2 Adjusting Feed Draper Tension, page 323](#).
5. Attach the header to the adapter. See for procedure.

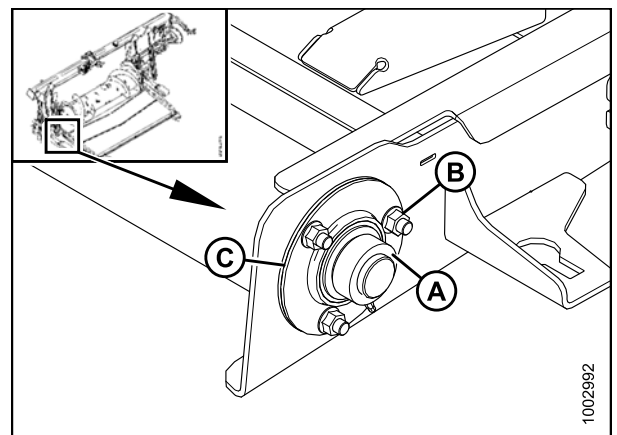


Figure 6.148: Drive Roller

6.9.4 Adapter Idler Roller

Removing Adapter Feed Draper Idler Roller

LH side shown:

1. Remove the header from the adapter. Refer to [5.7.1 Detaching Header from Adapter and Combine, page 230](#).
2. Leave adapter attached to combine. Engage the feeder house safety props.
3. Loosen jam nut (A).
4. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Repeat for opposite side.

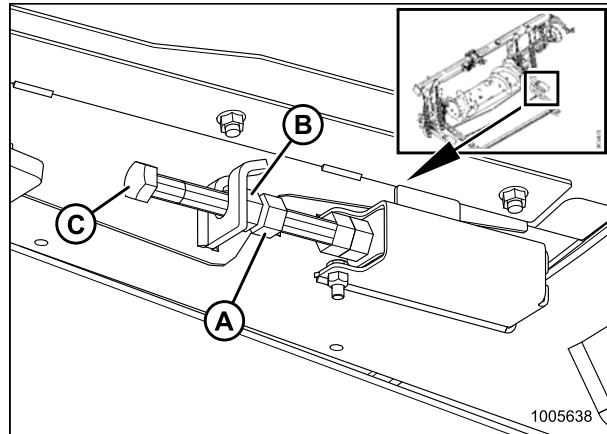


Figure 6.149: Tensioner

5. Remove draper connector straps (A).
6. Open the feed draper.

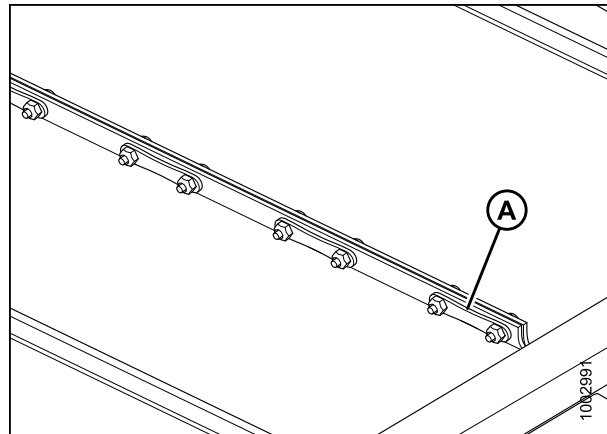


Figure 6.150: Draper Connector

MAINTENANCE AND SERVICING

7. Remove two bolts (A) at both ends of the idler roller.
8. Remove the idler roller assembly (B).

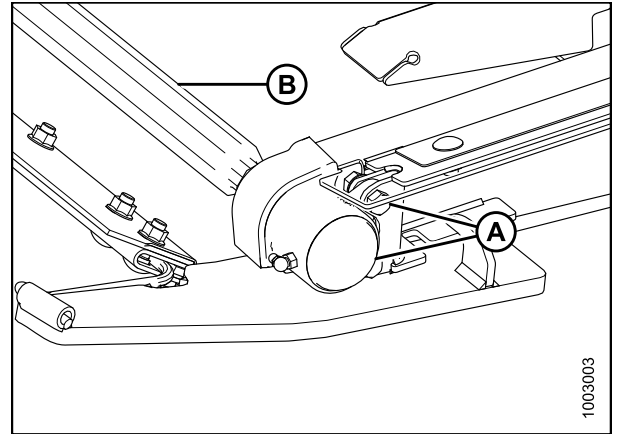


Figure 6.151: Idler Roller

Replacing Adapter Feed Draper Idler Roller Bearing

1. Remove dust cap (A).

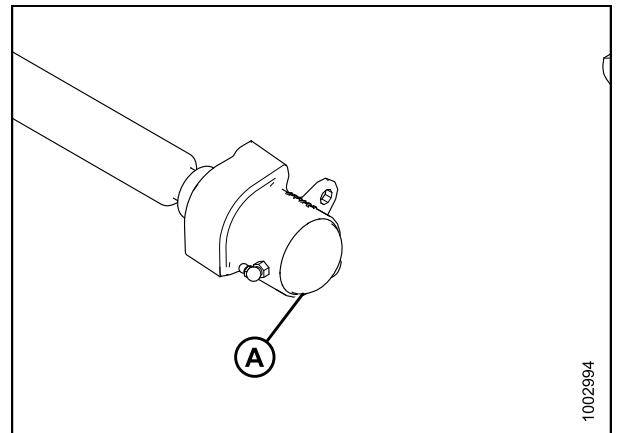


Figure 6.152: Idler Roller

2. Remove nut (A).
3. Using a hammer, tap the bearing assembly (B) until it slides off the shaft.

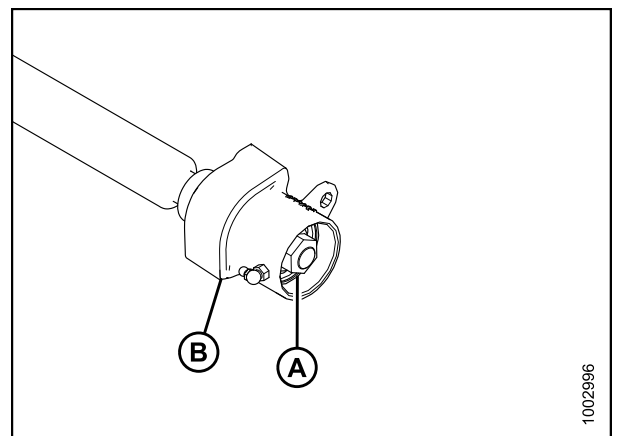


Figure 6.153: Idler Roller

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- Secure the housing (D) and remove the internal retaining ring (A), bearing (B) and two seals (C).
- Install seals (C) into housing (D).

NOTE:

Flat side of seal should be facing inboard.

- Brush shaft with oil. Carefully rotate the housing (D) with seals (C) onto the shaft by hand to prevent seal damage.
- Install bearing (B).
- Install retaining ring (A).
- Install nut (A) to secure the bearing assembly to the shaft.
- Install the dust cap (B).
- Pump grease into bearing assembly.

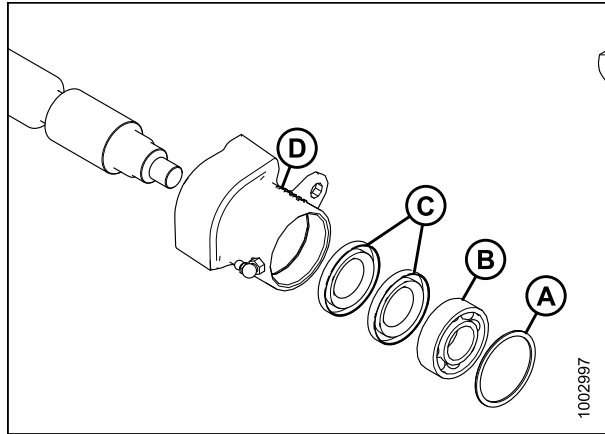


Figure 6.154: Bearing Assembly

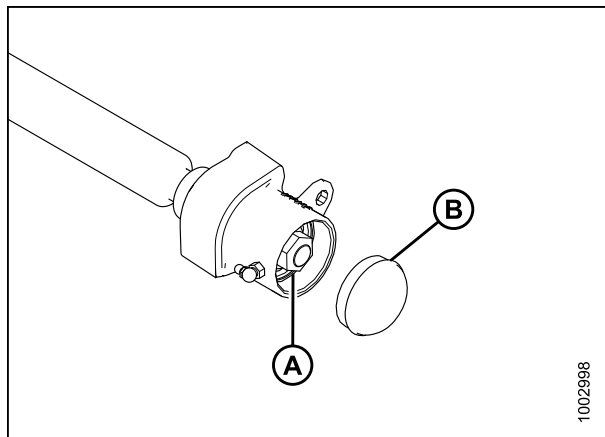


Figure 6.155: Idler Roller

Installing Adapter Feed Draper Idler Roller

- Position the idler roller assembly (B) in adapter deck.
- Install two bolts (A) at both ends of the idler roller.

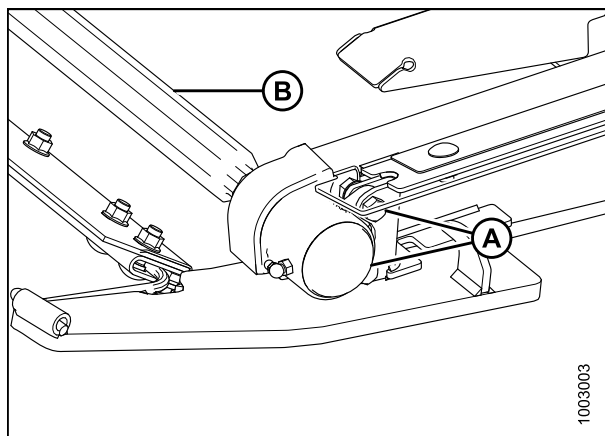


Figure 6.156: Idler Roller

MAINTENANCE AND SERVICING

3. Close the feed draper and connect with connector straps (A), bolts and nuts.
4. Tension the feed draper. Refer to [6.9.2 Adjusting Feed Draper Tension, page 323](#).
5. Attach the header to the adapter. Refer to [5.7.2 Attaching Header to Adapter and Combine, page 235](#).

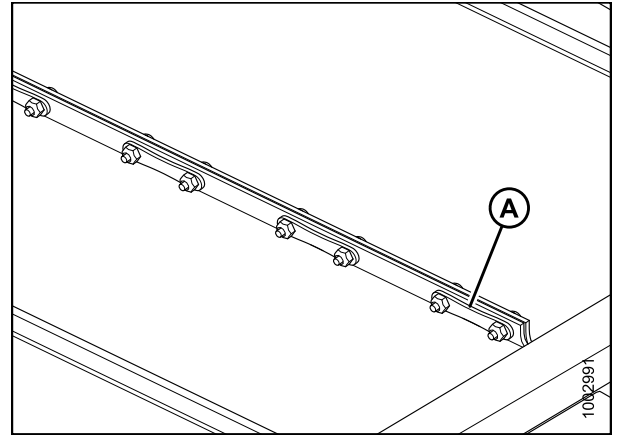


Figure 6.157: Draper Connector

6.10 Adapter Stripper Bars and Feed Deflectors

6.10.1 Installing Stripper Bars

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

1. Detach header from combine. Refer to [5 Header Attachment/Detachment, page 189](#) for your specific combine.
2. Position stripper bar (A) so notch (B) is at corner of frame. Secure it to the adapter with four bolts (C) and nuts. Nuts toward combine.
3. Repeat for opposite side .
4. Attach header onto the combine, Refer to [5 Header Attachment/Detachment, page 189](#).

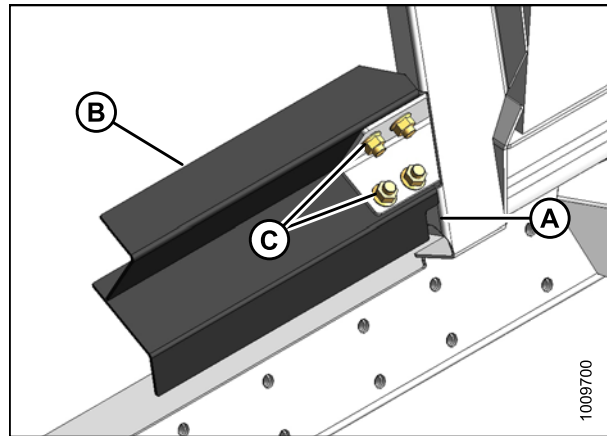


Figure 6.158: Stripper Bar

6.10.2 Removing Stripper Bars

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

1. Remove four bolts and nuts (A) securing stripper bar (B) to adapter frame, and remove bar.
2. Repeat for opposite side.

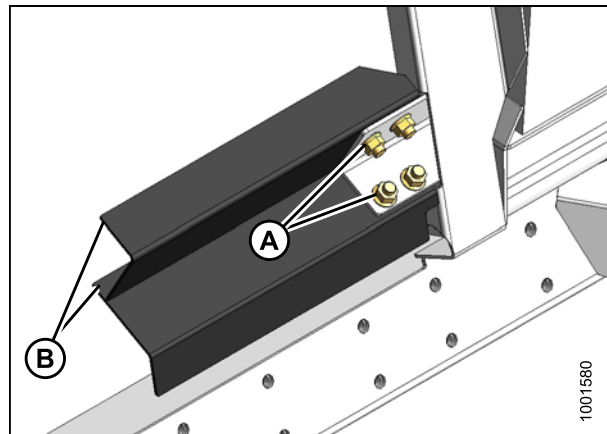


Figure 6.159: Stripper Bar

6.10.3 Replacing Feed Deflectors

To replace feeder deflectors in New Holland CR model combines, follow these steps:

1. Determine position of existing deflector (A) by measuring gap (B) between deflector forward edge and pan.

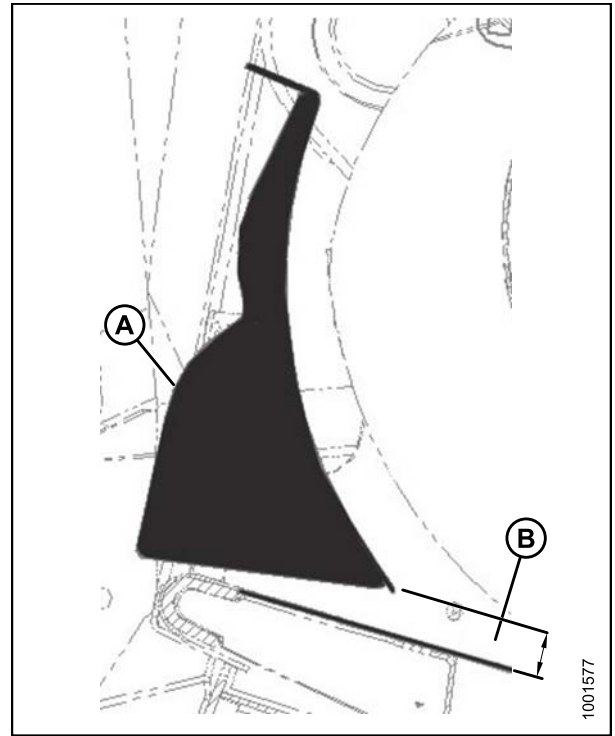


Figure 6.160: Feed Deflector-End

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 (nuts toward combine). 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 3/4—1 in. (19—25 mm).

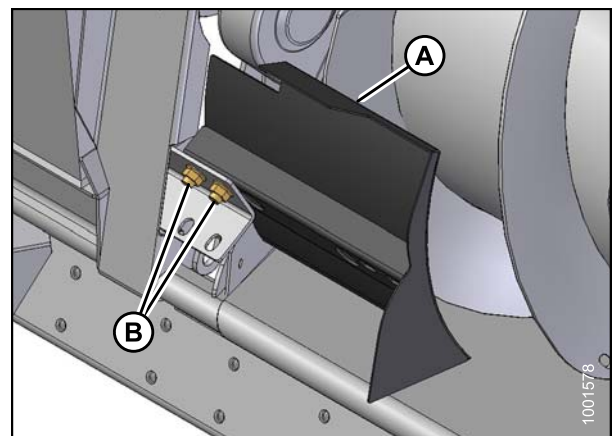


Figure 6.161: Feed Deflector

6.11 Header Drapers

The draper should be replaced or repaired if it is torn, missing slats, or cracked.

6.11.1 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 [6.11.3 Adjusting Side Draper Tension, page 336](#).
5. Remove fasteners (A) and tube connectors (B) at the draper joint.
6. Pull draper from deck.

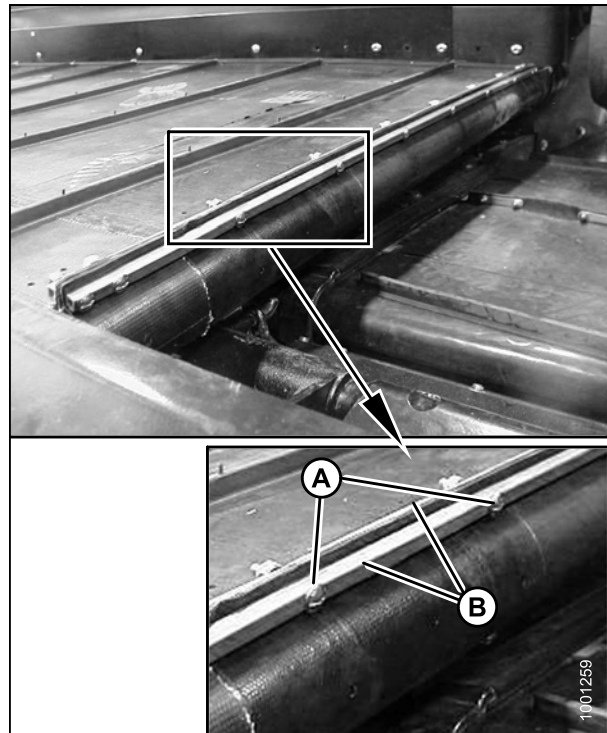


Figure 6.162: Draper Connector

6.11.2 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 drapers. Refer to [6.11.5 Adjusting Deck Height, page 339](#).

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.



Figure 6.163: Side Draper

5. Attach ends of draper with tube connectors (B).
6. Install screws (A) with heads facing the center opening.
7. Adjust tension. Refer to [6.11.3 Adjusting Side Draper Tension, page 336](#).
8. Check for seal between the drapers and the cutter bar. There should be a 0.04–0.08 in. (1–2 mm) gap between the cutterbar and the draper..
9. To achieve the proper gap, refer to [6.11.5 Adjusting Deck Height, page 339](#).

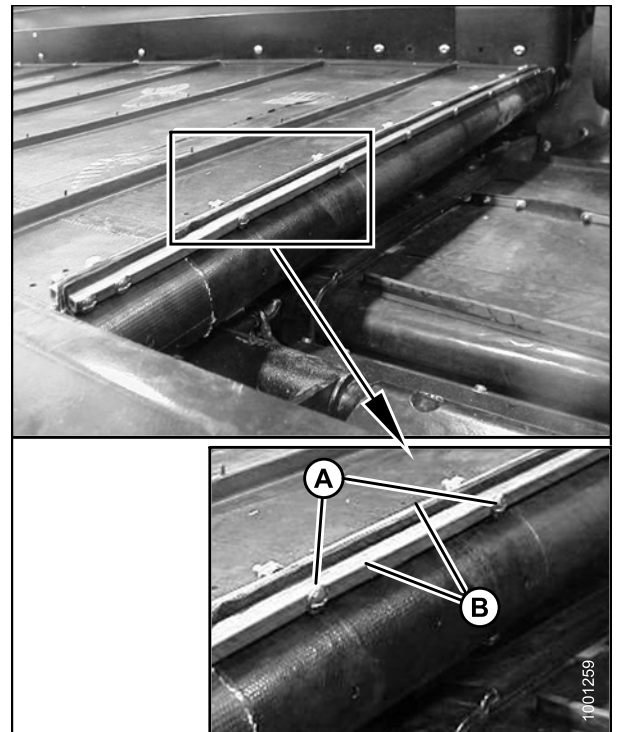


Figure 6.164: Draper Connector

6.11.3 Adjusting Side Draper Tension

Draper tension should be just enough to prevent slipping, and to keep the draper from sagging below the cutterbar.

⚠ WARNING

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

To adjust the header draper tension, follow these steps:

1. Raise header, and shut down engine. Engage header lift props.
2. Check that draper guide (rubber track on underside of draper) is properly engaged in groove of drive roller (A) and that idler roller (B) is between the guides.
3. To tighten, turn bolt (A) clockwise. The white indicator bar (B) will move inboard, indicating that draper is tightening. Tighten until bar is about halfway in window.
4. To loosen, turn bolt (A) counterclockwise. The white indicator bar (B) will move outboard, indicating that draper is loosening. Loosen until bar is about halfway in window.

IMPORTANT:

To avoid premature failure of draper, draper rollers and/or tightener components, do **NOT** operate with tension set so that white bar is not visible. Also, to prevent draper from scooping dirt, ensure draper is tight enough that it does not sag below point where cutterbar contacts the ground.

5.

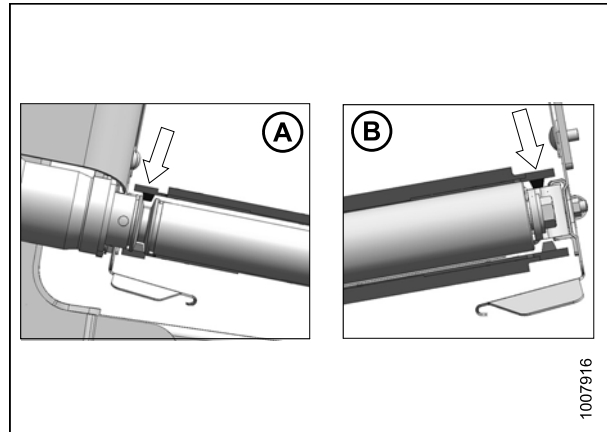


Figure 6.165: Draper Guides

A - Drive Roller – One End

B - Idler Roller – Both Ends

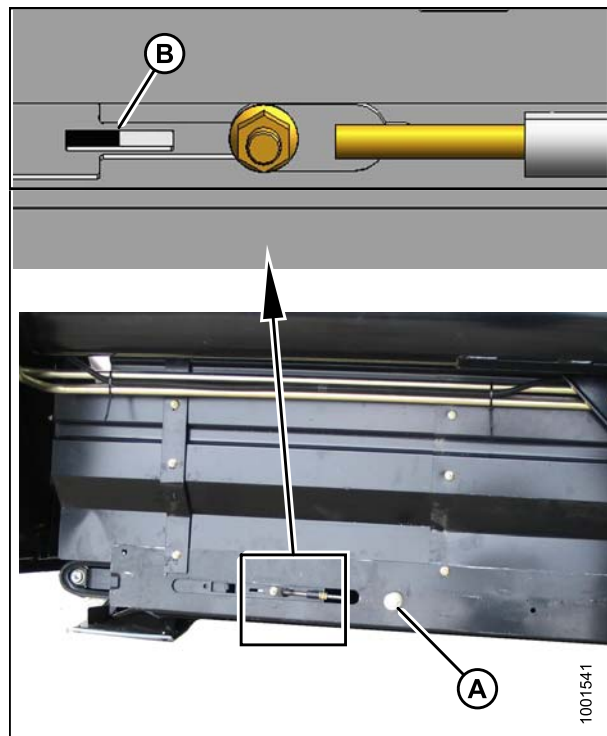


Figure 6.166: Tension Adjuster: Left Shown, Right Opposite

6.11.4 Adjusting Header Draper Tracking

Each draper deck has a fixed drive roller (A) and a spring-loaded idler roller (B) that can be aligned by adjuster rods so that the draper tracks properly on the rollers.

If the draper is tracking incorrectly, refer to the following directions to correct the tracking:

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 241](#).

Table 6.14 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)

1. Refer to the above table to determine which roller requires adjustment and the required adjustment.
2. To change 'X', the back end of the roller is adjusted with the adjuster mechanism at the inboard end of the deck as follows:
3. Adjust the **drive** roller at 'X' as follows:
 - a. Loosen nuts (A) and jam nut (B).
 - b. Turn adjuster nut (C).

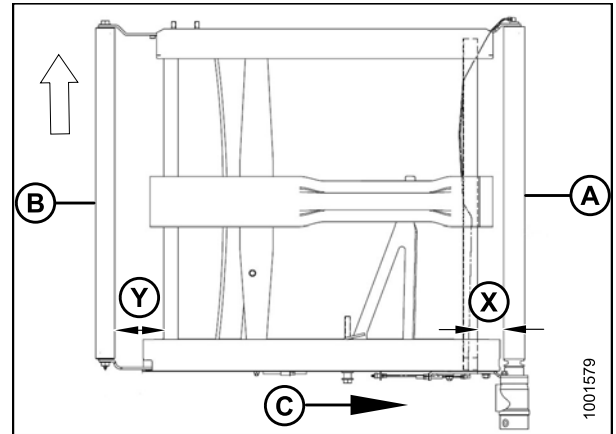


Figure 6.167: Adjustments

- A - Drive Roller
- B - Idler Roller
- C - Draper Direction
- X - Drive Roller Adjust.
- Y - Idler Roller Adjust.

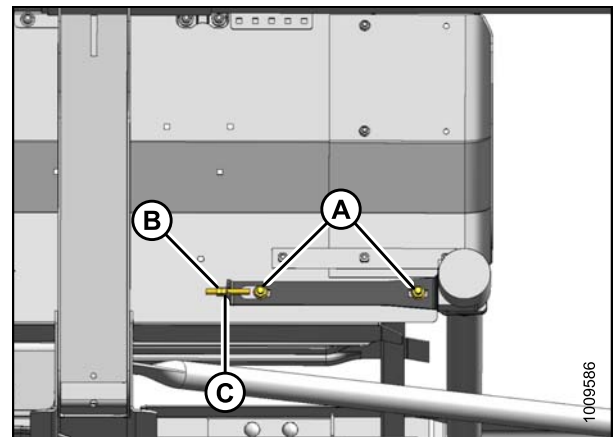


Figure 6.168: Drive Roller

MAINTENANCE AND SERVICING

4. Adjust the **idler** roller 'Y' as follows:
 - a. Loosen nut (A) and jam nut (B).
 - b. Turn adjuster nut (C).
5. If the draper does not track at the idler roller end after adjusting the idler roller, the drive roller is likely not square to the deck. Adjust the drive roller, and then re-adjust the idler roller.

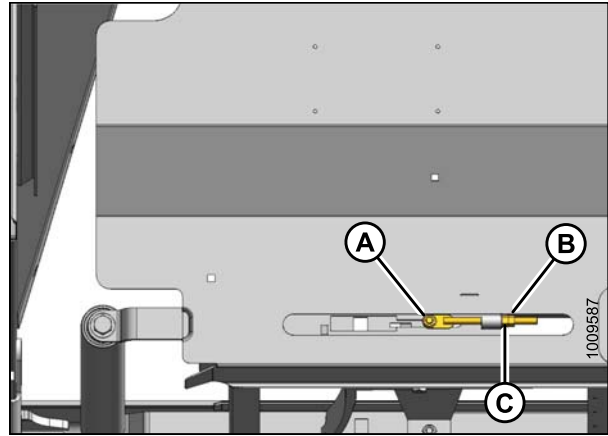


Figure 6.169: Idler Roller

6.11.5 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 (A), 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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

To adjust deck height, follow these steps:

1. Loosen tension on draper. Refer to [6.11.3 Adjusting Side Draper Tension, page 336](#).
2. Lift draper at front edge past cutterbar to expose the support.
3. Loosen two lock nuts (A) **ONE-HALF TURN ONLY** on deck support (B).

NOTE:

There are two to four supports per deck depending on header size.

4. Tap deck (C) to lower deck relative to supports. Tap support (B) using a punch to raise deck relative to support.

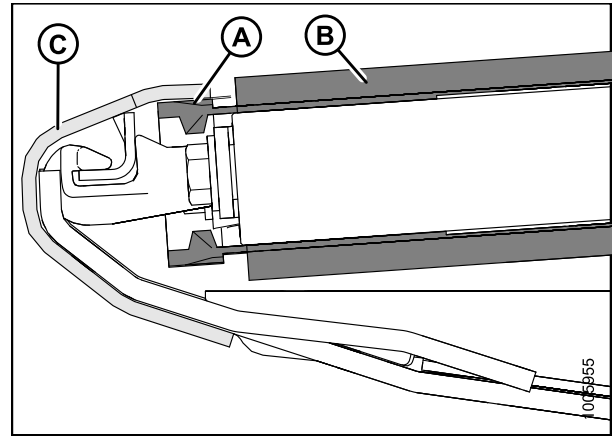


Figure 6.170: Draper Seal

A - Gap (Draper to Cutterbar) B - Draper C - Cutterbar

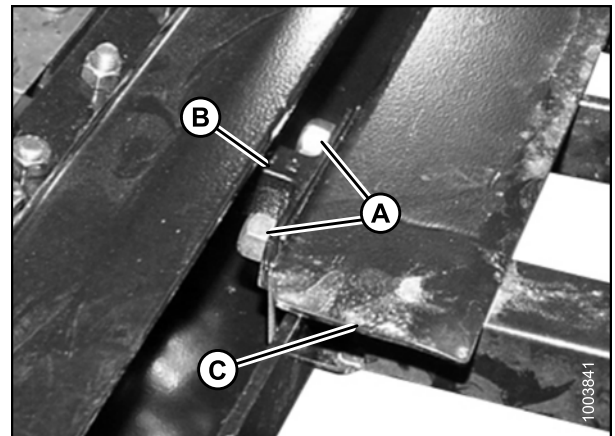


Figure 6.171: Deck Support

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5. Set deck (A) to 5/16–3/8 in. (8–9 mm) below the cutterbar (C) to create a seal.
6. Tighten deck support hardware (D).
7. Check dimension (B) again it should be set to 5/16–3/8 in. (8–9 mm).
8. Tension draper. Refer to [6.11.3 Adjusting Side Draper Tension, page 336](#).

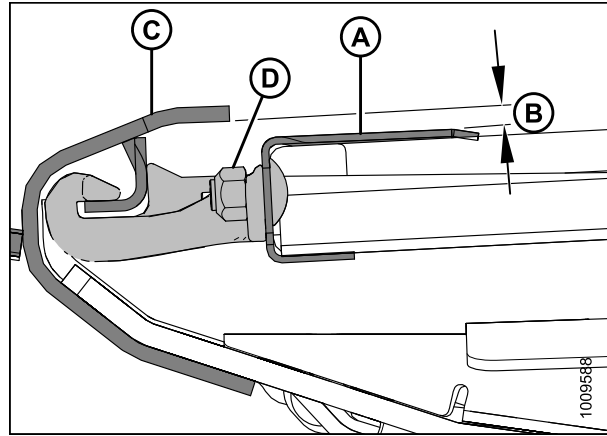


Figure 6.172: Deck Support

6.11.6 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 a bad bearing is suspected 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 the temperature each of the roller arms (A), (B), (C) on each deck. They should not exceed 80°F (27°C) above ambient temperature.

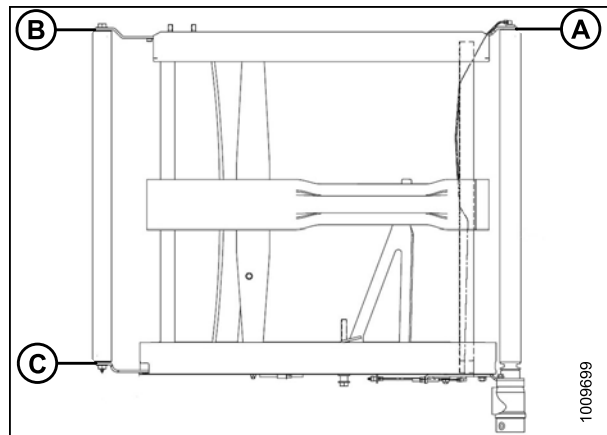


Figure 6.173: Roller Arms

Side Draper Deck Idler Roller

Removing Side Draper Idler Roller

1. If draper connector is not visible, engage the header until the connector is accessible, preferably close to the outboard end of the deck.
2. Raise header and reel, shutdown the combine.
3. Engage combine safety props and reel lift cylinder safety props.
4. Loosen draper by turning adjuster bolt (A) counterclockwise.
5. Remove fasteners (A) and tube connectors (B) at the draper joint to uncouple the draper.
6. Pull the draper off the idler roller.

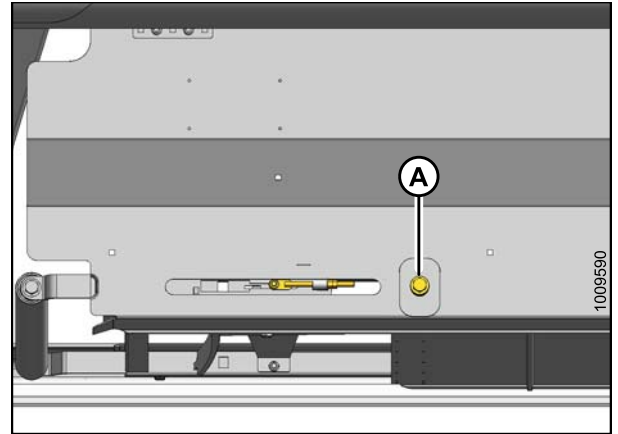


Figure 6.174: Tensioner

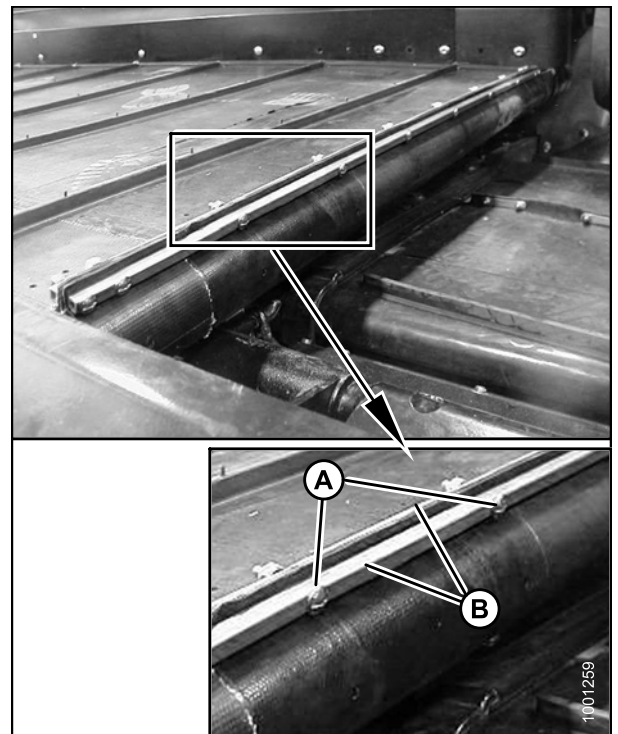


Figure 6.175: Draper Connector

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7. Remove bolts (A) and washer at ends of idler roller.
8. Spread roller arms (B) and (C), and remove idler roller.

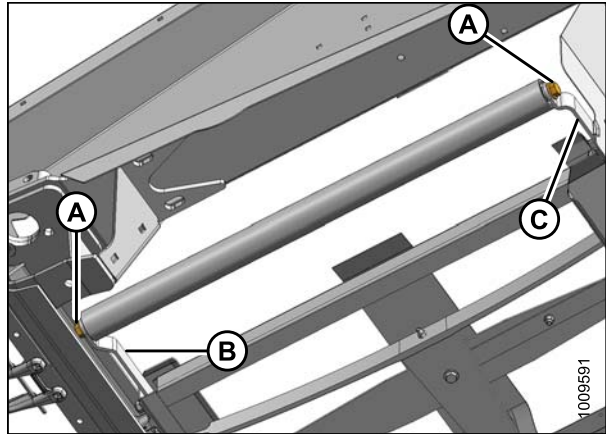


Figure 6.176: Idler Roller

Replacing Side Draper Idler Roller Bearing

1. Remove draper idler roller assembly. Refer to [Removing Side Draper Idler Roller, page 341](#).
2. Remove bearing assembly (A) and seal (B) from roller tube (C) as follows:
 - a. Attach a slide hammer (D) to threaded shaft (E) in bearing assembly.
 - b. Tap out the bearing assembly (A) and seal (B).
3. Clean inside of roller tube (C). Check tube for wear or damage and replace if necessary.

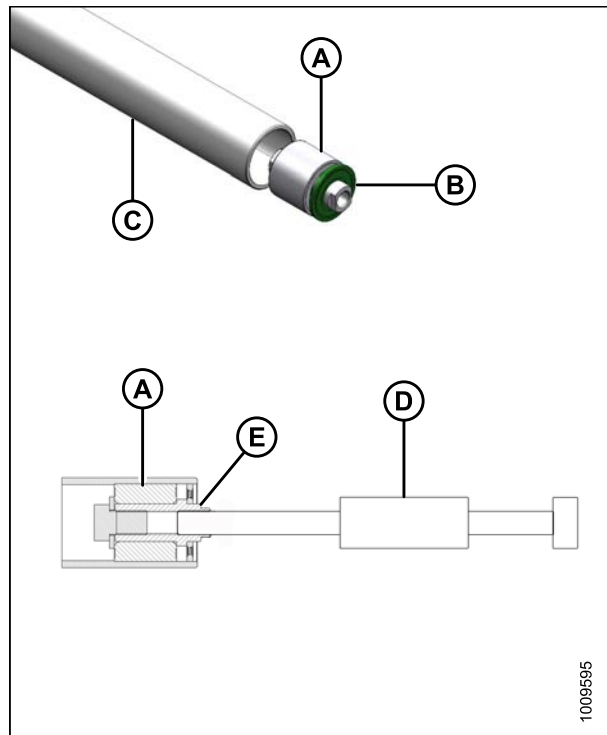


Figure 6.177: Idler Roller Bearing

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4. Install new bearing assembly (A) into roller by pushing on outer race of bearing. The bearing is fully positioned when the 9/16 in. (14 mm) dimension (B) is achieved.
5. Apply the recommended grease in front of bearing. See [6.2.2 Recommended Fluids and Lubricants, page 244](#).
6. Locate seal (C) at roller opening, and position a flat washer (1.0 in. I.D. x 2.0 in. O.D.) on seal.
7. Tap seal into roller opening with a suitable socket on the washer until it seats on the bearing assembly (A). The seal (C) is fully positioned when the 1/8 in. (3 mm) dimension (D) is achieved.

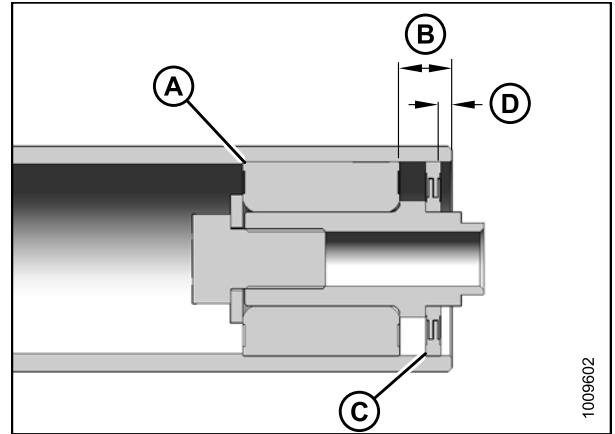


Figure 6.178: Idler Roller Bearing

Installing Side Draper Idler Roller

1. Position stub shaft in idler roller in forward arm (B) on deck.
2. Push on roller to deflect forward arm slightly so that stub shaft at rear of roller can be slipped into rear arm (C).
3. Install bolts (A) with washers, and torque to 70 lb-ft (93 N·m).
4. Wrap the draper over the idler roller, re-connect it and set the tension. See [6.11.2 Installing Side Draper, page 335](#).
5. Run machine to verify that draper tracks correctly. Adjust tracking if required. See [6.11.4 Adjusting Header Draper Tracking, page 337](#).

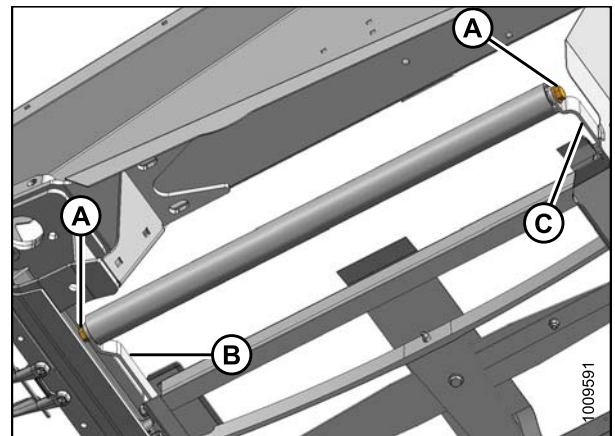


Figure 6.179: Idler Roller

Side Draper Drive Roller

Removing Side Draper Drive Roller

1. If draper connector is not visible, engage the header until the connector is accessible, preferably close to the outboard end of the deck.

DANGER

Engage header safety props and reel props before working under header or reel.

2. Raise header and reel, shutdown the combine.
3. Engage combine safety props and reel lift cylinder safety props.

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- Loosen draper by turning adjuster bolt (A) counterclockwise.

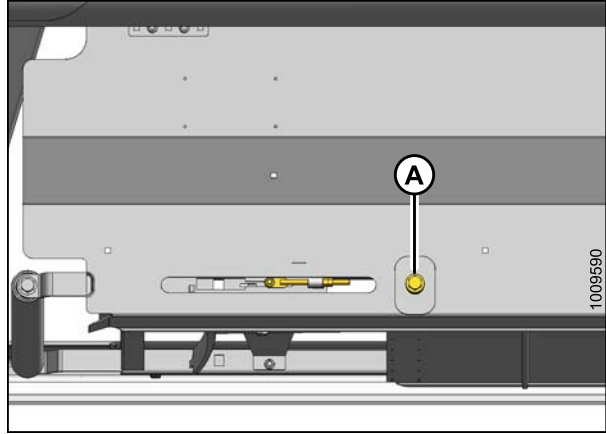


Figure 6.180: Tensioner

- Remove fasteners (A) and tube connectors (B) at the draper joint to uncouple the draper.
- Pull the draper off the drive roller.

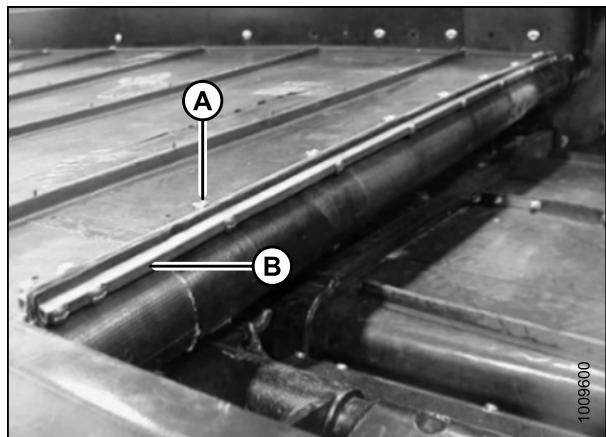


Figure 6.181: Draper Connector

- 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.

- Remove the four bolts (B) that hold motor to the drive roller arm.

NOTE:

Plastic shield (C) may require removal to gain access to the top bolt.

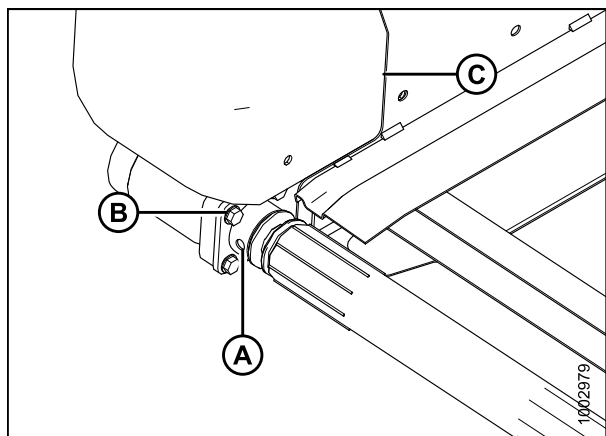


Figure 6.182: Drive Roller

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9. Remove bolt (A) that secures the other end of the drive roller (B) to the support arm.
10. Remove the drive roller (B).

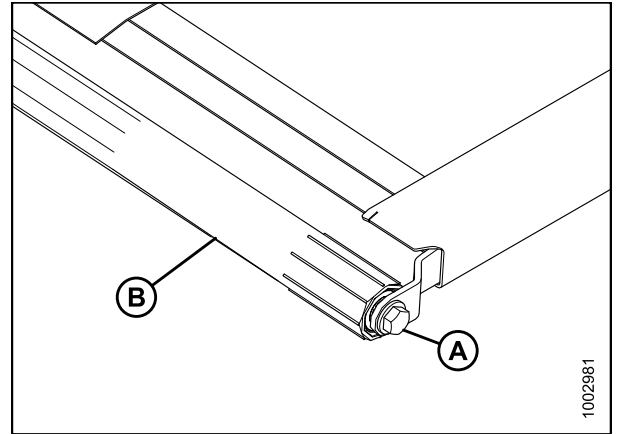


Figure 6.183: Drive Roller

Replacing Side Draper Drive Roller Bearing

1. Remove draper idler roller assembly. Refer to
2. Remove bearing assembly (A) and seal (B) from roller tube (C) as follows:
 - a. Attach a slide hammer (D) to threaded shaft (E) in bearing assembly.
 - b. Tap out the bearing assembly (A) and seal (B).
3. Clean inside of roller tube (C). Check tube for wear or damage and replace if necessary.

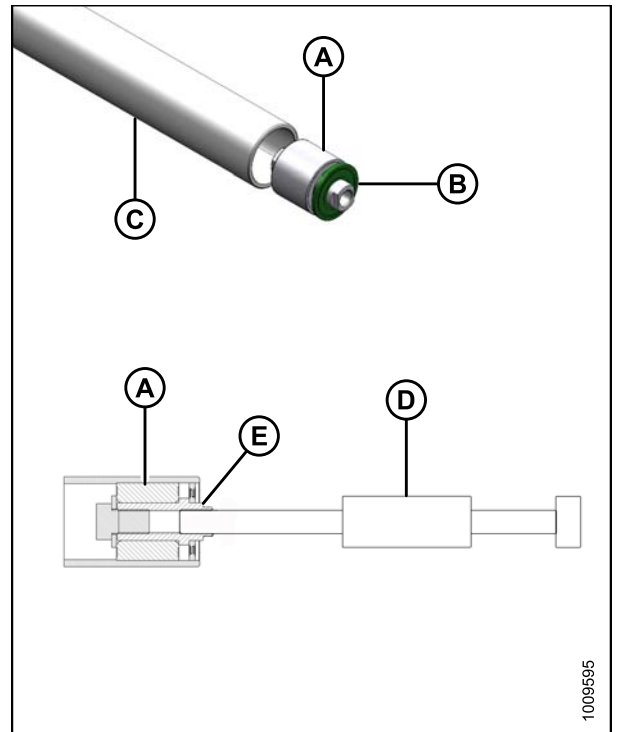


Figure 6.184: Drive Roller Bearing

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4. Install new bearing assembly (A) into roller by pushing on outer race of bearing. The bearing is fully positioned when the 9/16 in. (14 mm) dimension (B) is achieved.
5. Apply the recommended grease in front of bearing. See [6.2.2 Recommended Fluids and Lubricants, page 244](#).
6. Locate seal (C) at roller opening, and position a flat washer (1.0 in. I.D. x 2.0 in. O.D.) on seal.
7. Tap seal into roller opening with a suitable socket on the washer until it seats on the bearing assembly (A). The seal (C) is fully positioned when the 1/8 in. (3 mm) dimension (D) is achieved.

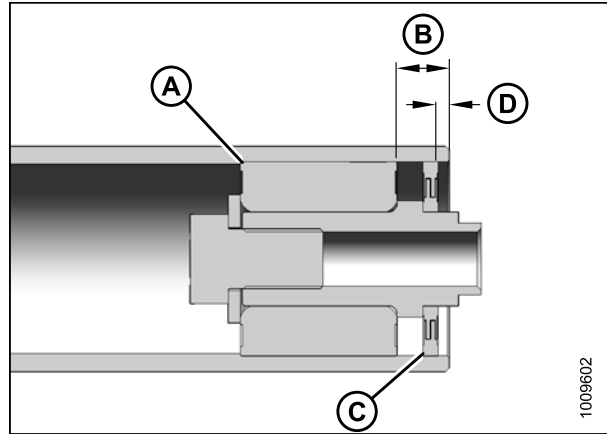


Figure 6.185: Drive Roller Bearing

Installing Side Draper 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.
3. Secure motor to the roller support with four bolts (A). Torque to 20 ft-lbf (27 N·m).

NOTE:

Tighten any loosened bolt and reinstall plastic shield (B), if removed.

4. Tighten the two set screws through access hole (C).

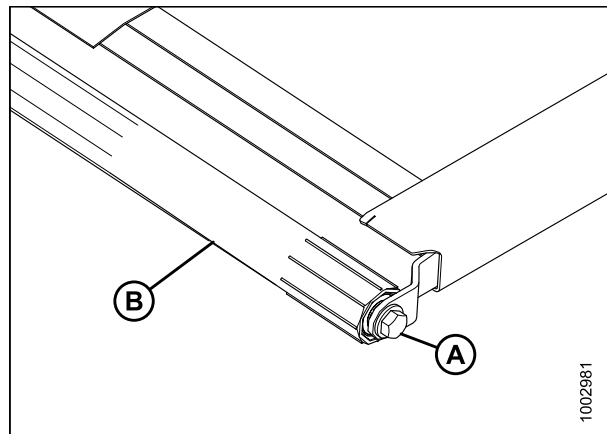


Figure 6.186: Drive Roller

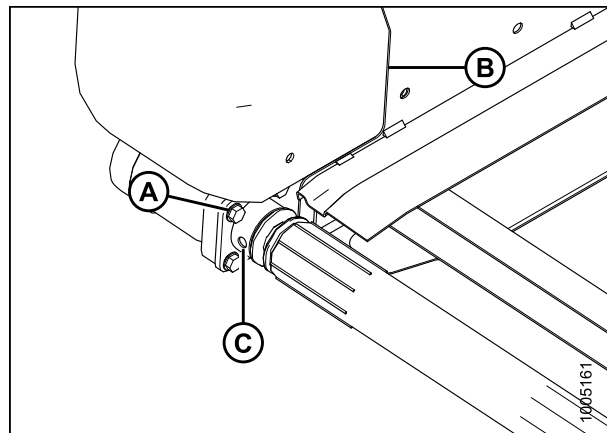


Figure 6.187: Drive Roller

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5. Wrap the draper over the drive roller, and attach ends of draper with tube connectors (B). Install screws (A) with heads facing the center opening.

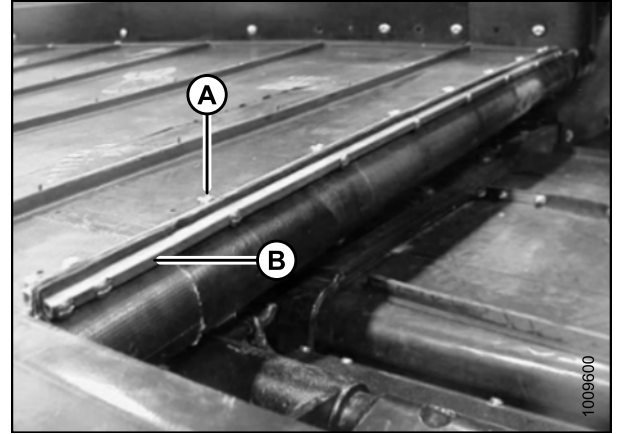


Figure 6.188

6. Tension the draper, with tensioner bolt (A) and follow the directions on the decal for proper draper tensioning.
7. Disengage the reel and header safety props.
8. Start the combine and lower header and reel.
9. Run machine to verify that draper tracks correctly.
10. If adjustment is required, refer to [6.11.4 Adjusting Header Draper Tracking, page 337](#).

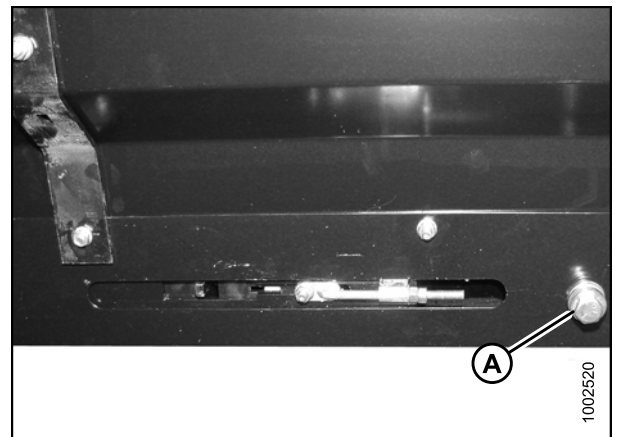


Figure 6.189: Tensioner

6.12 Reel and Reel Drive

⚠ CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 241](#).

6.12.1 Reel Clearance to Cutterbar

The minimum clearance between the reel fingers and the cutterbar ensures that the reel fingers do not contact the cutterbar during operation. The clearance is adjusted at the factory but in some cases, adjustments are necessary before the header is put into operation.

The minimum finger to guard and cutterbar clearance with the reels fully lowered should be $3/4 \pm 1/8$ in. (20 ± 3 mm) at both ends of each reel, and at the cutterbar flex locations with the header in full frown mode.

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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

1. Park header on level ground.
2. Move spring handles (A) down to unlock position.

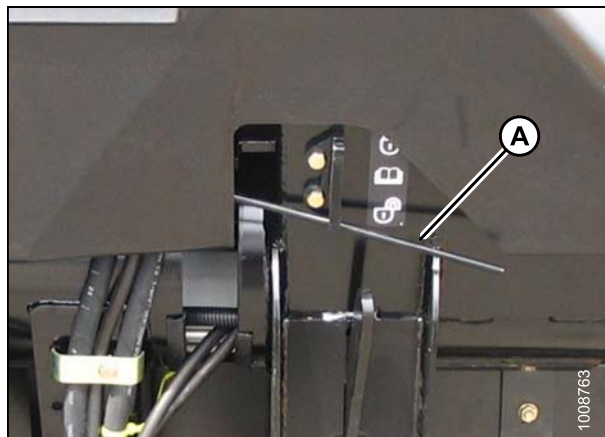


Figure 6.190: Wing Lock in Unlock Position

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3. Raise header and place two 6 in. (150 mm) blocks (A) under the cutterbar, just inboard of the wing flex points.
4. Lower header fully, allowing it to flex into 'full frown' mode.

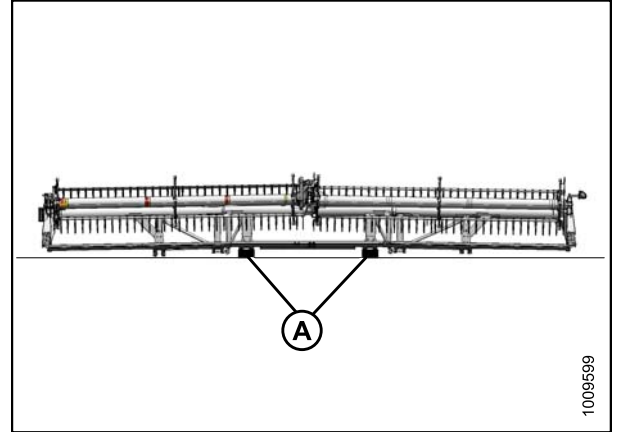


Figure 6.191: FlexDraper® Block Locations

5. Adjust reel fore-aft position so that back end of cam disc is at mid-position ('5' on the reel arm indicator decal).
6. Fully lower the reel.
7. Shut down engine. Remove key from ignition.

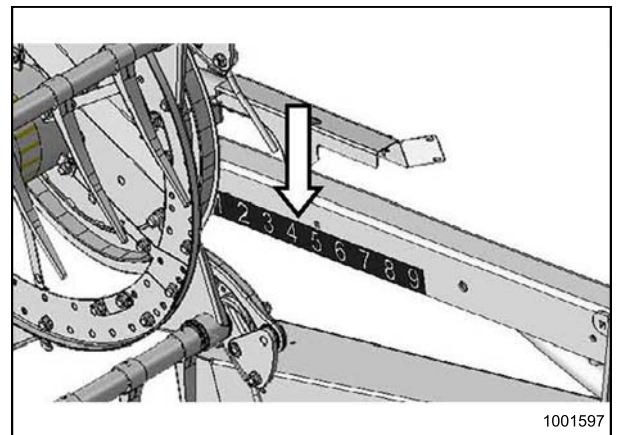


Figure 6.192: Fore-Aft Position

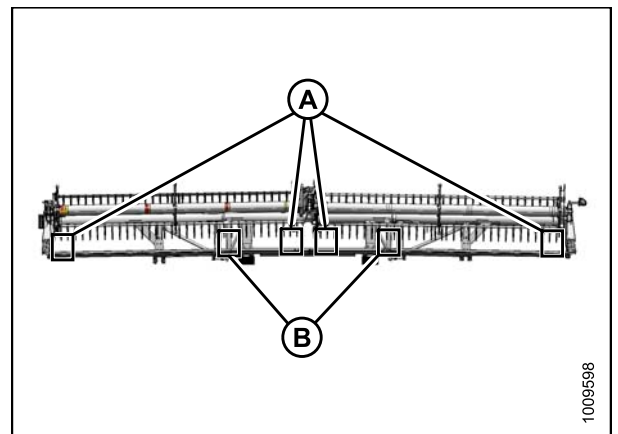


Figure 6.193: Double-Reel Measurement Locations

Adjusting Reel Clearance

! 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. Refer to the combine operator's manual for instructions regarding the proper use and storage of header safety props.

1. If required, adjust outboard reel arms to change clearance at outboard ends of reel as follows:
 - a. Loosen bolt (A).
 - b. Turn cylinder rod (B) out of clevis to raise reel and increase clearance to cutterbar, or turn cylinder rod into clevis to lower reel and decrease clearance.
 - c. Tighten bolt (A).
 - d. Repeat at opposite side.

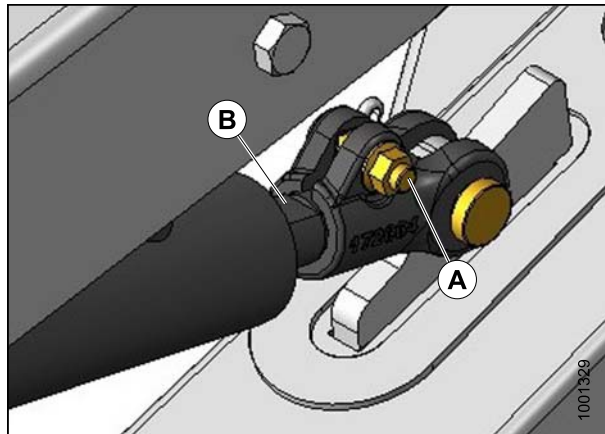


Figure 6.194: Outside Reel Arm

2. If necessary, adjust center arm lift cylinder stop (A) to change clearance at inboard ends of reels and clearance at flex points as follows:
 - a. Loosen nut (B).
 - b. Turn nut (C) counterclockwise to raise reel and increase clearance to cutterbar, or clockwise to lower reel and decrease clearance.
 - c. Tighten nut (B).

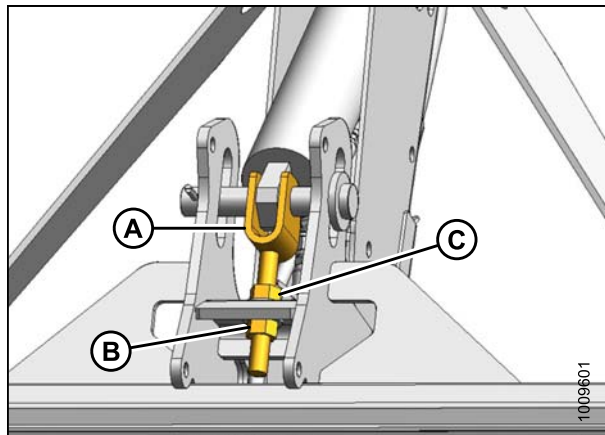


Figure 6.195: Looking Up at Arm Underside

6.12.2 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.

MAINTENANCE AND SERVICING

Adjusting Reel Frown

The frown is adjusted by repositioning the hardware connecting the reel finger tube arms to the reel discs.

To adjust the reel frown, follow these steps:

NOTE:

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.

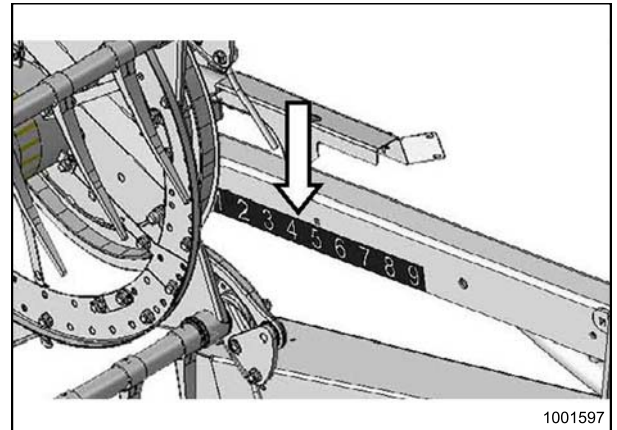


Figure 6.196: Arm Decal

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.

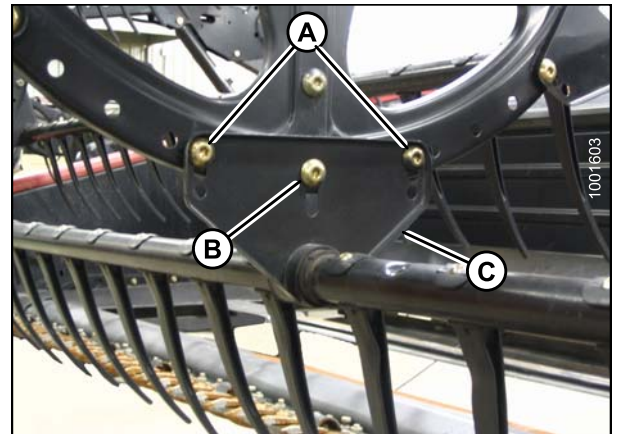


Figure 6.197

6.12.3 Centering the Reel

The reel(s) should be centered between the endsheets.

Centering the Reel

To center the reels, follow these steps:

1. 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).

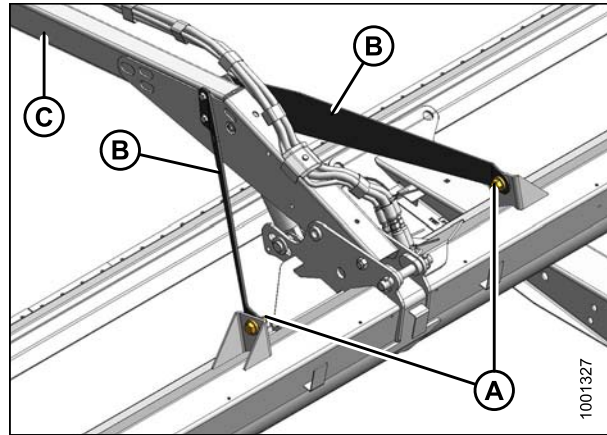


Figure 6.198: Centering Reel

6.12.4 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).

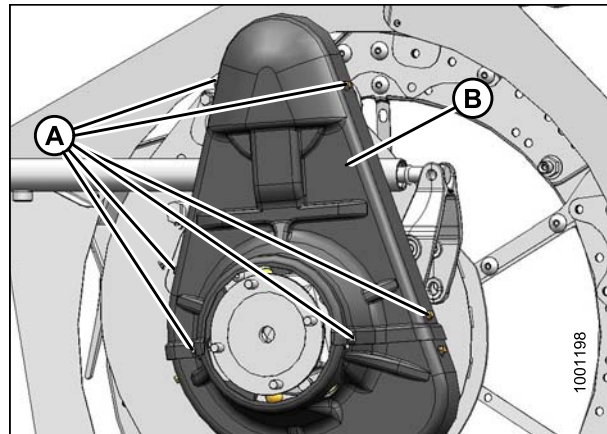


Figure 6.199: Drive Cover

MAINTENANCE AND SERVICING

4. Tension on chain (A) should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.

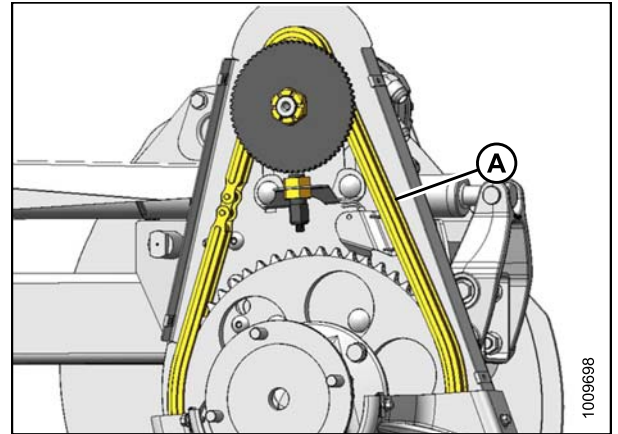


Figure 6.200: Reel Drive

5. Loosen six bolts (A) on motor mount.

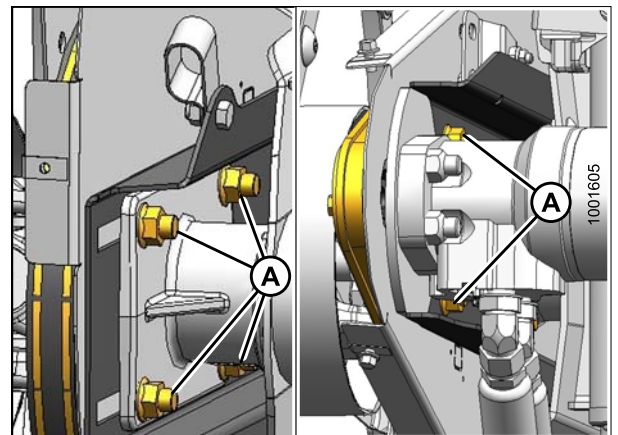


Figure 6.201: Reel Drive

6. Slide motor (A) and motor mount (B) up or down until required tension is achieved.
7. Tighten bolts to 75 lbf-ft (102 N·m).

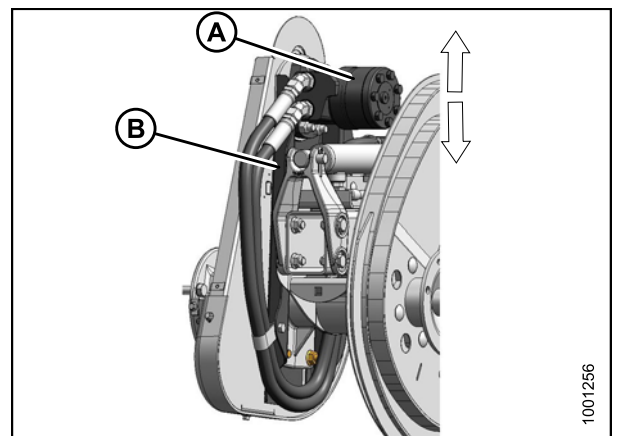


Figure 6.202: Reel Drive

MAINTENANCE AND SERVICING

8. Reinstall drive cover (B) with screws (A).

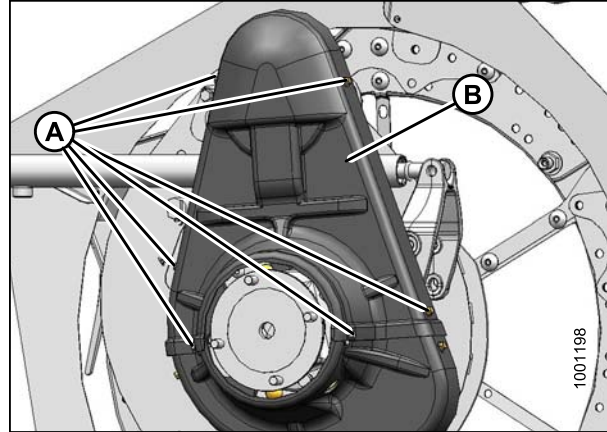


Figure 6.203: Drive Cover

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 354](#)
- [Breaking the Chain Method, page 357](#)

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).

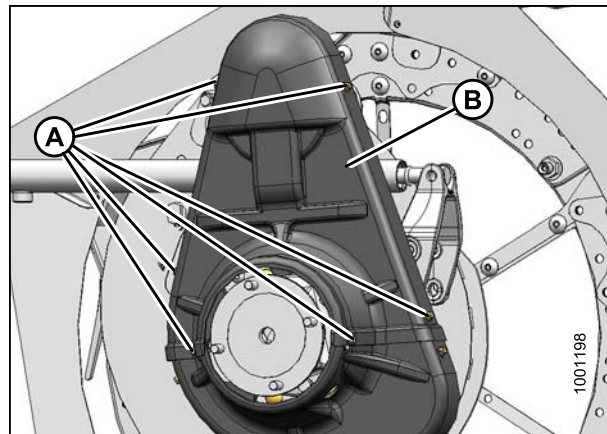


Figure 6.204: Drive Cover

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 Double Reel Drive](#), page 352 for double reel drive.

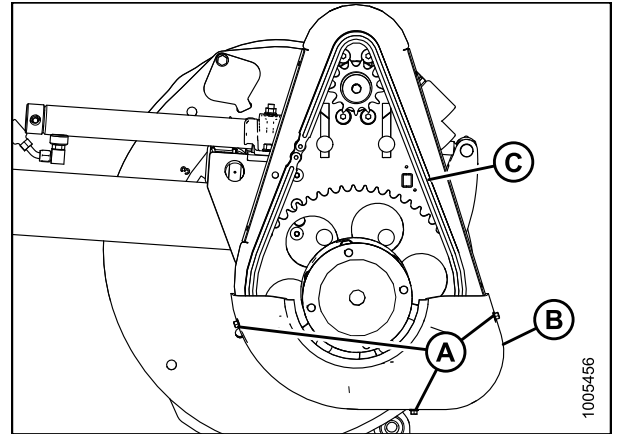


Figure 6.205: Drive Cover

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 6.206: Supporting Reel

6. Remove four bolts (A) attaching reel tube to U-joint (B).

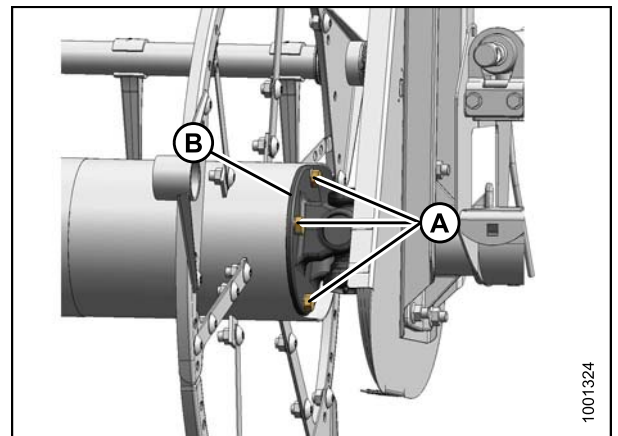


Figure 6.207: U-Joint

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.

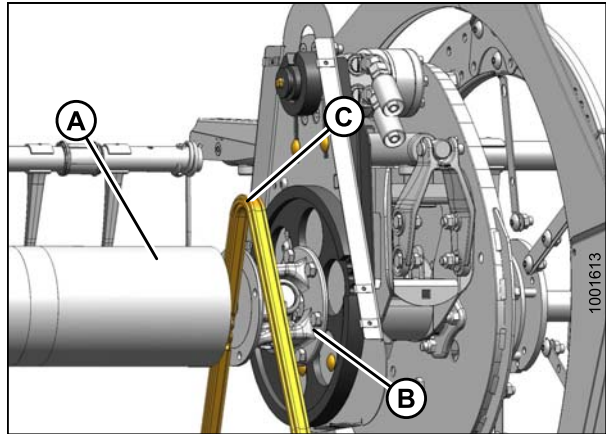


Figure 6.208: Replacing Chain

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).

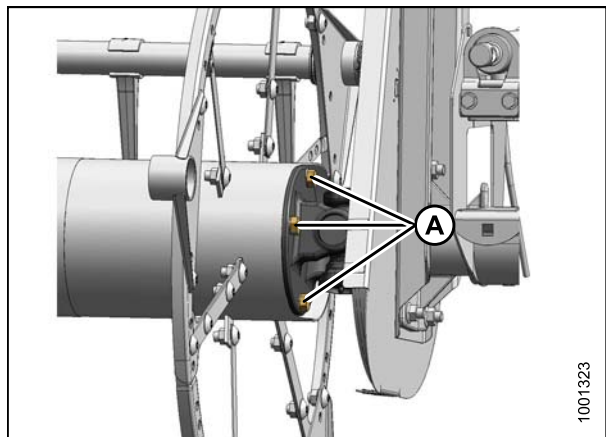


Figure 6.209: U-Joint

14. Remove temporary reel support.



Figure 6.210: Supporting Reel

MAINTENANCE AND SERVICING

- Adjust the chain tension (C). Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
- Install lower cover (B) and secure with three screws (A).

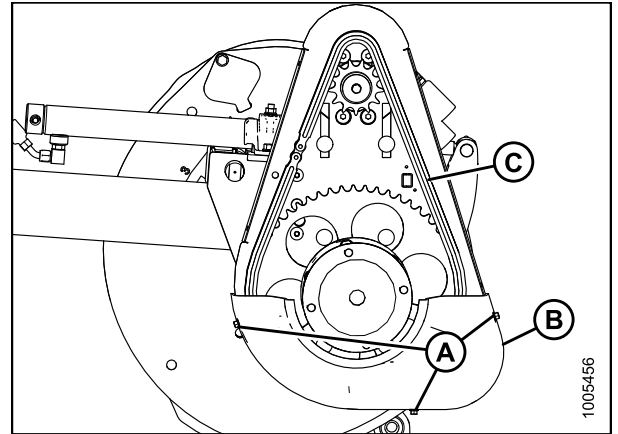


Figure 6.211: Drive Cover

- Install upper reel drive cover (B) and secure with six screws (A).

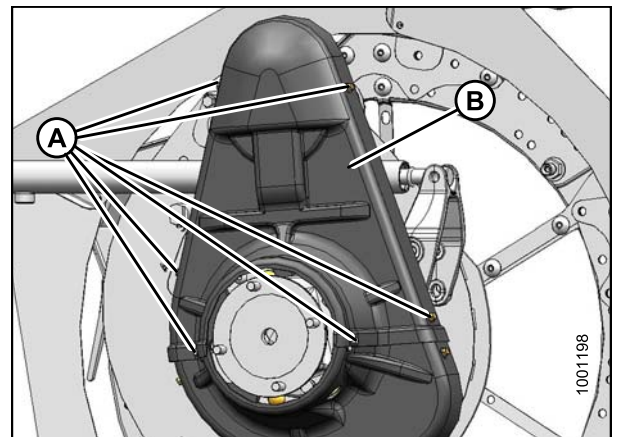


Figure 6.212: Drive Cover

Breaking the Chain Method

- Lower header and reel, shut down combine, and remove key from ignition.
- Remove six screws (A) and then remove upper reel drive cover (B).

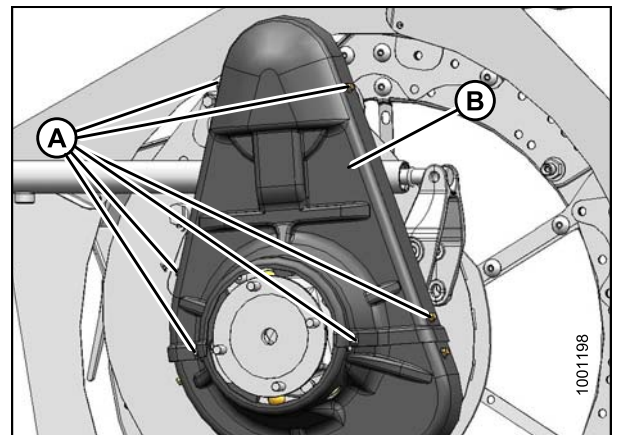


Figure 6.213: Drive Cover

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 Double Reel Drive, page 352](#) 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.

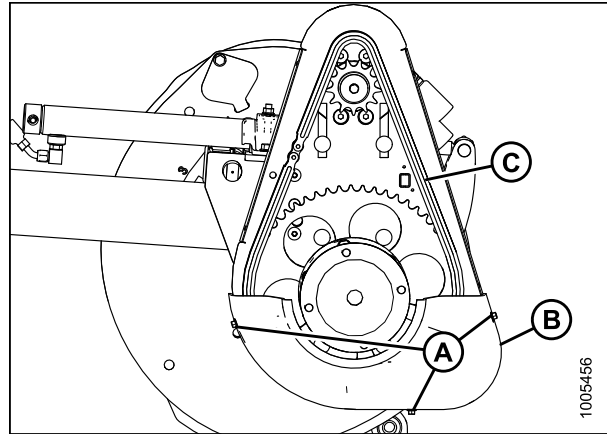


Figure 6.214: Drive Cover

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.

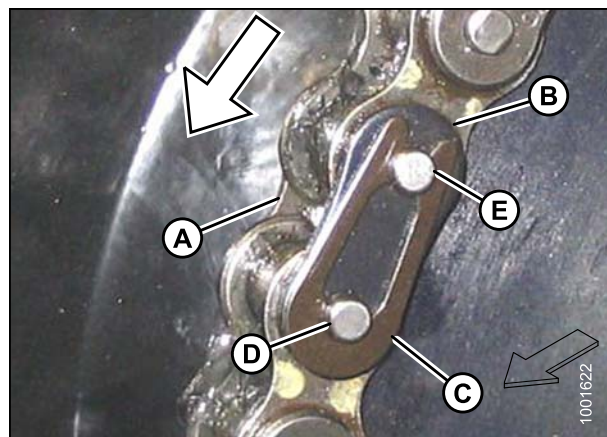


Figure 6.215: Chain

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).

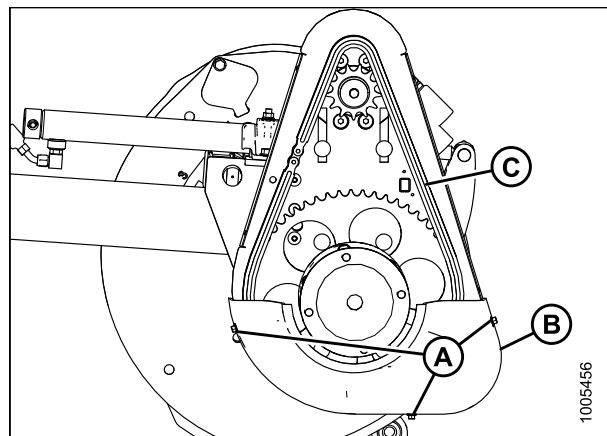


Figure 6.216: Reel Drive

16. Install upper reel drive cover (B) and secure with six screws (A).

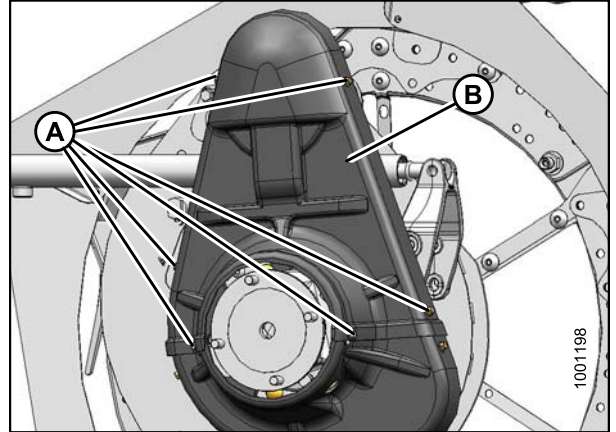


Figure 6.217: Drive Cover

6.12.5 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).

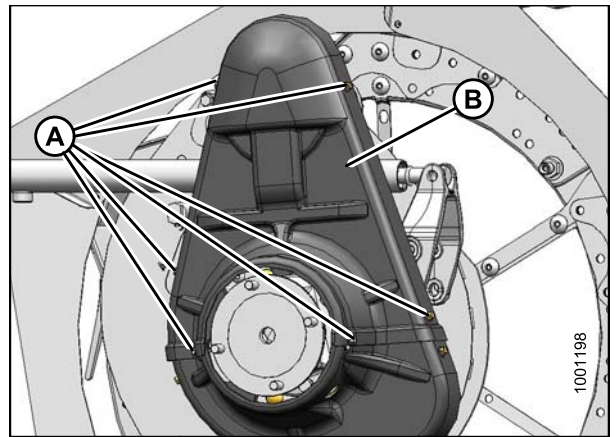


Figure 6.218: Drive Cover

MAINTENANCE AND SERVICING

3. Remove the cotter pin (A) and slotted nut (B) from the motor shaft.
4. Remove speed sensor disc (C) (if installed).

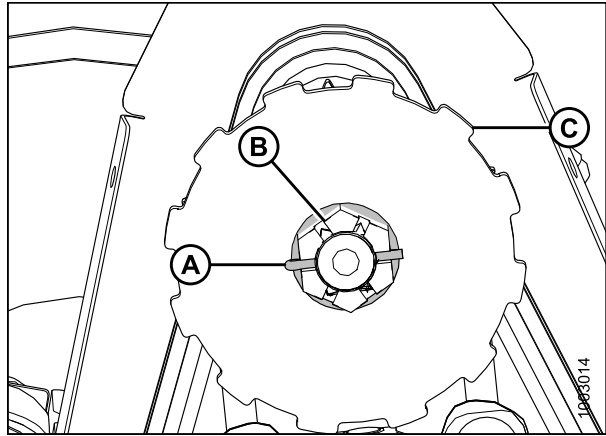


Figure 6.219

5. Loosen the six bolts (B) and slide the hydraulic motor downwards to loosen driven chain (A).
6. Remove the drive chain (A) from drive sprocket.

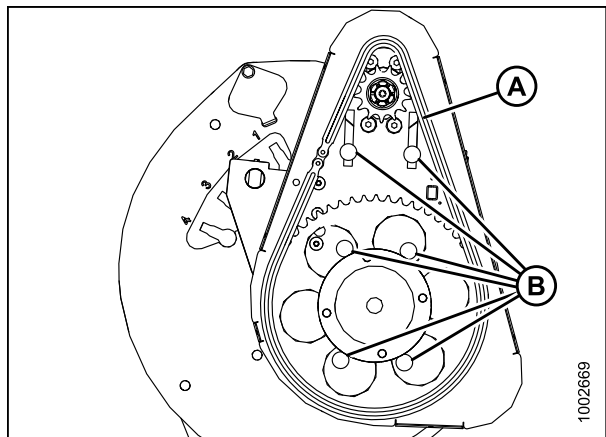


Figure 6.220: Drive Chain

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.

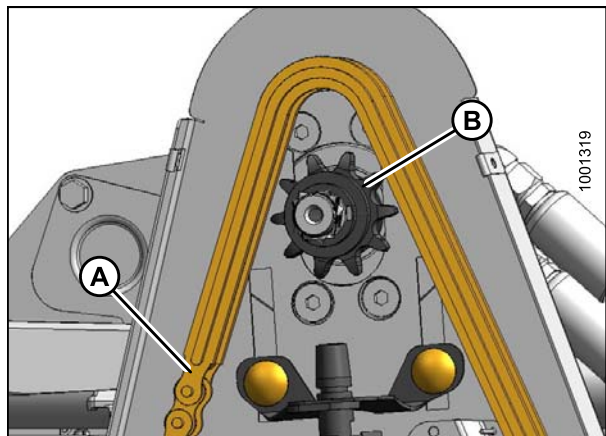


Figure 6.221: Reel Drive

MAINTENANCE AND SERVICING

- Align keyway (A) in new sprocket with key (B) in shaft and slide new sprocket onto shaft.
- Slip chain over drive sprocket.

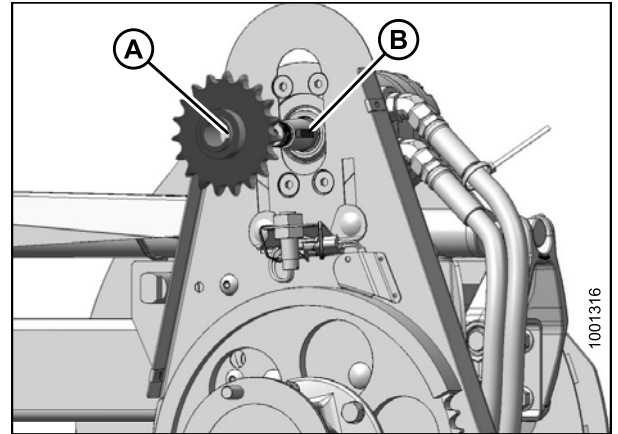


Figure 6.222: Reel Drive

- Install speed sensor disc (C) (if applicable) onto shaft.
- Secure disc and sprocket with slotted nut (B).
- Torque nut to 40 ft·lbf (54 N·m) and install the cotter pin (A). If required, tighten nut to next cotter pin hole.

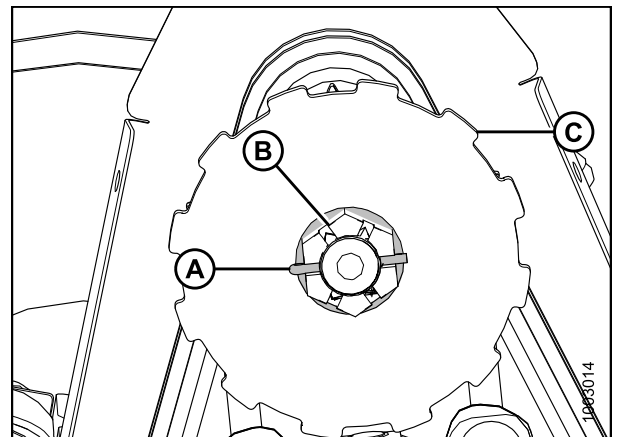


Figure 6.223: Reel Drive

- Slide motor (A) and motor mount (B) up or down until required tension is achieved.

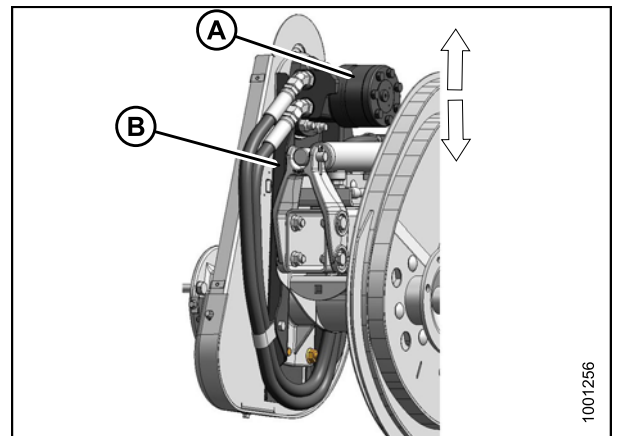


Figure 6.224: Reel Drive

MAINTENANCE AND SERVICING

14. Tension on chain (A) should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
15. Tighten bolts (B) to 75 ft·lbf (102·m).

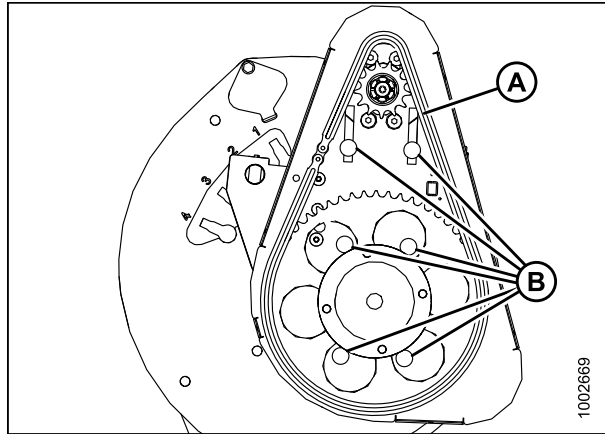


Figure 6.225: Drive Chain

16. Position upper cover (B) onto drive and secure with six screws (A).

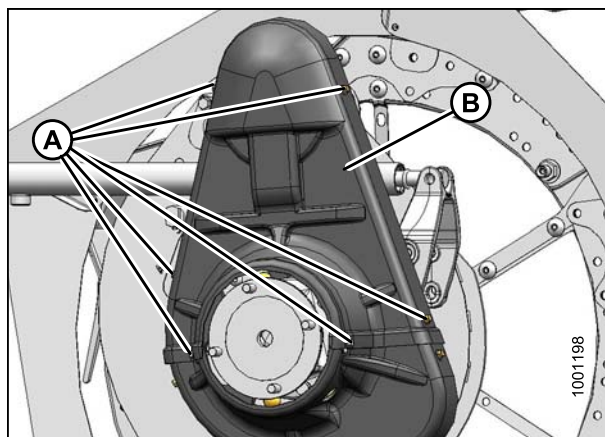


Figure 6.226: Drive Cover

6.12.6 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 [6.3.6 Lubrication and Servicing, page 262](#). U-joint should be replaced if severely worn or damaged. Refer to [Removing U-Joint, page 363](#).

Removing U-Joint

To remove the U-joint, follow these steps.

1. Lower header, raise reel, shut down combine, and engage reel safety props.
2. Remove six screws (A), and remove upper reel drive cover (B).

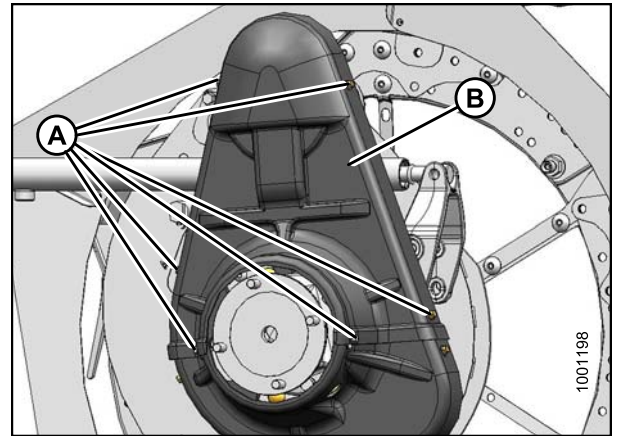


Figure 6.227: Drive Cover

3. Remove three screws (A) and remove lower cover (B).

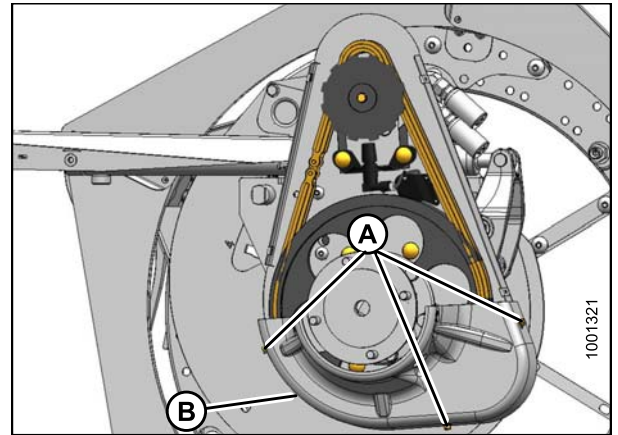


Figure 6.228: Drive Cover

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.

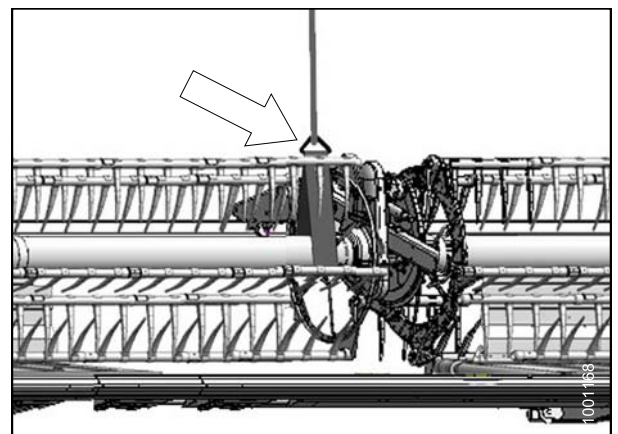


Figure 6.229: Supporting Reel

MAINTENANCE AND SERVICING

- Remove four bolts (A) attaching reel tube to U-joint flange (B) and move reel sideways to disengage stub shaft from U-joint.

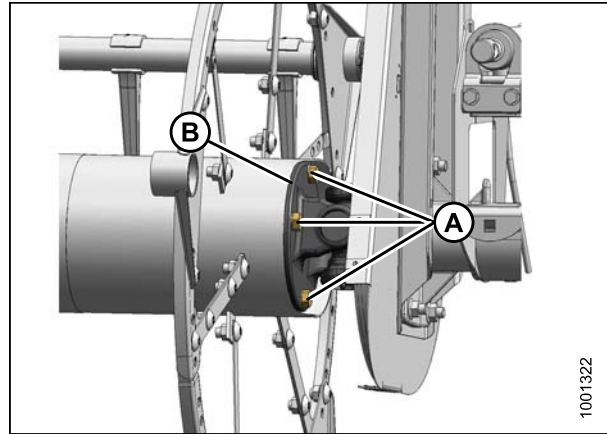


Figure 6.230: U-Joint

- Remove six bolts (A) attaching U-joint flange (B) to driven sprocket (C).
- Remove U-joint.

NOTE:

Right hand reel may need to be moved sideways for U-joint to clear reel tube.

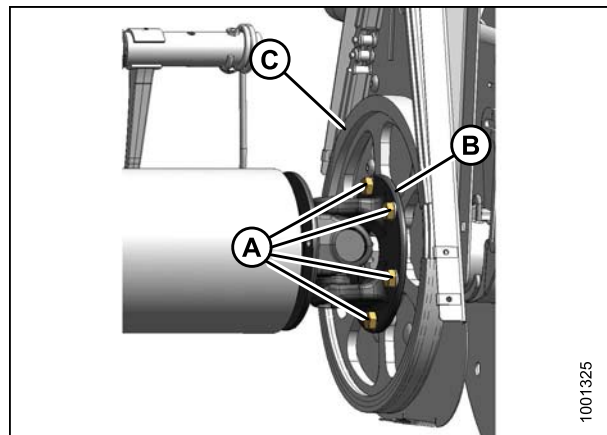


Figure 6.231: U-Joint

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.

- Position U-joint flange (B) onto driven sprocket (C) as shown. Install six bolts (A) and hand-tighten. Do **NOT** torque at this time.

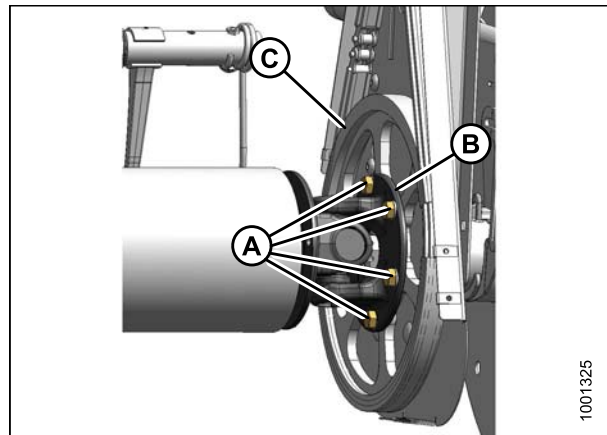


Figure 6.232: U-Joint

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).

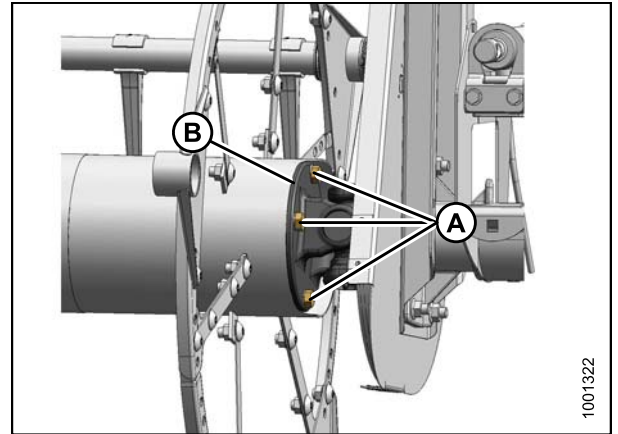


Figure 6.233: U-Joint

5. Remove temporary reel support.

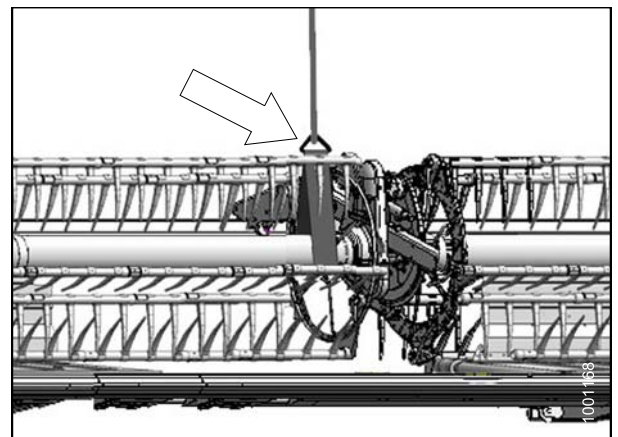


Figure 6.234: Supporting Reel

6. Install lower cover (B) with three screws (A).

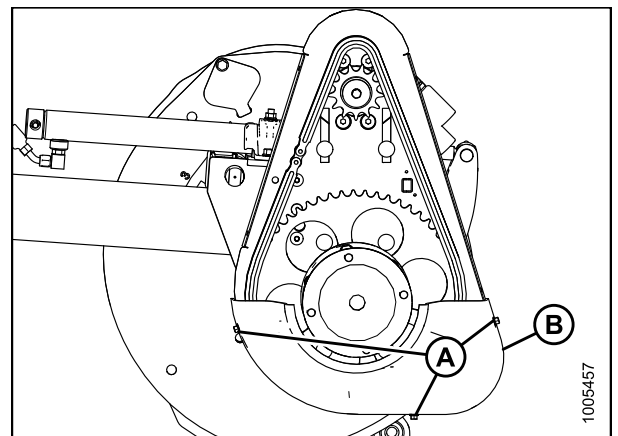


Figure 6.235: Drive Cover

MAINTENANCE AND SERVICING

7. Install upper reel drive cover (B) with six screws (A).

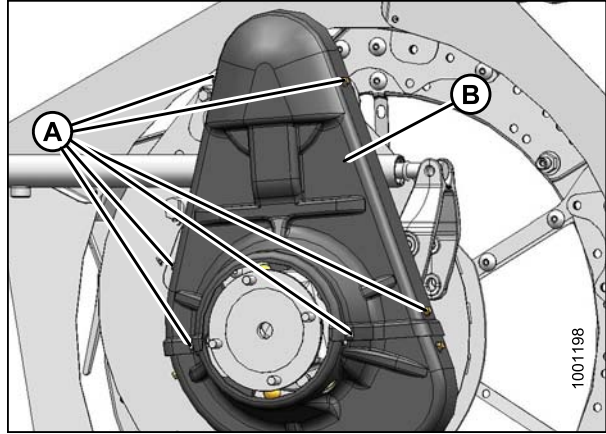


Figure 6.236: Drive Cover

6.12.7 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 nine screws (B) and remove reel drive covers (A).

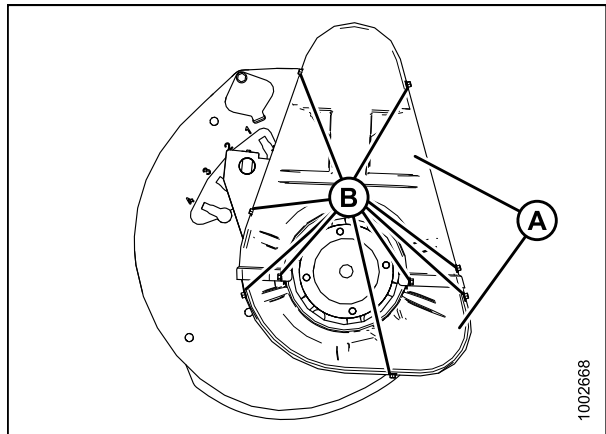


Figure 6.237: Drive Cover

2. Remove the cotter pin (A) and slotted nut (B) from the motor shaft.
3. Remove speed sensor disc (C) (if installed).

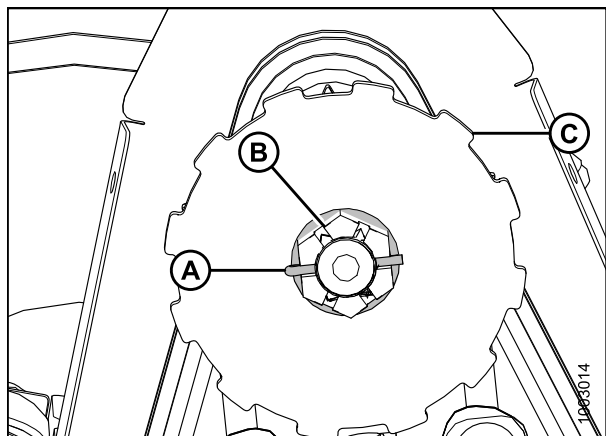


Figure 6.238

MAINTENANCE AND SERVICING

4. Loosen the six bolts (B) and slide the hydraulic motor downwards to loosen driven chain (A).
5. Remove the drive chain (A) from drive sprocket.

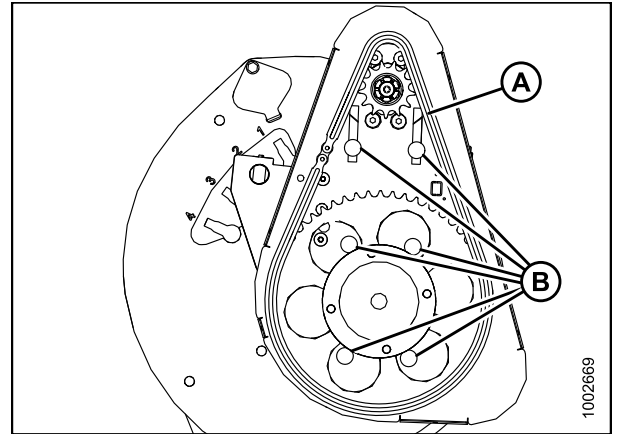


Figure 6.239: Drive Chain

6. Remove sprocket (A).

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.

7. Disconnect hydraulic lines (B) at motor. Cap or plug open ports and lines.

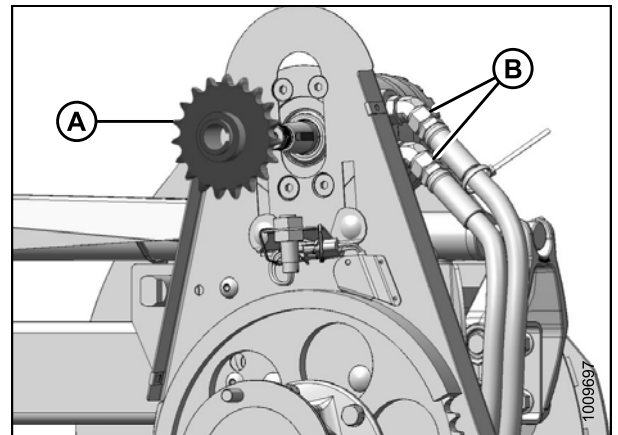


Figure 6.240: Reel Drive Sprocket

8. Remove the nuts and bolts (A), and the hydraulic motor from the motor mount (B).

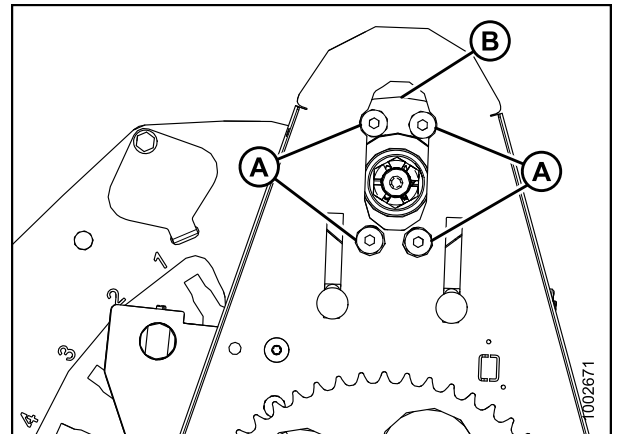


Figure 6.241: Reel Drive Motor

MAINTENANCE AND SERVICING

Installing Double Reel Drive Motor

1. Position hydraulic motor on motor mount (B) and align holes in motor and motor mount.
2. Install four countersunk bolts (A) with thread locking compound (Loctite® 243), through holes and slots in chain case to secure motor to motor mount (B).
3. Install nuts and torque to 75 lb-ft (102 N-m).

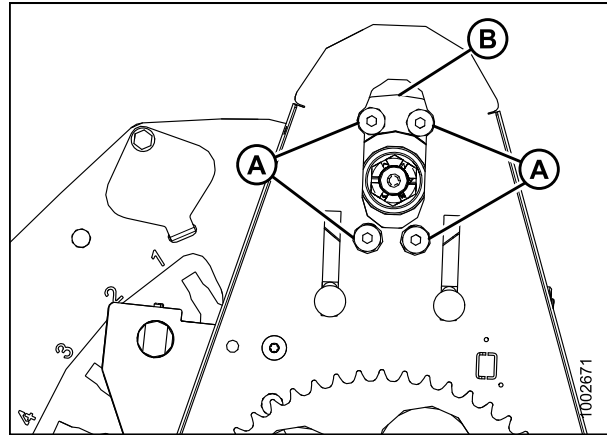


Figure 6.242: Reel Drive Motor

4. Align keyway in sprocket (A) with key in shaft and slide sprocket onto shaft.
5. Route chain (B) over sprockets.

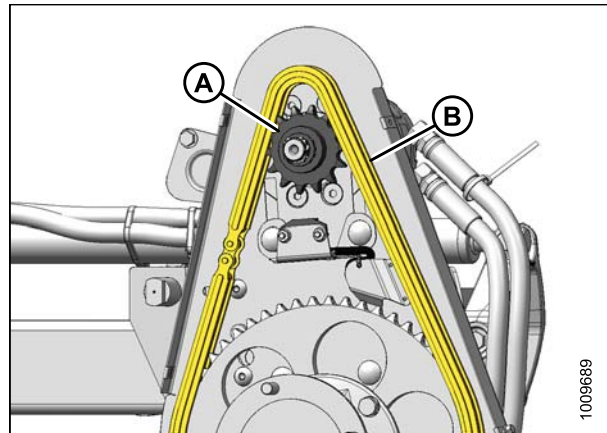


Figure 6.243: Reel Drive

MAINTENANCE AND SERVICING

6. Install the speed sensor disc (C) onto the motor shaft.
7. Secure disc and sprocket with slotted nut (B).
8. Torque nut to 40 ft·lbf (54 N·m) and install the cotter pin (A). If required, tighten nut to next cotter pin hole.

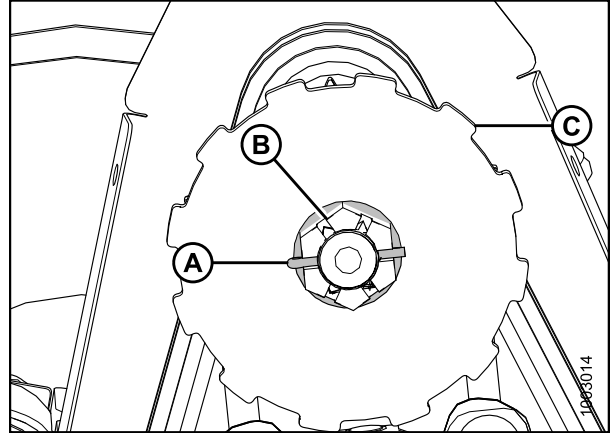


Figure 6.244: Reel Drive

9. Adjust the chain tension (C). Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
10. Install lower cover (B) and secure with three screws (A).

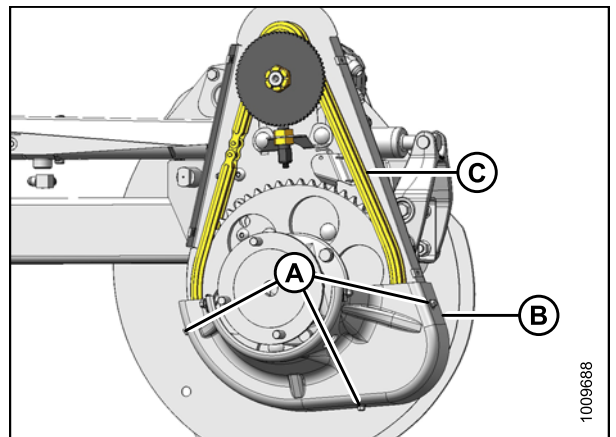


Figure 6.245: Reel Drive

11. Install upper reel drive cover (B) and secure with six screws (A).

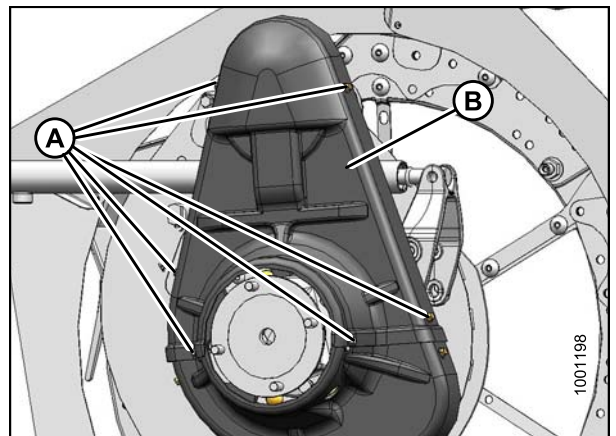


Figure 6.246: Drive Cover

MAINTENANCE AND SERVICING

12. Remove caps and plugs from hydraulic hoses (A) and motor ports and attach hoses to motor.

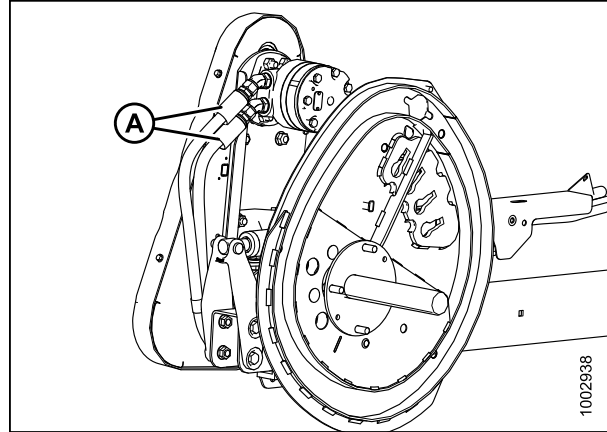


Figure 6.247

6.12.8 Reel Speed Sensor

The reel speed sensor system is located inside the reel drive cover.

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).

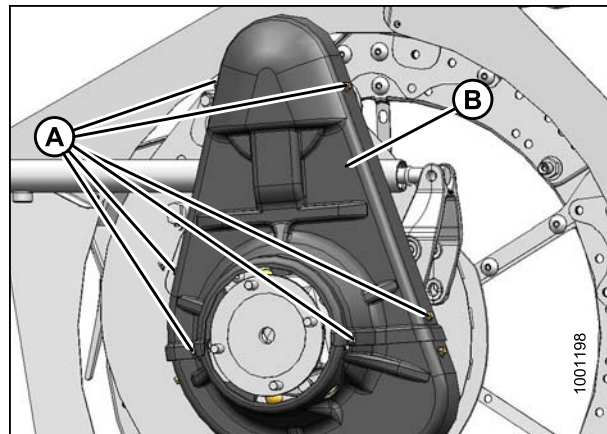


Figure 6.248: Drive Cover

MAINTENANCE AND SERVICING

3. Maintain a 1/8 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 1/8 in. (3 mm) with nuts (C).
 - f. Connect to harness at (D).

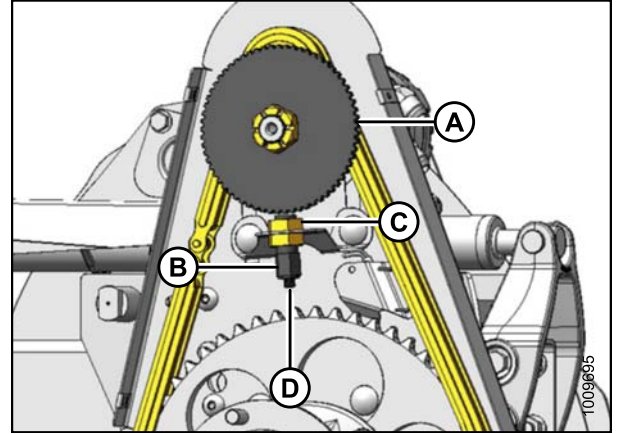


Figure 6.249: Speed Sensor

A - Sensor Disc
C - Nuts

B - Speed Sensor
D - Connector

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).

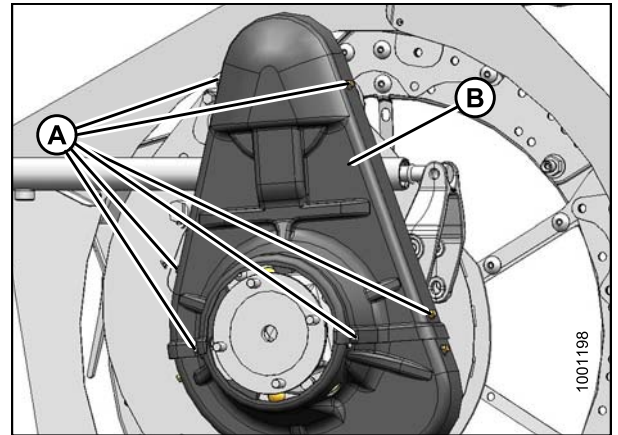


Figure 6.250: Drive Cover

MAINTENANCE AND SERVICING

3. Maintain a 1/8 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 1/8 in. (3 mm) by bending support (E).
 - e. Connect to harness at (C).

IMPORTANT:

Ensure sensor electrical harness does NOT contact chain or sprocket.

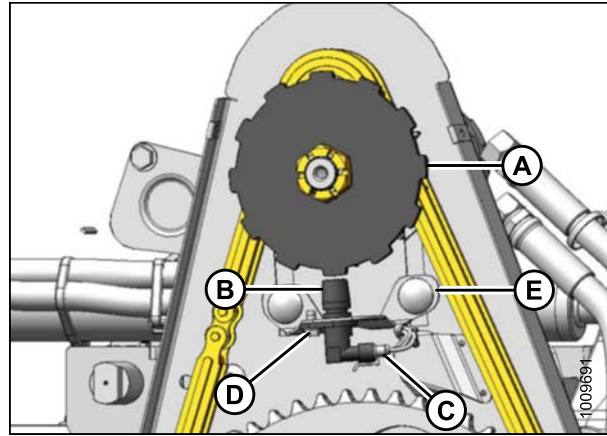


Figure 6.251: Speed Sensor

A - Sensor Disc
B - Sensor
C - Connector
D - Screw
E - Support

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).

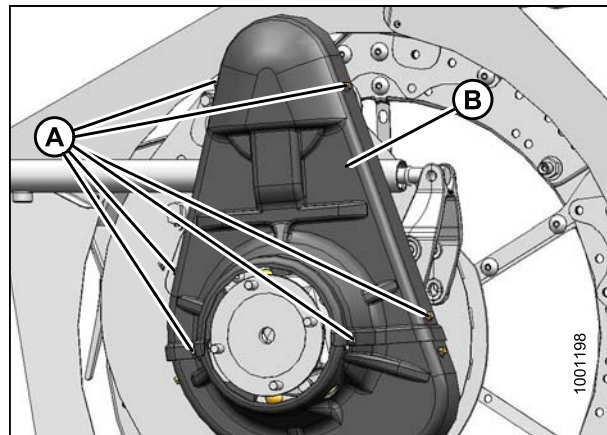


Figure 6.252: Drive Cover

MAINTENANCE AND SERVICING

3. Disconnect connector (A).

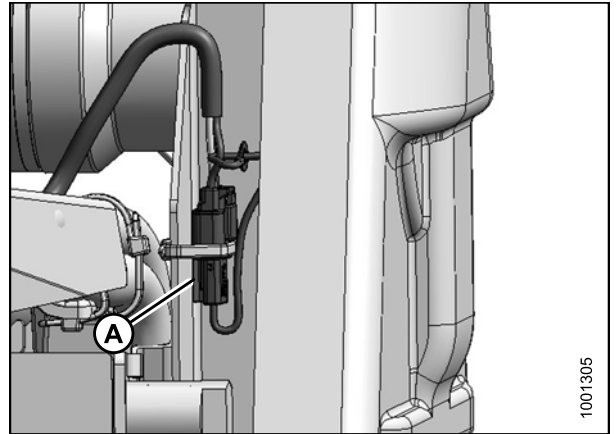


Figure 6.253: Sensor Harness

4. Cut cable tie (A) securing harness to cover.
5. Remove screws (B), sensor (C), and harness. Bend cover (D) (if necessary) to remove harness.
6. Feed wire of new sensor behind cover (D) through chain case.
7. Locate new sensor in support (E) and attach with two screws (B).
8. Adjust gap between sensor disc (F) and sensor (C) to 0.02 in. (0.5 mm) by bending support.

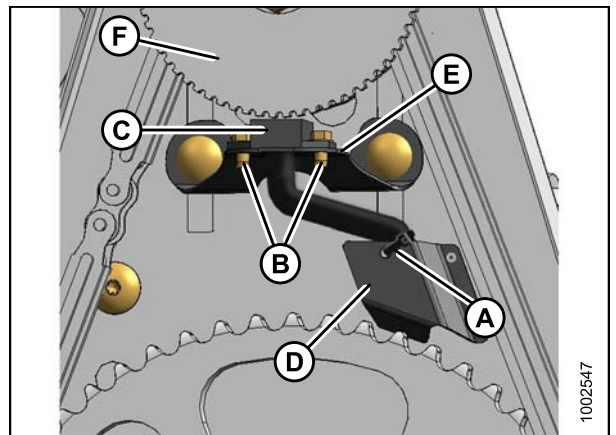


Figure 6.254: Support

A - Cable Tie B - Screws C - Sensor
D - Cover E - Support F - Sensor Disc

9. Connect to harness at (A), and secure with cable ties.

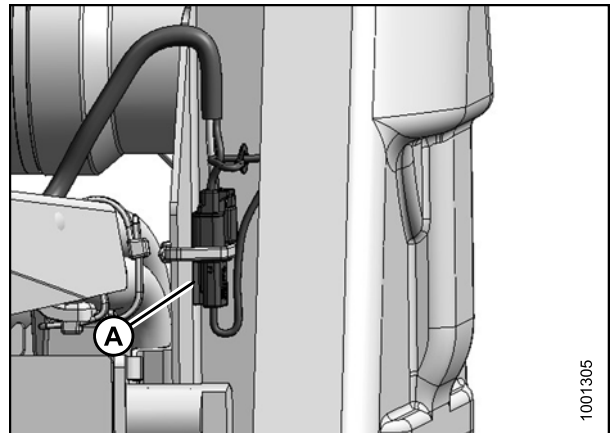


Figure 6.255: Sensor Harness

6.12.9 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 376](#).
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.

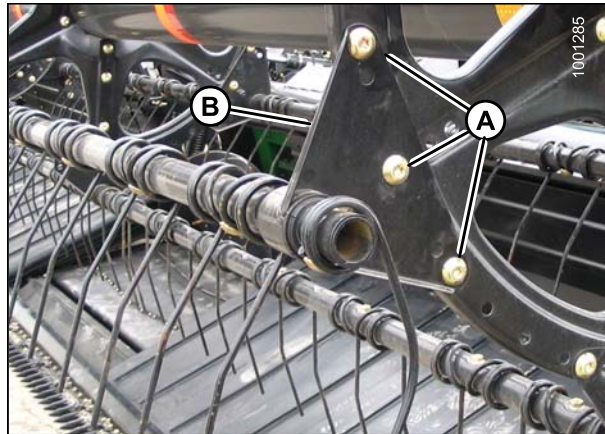


Figure 6.256: Reel Arm

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.

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 [6.12.10 Tine Tube Bushings, page 376](#).
3. Attach tines to tine bar with bolts and nuts (B).

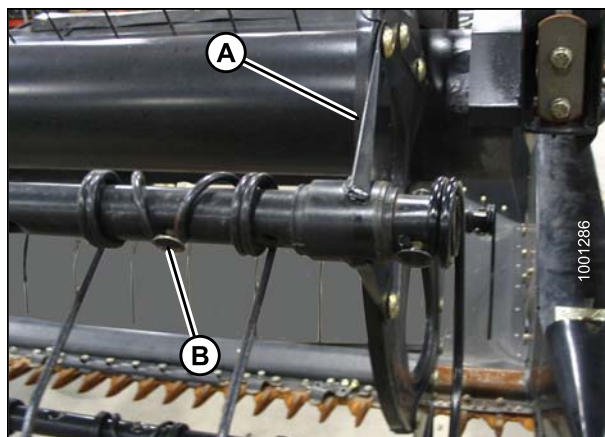


Figure 6.257: Tine Tube

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.

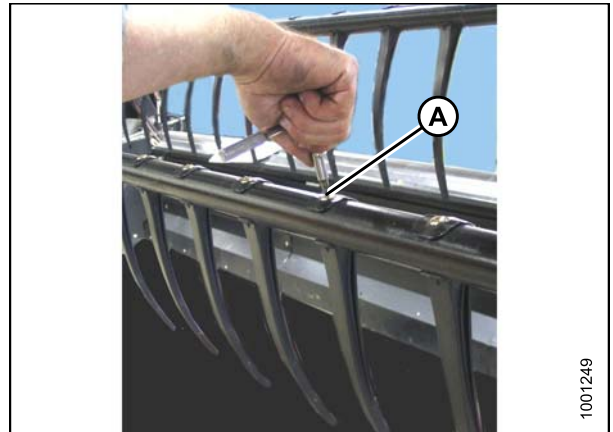


Figure 6.258: Removing Finger

2. Push finger top clip back toward reel tube and remove from finger tube.



Figure 6.259: Removing Finger

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 6.260: Installing Finger

MAINTENANCE AND SERVICING

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 6.261: Installing Finger

6.12.10 Tine Tube Bushings

Removing Bushings from 5-, 6- or 9-Bat Reels

NOTE:

If only replacing the cam end bushing, Refer to [6., Removing Bushings from 5-, 6- or 9-Bat Reels, page 377.](#)

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.

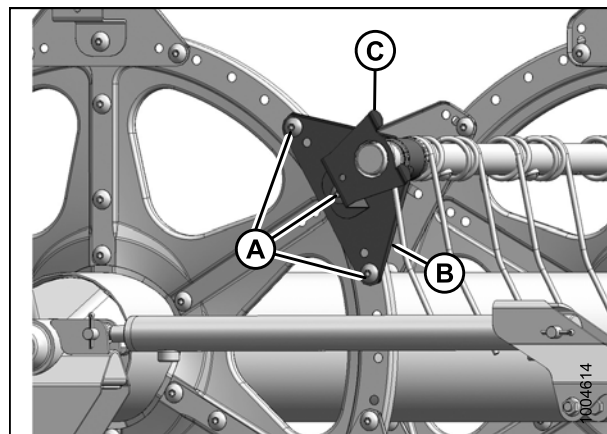


Figure 6.262: Tail End

MAINTENANCE AND SERVICING

4. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.

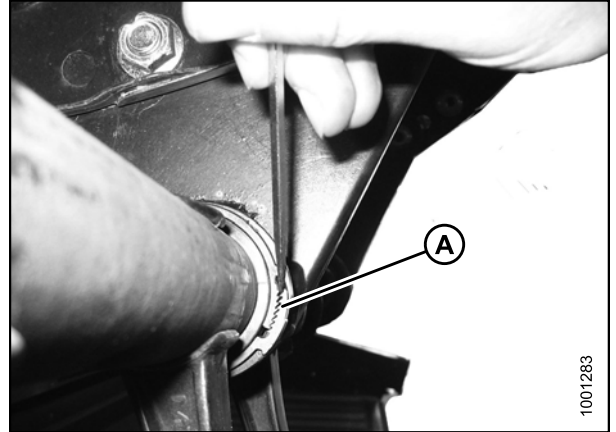


Figure 6.263: Bushing Clamp

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. Refer to:

- [Removing Plastic Fingers, page 375](#)
- [Removing Steel Tines, page 374](#)

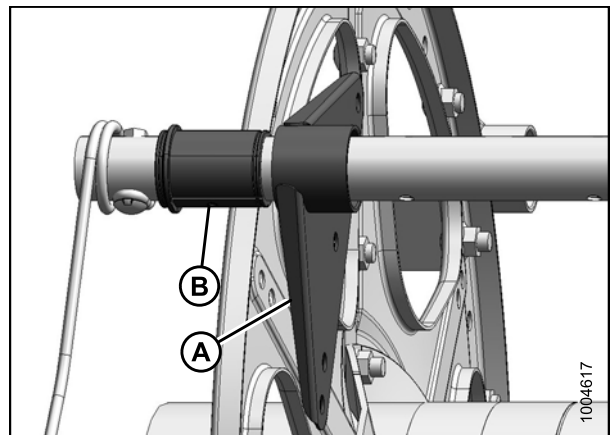


Figure 6.264: Bushing

Cam End Bushings

6. At the cam end, remove endshields and endshield support (A) at applicable tine tube location on the cam end.

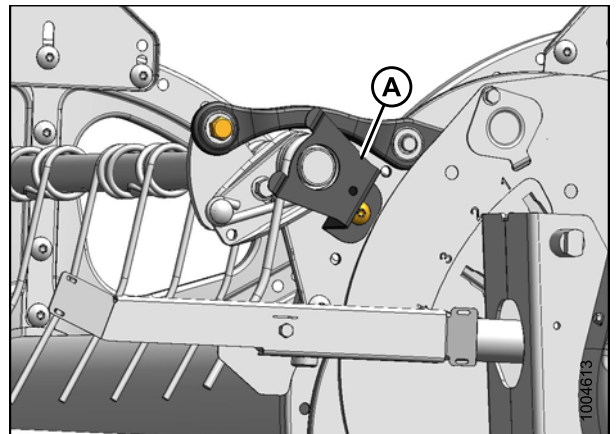


Figure 6.265: Cam End

MAINTENANCE AND SERVICING

7. At 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. At the tail and center discs, remove bolts (A) securing arm (B) to disc.

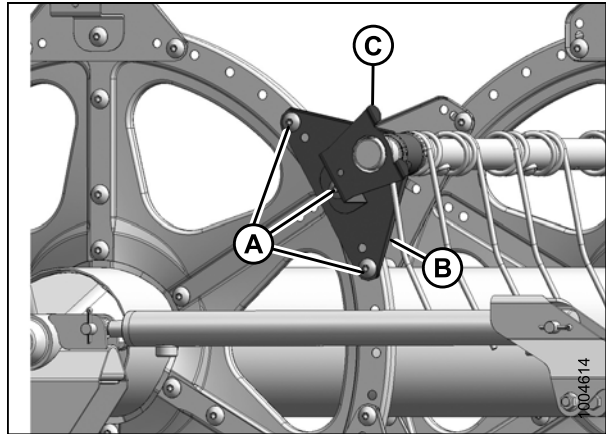


Figure 6.266: Tail End

9. Remove bolt (A) at on cam linkage so that tine tube (B) is free to rotate.

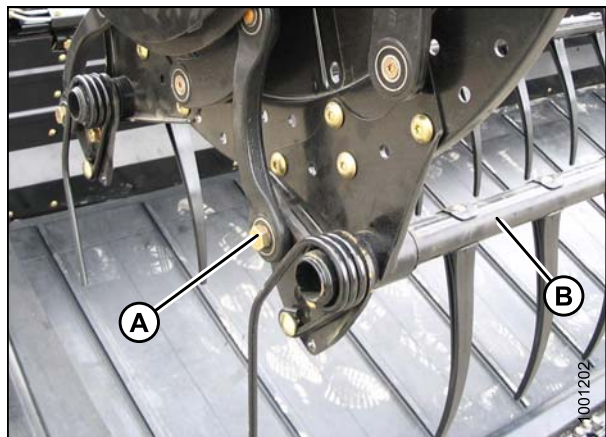


Figure 6.267: Cam End

10. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.

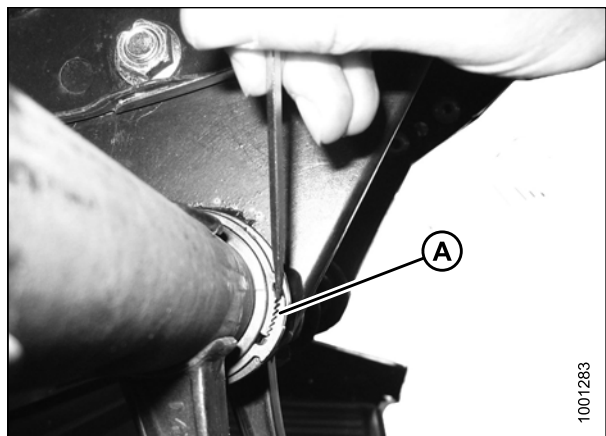


Figure 6.268: Bushing Clamp

MAINTENANCE AND SERVICING

- 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 375](#)
- [Removing Steel Tines, page 374](#)

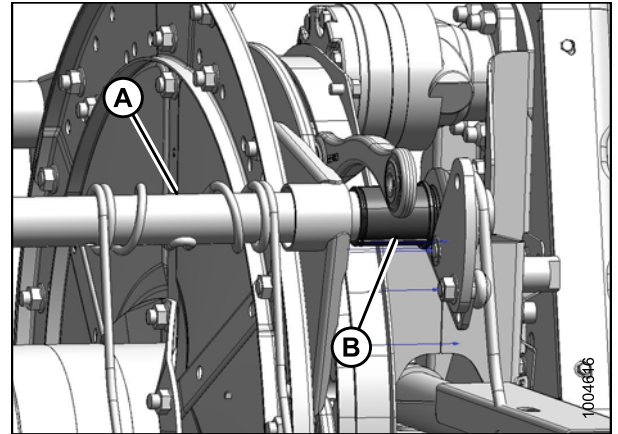


Figure 6.269: Cam End

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. Refer to:

- [Installing Steel Tines, page 374](#)
- [Installing Plastic Fingers, page 375](#)

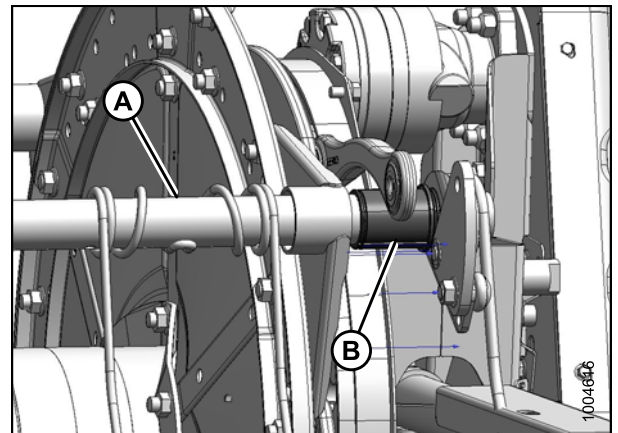


Figure 6.270: Cam End

MAINTENANCE AND SERVICING

3. Install bushing clamps (A) by spreading clamp (A) and slip over the tube adjacent to the flangeless end of the bushing.
4. Position clamp on bushings (B) so that the edges of the clamp and bushing are flush when the clamp fits into the groove on the bushing and lock tabs are engaged.

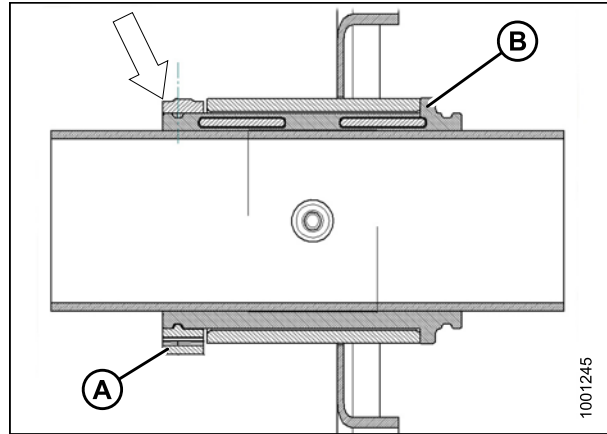


Figure 6.271: Bushing

5. Tighten clamp (A) with modified channel lock pliers (B) so that finger pressure will **NOT** move the clamp.

NOTE:

To modify channel lock pliers – secure in a vice and grind out the center of the arms to accommodate clamps (as shown in image).

IMPORTANT:

Over-tightening the clamp may result in breakage.

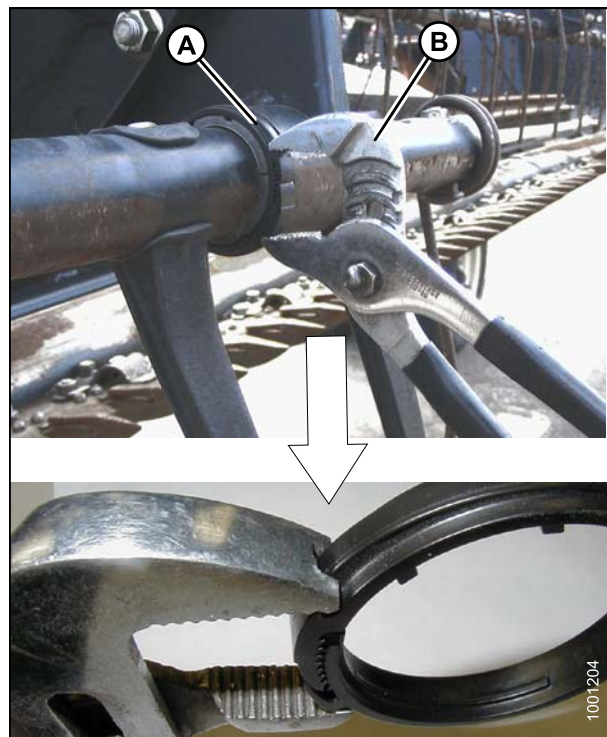


Figure 6.272: Clamp Tool

MAINTENANCE AND SERVICING

- Line up tine bar (B) with cam arm and install bolt (A). Torque bolt to 120 ft-lbf (165 N·m).

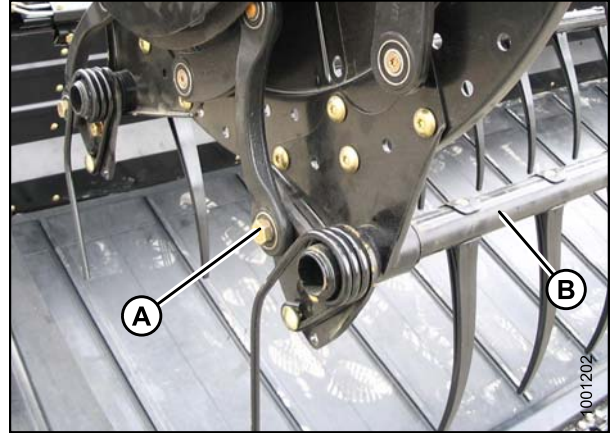


Figure 6.273: Cam End

- At the center disc, install the bolts (A) securing arm (B) to disc.
- At the tail end, install reel arm (B) and endshield support (C) from the tail end of the reel at applicable tine tube location with bolts (A).

NOTE:

There are no endshields on the center disks.

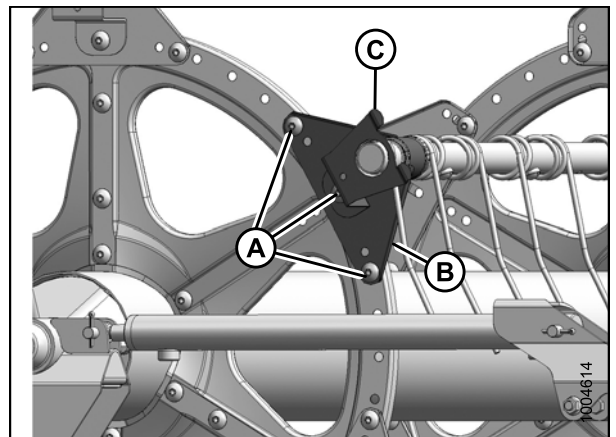


Figure 6.274: Tail End

- At the cam end, install endshield support (A) at applicable tine tube location on the cam end.
- Re-install endshields.

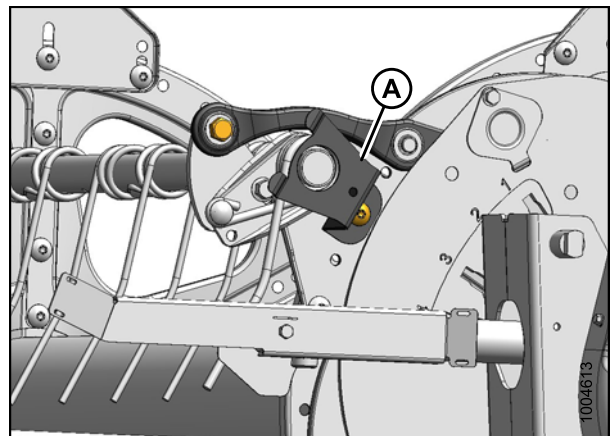


Figure 6.275: Cam End

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Center Disc and Tail End Bushings

11. Position bushing halves (B) on tine tube so that lug in each bushing half is positioned in hole in tine tube.
12. Slide reel arm (A) onto bushing (B) and position against disc at original location.
13. Reinstall any fingers or tines that were removed. Refer to:
 - [Installing Steel Tines, page 374](#)
 - [Installing Plastic Fingers, page 375](#)

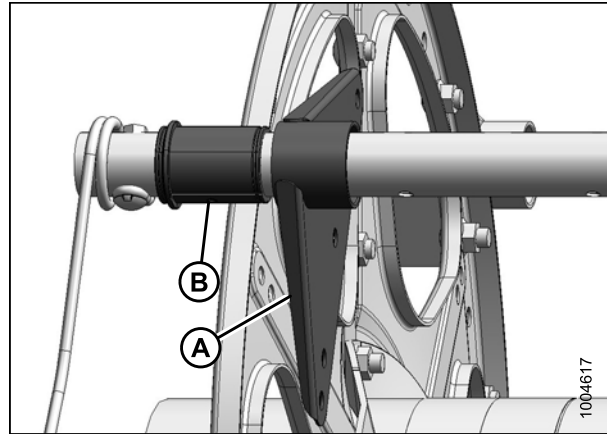


Figure 6.276: Tail End

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.

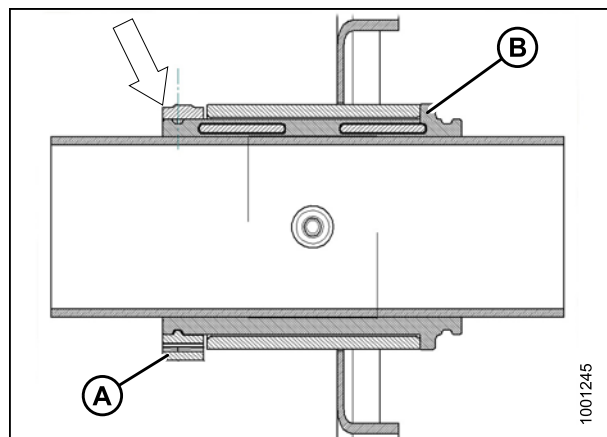


Figure 6.277: Bushing

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.

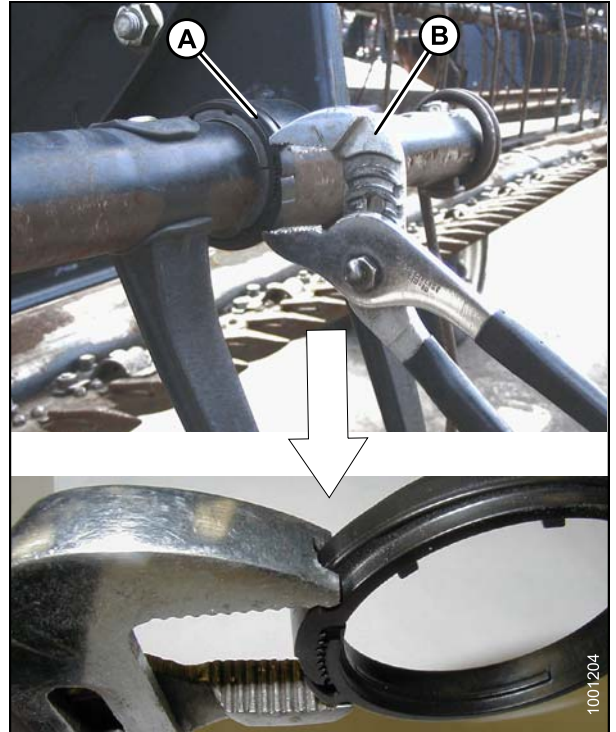


Figure 6.278: Clamp Tool

17. At the center disc, install the bolts (A) securing arm (B) to disc.
18. At the tail end, install reel arm (B) and endshield support (C) at applicable tine tube location with bolts (A). Re-install endshields.

NOTE:

There are no endshields on the center discs.

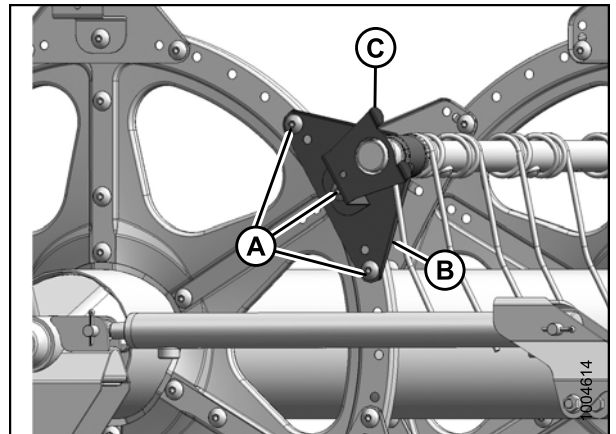


Figure 6.279: Tail End

6.12.11 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.

Reel endshields can be attached to either end of the reel.

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).

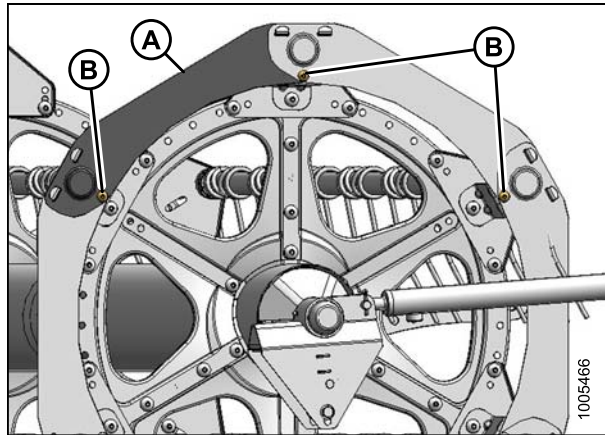


Figure 6.280: Endshields

4. Lift end of endshield (A) off support (B).

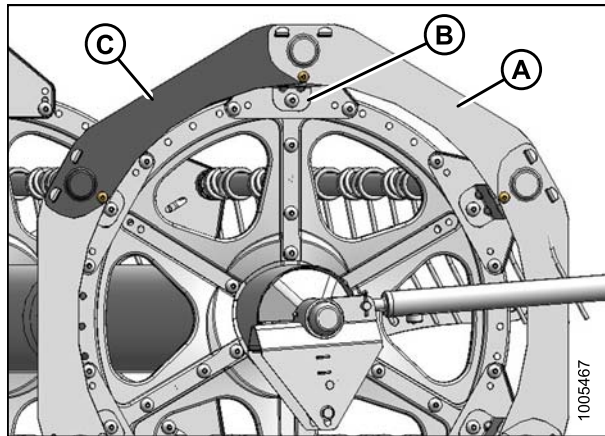


Figure 6.281: Endshields

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5. Lift endshield off supports.

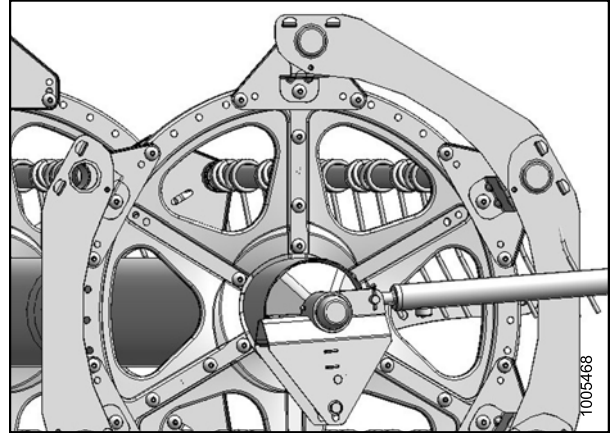


Figure 6.282: Endshields

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.

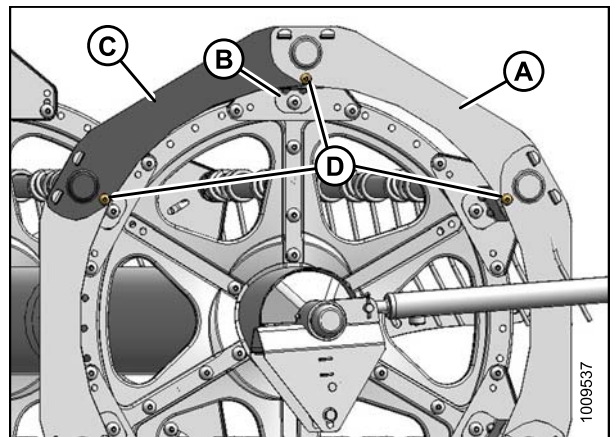


Figure 6.283: Endshields

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.

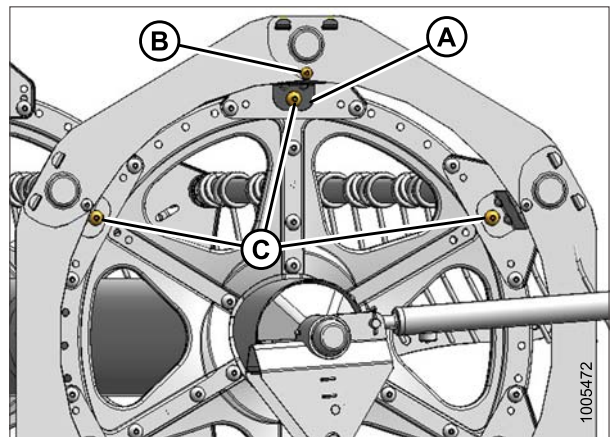


Figure 6.284: Endshield Supports

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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).

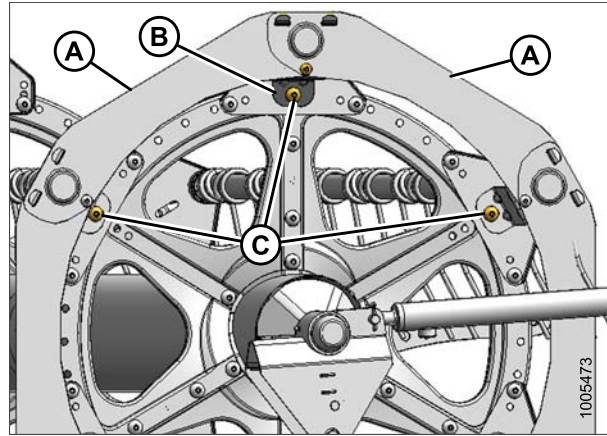


Figure 6.285: Endshield Supports

6.13 Transport System (Optional)

Refer to [8.1.15 Stabilizer/Slow Speed Transport Wheels, page 420](#) for more information.

6.13.1 Checking Wheel Bolt Torque

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 and every 100 hours thereafter. Maintain 80–90 ft·lbf (110–120 N·m) torque. Follow bolt tightening sequence shown below.

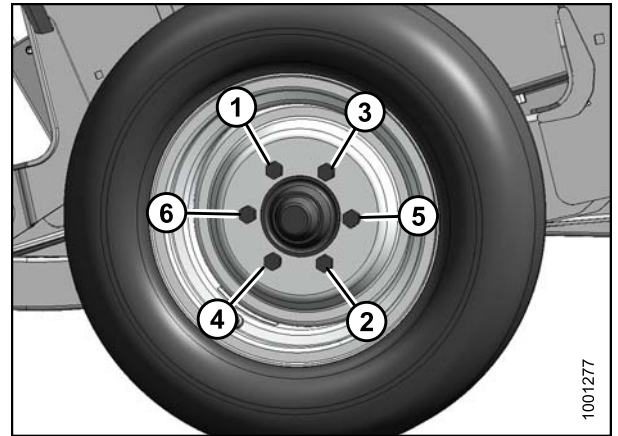


Figure 6.286: Bolt Tightening Sequence

6.13.2 Checking Axle Bolt Torque

If a transport system is installed, follow this procedure for torquing the axle bolts.

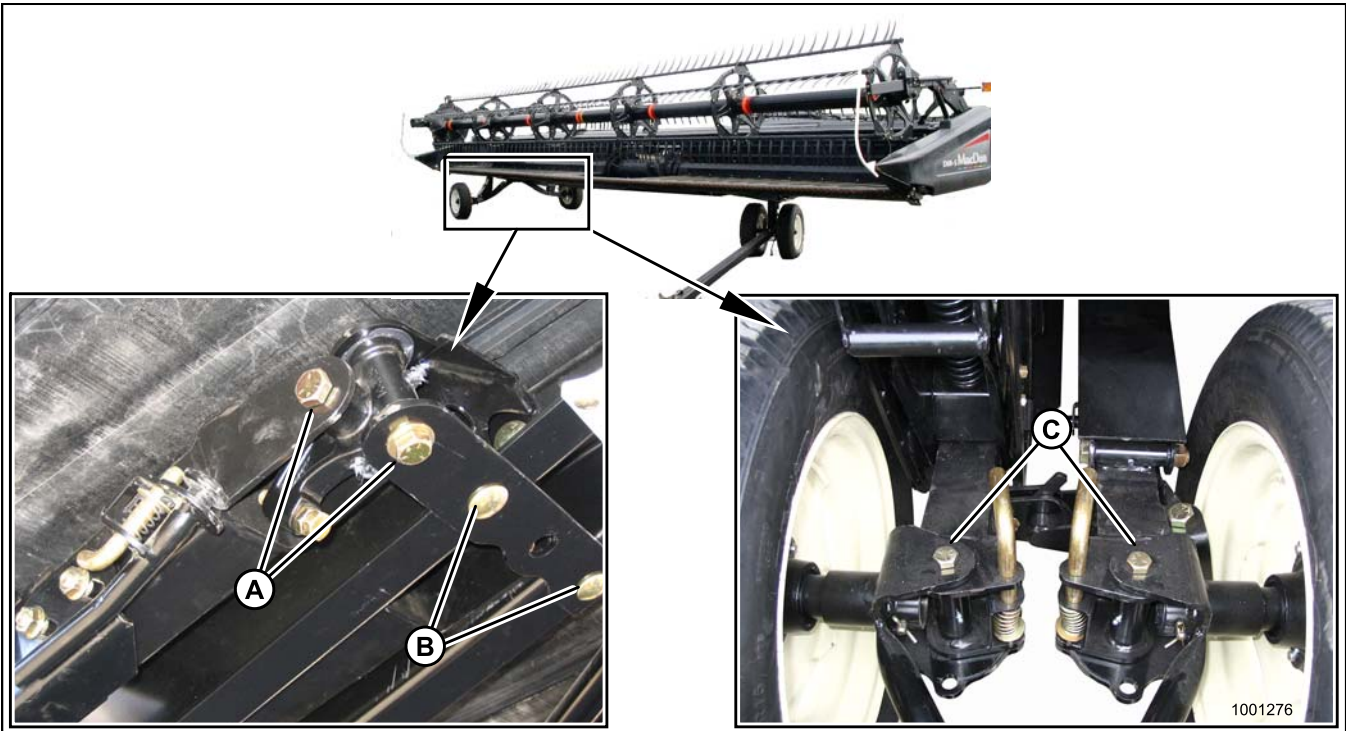


Figure 6.287: Axle Bolts

1. 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)

6.13.3 Checking Tire 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.

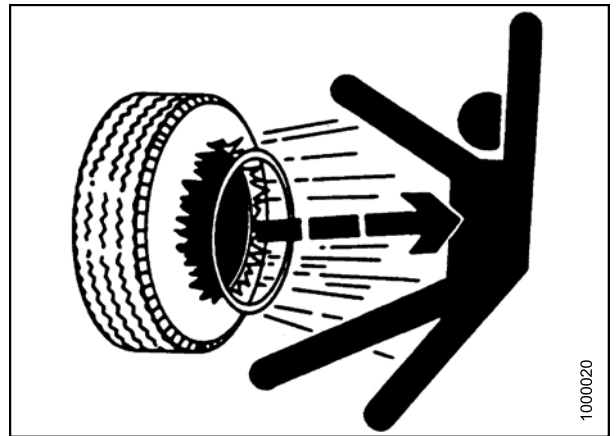


Figure 6.288

6.14 Checking and Adjusting Header Wing Balance

Header wing float is the ability of the header's wings to react to changing ground conditions. If set too LIGHT, the wings will bounce on the ground. If set too HEAVY, the wings will dig into the ground. The wings need to be balanced for the float system to work properly.

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 241](#).

6.14.1 Checking Wing Balance

This procedure describes how to check the balance of each wing.

If a wing has a tendency to be in a smile (A) or frown (B) position, wing balance may require adjusting. Perform the following steps to verify if the wings are not balanced and the degree of imbalance:

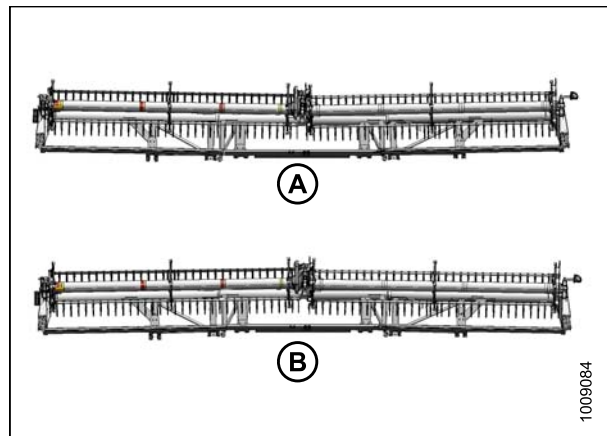


Figure 6.289: Wing Imbalance

1. Adjust the header center-link to to approximately halfway between 'B' and 'C' 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. Refer to [4.7.1 Cutting Height, page 51](#).

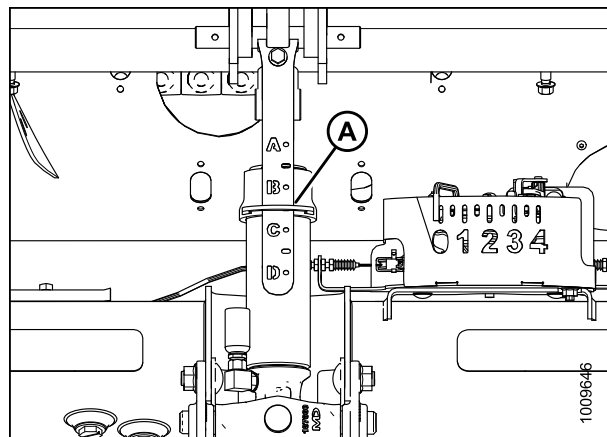


Figure 6.290: Center Link

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5. Remove linkage cover (A) by removing bolt (B) and rotating cover upward until inboard end can be lifted off.

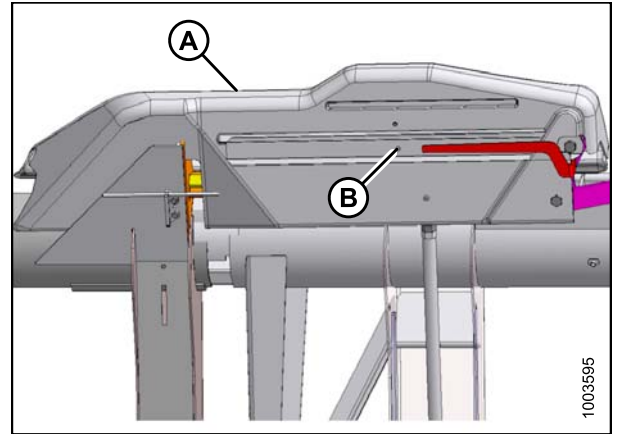


Figure 6.291: Linkage Cover

NOTE:

See the decal (A) inside each linkage cover.

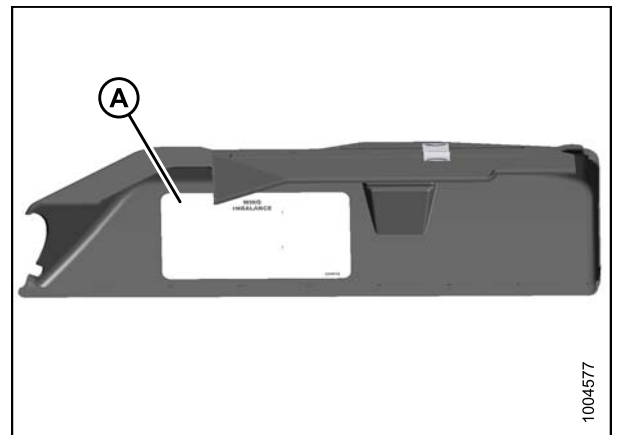


Figure 6.292: Linkage Cover

6. Unlock the wings by moving spring handles (A) to lower UNLOCK position.

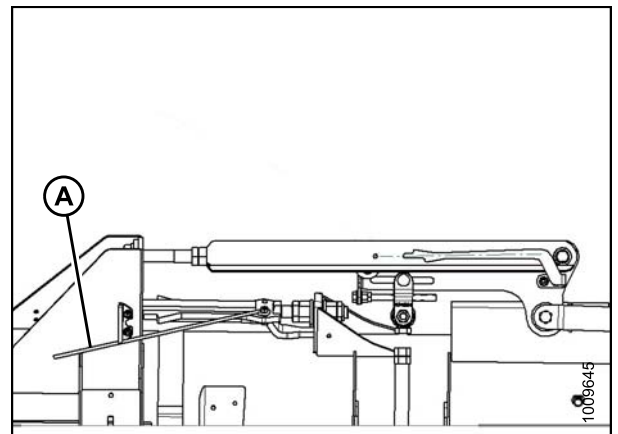


Figure 6.293: Wing Lock in Unlock Position

MAINTENANCE AND SERVICING

7. Retrieve wrench (A) from right-hand adapter leg.

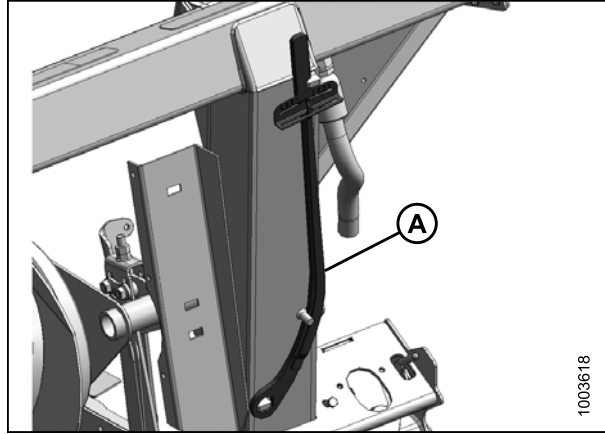


Figure 6.294: Torque Wrench

8. Place torque wrench (A) on bolt (B).

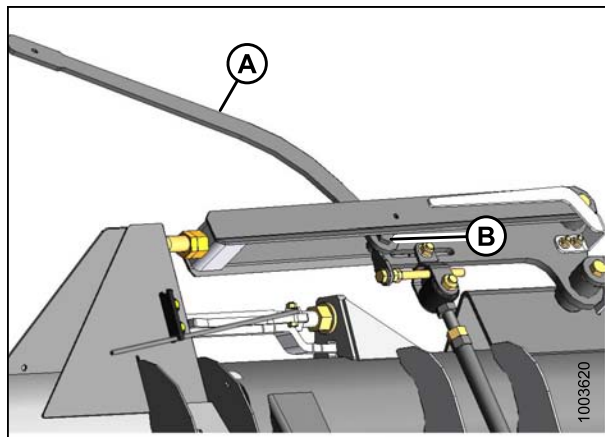


Figure 6.295: Balance Linkage

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.

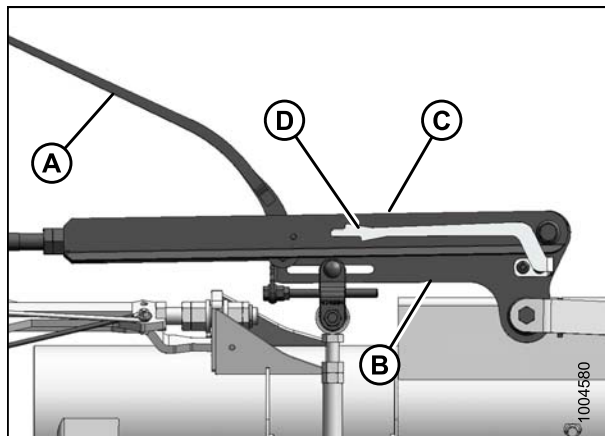


Figure 6.296: Balance Linkage

MAINTENANCE AND SERVICING

10. Move wing upward with torque wrench (A) until pointer lower alignment tab (C) lines up with upper edge of top-link (B). Observe indicator reading (A) on wrench and record it.

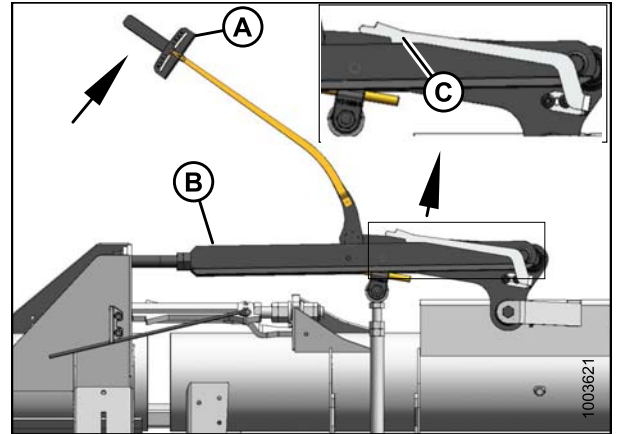


Figure 6.297: Balance Linkage

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). Observe 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. Refer to [6.14.2 Adjusting Wing Balance, page 395](#).

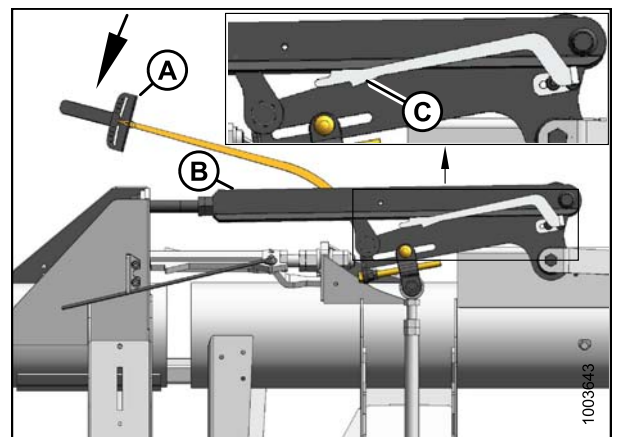


Figure 6.298: Balance Linkage

- If the indicator range is as shown at right, the wing is too light.

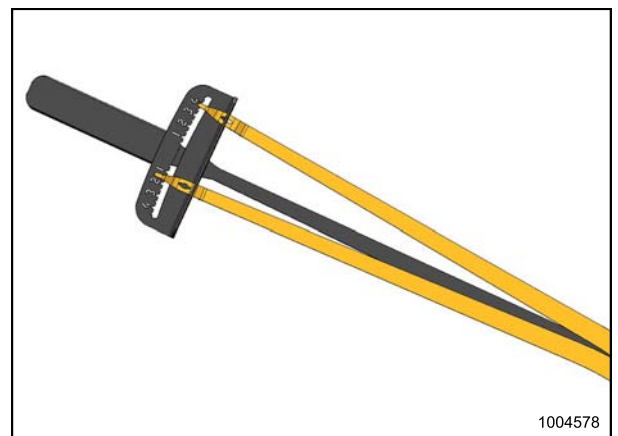


Figure 6.299: Wrench Indicator

MAINTENANCE AND SERVICING

- If the indicator range is as shown at right, the wing is too heavy.

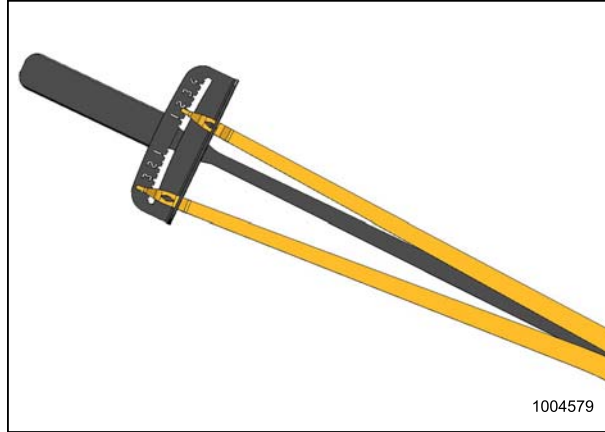


Figure 6.300: Wrench Indicator

12. Place wrench (A) back onto the right-hand adapter leg.

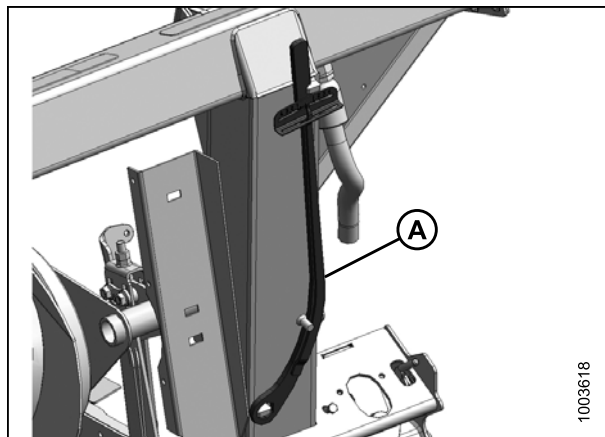


Figure 6.301: Torque Wrench

13. Lock the wings by moving spring handles (A) to upper LOCK position.

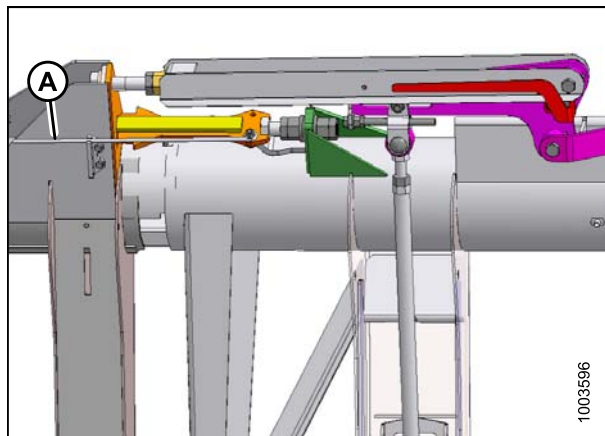


Figure 6.302: Wing Lock in Lock Position

14. Reinstall linkage cover (A), secure with bolt (B).

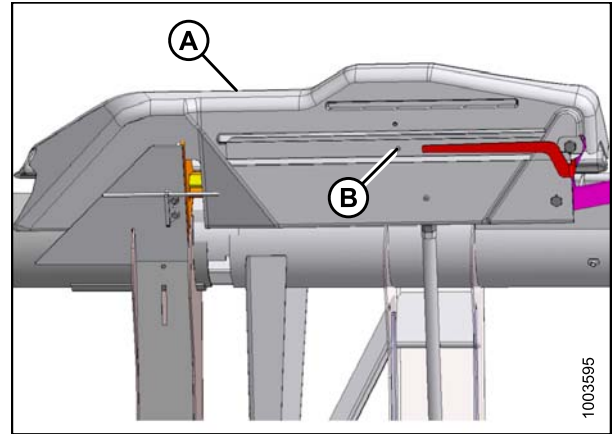


Figure 6.303: Linkage Cover

6.14.2 Adjusting Wing Balance

This procedure is used to adjust the wing balance after determining the imbalance in the previous section.

Before proceeding check the wing balance to verify how to adjust the wing. Refer to [6.14.1 Checking Wing Balance, page 390](#).

NOTE:

Left-hand side is shown.

1. Extend the header center-link to between B and C 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. Refer to Step [4.7.1 Cutting Height, page 51](#).
5. Remove linkage cover (A) by removing bolt (B).

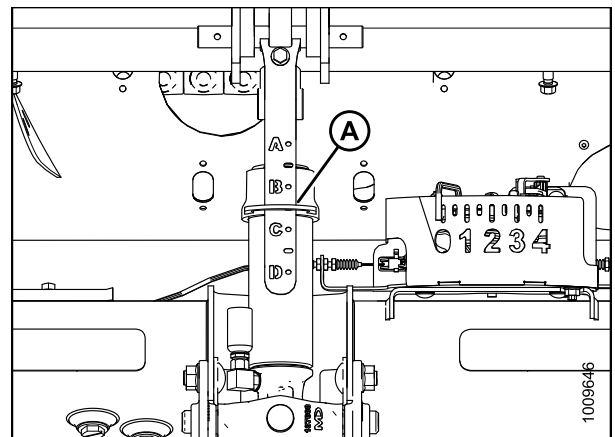


Figure 6.304: Center Link

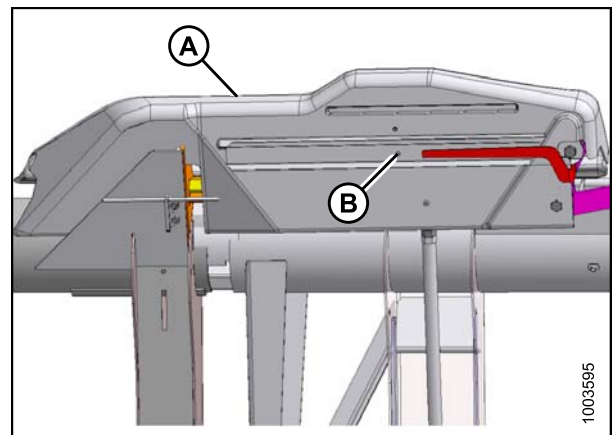


Figure 6.305: Linkage Cover

MAINTENANCE AND SERVICING

NOTE:

Refer to decal (A) inside each linkage cover.

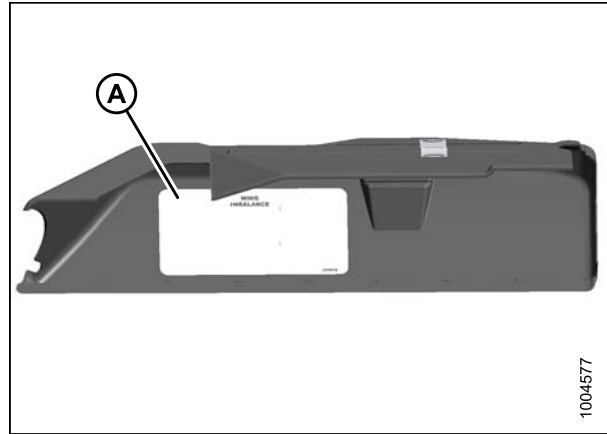


Figure 6.306: Linkage Cover

6. Unlock the wings by moving handle (A) to lower UNLOCK position.

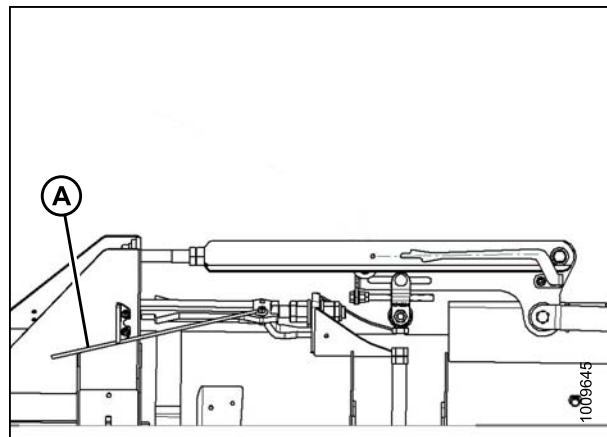


Figure 6.307: Wing Lock in Unlock Position

7. Retrieve wrench (A) from adapter leg.

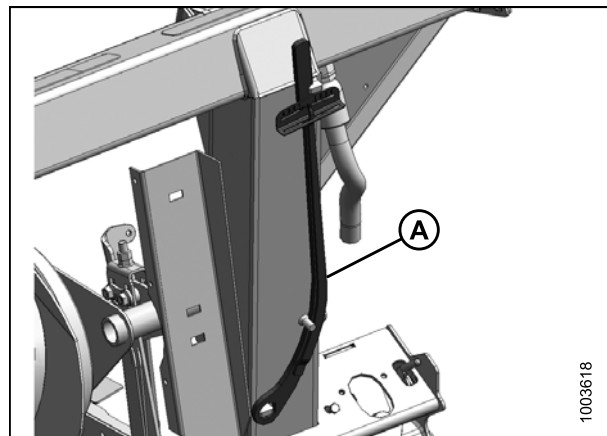


Figure 6.308: Torque Wrench

MAINTENANCE AND SERVICING

8. Place torque wrench (A) on bolt (B).

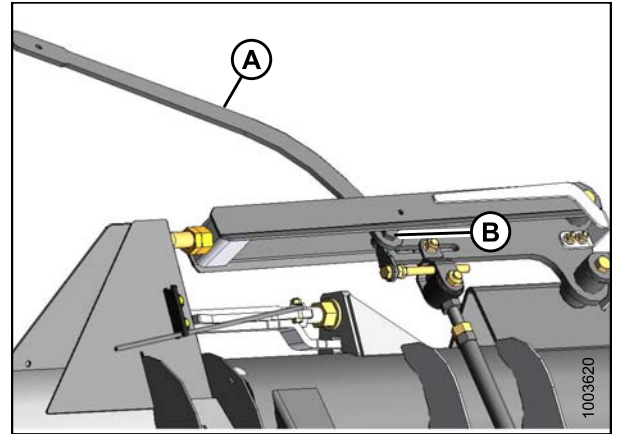


Figure 6.309: Balance Linkage

9. Loosen the clevis bolt (A) for the wing requiring adjustment as determined by the wing balance check.

NOTE:

Do not loosen any other hardware

10. Adjust bolt (B) and set dimension (B) from Table [6.15 Wing Balance Chart, page 397](#).

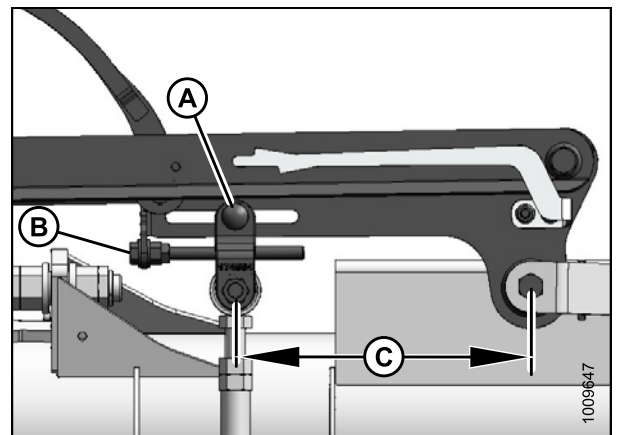


Figure 6.310: Balance Linkage

NOTE:

The dimensions listed are initial settings. Further adjustment will be required if any optional kits have been installed by the Dealer.

Table 6.15 Wing Balance Chart

Header Configuration	Wing Dimension (B)	
	Left Wing in. (mm)	Right Wing in. (mm)
30-foot	11-13/32 (290)	11-1/4 (285)
35-foot	11-13/16 (300)	11-13/16 (300)
40-foot single-knife drive (SKD)	12 (305)	12-19/32 (320)
40-foot double-knife drive (DKD)	12 (305)	12-3/16 (310)
40-foot double-knife drive (DKD) split frame	12 (305)	12-3/16 (310)
45-foot double-knife drive (DKD) split frame	12-3/16 (310)	12-3/16 (310)

MAINTENANCE AND SERVICING

11. Recheck the wing balance. Refer to [6.14.1 Checking Wing Balance, page 390](#).
12. If necessary, perform the following adjustments:
 - If the wing is too heavy, turn adjuster bolt (B) to move clevis (C) outboard (D).
 - If the wing is too light, turn adjuster bolt (B) to move clevis (C) inboard (E).
13. Adjust clevis (C) position if necessary until indicator readings are within one increment.
14. Tighten clevis bolt (A).

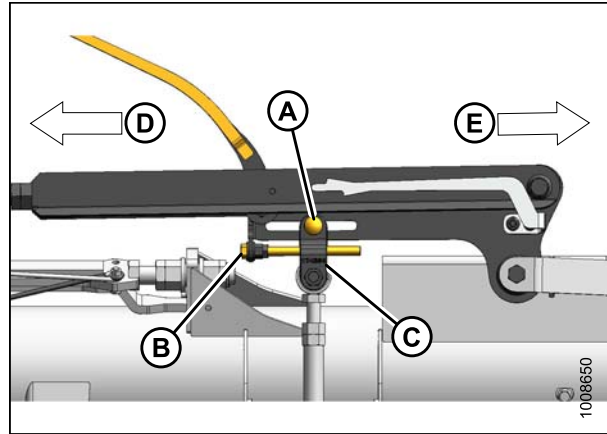


Figure 6.311: Balance Linkage

A - Clevis Bolt
B - Adjuster Bolt
C - Clevis
D - Outboard
E - Inboard

15. Move handle to the upper LOCK position.
16. If lock does not engage, move the wing up and down with torque wrench until it locks. When locked, there will be some movement in the linkage.
17. If the cutterbar is not straight when wings are in lock mode, then further adjustments are required. Contact your MacDon Dealer.

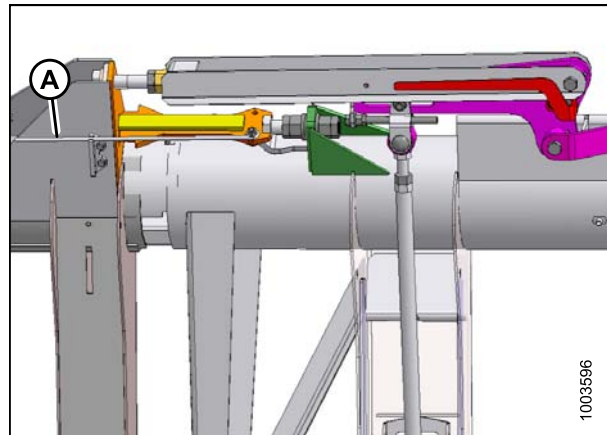


Figure 6.312: Wing Lock in Lock Position

18. Replace torque wrench on adapter frame.
19. Reinstall linkage cover (A), secure with bolt (B).

NOTE:

Adjustment to the main float may be required to maintain good wing balance when operating in the field. Refer to Step [Checking and Adjusting Header Float, page 138](#).

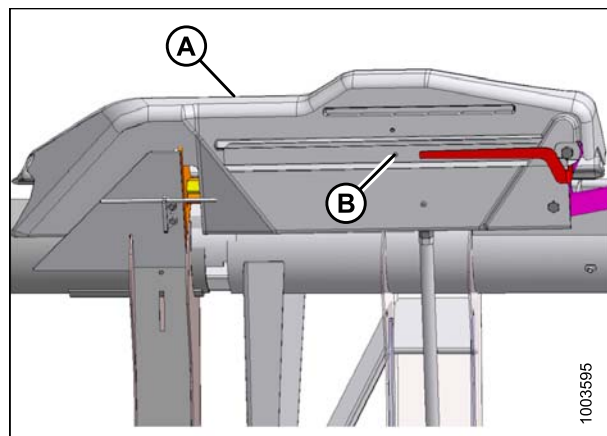


Figure 6.313: Linkage Cover

7 Troubleshooting

7.1 Crop Loss at Cutterbar

Symptom	Problem	Solution	Section	
Does not pick up down crop	Cutterbar too high	Lower cutterbar	4.7.1 Cutting Height, page 51	
	Header angle too flat	Steepen header height	4.7.4 Header Angle, page 145	
	Reel too high	Lower reel	4.7.9 Reel Height, page 151	
	Reel too far back	Move reel forward	4.7.10 Reel Fore-Aft Position, page 152	
	Ground speed too fast for reel speed	Reduce ground speed or increase reel speed	4.7.5 Reel Speed, page 146 and 4.7.6 Ground Speed, page 147	
	Reel fingers not lifting crop sufficiently	Increase finger pitch aggressiveness		4.7.11 Reel Tine Pitch, page 156
Install lifter guards			See your MacDon Dealer	
Heads shattering or breaking off	Reel speed too fast	Reduce reel speed	4.7.5 Reel Speed, page 146	
	Reel too low	Raise reel	4.7.9 Reel Height, page 151	
	Ground speed too fast	Reduce ground speed	4.7.6 Ground Speed, page 147	
	Crop too ripe	Operate at night when humidity is higher	—	
Cut grain falling ahead of cutterbar	Ground speed too slow	Increase ground speed	4.7.6 Ground Speed, page 147	
	Reel speed too slow	Increase reel speed	4.7.5 Reel Speed, page 146	
	Reel too high	Lower reel	4.7.9 Reel Height, page 151	
	Cutterbar too high	Lower cutterbar	4.7.1 Cutting Height, page 51	
	Reel too far forward	Move reel back on arms	4.7.10 Reel Fore-Aft Position, page 152	
	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		See your MacDon Dealer
	Worn or broken knife components	Replace components		6.8 Knife and Knife Drive, page 300

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Strips of uncut material	Crowding uncut crop	Allow enough room for crop to be fed to cutterbar	—
	Broken knife sections	Replace broken sections	6.8.1 Replacing Knife Section, page 300
Excessive bouncing at normal field speed	Float set too light	Adjust header float	4.7.3 Header Float, page 137
Divider rod running down standing crop	Divider rods too long	Remove divider rod	4.7.13 Crop Divider Rods, page 163
Bushy or tangled crop flows over divider rod, builds up on endsheets	Divider rods providing insufficient separation	Install long divider rods	4.7.13 Crop Divider Rods, page 163
Crop not being cut at ends	Reel not frowning or not centered in header	Adjust reel frown or reel horizontal position	4.7.10 Reel Fore-Aft Position, page 152 and 6.12.2 Reel Frown, page 350
	Knife hold-downs not adjusted properly	Adjust hold-downs so knife works freely, but still keep sections from lifting off guards	Knife Hold-Downs, page 309
	Knife sections or guards are worn or broken	Replace all worn and broken cutting parts	6.8 Knife and Knife Drive, page 300
	Header is not level	Level header	4.8 Leveling the Header, page 165
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	4.7.10 Reel Fore-Aft Position, page 152 and 4.7.11 Reel Tine Pitch, page 156
	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, 6.8.7 Knife Guards, page 304 , Knife Hold-Downs, page 309 , and 8.1.16 Stub Guard Conversion Kit, page 420
Crop Getting Stuffed In Gap Between Cut-out in Endsheets and Knifehead	Crop heads leaning away from knifehead hole in endsheet	Add knifehead shield(s), except in damp/sticky soils	8.1.7 Knifehead Shield, page 417

TROUBLESHOOTING

7.2 Cutting Action and Knife Components

Symptom	Problem	Solution	Section
Ragged or uneven cutting of crop	Knife hold-downs not adjusted properly	Adjust hold-downs	Knife Hold-Downs, page 309
	Knife sections or guards are worn or broken	Replace all worn and broken cutting parts	6.8 Knife and Knife Drive, page 300
	Knife is not operating at recommended speed	Check engine speed of combine	Refer to your combine operator's manual
	Ground speed too fast for reel speed	Reduce ground speed or increase reel speed	4.7.5 Reel Speed, page 146 and 4.7.6 Ground Speed, page 147
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	4.7.10 Reel Fore-Aft Position, page 152 and 4.7.11 Reel Tine Pitch, page 156
	Cutterbar too high	Lower cutting height	4.7.1 Cutting Height, page 51
	Header angle too flat	Steepen header angle	4.7.4 Header Angle, page 145
	Bent knife, causing binding of cutting parts	Straighten bent knife and align guards	6.8.7 Knife Guards, page 304
	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, Knife Hold-Downs, page 309 , and 8.1.16 Stub Guard Conversion Kit, page 420
	Reel too far back	Move reel forward	4.7.10 Reel Fore-Aft Position, page 152
	Loose knife drive belt	Adjust drive belt tension	6.8.8 Knife Drive Belt, page 311

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Knife plugging	Reel too high or too far forward	Lower reel or move reel rearward	4.7.9 Reel Height, page 151 and 4.7.10 Reel Fore-Aft Position, page 152
	Ground speed too slow	Increase ground speed	4.7.6 Ground Speed, page 147
	Loose knife drive belt	Adjust drive belt tension	6.8.8 Knife Drive Belt, page 311
	Improper knife hold-down adjustment	Adjust hold-down	Knife Hold-Downs, page 309
	Dull or broken knife section	Replace knife section	6.8.1 Replacing Knife Section, page 300
	Bent or broken guards	Align or replace guards	6.8.7 Knife Guards, page 304
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	4.7.10 Reel Fore-Aft Position, page 152 and 4.7.11 Reel Tine Pitch, page 156
	Steel pick-up fingers contacting knife	Increase reel clearance to cutterbar or adjust "frown"	6.12.1 Reel Clearance to Cutterbar, page 348 and 6.12.2 Reel Frown, page 350
	Float too heavy	Adjust springs for lighter float	4.7.3 Header Float, page 137
	Mud or dirt build-up on cutterbar	Raise cutterbar by lowering skid shoes	Cutting On the Ground, page 55
		Install cut-out sections	See your MacDon Dealer
Flatten header angle		4.7.4 Header Angle, page 145	
Knife is not operating at recommended speed	Check engine speed of combine	See your MacDon Dealer	
Excessive header vibration	Knife hold-downs not adjusted properly	Adjust hold-downs	Knife Hold-Downs, page 309
	Knife not operating at recommended speed	Check engine speed of combine	See your MacDon Dealer
	Excessive knife wear	Replace knife	6.8.5 Installing Knife, page 303
	Loose or worn knifehead pin or drive arm	Tighten or replace parts	6.8.1 Replacing Knife Section, page 300
Excessive vibration of adapter and header	Incorrect knife speed	Adjust knife speed	4.7.8 Knife Speed, page 150
	Driveline U-joints worn	Replace U-joints	—
	Bent cutterbar	Straighten cutterbar	See your MacDon Dealer

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Excessive breakage of knife sections or guards	Knife hold-downs not adjusted properly	Adjust hold-downs	Knife Hold-Downs, page 309
	Cutterbar operating too low in stony conditions	Raise cutterbar, using skid shoes	Cutting On the Ground, page 55
	Float is set too heavy	Adjust float springs for lighter float	4.7.3 Header Float, page 137
	Bent or broken guard	Straighten or replace guard	6.8.7 Knife Guards, page 304
	Header angle too steep	Flatten header angle	4.7.4 Header Angle, page 145
Knife back breakage	Bent or broken guard	Straighten or replace guard	6.8.7 Knife Guards, page 304
	Worn knifehead pin	Replace knifehead pin	6.8.3 Removing Knifehead Bearing, page 302
	Dull knife	Replace knife	6.8.2 Removing Knife, page 302 and 6.8.5 Installing Knife, page 303

TROUBLESHOOTING

7.3 Reel

Symptom	Problem	Solution	Section
Reel not releasing material in normal standing crop	Reel speed too fast	Reduce reel speed	4.7.5 Reel Speed, page 146
	Reel too low	Raise reel	4.7.9 Reel Height, page 151
	Reel tines too aggressive	Reduce cam setting	4.7.11 Reel Tine Pitch, page 156
	Reel too far back	Move reel forward	4.7.10 Reel Fore-Aft Position, page 152
Reel not releasing material in lodged and standing crop (reel fully lowered)	Reel tines too aggressive for standing crop	Reduce cam setting (1 or 2)	4.7.11 Reel Tine Pitch, page 156
Wrapping on reel end	Reel tines too aggressive	Reduce cam setting	4.7.11 Reel Tine Pitch, page 156
	Reel too low	Raise reel	4.7.9 Reel Height, page 151
	Reel speed too fast	Reduce reel speed	4.7.5 Reel Speed, page 146
	Crop conditions	Install optional endshields	See your MacDon Dealer
	Reel not centered in header	Center reel in header	6.12.3 Centering the Reel, page 352
Reel releases crop too quickly	Reel tines not aggressive enough	Increase cam setting	4.7.11 Reel Tine Pitch, page 156
	Reel too far forward	Move reel back	4.7.10 Reel Fore-Aft Position, page 152
Reel will not lift	Reel lift couplers are incompatible or defective	Change quick coupler	—
Reel will not turn	Quick couplers not properly connected	Connect couplers	Refer to your combine operator's manual
	Reel drive chain disconnected	Connect chain	6.12.4 Reel Drive Chain, page 352
Reel motion uneven under no load	Excessive slack in reel drive chain	Tighten chain	6.12.4 Reel Drive Chain, page 352

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Reel motion is uneven or stalls in heavy crops	Reel speed too fast	Reduce reel speed	4.7.5 Reel Speed, page 146
	Reel fingers not aggressive enough	Move to a more aggressive finger pitch notch	4.7.11 Reel Tine Pitch, page 156
	Reel too low	Raise reel	4.7.9 Reel Height, page 151
	Relief valve on combine (not on combine adapter) has low relief pressure setting	Increase relief pressure to manufacturer's recommendations	Refer to your combine operator's manual
	Low oil reservoir level on combine NOTE: 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	6.12.5 Reel Drive Sprocket, page 359
Plastic fingers cut at tip	Insufficient reel to cutterbar clearance	Increase clearance	6.12.1 Reel Clearance to Cutterbar, page 348
Plastic fingers bent rearward at tip	Reel digging into ground with reel speed slower than ground speed	Raise header	4.7.1 Cutting Height, page 51
		Decrease header tilt	4.7.4 Header Angle, page 145
		Move reel aft	4.7.10 Reel Fore-Aft Position, page 152
Plastic fingers bent forward at tip (opposite of above)	Reel digging into ground with reel speed faster than ground speed	Raise header	4.7.1 Cutting Height, page 51
		Decrease header tilt	4.7.4 Header Angle, page 145
		Move reel aft	4.7.10 Reel Fore-Aft Position, page 152
Plastic fingers bent close to tine tube.	Excessive plugging at cutterbar with wads of crop accumulating at cutterbar while maintaining reel operation.	Correct plugging/cutting issues	4.9 Unplugging Cutterbar, page 167
		Stop reel before plugging becomes excessive	

TROUBLESHOOTING

7.4 Header and Drapers

Symptom	Problem	Solution	Section
Insufficient header lift	Low relief pressure	Increase relief pressure	Refer to your combine operator's manual
Insufficient side draper speed	Speed control set too low	Increase control setting	4.7.7 Draper Speed, page 148
	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 operator's manual
	Pressure compensator (V7) set too low	Adjust to increase setting	
Draper will not drive	Drapers are loose	Tighten drapers	6.11.3 Adjusting Side Draper Tension, page 336
	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 roller bearing	6.11.6 Draper Roller Maintenance, page 340
	Low hydraulic oil	Fill reservoir to full level	Adding Oil, page 275
	Incorrect relief setting at flow control valve	Adjust relief setting	—
Draper stalling	Material not feeding evenly off knife	Lower reel	4.7.9 Reel Height, page 151
		Install stub guards	See your MacDon Dealer, 6.8.7 Knife Guards, page 304 , Knife Hold-Downs, page 309 , and 8.1.16 Stub Guard Conversion Kit, page 420
	Material accumulates inside or under front edge of draper	Adjust deck height	6.11.5 Adjusting Deck Height, page 339

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Adapter auger back-feeds	Auger set too high	Check reversing mechanism inside auger	Refer to your combine operator's manual
		Lower auger	6.7.1 Adjusting Auger to Pan Clearance, page 286
	John Deere: Feeder chain running too slow	Run feeder chain at high speed	Refer to your combine operator's manual
	John Deere: Equipped with feeder chain with 4 pitches per bar	Replace with 6 pitch per bar feeder chain, or remove every other bar	
Case: 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		
Hesitation in flow of bulky crop	Header angle too flat	Steepen header angle	4.7.4 Header Angle, page 145
	Material overload on drapers	Increase side draper speed	4.7.7 Draper Speed, page 148
		Install upper cross auger	See your MacDon Dealer
		Add fighting extensions	5.1.1 Using Fighting Extensions, page 189
	Material accumulation at auger ends	Install stripper bars	5.1.2 Using Stripper Bars, page 189
	CASE: Stone retarder blocks interfering with crop flow	Adjust blocks to minimum height	Refer to your combine operator's manual
	Side drapers running too fast, piling material in center of feeder draper	Reduce header side draper speed	4.7.7 Draper Speed, page 148
Feeder house chain drum too low	Move drum to corn position	Refer to your combine operator's manual	
Adapter auger wraps crop	Crop susceptible to wrapping (flax)	Add fighting extensions or stripper bars	5.1.1 Using Fighting Extensions, page 189 and 5.1.2 Using Stripper Bars, page 189
	Auger speed too fast	Install slow down kit	See your MacDon Dealer
Combine feeder drum wraps crop	Crop susceptible to wrapping (flax)	Add stripper bars	5.1.2 Using Stripper Bars, page 189

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Crop backs up or hesitates on feed draper	Feed draper stalling	Clean debris from poly pan	—
		Check feed draper tension	6.11.4 Adjusting Header Draper Tracking, page 337
		Replace roller bearing(s)	Replacing Adapter Drive Roller Bearing, page 326
		Check feed draper motor	—
	Heavy crop plugging between adapter auger and feed draper	Check auger clearance	6.7.1 Adjusting Auger to Pan Clearance, page 286
		See also “Adapter auger back-feeds” earlier in this table	—
	Auger speed too low	Install auger speed-up kit	See your MacDon Dealer
	Excessive clearance from auger to drive roller	Lower auger	6.7.1 Adjusting Auger to Pan Clearance, page 286
Auger speed too slow	Install auger speed-up kit	See your MacDon Dealer	
Side drapers back-feed	Side drapers running too slow in heavy crop	Increase side draper speed	4.7.7 Draper Speed, page 148
Crop is thrown across opening and under opposite side draper	Side drapers running too fast in light crop	Reduce side draper speed	4.7.7 Draper Speed, page 148
	Excessive overlap of feeder draper	Center side draper drive rollers over feed draper side deflectors	—
Crop feeding into feeder house at sides more than at center	Auger not delivering crop properly	Add fighting extensions	5.1.1 Using Fighting Extensions, page 189
		Add stripper bars	5.1.2 Using Stripper Bars, page 189
		Remove auger outer tines	Removing Feed Auger Tines, page 294
		Install auger speed-up kit	See your MacDon Dealer
Crop feeding into feeder house at center more than at sides	Auger not delivering crop properly	Add auger outer tines	Removing Feed Auger Tines, page 294
		Remove fighting extensions	5.1.1 Using Fighting Extensions, page 189
		Remove auger stripper bars	5.1.2 Using Stripper Bars, page 189
Crop getting stuffed in gap between cut-out in endsheet and knife head	Crop heads leaning away from knifehead hole in endsheet	Add shields, except in damp/sticky soils	6.8.10 Knifehead Shield, page 320
Material accumulates inside or under front edge of draper	Deck height improperly adjusted	Adjust deck height	6.11.5 Adjusting Deck Height, page 339

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Material wrapping at upper cross auger beater bars	Crop conditions do not require beater bars	Remove beater bars	4.11 Upper Cross Auger (UCA), page 169
Material accumulating on end deflectors and releasing in bunches	End deflectors too wide	Trim deflector or replace with narrow deflector (MD #172381)	—
Cutterbar pushes dirt across entire length	Header height too low	Raise header height with float optimizer control	Refer to your combine operator's manual
	Float locked	Unlock float	4.7.3 Header Float, page 137
	Float set too heavy	Adjust float	
	Header angle too steep	Adjust header to optimum angle	4.7.4 Header Angle, page 145
Pushing dirt at combine adapter lower beam	Combine face plate incorrectly installed	Remove adapter and check combine faceplate	Refer to your combine operator's manual
	Header angle too flat	Increase header angle	4.7.4 Header Angle, page 145
	Float too light, header legs do not rest on stops	Adjust to heavier float	4.7.3 Header Float, page 137
Wing float assembly binding	Float locked out	Disengage adapter float lockout	4.7.3 Header Float, page 137
	Float set too heavy	Adjust adapter springs to lighter float	
Reel contacts endsheet, especially in smile condition	Reel not centered in header	Center reel in header	6.12.3 Centering the Reel, page 352
	Loose reel arm brace	Center reel in header and tighten brace	
Reel fingers being cut at header hinge points in frown condition	Reel clearance inadequate	Adjust reel clearance to cutterbar	6.12.1 Reel Clearance to Cutterbar, page 348
		Adjust reel frown at finger tubes	6.12.2 Reel Frown, page 350
Longer stubble in middle than at ends, or cutterbar pushes dirt at ends	Too much weight on wings	Adjust wing balance	6.14.1 Checking Wing Balance, page 390
Longer stubble at ends than in middle, or cutterbar pushes dirt in middle	Too much weight at middle of header		
Wings will not frown without excessive down force	Wings set too light	Adjust wing balance	6.14.1 Checking Wing Balance, page 390

TROUBLESHOOTING

7.5 Cutting Edible Beans

Symptom	Problem	Solution	Section
Excessive Losses at Dividers	Divider rod running down crop and shattering pods	Remove divider rod	4.7.13 Crop Divider Rods, page 163
	Vines and plants build up on endsheet	Install divider rod	
Reek Ends Wrap Up With Crop	Uncut crop interfering on reel ends	Add reel endshields	See your MacDon Dealer
Reel Wraps Up With Crop	Reel too low	Raise reel	4.7.9 Reel Height, page 151
Plants Being Stripped and Complete or Partial Plans Left Behind	Header being carried off ground	Lower header to ground and run on skid shoes and/or cutterbar	Cutting On the Ground, page 55
	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"> • Dry ground: 100–150 lbf • Wet ground: 50–100 lbf 	4.7.3 Header Float, page 137
	Reel being operated too high	Fully retract reel cylinders	6.12.1 Reel Clearance to Cutterbar, page 348
	Reel too high with cylinders fully retracted	Adjust reel height	6.12.1 Reel Clearance to Cutterbar, page 348
	Finger pitch not aggressive enough	Adjust finger pitch	4.7.11 Reel Tine Pitch, page 156
	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	4.7.10 Reel Fore-Aft Position, page 152
	Header angle too shallow	Lengthen center-link; if cutting on ground, header angle can be increased by fully retracting lift cylinders	4.7.4 Header Angle, page 145
	Reel too slow	Adjust reel speed to be marginally faster than ground speed	4.7.5 Reel Speed, page 146
	Ground speed too high	Lower ground speed	4.7.6 Ground Speed, page 147
	Header skid shoes adjusted too low	Raise skid shoes to maximum up position	Cutting On the Ground, page 55

TROUBLESHOOTING

Symptom	Problem	Solution	Section	
Plants Being Stripped and Complete or Partial Plans Left Behind	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	6.8.1 Replacing Knife Section, page 300 , 6.8.2 Removing Knife, page 302 , and 6.8.5 Installing Knife, page 303	
	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		
	Header is not level	Level header	4.8 Leveling the Header, page 165	
	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, 6.8.7 Knife Guards, page 304 , Knife Hold-Downs, page 309 , and 8.1.16 Stub Guard Conversion Kit, page 420	
Plant Vines Pinched Between Top Of Draper And Cutterbar	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	—	
	Shifting of decks with header raised does not clean out cutterbar debris	Manually remove debris from cutterbar cavity to prevent damage to drapers		
Crop Accumulating At Guards And Not Moving Rearward Onto Drapers	Reel finger pitch not aggressive enough	Increase finger aggressiveness (cam position)	4.7.11 Reel Tine Pitch, page 156	
	Reel too high relative to knife	Readjust reel minimum height with cylinders fully retracted	6.12.1 Reel Clearance to Cutterbar, page 348	
	Reel too far forward of cutterbar C-section	Reposition reel	4.7.10 Reel Fore-Aft Position, page 152	

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Cutterbar Guards Breaking	Float insufficient	Increase float	4.7.3 Header Float, page 137
	Excessive amount of rocks in field	Consider installing optional stub guards Tip: Experiment with a few guards on a section of cutterbar to compare the performance of the two different styles of guards	8.1.16 Stub Guard Conversion Kit, page 420 , and See your MacDon Dealer
Reel Shattering Pods	Reel running too fast	Reduce reel speed	4.7.5 Reel Speed, page 146
	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)	4.7.11 Reel Tine Pitch, page 156
	Reel too far forward of cutterbar C-section	Reposition reel	
Cutterbar Pushing Too Much Trash And Dirt	Header too heavy	Readjust float to make header lighter	4.7.3 Header Float, page 137
	Header angle too steep	Decrease header angle with lift cylinders	4.7.4 Header Angle, page 145
		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, 6.8.7 Knife Guards, page 304 , Knife Hold-Downs, page 309 , and 8.1.16 Stub Guard Conversion Kit, page 420
Improper support for header	Install center skid shoes on header	See your MacDon Dealer	
Cutterbar Pushing Too Much Dirt In Certain Locations For Length Of Field	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
Cutterbar Fills Up With Dirt	Excessive gap between top of front of draper and cutterbar	Adjust front deck hooks to obtain proper clearance between cutterbar and draper	6.11.5 Adjusting Deck Height, page 339
		Raise header fully at each end of field or as required and shift decks back and forth to help clean out cutterbar	—
Reel Carries Over Odd Plants In Same Location	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	4.7.9 Reel Height, page 151
		Adjust reel fore and aft location to move fingers out of the ground	4.7.10 Reel Fore-Aft Position, page 152
Reel Carries Over Excessive Amounts Of Plants Or Wads	Excessive accumulation of crop on drapers (up to height of reel center tube)	Increase draper speed	4.7.7 Draper Speed, page 148
	Finger pitch too retarded	Increase finger pitch	4.7.11 Reel Tine Pitch, page 156

8 Options and Attachments

8.1 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.

8.1.1 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 8.1

8.1.2 Divider Latch Kit

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.

MD #B5607

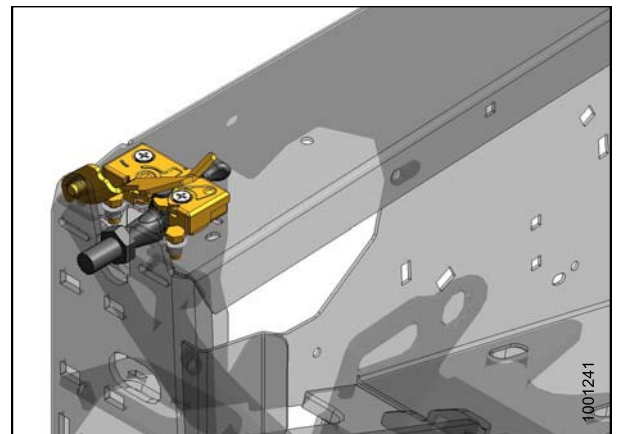


Figure 8.2: Divider Latch

8.1.3 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.

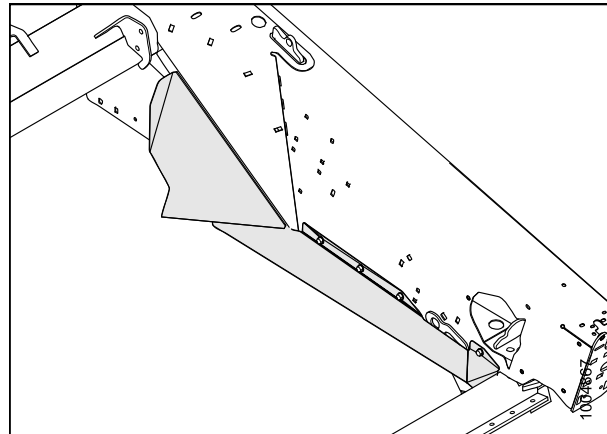


Figure 8.3

8.1.4 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.

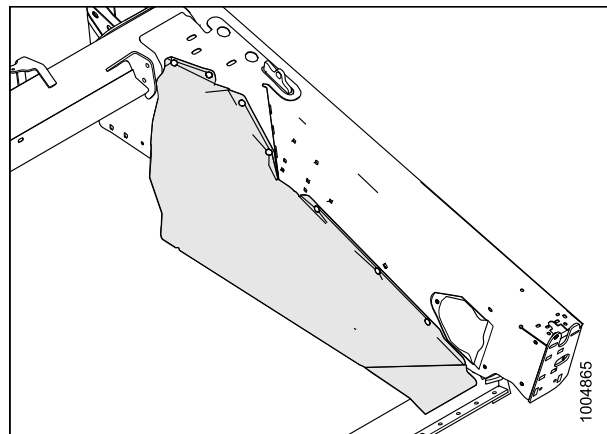


Figure 8.4

8.1.5 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.

MD #B5612

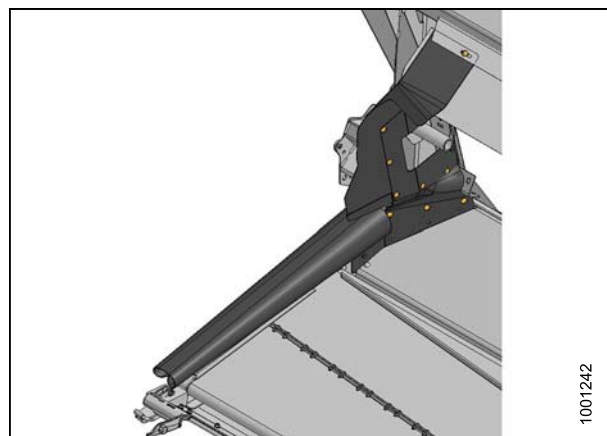


Figure 8.5: European Adapter Seal Kit

8.1.6 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.

MD #B4829

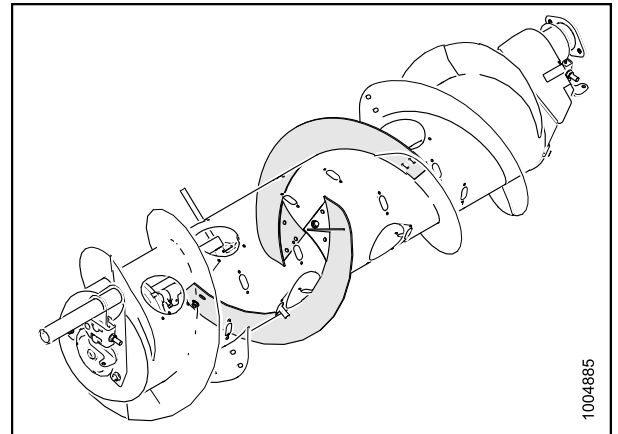


Figure 8.6

8.1.7 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 :

- 30 ft. and larger – MD #220101

Stub Guards :

- 30 ft. and larger – MD #220103

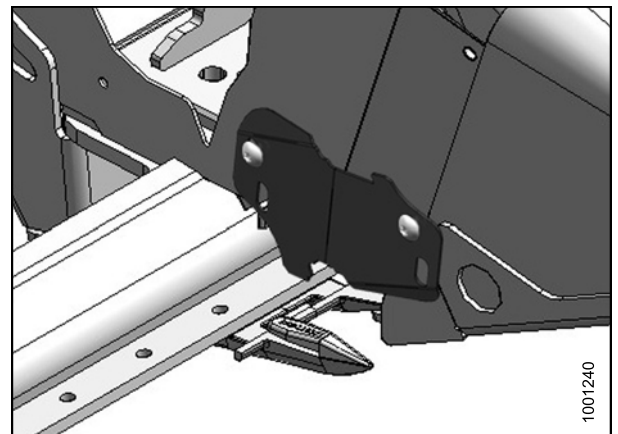


Figure 8.7

8.1.8 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.

MD #B4831



Figure 8.8: Steel Fingers`

8.1.9 Reel Endshield Kit

The steel shields attach to ends of the reel(s) and help in clearing material in heavy, hard-to-cut crops. Installation and adjustment instructions are included with the kit.

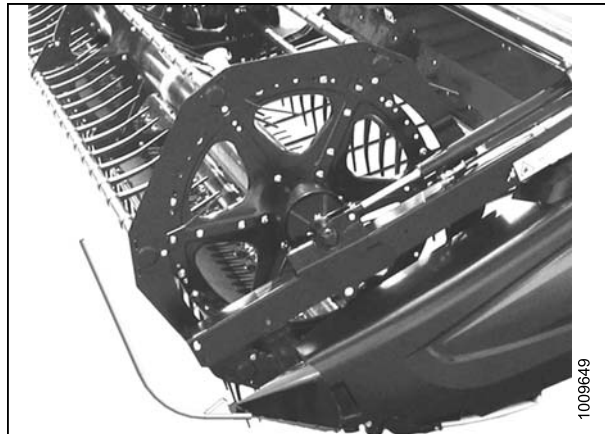


Figure 8.9

8.1.10 PR15 Tine Tube Reel Conversion Kit

This kit allows conversion of a 6-bat reel to a 9-bat reel.

Order bundles by header size and type:

- 30 ft. – Plastic Fingers MD #B5278¹²
- 30 ft. – Steel Fingers MD #B5657
- 35 ft. – Plastic Fingers MD #B5674

NOTE:

Must order additional endshields when converting reel.

8.1.11 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.

MD #B5609

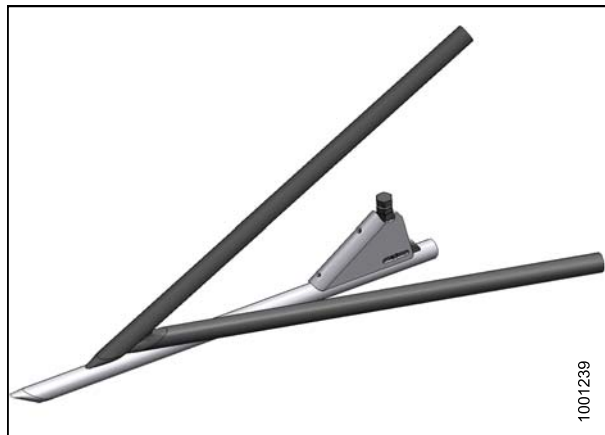


Figure 8.10

12. Double reel units only

8.1.12 Rock Retarder

The rock retarder kit keeps rocks from rolling past the cutterbar and onto the drapers. Installation instructions are included with the kit.

Order bundles by header size:

- 30 and 35 ft. – MD #B5084
- 40 and 45 ft. – MD #B5085



Figure 8.11

8.1.13 Short Brace Kit For Center Reel Arm

The short brace kit attaches to the center arm and allows the reel to move further rearward. Installation and adjustment instructions are included with the kit.

MD #B5605

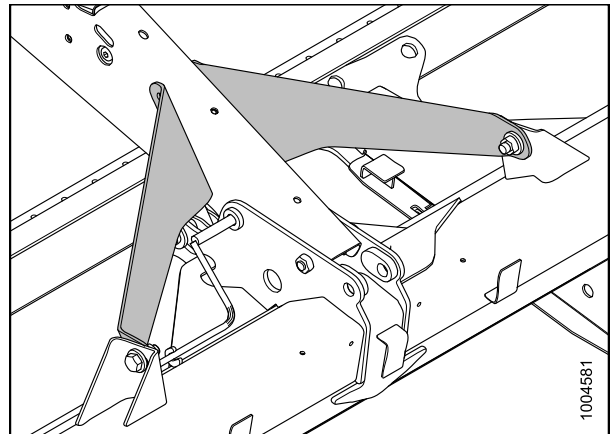


Figure 8.12

8.1.14 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.

MD #C1986

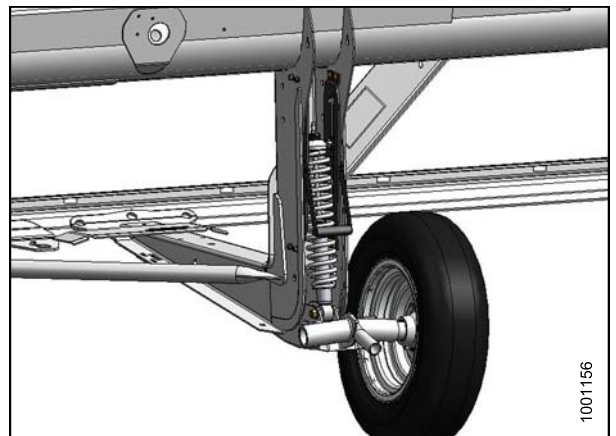


Figure 8.13

8.1.15 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 allows transporting of your draper header from farm-to-field, and then enables one person to quickly switch to field stabilizer wheel position. 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.

MD #C1997



Figure 8.14

8.1.16 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 the length of your header:

- 30 ft. – MD #B5012
- 35 ft. – MD #B5013

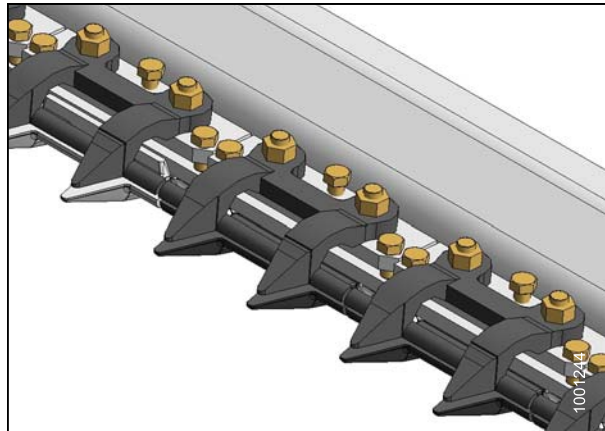


Figure 8.15

8.1.17 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 the length of your header:

- 30 ft. – MD #B4847
- 35 ft. – MD #B4848
- 40 ft. – MD #B4849
- 45 ft. – MD #B4849



Figure 8.16

8.1.18 Vertical Knife Mounts

The vertical knife¹³ mounts allow installation of vertically oriented knives onto both ends of the header.

Installation and adjustment instructions are included with the bundle.

Order bundles based on left or right side:

- LH – MD #B5757
- RH – MD #B5758

NOTE:

If mounting on multiple headers, you will also require the auxiliary vertical knife plumbing kit MD #B5406.

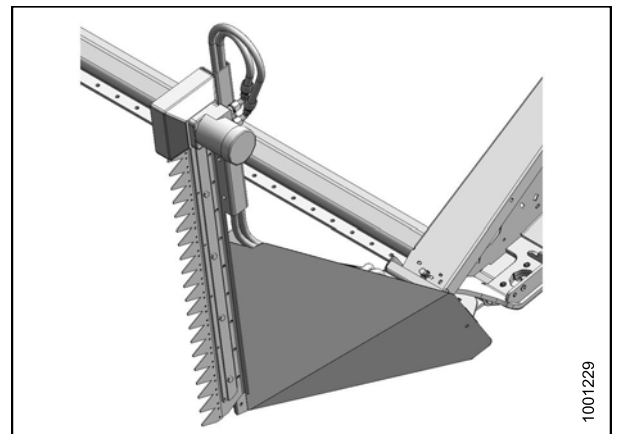


Figure 8.17

13. Must be purchased from a separate supplier.

9 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 #169896
Export (that is, anywhere except North America)	FD75 FlexDraper® and CA25 Combine Adapter	MD #169897

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