

D65 Draper Header for Combines

**IMPORTANT: PAGE 35 HAS BEEN
UPDATED SINCE THIS MANUAL WAS
PUBLISHED.**

Operator's Manual

169903 Revision A

Original Instruction

D65 Draper Header for Combines



1000888

Published: September, 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 D65*
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:

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

1004633

Introduction

This instructional manual contains information on the D65 Draper Header and the CA25 Combine Adapter. It must be used in conjunction with your combine operator's manual.

The D65 Draper Header 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.

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).

This manual is also available in the following languages:

- French (part number 169878)
- Russian (part number 169799)

They can be ordered from MacDon, downloaded from the Dealer Portal (<https://portal.macdon.com>) or from our International website (<http://www.macdon.com/world>).

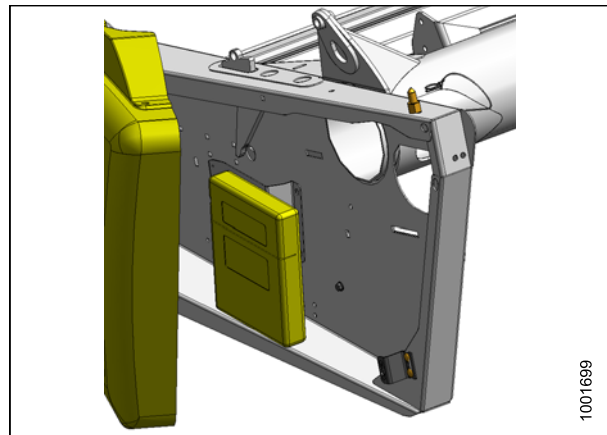


Figure 1: Manual Storage Location

List of Revisions

The following lists the changes from the previous version (169593 Revision C) of this document.

Summary of Change	Refer To
Note regarding access to updated manuals added to Introduction	Introduction, page ii
Frame and Structure in specifications table revised	3 Specifications, page 29
CA25 oil change interval revised	Changing Oil in Header Drive Gearbox, page 287
Optimizing the header for straight combining canola section added	4.6.3 Optimizing Header for Straight Combining Canola, page 48
John Deere combine coupler attachment procedure revised	5.3.1 Attaching Header to John Deere Combine, page 208
Optional attachments section updated	8 Options and Attachments, page 445
Cutting on the ground section revised	Cutting On the Ground, page 56
Header Float section revised	4.7.3 Header Float, page 143
AHHC section reorganized	4.7.2 Auto Header Height Control, page 58
Reel Speed, Ground Speed, Draper Speed and Knife Speed sections revised	4.7.5 Reel Speed, page 150
	4.7.6 Ground Speed, page 151
	4.7.7 Draper Speed, page 152 4.7.8 Knife Speed, page 154
References to HC10 Hay Conditioner deleted	All locations
CR Feeder Deflector section revised	5.5.3 CR Feeder Deflectors, page 231
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 312
	6.11 Adapter Stripper Bars and Feed Deflectors, page 360
Auger to Plan Clearance, and Auger Drive Chain Tension revised	6.7 Auger, page 300
	6.7.2 Adjusting Auger Drive Chain Tension, page 301
Major changes to Knife and Knife Drive sections	Various locations including 6.8 Knife, page 314
Knife hold-down clearances revised	Checking Knife Hold-Downs, page 323
Installing knife drive box revised	Installing Knife Drive Box, page 332
Header Draper Tracking section revised	6.12.4 Adjusting Header Draper Tracking, page 365
Replacing Draper Deflectors section added.	6.12.7 Replacing Draper Deflectors, page 375
General text and formatting revisions to improve readability	Various locations throughout
Revision Page added	List of Revisions, page iii
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.

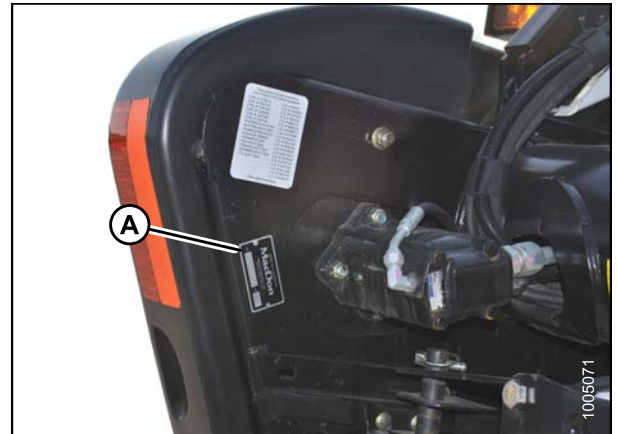


Figure 2: Header

Combine Adapter

Adapter Model: _____

Serial Number: _____

Year: _____

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

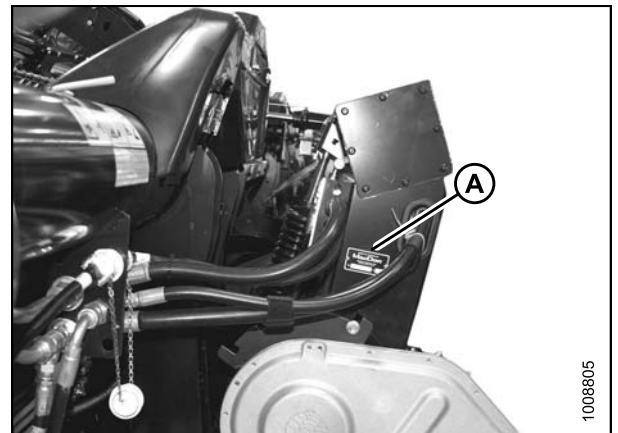


Figure 3: Adapter

Slow Speed Transport/Stabilizer Wheel Option

Serial Number: _____

Year: _____

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

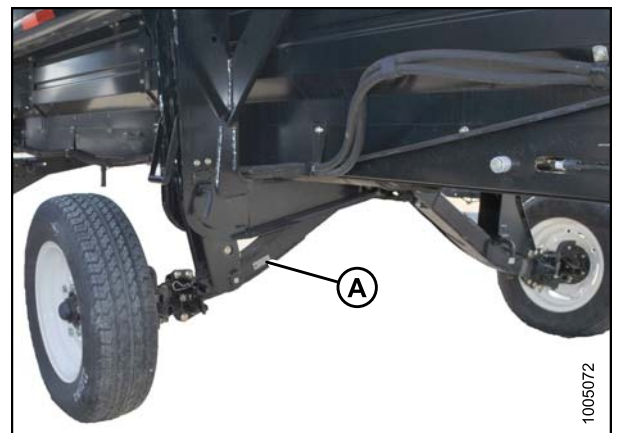


Figure 4: Transport/Stabilizer Option

TABLE OF CONTENTS

Declaration of Conformity	i
Introduction	ii
List of Revisions	iii
Model and Serial Number	v
1 Safety	1
1.1 Safety Alert Symbols	1
1.2 Signal Words	2
1.3 General Safety	3
1.4 Maintenance Safety	6
1.5 Hydraulic Safety	7
1.6 Tire Safety	8
1.7 Safety Signs	9
1.7.1 Installing Safety Decals	9
1.8 Safety Decal Locations	10
1.9 Interpreting Safety Signs	16
2 Reference	23
2.1 Definitions	23
2.2 Component Identification	25
2.2.1 D65 Combine Header	25
2.2.2 CA25 Combine Adapter	26
3 Specifications	29
4 Operation	33
4.1 Owner/Operator Responsibilities	33
4.2 Operational Safety	34
4.2.1 Header Safety Props	34
4.2.2 Reel Safety Props	35
Engaging Reel Safety Props	35
Disengaging Reel Safety Props	36
4.2.3 Endshields	37
Opening Endshields	37
Closing Endshields	38
Removing Endshields	39
Installing Endshields	40
Adjusting Endshields	41
4.2.4 Daily Start-Up Check	42
4.3 Break-in Period	43
4.4 Shutdown Procedure	44
4.5 Cab Controls	45
4.6 Header Setup	46
4.6.1 Header Attachments	46
4.6.2 Header Settings	47
4.6.3 Optimizing Header for Straight Combining Canola	48
Adjusting Feed Auger Springs	48
4.6.4 Reel Settings	50
4.7 Header Operating Variables	52
4.7.1 Cutting Height	52
Cutting Off the Ground	52
Cutting On the Ground	56
4.7.2 Auto Header Height Control	58
Height Sensor Output Voltage Range – Combine Requirements	59
AGCO 6 and 7 Series Combines	63
Case IH 2300/2500 and 5088/6088/7088 Combines	70

TABLE OF CONTENTS

	Case IH 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230	
	Combines	74
	Gleaner R62/R72 Combines	81
	Gleaner R65/R75 Combines	85
	John Deere 50 Series Combines	95
	John Deere 60 Series Combines	98
	John Deere 70 Series Combines	104
	John Deere S Series Combines	110
	Lexion 500 Series Combines	118
	Lexion 700 Series Combines	128
	New Holland Combines	134
	Sensor Operation	142
4.7.3	Header Float	143
	Checking and Adjusting Header Float	144
	Locking/Unlocking Header Float	148
4.7.4	Header Angle	149
	Controlling Header Angle	150
4.7.5	Reel Speed	150
	Optional Reel Drive Sprockets	151
4.7.6	Ground Speed	151
4.7.7	Draper Speed	152
	Adjusting Side Draper Speed	153
	Adjusting Feed Draper Speed	154
4.7.8	Knife Speed	154
	Checking Knife Speed	155
4.7.9	Reel Height	156
4.7.10	Reel Fore-Aft Position	156
	Adjusting Reel Fore-Aft Position	157
	Repositioning Fore-Aft Cylinders on Single Reel	157
	Repositioning Fore-Aft Cylinders on Double Reel	160
4.7.11	Repositioning Fore-Aft Cylinders with Multi-Crop Conversion Option	163
4.7.12	Reel Tine Pitch	165
	Choosing a Reel Cam Setting	165
	Adjusting Reel Cam	167
4.7.13	Crop Dividers	168
	Removing Crop Dividers from Header with Latch Option	168
	Removing Crop Dividers from Header without Latch Option	169
	Installing Crop Dividers on Header with Latch Option	169
	Installing Crop Dividers on Header without Latch Option	171
4.7.14	Crop Divider Rods	172
	Removing Crop Divider Rods	173
	Using Rice Dividers	173
4.8	Leveling the Header	174
4.9	Unplugging Cutterbar	176
4.10	Unplugging Adapter	177
4.11	Upper Cross Auger (UCA)	178
4.11.1	Removing Beater Bars	178
4.11.2	Installing Beater Bars	180
4.12	Transporting Header	181
4.12.1	Transporting Header on Combine	181
4.12.2	Towing	181
	Attaching Header to Towing Vehicle	182
	Towing the Header	182
4.12.3	Converting from Transport to Field Position	183

TABLE OF CONTENTS

Removing Tow-Bar	183
Storing Tow-Bar	184
Moving Front (Left) Wheels into Field Position	185
Moving Rear (Right) Wheels into Field Position.....	187
4.12.4 Converting from Field to Transport Position.....	189
Moving Front (Left) Wheels into Transport Position	189
Moving Rear (Right) Wheels into Transport Position.....	191
Attaching Tow-Bar.....	194
4.13 Storage.....	198
5 Header Attachment/Detachment	199
5.1 Adapter Setup	199
5.1.1 Using Flighting Extensions.....	199
5.1.2 Using Stripper Bars	199
5.1.3 Adjusting Auger Speed.....	200
5.2 Case IH Combines.....	201
5.2.1 Attaching Header to Case IH Combine	201
5.2.2 Detaching Header from Case IH Combine	205
5.3 John Deere Combines	208
5.3.1 Attaching Header to John Deere Combine	208
5.3.2 Detaching Header from John Deere Combine	212
5.4 Lexion Combines.....	216
5.4.1 Attaching Header to Lexion Combine.....	216
5.4.2 Detaching Header from Lexion Combine.....	220
5.5 New Holland Combines.....	224
5.5.1 Attaching Header to New Holland CR/CX Combine	224
5.5.2 Detaching Header from New Holland Combine.....	227
5.5.3 CR Feeder Deflectors.....	231
5.6 AGCO Combines.....	232
5.6.1 Attaching Header to AGCO Combine.....	232
5.6.2 Detaching Header from AGCO Combine.....	238
5.7 Attaching and Detaching Header From Adapter and Combine	242
5.7.1 Detaching Header from Adapter and Combine	242
5.7.2 Attaching Header to Adapter and Combine	247
6 Maintenance and Servicing	253
6.1 Preparation for Servicing.....	253
6.2 Maintenance Specifications	254
6.2.1 Conversion Chart	254
6.2.2 Recommended Fluids and Lubricants.....	255
6.2.3 Torque Specifications	255
SAE Bolt Torque Specifications.....	255
Metric Bolt Specifications	258
Metric Bolt Specifications Bolting into Cast Aluminum	260
Flare-Type Hydraulic Fittings	260
O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)	262
O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable).....	264
O-Ring Face Seal (ORFS) Hydraulic Fittings	265
6.2.4 Installing a Roller Chain	266
6.2.5 Installing a Sealed Bearing	267
6.3 Maintenance Requirements.....	268
6.3.1 Maintenance Schedule/Record.....	269
6.3.2 Break-In Inspection	271
6.3.3 Preseason/Annual Service.....	271
6.3.4 End of Season Service	271

TABLE OF CONTENTS

6.3.5	Checking Hydraulic Hoses and Lines.....	273
6.3.6	Lubrication and Servicing.....	273
	Service Intervals.....	274
	Greasing Procedure.....	282
	Lubricating Reel Drive Chain.....	283
	Lubricating Auger Drive Chain.....	285
	Lubricating Header Drive Gearbox.....	286
6.4	Hydraulics.....	288
6.4.1	Reservoir.....	288
	Checking Oil Level.....	288
	Adding Oil.....	289
	Changing Oil.....	289
6.4.2	Changing Oil Filter.....	290
6.5	Electrical.....	292
6.5.1	Replacing Light Bulbs.....	292
6.6	Header Drive.....	293
6.6.1	Removing Driveline.....	293
6.6.2	Installing Driveline.....	294
6.6.3	Removing Driveline Guard.....	295
6.6.4	Installing Driveline Guard.....	297
6.6.5	Adjusting Tension on Gearbox Drive Chain.....	299
6.7	Auger.....	300
6.7.1	Adjusting Auger to Pan Clearance.....	300
6.7.2	Adjusting Auger Drive Chain Tension.....	301
6.7.3	Removing Auger Drive Chain.....	302
6.7.4	Installing Auger Drive Chain.....	306
6.7.5	Auger Tines.....	308
	Removing Feed Auger Tines.....	308
	Installing Feed Auger Tines.....	310
	Replacing Auger Tine Guides.....	311
6.7.6	Flighting Extensions.....	312
	Installing Flighting Extensions.....	312
	Removing Flighting Extensions.....	313
6.8	Knife.....	314
6.8.1	Replacing Knife Section.....	314
6.8.2	Removing Knife.....	316
6.8.3	Removing Knifehead Bearing.....	316
6.8.4	Installing Knifehead Bearing.....	317
6.8.5	Installing Knife.....	317
6.8.6	Spare Knife.....	318
6.8.7	Knife Guards.....	318
	Adjusting Knife Guards.....	318
	Replacing Pointed Guards on a Single Knife Header.....	319
	Replacing Pointed Guards on a Double Knife Header.....	320
	Replacing Stub Guards on a Single Knife Header.....	321
	Replacing Stub Guards on a Double Knife Header.....	322
	Checking Knife Hold-Downs.....	323
6.8.8	Knifehead Shield.....	325
	Installing Knifehead Shield.....	325
6.9	Knife Drive.....	327
6.9.1	Knife Drive Box.....	327
	Mounting Bolts.....	327
	Removing Knife Drive Box.....	327
	Removing Knife Drive Box Pulley.....	331

TABLE OF CONTENTS

	Installing Knife Drive Box Pulley.....	332
	Installing Knife Drive Box.....	332
	Changing Oil in Knife Drive Box.....	335
6.9.2	Knife Drive Belts.....	335
	Non-Timed Knife Drive Belts.....	335
	Timed Double Knife Drive Belts.....	338
6.10	Adapter Feed Draper.....	350
6.10.1	Replacing Adapter Feed Draper.....	350
6.10.2	Adjusting Feed Draper Tension.....	351
6.10.3	Adapter Drive Roller.....	352
	Removing Adapter Feed Draper Drive Roller.....	352
	Installing Adapter Feed Draper Drive Roller.....	354
	Replacing Adapter Drive Roller Bearing.....	354
6.10.4	Adapter Idler Roller.....	356
	Removing Adapter Feed Draper Idler Roller.....	356
	Replacing Adapter Feed Draper Idler Roller Bearing.....	357
	Installing Adapter Feed Draper Idler Roller.....	358
6.11	Adapter Stripper Bars and Feed Deflectors.....	360
6.11.1	Installing Stripper Bars.....	360
6.11.2	Removing Stripper Bars.....	360
6.11.3	Replacing Feed Deflectors.....	361
6.12	Header Drapers.....	362
6.12.1	Removing Drapers.....	362
6.12.2	Installing Drapers.....	362
6.12.3	Adjusting Side Draper Tension.....	364
6.12.4	Adjusting Header Draper Tracking.....	365
6.12.5	Adjusting Deck Height.....	367
6.12.6	Draper Roller Maintenance.....	368
	Inspecting Draper Roller Bearing.....	368
	Side Draper Idler Roller.....	369
	Side Draper Drive Roller.....	371
6.12.7	Replacing Draper Deflectors.....	375
	Removing Narrow Draper Deflectors.....	375
	Installing Narrow Draper Deflectors.....	376
6.13	Reel.....	378
6.13.1	Reel Clearance to Cutterbar.....	378
	Measuring Reel Clearance.....	378
	Adjusting Reel Clearance.....	380
6.13.2	Reel Frown.....	381
	Adjusting Reel Frown.....	381
6.13.3	Centering the Reel.....	382
	Centering Double Reels.....	382
	Centering Single Reel.....	383
6.13.4	Reel Tines.....	383
	Removing Steel Tines.....	383
	Installing Steel Tines.....	383
	Removing Plastic Fingers.....	384
	Installing Plastic Fingers.....	385
6.13.5	Tine Tube Bushings.....	385
	Removing Bushings from 5-, 6- or 9-Bat Reels.....	385
	Installing Bushings on 5-, 6- or 9-Bat Reels.....	390
6.13.6	Reel Endshields.....	396
	Replacing Endshield.....	397
	Replacing Support.....	398

TABLE OF CONTENTS

6.14	Reel Drive	399
6.14.1	Replacing Reel Drive Sprocket.....	399
	Removing Drive Cover	399
	Loosening Drive Chain	400
	Removing Drive Sprocket.....	400
	Installing Drive Sprocket.....	401
	Tightening Drive Chain.....	401
	Installing Drive Cover	402
6.14.2	Replacing Double Reel U-Joint.....	402
	Removing Drive Cover	403
	Removing Double Reel U-Joint.....	403
	Installing Double Reel U-Joint.....	404
	Installing Drive Cover	405
6.14.3	Replacing Reel Drive Motor	406
	Removing Drive Cover	406
	Loosening Drive Chain	407
	Removing Drive Sprocket.....	407
	Removing Reel Drive Motor.....	408
	Installing Reel Drive Motor.....	409
	Installing Drive Sprocket.....	410
	Tightening Drive Chain.....	410
	Installing Drive Cover	411
6.14.4	Replacing Drive Chain on Double Reel	411
	Removing Drive Cover	412
	Loosening Drive Chain	412
	Disconnecting the Reel Drive Method.....	412
	Breaking the Chain Method	414
	Tightening Drive Chain.....	415
	Installing Drive Cover	415
6.14.5	Replacing Drive Chain on Single Reel	416
	Removing Drive Cover	416
	Loosening Drive Chain	416
	Replacing Chain on Single Reel.....	417
	Tightening Drive Chain.....	417
	Installing Drive Cover	417
6.14.6	Adjusting Reel Drive Chain Tension.....	418
	Removing Drive Cover	418
	Tightening Drive Chain.....	418
	Installing Drive Cover	419
6.14.7	Replacing Reel Speed Sensor	420
	Removing Drive Cover	420
	Replacing AGCO Sensor.....	421
	Replacing John Deere Sensor	422
	Replacing Lexion 400 Series Sensor.....	422
	Replacing Lexion 500/700 Series Sensor	423
	Installing Drive Cover	423
6.15	Transport System (Optional).....	425
6.15.1	Checking Wheel Bolt Torque	425
6.15.2	Checking Axle Bolt Torque	426
6.15.3	Checking Tire Pressure	427
7	Troubleshooting.....	429
7.1	Crop Loss at Cutterbar	429
7.2	Cutting Action and Knife Components	431
7.3	Reel.....	434

TABLE OF CONTENTS

7.4	Header and Drapers	436
7.5	Cutting Edible Beans	440
8	Options and Attachments	445
8.1	Reel.....	445
8.1.1	Multi-Crop Rapid Reel Conversion Kit.....	445
8.1.2	Lodged Crop Reel Finger Kit.....	445
8.1.3	PR15 Tine Tube Reel Conversion Kit.....	446
8.1.4	Reel Endshield Kit.....	446
8.1.5	Reel Tine Tube Reinforcing Kit.....	447
8.2	Cutterbar.....	448
8.2.1	Cutterbar Plastic Wear Strips	448
8.2.2	Knifehead Shield.....	448
8.2.3	Stub Guard Conversion Kit	449
8.2.4	Vertical Knife Mounts.....	449
8.3	Header.....	450
8.3.1	Divider Latch Kit.....	450
8.3.2	Stabilizer Wheels	450
8.3.3	Rice Divider Rods	451
8.3.4	Stabilizer/Slow Speed Transport Wheels.....	451
8.4	Crop Delivery	452
8.4.1	CA25 Feed Auger Flighting.....	452
8.4.2	European Adapter Seal Kit.....	452
8.4.3	Draper Deflector (Narrow).....	453
8.4.4	Stripper Bars.....	453
8.4.5	Upper Cross Auger (UCA)	454
9	Unloading and Assembly	455
	Index	457

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. Wear suitable hearing protection devices such as ear muffs or ear plugs to help protect against objectionable or loud noises.

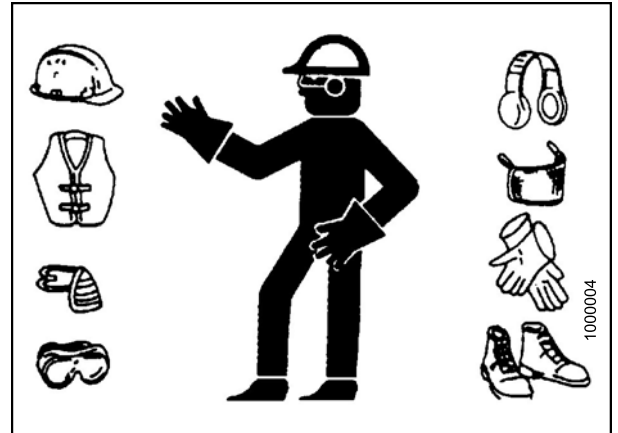


Figure 1.2: Safety Equipment



Figure 1.3: Safety Equipment

SAFETY

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

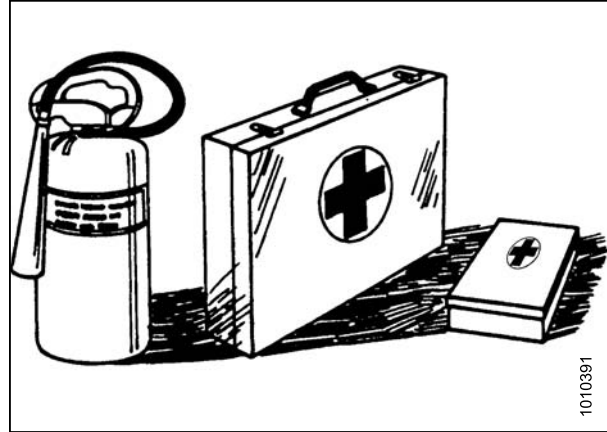


Figure 1.4: Safety Equipment

- 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.

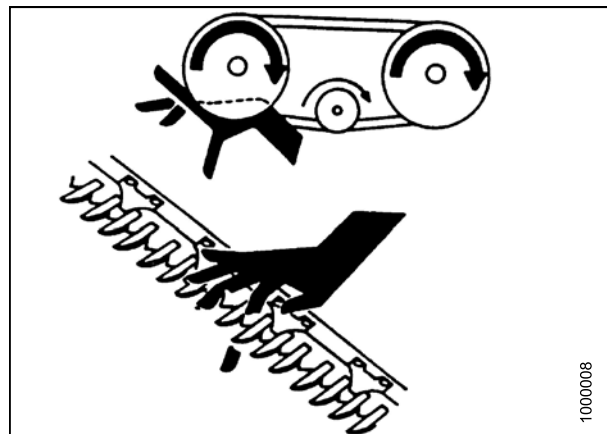


Figure 1.6: Safety Around Equipment

SAFETY

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



Figure 1.8: Safety Around Equipment

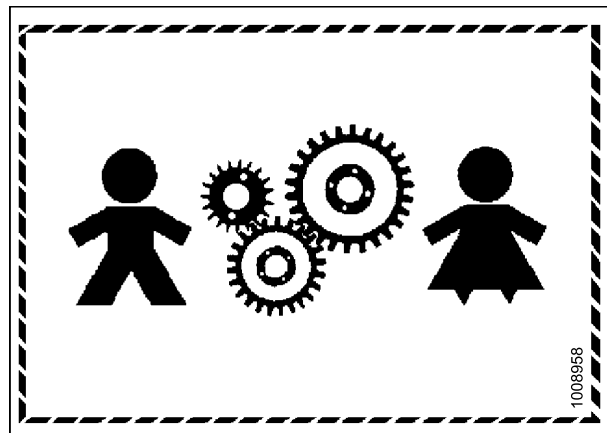


Figure 1.9: Equipment NOT Safe for Children

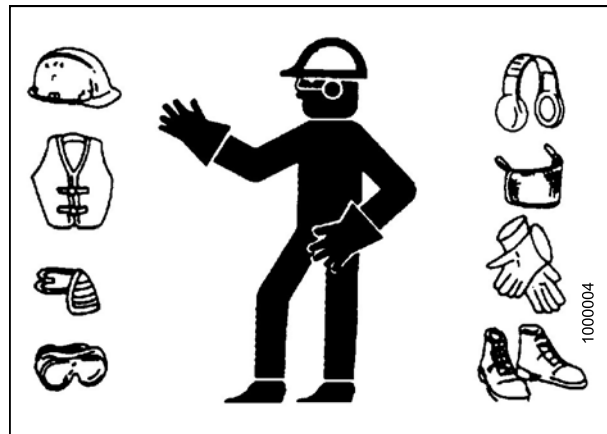


Figure 1.10: Safety Equipment

1.5 Hydraulic Safety

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

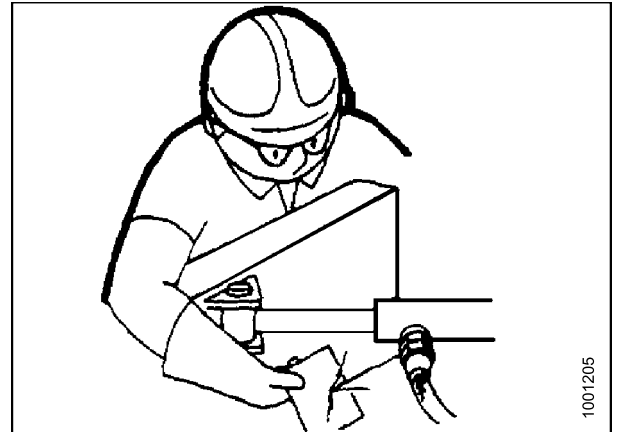


Figure 1.11: Testing for Hydraulic Leaks

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



Figure 1.12: Hydraulic Pressure Hazard

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

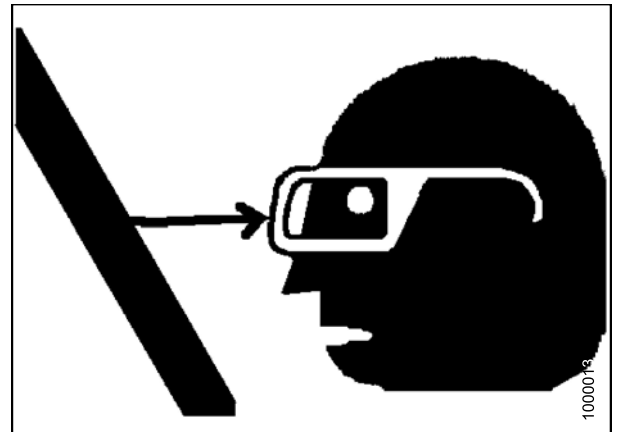


Figure 1.13: Safety Around Equipment

1.6 Tire Safety

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

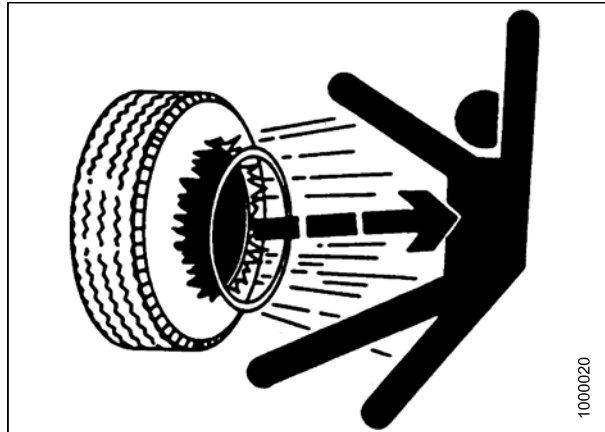


Figure 1.14: Over-Inflated Tire

- 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.

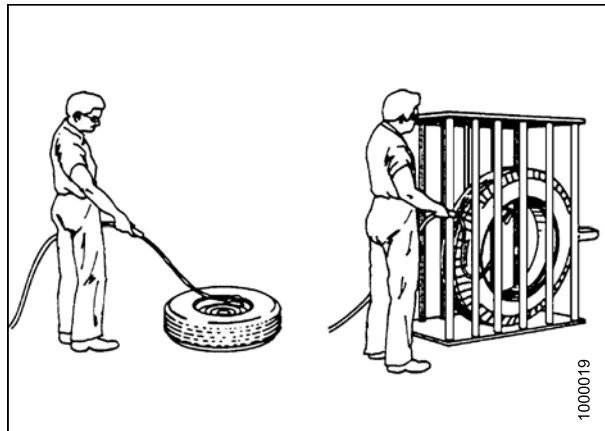


Figure 1.15: Safely Filling a Tire with Air

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.

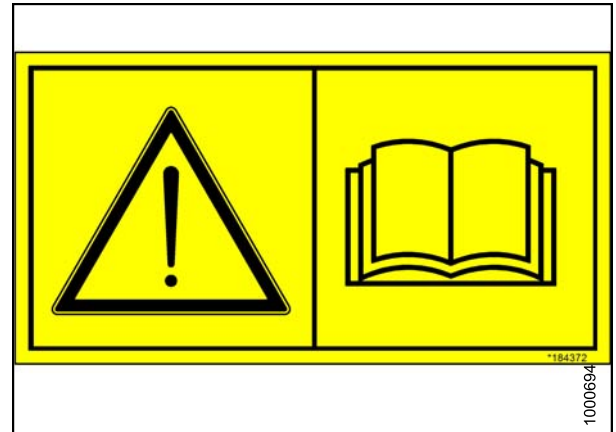


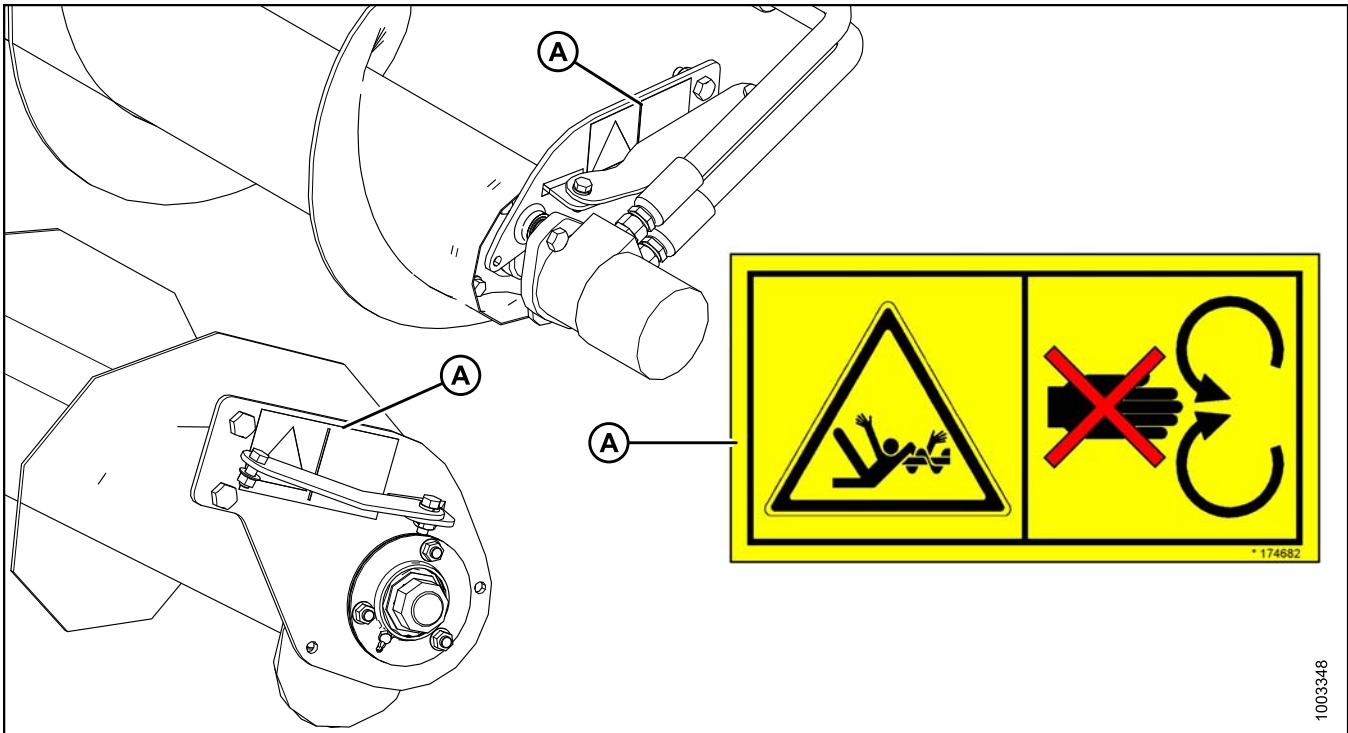
Figure 1.16: Operator's Manual Decal

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.

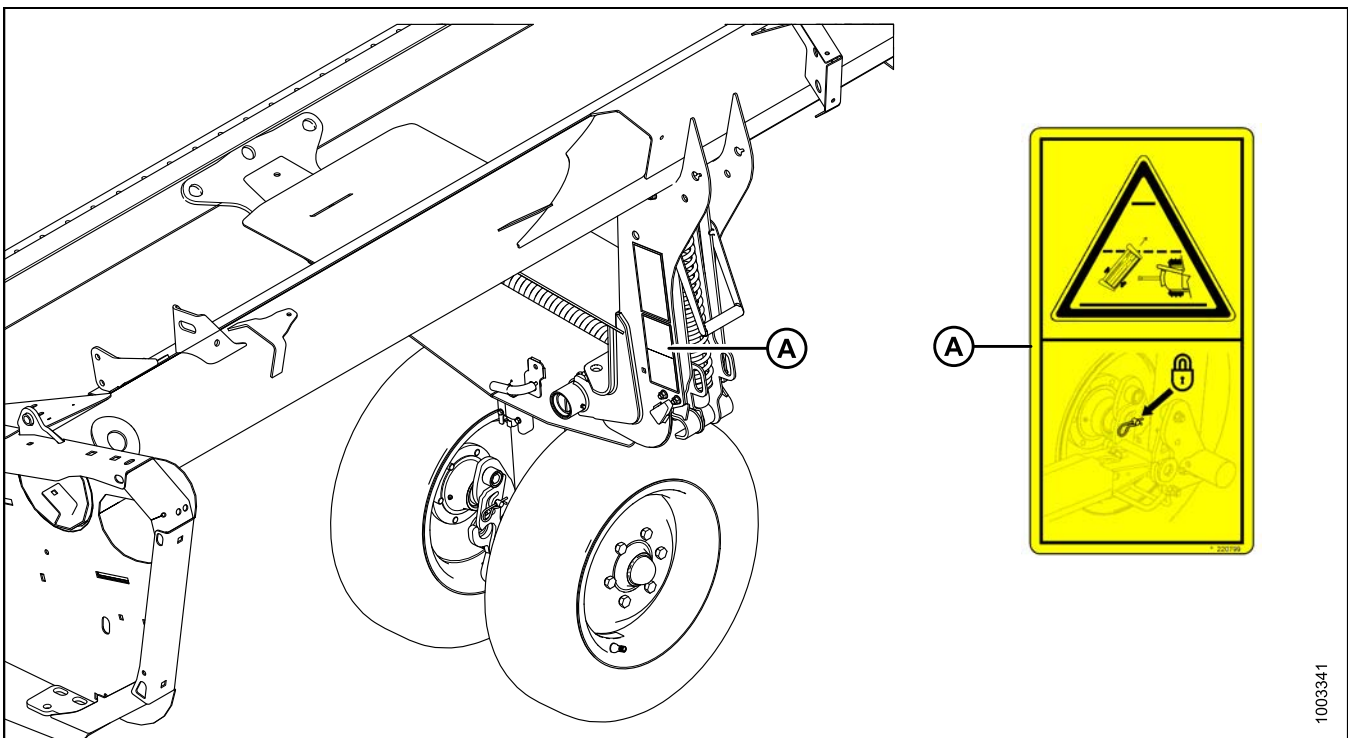
1.8 Safety Decal Locations



1003348

Figure 1.17: Upper Cross Auger

A - MD #174682

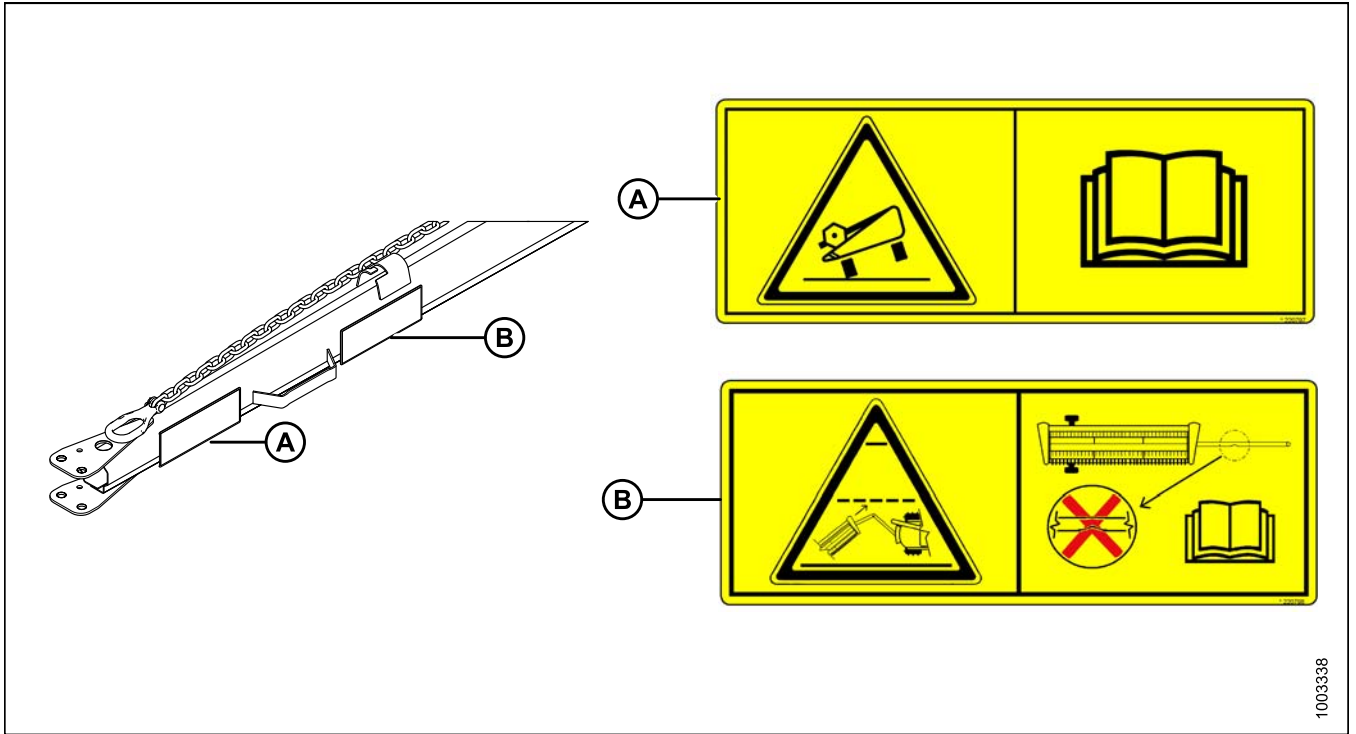


1003341

Figure 1.18: Slow Speed Transport

A - MD #220799

SAFETY

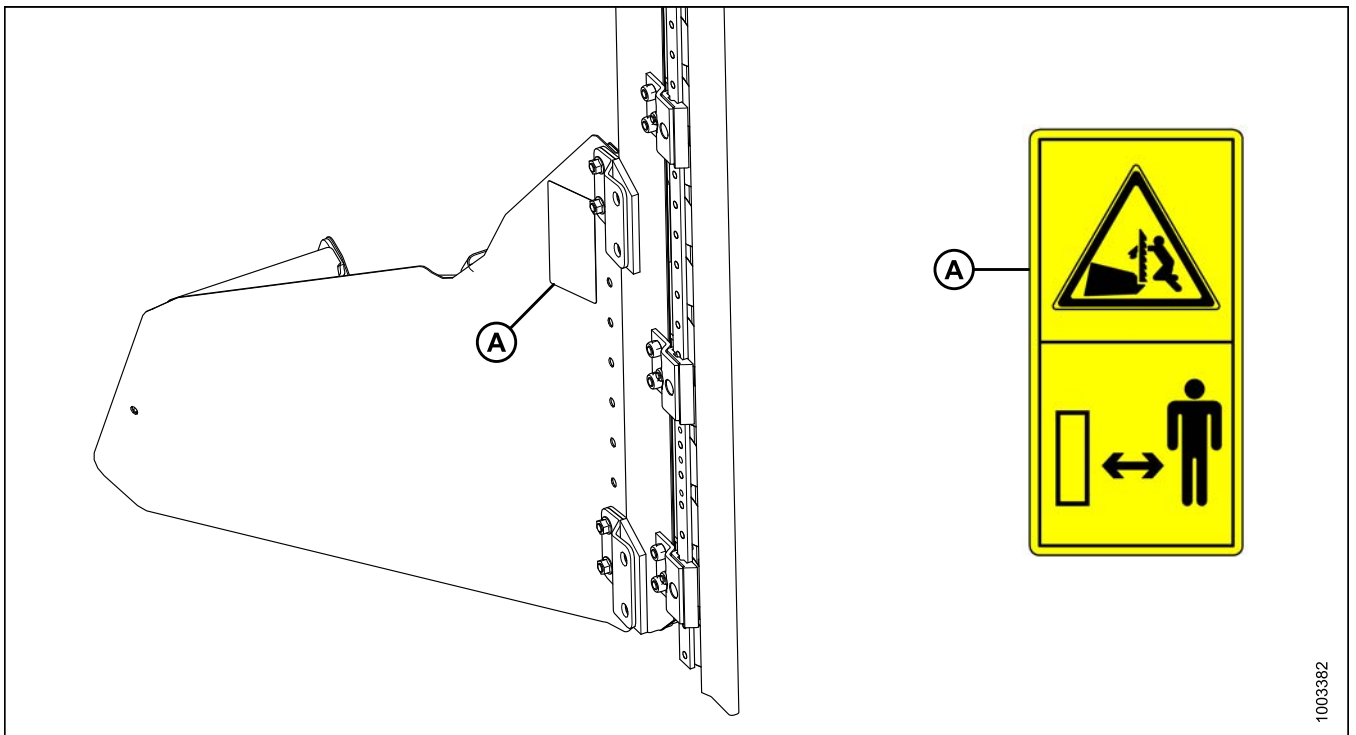


1003338

Figure 1.19: Slow Speed Transport Tow-Bar

A - MD #220797

B - MD #220798

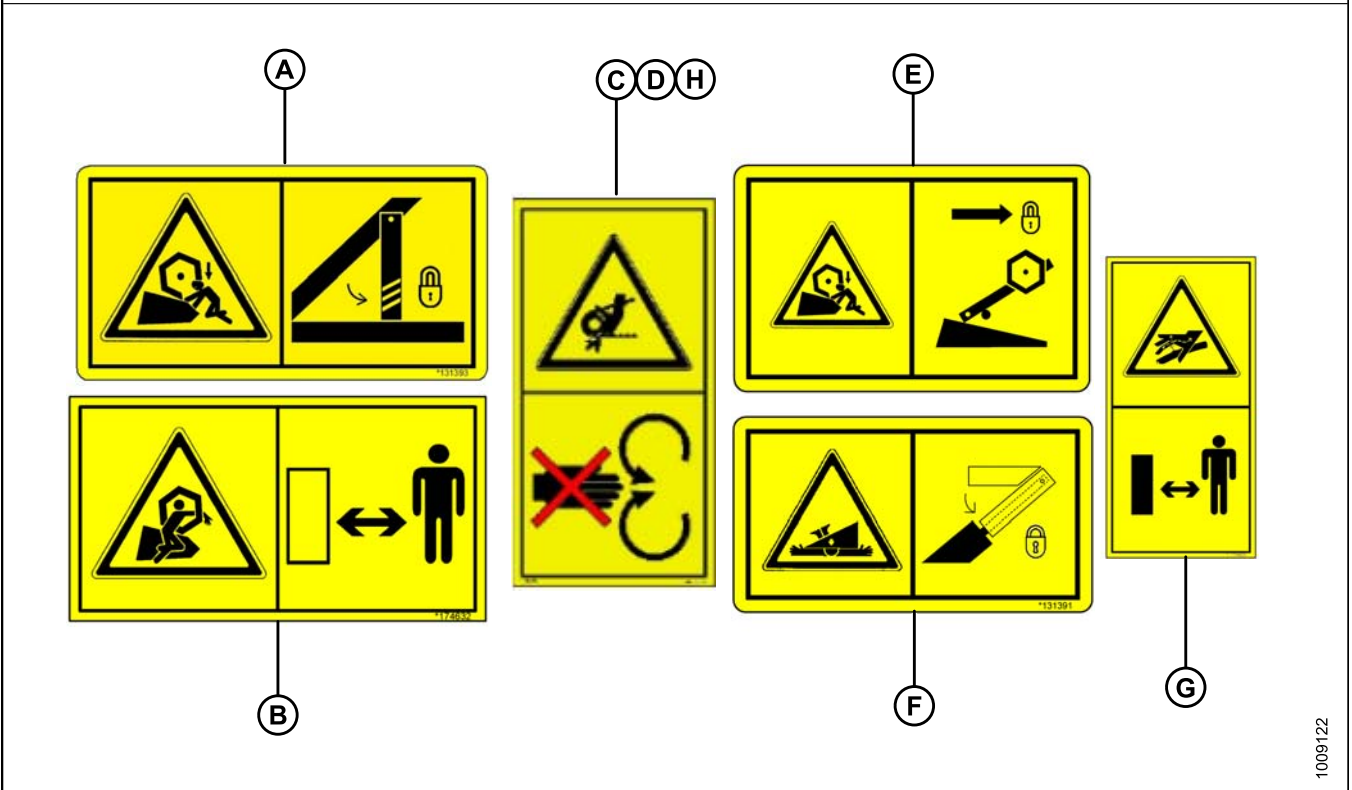
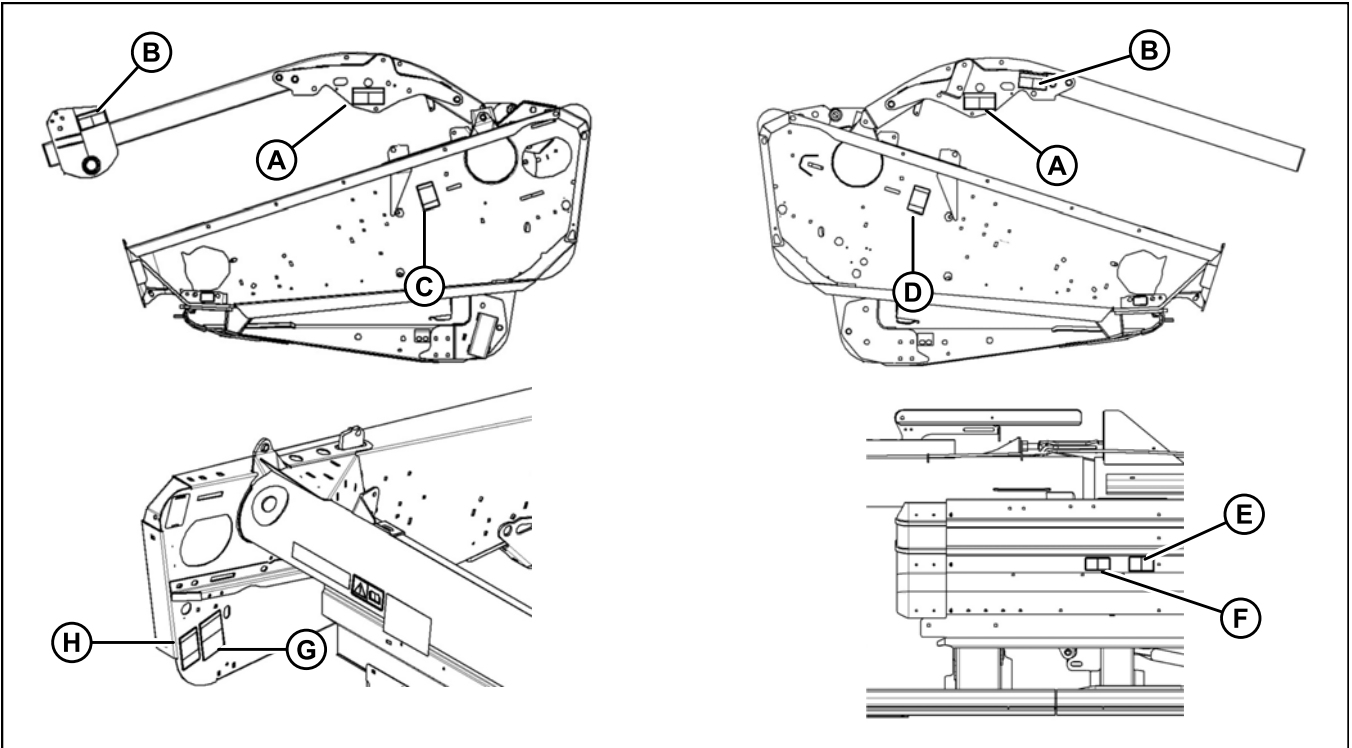


1003382

Figure 1.20: Vertical Knife

A - MD #174684

SAFETY



1009122

Figure 1.21: Endsheets, Reel Arms, Backsheet

A - MD #131393

B - MD #174632

C - MD #184371

D - MD #184371 (DK Only)

E - MD #131392 (2 PLC's)

F - MD #131391 (2 PLC's)

G - MD #174436

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

SAFETY

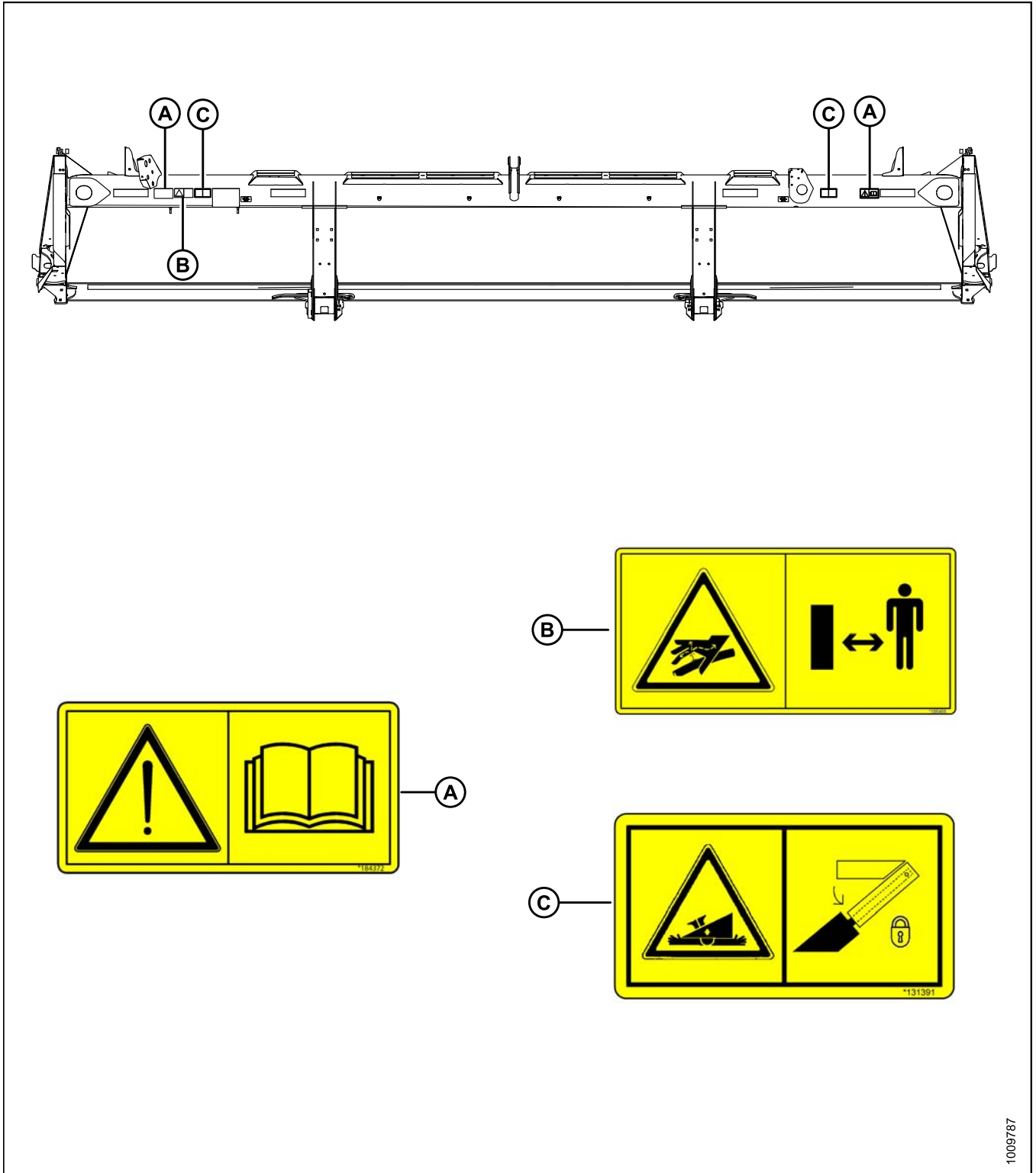


Figure 1.22: Back Tube: 20 Foot Header

A - MD #184372

B - MD #166466

C - MD #131391

SAFETY

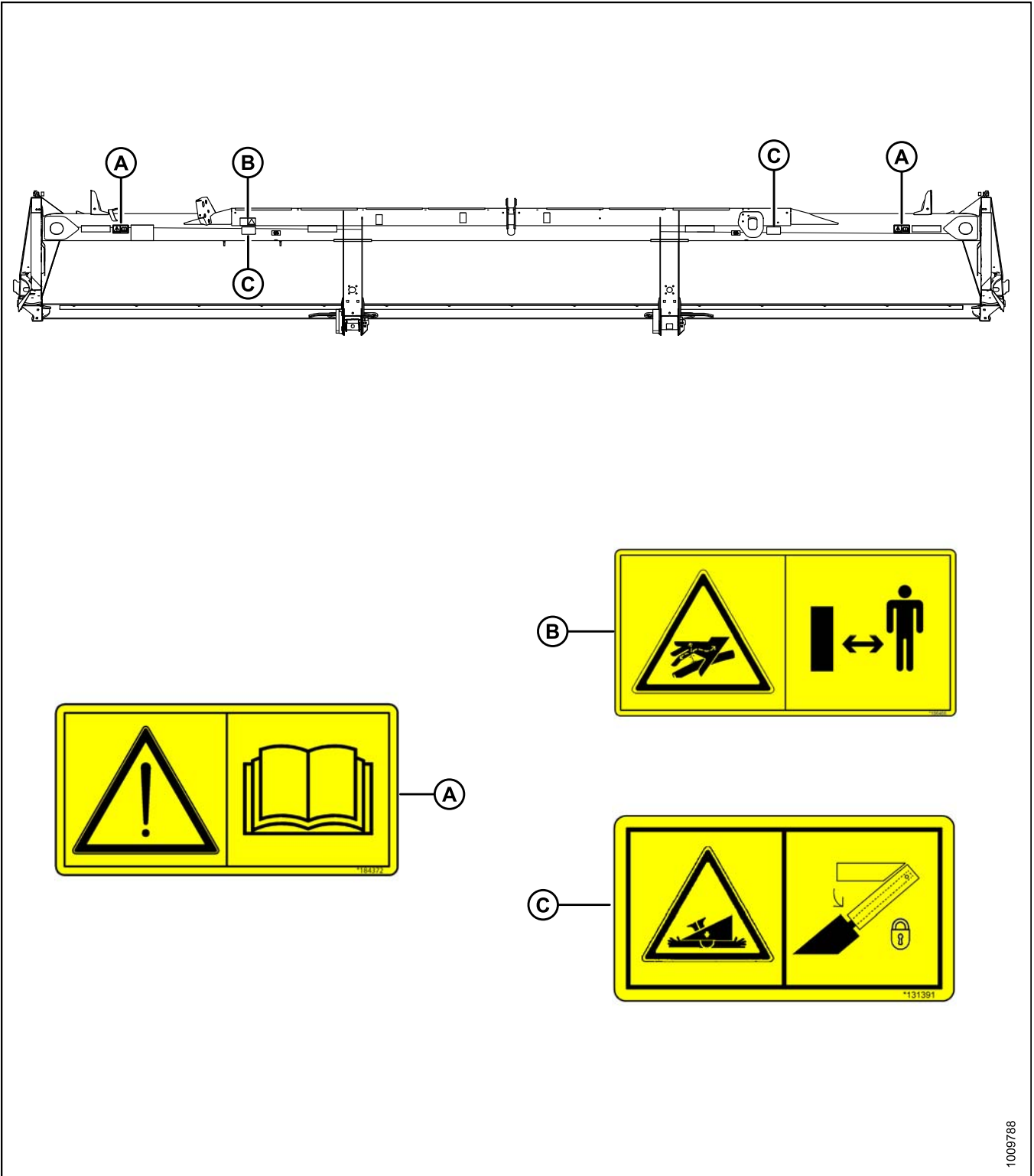


Figure 1.23: Back Tube: 25 Foot Header

A - MD #184372

B - MD #166466

C - MD #131391

SAFETY

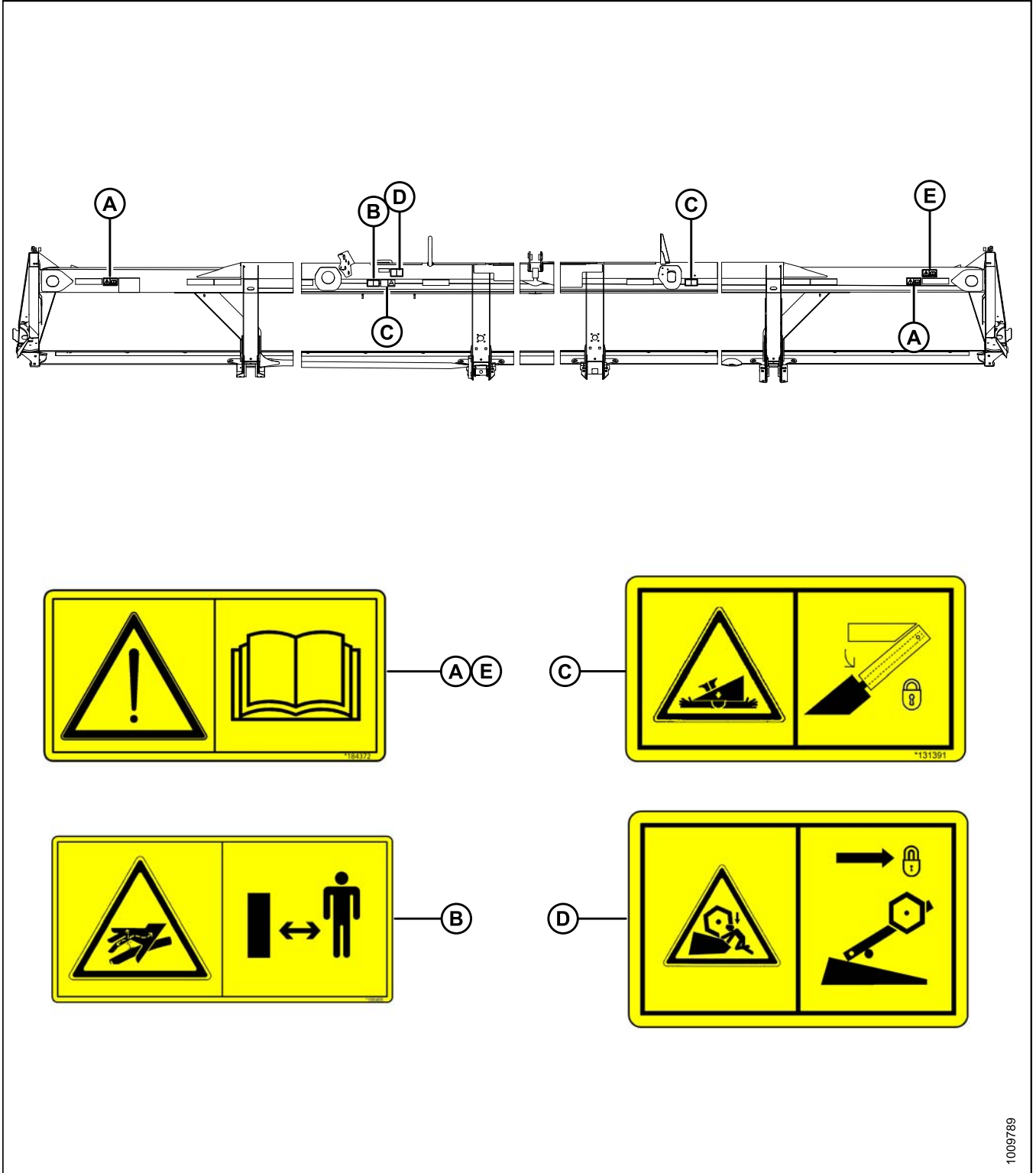


Figure 1.24: Back Tube: 30, 35, 40, 45 Foot Header

A - MD #184372 (except 40 Ft. Split Frame)

B - MD #166466

C - MD #131391

D - MD #131392 (30 & 35 Ft. DR Only)

E - MD #184372 (40 Ft. Split Frame)

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 #113482

- 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 every year.
- Ensure that all safety signs are installed and legible.
- Make certain everyone is clear of machine before starting engine and during operation.
- Keep riders off the machine.
- Keep all shields in place, and stay clear of moving parts.
- Disengage header drive, put transmission in Neutral, and wait for all movement to stop before leaving operator's position.
- Shut down the engine and remove the key from ignition before servicing, adjusting, lubricating, cleaning, or unplugging machine.
- Engage safety props 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.

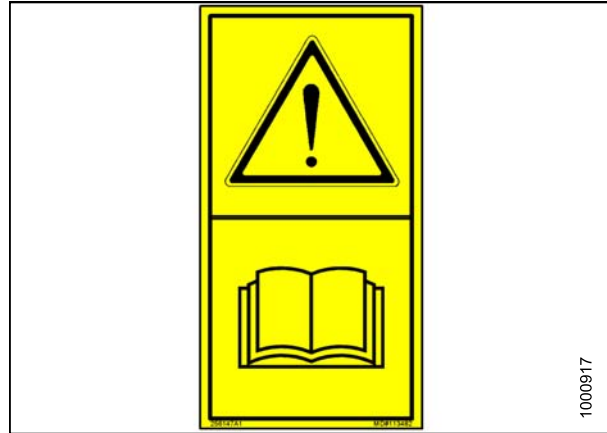


Figure 1.25: MD #113482

SAFETY

2. MD #131391

a. Crushing hazard

b. **DANGER**

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

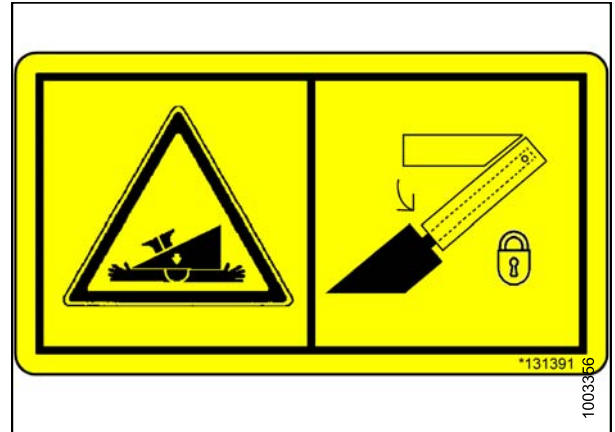


Figure 1.26: MD #131391

3. 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.

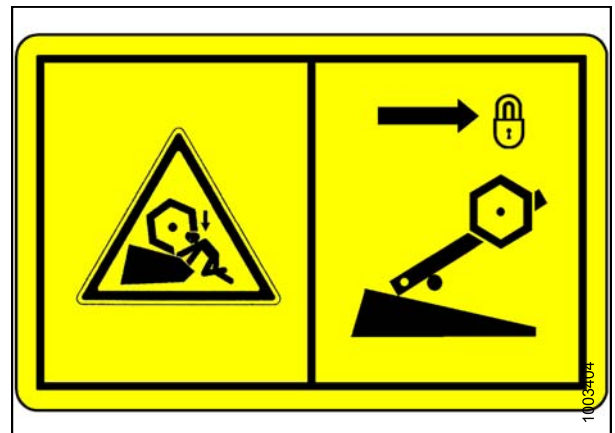


Figure 1.27: MD #131392

4. 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 1.28: MD #131393

SAFETY

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.

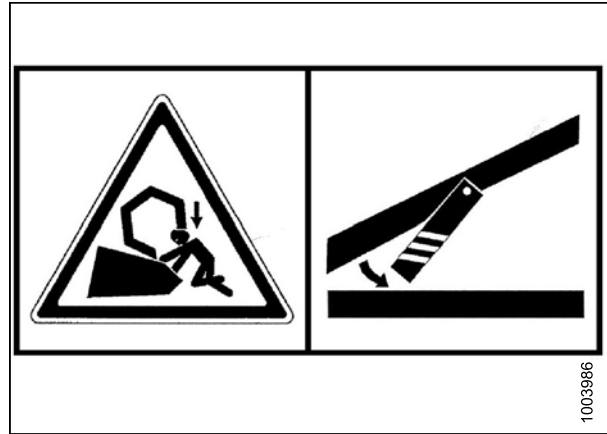


Figure 1.29: MD #174432

6. MD #174434

- a. Header hazard
- b. **DANGER**

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

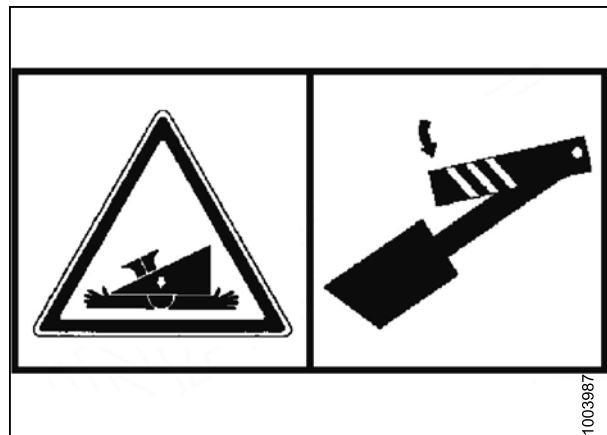


Figure 1.30: MD #174434

7. MD #174436

- a. High pressure oil hazard
- b. **WARNING**

Do not go near leaks

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



Figure 1.31: MD #174436

SAFETY

8. MD #174632

a. Reel entanglement hazard

b. **CAUTION**

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

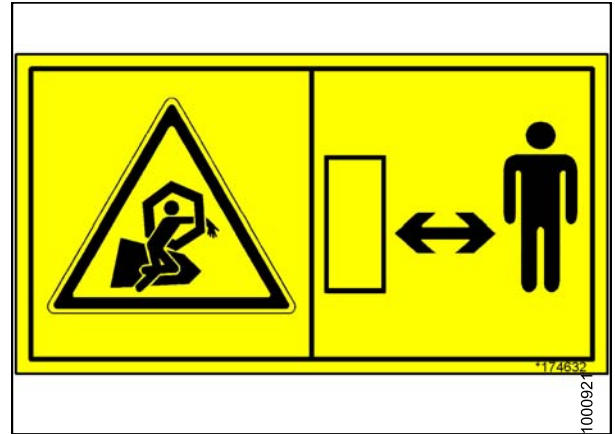


Figure 1.32: MD #174632

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.

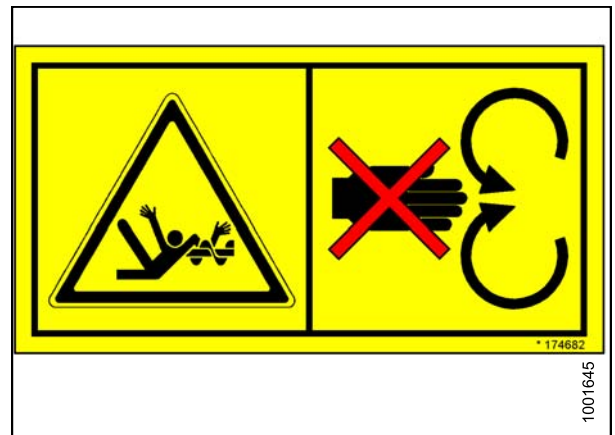


Figure 1.33: MD #174682

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 1.34: 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.

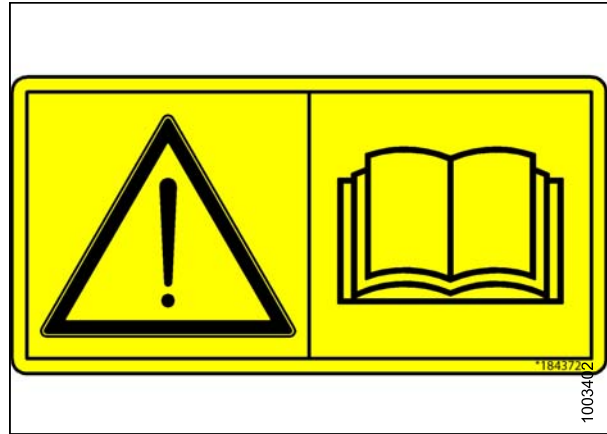


Figure 1.35: MD #184372

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 1.36: MD #184422

SAFETY

13. MD #193147

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

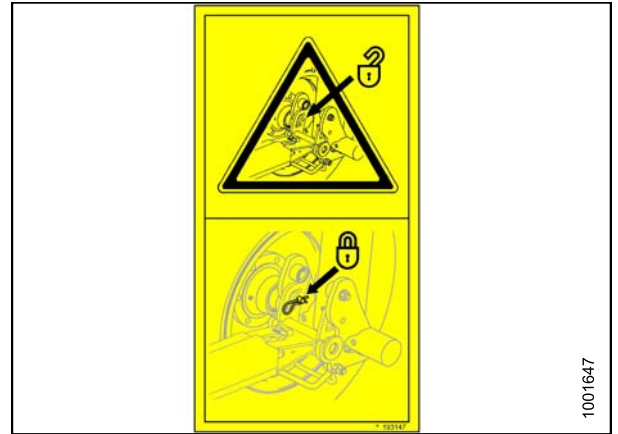


Figure 1.37: MD #193147

14. 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.

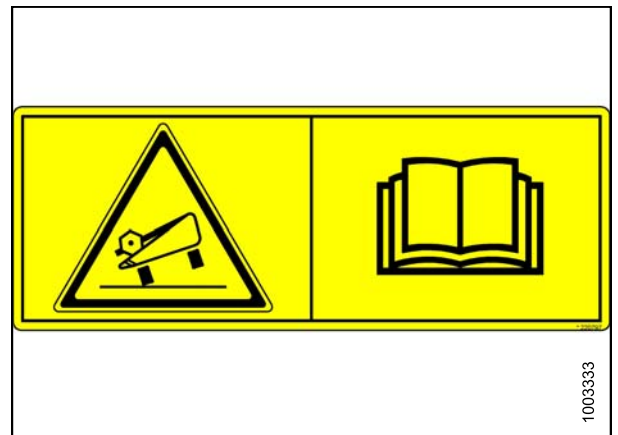


Figure 1.38: MD #220797

15. 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

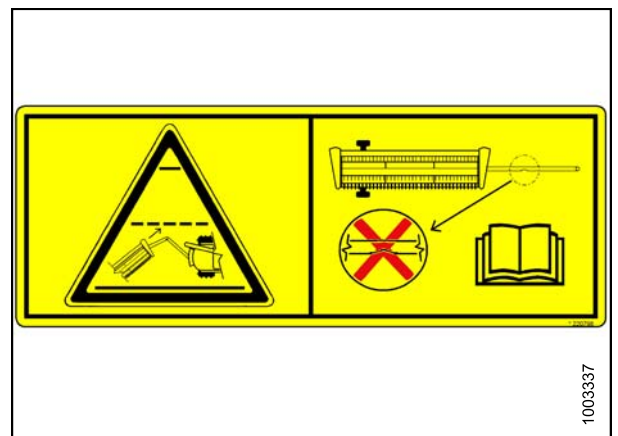


Figure 1.39: MD #220798

SAFETY

16. MD #220799

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

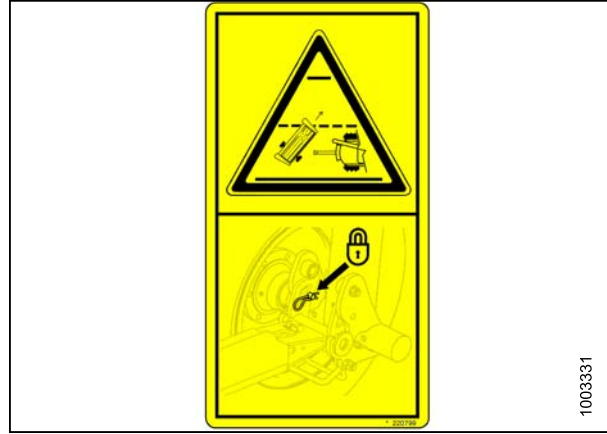


Figure 1.40: MD #220799

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 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-drawer 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 D65 Combine Header

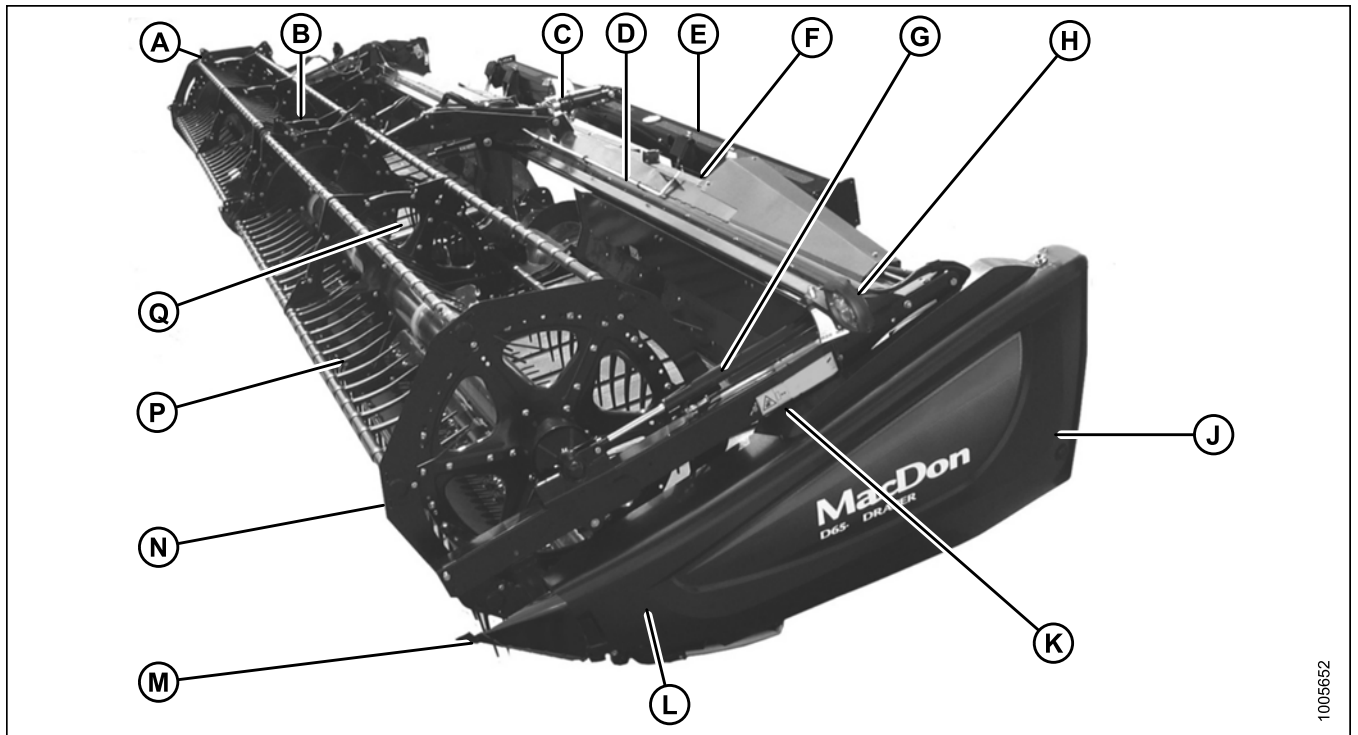


Figure 2.1: D65 Draper Header – Double Reel Shown

- | | | | |
|--------------------------|---------------------------|--|---------------------------------|
| A - Pick-Up Reel | B - Reel Drive And Cam | C - Center-Link | D - Center Reel Arm Prop Handle |
| E - CA25 Combine Adapter | F - Hydraulic Connections | G - Reel Fore-Aft Cylinder | H - Transport Light |
| J - Endshield | K - Reel Lift Cylinder | L - Knife Drive Box (Behind Endshield) | M - Divider Cone |
| N - Reel Endshields | P - Reel Fingers | Q - Transition Pan | |

REFERENCE

2.2.2 CA25 Combine Adapter

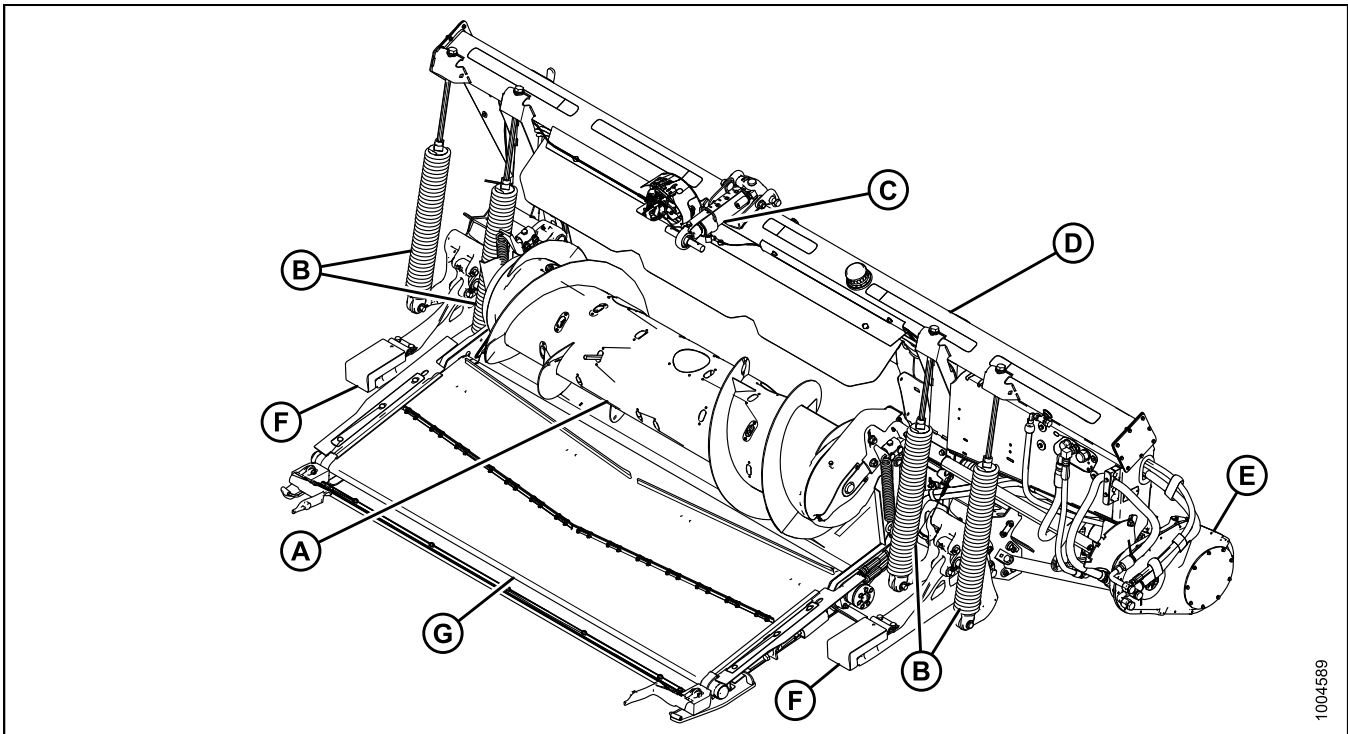


Figure 2.2: Header Side of CA25 Combine Adapter

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

- B - Header Float Springs
- E - Gearbox

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

REFERENCE

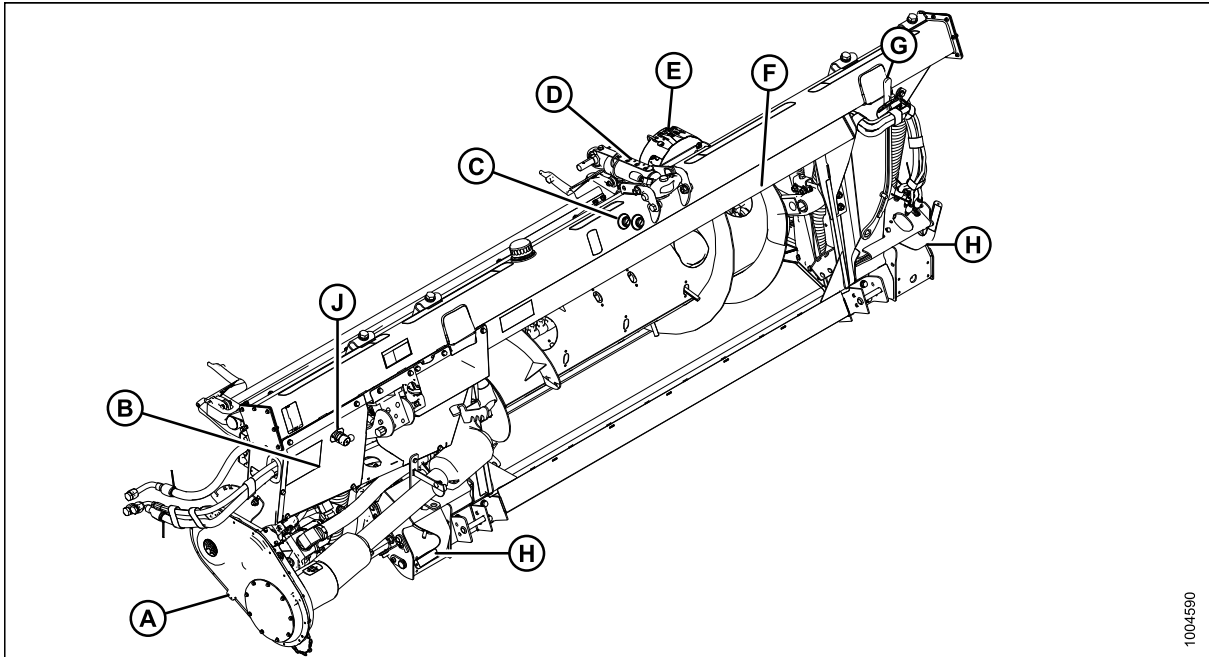


Figure 2.3: Combine Side of CA25 Combine Adapter

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

| D65 | CA25 | Attachments

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

		D65	
CUTTERBAR			
Effective Cutting Width (distance between crop divider points)			
20 ft. header	20.00 ft. (240 in. [6096 mm])	S	
25 ft. header	25.00 ft. (300 in. [7620 mm])	S	
30 ft header	30.00 ft. (360 in. [9144 mm])	S	
35 ft. header	35.00 ft. (420 in. [10668 mm])	S	
40 ft. header	40.00 ft. (480 in. [12192 mm])	S	
45 ft. header	45.00 ft. (540 in. [13716 mm])	S	
Cutterbar Lift Range	Varies With Combine Model		
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 20–35 ft. (timed): One hydraulic motor with two cogged belts to two heavy duty MD knife drive boxes.		O _F	
Double Knife Drive 40, 45 ft. (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/min.)	25 ft.	1200–1450	S
	30 ft.	1200–1400	S
	35 ft.	1100–1300	S
	40 ft.	1050–1200	S
Double Knife Speed (strokes/min.)	20, 25 ft.	1400–1700	S
	30, 35 ft.	1200–1500	S
	40, 45 ft.	1100–1400	S
Knife Sections			
Over-serrated / Solid / Bolted / 9 serrations per inch		O _F	
Over-serrated / Solid / Bolted / 14 serrations per inch		O _F	
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		O _F	
Guard: Pointed / Forged / Case Hardened (CH) Hold-Down: Sheet Metal / Adjustment Bolt		O _F	

SPECIFICATIONS

			D65	
Guard: Stub / Forged bottom / Forged Top / Adjustment Plate			O _F	
Guard: Stub / Forged bottom / Sheet Metal Top / Adjustment Bolt			O _F	
Guard: 4 Point / No-choke Design (2 long points with tangs / 2 short points without tangs)			O _F	
Guard Angle (cutterbar on ground)				
Center-Link Retracted	20, 25 ft.	7.0 Degrees	S	
Center-Link Retracted	30–45 ft.	2.0 Degrees	S	
Center-Link Extended	20, 25 ft.	12.4 Degrees	S	
Center-Link Extended	30–45 ft.	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	
PR15 PICK-UP REEL			S	
Quantity of Tine Tubes		5, 6, or 9		
Center Tube Diameter: all reel sizes except 35 ft. single span		8 in. (203 mm)		
35 ft. Single Span		10 in. (254 mm)		
Finger Tip Radius	Factory assembled	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	S	
Reel Speed (adjustable from cab, varies with combine model)		0–67 rpm	S	
FRAME and STRUCTURE				
Header Width	Field Mode	Cut Width + 15.1 in. (384 mm)	S	
	Transport Mode - reel fore-aft fully retracted, shortest center-link	(B) ¹ Long Dividers Installed	106 in. (2684 mm)	-
		(A) ² Long Dividers Removed	98 in. (2500 mm)	-

1. Refer to Figure 3.1: [Header Width, page 31](#)
2. Refer to Figure 3.1: [Header Width, page 31](#)

SPECIFICATIONS

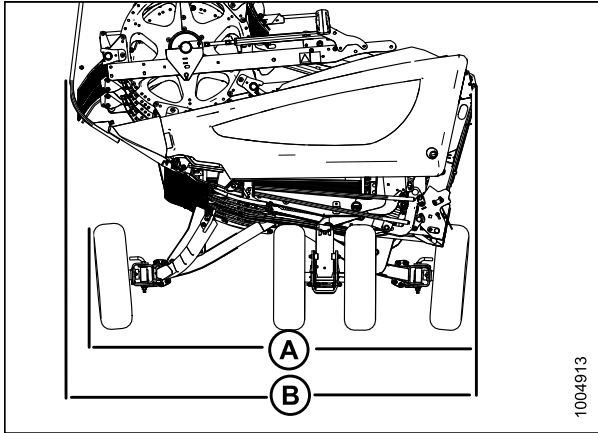


Figure 3.1: Header Width

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 ³	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.		
20 ft. header		3146–3600 lb (1430–1633 kg)
25 ft. header		3547–3872 lb (1605–1753 kg)
30 ft header		4370–4812 lb (1981–2178 kg)
35 ft. header		4808–5337 lb (2181–2480 kg)
40 ft. header	North America Frame	5197–5704 lb (235 –2593 kg)
	Export Frame	5437 lb (2461 kg)
45 ft. header (Combine Only)	North America Frame	5990 lb (2711 kg)
	Export Frame	5990 lb (2711 kg)

3. 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.

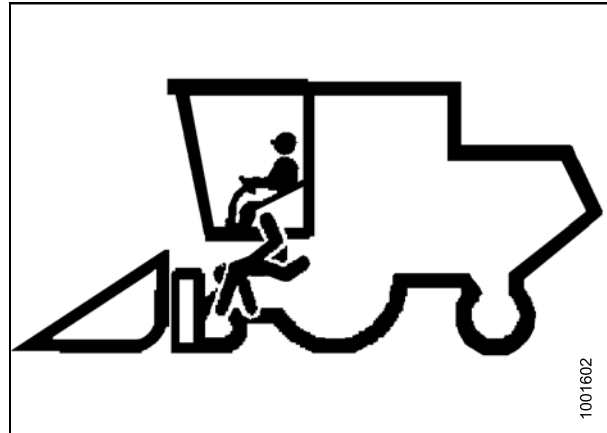


Figure 4.1: No Riders

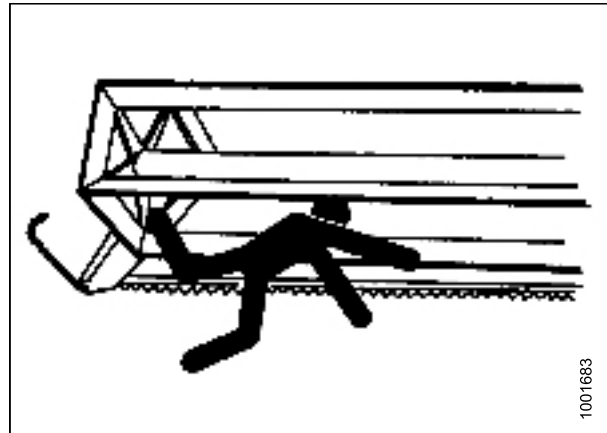


Figure 4.2: Bystander Safety

⚠ 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

⚠ 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.

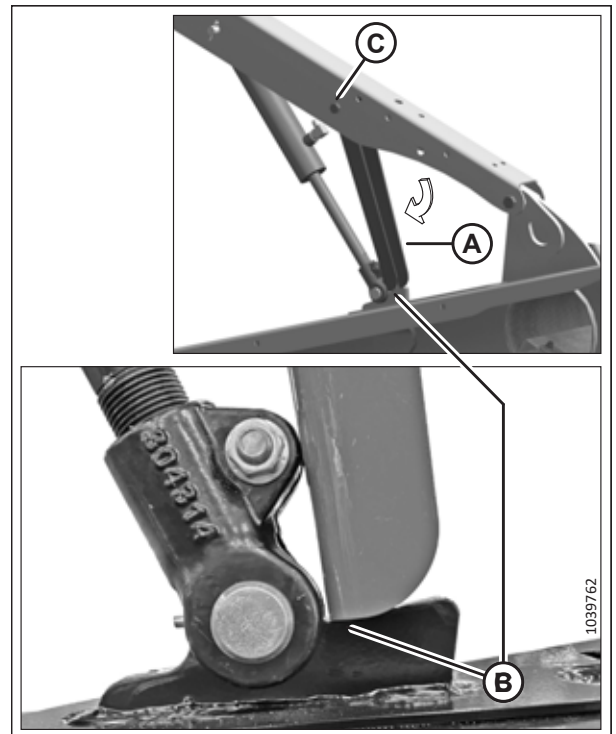


Figure 4.3: Reel Arm Safety Prop

THE CONTENT ON THIS PAGE HAS CHANGED SINCE THIS MANUAL (169903 REVISION A) WAS PUBLISHED.

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.

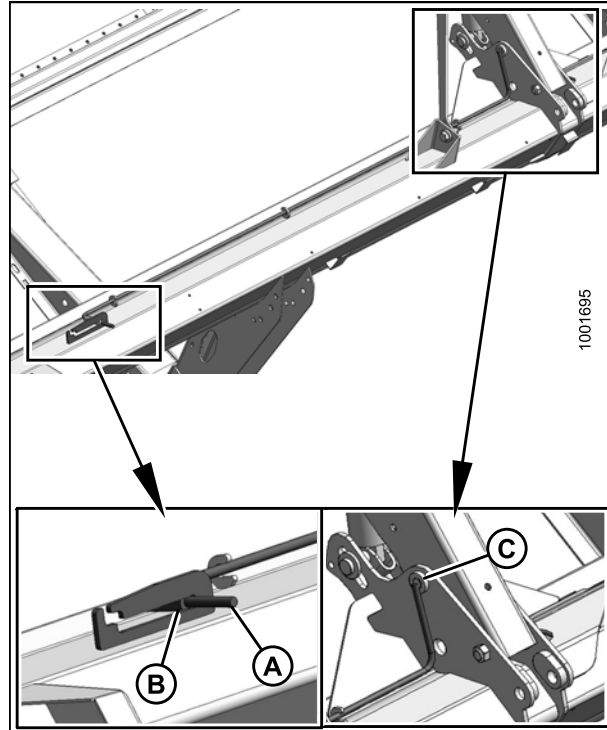


Figure 4.4: Center Arm Reel Prop

Disengaging Reel Safety Props

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

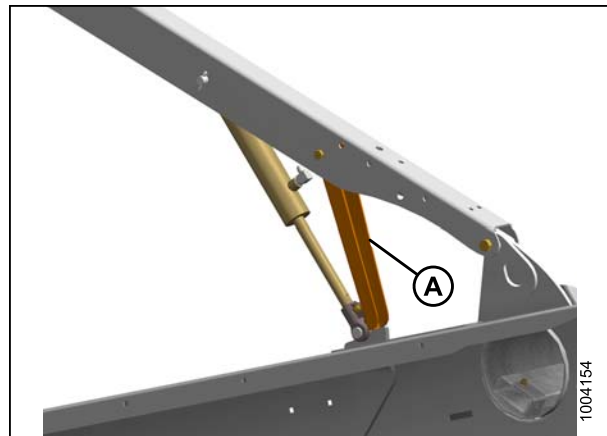


Figure 4.5: Reel Arm Safety Prop

OPERATION

3. Use handle (B) on double reel headers to move lock rod (A) to outboard position.

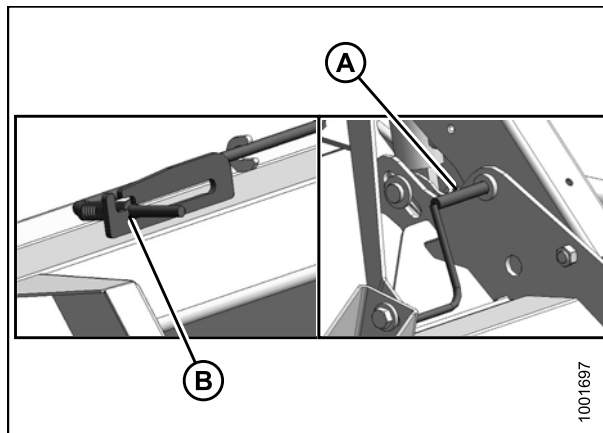


Figure 4.6: Center Arm Safety Prop

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.

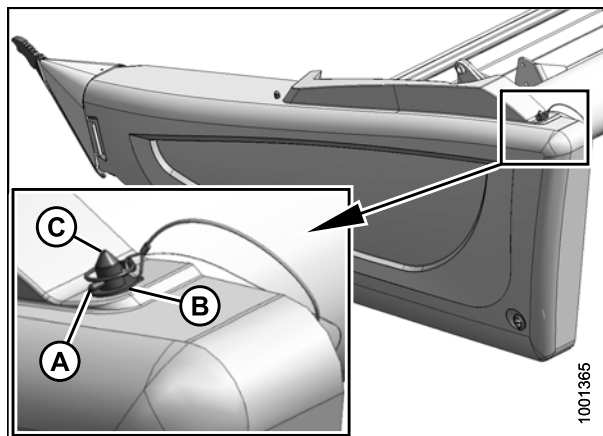


Figure 4.7: Endshield

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 39.

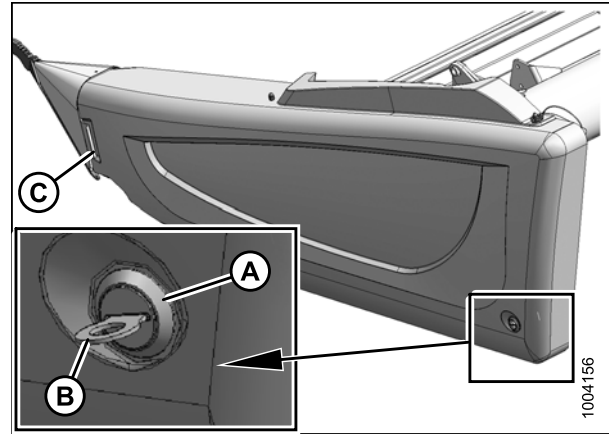


Figure 4.8: Endshield

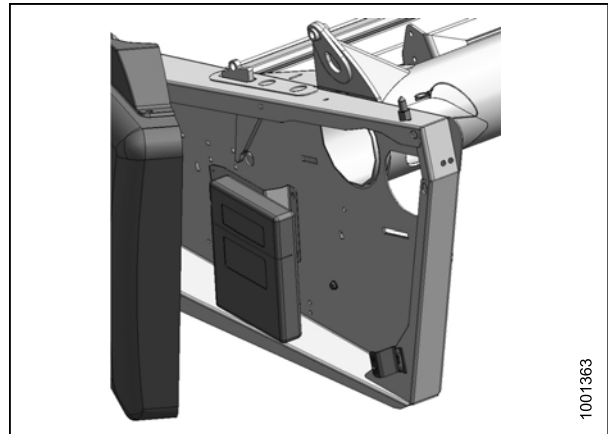


Figure 4.9: Endshield Open

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.

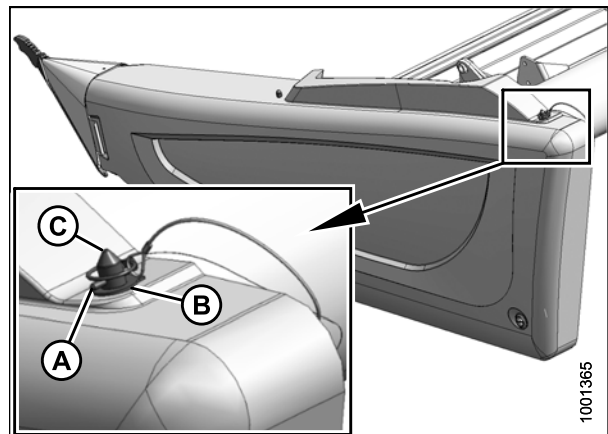


Figure 4.10: Endshield

OPERATION

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

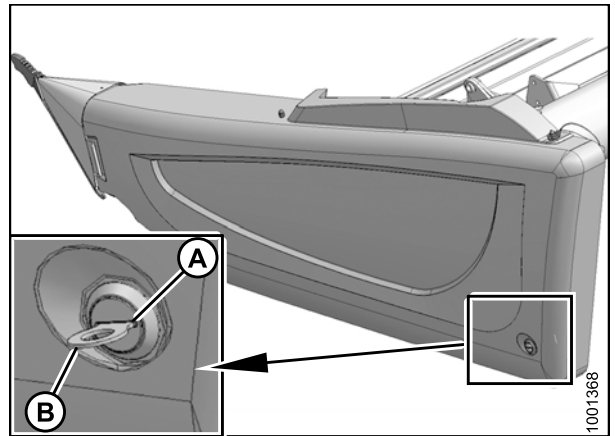


Figure 4.11: Endshield

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

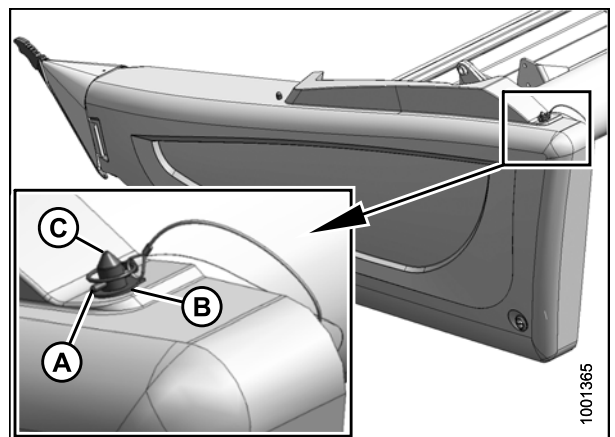


Figure 4.12: Endshield Pin

Removing Endshields

To remove an endshield, follow these steps:

1. Open endshield. Refer to [Opening Endshields, page 37](#).
2. Remove acorn nut (A) that secures the endshield to support (B).
3. Lift endshield off support (B).

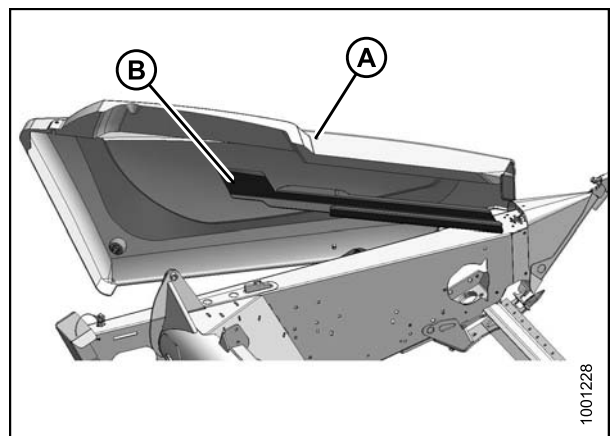


Figure 4.13: Endshield

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.

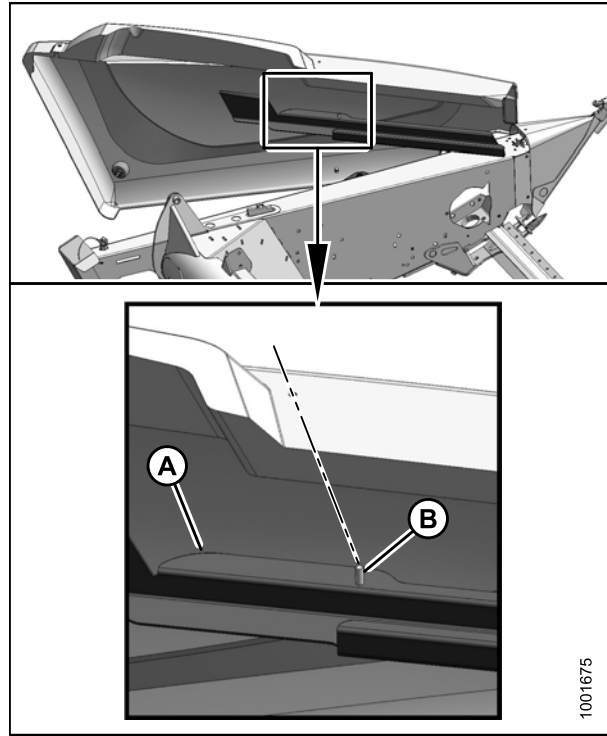


Figure 4.14: Endshield

2. Secure endshield to the support with acorn nut (A).
3. Close endshield. Refer to [Closing Endshields, page 38](#).

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 41](#).

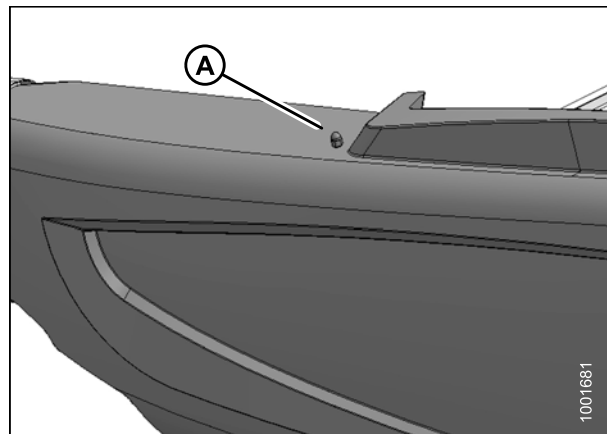


Figure 4.15: Endshield

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

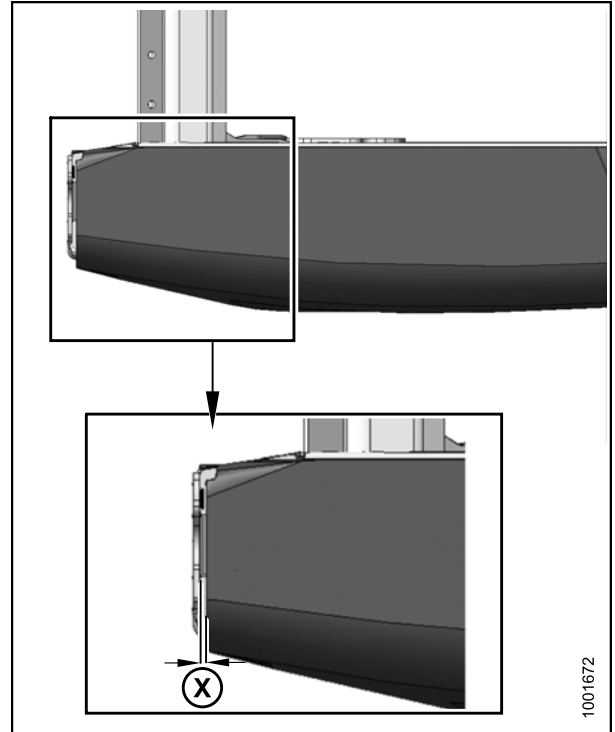


Figure 4.16: Endshield

If adjustments are required, proceed as follows:

2. Open endshield. Refer to [Opening Endshields, page 37](#).
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 38](#).

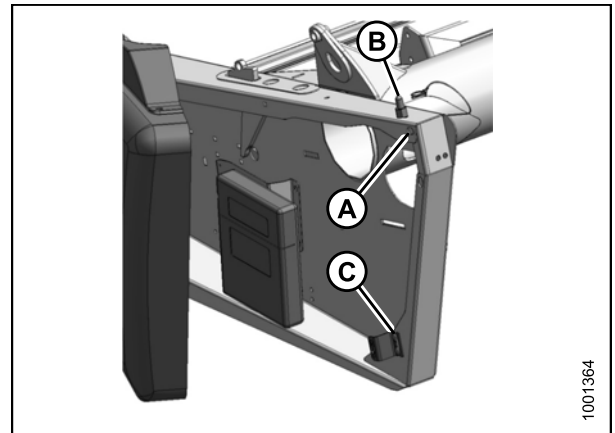


Figure 4.17: Adjustments

4.2.4 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.

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 [6.3.5 Checking Hydraulic Hoses and Lines, page 273](#).

2. Clean all lights and reflective surfaces on the machine.
3. Perform all daily maintenance. Refer to [6.3.1 Maintenance Schedule/Record, page 269](#).

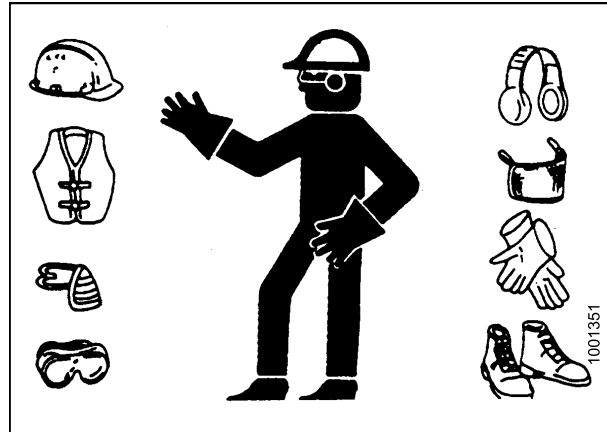


Figure 4.18: Safety Devices

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 271](#).



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.

Refer to 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 D65header are available as options that can be installed at your MacDon dealer. Refer to [8 Options and Attachments, page 445](#) in this manual for a description of each item.

OPERATION

4.6.2 Header Settings

This table is a guideline for setting up the D65 Harvest Header®. Settings other than those suggested can be made to suit various crops and conditions not covered here. This chart is included in the Quick Card supplied with your header.

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)	Reel/Cam Setting	Reel Speed % (Note 3)	Reel Position	Skid 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		Not Required	
		Lodged	Off	7		5257600	3 or 4	5710				4 or 5		Not Required	
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	Center or Down
		Lodged			7										
	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										
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?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		
	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		
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		
	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		
Soybeans	Light	On	8	D	6007650	2	5710	6 or 7	Up or Center	Storage	Not Required				
	Normal		7	B - C	5507600		10								
	Heavy		7	D	5257600		5710								
	Lodged		7	D	5257600		5710								
Flax	Light	On	8	B - C	6007650	2	5710	6 or 7	Center or Down	Note 5	Not Required				
	Normal		7	A			10								
	Heavy		7	B - C			5710								
	Lodged		7	D											
Peas	Light	On	7	B - C	6007650	2	5710	6 or 7	Up or Center	Storage	Recommended				
	Normal				5507600		10								
	Heavy				5257600		5710								
	Lodged				5257600		5710								
Lentils	Light	On	8	B - C	6007650	2	5710	6 or 7	Up or Center	Storage	Not Required				
	Normal		7		5507600		10								
	Heavy		7		5257600		5710								
	Lodged		7		D		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 D65 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 Options and Attachments, page 445](#).

- 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 on Double Reel, page 160](#). [Repositioning Fore-Aft Cylinders on Single Reel, page 157](#).
- Adjusting reel fore-aft position. Refer to [Adjusting Reel Fore-Aft Position, page 157](#).
- Adjusting reel height so that fingers just engage the crop. Refer to [4.7.9 Reel Height, page 156](#).
- Setting reel cam to position 1. Refer to [Adjusting Reel Cam, page 167](#).
- Setting reel speed equal to ground speed and increase as required. Refer to [4.7.5 Reel Speed, page 150](#).
- 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 152](#).

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.

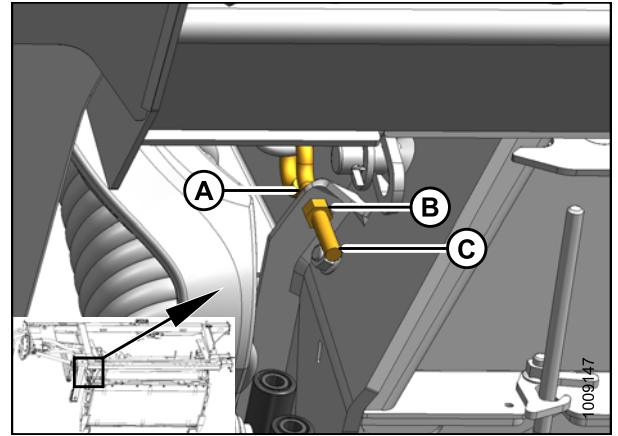
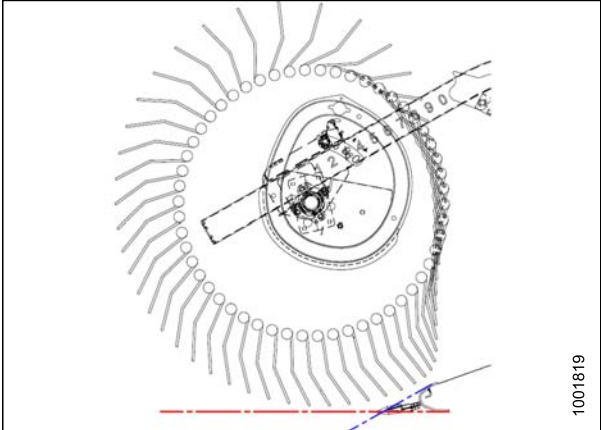
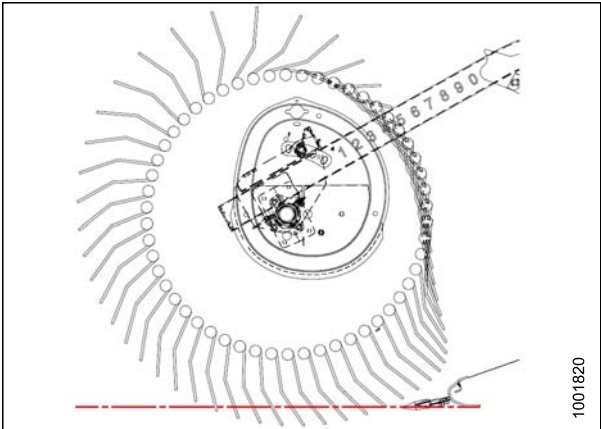


Figure 4.19: Tensioner

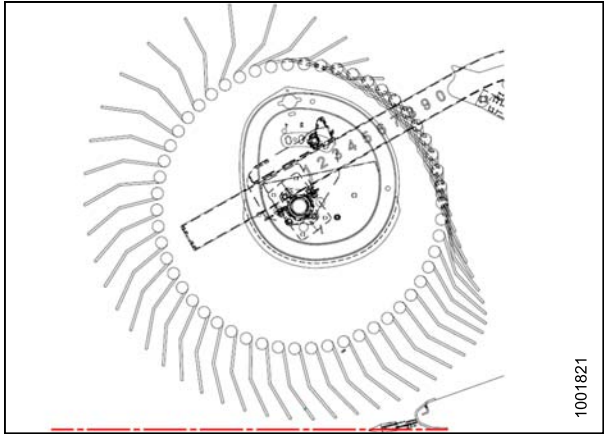
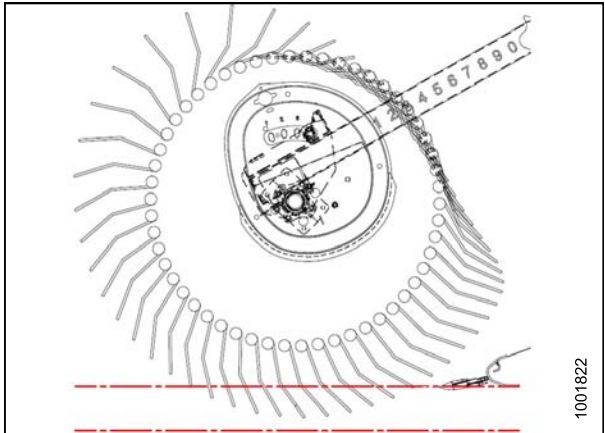
OPERATION

4.6.4 Reel Settings

Table 4.2 D65 Reel Settings Chart

Cam Setting Number (Finger Speed Gain)	Reel Position Number	Reel Finger Pattern
1 (0)	6 or 7	
2 (20%)	3 or 4	

OPERATION

Cam Setting Number (Finger Speed Gain)	Reel Position Number	Reel Finger Pattern
3 (30%)	6 or 7	
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 52
Header float	4.7.3 Header Float, page 143
Header angle	4.7.4 Header Angle, page 149
Reel speed	4.7.5 Reel Speed, page 150
Ground speed	4.7.6 Ground Speed, page 151
Draper speed	4.7.7 Draper Speed, page 152
Knife speed	4.7.8 Knife Speed, page 154
Reel height	4.7.9 Reel Height, page 156
Reel fore-aft position	4.7.10 Reel Fore-Aft Position, page 156
Reel tine pitch	4.7.12 Reel Tine Pitch, page 165
Crop divider rods	4.7.14 Crop Divider Rods, page 172

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.

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

If stabilizer wheels are installed, refer to [Adjusting Stabilizer Wheels, page 55](#) to change the wheel position.

If stabilizer/slow speed transport wheels are installed, refer to [Adjusting Stabilizer/Slow Speed Transport Wheels, page 53](#) 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. Check that the float is working properly. Refer to [Checking and Adjusting Header Float, page 144](#).

3. On the right wheel assembly, remove hairpin (A) from latch.

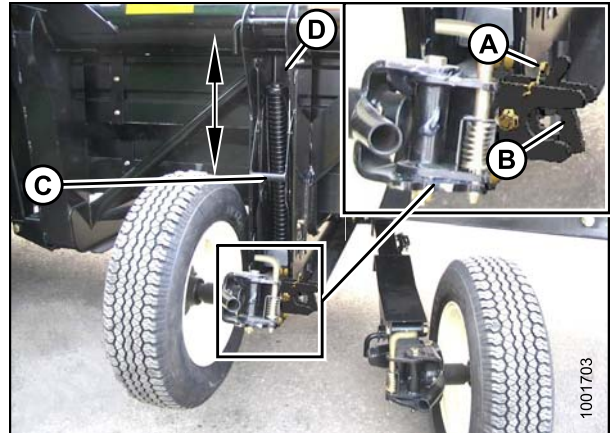


Figure 4.20: Right Wheel

4. 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.

5. Support left wheel weight by lifting slightly with one hand. Pull up on handle (C) to release lock.

6. Lift left wheel to desired height and engage support channel into slot (D) in upper support.

7. Push down on handle (C) to lock.

8. Lift right wheel back into field position and ensure latch (B) is engaged.

9. Secure latch with hairpin (A).

10. Support the left wheel assembly's wheel weight by lifting slightly with one hand. Pull up on handle (A) to release lock.

11. Lift wheels to desired height and engage support channel into slot (B) in upper support.

12. Push down on handle (A) to lock.

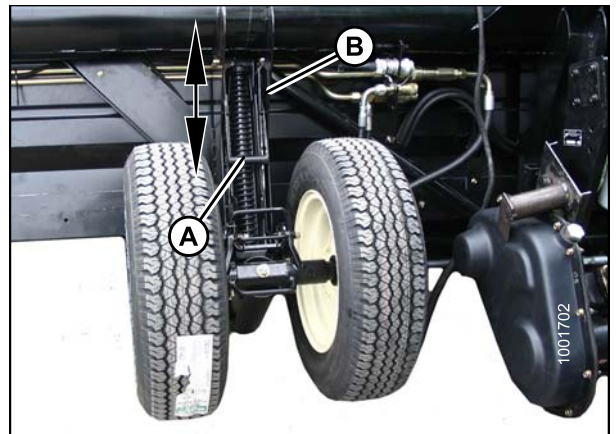


Figure 4.21: Left Wheel

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.

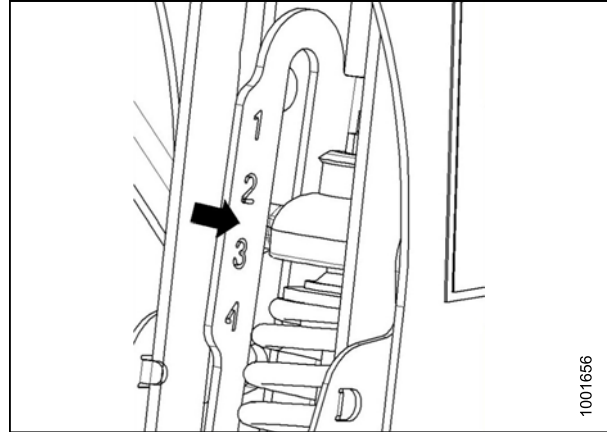


Figure 4.22: Load Indicator

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 58](#) 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.

NOTE:

Header angle adjustments or AHHC ground pressure control may be used for 'on-the-go' cutting height adjustments.

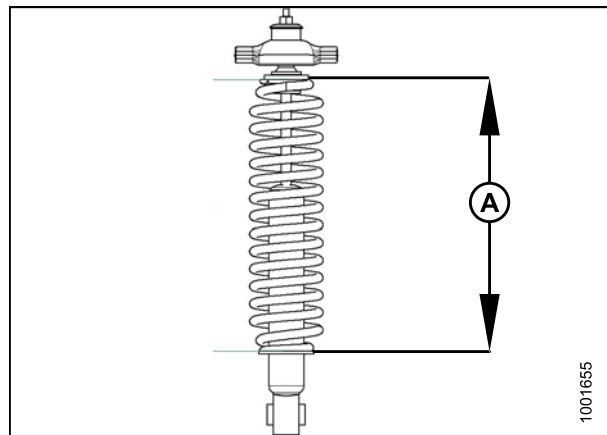


Figure 4.23: Spring Compression

OPERATION

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.

1. Raise the header so that the stabilizer wheels are off the ground. Shut down engine and remove the key.
2. Check that the float is working properly. Refer to [4.7.3 Header Float, page 143](#).

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.

3. Support wheel weight by lifting slightly with one hand on handle (B). Pull up on handle (A) to release lock.
4. Lift wheel with handle (B) and engage support channel into center slot (C) in upper support.
5. Push down on handle (A) to lock.

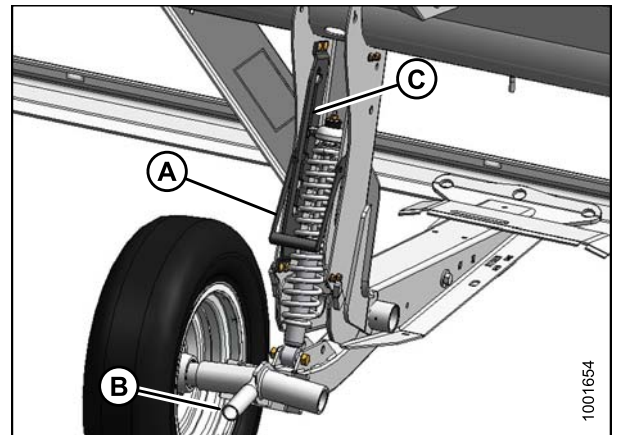


Figure 4.24: Stabilizer Wheel

6. 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.

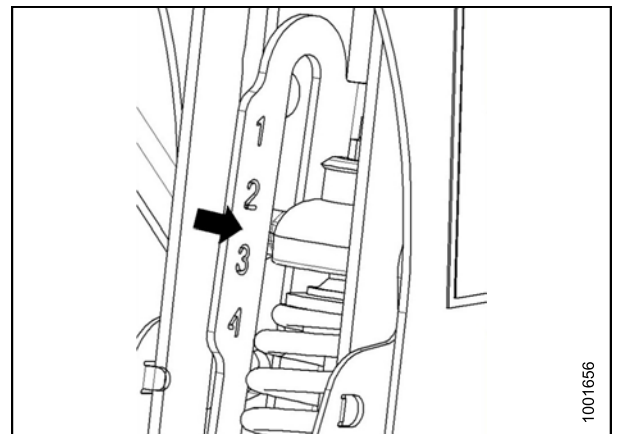


Figure 4.25: Load Indicator

OPERATION

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.

- 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 58](#) and your combine operator's manual for details.

NOTE:

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

NOTE:

Header angle adjustments or AHHC ground pressure control may be used for 'on-the-go' cutting height adjustments.

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 knife and knife 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 knife 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, and other variations in ground contour instead of pushing the cutterbar into the ground or leaving uncut crop.

Adjusting Inner Skid Shoe

- Fully raise the stabilizer wheels or slow speed transport wheels (if installed). Refer to:
 - [Adjusting Stabilizer Wheels, page 55](#), or
 - [Adjusting Stabilizer/Slow Speed Transport Wheels, page 53](#)

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.

- Fully raise header, engage safety props, shut off engine, and remove key.

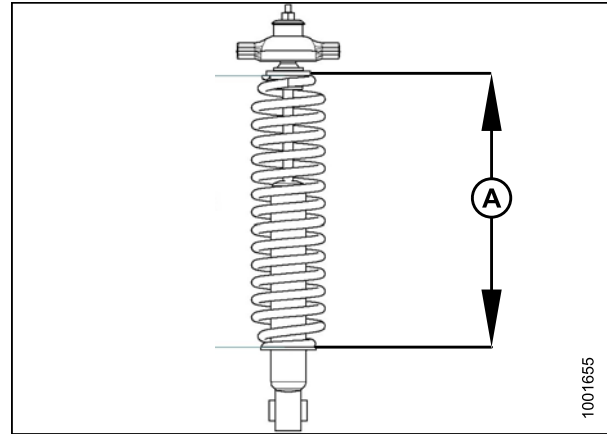


Figure 4.26: Spring Compression

OPERATION

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.

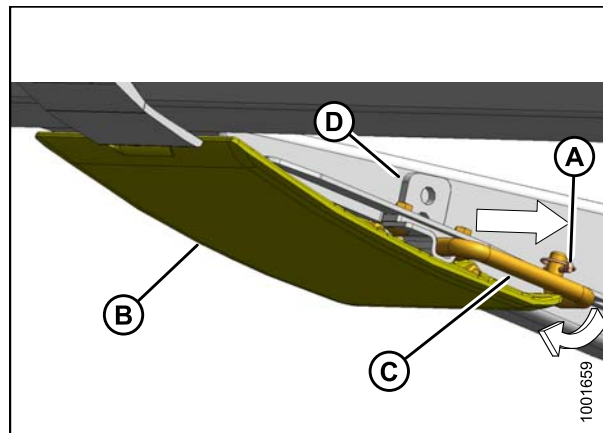


Figure 4.27: Inner Skid Shoe

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 143](#).

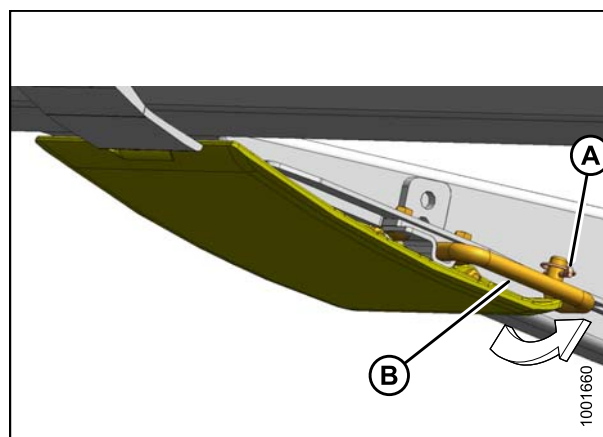


Figure 4.28: Inner Skid Shoe

Adjusting Outer Skid Shoe

1. Fully raise the stabilizer wheels or slow speed transport wheels if installed. Refer to:
 - [Adjusting Stabilizer Wheels, page 55](#) or
 - [Adjusting Stabilizer/Slow Speed Transport Wheels, page 53](#)



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.

OPERATION

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 144](#).

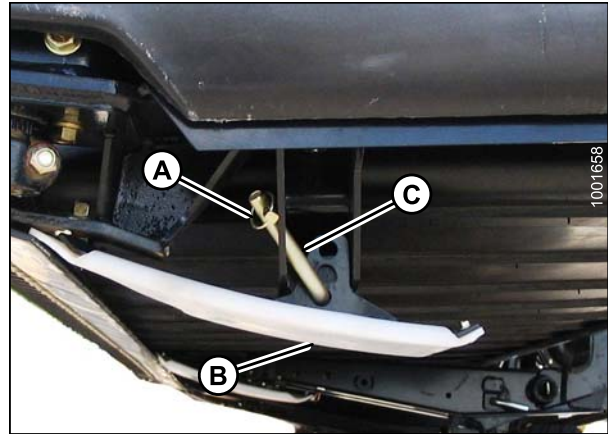


Figure 4.29: Outer Skid Shoe

4.7.2 Auto Header Height Control

MacDon's Auto Header Height Control (AHHC) feature works in conjunction with the AHHC 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 allowing it to maintain a consistent cutting height and an optimum adapter float as the header follows ground contours.

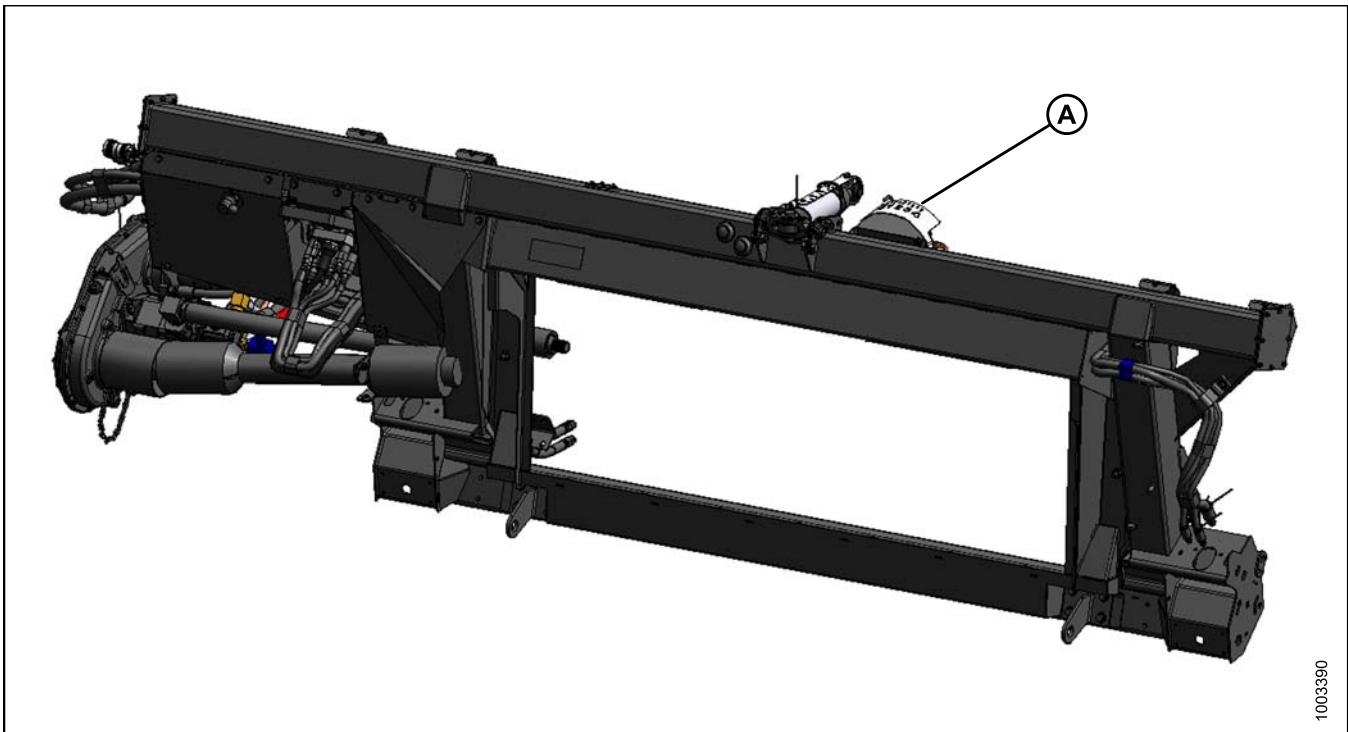


Figure 4.30: CA25 Combine Adapter

CA25 Combine Adapters are factory-equipped for AHHC; however, before using the AHHC feature, you must do the following:

1. Ensure that the AHHC sensor's output voltage range is appropriate for the combine.

OPERATION

For more information, refer to [Height Sensor Output Voltage Range – Combine Requirements, page 59](#).

2. Prepare the combine to use the AHHC feature (applies only to some combine models—refer to the instructions for your combine).
3. Calibrate the AHHC system so that the combine can correctly interpret data from the height sensor on the combine adapter (refer to the instructions for your combine).

NOTE:

Once calibration is complete, you are ready to use the AHHC feature in the field. For each combine, certain operation settings can be used to improve the performance of the AHHC 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. Completion packages come with instructions for installing the AHHC sensor on the combine adapter.

Refer to the following instructions for your specific combine model:

- [AGCO 6 and 7 Series Combines, page 63](#)
- [Case IH 2300/2500 and 5088/6088/7088 Combines, page 70](#)
- [Case IH 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines, page 74](#)
- [Gleaner R62/R72 Combines, page 81](#)
- [Gleaner R65/R75 Combines, page 85](#)
- [John Deere 50 Series Combines, page 95](#)
- [John Deere 60 Series Combines, page 98](#)
- [John Deere 70 Series Combines, page 104](#)
- [John Deere S Series Combines, page 110](#)
- [Lexion 500 Series Combines, page 118](#)
- [Lexion 700 Series Combines, page 128](#)
- [New Holland Combines, page 134](#)

Height Sensor Output Voltage Range – Combine Requirements

The Auto Header Height Control sensor output must be within a specific voltage range for each combine, or the Auto Header Height Control 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 5088/6088/7088, 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230	0.5 V	4.5 V	2.0 V
Case IH 2300/2500	2.8 V	7.2 V	4.0 V

OPERATION

Combine	Low Voltage Limit	High Voltage Limit	Range (Difference between High and Low Limits)
Gleaner R and S Series	1.0 V	4.0 V	2.0 V
John Deere 50, 60, 70, and 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
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 60 .			

Manually Checking Voltage Range

You can manually check the output voltage range of the Auto Header Height Control (AHHC) sensor at the float indicator box; however, some combines will allow you to check the voltage range from the cab. Refer to your combine operator's manual or the AHHC instructions for your combine model 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, and 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 AHHC system.

2. Adjust the cable take-up bracket (B) (if necessary) until the pointer (A) on the float indicator box points to '0'.

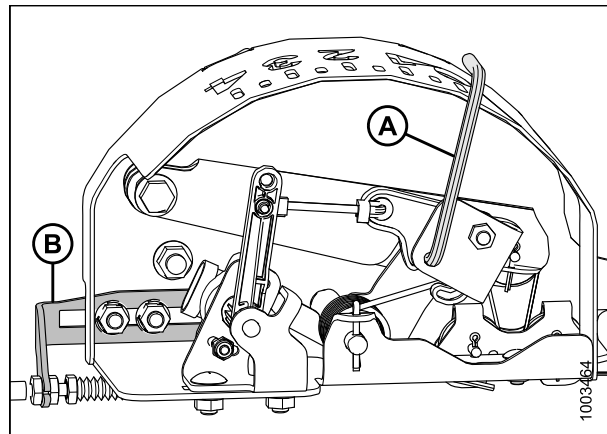


Figure 4.31: Float Indicator Box (Most Common 5 Volt Auto Header Height Control Sensor Assembly Shown)

OPERATION

3. Use a voltmeter (A) to measure the voltage between the ground and signal wires at the AHHC sensor in the float indicator box. It should be at the high voltage limit for the combine – refer to Table [4.3 Combine Voltage Limits, page 59](#).

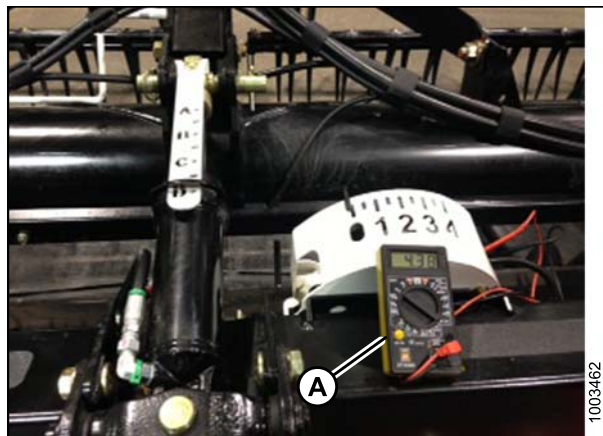


Figure 4.32: Volt Meter between Ground and Signal Wires

4. Fully lower the combine feeder house, and float the header up off the down stops (float indicator should be at '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 fully lowered.

5. Use a voltmeter (A) to measure the voltage between the ground and signal wires at the AHHC sensor in the float indicator box. It should be at the low voltage limit for the combine – refer to Table [4.3 Combine Voltage Limits, page 59](#).
6. Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to Table [4.3 Combine Voltage Limits, page 59](#)).

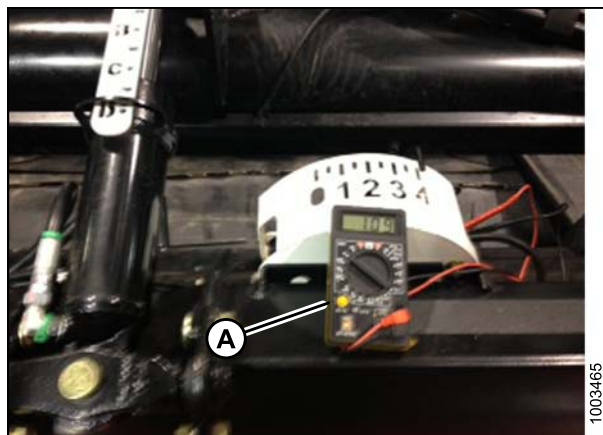


Figure 4.33: Volt Meter between Ground and Signal Wires

Adjusting Voltage Limits

NOTE:

The sensor assemblies used for Lexion and some New Holland combines are slightly different from the sensor assemblies used for other combine models – all three assemblies are illustrated in this procedure.

OPERATION

1. Complete the following steps to adjust the high voltage limit:
 - a. Extend guard angle fully; 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. Rotate potentiometer (B) clockwise to increase the low voltage limit, and counterclockwise to decrease it.
 - e. Tighten sensor mounting bolts (A).

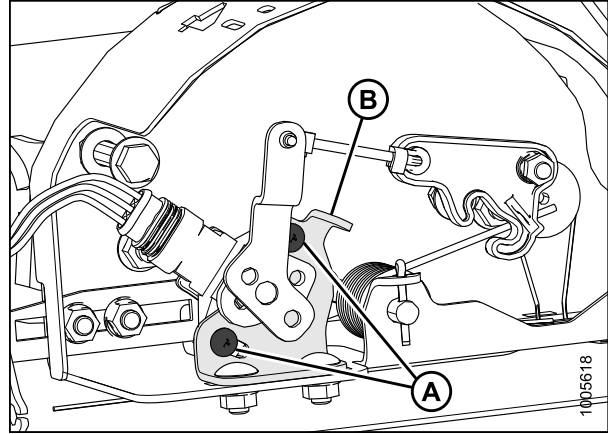


Figure 4.34: Auto Header Height Control Sensor Assembly for Use with Lexion Combines

2. Complete the following steps to adjust the low voltage limit:
 - a. Extend guard angle fully; the header angle indicator should be at 'D'.
 - b. Fully lower header 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).

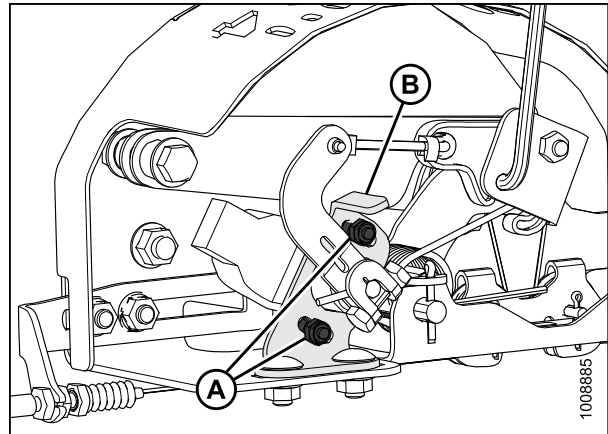


Figure 4.35: 10 Volt Auto Header Height Control Sensor Assembly for Use with Some New Holland Combines

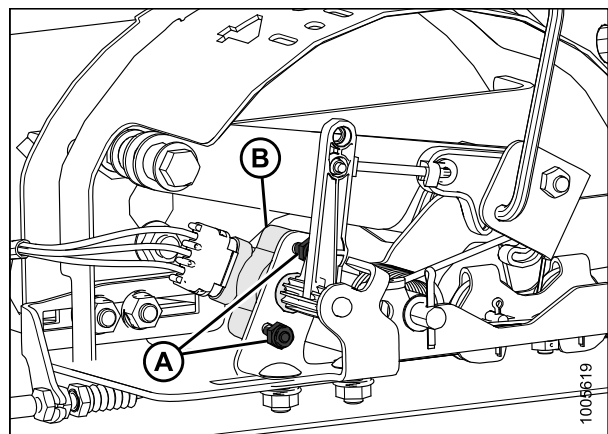


Figure 4.36: Most Common 5 Volt Auto Header Height Control Sensor Assembly

OPERATION

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:

1. Position the header 6 in. (150 mm) above the ground, and 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 Control system.

2. Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

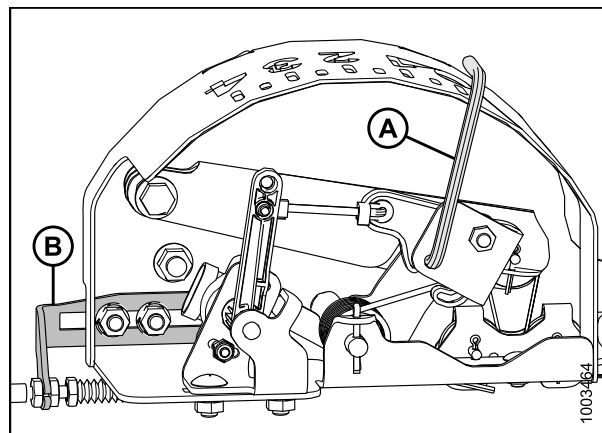


Figure 4.37: Float Indicator Box

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

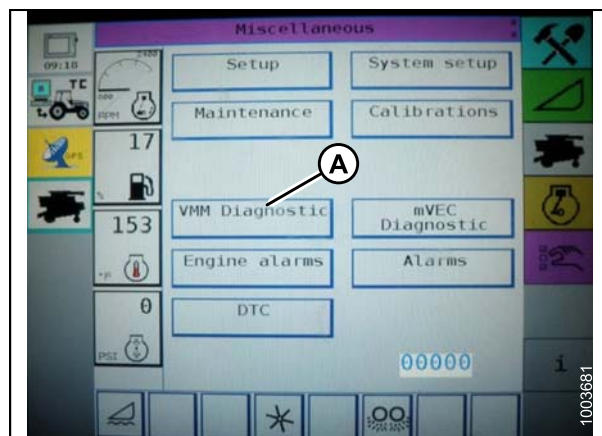


Figure 4.38: Combine Display

OPERATION

- 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 Control sensor is now displayed on screen as HEADER HEIGHT RIGHT POT and HEADER HEIGHT LEFT POT. Both readings should be identical.

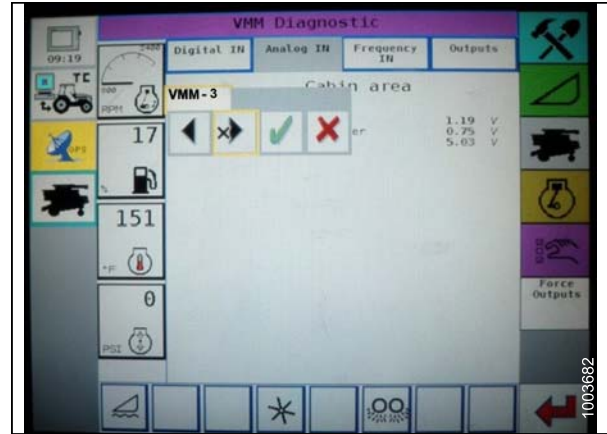


Figure 4.39: Combine Display

- Fully lower the combine feeder house, and float the header up off the down stops (float indicator should be at '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 fully lowered.

- Read voltage.
- Raise header so cutterbar is 6 in. (150 mm) off the ground.
- Read voltage.
- Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to [Table 4.3 Combine Voltage Limits, page 59](#)).

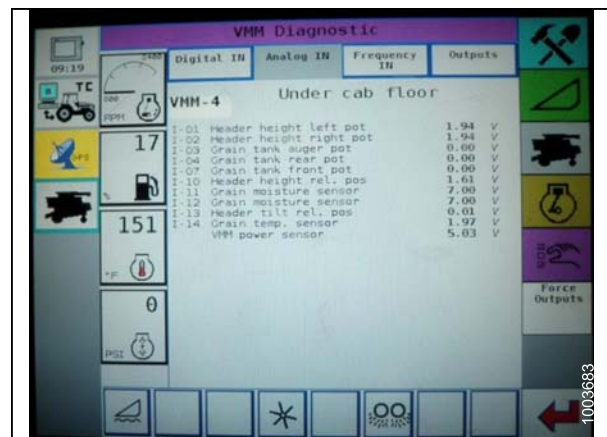


Figure 4.40: Combine Display

Engaging the Auto Header Height Control (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 Control (AHHC) to work:

OPERATION

- 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 also is an integral part of the system.

Engage the AHHC as follows:

1. Scroll through the header control options on the combine display using the header control switch until the AHHC icon is displayed in the first message box. The AHHC will adjust the header height in relation to the ground according to the height setting and sensitivity setting.



Figure 4.41: Combine Display

Calibrating the Auto Header Height Control (AGCO 6 Series)

NOTE:

For best performance of the Auto Header Height Control system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration are complete, adjust the center-link back to desired header angle. Refer to "Header Angle" in the header operator's manual ([4.7.4 Header Angle, page 149](#)).

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 Control (AHHC) system, follow these steps:

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



Figure 4.42: Combine Display

OPERATION

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

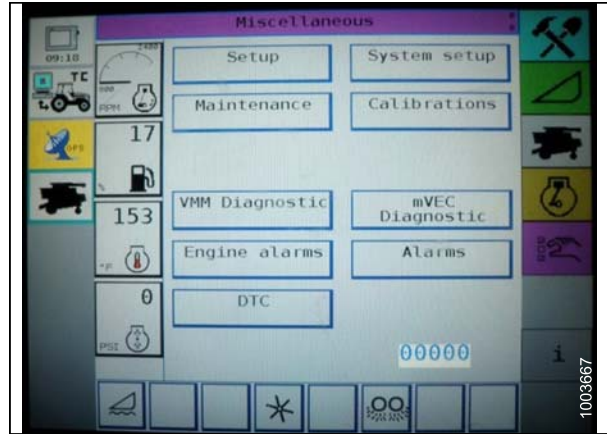


Figure 4.43: Combine Display

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

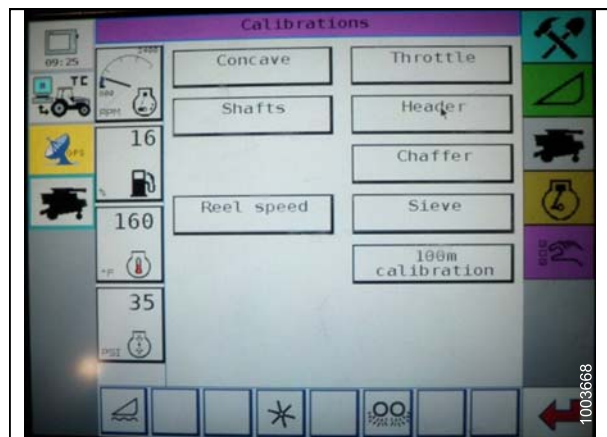


Figure 4.44: Combine Display

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

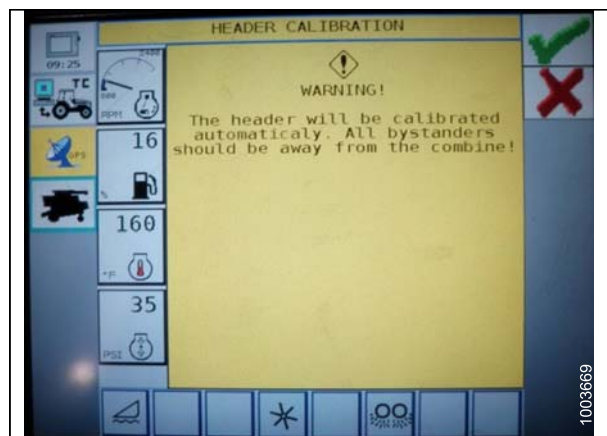


Figure 4.45: Combine Display

OPERATION

5. Follow the on-screen 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 screen. 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.

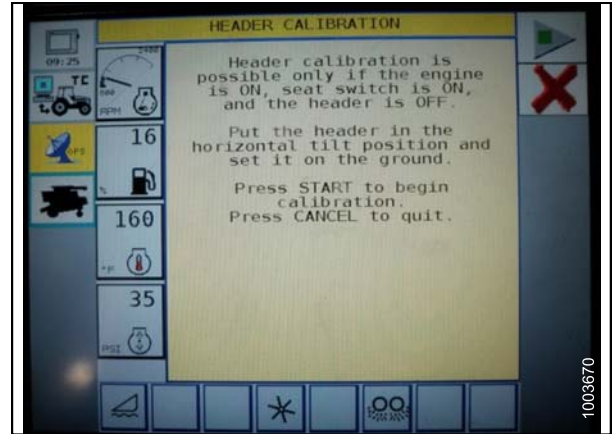


Figure 4.46: Combine Display

Adjusting the Header Height (AGCO 6 Series)

Once the Auto Header Height Control (AHHC) is activated, press and release the header 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.

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



Figure 4.47: 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:

OPERATION

1. Press the Header icon on the FIELD page. The HEADER page displays.



Figure 4.48: Combine Display

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

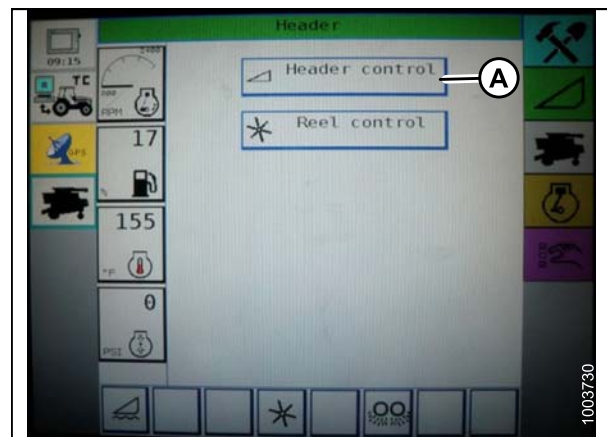


Figure 4.49: Combine Display

3. Go to the TABLE SETTINGS tab.
4. Press up arrow on MAX UP PWM to increase percentage number and increase raise speed; Press down arrow on MAX UP PWM to decrease percentage number and decrease raise speed.
5. Press up arrow on MAX DOWN PWM to increase percentage number and increase lower speed; Press down arrow on MAX DOWN PWM to decrease percentage number and decrease lower speed.

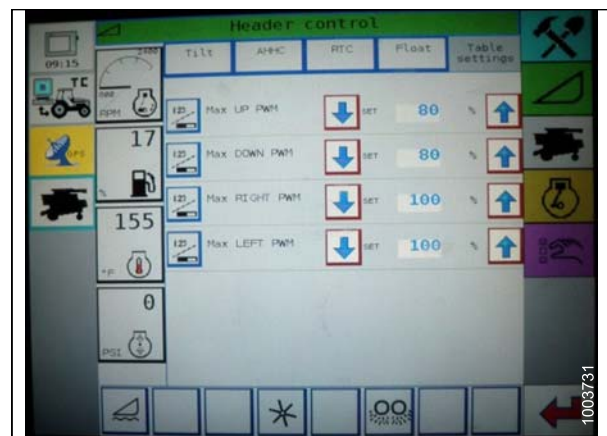


Figure 4.50: Combine Display

OPERATION

Setting the Sensitivity of the Auto Header Height Control (AGCO 6 Series)

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

NOTE:

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

To adjust the sensitivity of the Auto Header Height Control (AHHC) system, follow these steps:

1. Press the HEADER icon on the FIELD page. The HEADER page appears.
2. Press the HEADER CONTROL button (A). The HEADER CONTROL page appears. You can adjust sensitivity on this page using the up and down arrows.

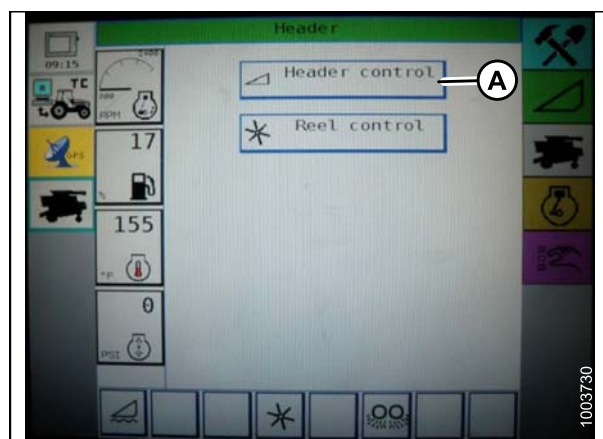


Figure 4.51: Combine Display

3. Adjust the sensitivity to the maximum setting.
4. Activate the AHHC, and press the header lower button on the control handle.
5. Decrease the sensitivity until the feeder house remains steady and does not bounce up and down.

NOTE:

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 changing surfaces and operating conditions.

NOTE:

If 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.

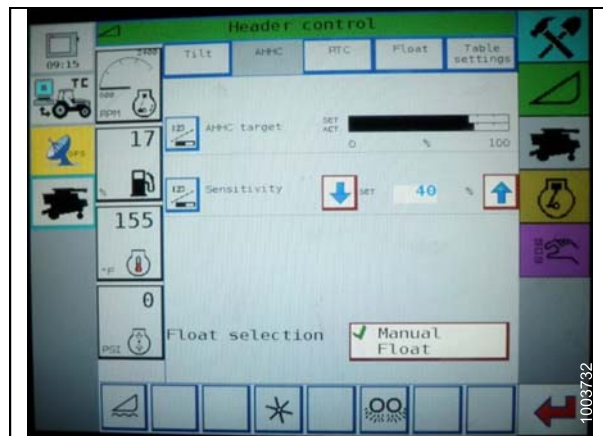


Figure 4.52: Combine Display

OPERATION

Case IH 2300/2500 and 5088/6088/7088 Combines

Engaging the Auto Header Height Control (Case IH 2300)

NOTE:

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

To engage the Auto Header Height Control (AHHC), follow these steps:

1. Turn mode select switch (A) to HT.
2. Set the desired header height with position control knob (B). The AHHC will raise and lower the header to maintain this fixed distance from the ground.
3. Turn feeder ON.
4. Push header LOWER switch.
5. Use header raise rate control (A) and header lower rate control (B) as required to adjust the rate at which the header raises or lowers to maintain the desired header height.

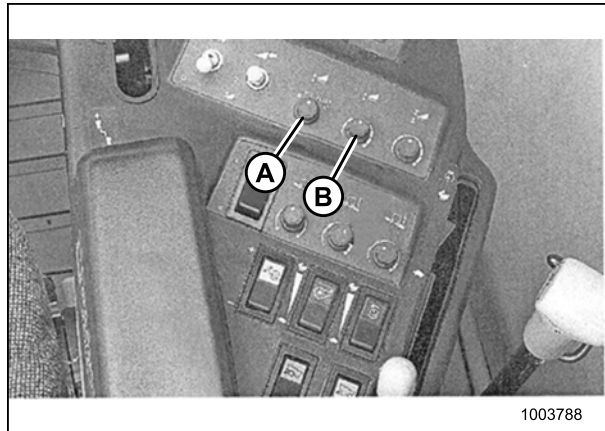


Figure 4.53: Combine Controls



Figure 4.54: Combine Controls

OPERATION

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

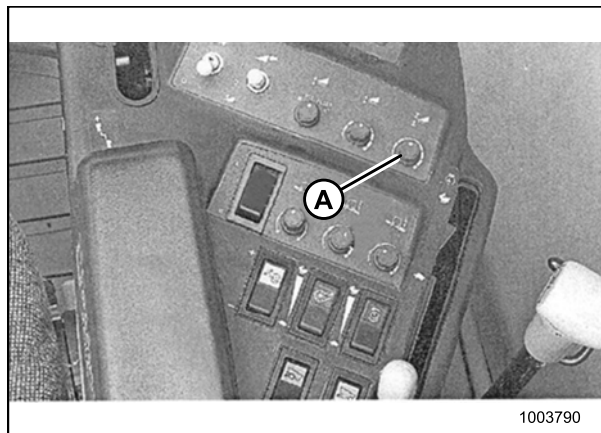


Figure 4.55: Combine Controls

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

For best performance of the Auto Header Height Control 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. Refer to [4.7.4 Header Angle, page 149](#).

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

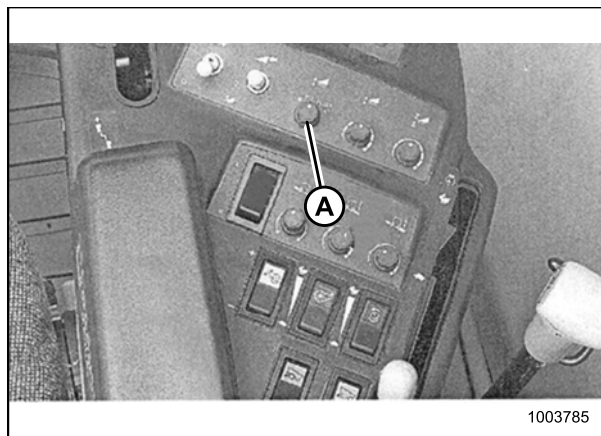


Figure 4.56: Right-Hand Console

OPERATION

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

NOTE:

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

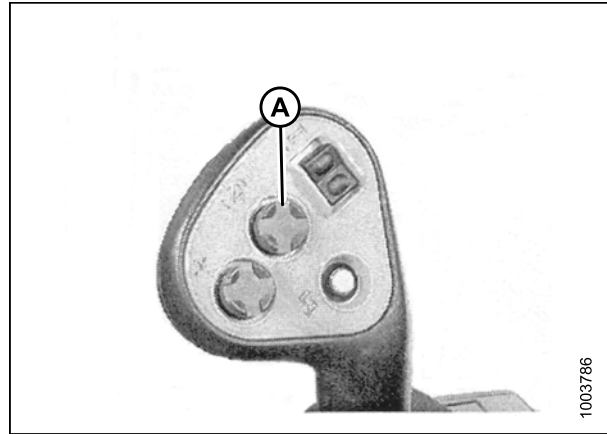


Figure 4.57: Propulsion Lever (Case IH 2300/2500)

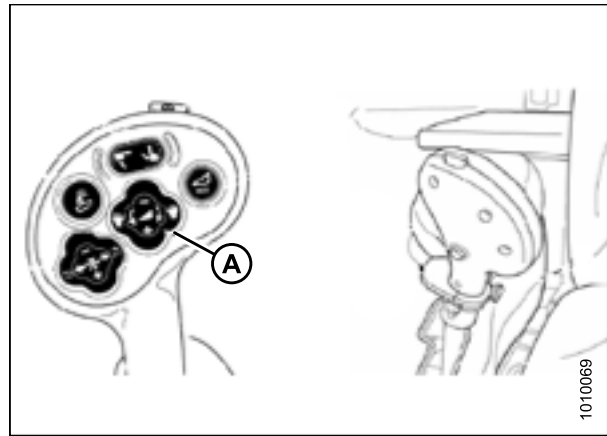


Figure 4.58: Propulsion Lever (Case IH 5088/6088/7088)

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

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

NOTE:

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

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

OPERATION

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

NOTE:

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

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

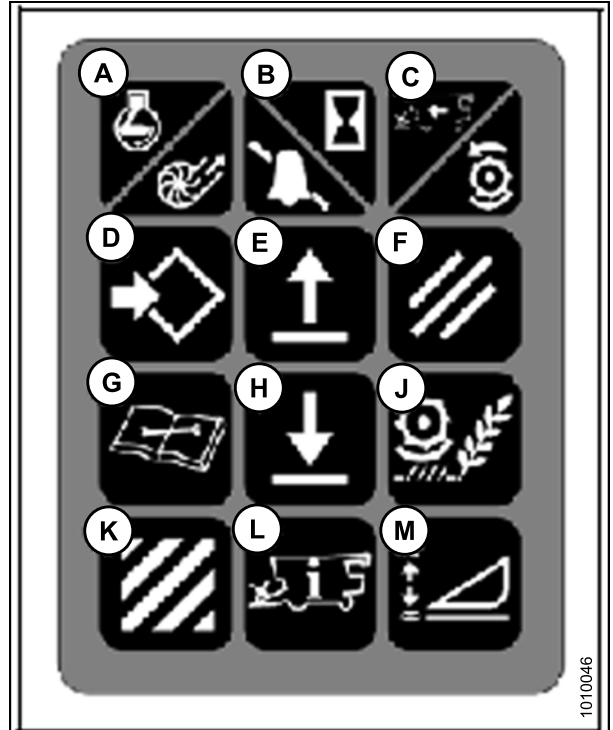


Figure 4.59: Combine Controls

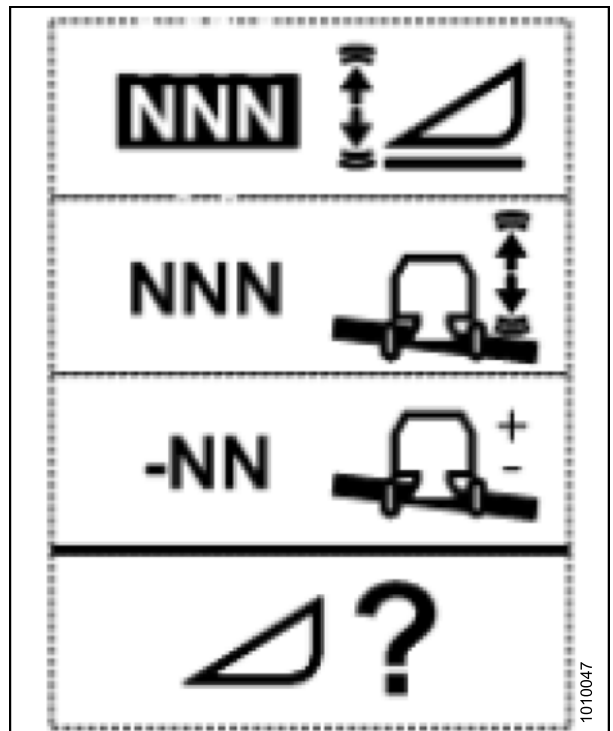


Figure 4.60: Height Sensitivity Change Screen

OPERATION

Case IH 5130/6130/7130, 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:

1. Position the header 6 in. (150 mm) above the ground, and 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 Control system.

2. Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

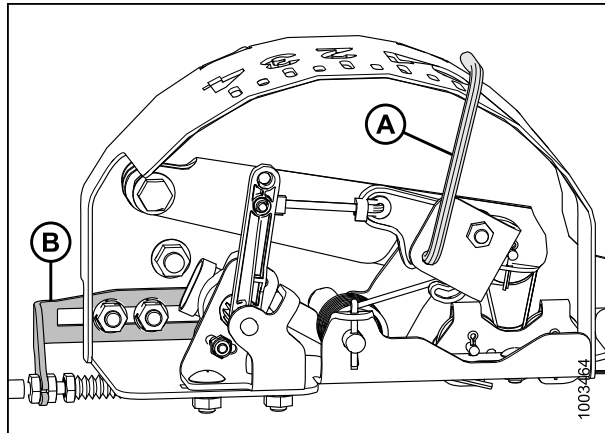


Figure 4.61: Float Indicator Box

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

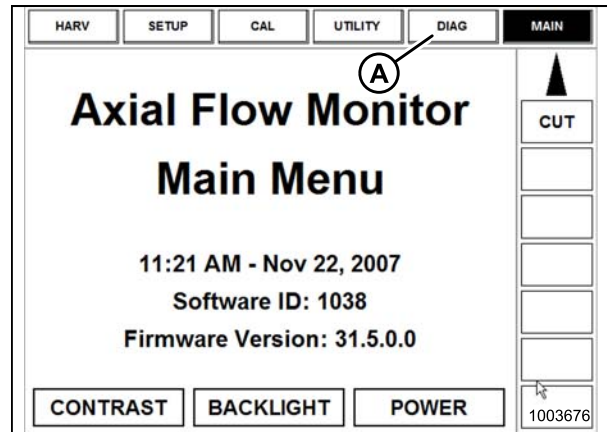


Figure 4.62: Combine Display

OPERATION

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

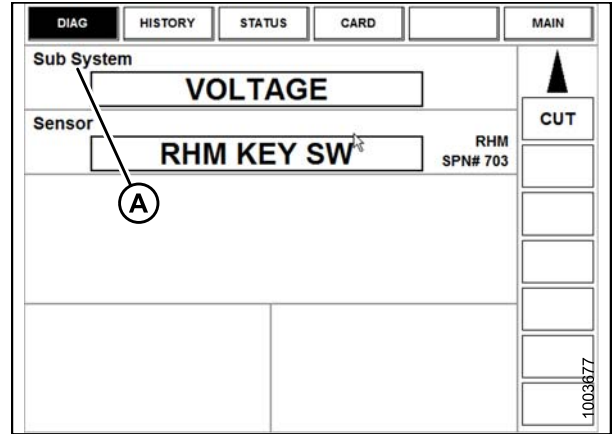


Figure 4.63: Combine Display

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

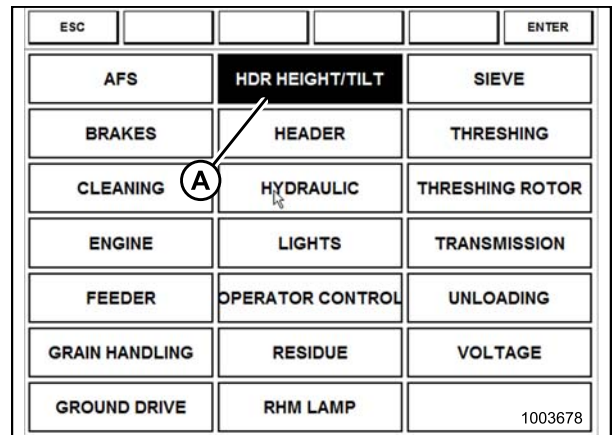


Figure 4.64: Combine Display

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

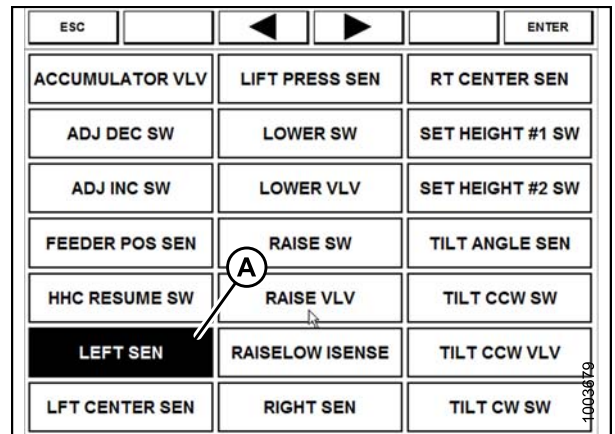


Figure 4.65: Combine Display

OPERATION

- Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to [Table 4.3 Combine Voltage Limits, page 59](#)).



Figure 4.66: Combine Display

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

NOTE:

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

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

- Position the header 6 in. (150 mm) above the ground, and 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 Control system.

- Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

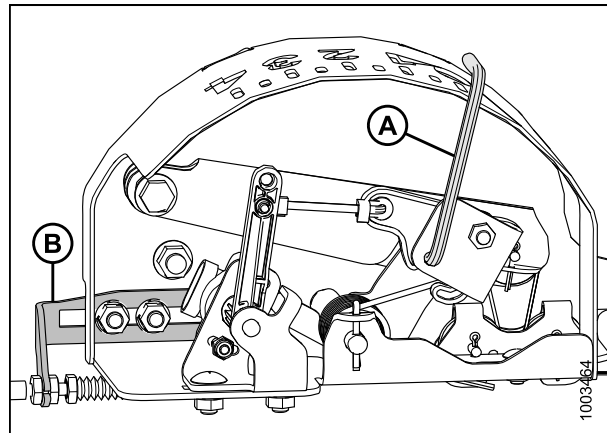


Figure 4.67: Float Indicator Box

OPERATION

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

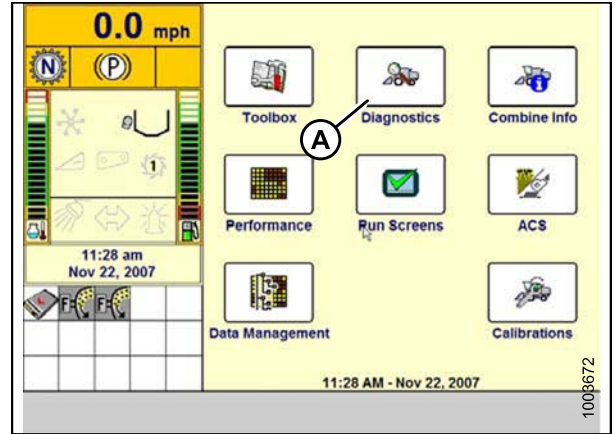


Figure 4.68: Combine Display

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

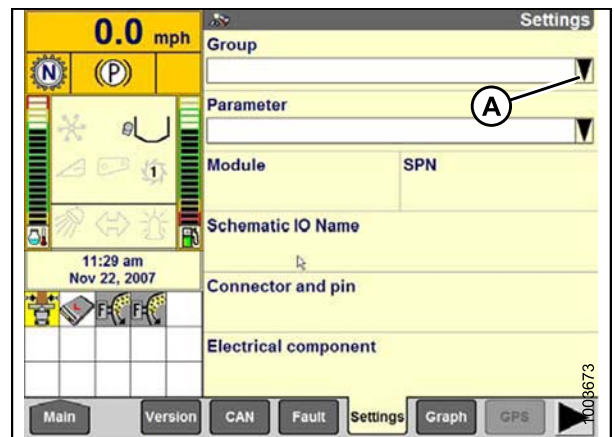


Figure 4.69: Combine Display

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

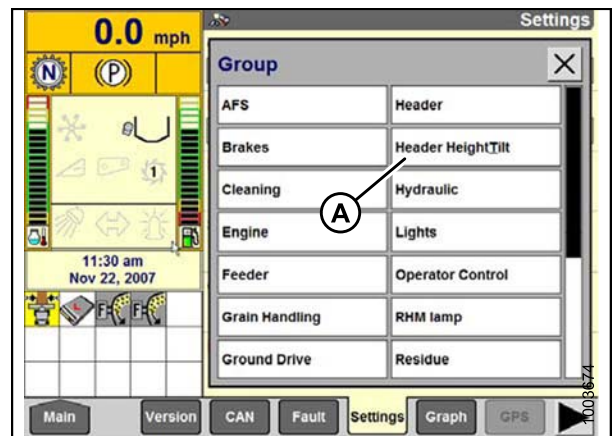


Figure 4.70: Combine Display

OPERATION

8. Select LEFT HEADER HEIGHT SEN (A), and then select the GRAPH button (B). The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
9. Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to Table [4.3 Combine Voltage Limits, page 59](#)).

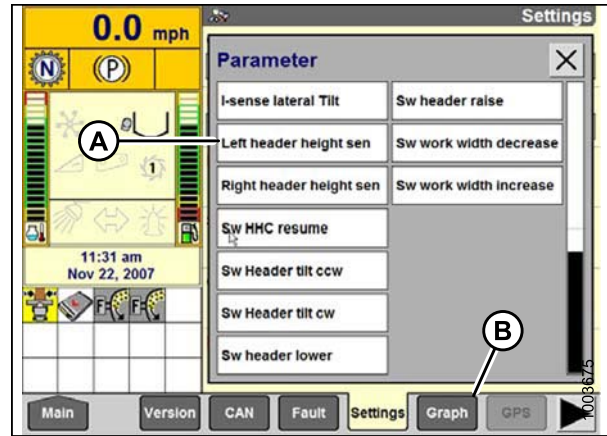


Figure 4.71: Combine Display

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

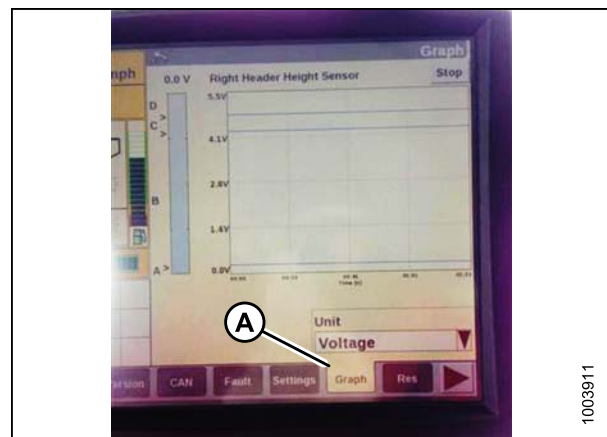


Figure 4.72: Combine Display

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

For best performance of the Auto Header Height Control, perform these procedures with the center-link adjusted as long as possible. When setup and calibration are complete, adjust the center-link back to desired header angle. Refer to "Header Angle" in the header operator's manual ([4.7.4 Header Angle, page 149](#)).

NOTE:

This procedure applies to combines with a software version below 28.00. For instructions on calibrating the Auto Header Height Control for combines with software version 28.00 or above, refer to [Calibrating the Auto Header Height Control System \(Case Combines with Version 28.00 Software\), page 80](#).

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 Control, follow these steps:

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

OPERATION

3. Set appropriate HEADER STYLE.

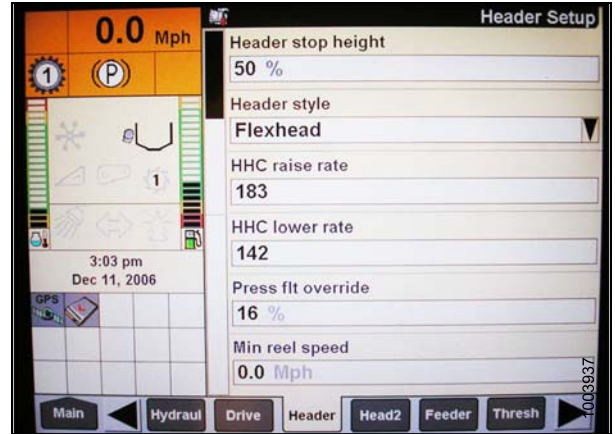


Figure 4.73: Combine Display

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

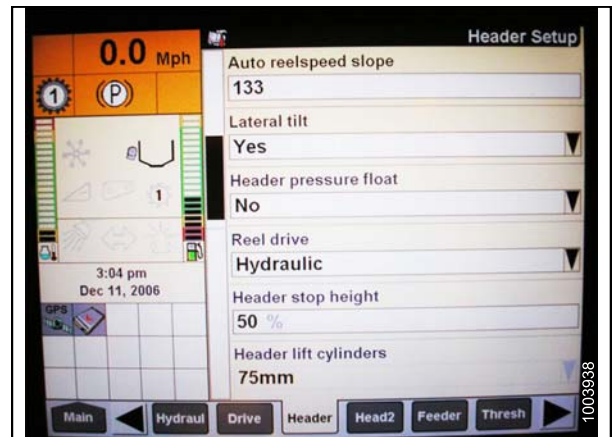


Figure 4.74: Combine Display

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

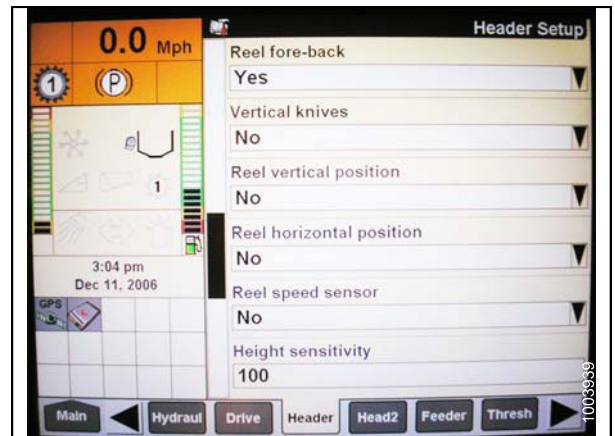


Figure 4.75: Combine Display

OPERATION

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

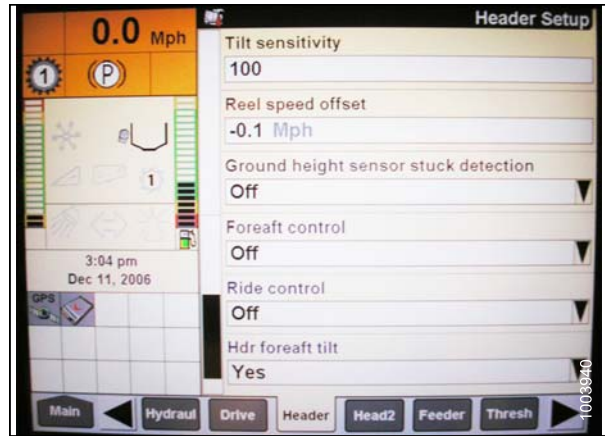


Figure 4.76: Combine Display

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



Figure 4.77: Combine Display

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

NOTE:

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

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

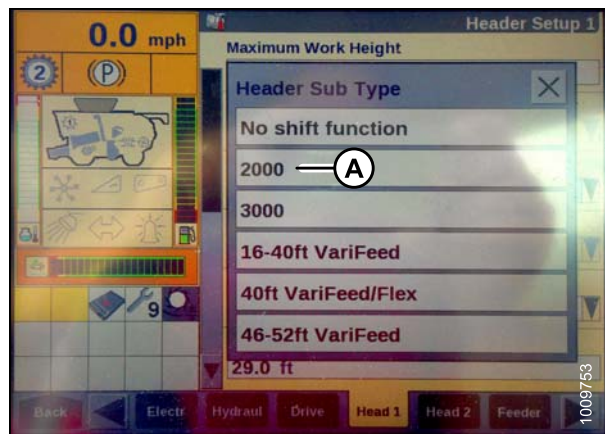


Figure 4.78: Combine Display

OPERATION

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

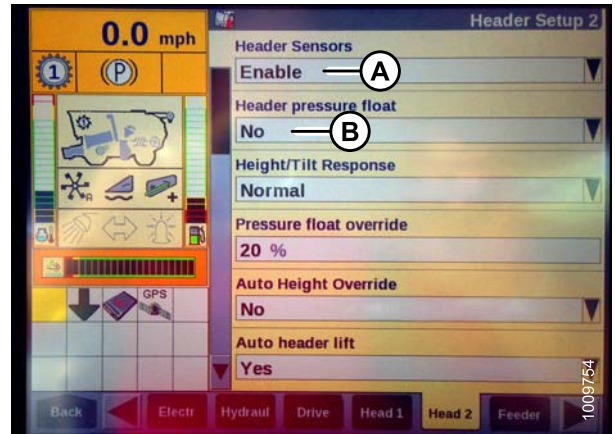


Figure 4.79: Combine Display

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

NOTE:

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

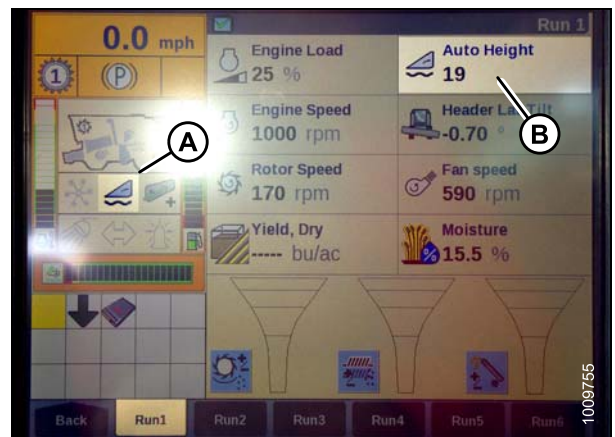


Figure 4.80: Combine Display

Gleaner R62/R72 Combines

Determining System Requirements (Gleaner R62/R72)

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 Control 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 also is an integral part of the system.

OPERATION

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

For best performance of the Auto Header Height Control, perform these procedures with the center-link adjusted as long as possible. When setup and calibration are complete, adjust the center-link back to desired header angle. Refer to “Header Angle” in the header operator’s manual ([4.7.4 Header Angle, page 149](#)).

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 Control (AHHC), follow these steps:

1. Ensure the center-link is as short as possible, and unlock the adapter float.
2. Start the combine engine, and press and hold the hidden C1 button (A) until the LED light (B) flashes briefly.
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 briefly. The AHHC system is now calibrated.

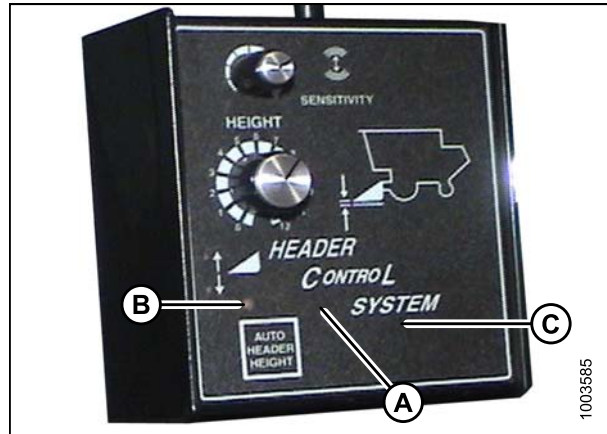


Figure 4.81: Combine Header Control System

Setting the Sensitivity of the Auto Header Height Control (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.

To set Auto Header Height Control (AHHC) sensitivity for the AGCO R62 and R72, follow these steps:

OPERATION

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

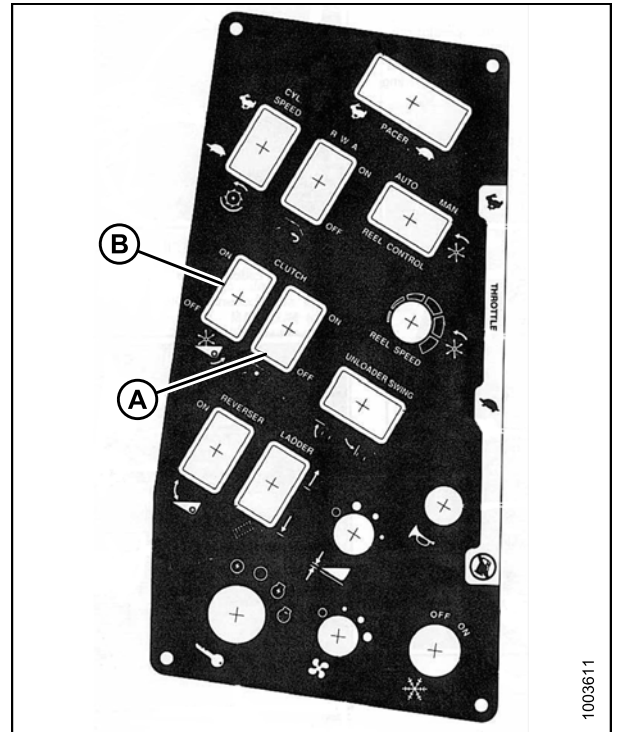


Figure 4.82: Combine Control Console

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

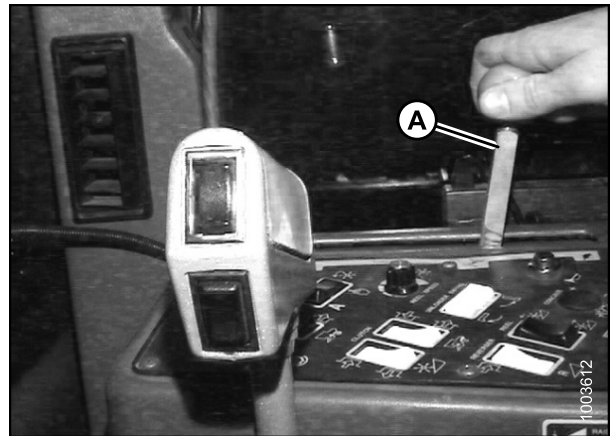


Figure 4.83: Throttle

OPERATION

3. Push the AUTO HEADER HEIGHT button (A). The LED light (B) should flash continuously indicating that it is in standby mode and waiting for a response from the operator.

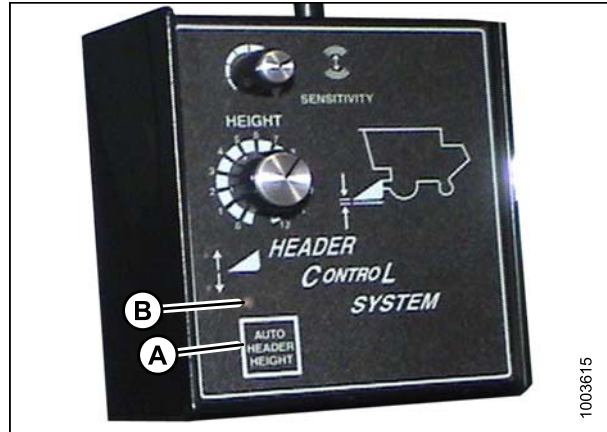


Figure 4.84: Combine Header Control System

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



Figure 4.85: Header Down Button

5. Turn Height dial (A) to increase or decrease ground pressure.
6. Turn the Sensitivity dial (B) to control how quickly the AHHC reacts to varying ground conditions.

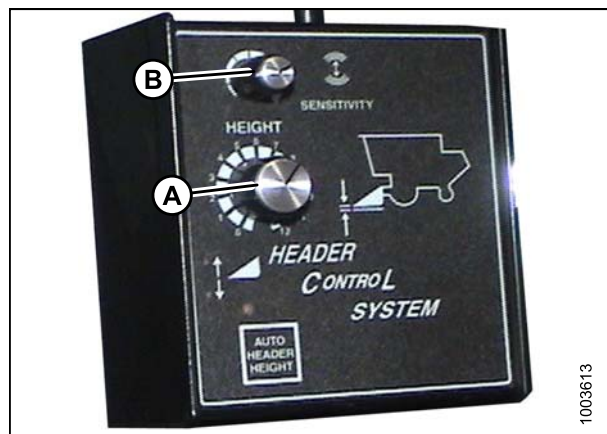


Figure 4.86: Combine Header Control System

OPERATION

NOTE:

The ideal ground pressure, in most cases, is one number of separation on the AHHC from having the header fully suspended off the ground (A) to just resting on the ground (B).

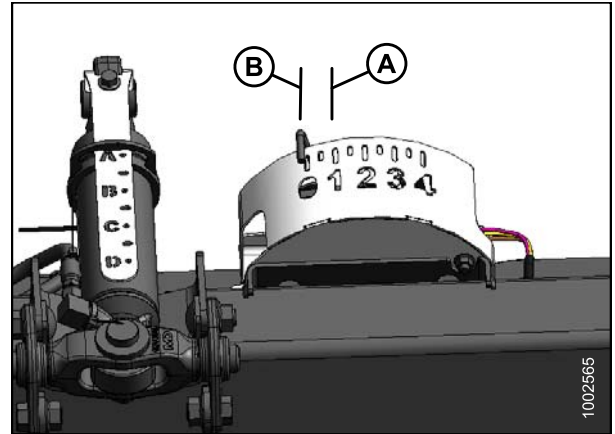


Figure 4.87: Float Indicator Box

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, and 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 Control system.

2. Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

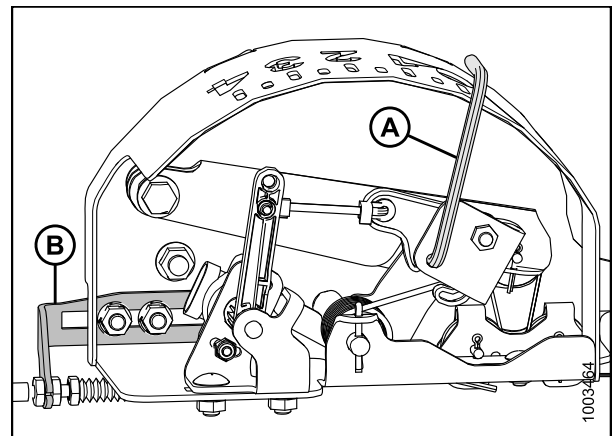


Figure 4.88: Float Indicator Box

OPERATION

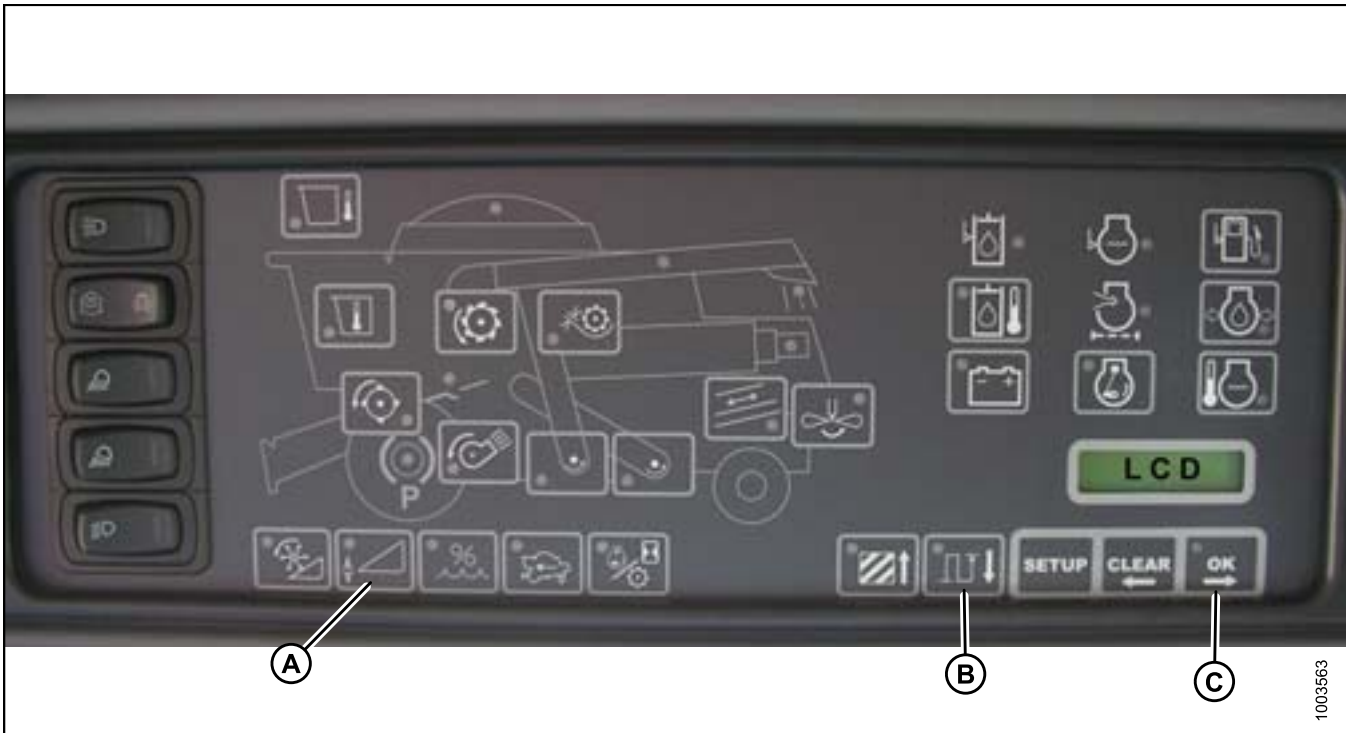


Figure 4.89: Combine Heads Up Display

Engaging the Auto Header Height Control (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 Control 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 also is an integral part of the system.

To engage the Auto Header Height Control (AHHC), follow these steps:

OPERATION



Figure 4.90: Combine Auto Header Height Controls

1. Press the AUTO MODE (A) button until the AHHC LED light (B) begins flashing. If the RTC light is flashing, press the AUTO MODE (A) button again until it switches to AHHC.
2. Briefly press button (A) on the control handle. The AHHC light should change from flashing to solid. The header also should drop toward the ground. The AHHC is now engaged and can be adjusted for height and sensitivity.
3. Use controls to adjust height and sensitivity to changing ground conditions such as shallow gullies and field drainage trenches.

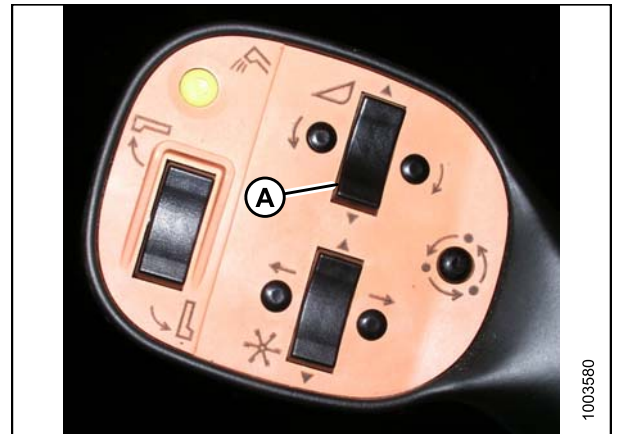


Figure 4.91: Control Handle

OPERATION

Calibrating the Auto Header Height Control (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 also must be above 2000 rpm. The Header Tilt option on 2004 and earlier model combines does not work with MacDon headers. This system will have to be removed and disabled in order to calibrate the Auto Header Height Control. 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 4.92: Combine Auto Header Height Controls

A - AUTO MODE Button
D - Raise Header
G - CAL2 Button

B - AHHC Light
E - Lower Header

C - CAL1 Button
F - Auto Mode

NOTE:

For best performance of the Auto Header Height Control system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration are complete, adjust the center-link back to desired header angle. Refer to [4.7.4 Header Angle, page 149](#).

OPERATION

To calibrate the Auto Header Height Control (AHHC), 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), lower header (E), tilt auto mode (F), and AHHC (B).
3. Fully lower the header, and continue to hold the header lower button 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) begins flashing.
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 applicable only to 2005 and newer combines with the Smartrac feeder house.

7. Wait for the HEADER TILT LEFT light (not shown) to start flashing, and then tilt header to the maximum left position.
8. Press CAL2 button (G) until the HEADER TILT LEFT light (not shown) stops flashing, and release button when the HEADER TILT RIGHT light (not shown) begins flashing.
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 and left header (not shown), 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 Control's 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 4.93: 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.

The Auto Header Height Control system's stability is affected by hydraulic flow rates. Ensure that the header raise (A) and header lower (B) adjustable restrictors in the hydraulic valve block 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.

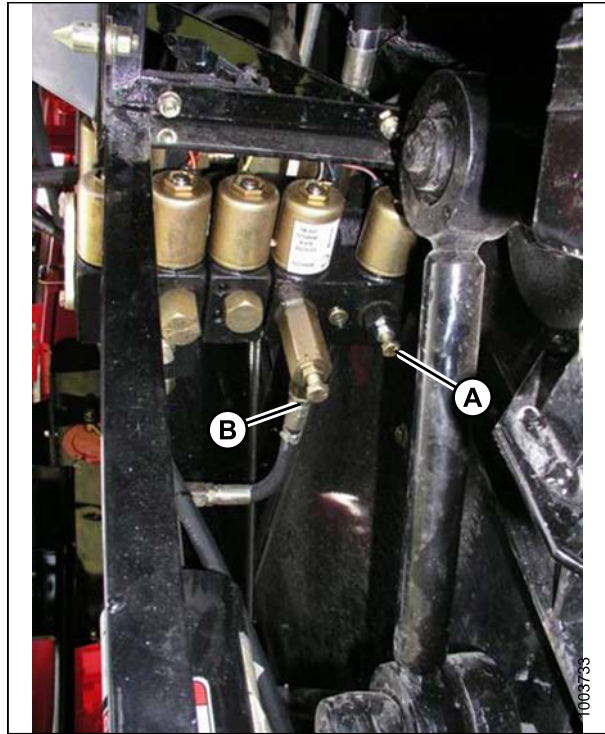


Figure 4.94: Header Raise and Lower Adjustable Restrictors

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 header height, ensure the header is in Auto Header Height Control (AHHC) mode. This is indicated by the AUTO MODE LED light (A) displaying a continuous, solid light. 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.

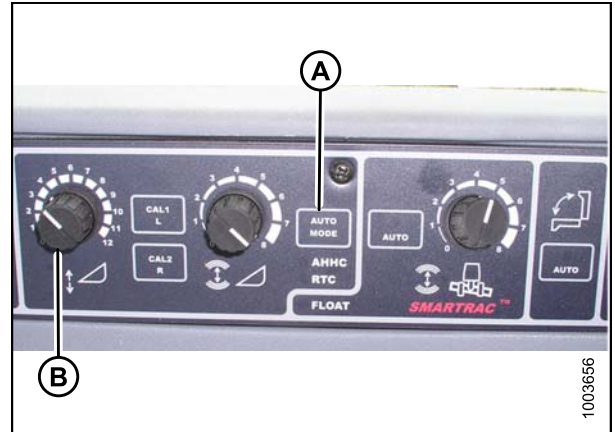


Figure 4.95: Auto Header Height Control Console

NOTE:

The ideal ground pressure, in most cases, is one number of separation on the AHHC from having the header fully suspended off the ground (A) to just resting on the ground (B).

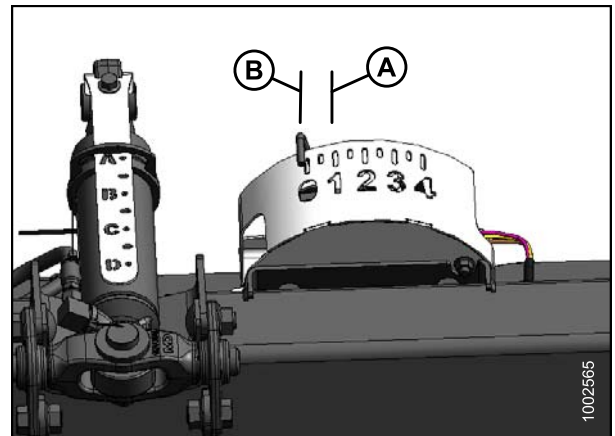


Figure 4.96: Float Indicator Box

Setting the Sensitivity of the Auto Header Height Control (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 4.97: Auto Header Height Control Console

The sensitivity adjustment dial (A) controls the distance the cutterbar must travel up or down before the Auto Header Height Control reacts and raises or lowers the feeder house.

When the sensitivity adjustment dial (A) is set to maximum (turned completely clockwise), only small changes in ground height are needed to cause the feeder house to raise or lower. In this position, the cutterbar moves up and down approximately 3/4 in. (19 mm) before the control module signals the hydraulic control valve to raise or lower the header frame.

When the sensitivity adjustment dial (A) is set to minimum (turned completely counterclockwise), large changes in ground height are needed to cause the feeder house to raise or lower. In this position, the cutterbar moves up and down approximately 2 in. (51 mm) before the control module signals the hydraulic control valve to raise or lower the header frame.

The HEADER SENSE LINE input also changes the range of the sensitivity. When connected to a draper, the counterclockwise position (least sensitive) allows for approximately 4 in. of vertical travel before correction is made.

Troubleshooting Alarms and Diagnostic Faults (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 4.98: Tachometer

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

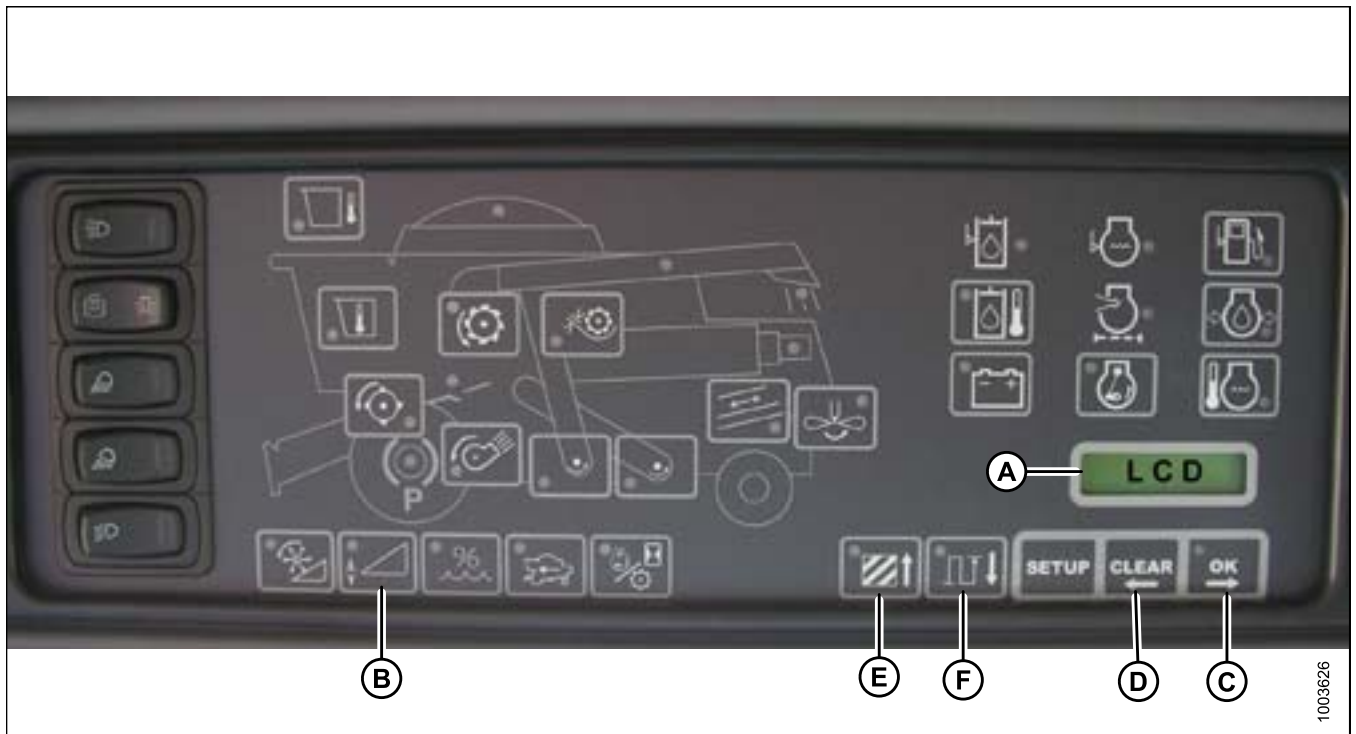


Figure 4.99: Combine LCD Display

OPERATION

Alarm conditions:

If an error is indicated in message received from the fuse panel, an audible alarm sounds. 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 for tilt. The header height LED flashes yellow two times every second.

The alarm also is noted by the buzzer sounding five times every ten seconds.

NOTE:

If the header height switch (B) is pressed for five seconds or longer, the EIP goes into auto header height/tilt (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) while 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 Control 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 142](#).

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, and 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 Control system.

2. Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

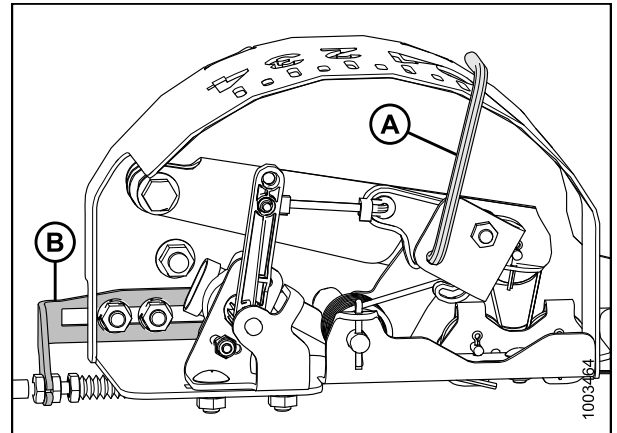


Figure 4.100: Float Indicator Box

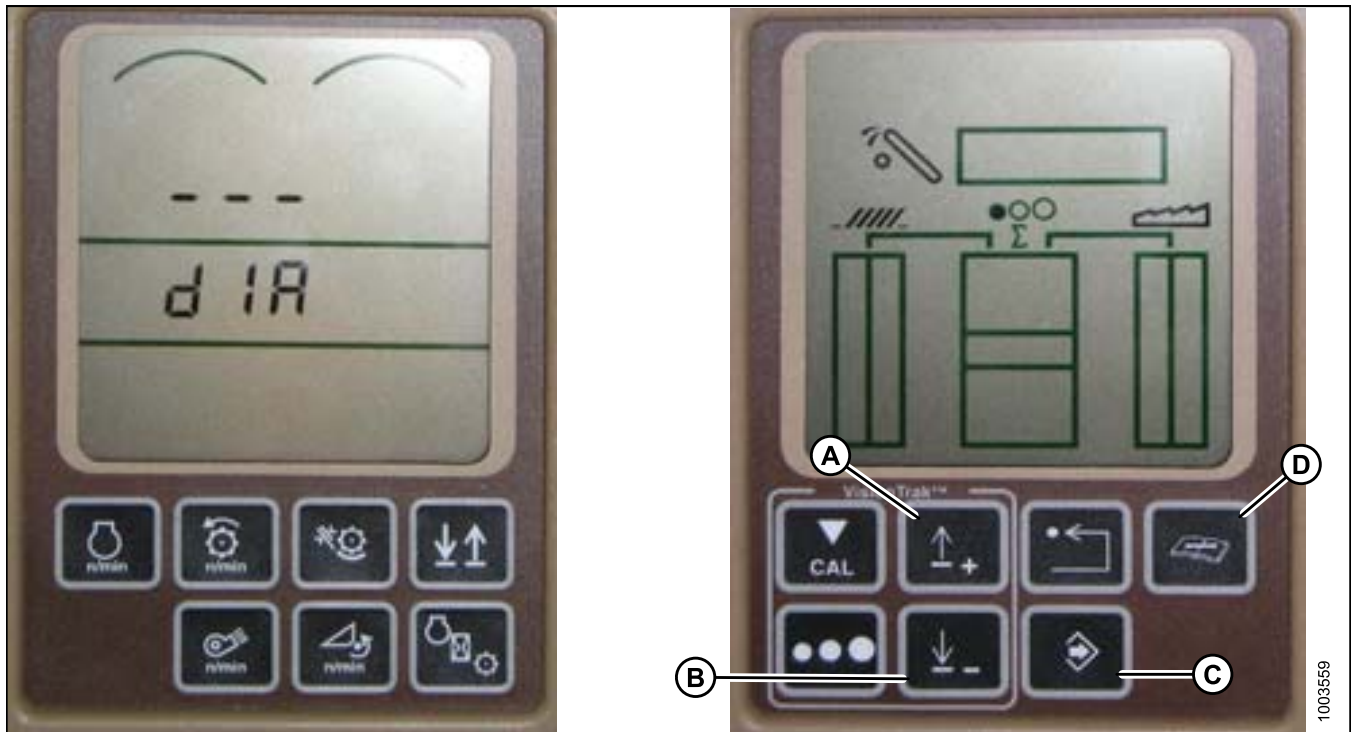


Figure 4.101: Combine HHS Monitor

3. Press the DIAGNOSTIC button (D) on the monitor – DIA appears on the monitor.
4. Press the UP button (A) until EO1 appears on the monitor – this is the header adjustments.
5. Press the ENTER button (C).

OPERATION

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

NOTE:

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

9. Check the sensor reading on the monitor.
10. Raise the header so it is just off the ground, and recheck the sensor reading.
11. Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to Table [4.3 Combine Voltage Limits, page 59](#)).

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

For best performance of the Auto Header Height Control 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. Refer to Header Angle section in the combine 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.

1. Rest header on down stops, and unlock adapter float.
2. Start the combine.

OPERATION

3. Press the DIAGNOSTIC button (D) on the monitor—DIA appears on the monitor.
4. Press the CAL button (B) – DIA-CAL appears on the monitor.

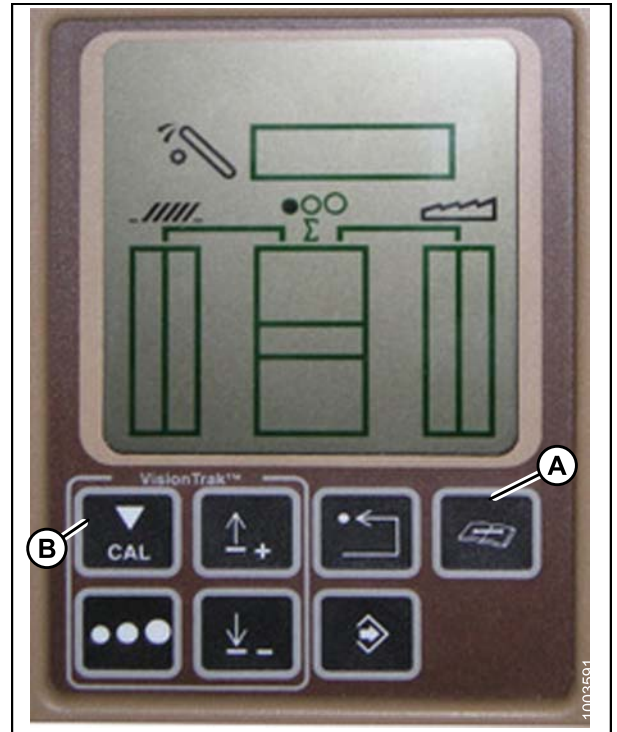


Figure 4.102: Combine Display

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

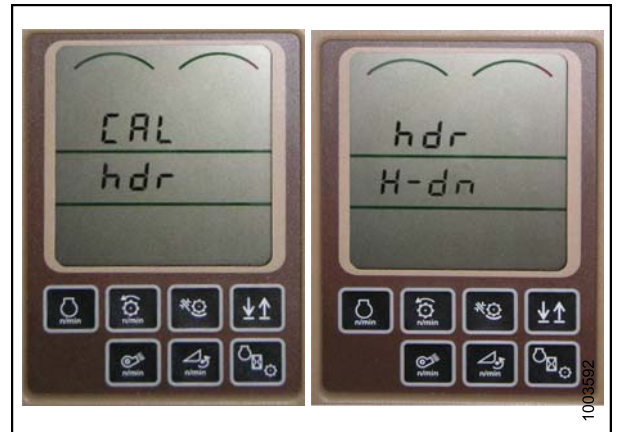


Figure 4.103: Combine Display

7. Fully lower feeder house to the ground.

NOTE:

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

OPERATION

- Press the CAL button (A) to save the calibration of the header— HDR H-UP appears on the monitor.
- Raise the header three feet off the ground, and 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 Control is now calibrated.

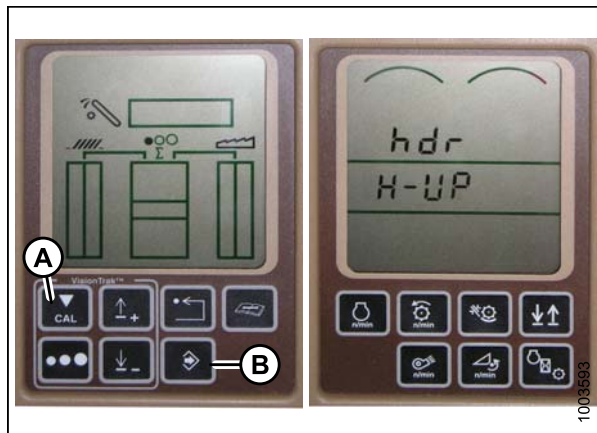


Figure 4.104: Combine Display

- Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to [Table 4.3 Combine Voltage Limits, page 59](#)).

NOTE:

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

- Position the header 6 in. (150 mm) above the ground, and 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 Control system.

- Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

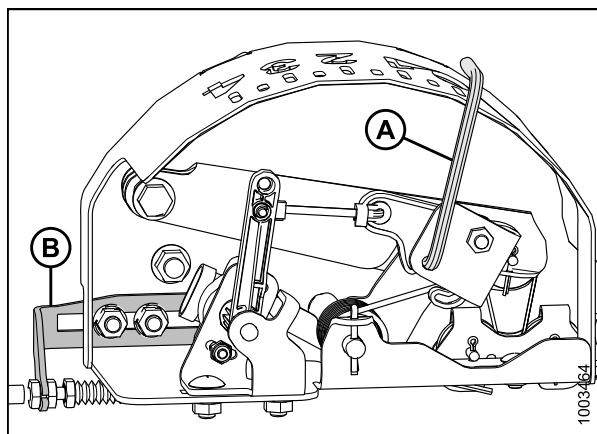


Figure 4.105: Float Indicator Box

OPERATION

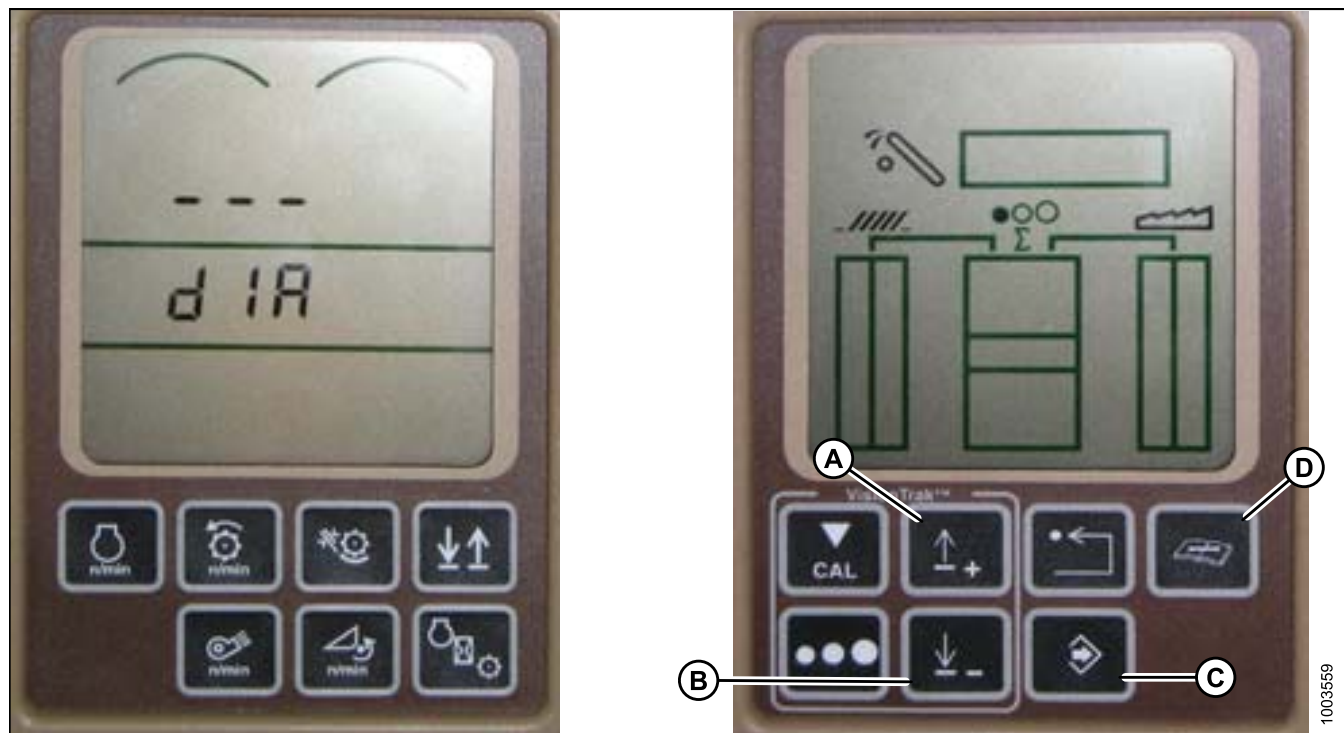


Figure 4.106: Combine HHS Monitor

3. Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to [Table 4.3 Combine Voltage Limits, page 59](#)).

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

For best performance of the Auto Header Height Control 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. Refer to [4.7.4 Header Angle, page 149](#) in 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.

1. Rest header on down stops, and unlock adapter float.
2. Start the combine.

OPERATION

3. Press the DIAGNOSTIC button (D) on the monitor – DIA appears on the monitor.
4. Press the CAL button (B) – DIA-CAL appears on the monitor.

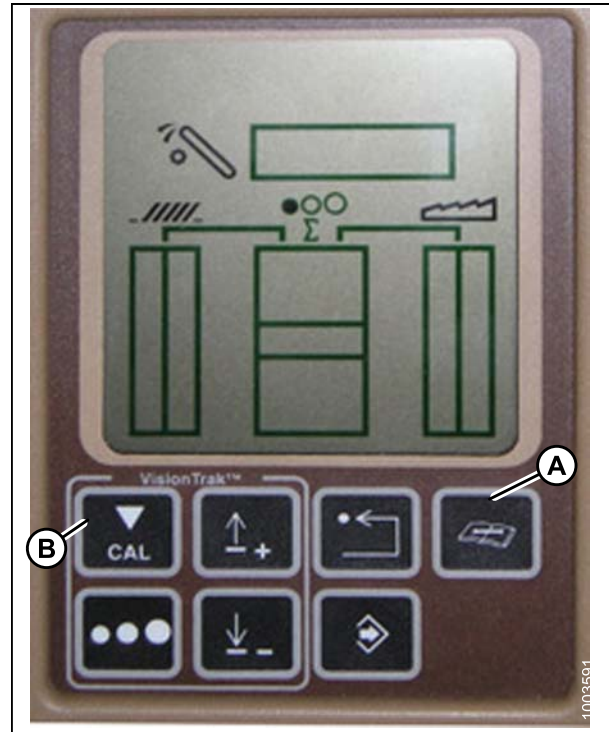


Figure 4.107: Combine Display

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

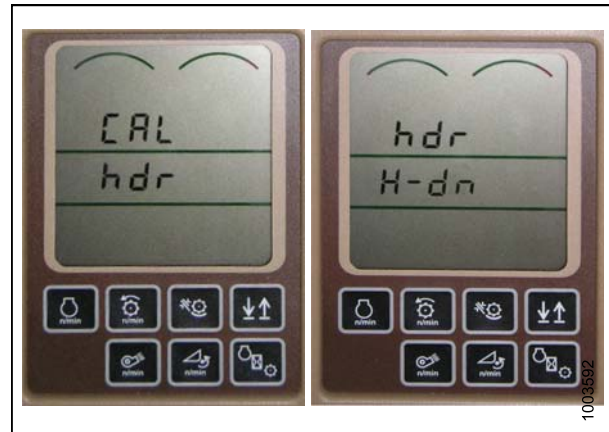


Figure 4.108: Combine Display

7. Fully lower feeder house to the ground.

NOTE:

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

OPERATION

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

NOTE:

If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to [Checking Voltage Range from the Combine Cab \(John Deere 60 Series\)](#), page 98.

NOTE:

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

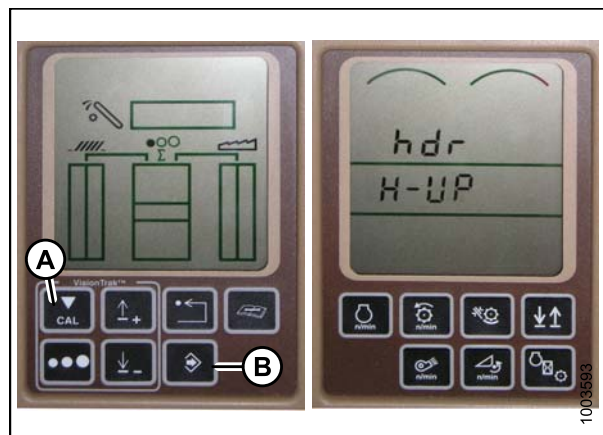


Figure 4.109: Combine Display

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:

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

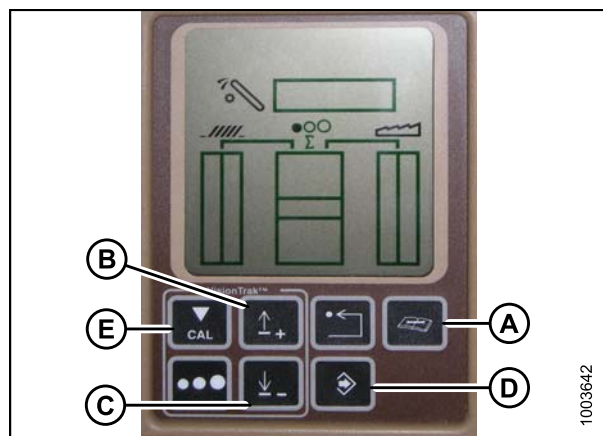


Figure 4.110: Combine Display

OPERATION

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

NOTE:

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

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

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

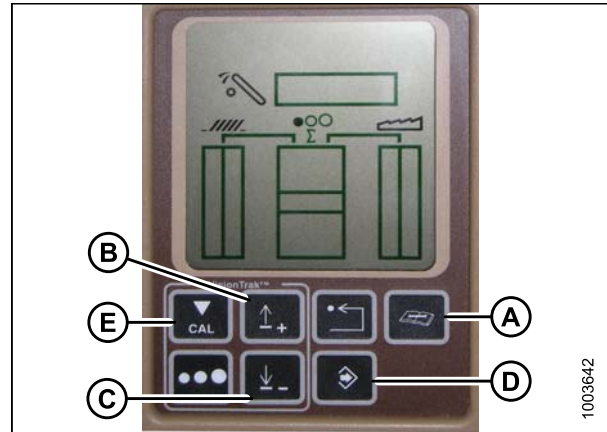


Figure 4.111: Combine Display

NOTE:

Do NOT use the active header float function (A) in combination with the MacDon Auto Header Height Control – the two systems will counteract one another. The header symbol (B) on the display should NOT have a wavy line under it and should appear exactly as shown on the Active Header Control Display in Figure 4.112: [Combine Display, page 102](#).

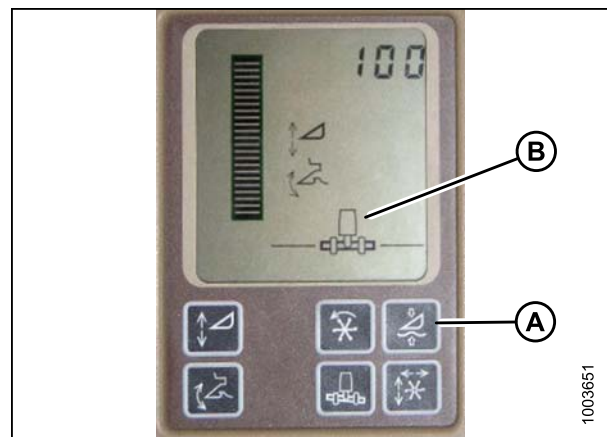


Figure 4.112: Combine Display

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

This is also known as dead band adjustment.

NOTE:

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

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

OPERATION

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

NOTE:

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

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

NOTE:

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

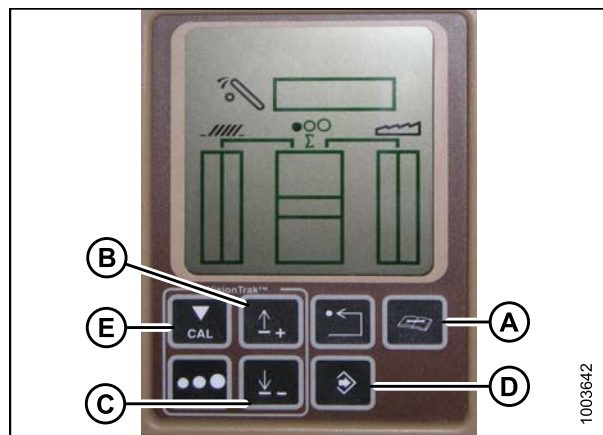


Figure 4.113: Combine Display

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 start the increased flow rate sooner, follow these steps:

OPERATION

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

NOTE:

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

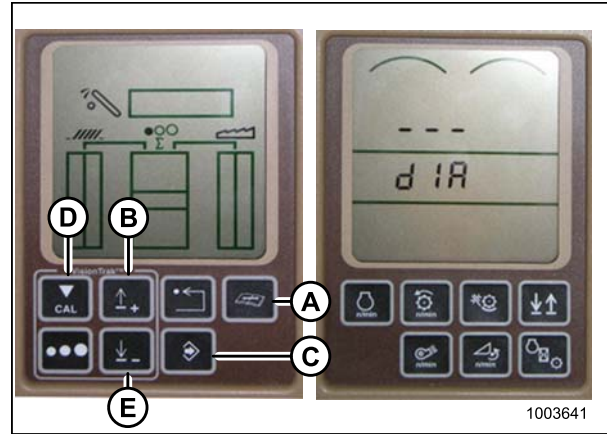


Figure 4.114: Combine Display

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

NOTE:

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

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:

OPERATION

1. Position the header 6 in. (150 mm) above the ground, and 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 Control system.

2. Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

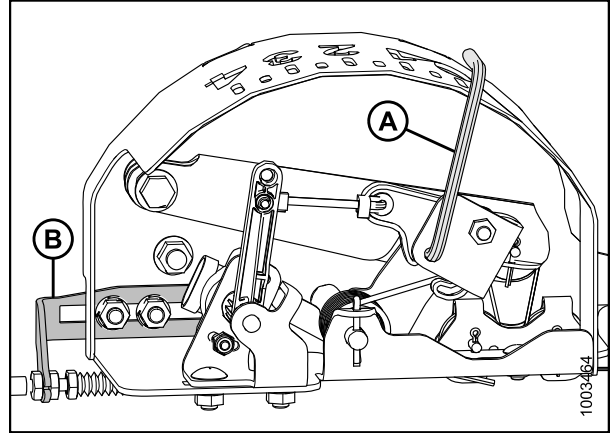


Figure 4.115: Float Indicator Box

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



Figure 4.116: Combine Display

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



Figure 4.117: Combine Display

OPERATION

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

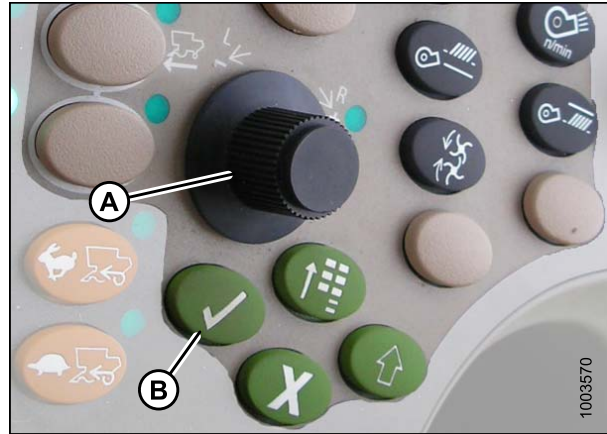


Figure 4.118: Combine Controls

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



Figure 4.119: Combine Display

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



Figure 4.120: Combine Display

OPERATION

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

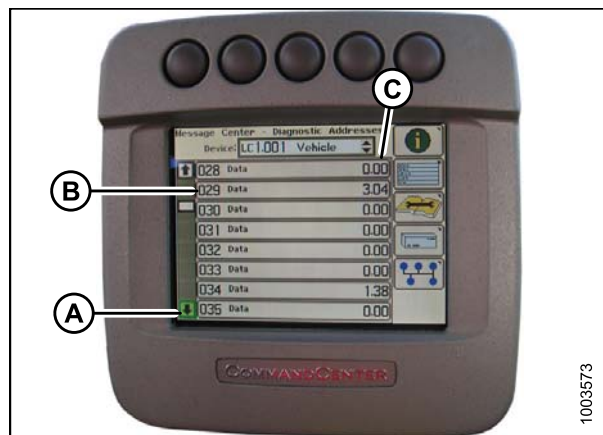


Figure 4.121: Combine Display

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

NOTE:

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

- Check the sensor reading on the monitor.
- Raise the header so it is just off the ground, and recheck the sensor reading.
- Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to Table [4.3 Combine Voltage Limits, page 59](#)).

Calibrating Feeder House Speed (John Deere 70 Series)

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

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

For best performance of the Auto Header Height Control 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. Refer to [4.7.4 Header Angle, page 149](#).

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 Control system, follow these steps:

- Rest header on downstops, and unlock adapter float.
- Start the combine.

OPERATION

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



Figure 4.122: Combine Display

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

NOTE:

If an error code appears on screen, the sensor is not in the correct working range. Refer to [Checking Voltage Range from the Combine Cab \(John Deere 70 Series\), page 104](#) to check and adjust the range.

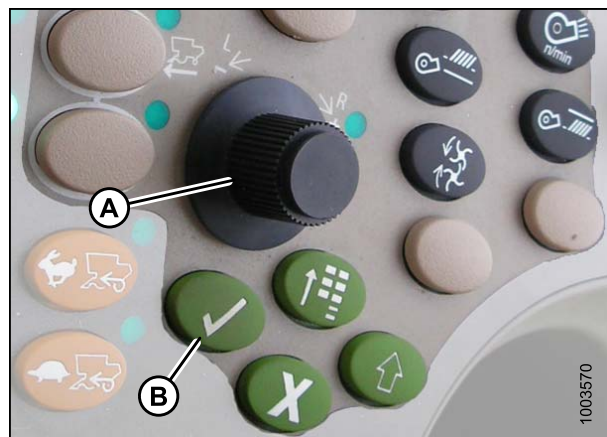


Figure 4.123: Combine Control Console



Figure 4.124: Combine Display

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

NOTE:

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

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

OPERATION

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

NOTE:

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

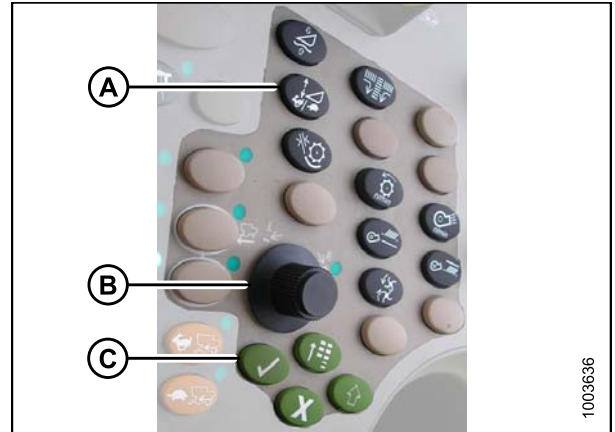


Figure 4.125: Combine Control Console

NOTE:

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



Figure 4.126: 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), and the current raise/lower rate setting will appear on the monitor (the lower the reading, the slower the rate).
2. Use scroll knob (B) to adjust the rate. The adjustment will be saved automatically.

NOTE:

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

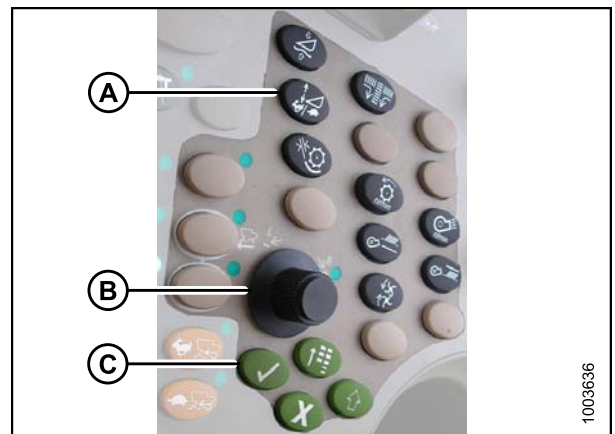


Figure 4.127: Combine Control Console

OPERATION

NOTE:

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



Figure 4.128: 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, and 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 Control (AHHC) system.

2. Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

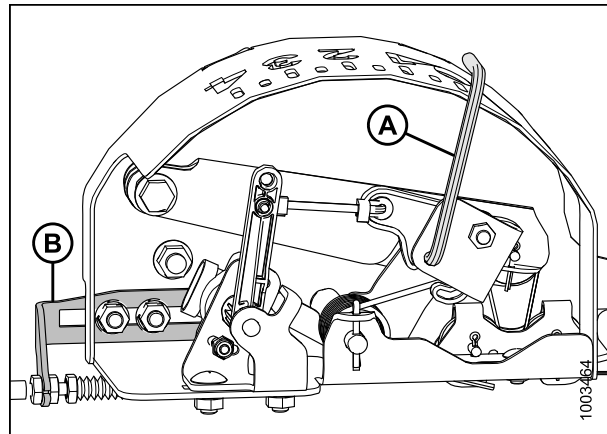


Figure 4.129: Float Indicator Box

OPERATION

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

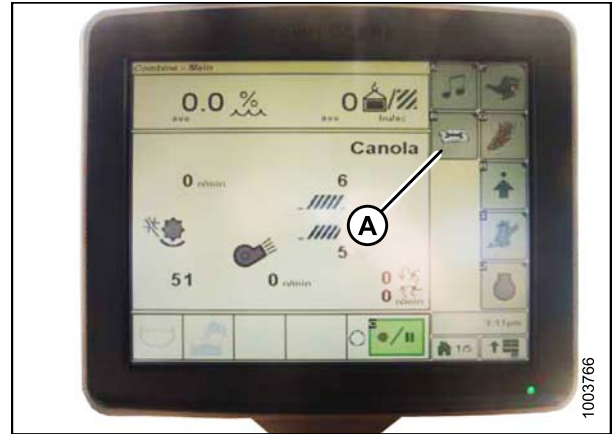


Figure 4.130: Combine Display

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

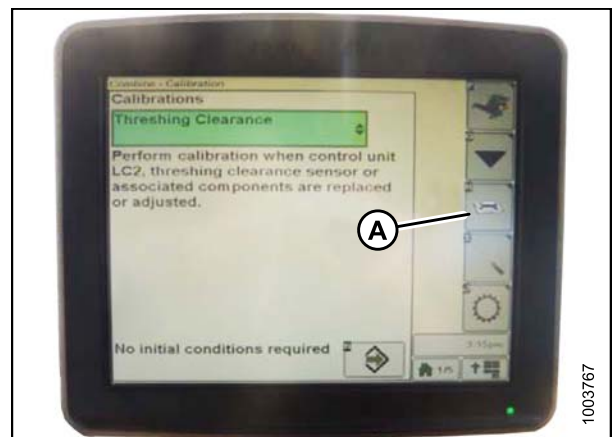


Figure 4.131: Combine Display

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

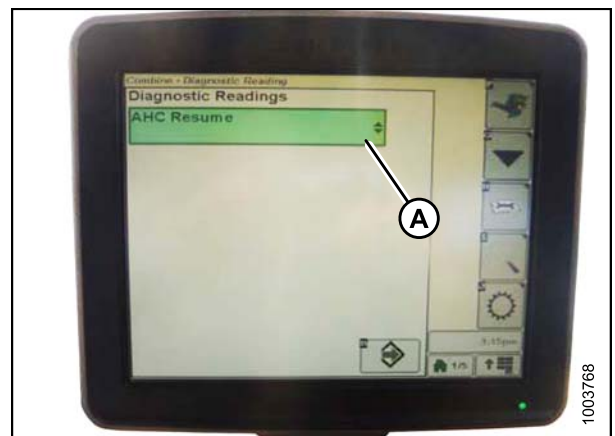


Figure 4.132: Combine Display

OPERATION

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



Figure 4.133: Combine Display

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

A reading is displayed for only the center header height sensor. On the MacDon header, there is only one sensor located in the float indicator box on top of the CA25.



Figure 4.134: Combine Display

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

NOTE:

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

11. Check the sensor reading on the monitor.
12. Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to [Table 4.3 Combine Voltage Limits, page 59](#)).

OPERATION

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

For best performance of the Auto Header Height Control 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. Refer to [4.7.4 Header Angle, page 149](#) in 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 Control, follow these steps:

1. Rest header on down stops, and unlock adapter float.
2. Press the DIAGNOSTIC icon (A) on the main page of the monitor. The CALIBRATION page appears.

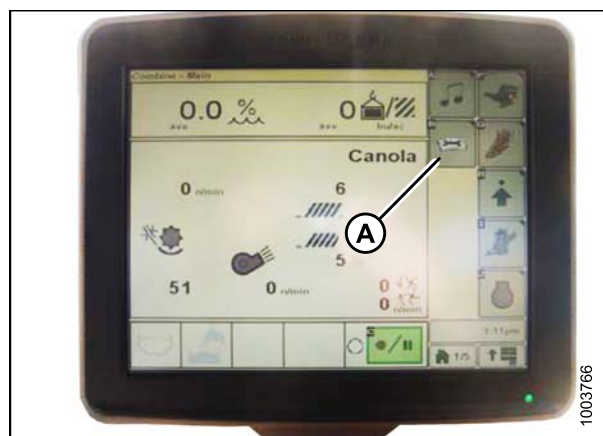


Figure 4.135: Combine Display

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

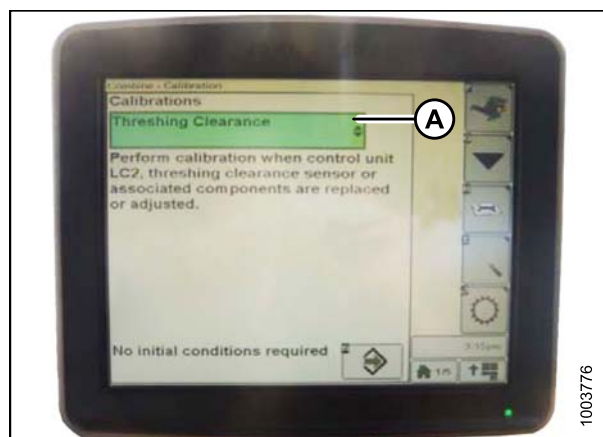


Figure 4.136: Combine Display

OPERATION

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

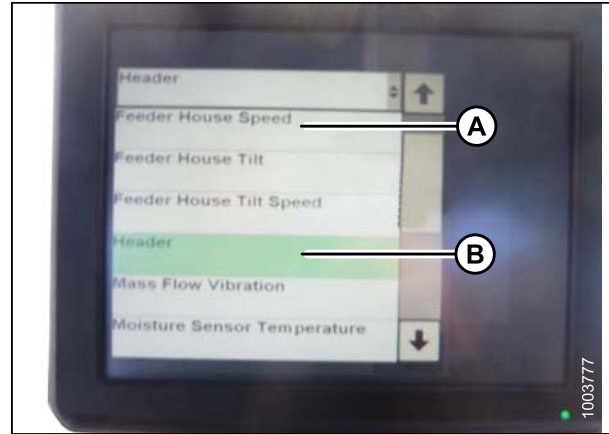


Figure 4.137: Combine Display

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

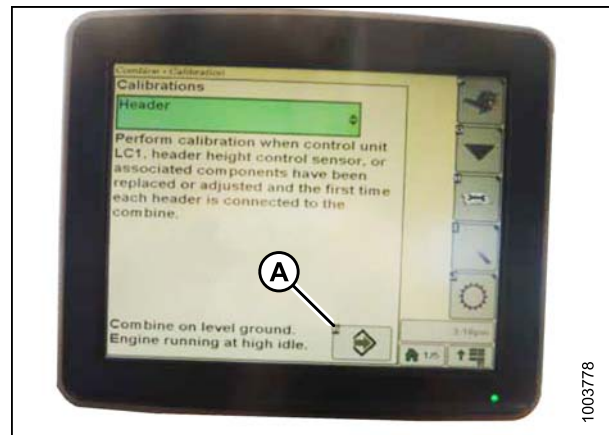


Figure 4.138: Combine Display

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

NOTE:

If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to [Checking Voltage Range from the Combine Cab \(John Deere S Series\)](#), page 110.

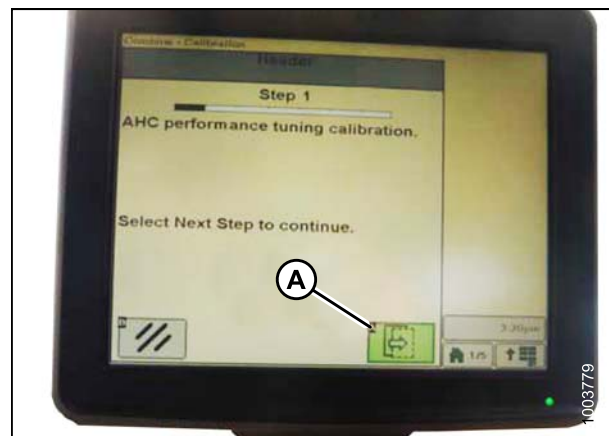


Figure 4.139: Combine Display

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

NOTE:

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

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

OPERATION

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



Figure 4.140: Combine Command Center

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

NOTE:

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

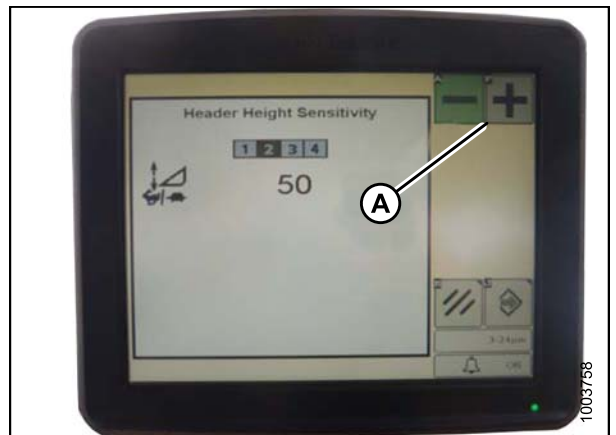


Figure 4.141: Combine Display

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:

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



Figure 4.142: Combine Command Center

OPERATION

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

NOTE:

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

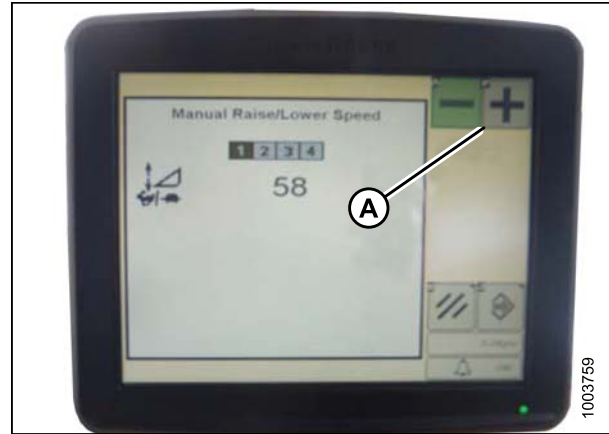


Figure 4.143: Combine Display

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 Control (AHHC), follow these steps:

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



Figure 4.144: Combine Display

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



Figure 4.145: Combine Display

OPERATION

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



Figure 4.146: Combine Display

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

NOTE:

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



Figure 4.147: Joystick Buttons

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



Figure 4.148: Combine Control Console

OPERATION

NOTE:

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

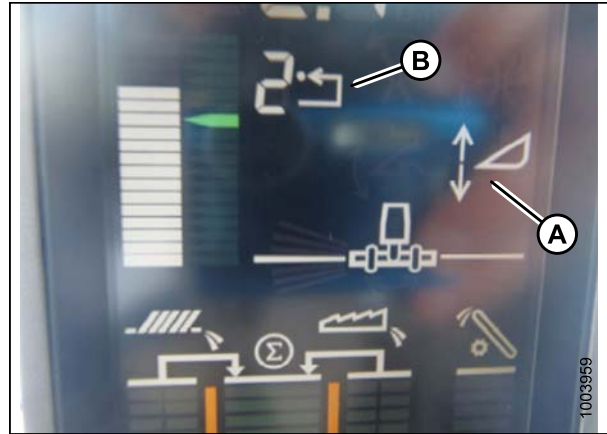


Figure 4.149: Combine Display

Lexion 500 Series Combines

Calibrating the Auto Header Height Control (Lexion 500 Series)

For best performance of the Auto Header Height Control 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. Refer to [4.7.4 Header Angle, page 149](#).

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 Control (AHHC), follow these steps:

1. Use the '<' key (A) or '>' key (B) to select AUTO HEADER, and press the OK key (C). The 'E5' window displays whether the automatic header height is on or off.

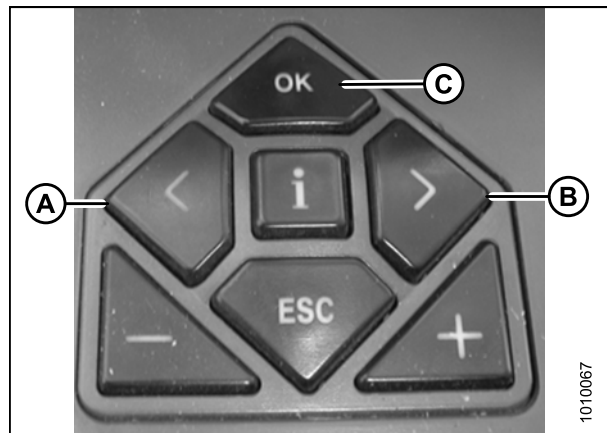


Figure 4.150: Combine Controls

OPERATION

- Use the '-' key (A) or the '+' key (B) to turn the AHHC on, and press the OK key (C).
- Engage the threshing mechanism and the header.

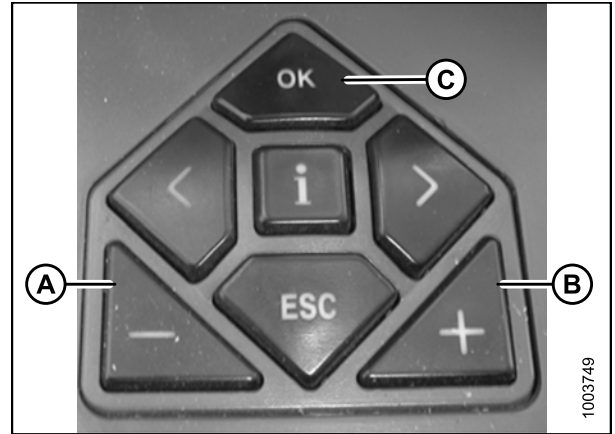


Figure 4.151: Combine Controls

- Use the '<' or '>' key to select CUTT.HEIGHT LIMITS, and press the OK key (C).
- Follow the procedure displayed on the screen to program the upper and lower limits of the header into the CEBIS.

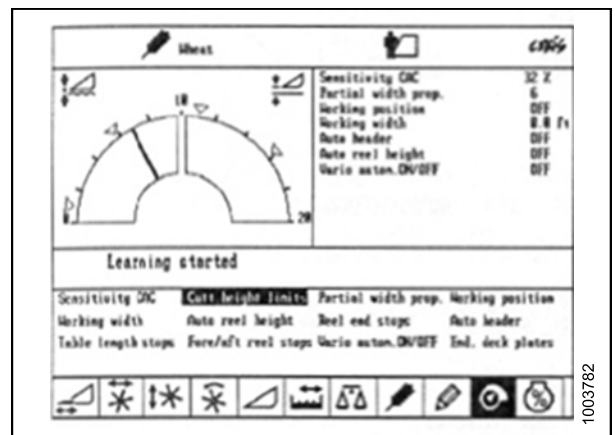


Figure 4.152: Combine Display

- Use the '<' or '>' key to select SENSITIVITY CAC, and press the OK key (C).

NOTE:

Setting the sensitivity of the AHHC system impacts the reaction speed of the AHHC on the header.

- Use the '-' key or the '+' key to change the setting of the reaction speed, and press the OK key (C).

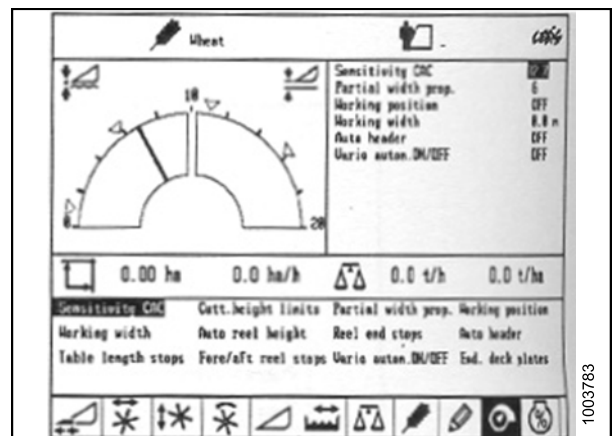


Figure 4.153: Combine Display

OPERATION

- Use line (A) or value (B) to determine the sensitivity setting.

NOTE:

The setting can be adjusted from 0–100%. When sensitivity is adjusted to 0%, the signals from the sensing bands have no effect on the automatic cutting height adjustment. When sensitivity is adjusted to 100%, the signals from the sensing bands have maximum effect on the automatic cutting height adjustment. The recommended starting point is 50%.

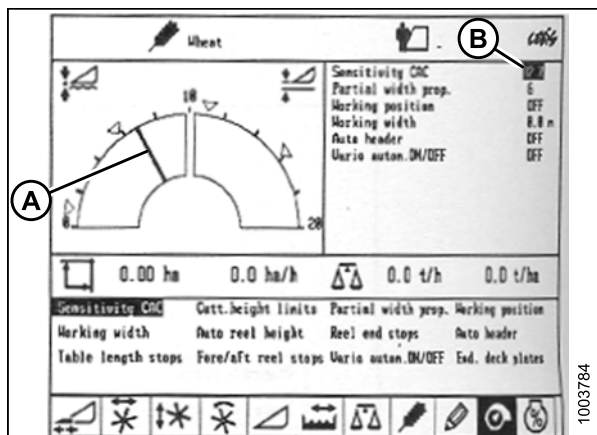


Figure 4.154: Combine Display

Setting Cutting Height (Lexion 500 Series)

Cutting heights can be programmed into the preset cutting height and auto contour systems. Use the preset cutting height system for cutting heights above 5.9 in. (150 mm), and use the auto contour system for cutting heights below 5.9 in. (150 mm).

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:

- Start the engine.
- Activate the machine enable switch.
- Engage the threshing mechanism.
- Engage the header.
- 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 system.

NOTE:

Button (A) is used only with Auto Header Height Control function. Button (B) is used only with the return to cut function.



Figure 4.155: Joystick Buttons

OPERATION

6. Use the '<' key (C) or '>' key (D) to select the CUTTING HEIGHT window, and press the OK key (E).
7. Use the '-' key (A) or the '+' key (B) to set the desired cutting height. An arrow indicates the selected cutting height on the scale.

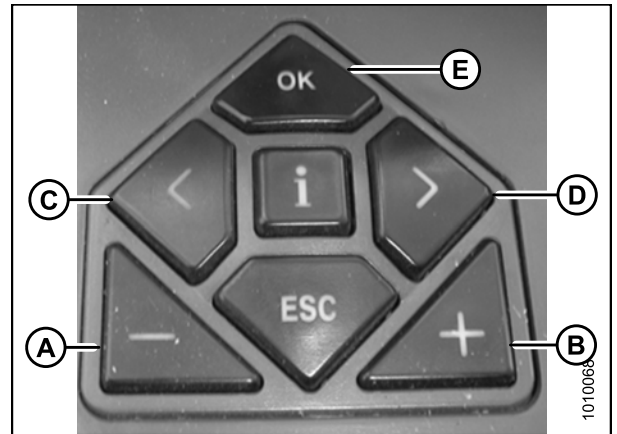


Figure 4.156: Combine Controls

8. Briefly press button (A) or button (B) in order to select the set point.
9. Repeat Step for the set point.



Figure 4.157: Joystick Buttons

Setting Cutting 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 manually set the cutting height, follow these steps:

OPERATION

10. Use button (A) to raise the header or button (B) to lower the header to the desired cutting height.
11. Press and hold button (C) for three seconds to store the cutting height into the CEBIS (an alarm will sound when the new setting has been stored).
12. Program a second set point, if desired, by using button (A) to raise the header or button (B) to lower the header to the desired cutting height, and briefly press button (C) to store the second set point into the CEBIS (an alarm will sound when the new setting has been stored).

NOTE:

For above the ground cutting, repeat Step 10., [Setting Cutting Height Manually \(Lexion 500 Series\), page 122](#), and use button (D) instead of button (C) while repeating Step 11., [Setting Cutting Height Manually \(Lexion 500 Series\), page 122](#).



Figure 4.158: Joystick Buttons

Setting the Sensitivity of the Auto Header Height Control (Lexion 500 Series)

Setting the sensitivity of the Auto Header Height Control (AHHC) system impacts the reaction speed of the AHHC on the header.

NOTE:

The upper and lower limits of the header must be programmed into the CEBIS before adjusting the sensitivity of the AHHC system. The setting can be adjusted from 0–100%. When sensitivity is adjusted to 0%, the signals from the sensing bands have no effect on the automatic cutting height adjustment. When sensitivity is adjusted to 100%, the signals from the sensing bands have maximum effect on the automatic cutting height adjustment. The recommended starting point is 50%.

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

1. Use the '<' key (C) or the '>' key (D) to select SENSITIVITY CAC, and press the OK key (E).
2. Use the '-' key (A) or the '+' key (B) to change the reaction speed setting, and press the OK key (E).

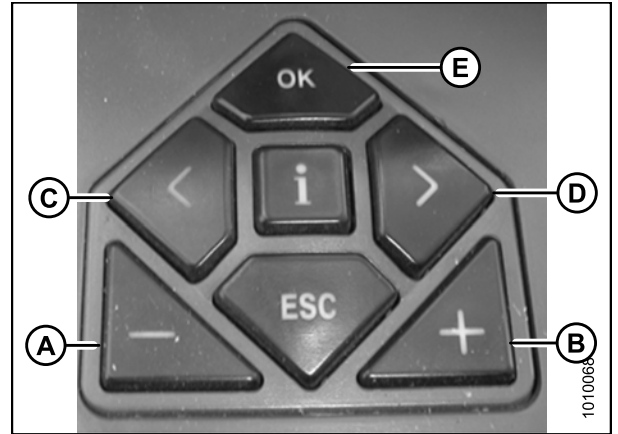


Figure 4.159: Combine Controls

3. Use line (A) or value (B) to determine the sensitivity setting.

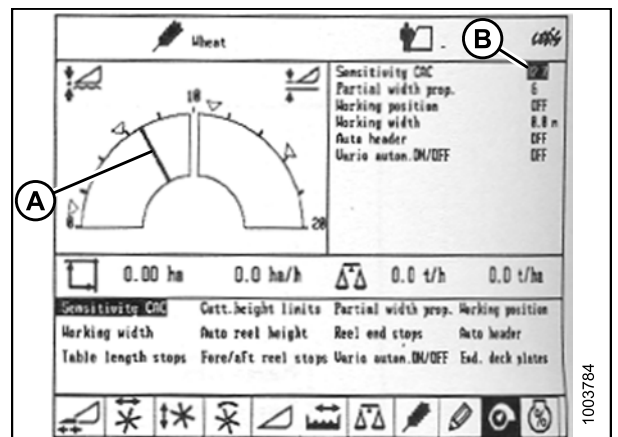
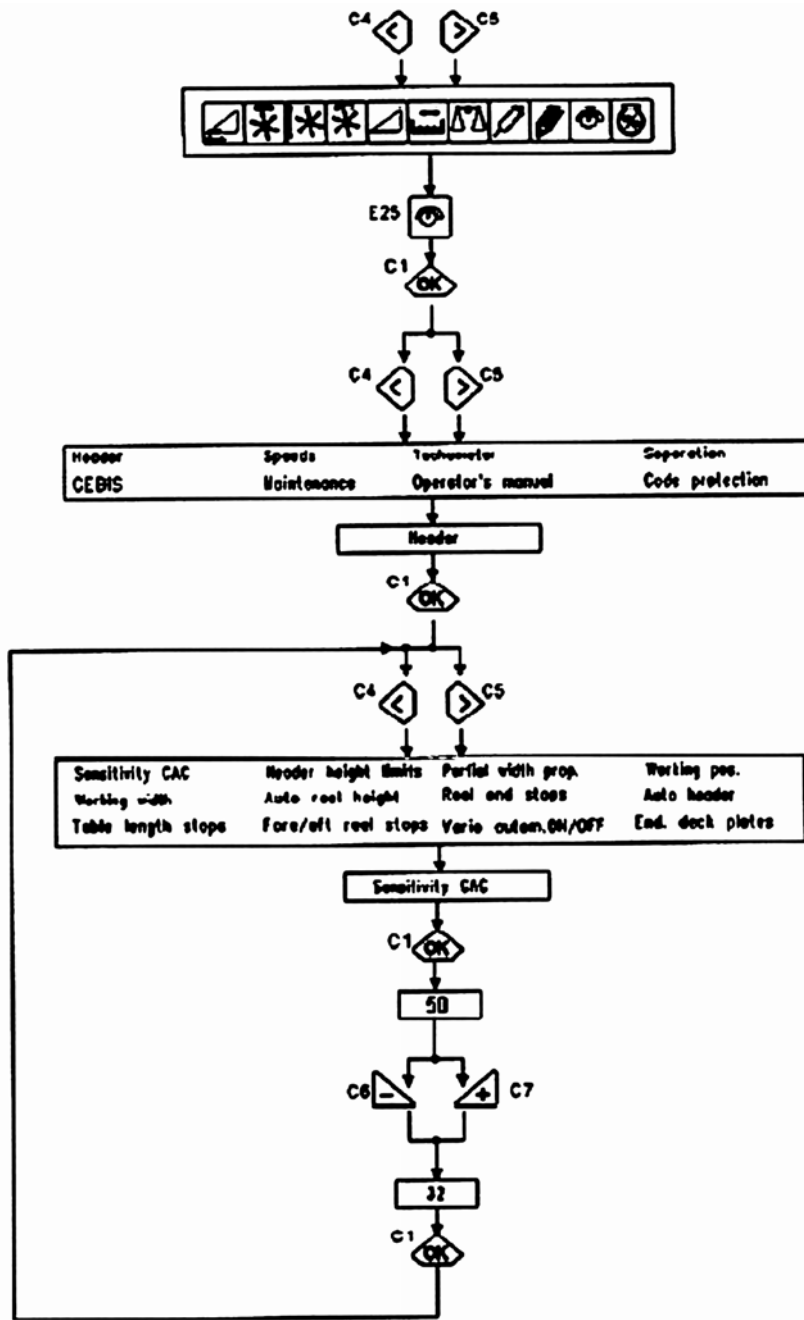


Figure 4.160: Combine Display

OPERATION



1003798

Figure 4.161: 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 '<' or '>' key to select REEL WINDOW. Window 'E15' will display the current advance or retard speed of the reel in relation to the ground speed.

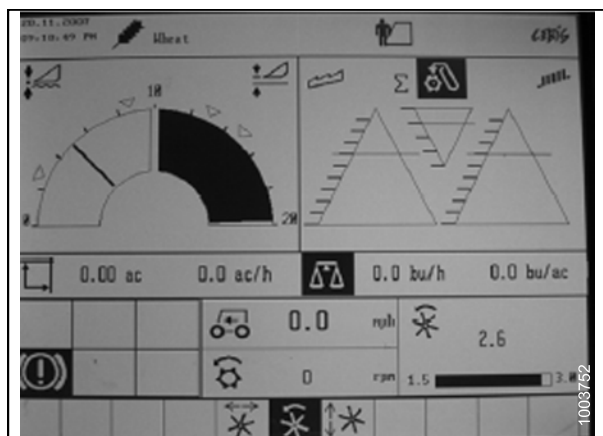


Figure 4.162: Combine Display

2. Press the OK key (C) to open the REEL SPEED window.
3. Use the '-' key (A) or the '+' key (B) to set the reel speed in relation to the current ground speed. Window 'E15' will display the selected reel speed.

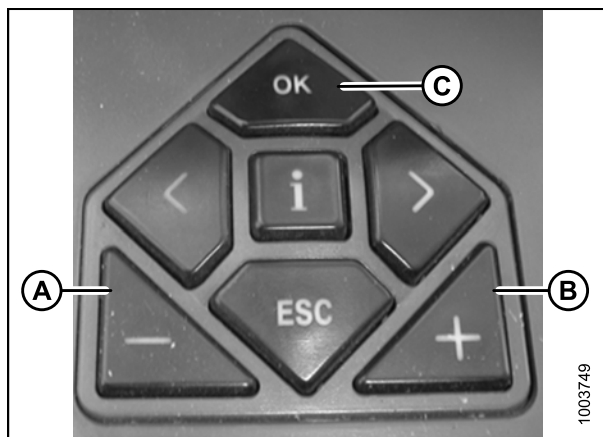


Figure 4.163: Combine Controls

OPERATION

4. Manually adjust the reel speed by rotating the rotary switch to the reel position (A), and then use the '-' or '+' key to set the reel speed.

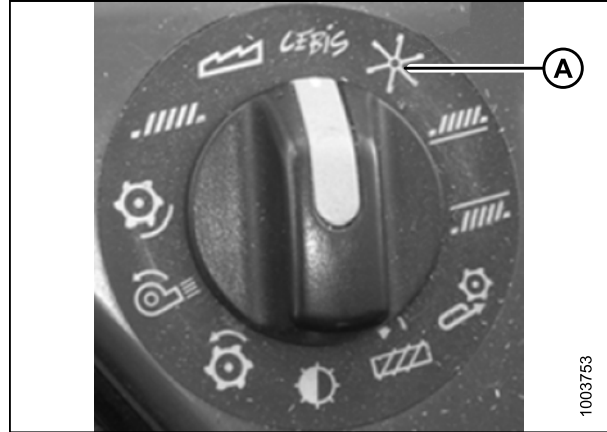


Figure 4.164: Combine Rotary Switch

5. Press and hold button (A) or button (B) for three seconds to store the setting into the CEBIS (an alarm will sound when the new setting has been stored).

NOTE:

Whenever button (A) or button (B) is pressed for three seconds, the current positions for reel speed and cutting height are stored.



Figure 4.165: Joystick Buttons

OPERATION

- Use the '<' or '>' key to select the REEL WINDOW. Window 'E15' will display the current advance or retard speed of the reel in relation to the ground speed.

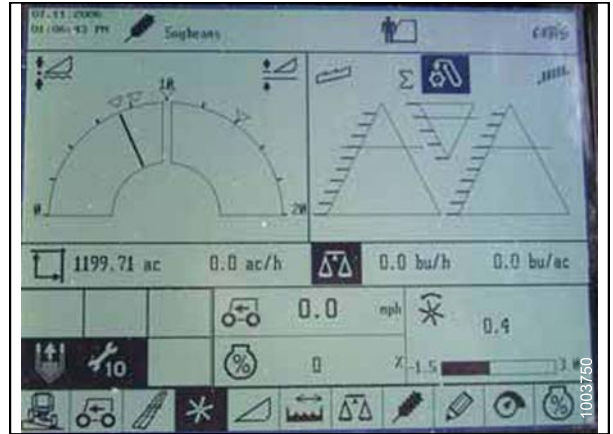


Figure 4.166: Combine Display

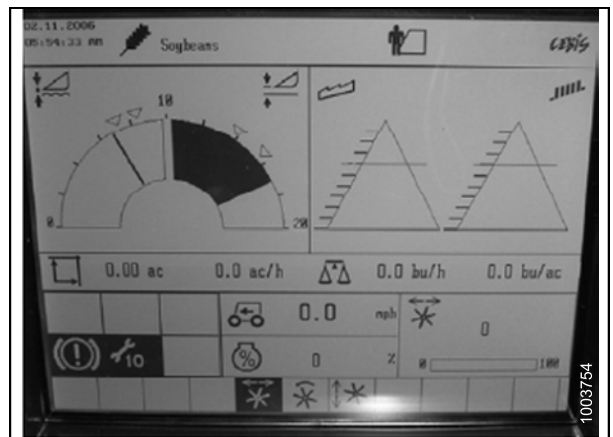


Figure 4.167: Combine Display

- Press the OK key (E), and use the '<' key (C) or the '>' key (D) to select the REEL FORE AND AFT window.
- Use the '-' key (A) or the '+' key (B) to set the reel fore-aft position.

NOTE:

Joystick button (A) or button (B) also can be used to set the reel fore-aft position.

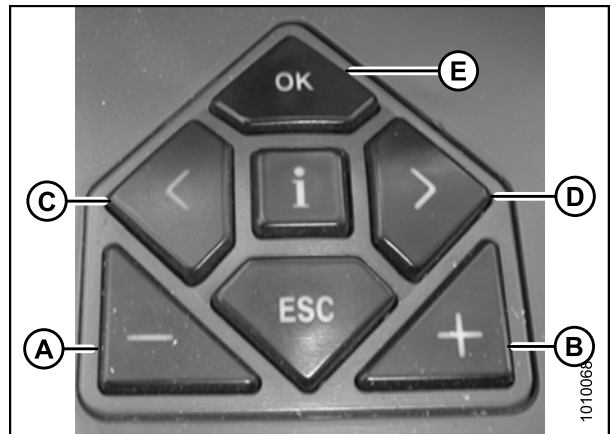


Figure 4.168: Combine Controls

OPERATION

- Press and hold button (C) or button (D) for three seconds to store the setting into the CEBIS (an alarm will sound when the new setting has been stored).

NOTE:

Whenever button (C) or button (D) is pressed for three seconds, the current positions for reel speed and cutting height are stored.

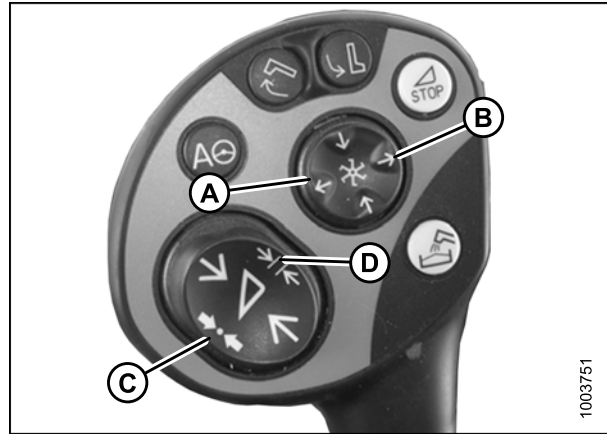


Figure 4.169: Joystick Buttons

Lexion 700 Series Combines

Calibrating the Auto Header Height Control (Lexion 700 Series)

For best performance of the Auto Header Height Control 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. Refer to [4.7.4 Header Angle, page 149](#).

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 Control, follow these steps:

- Use control knob (A) to highlight the AUTO CONTOUR icon (B), and press control knob (A) to select it.

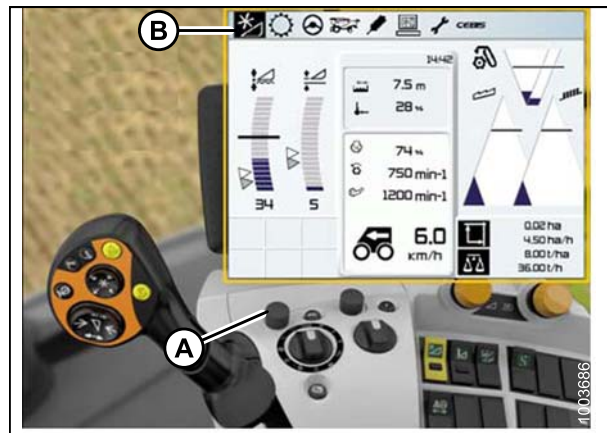


Figure 4.170: Combine Display, Console, and Propulsion Lever

OPERATION

2. Use control knob (A) to highlight the icon that resembles a header with up and down arrows (not shown), and press control knob (A) to select it. The highlighted header icon (B) will be displayed on the screen.



Figure 4.171: Combine Display, Console, and Propulsion Lever

3. Use control knob (A) to highlight the icon that resembles a header with up and down arrows (C), and press control knob (A) to select it.

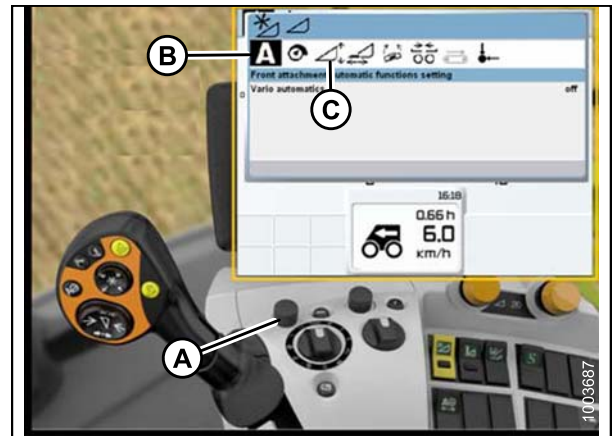


Figure 4.172: Combine Display, Console, and Propulsion Lever

4. Use control knob (A) to highlight the icon that resembles a screwdriver (B).
5. Engage the combine separator and feeder house.
6. Press control knob (A), and a progress bar chart will appear.



Figure 4.173: Combine Display, Console, and Propulsion Lever

OPERATION

7. Fully raise the feeder house, and the progress bar chart will advance to 25% (A).
8. Ensure header float is unlocked, fully lower the feeder house, and the progress bar chart will advance to 50%.
9. Fully raise the feeder house, and the progress bar chart will advance to 75%.
10. Fully lower the feeder house, and the progress bar chart will advance to 100%.



Figure 4.174: Combine Display, Console, and Propulsion Lever

11. Ensure the progress bar chart displays 100% (A). The calibration procedure is now complete.

NOTE:

If the voltage is not within the range of 0.5–4.5 volts at any time throughout the calibration process, the monitor will indicate learning procedure not concluded.

NOTE:

If header float is set too light, an error message will appear. Back float off three full-turns of the adjuster bolts to adjust float to approximately 100–125 lbs.



Figure 4.175: Combine Display, Console, and Propulsion Lever

Setting Cutting 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 set cutting height, follow these steps:

OPERATION

1. Lower the header to desired cutting height or ground pressure setting. The float indicator box should be set to 1.5.

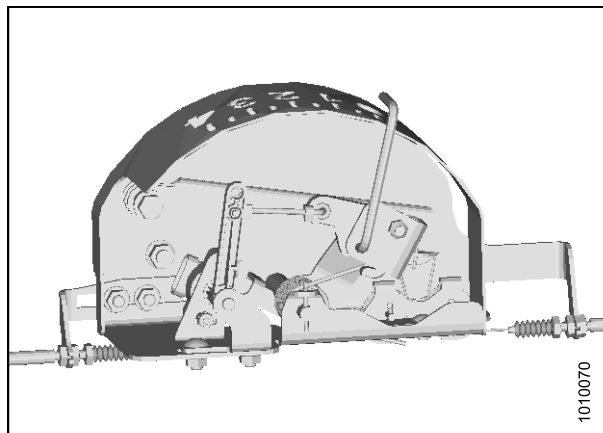


Figure 4.176: Float Indicator Box

2. Hold the left side of the header raise and lower switch (A) until you hear a ping.

NOTE:

You can set two different cutting heights.



Figure 4.177: Combine Display, Console, and Propulsion Lever

Setting the Sensitivity of the Auto Header Height Control (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 Control, follow these steps:

OPERATION

1. Use control knob (A) to highlight the HEADER/REEL icon (B), and press control knob (A) to select it. The HEADER/REEL window opens.

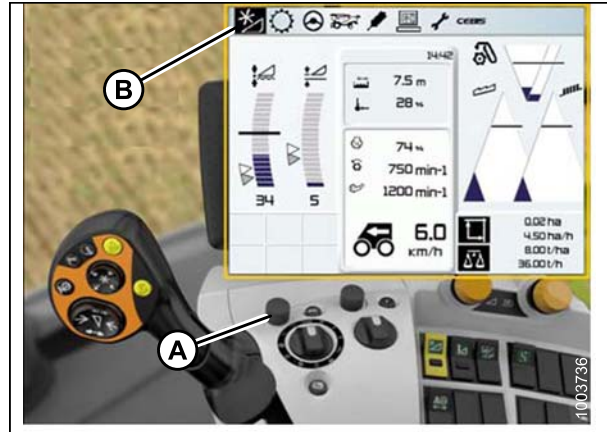


Figure 4.178: Combine Display, Console, and Propulsion Lever

2. Select the FRONT ATTACHMENT PARAMETER SETTINGS icon (A). A list of settings appears.
3. Select SENSITIVITY CAC (B) from the list.



Figure 4.179: Combine Display, Console, and Propulsion Lever

4. Select the SENSITIVITY CAC icon (A).

NOTE:

To set the sensitivity, you will have to change the CUTTING HEIGHT ADJUSTMENT from the '0' default. The settings from 1–50 provide a faster response, whereas the settings from -1– -50 provide a slower response. For best results, make adjustments in increments of five.

5. Increase the CUTTING HEIGHT ADJUSTMENT setting if the reaction time between the header and the adapter is too slow while cutting on the ground, and decrease the CUTTING HEIGHT ADJUSTMENT setting if the reaction time between the header and the adapter is too fast.
6. Increase the sensitivity if the header is lowered too slowly, and decrease the sensitivity if the header hits the ground too hard or is lowered too quickly.



Figure 4.180: Combine Display

OPERATION

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:

1. Use control knob (A) to highlight the HEADER/REEL icon (B), and press control knob (A) to select it. The HEADER/REEL window opens.

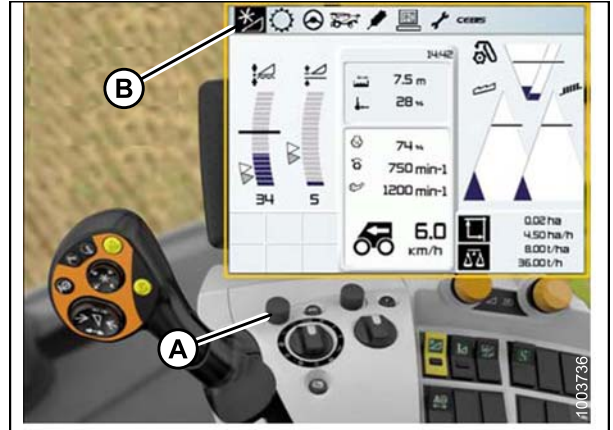


Figure 4.181: Combine Display, Console, and Propulsion Lever

2. Use control knob (A) to select REEL SPEED (B), and adjust the reel speed (if you are NOT using Auto Reel Speed). A graph displays in the window.



Figure 4.182: Combine Display, Console, and Propulsion Lever

OPERATION

3. Select ACTUAL VALUE (A) from the AUTO REEL SPEED window (if you are using Auto Reel Speed). The ACTUAL VALUE window opens and displays the auto reel speed.



Figure 4.183: Combine Display, Console, and Propulsion Lever

4. Use control knob (A) to raise or lower the reel speed.



Figure 4.184: 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, and 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 Control system.

2. Ensure pointer (A) on the float indicator box points to '0'. If it does not point to '0', adjust the cable take-up bracket (B) until it does.

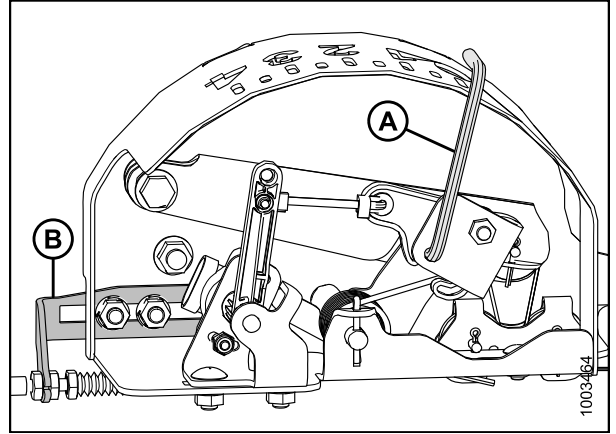


Figure 4.185: 5 Volt Auto Header Height Control Sensor Assembly

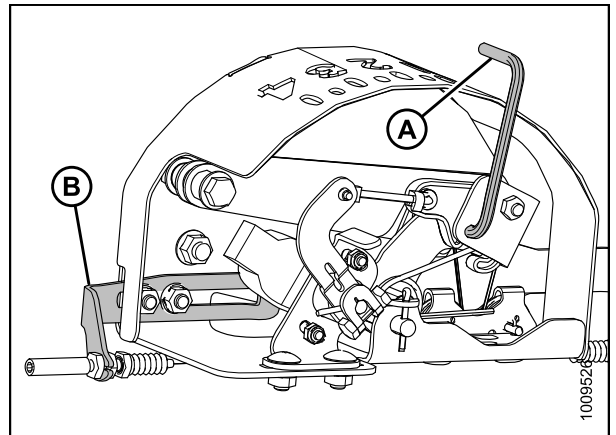


Figure 4.186: 10 Volt Auto Header Height Control Sensor Assembly

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

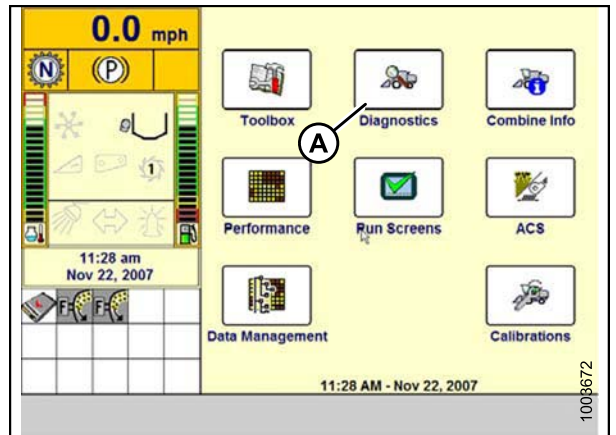


Figure 4.187: Combine Display

OPERATION

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

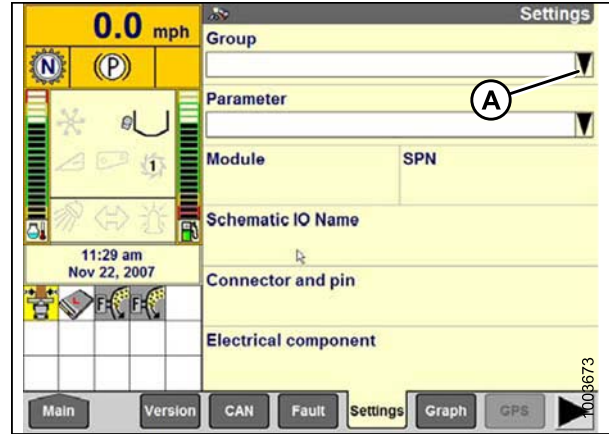


Figure 4.188: Combine Display

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

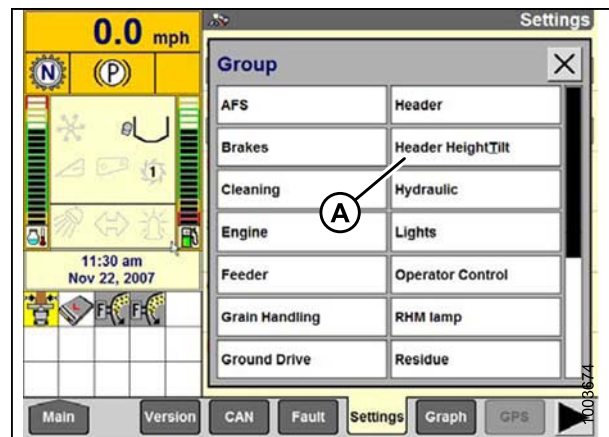


Figure 4.189: Combine Display

8. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage is displayed at top of screen.
9. Raise and lower the header to see the full range of voltage readings.
10. Adjust the voltage limits (refer to [Adjusting Voltage Limits, page 61](#)) if the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient (refer to Table [4.3 Combine Voltage Limits, page 59](#)).

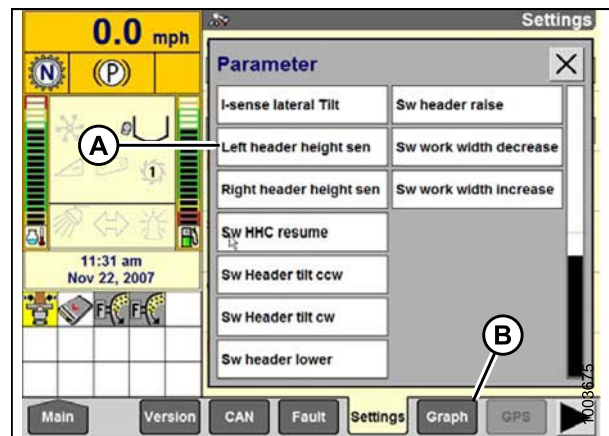


Figure 4.190: Combine Display

OPERATION

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

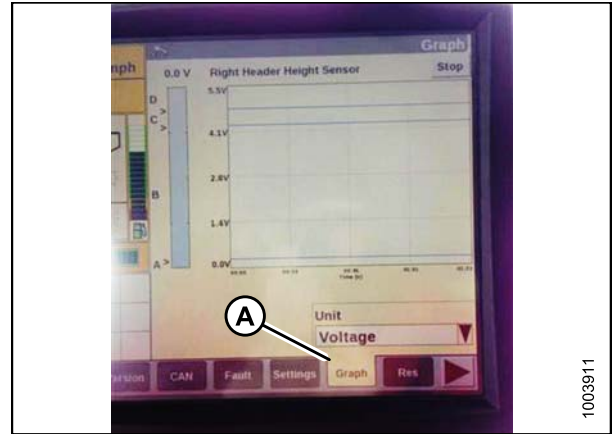


Figure 4.191: Combine Display

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

NOTE:

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

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

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



Figure 4.192: Combine Display

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

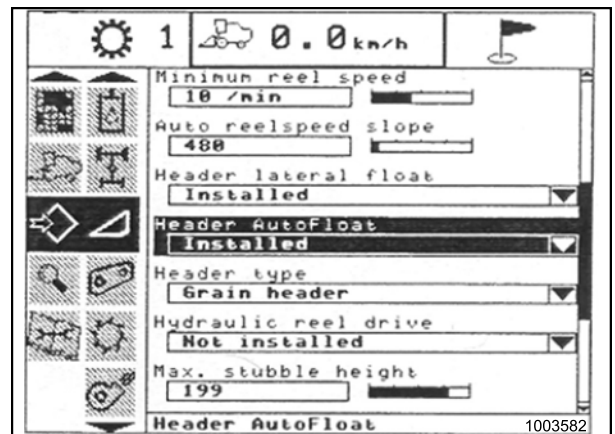


Figure 4.193: Combine Display

OPERATION

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

For best performance of the Auto Header Height Control 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 Control, follow these steps:

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

NOTE:

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

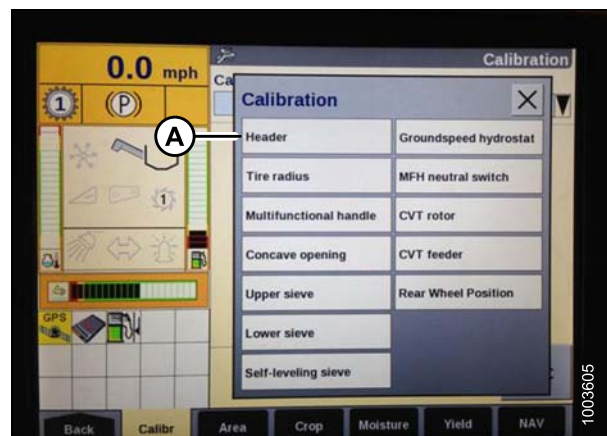


Figure 4.194: Combine Display

OPERATION

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

NOTE:

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

NOTE:

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



Figure 4.195: Combine Display

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

NOTE:

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

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

Calibrating Maximum Stubble Height

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

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

IMPORTANT:

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

To calibrate the maximum stubble height, follow these steps:

OPERATION

6. Select the MAXIMUM STUBBLE HEIGHT calibration window.

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

Message: "Then press ENTER".

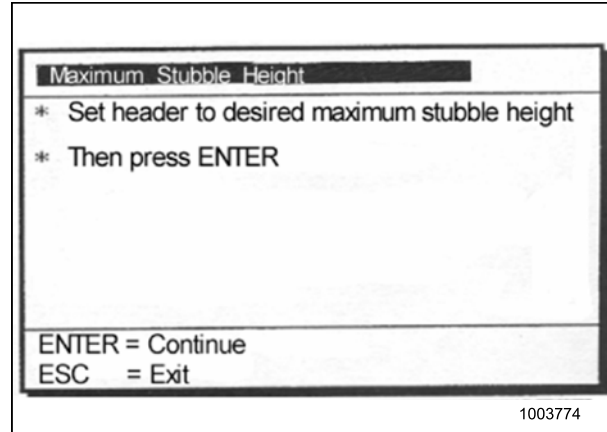


Figure 4.196: Calibration Window

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

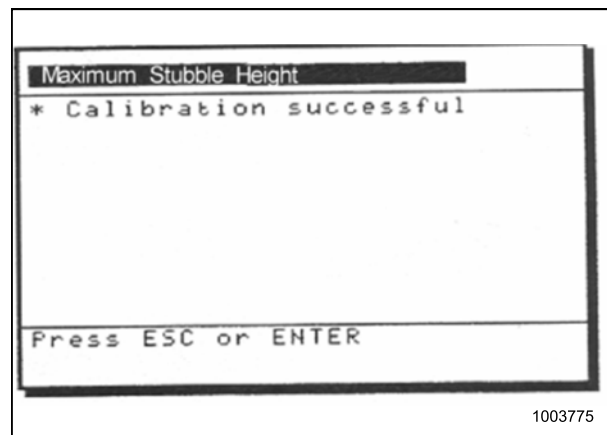


Figure 4.197: Calibration Window

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

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

NOTE:

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

To adjust the header raise rate, follow these steps:

OPERATION

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

NOTE:

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

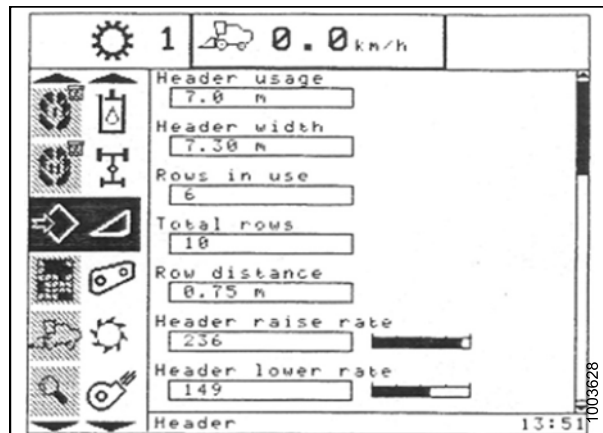


Figure 4.198: Combine Display

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

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

NOTE:

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

To set the header lower rate, follow these steps:

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

NOTE:

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

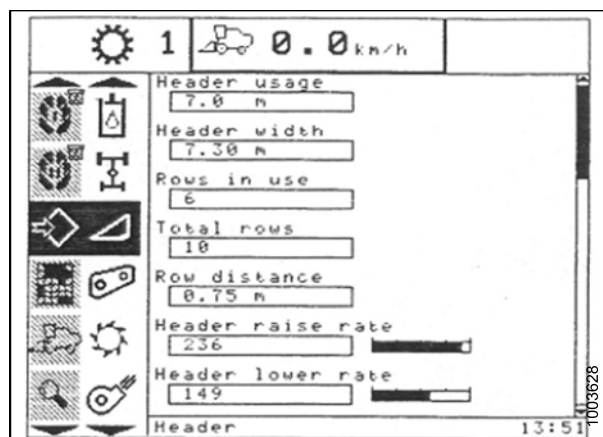


Figure 4.199: Combine Display

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

NOTE:

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

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

OPERATION

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

NOTE:

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

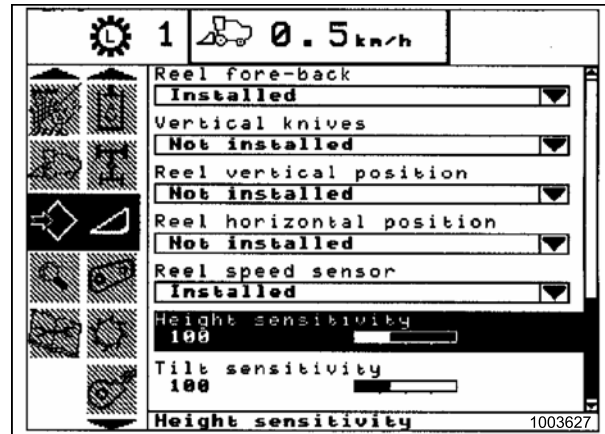


Figure 4.200: Combine Display

Sensor Operation

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

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

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

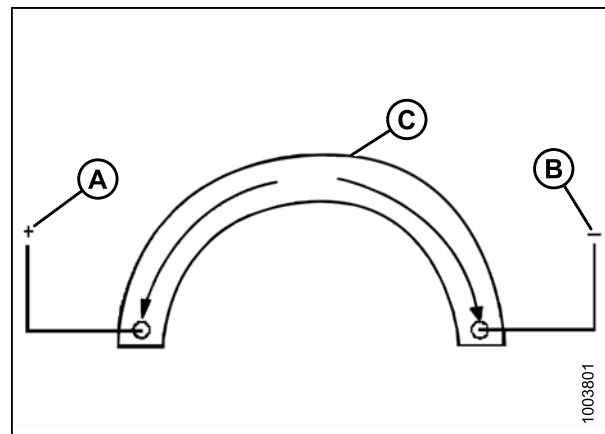


Figure 4.201: Power, Ground, and Signal Wires

OPERATION

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

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

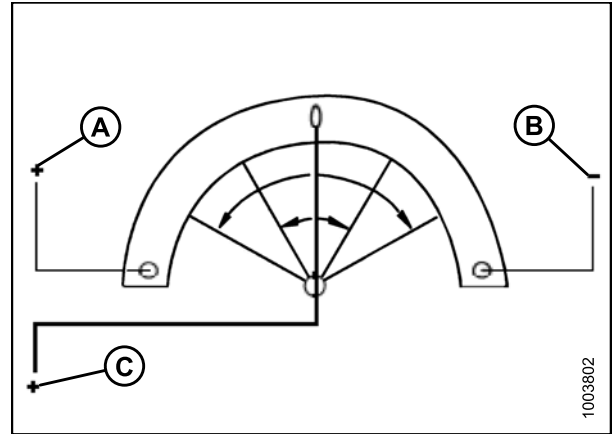


Figure 4.202: Power, Ground, and Signal Wires

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 highest

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 144](#)

The D65 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 header.

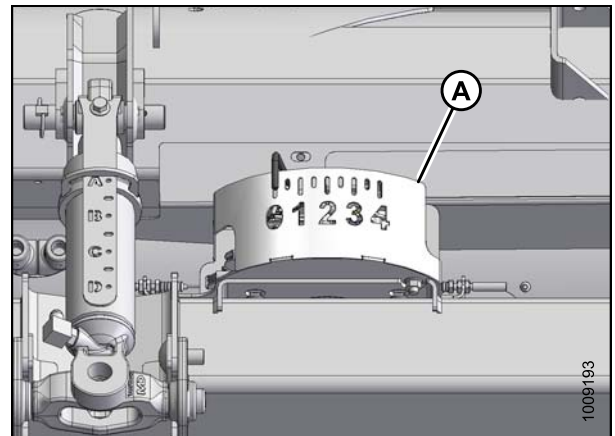


Figure 4.203: Float Indicator

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 148](#).
 - 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.

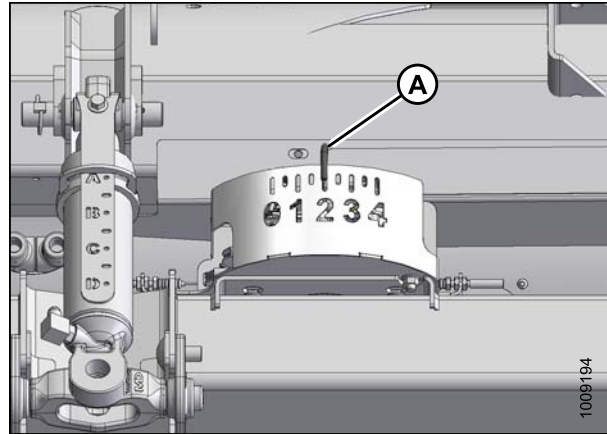


Figure 4.204: Cutting on the Ground

2. To set the float for cutting off the ground:
 - a. Set up the stabilizer wheels. Refer to [Cutting Off the Ground, page 52](#).
 - 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 between '5' and '6' on decal on the right side reel arm.

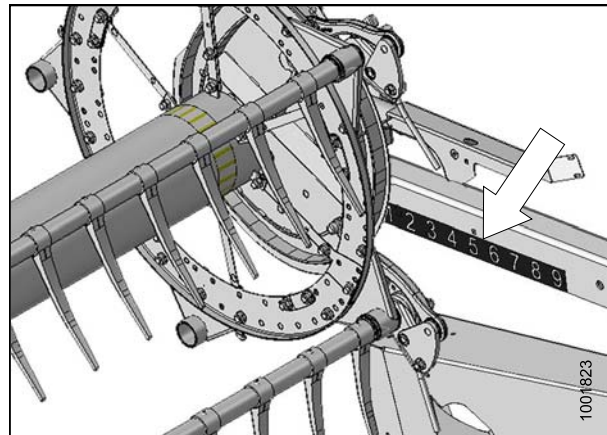


Figure 4.205: Fore-Aft Position

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.

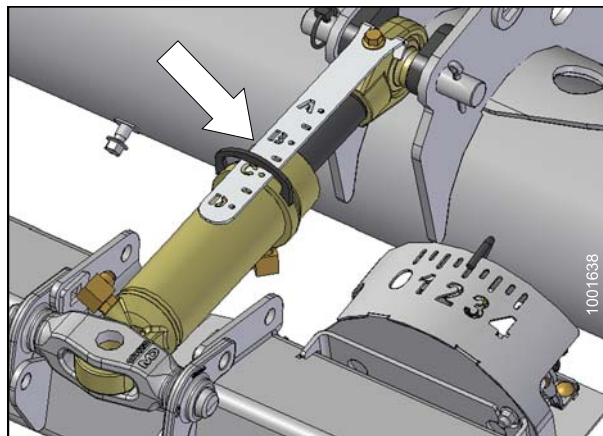


Figure 4.206: Center-Link between 'B' and 'C'

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

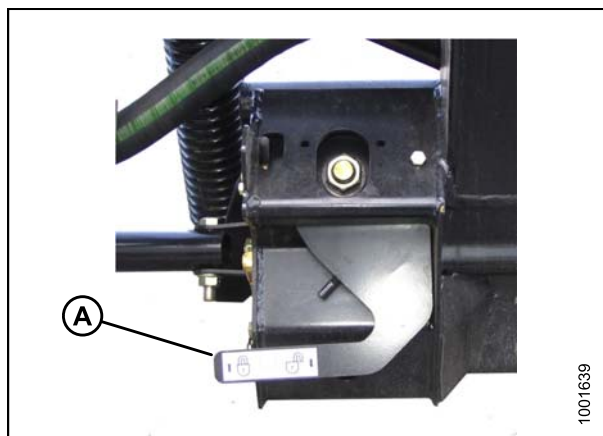


Figure 4.207: Header Float Lock in UNLOCK Position

OPERATION

8. Place stabilizer wheels and slow speed transport wheels (if equipped) in storage position as follows:
 - a. Support the left wheel assembly's 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.

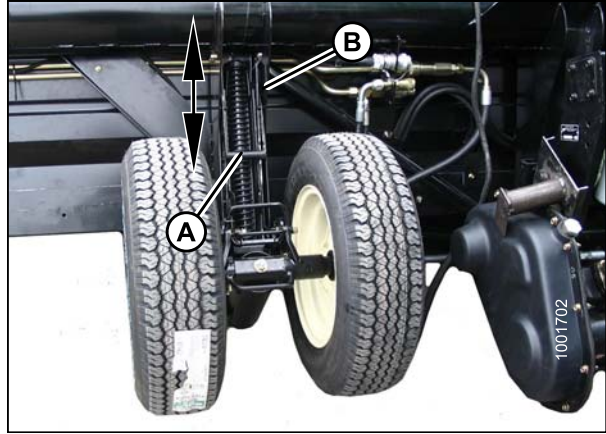


Figure 4.208: Left Wheels Shown – Right Wheels Similar

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

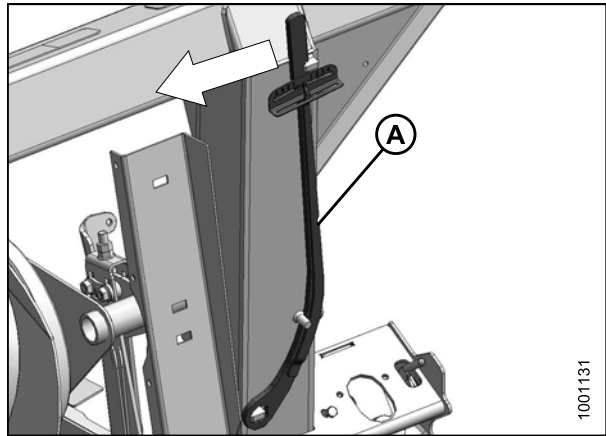


Figure 4.209: Torque Wrench

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

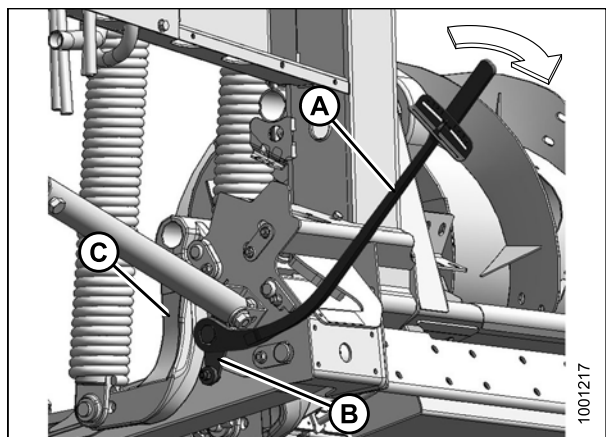


Figure 4.210: Left Side

OPERATION

12. 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.
13. Use the following table 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
20, 25, 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

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

NOTE:

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

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

NOTE:

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

16. Use the following guidelines when adjusting float:
 - Adjust the float so the wrench readings are equal at both sides.

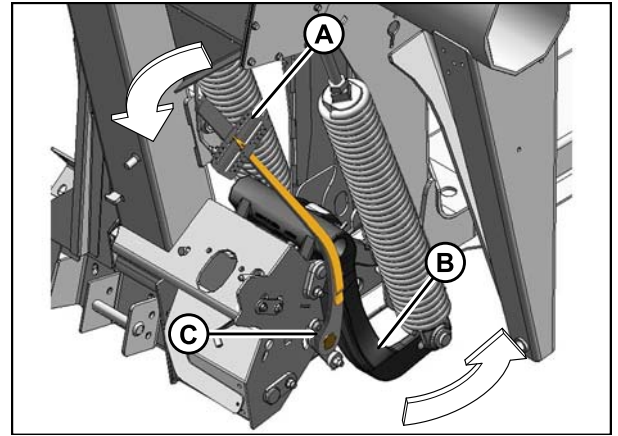


Figure 4.211: Right Side

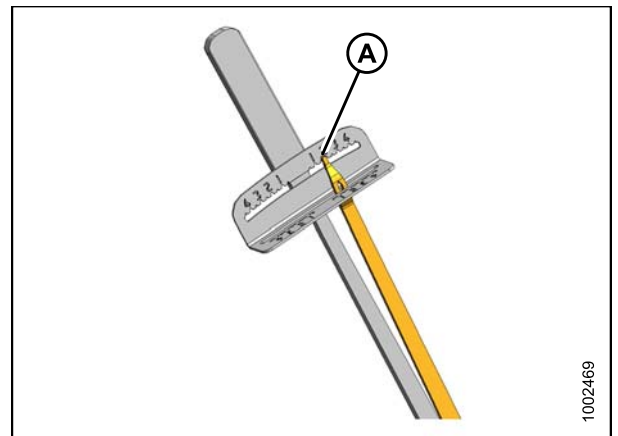


Figure 4.212: Indicator

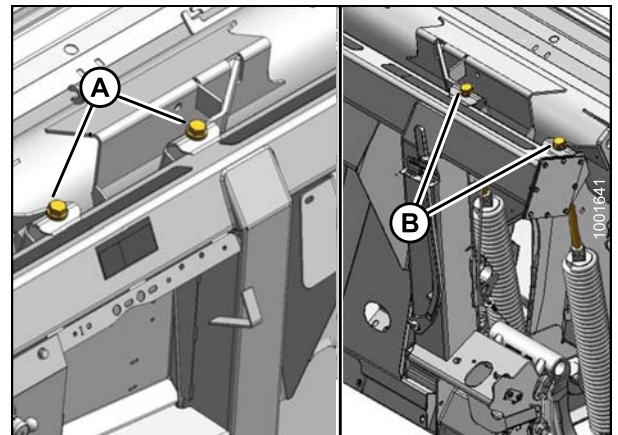


Figure 4.213: Float Adjustment

A - Left Side Adjustment

B - Right Side Adjustment

OPERATION

- Turn each bolt pair equal amounts. After adjustment has been made, repeat torque wrench reading procedure.
- Set header float as light as possible without causing excessive bouncing to avoid frequent breakage of knife components, scooping soil, or soil build-up at cutterbar in wet conditions.
- Use a slower ground speed with a light float setting, if necessary, to avoid excessive bouncing and leaving a ragged cut.
- Use the stabilizer wheels in conjunction with header 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 52](#) 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.

17. Return torque wrench (A) to storage location at right-hand side of adapter frame.

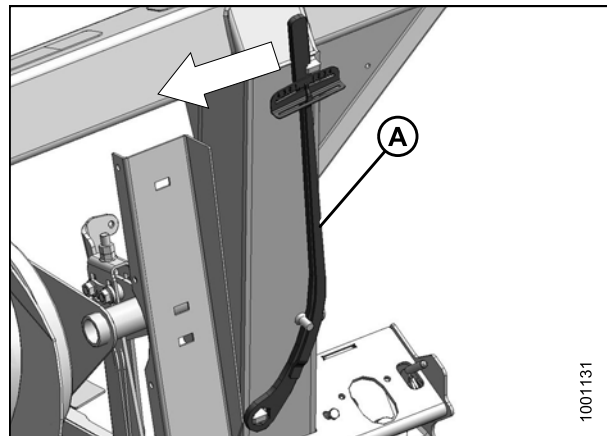


Figure 4.214: Torque Wrench

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.

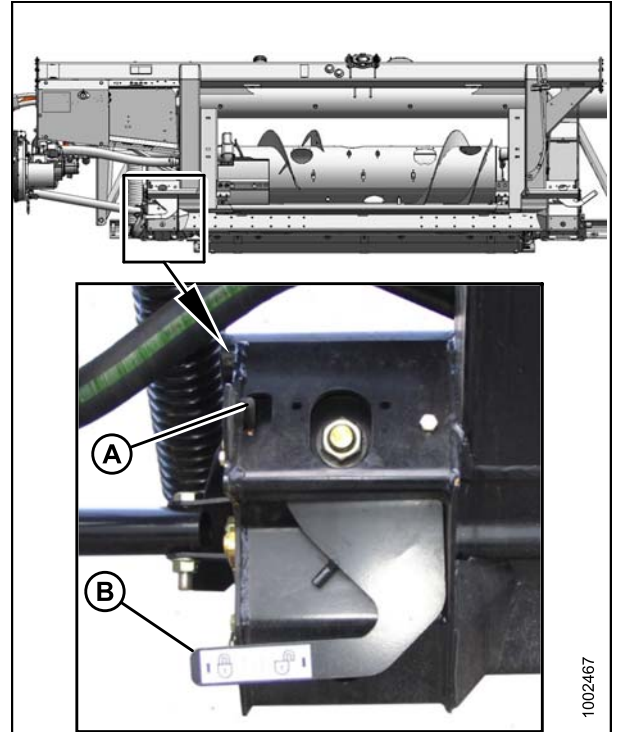


Figure 4.215: Float Lock

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.

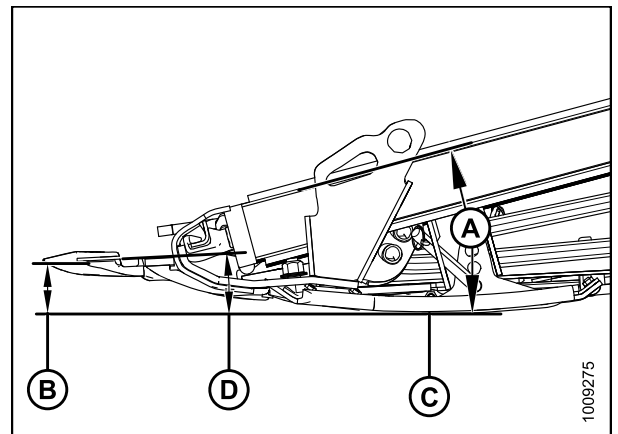


Figure 4.216: Header Angle

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.

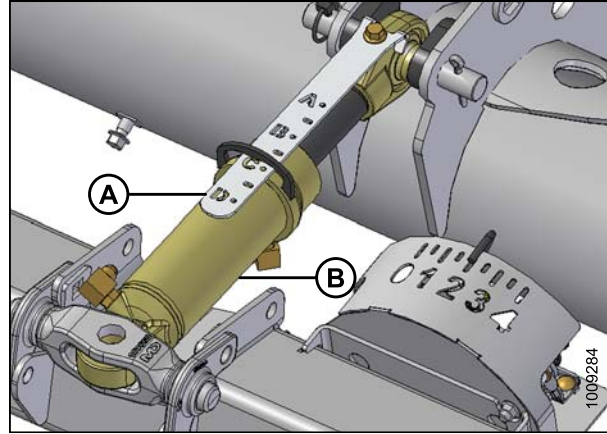


Figure 4.217: Center-Link

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 D65 Header Angle

Header Size	Guard Angle
20, 25 ft.	7.0°–12.4°
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.

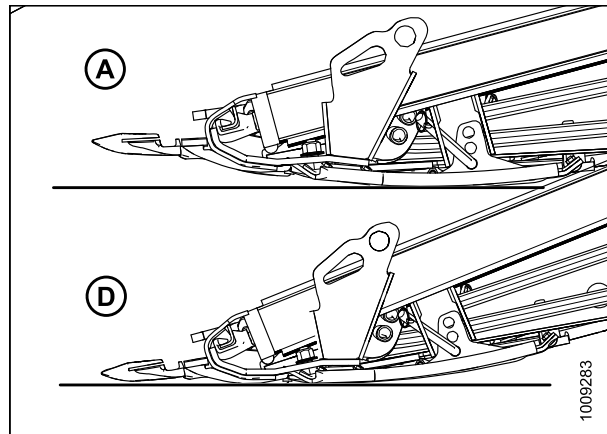


Figure 4.218: Guard Angles

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.

OPERATION

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

NOTE:

9-bat reels are available on 15, 20, and 25 foot headers from the factory. A conversion kit to change a 6-bat reel to a 9-bat reel is also available for these headers.

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 [6.14.1 Replacing Reel Drive Sprocket, page 399](#).

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

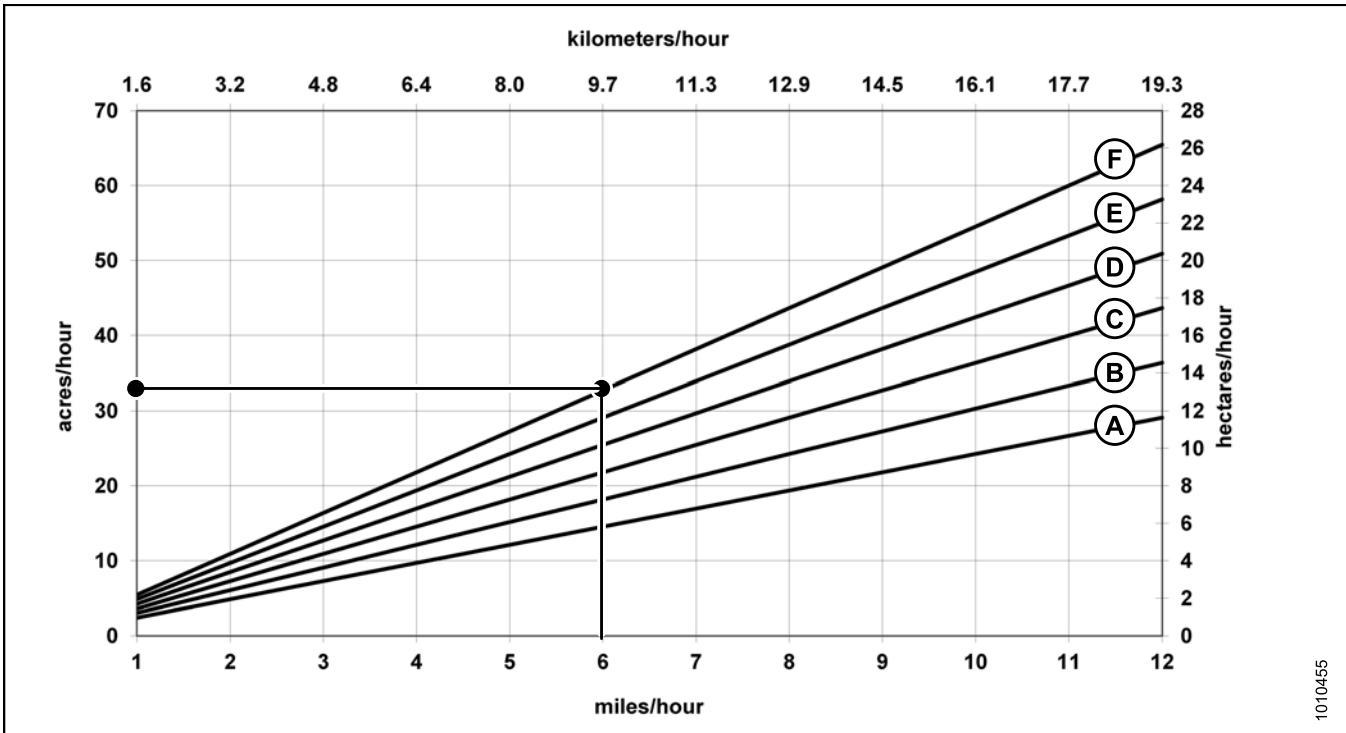


Figure 4.219: Ground Speed vs Acres

A - 20 Foot
D - 35 Foot

B - 25 Foot
E - 40 Foot

C - 30 Foot
F - 45 Foot

Example shown above: At a ground speed of 6 miles per hour (9.7 km/h) with a 45 ft. header, the area cut in one hour would be approximately 33 acres (13.4 hectares).

4.7.7 Draper Speed

Using the correct draper speed is one of the factors in achieving good flow of the cut crop away from the cutterbar.

The side drapers and feed draper operate independently of each other and therefore the speeds are controlled differently. The side draper speed is adjusted with a manually adjustable control valve that is mounted on the adapter. The adapter feed draper speed is fixed to the combine feeder house speed and cannot be independently adjusted.

Adjust the draper speeds to achieve good feeding of the crop onto the adapter feed draper. Refer to [Adjusting Side Draper Speed, page 153](#).

OPERATION

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.

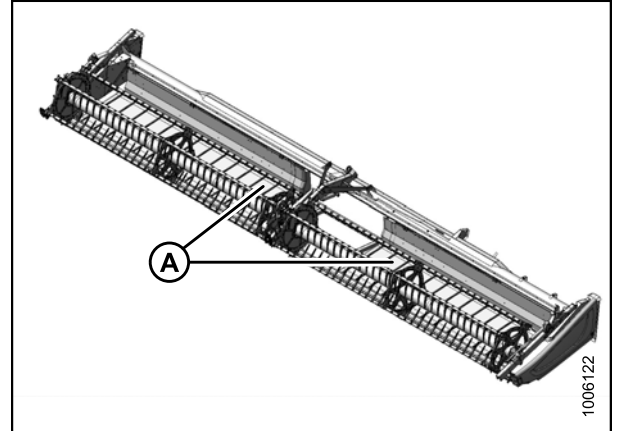


Figure 4.220: Side Drapers

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.

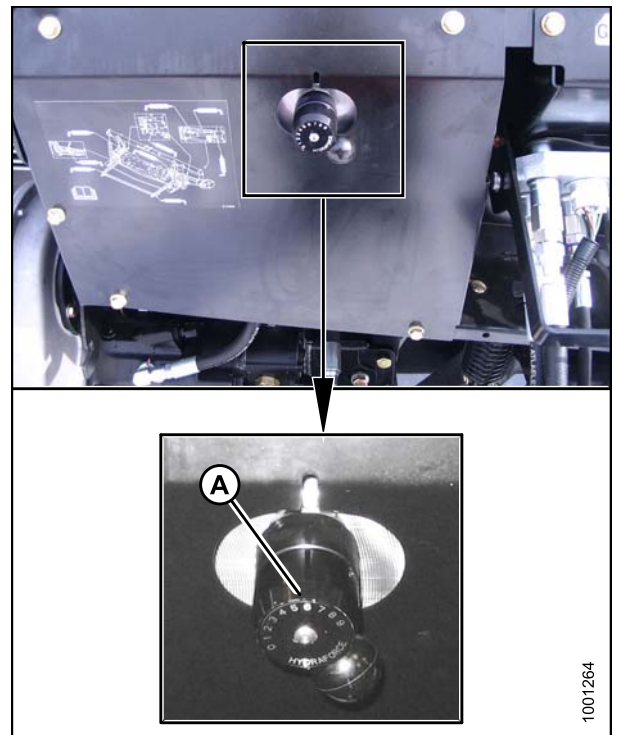


Figure 4.221: Speed Control

OPERATION

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.

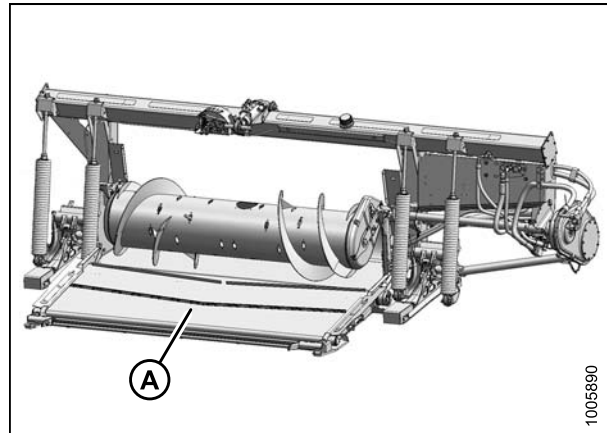


Figure 4.222: CA25 Adapter

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 ⁴	420

4. 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

IMPORTANT:

Check that the knife speed is within the values in the Table. Refer to [Checking Knife Speed, page 155](#).

Table 4.6 D65 Header Knife Speed

Header Size	Recommended Knife Drive Speed Range (rpm)	
	SKD	DKD
25 ft	600–725	700–850
30 ft	600–700	600–750
35 ft	550–650	600–750
40 ft	525–600	550–700
45 ft	—	550–700

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 154](#).
7. If it is higher than the specified range for your header, contact your MacDon dealer.



Figure 4.223: Left Endshield

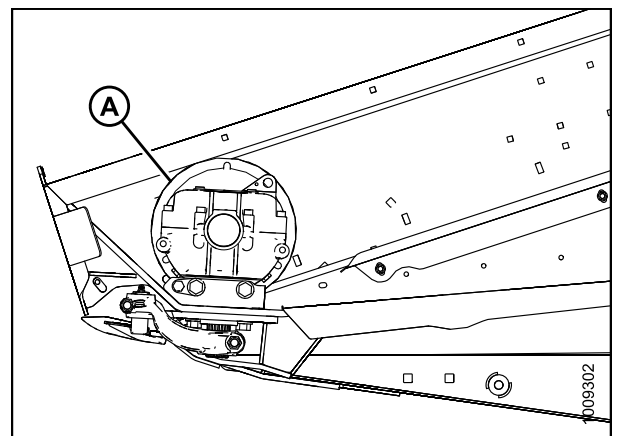


Figure 4.224: Knife Drive Pulley

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 156](#).

The reel height is controlled with switches in the operators cab.

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
- 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 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 [6.13.1 Reel Clearance to Cutterbar, page 378](#).

4.7.10 Reel Fore-Aft Position

Reel fore-aft 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 using controls in the cab.

The reel can also be moved approximately 9 in. (227 mm) further aft by repositioning the fore-aft cylinders on the reel arms to accommodate certain crop conditions

For double reel headers, refer to [Repositioning Fore-Aft Cylinders on Double Reel, page 160](#).

For single reel headers, refer to [Repositioning Fore-Aft Cylinders on Single Reel, page 157](#).

If the combine is equipped with the Multi-Drop Rapid Reel Conversion option, refer to [4.7.11 Repositioning Fore-Aft Cylinders with Multi-Crop Conversion Option, page 163](#).

OPERATION

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. Refer to 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 [4.7.12 Reel Tine Pitch, page 165](#) for adjustment details.

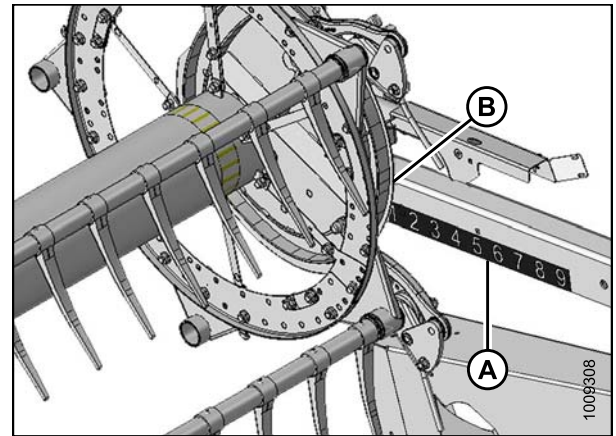


Figure 4.225: Fore-Aft Decal

Adjusting Reel Fore-Aft Position

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

1. Select FORE-AFT mode on the selector switch in the cab.
2. Operate the hydraulics to move the reel to the desired position, again using the gauge as a reference.
3. Check reel clearance to cutterbar after making changes to cam setting. Refer to the following for measurements and adjustment procedures:
 - [6.13.1 Reel Clearance to Cutterbar, page 378](#)
 - [6.13.2 Reel Frown, page 381](#).

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 on Single Reel

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.



WARNING

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

OPERATION

Reposition right arm cylinder as follows:

NOTE:

Reel components are not shown for clarity.

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

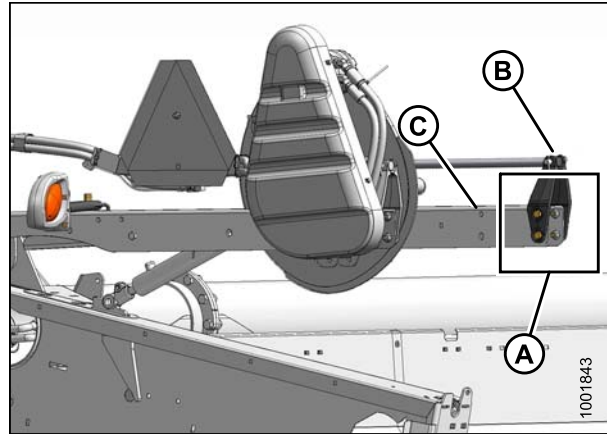


Figure 4.226: Right Arm Cylinder - Forward Position

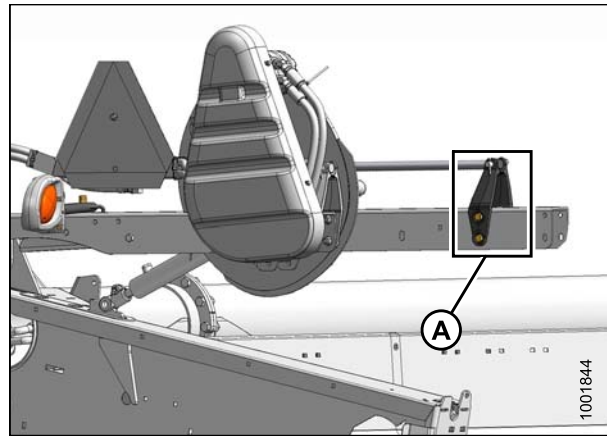


Figure 4.227: Right Arm Cylinder - Rearward Position

OPERATION

Reposition left arm cylinder as follows:

NOTE:

Reel components are not shown for clarity.

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

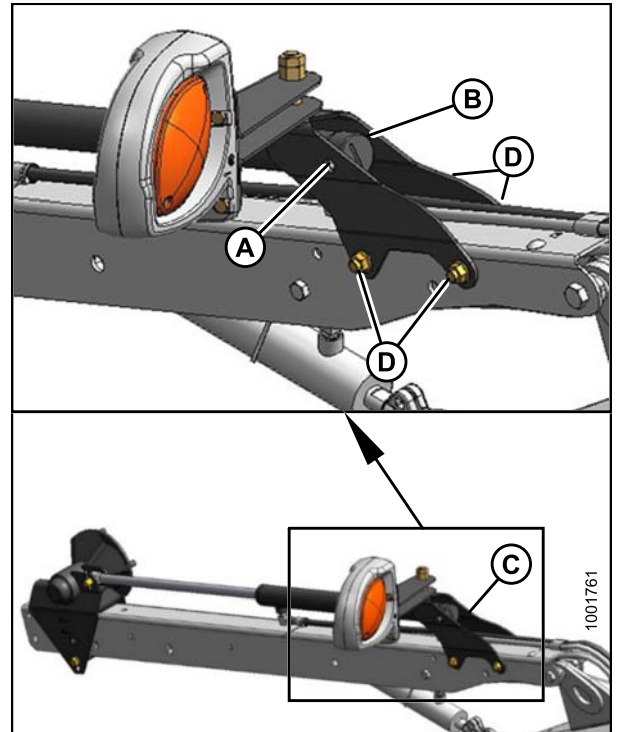


Figure 4.228: Forward Position

10. Reposition bracket/light assembly (C) on reel arm as shown and reinstall the four bolts (D) to secure bracket to reel arm. Tighten bolts.
11. Push reel back and reinstall cylinder (B) to bracket with pin (A). Secure pin with cotter pin.
12. Secure light harness to bracket with plastic tie wrap.
13. Check reel clearance to backsheet, upper cross auger (if installed) and reel braces.
14. Adjust reel tine pitch (if required). For adjustment procedures, refer to [4.7.12 Reel Tine Pitch, page 165](#).

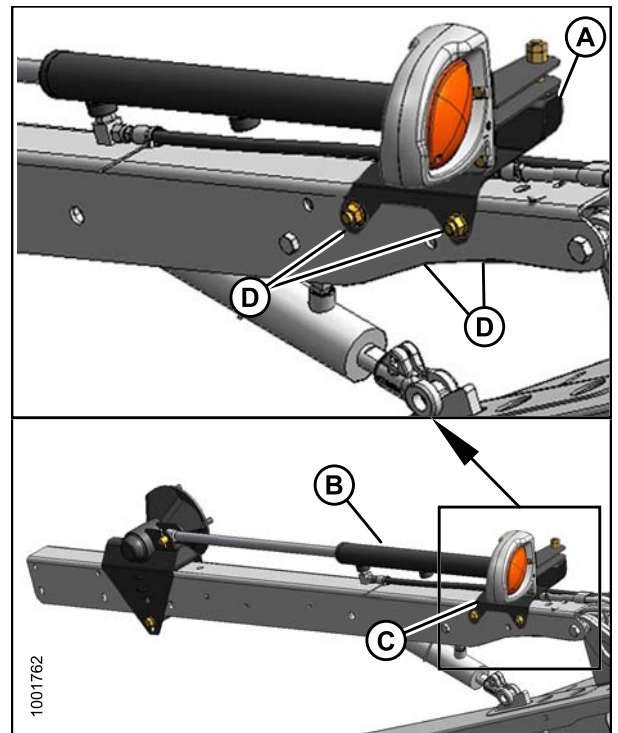


Figure 4.229: Rearward Position

OPERATION

Repositioning Fore-Aft Cylinders on Double Reel

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. If the Multi-Crop Conversion option is installed, refer to [4.7.11 Repositioning Fore-Aft Cylinders with Multi-Crop Conversion Option, page 163](#). 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.

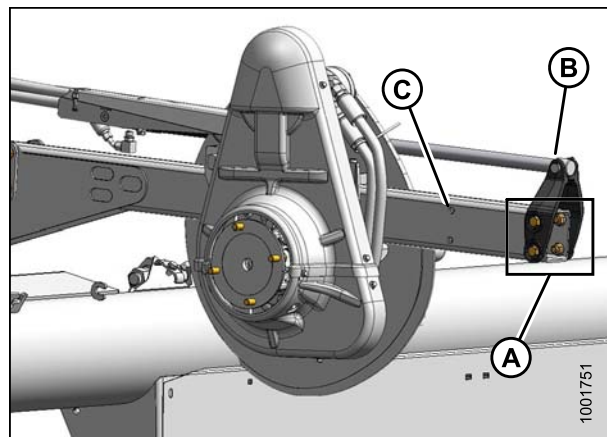


Figure 4.230: Forward Position

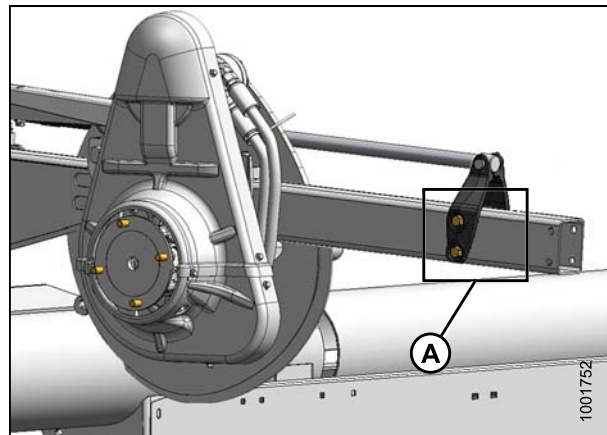


Figure 4.231: Rearward Position

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.

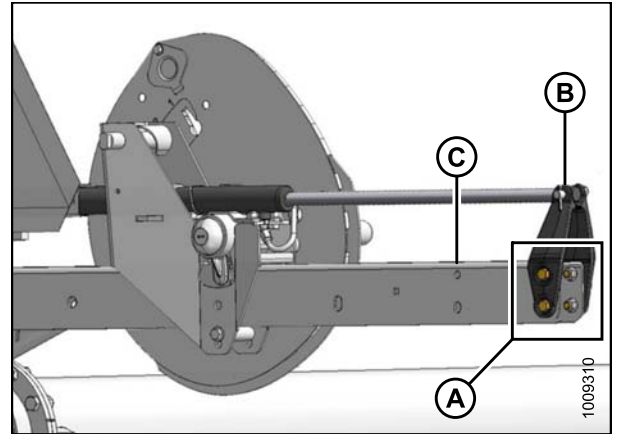


Figure 4.232: Forward Position

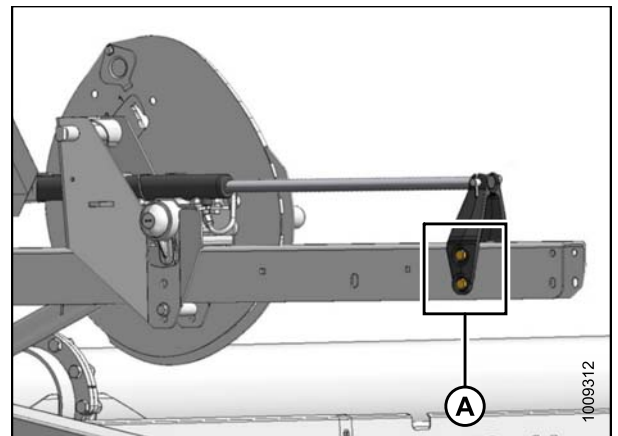


Figure 4.233: Rearward Position

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.

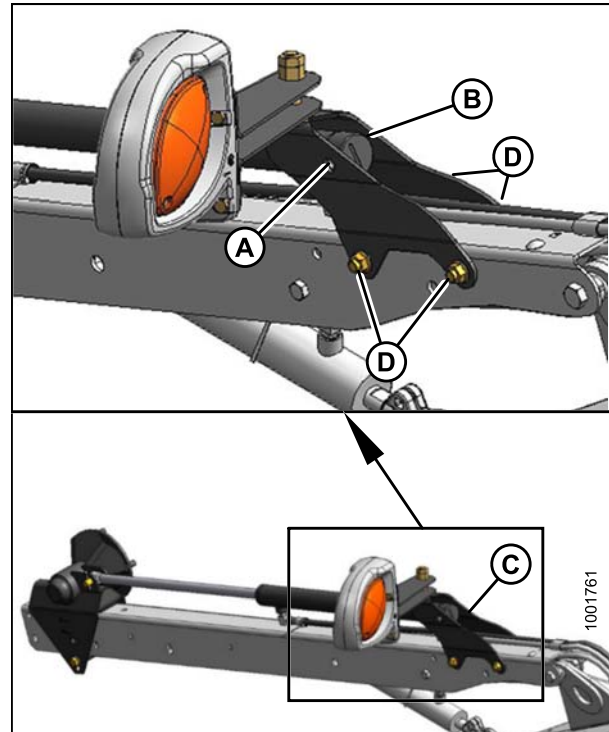


Figure 4.234: Forward Position

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 [4.7.12 Reel Tine Pitch, page 165](#).

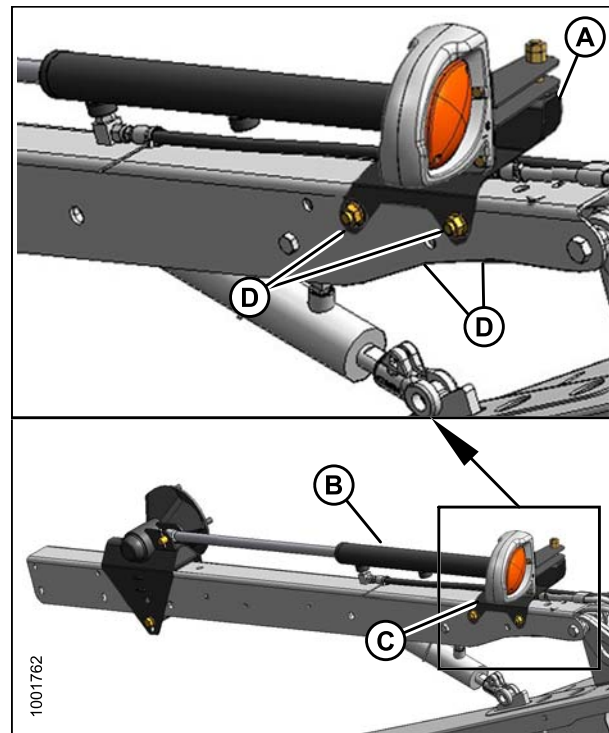


Figure 4.235: Rearward Position

4.7.11 Repositioning Fore-Aft Cylinders with Multi-Crop Conversion Option

The reel can be moved approximately 9 in (227 mm) further aft by repositioning the fore-aft cylinders on the reel arms. The Multi-Crop Conversion option is applicable to double reel combines only.

⚠ 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 left arm cylinder as follows:

NOTE:

Reel components are not shown for clarity.

3. Remove cotter pin (A) and remove clevis pin (B).
4. Push reel back until cylinder barrel (C) lines up with the aft hole in bracket (D).
5. Reinstall the clevis pin (B) at new position and secure with cotter pin (A).

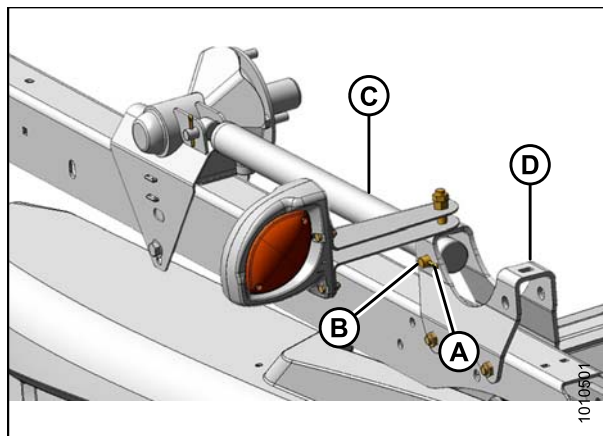


Figure 4.236: Forward Position - Left Arm

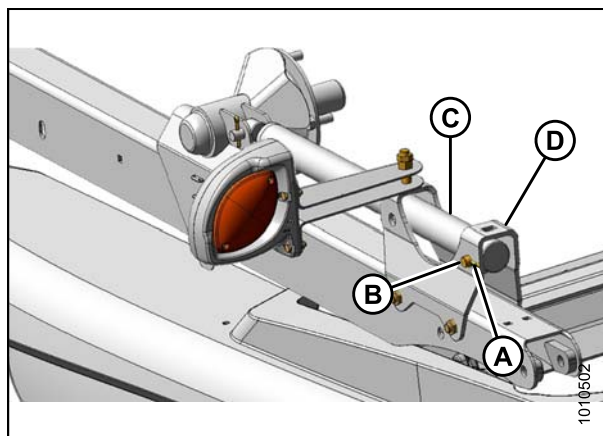


Figure 4.237: Aft Position - Left Arm

OPERATION

Reposition center arm cylinder as follows:

NOTE:

Reel components are not shown for clarity.

6. Remove cotter pin (A) and remove clevis pin (B).
7. Push reel back until cylinder rod (C) lines up with the aft hole in brackets (D).
8. Reinstall the clevis pin (B) at new position and secure with cotter pin (A).

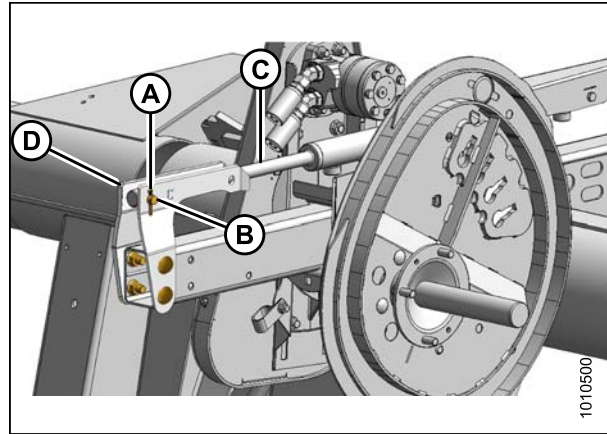


Figure 4.238: Forward Position - Center Arm

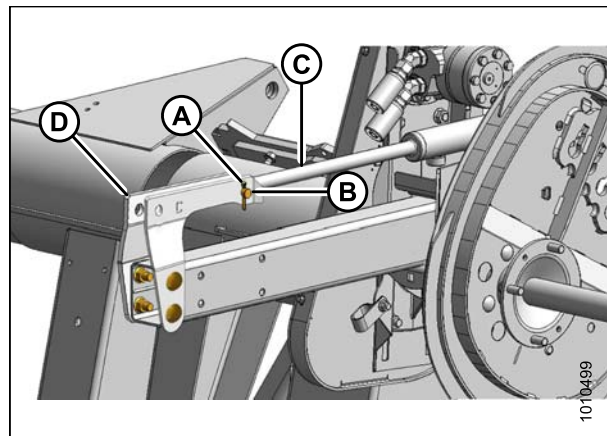


Figure 4.239: Aft Position - Center Arm

Reposition right arm cylinder as follows:

NOTE:

Reel components are not shown for clarity.

9. Remove cotter pin (A) and remove clevis pin (B).
10. Push reel back until cylinder rod (C) lines up with the aft hole in brackets (D).
11. Reinstall the clevis pin (B) at new position and secure with cotter pin (A).

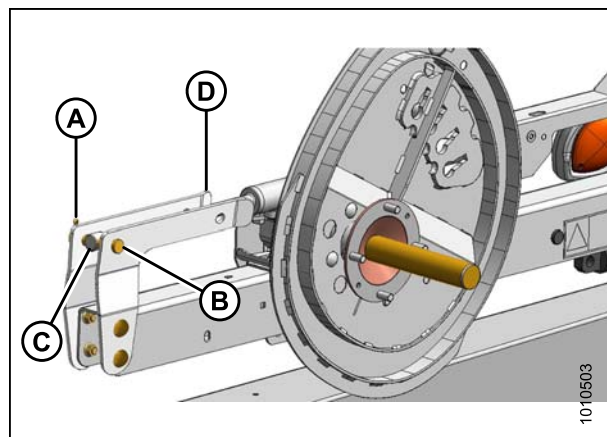


Figure 4.240: Forward Position - Right Arm

OPERATION

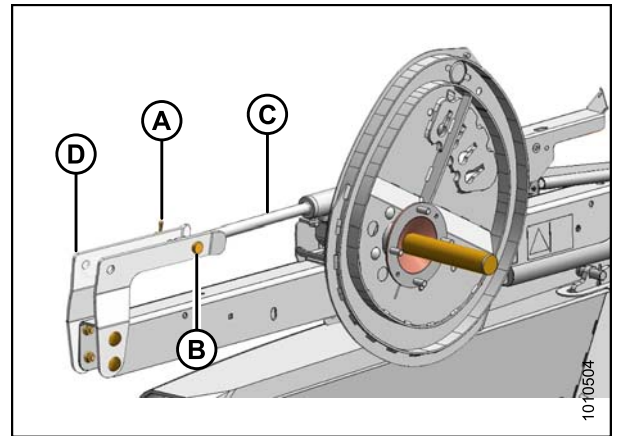


Figure 4.241: Aft Position - Right Arm

4.7.12 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. Refer to

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 167](#).

OPERATION

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.

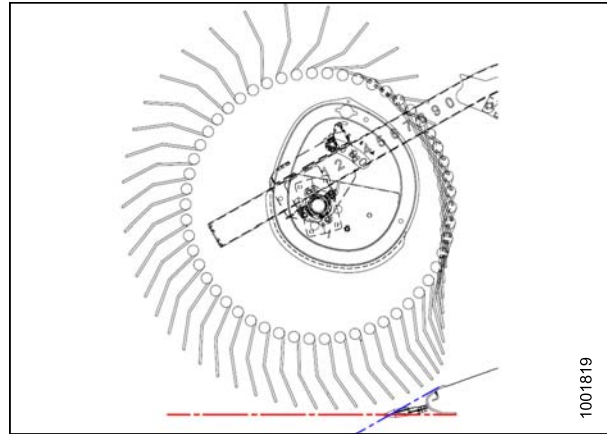


Figure 4.242: Finger Profile - Position 1

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.

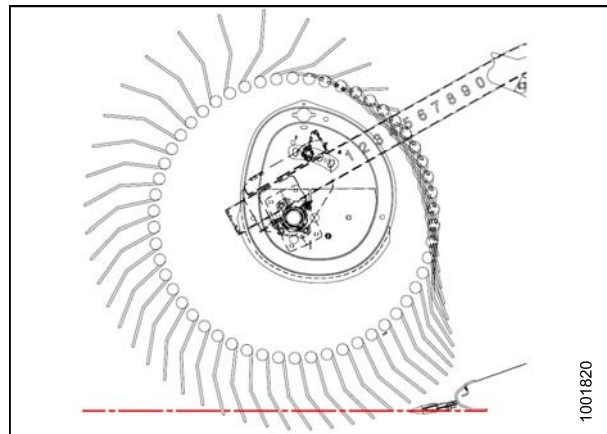


Figure 4.243: Finger Profile - Position 2

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.

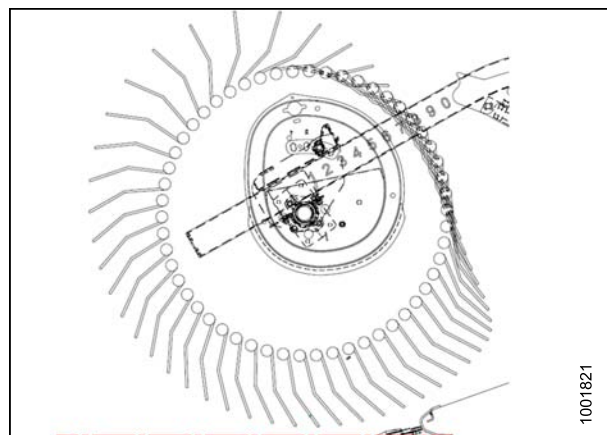


Figure 4.244: Finger Profile - Position 3

OPERATION

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.

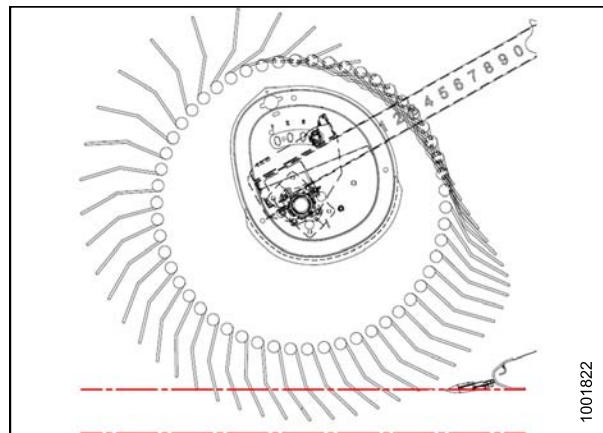


Figure 4.245: Finger Profile - Position 4

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 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.

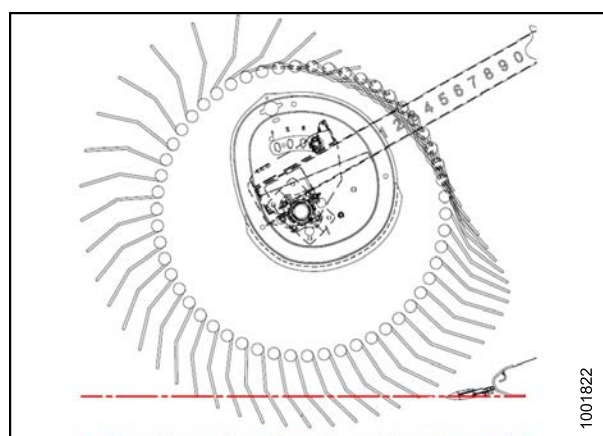


Figure 4.246: Finger Profile - Position 4

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.

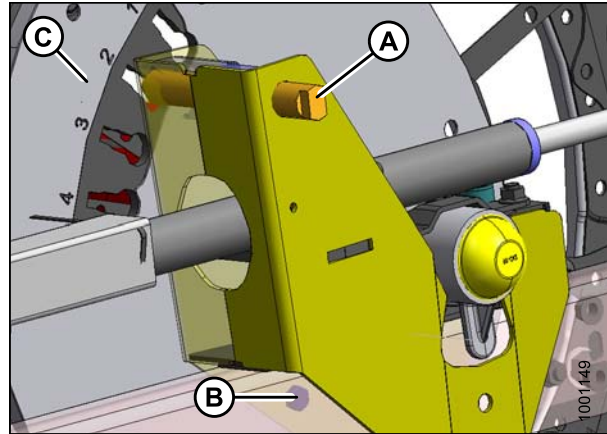


Figure 4.247: Reel Cam Positioner

4.7.13 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 37](#).
3. Lift safety lever (A).
4. Hold onto divider (B), push lever (C) to open latch and lower divider.

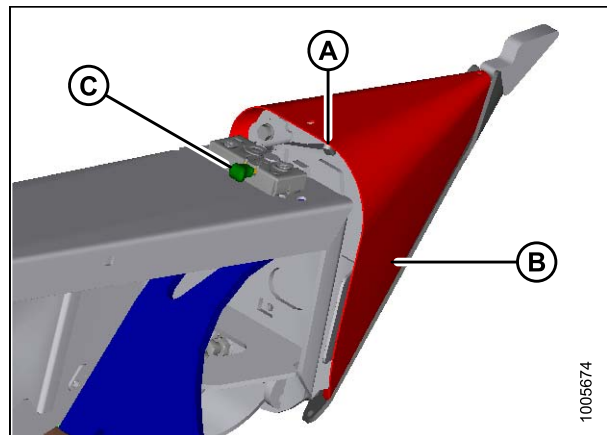


Figure 4.248: Crop Divider

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 37](#).

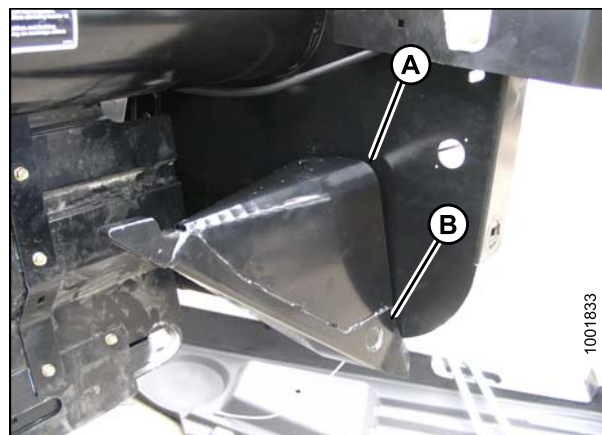


Figure 4.249: Stored Crop Divider

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, refer to your combine operator's manual.
2. Open/remove header endshields. Refer to [4.2.3 Endshields, page 37](#).
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 37](#).

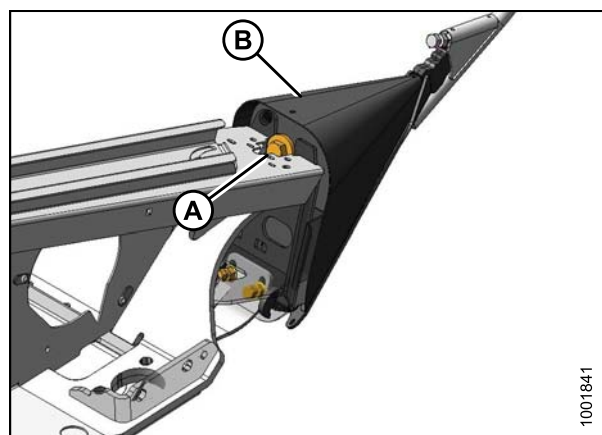


Figure 4.250: Crop Divider

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, refer to your 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.

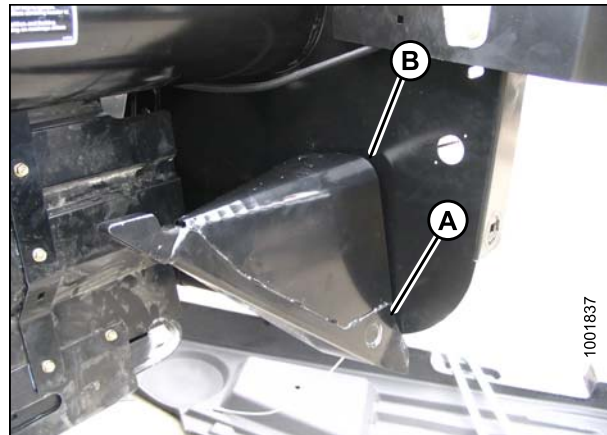


Figure 4.251: Stored Crop Divider

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.

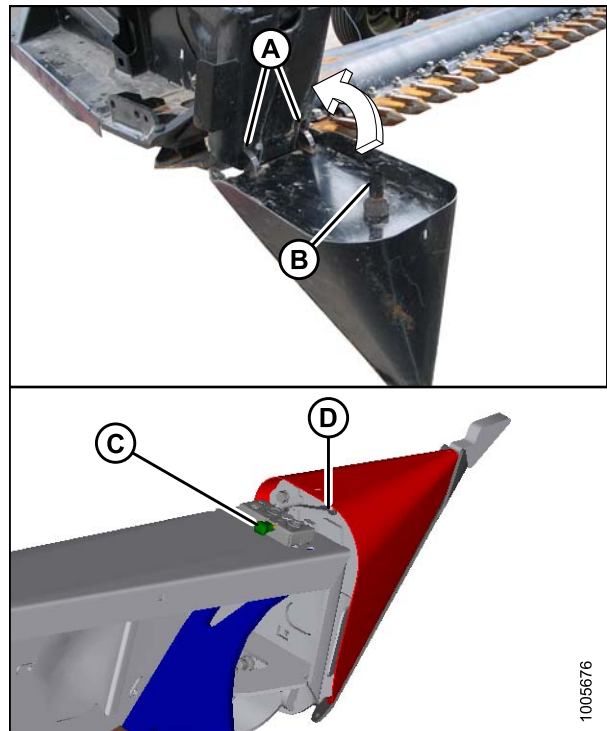


Figure 4.252: Crop Divider

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 4.253: 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, refer to your combine operator's manual.
2. Open/remove endshields. Refer to [4.2.3 Endshields, page 37](#).
3. Remove crop divider from storage.
4. Position crop divider as shown by locating lugs (A) in holes in endsheet.

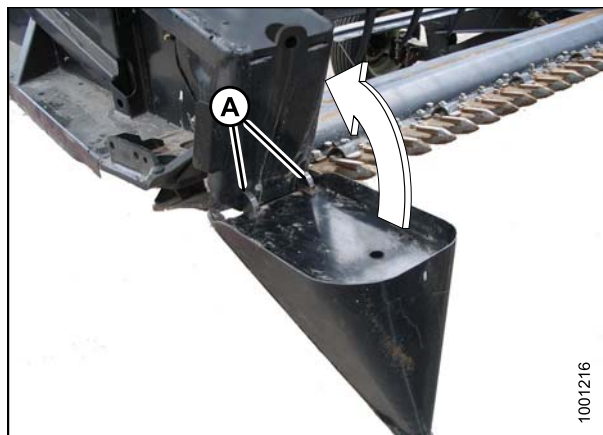


Figure 4.254: Crop Divider

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 37](#).

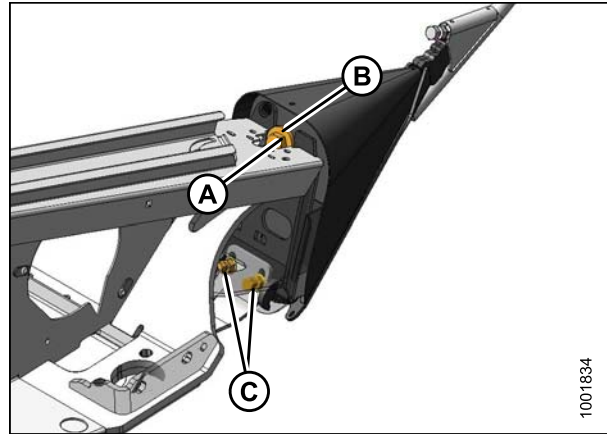


Figure 4.255: Crop Divider

4.7.14 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).

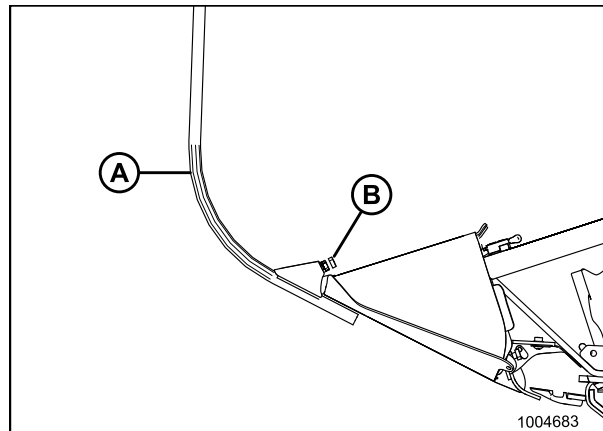


Figure 4.256: Crop Divider Rod

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

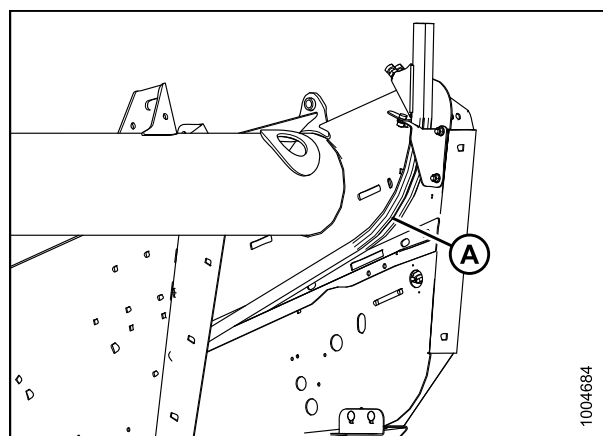


Figure 4.257: Stored Divider Rod

Using Rice Dividers

Optional special rice dividers can be installed and used when required. Refer to [8.3.3 Rice Divider Rods, page 451](#).

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

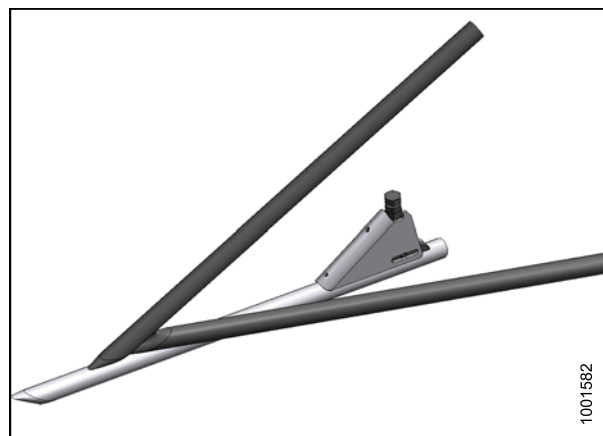


Figure 4.258: Divider Rod for Rice

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. Check and set float adjustment. Refer to [Checking and Adjusting Header Float, page 144](#).
4. 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.

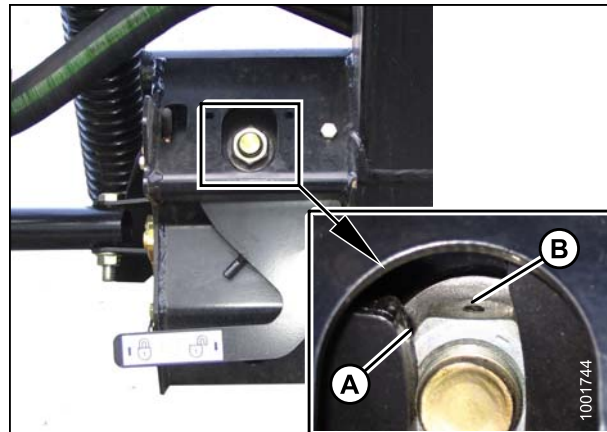


Figure 4.259: Float Lock

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 144](#).

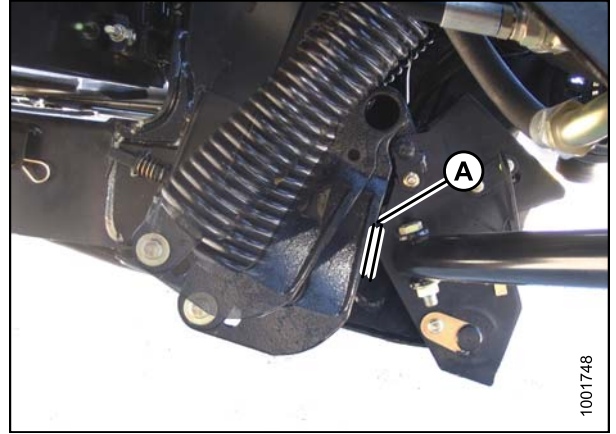


Figure 4.260: Bell Crank

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 429](#).

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.

IMPORTANT:

The upper cross auger drive motor must be equipped with a case drain kit when used on single draper drive headers. See your MacDon Dealer for details.

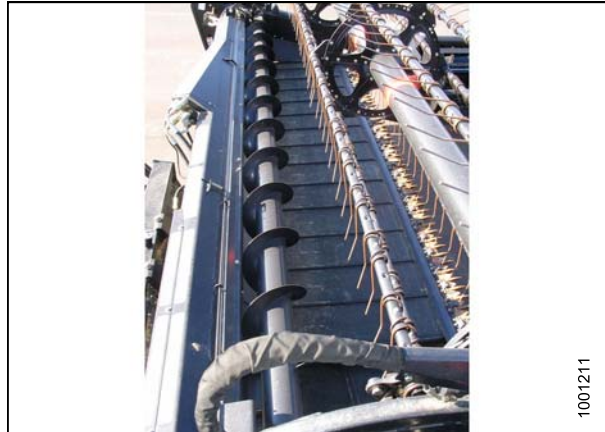


Figure 4.261: Upper Cross Auger

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.

OPERATION

2. Remove bolts (A) securing bars (B) and clamps (C) to auger tubes, and remove bars and clamps.

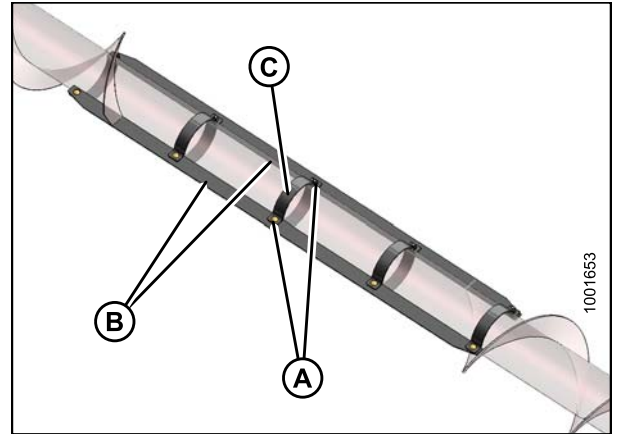


Figure 4.262: Single Reel Headers

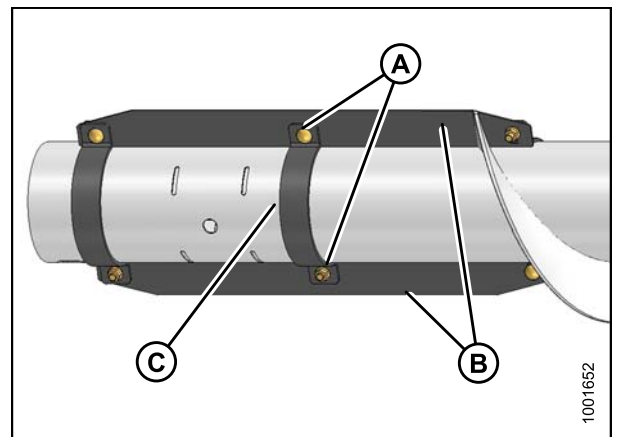


Figure 4.263: Beater Bars

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.

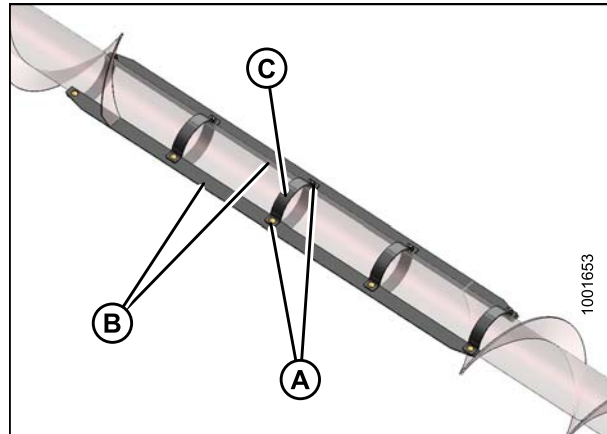


Figure 4.264: Single Reel Headers

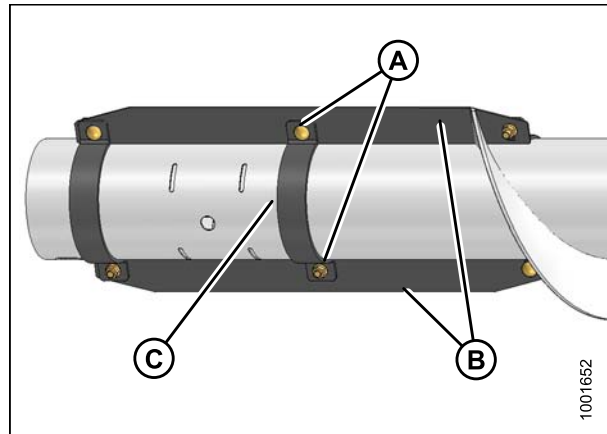


Figure 4.265: Beater Bars

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).

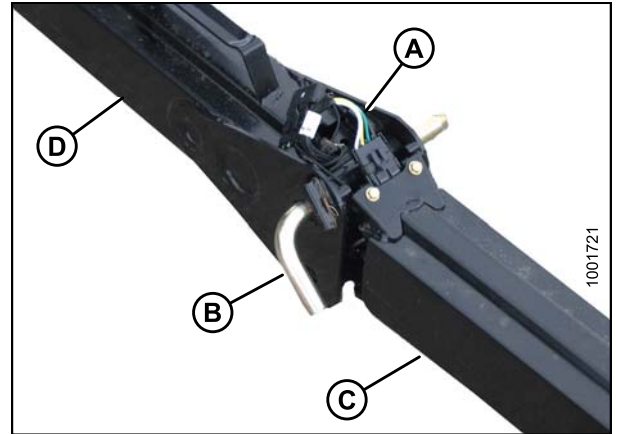


Figure 4.266: Tow-Bar Assembly

A - Wiring Connector
C - Outer Section

B - Pin
D - Inner Section

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

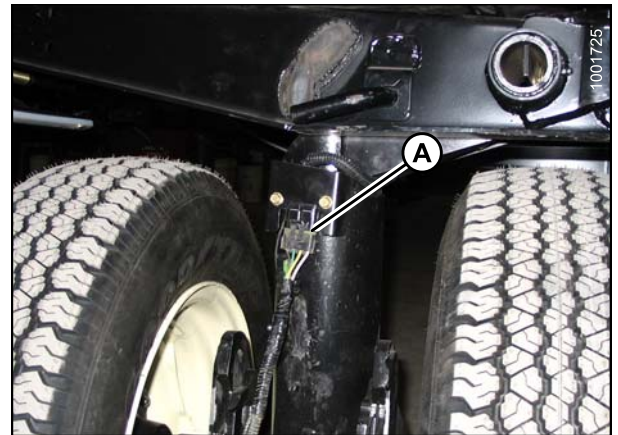


Figure 4.267: Wiring Connector

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.

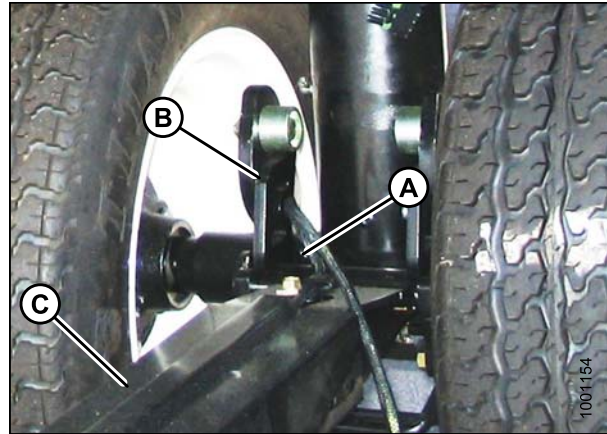


Figure 4.268: Tow-Bar Latch

Storing Tow-Bar

Store tow-bar as follows:

1. At the left end 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).

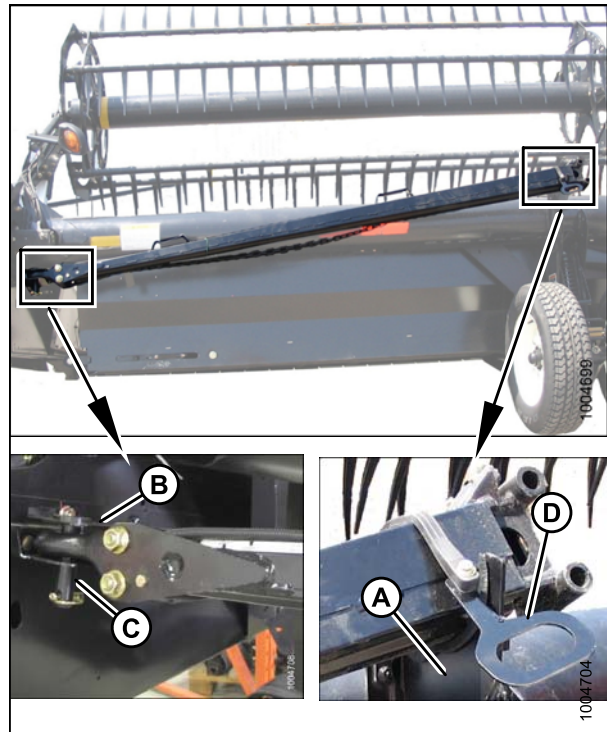


Figure 4.269: Tow-Bar Storage

OPERATION

4. At the right end 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).

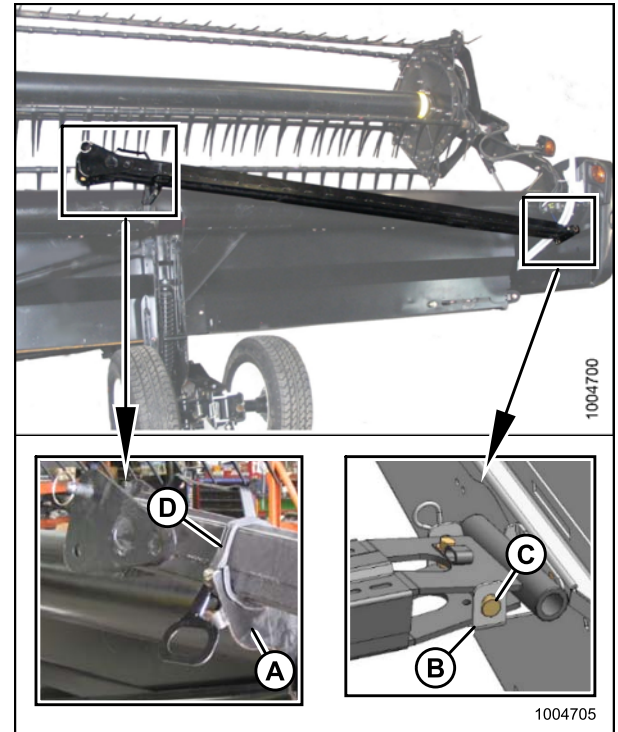


Figure 4.270: Tow-Bar Storage

7. Attach header to combine. Refer to [5 Header Attachment/Detachment, page 199](#).
8. Place transport wheels into field position. Refer to:
 - [Moving Front \(Left\) Wheels into Field Position, page 185](#)
 - [Moving Rear \(Right\) Wheels into Field Position, page 187](#)

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.

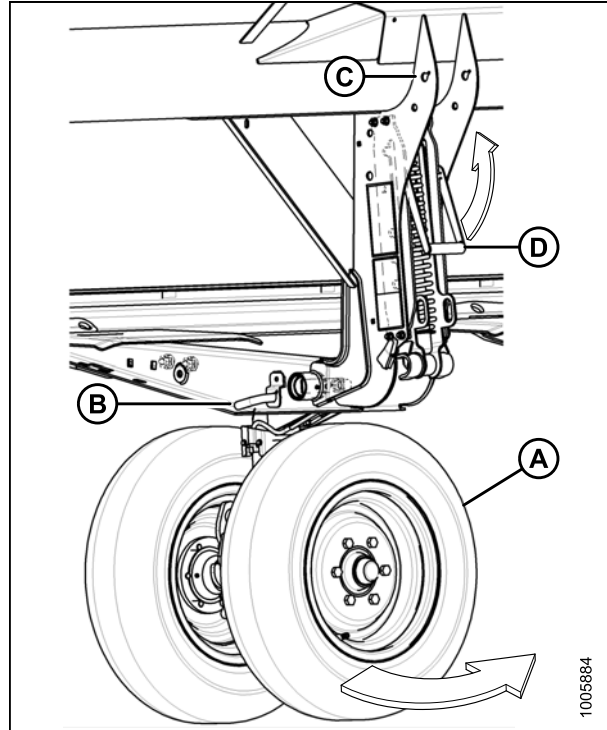


Figure 4.271: Front (Left) Wheels

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.

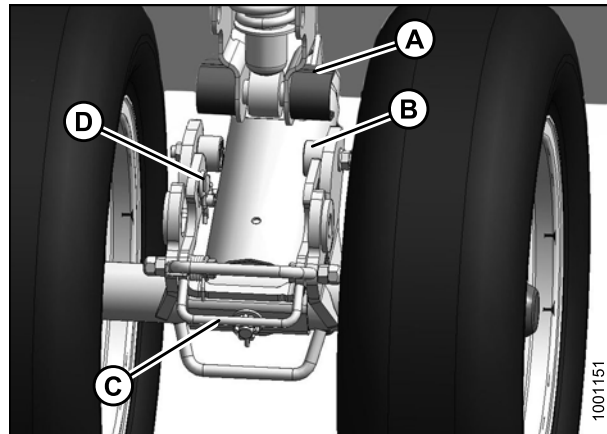


Figure 4.272: Front (Left) Wheels

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.

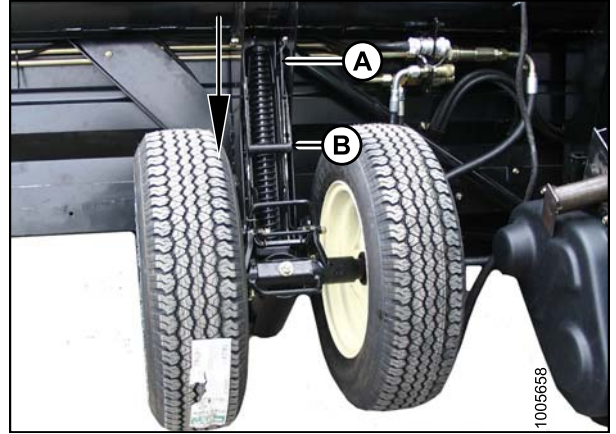


Figure 4.273: Front (Left) Wheels

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).

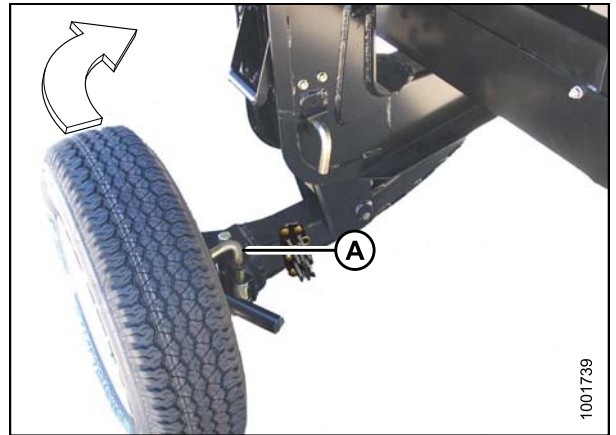


Figure 4.274: Left Rear Wheel

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.

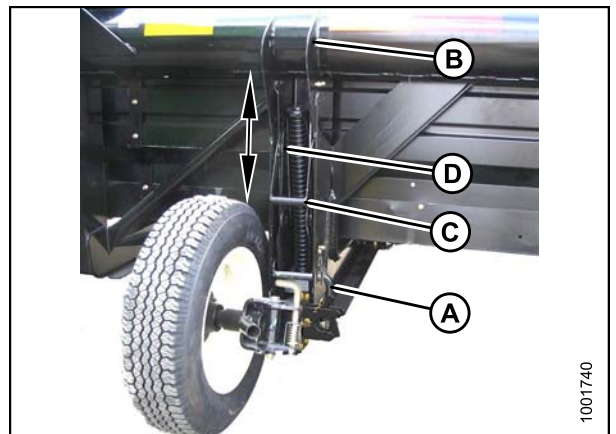


Figure 4.275: Left Rear Wheel

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.

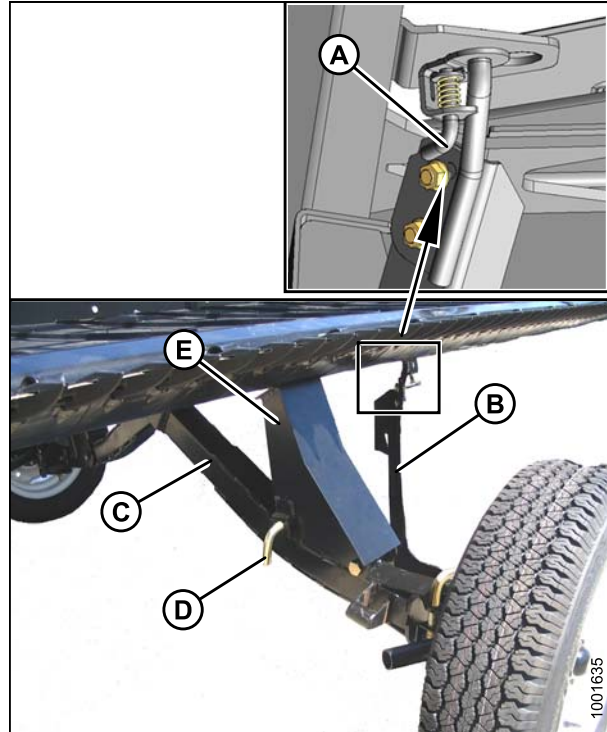


Figure 4.276: Right Rear Axle

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.

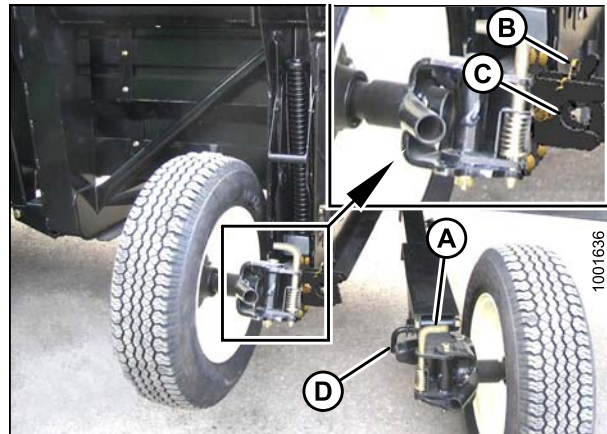


Figure 4.277: Rear Axles

IMPORTANT:

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

OPERATION

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

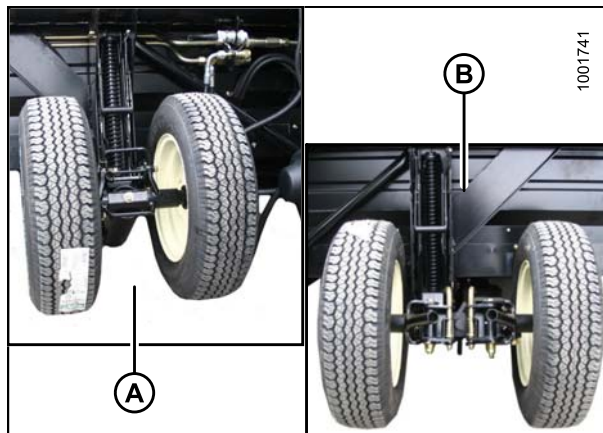


Figure 4.278: Field Position

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.

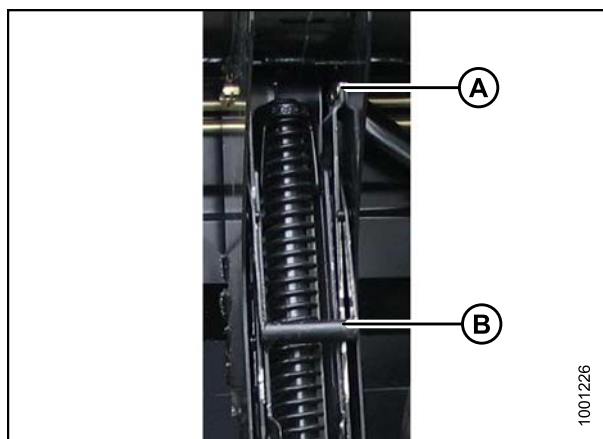


Figure 4.279: Raising Linkage

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.

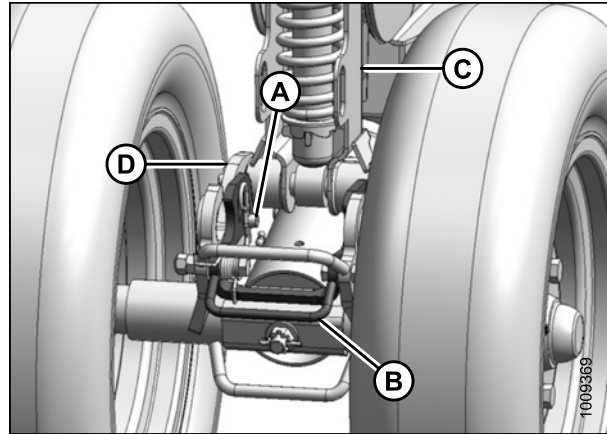


Figure 4.280: Lowering Wheels

6. Lower handle (B) to lock.

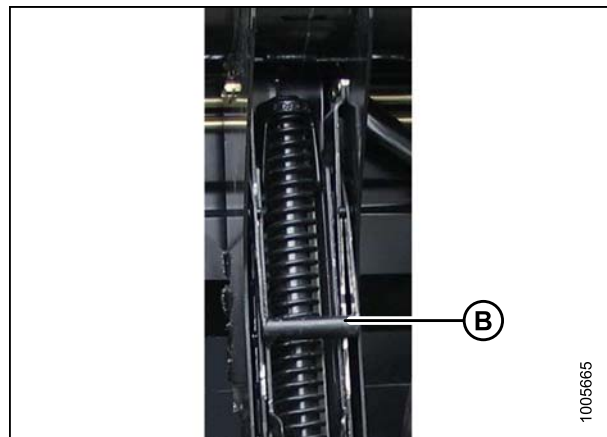


Figure 4.281: Locking Linkage

OPERATION

7. Remove pin (A) from storage at top of leg (B).
8. Move and swivel wheels clockwise so that connector (C) is turned towards the front end of the header.
9. Insert pin (A) and turn to lock.
10. Lower header so that left wheels are just touching the ground.

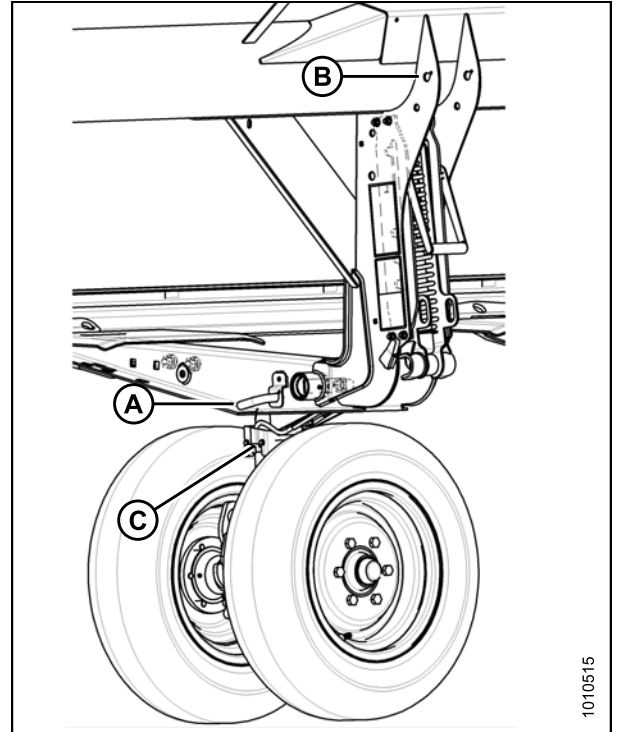


Figure 4.282: Swivelling Wheels

Moving Rear (Right) Wheels into Transport Position

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

OPERATION

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.

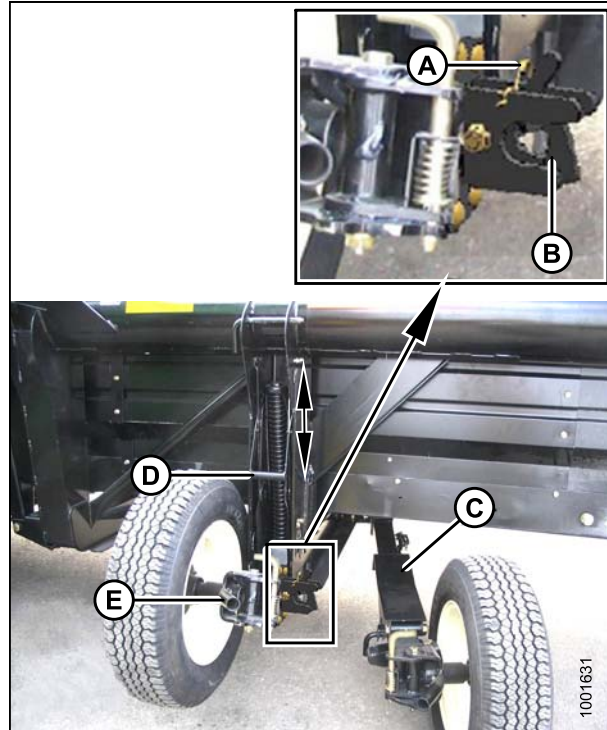


Figure 4.283: Separating Axles

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

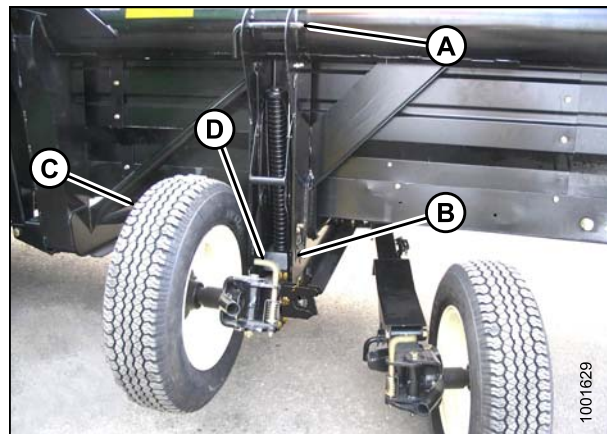


Figure 4.284: Positioning Wheel

OPERATION

- Left wheel is now in Transport position as shown.



Figure 4.285: Transport Position

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

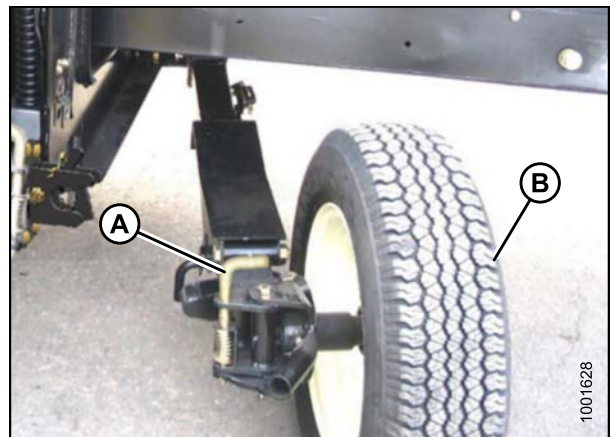


Figure 4.286: Right Rear Wheel

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

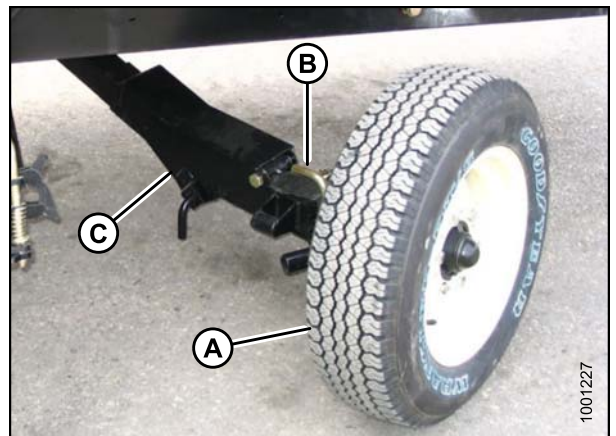


Figure 4.287: Right Rear Wheel

OPERATION

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

IMPORTANT:

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

12. Swing brace (C) into position as shown and insert brace into slot (D) behind cutterbar. Position brace so that pin (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. Refer to [5 Header Attachment/Detachment, page 199](#).
15. Start combine and lower header to the ground.

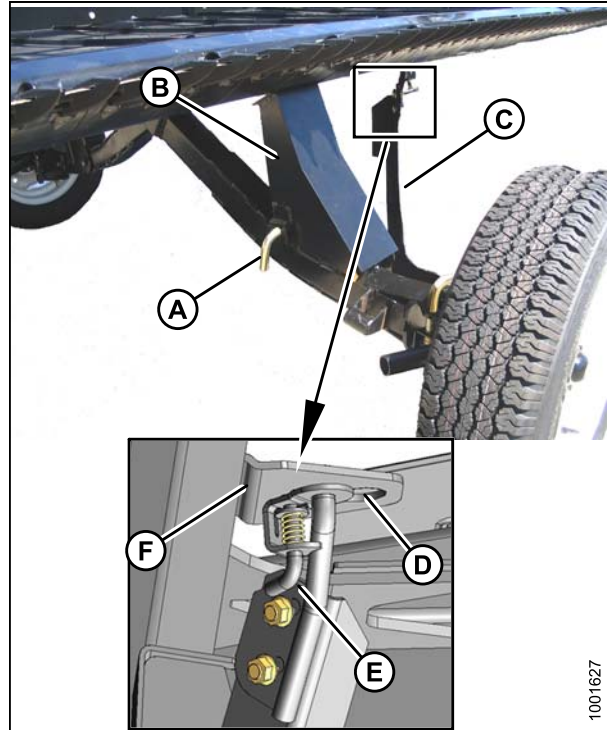


Figure 4.288: Positioning Right Rear Wheel

Attaching Tow-Bar

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

1. On the right 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.

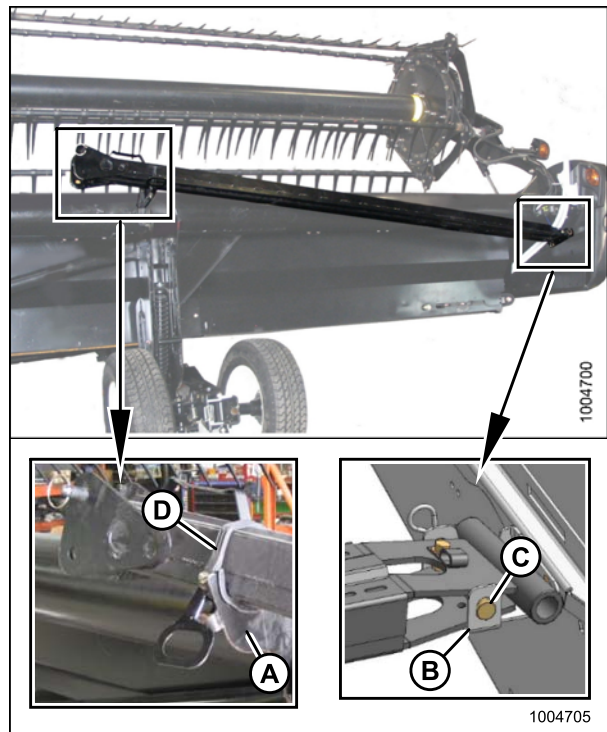


Figure 4.289: Removing Tow-Bar

OPERATION

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).

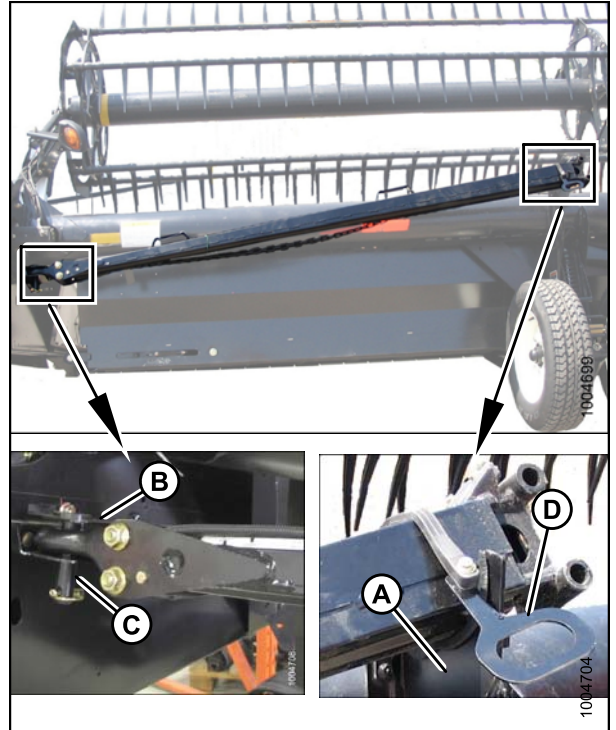


Figure 4.290: Removing Tow-Bar

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

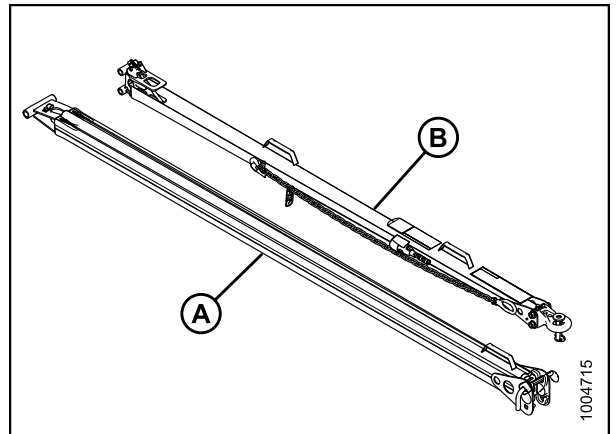


Figure 4.291: Assembling Tow-Bar

OPERATION

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

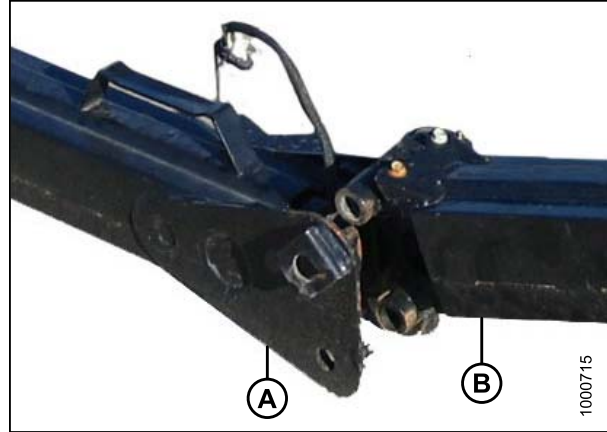


Figure 4.292: Assembling Tow-Bar

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).

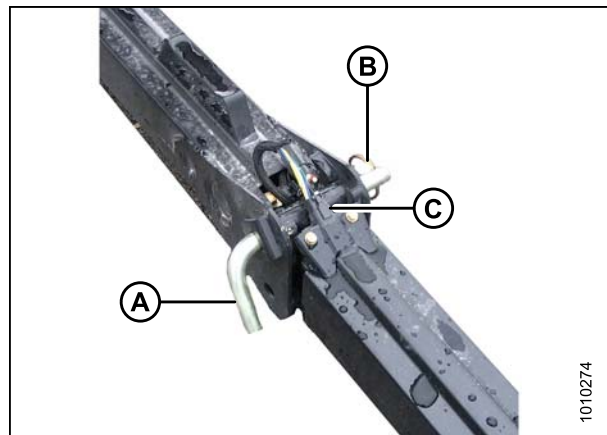


Figure 4.293: Assembling Tow-Bar

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.

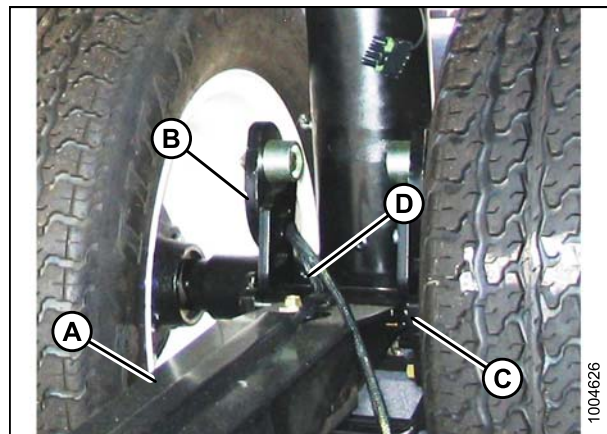


Figure 4.294: Attaching Tow-Bar

OPERATION

15. Make the electrical connection (A) at the front wheel.

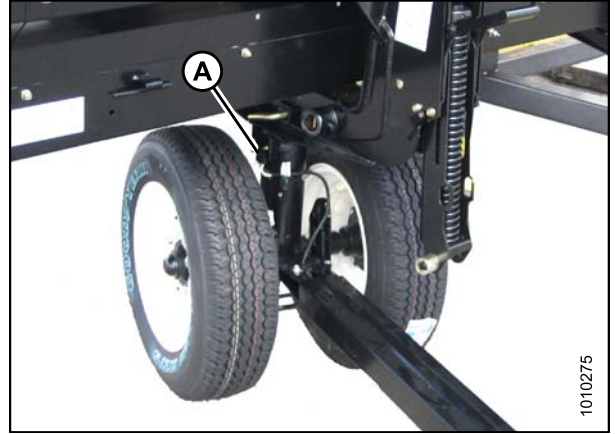


Figure 4.295: Connecting Harness

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 201
John Deere 60, 70, and S Series	5.3 John Deere Combines, page 208
Lexion 500, 700 (R Series)	5.4 Lexion Combines, page 216
New Holland CR, CX	5.5 New Holland Combines, page 224
AGCO Gleaner R and S Series, Challenger 660, 670, 680B, 540C, 560C, Massey 9690, 9790, 9895, 9520, 9540, 9560	5.6 AGCO Combines, page 232

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 429](#).

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 [8.4.1 CA25 Feed Auger Flighting, page 452](#) for more information.

For servicing information, refer to:

- [Installing Flighting Extensions, page 312](#)
- [Removing Flighting Extensions, page 313](#)

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 [6.11 Adapter Stripper Bars and Feed Deflectors, page 360](#).

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, complete the following steps:

CAUTION

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

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.

3. Stop engine and remove key from ignition.
4. 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.
5. Push down on lever (A) so that slot in lever engages handle and locks handle in place.
6. 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.

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

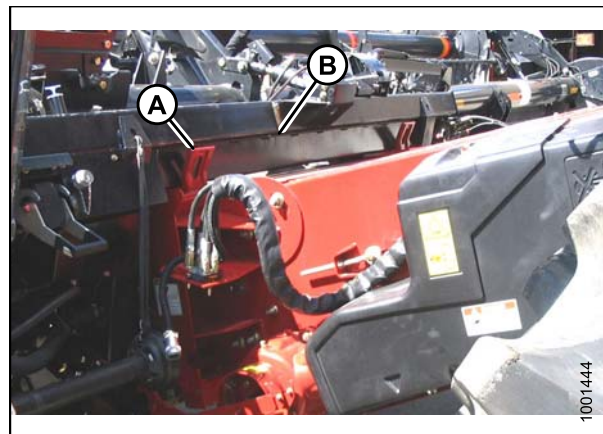


Figure 5.1: Combine and Adapter

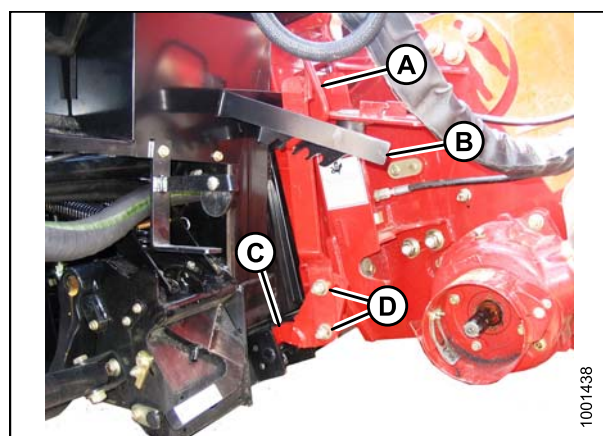


Figure 5.2: Combine and Adapter

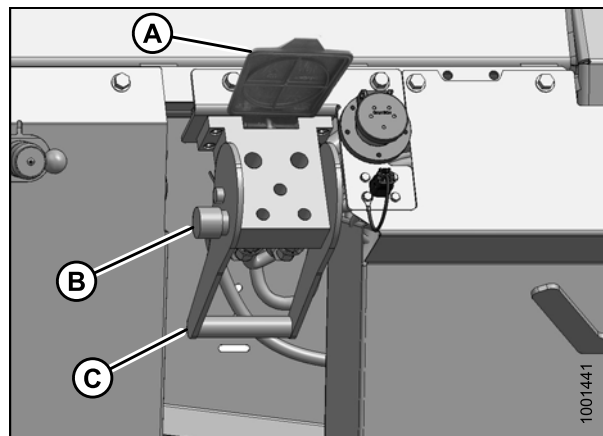


Figure 5.3: Adapter Receptacle

HEADER ATTACHMENT/DETACHMENT

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

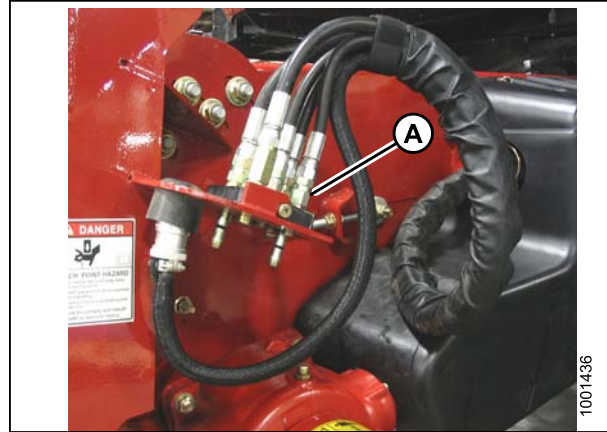


Figure 5.4: Combine

11. Position coupler on header receptacle (A), and push handle (B) (not shown) to engage coupler pins into receptacle.
12. Push handle (B) to closed position until lock button (C) snaps out.

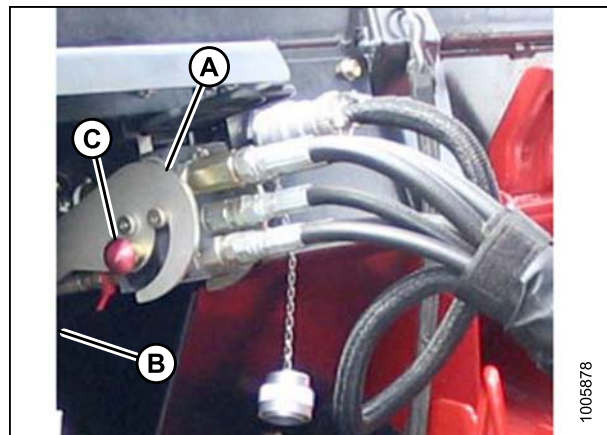


Figure 5.5: Hydraulic Connection

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

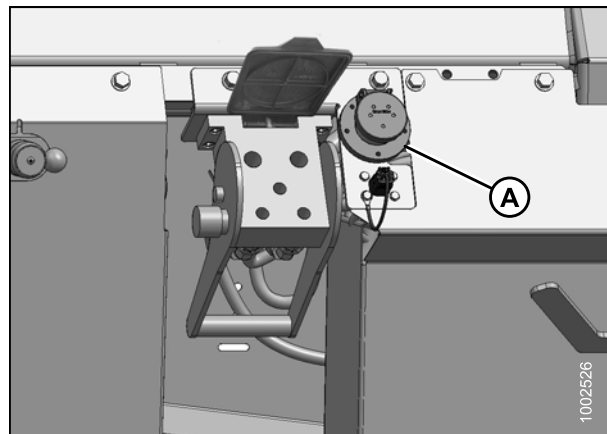


Figure 5.6: Electrical Receptacle

HEADER ATTACHMENT/DETACHMENT

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



Figure 5.7: Combine

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

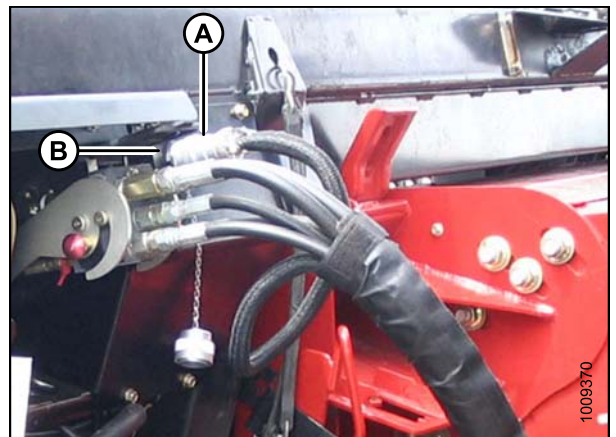


Figure 5.8: Electrical Connection

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

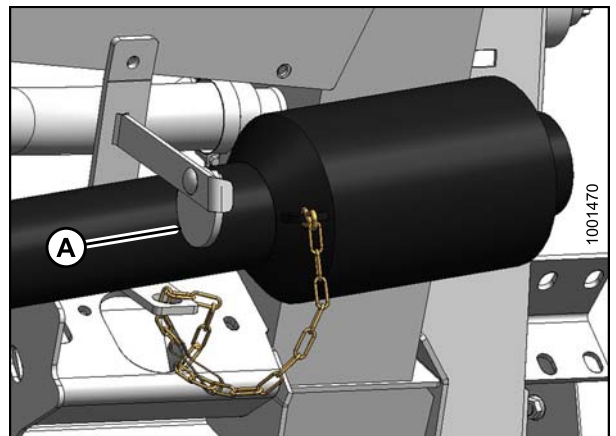


Figure 5.9: Disc on Adapter Driveline Storage Hook

HEADER ATTACHMENT/DETACHMENT

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

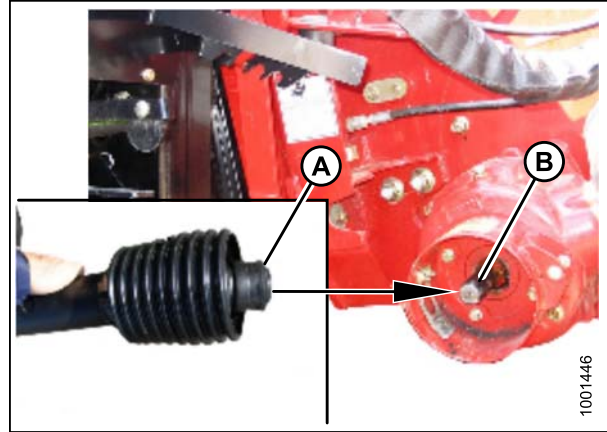


Figure 5.10: Combine Output Shaft

18. Disengage both adapter float locks by moving latch (A) away from adapter, and moving both header float lock levers (B) down (UNLOCK).

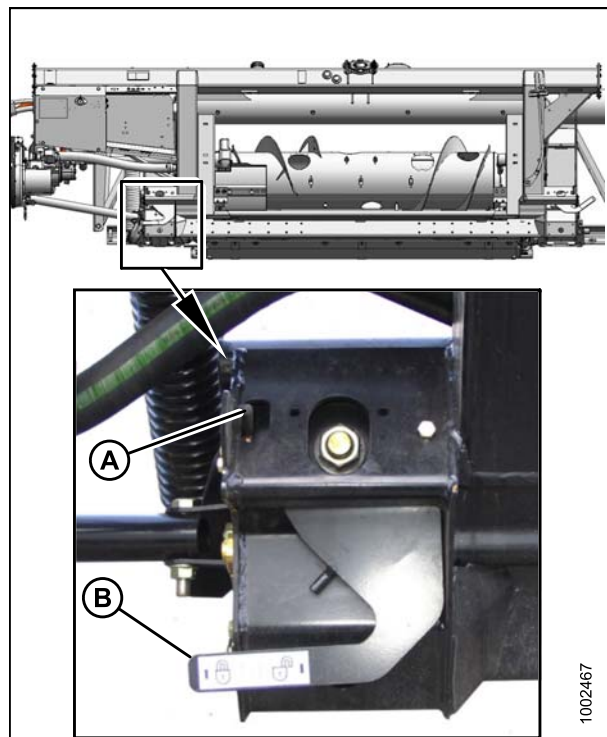


Figure 5.11: Float Lock in UNLOCK Position

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.

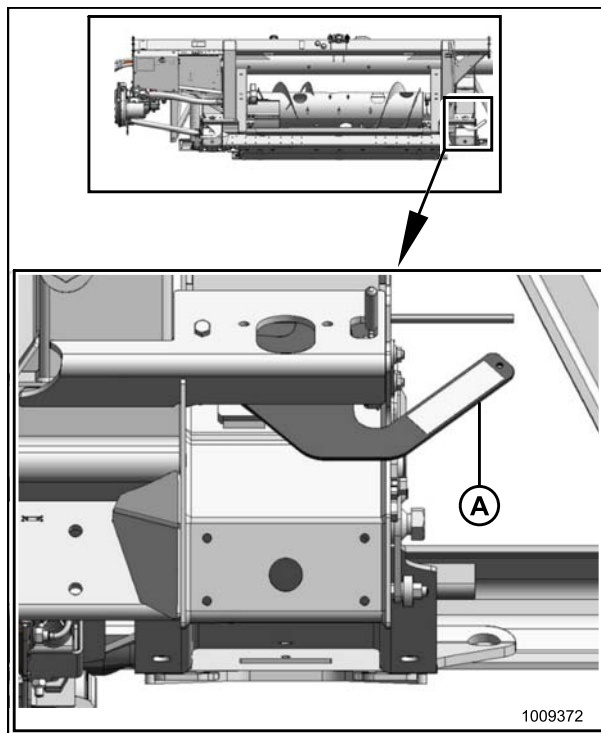


Figure 5.12: Float Locked

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 52](#).

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 52](#).

HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveline (A) from combine.

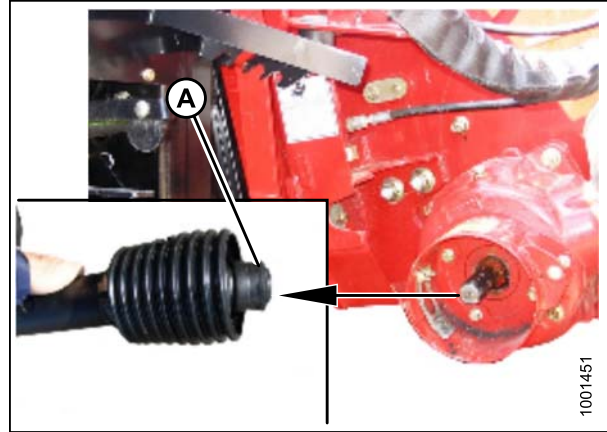


Figure 5.13: Driveline

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

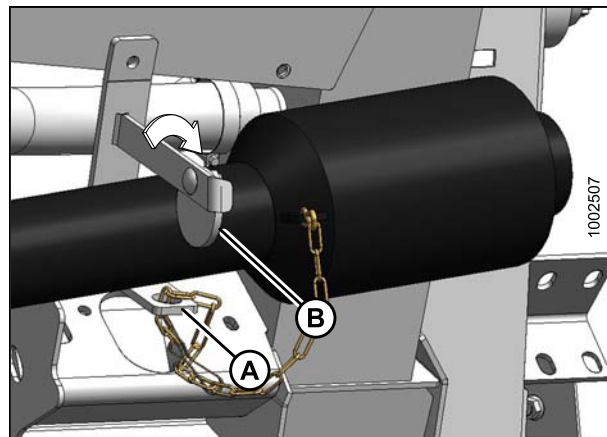


Figure 5.14: Driveline

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

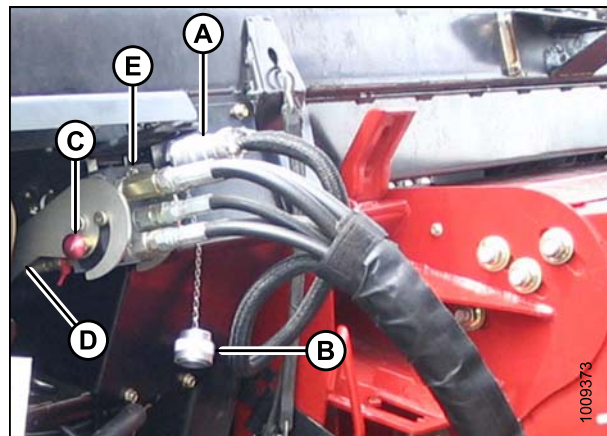


Figure 5.15: Multicoupler

HEADER ATTACHMENT/DETACHMENT

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

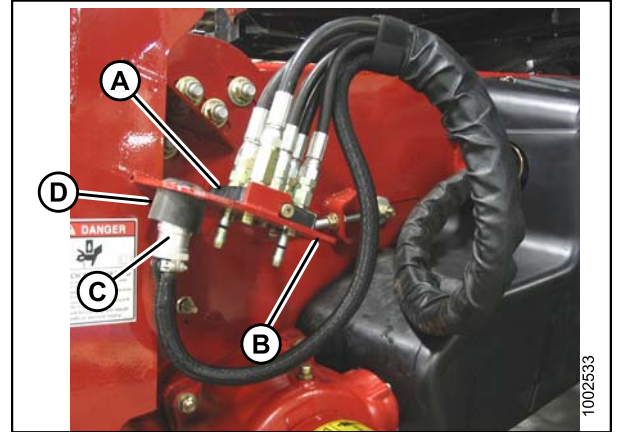


Figure 5.16: Coupler Storage

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

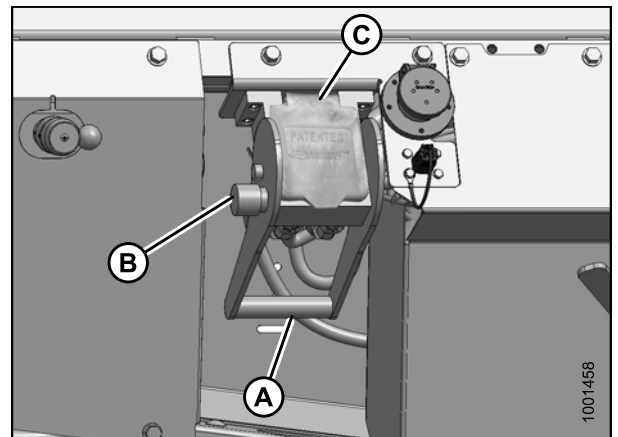


Figure 5.17: Header Receptacle

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.

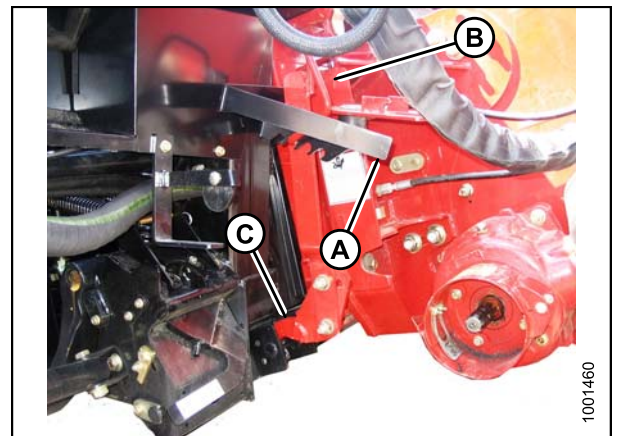


Figure 5.18: Feeder House Locks

5.3 John Deere Combines

5.3.1 Attaching Header to John Deere Combine

To attach the header to a John Deere combine, complete the following steps:

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

CAUTION

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

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. 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.

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.

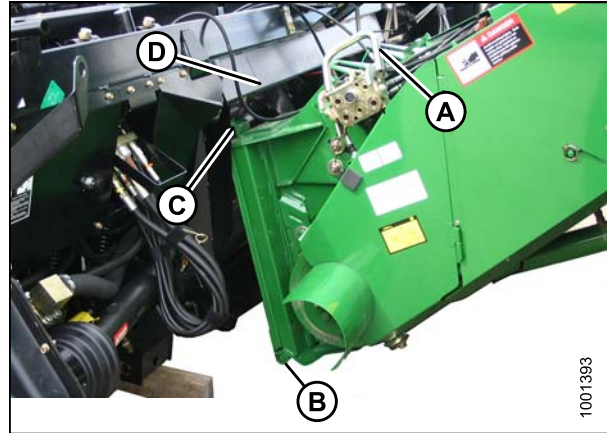


Figure 5.19: Combine and Adapter

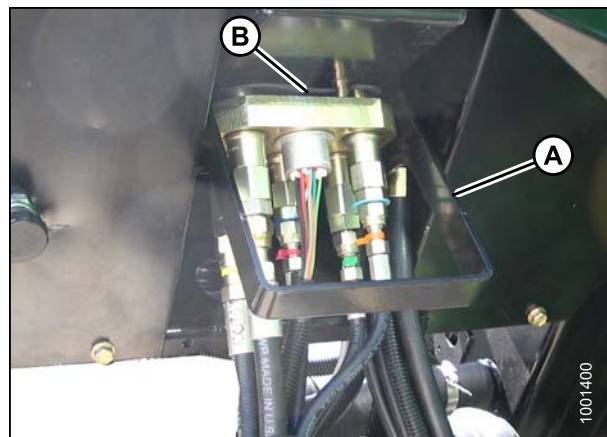


Figure 5.20: Coupler Storage

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 and ensure that coupler (A) is fully engaged into receptacle, and that the two feeder house pins (C) are engaged 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.

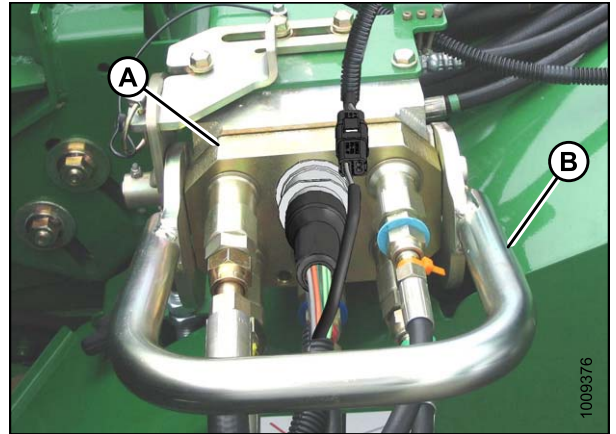


Figure 5.21: Coupler

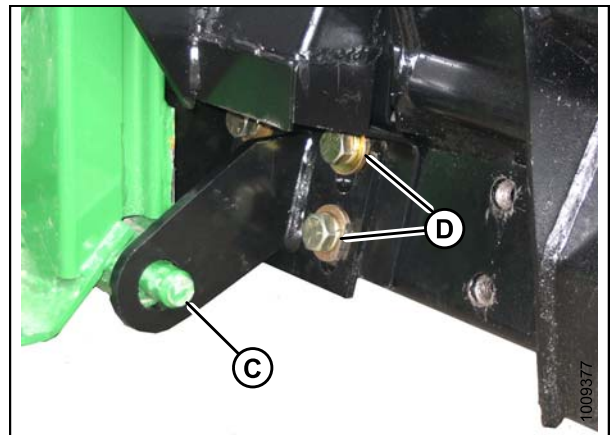


Figure 5.22: Feeder House Pin

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

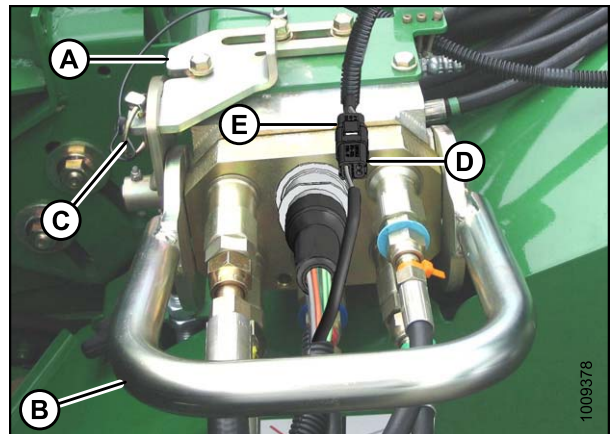


Figure 5.23: Coupler

HEADER ATTACHMENT/DETACHMENT

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

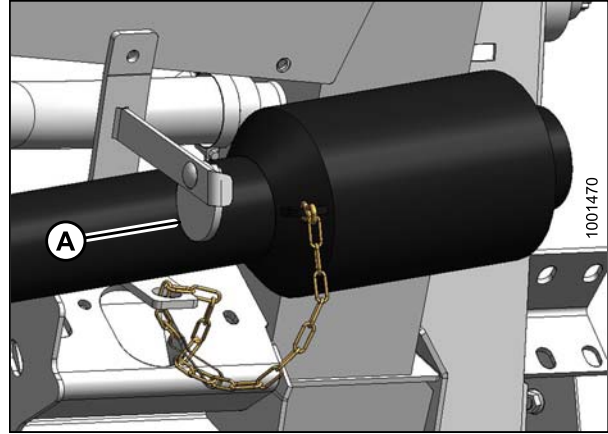


Figure 5.24: Driveline

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

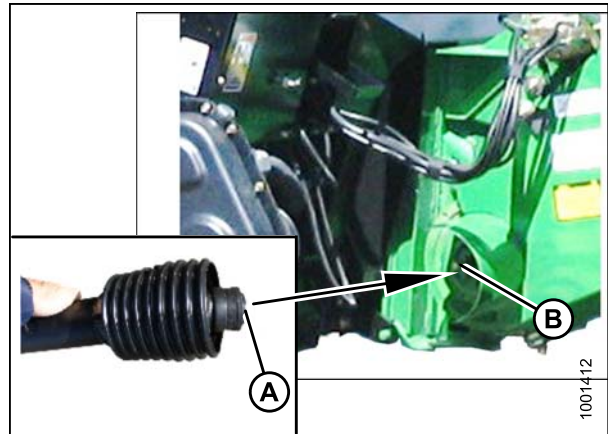


Figure 5.25: Driveline

HEADER ATTACHMENT/DETACHMENT

14. Disengage both adapter float locks by moving latch (A) away from adapter, and moving both header float lock levers (B) down (UNLOCK).

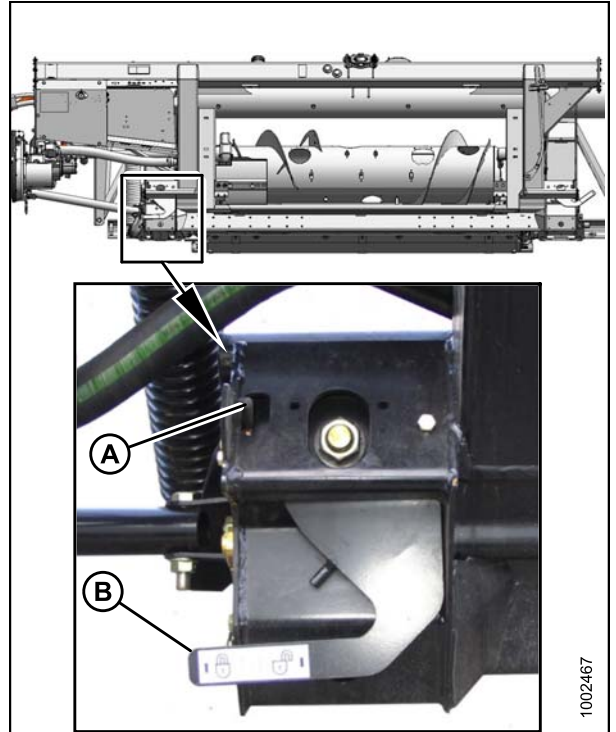


Figure 5.26: Float Lock in UNLOCK Position

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 until it latches into the lock position.

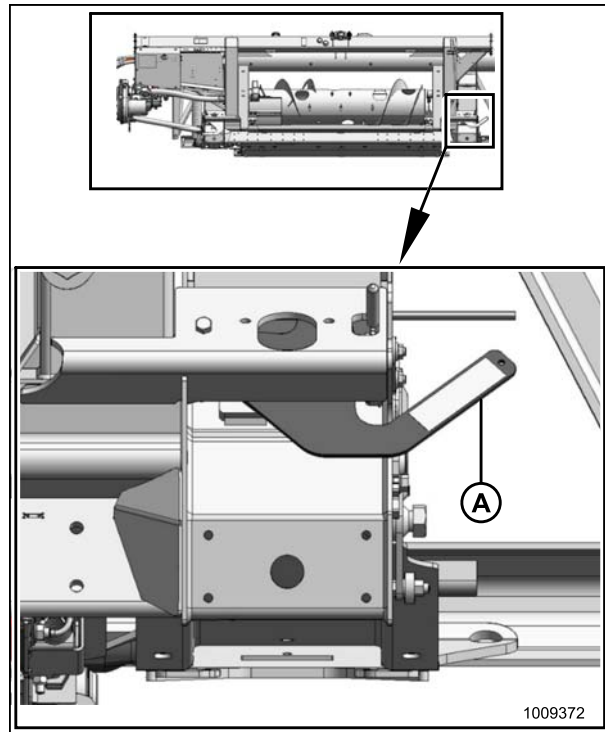


Figure 5.27: Float Locked

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 52](#).

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 52](#).

HEADER ATTACHMENT/DETACHMENT

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

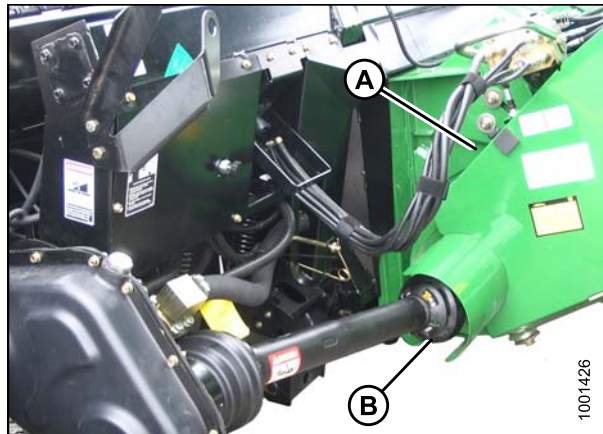


Figure 5.28: Driveline

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

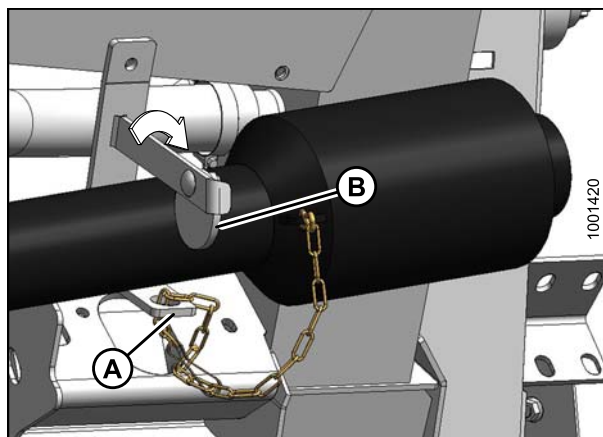


Figure 5.29: Driveline

5. Lift handle (A) on adapter.

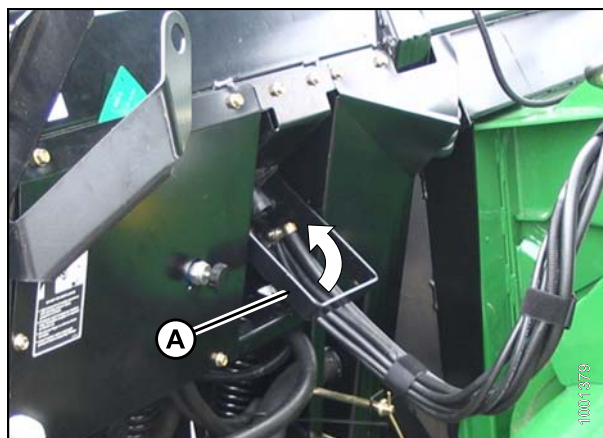


Figure 5.30: Coupler Storage

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.

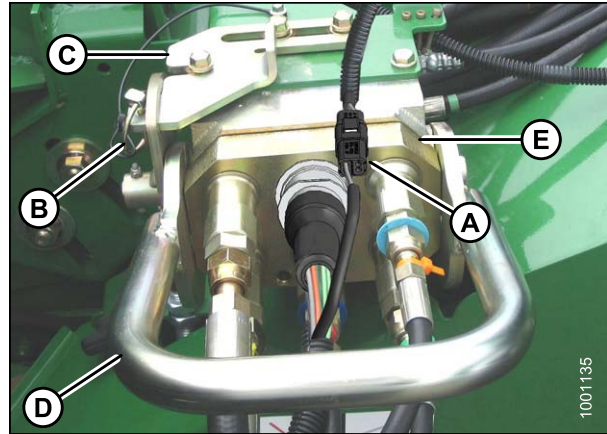


Figure 5.31: Multicoupler

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.

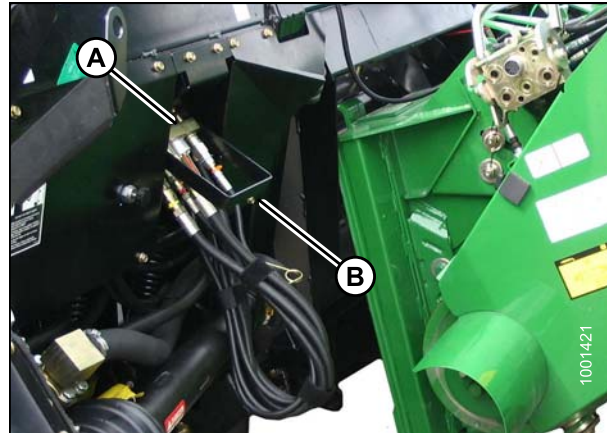


Figure 5.32: Coupler Storage

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

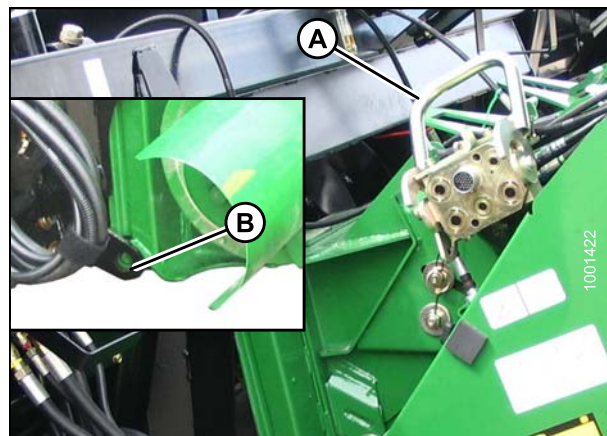


Figure 5.33: Feeder House Locks

HEADER ATTACHMENT/DETACHMENT

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

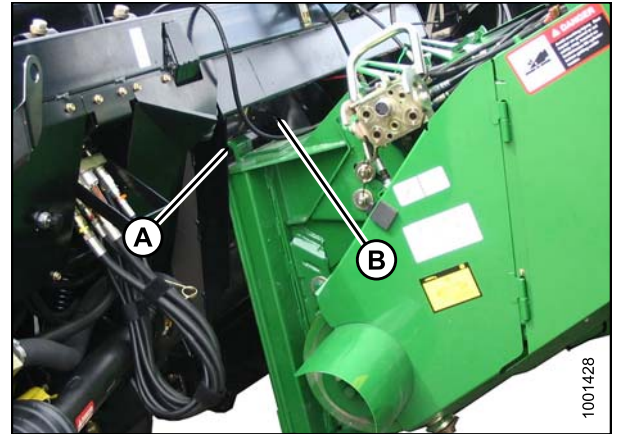


Figure 5.34: Header/Feeder House

5.4 Lexion Combines

5.4.1 Attaching Header to Lexion Combine

To attach the header to a Lexion combine, complete the following steps:

1. Move handle (A) on the CA25 adapter into raised position, and ensure pins (B) at bottom corners of adapter are retracted.

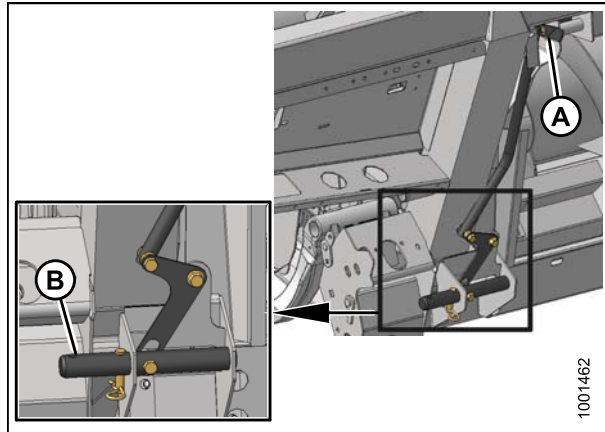


Figure 5.35: Pins Retracted

CAUTION

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

2. Start engine, and slowly drive combine up to header until feeder house is directly under the adapter top cross member.
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.

5. Stop engine and remove key from ignition.

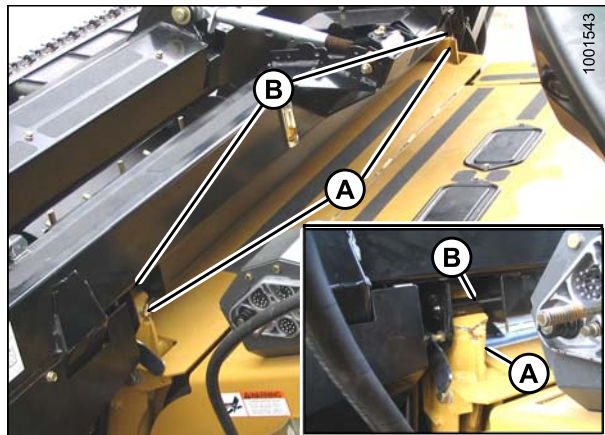


Figure 5.36: Header on Combine

HEADER ATTACHMENT/DETACHMENT

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

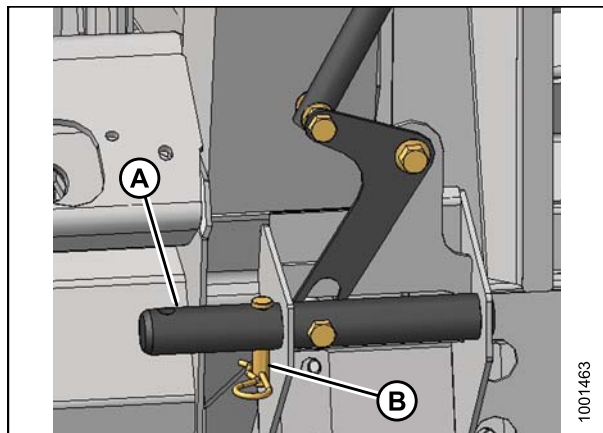


Figure 5.37: Locking Pins

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

CAUTION

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

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.

- Stop engine and remove key from ignition.
- Unscrew knob (A) on combine coupler (B) to release coupler from combine receptacle, and clean coupler.

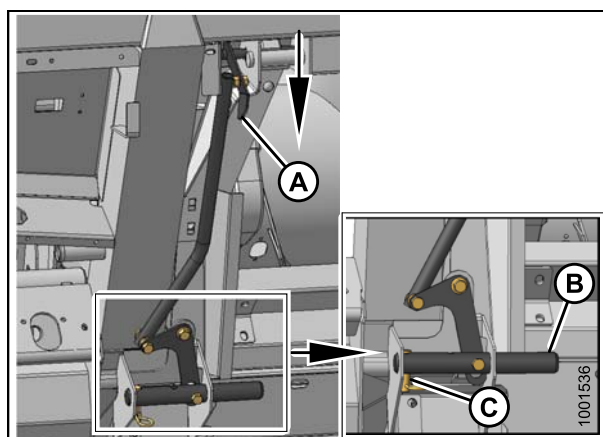


Figure 5.38: Engaging Pins

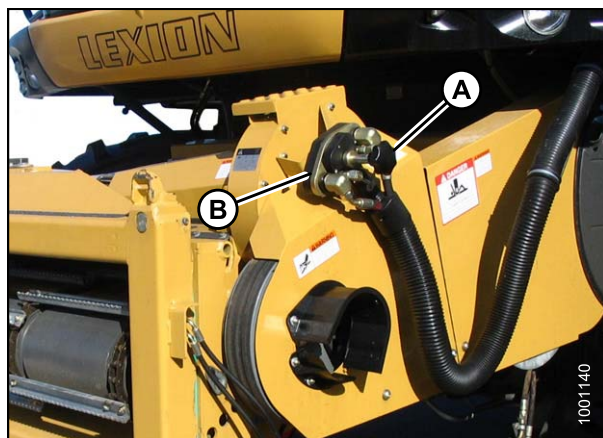


Figure 5.39: Combine Coupler

HEADER ATTACHMENT/DETACHMENT

10. Place adapter receptacle cover (A) onto combine receptacle.



Figure 5.40: Receptacle Cover

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

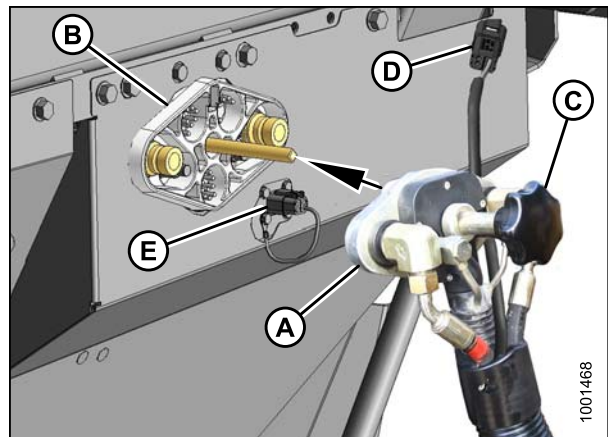


Figure 5.41: Coupler

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

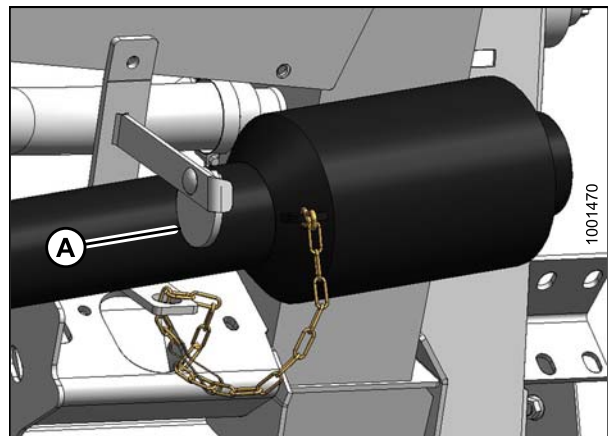


Figure 5.42: Driveline

HEADER ATTACHMENT/DETACHMENT

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

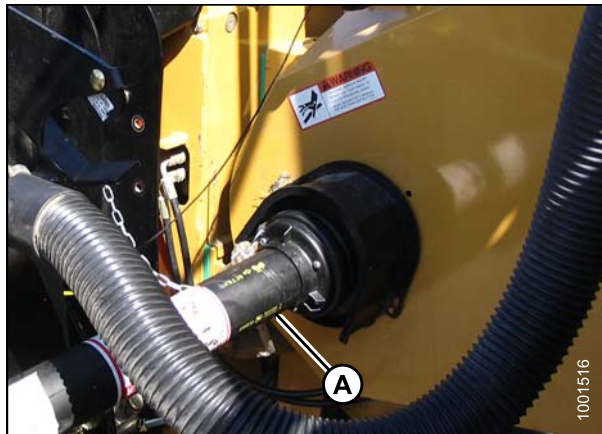


Figure 5.43: Driveline and Output Shaft

16. Disengage both adapter float locks by moving latch (A) away from adapter, and moving both header float lock levers (B) down (UNLOCK).

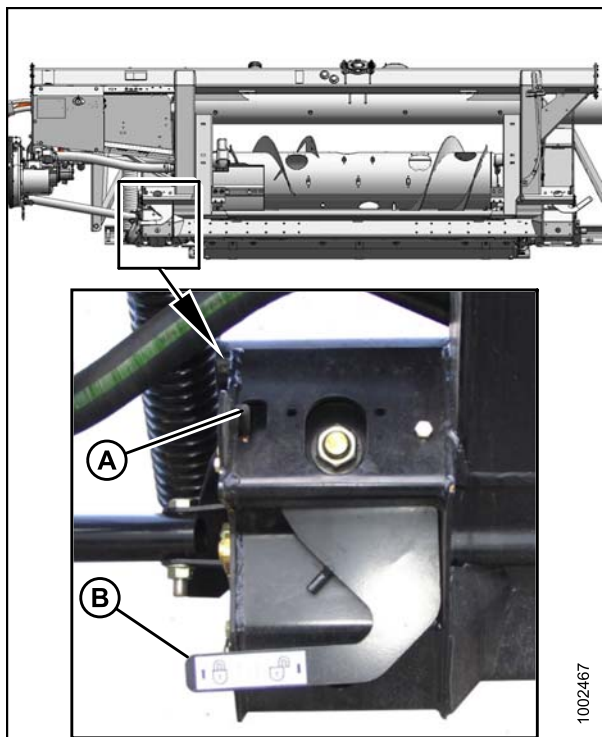


Figure 5.44: Float Lock in UNLOCK Position

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.

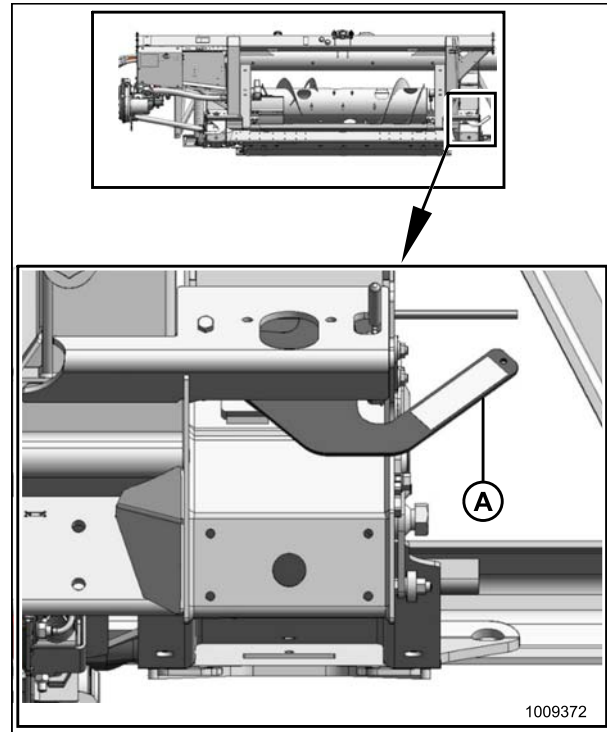


Figure 5.45: Float Locked

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 52](#).

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 52](#).

HEADER ATTACHMENT/DETACHMENT

3. Disconnect driveline (A) from combine.

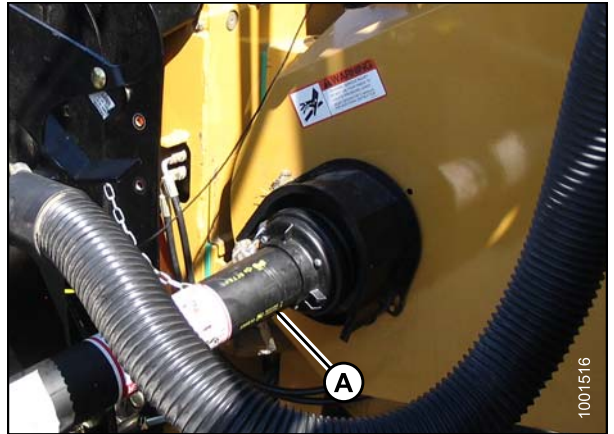


Figure 5.46: Driveline

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

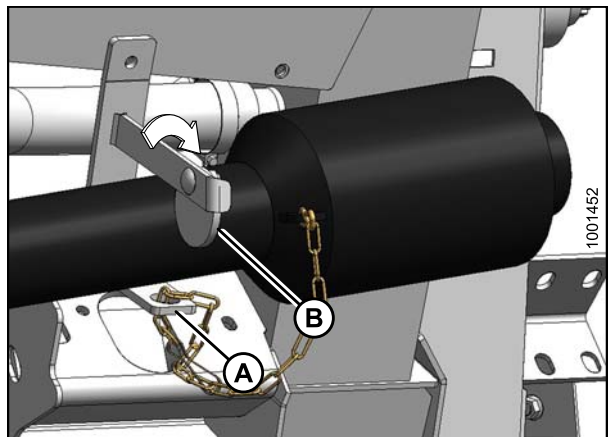


Figure 5.47: Driveline

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

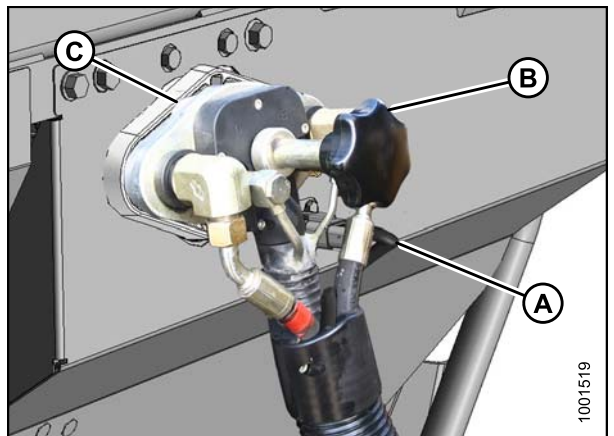


Figure 5.48: Coupler

HEADER ATTACHMENT/DETACHMENT

7. Remove cover (A) from combine receptacle.

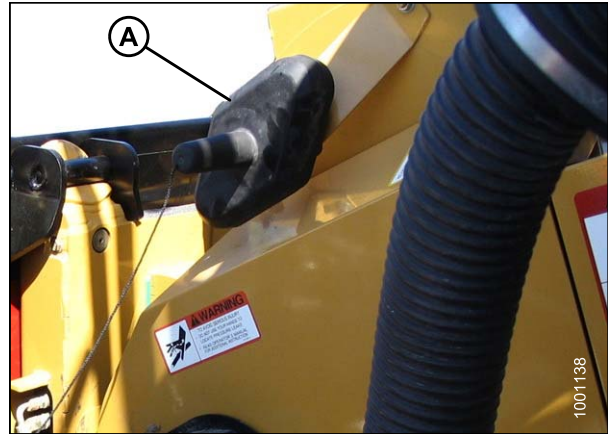


Figure 5.49: Cover

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

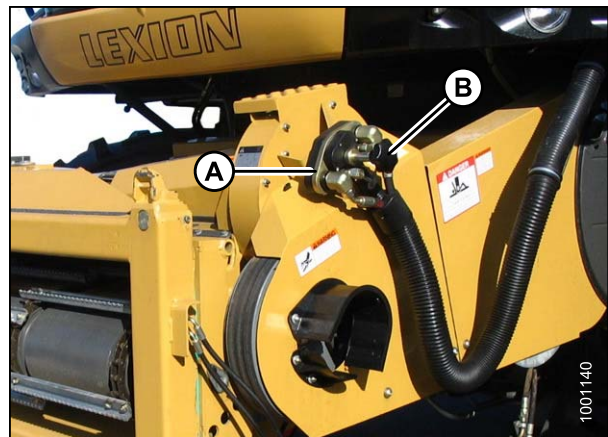


Figure 5.50: Combine Coupler

9. Place cover (A) on adapter receptacle.

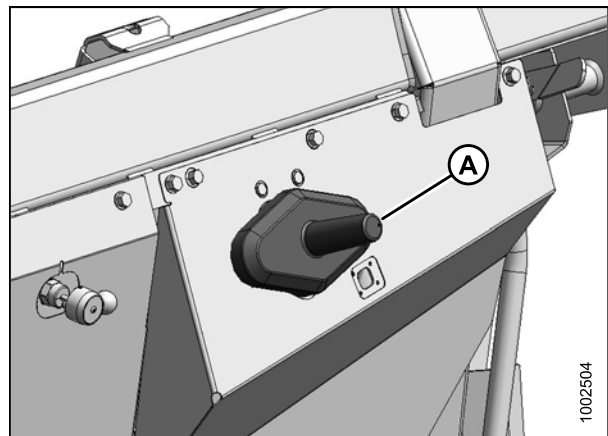


Figure 5.51: Adapter

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.

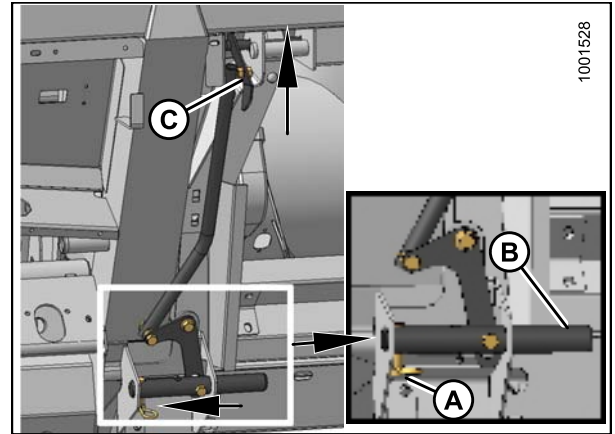


Figure 5.52: Feeder House Locks

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

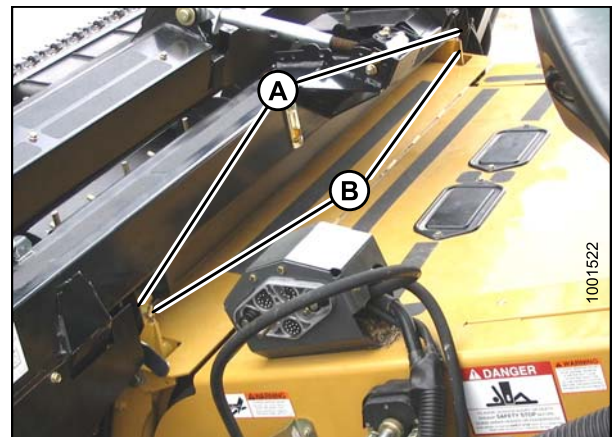


Figure 5.53: Header on Combine

5.5 New Holland Combines

5.5.1 Attaching Header to New Holland CR/CX Combine

To attach the header to a New Holland combine, complete the following steps:

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

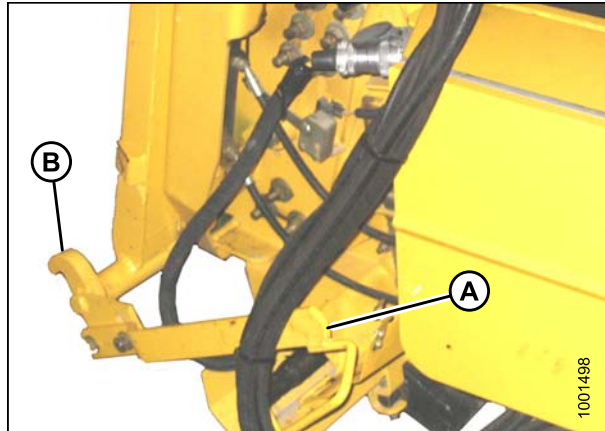


Figure 5.54: Feeder House Locks

⚠ CAUTION

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

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.

4. Stop engine and remove key from ignition.

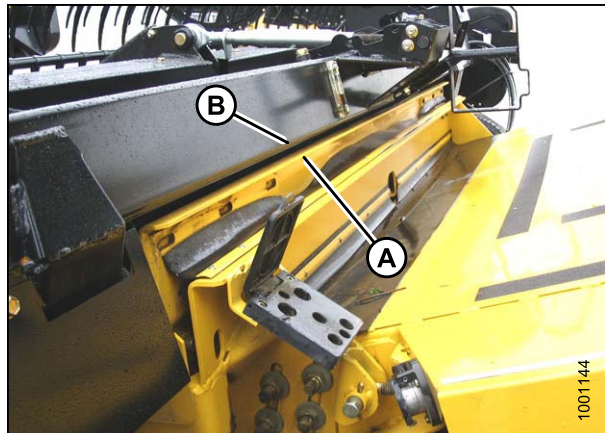


Figure 5.55: Header on Combine

HEADER ATTACHMENT/DETACHMENT

5. 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.
6. Push down on lever (A) so that slot in lever engages handle and locks handle in place.
7. If hooks (C) do not fully engage pins (D) on adapter when (A) and (B) are engaged, loosen bolts (E) and adjust locks as required. Retighten bolts.

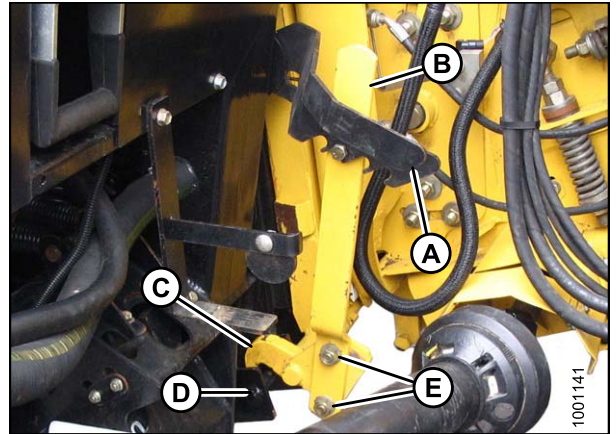


Figure 5.56: Feeder House Locks

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

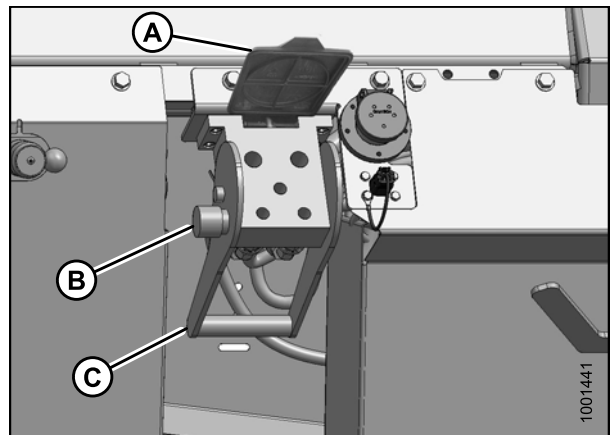


Figure 5.57: Adapter Receptacle

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

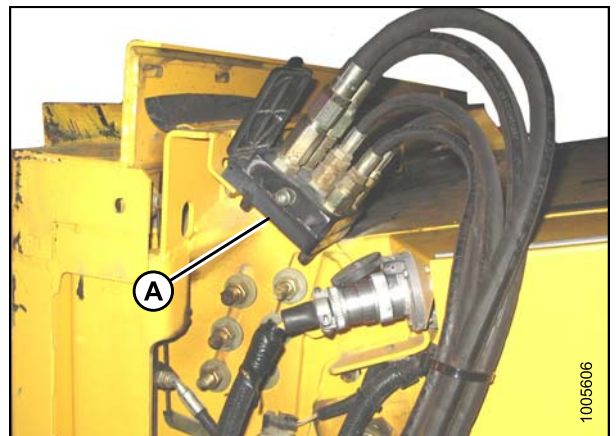


Figure 5.58: Combine Coupler

HEADER ATTACHMENT/DETACHMENT

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

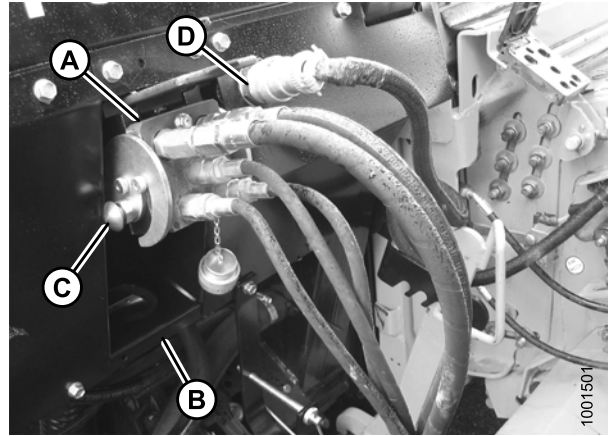


Figure 5.59: Connections

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

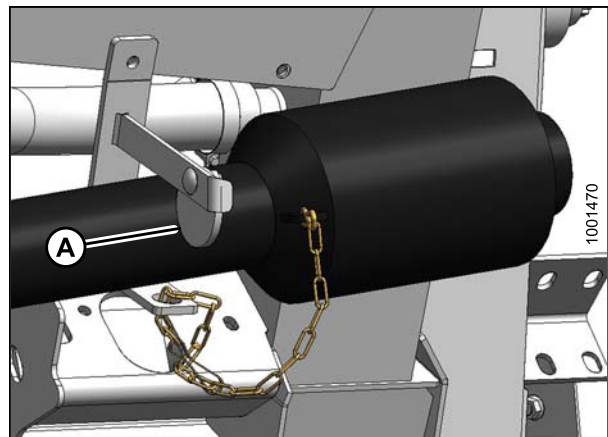


Figure 5.60: Driveline

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

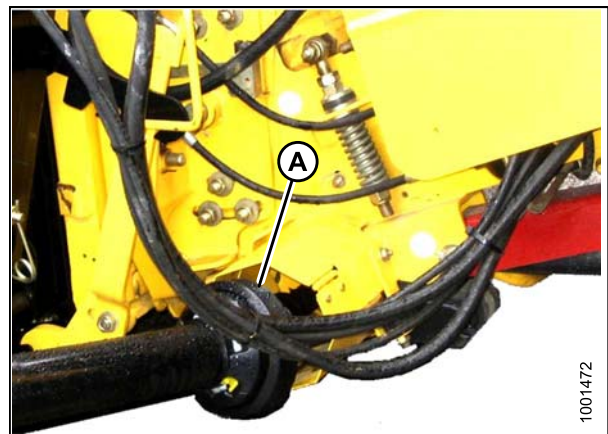


Figure 5.61: Driveline and Output Shaft

HEADER ATTACHMENT/DETACHMENT

19. Disengage both adapter float locks by moving latch (A) away from adapter, and moving both header float lock levers (B) down (UNLOCK).

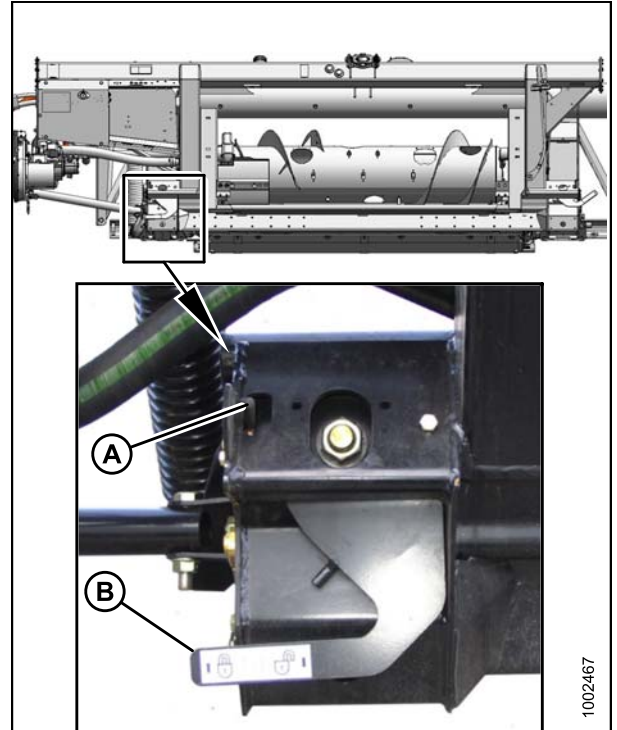


Figure 5.62: Float Lock in UNLOCK Position

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 until it latches into the lock position.

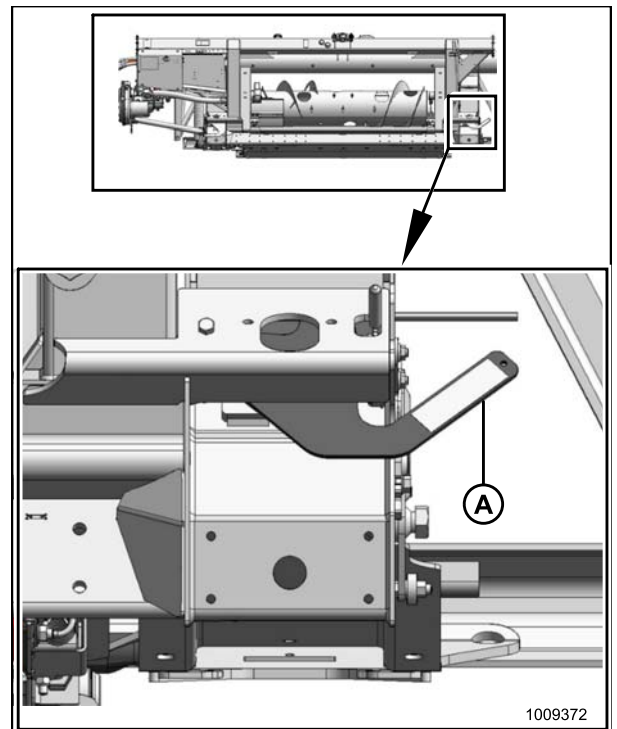


Figure 5.63: Float Locked

HEADER ATTACHMENT/DETACHMENT

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 52](#).

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 52](#).

3. Disconnect driveshaft (A) from combine.

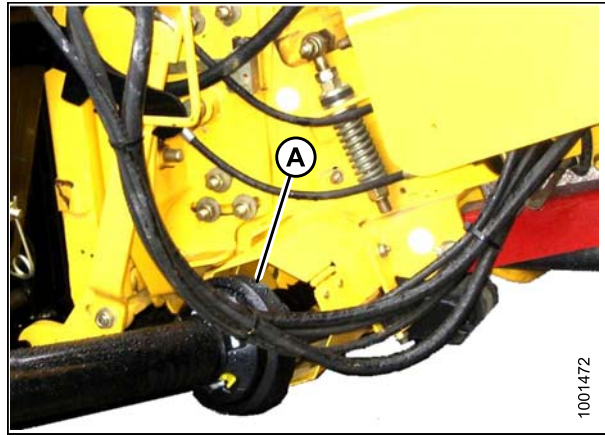


Figure 5.64: Driveline

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

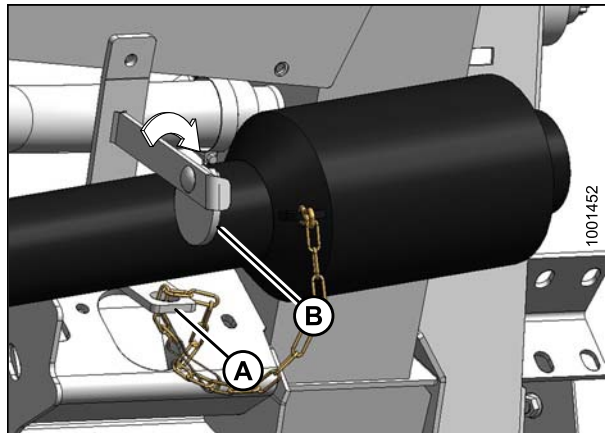


Figure 5.65: Driveline

HEADER ATTACHMENT/DETACHMENT

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

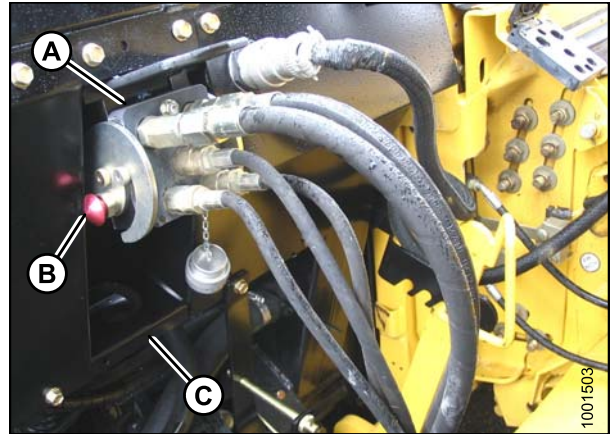


Figure 5.66: Adapter Connections

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

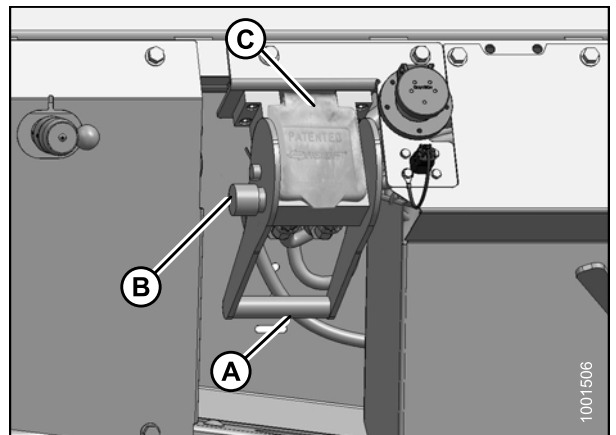


Figure 5.67: Adapter Receptacles

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

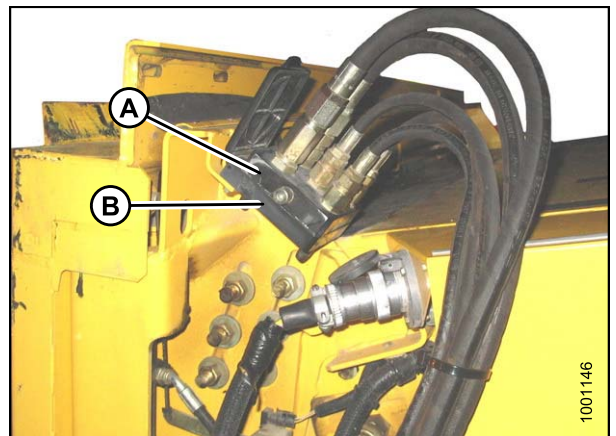


Figure 5.68: Combine Coupler

HEADER ATTACHMENT/DETACHMENT

8. Remove electrical connector (A) from adapter.

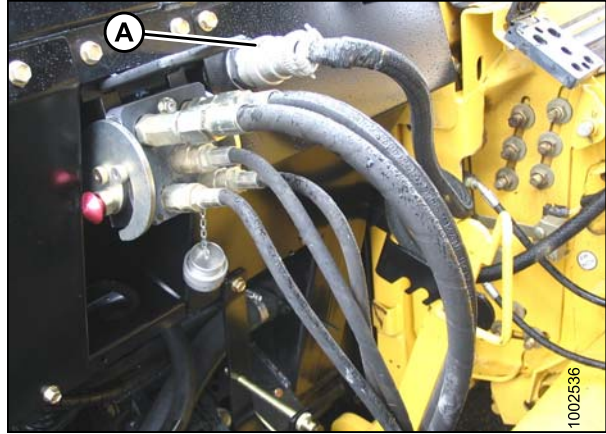


Figure 5.69: Adapter Connections

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



Figure 5.70: Combine Couplers

10. Replace cover (A) on adapter receptacle.

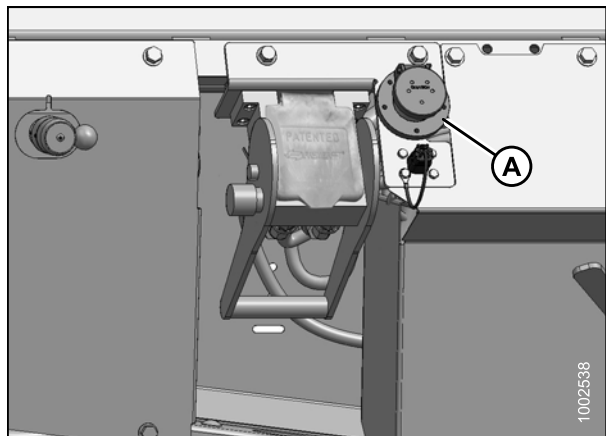


Figure 5.71: Adapter Receptacles

HEADER ATTACHMENT/DETACHMENT

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

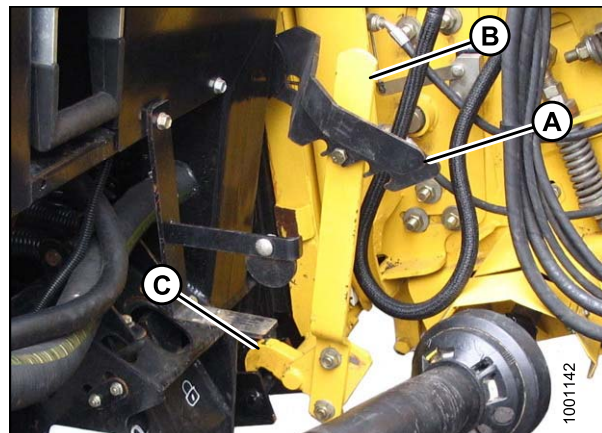


Figure 5.72: Feeder House Locks

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

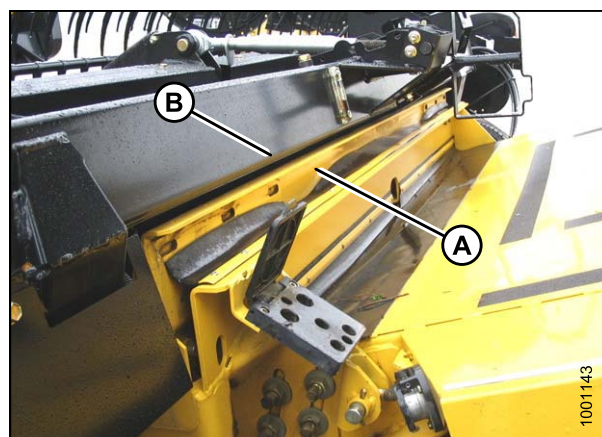


Figure 5.73: Header on Combine

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 [6.11.3 Replacing Feed Deflectors, page 361](#).

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, complete the following steps:

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

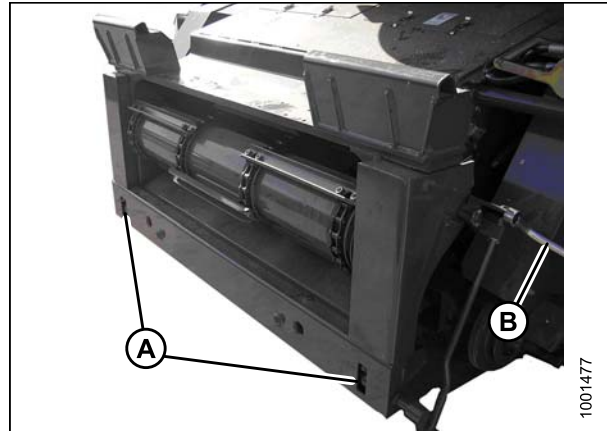


Figure 5.74: All AGCO except Gleaner R and S Series

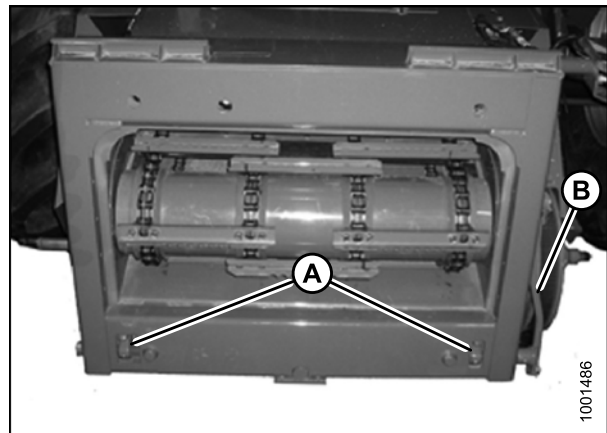


Figure 5.75: Gleaner R and S Series

CAUTION

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

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) on feeder house are aligned with holes (C) in adapter frame.

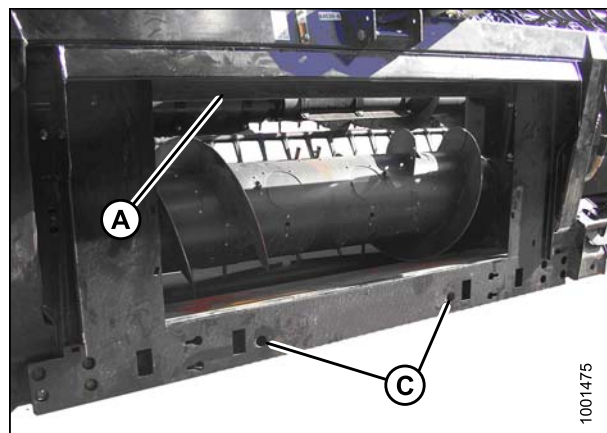


Figure 5.76: Adapter

HEADER ATTACHMENT/DETACHMENT

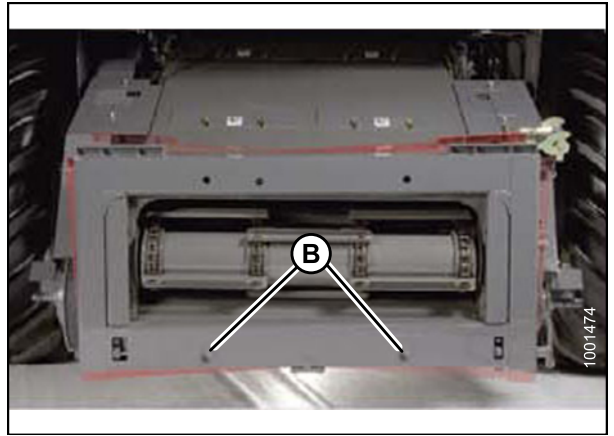


Figure 5.77: AGCO Alignment Pins (except Gleaner R and S Series and LL Models)

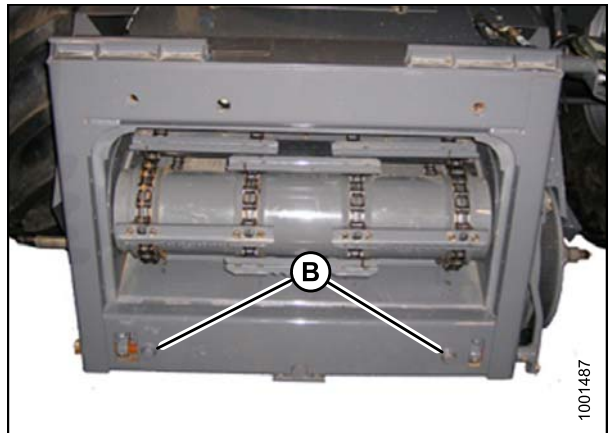


Figure 5.78: Gleaner R and S Series Alignment Pins

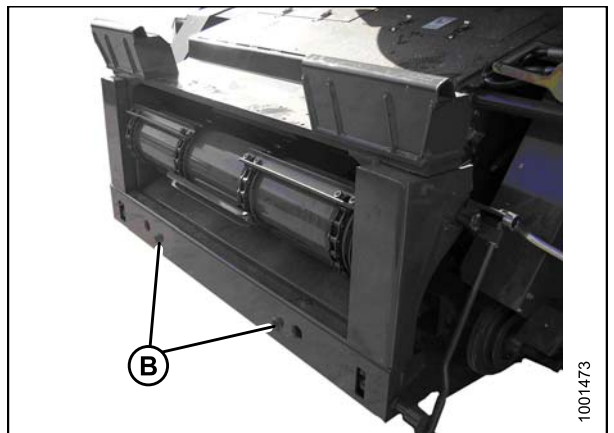


Figure 5.79: AGCO LL Model Alignment Pins

HEADER ATTACHMENT/DETACHMENT

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.

5. Stop engine and remove key from ignition.

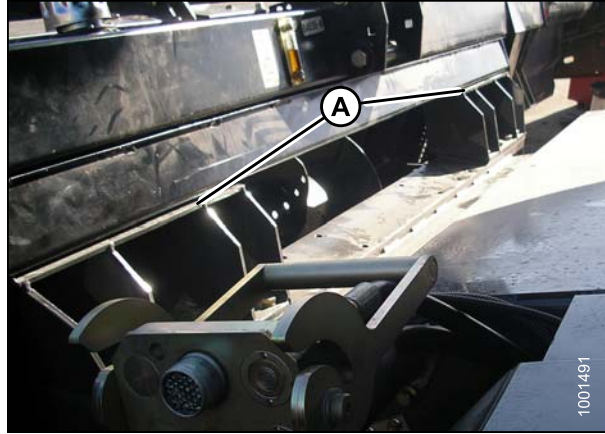


Figure 5.80: Feeder House and Adapter

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

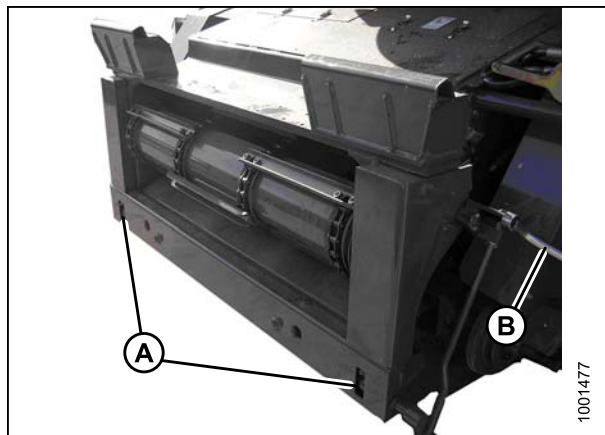


Figure 5.81: All AGCO except Gleaner R and S Series

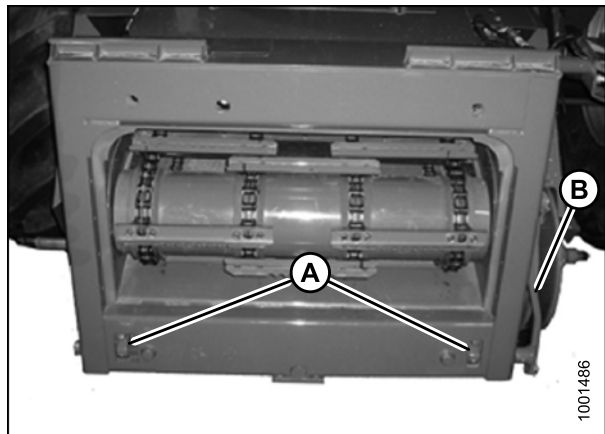


Figure 5.82: Gleaner R and S Series

HEADER ATTACHMENT/DETACHMENT

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

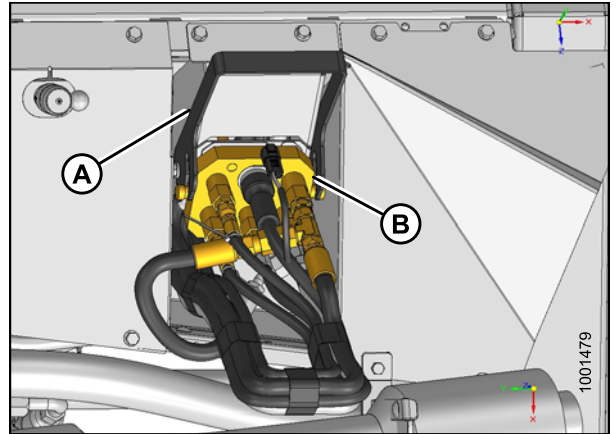


Figure 5.83: Adapter Coupler

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

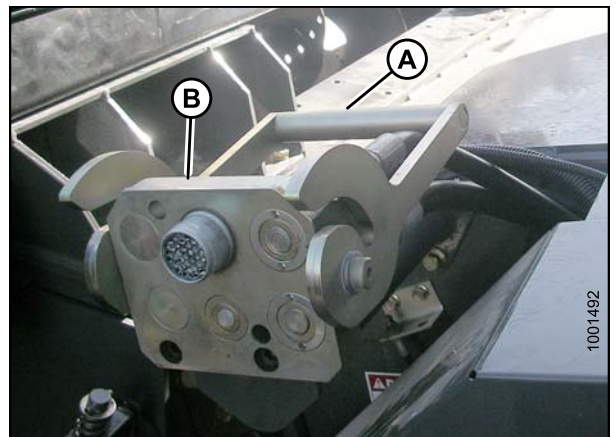


Figure 5.84: Combine Receptacle

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

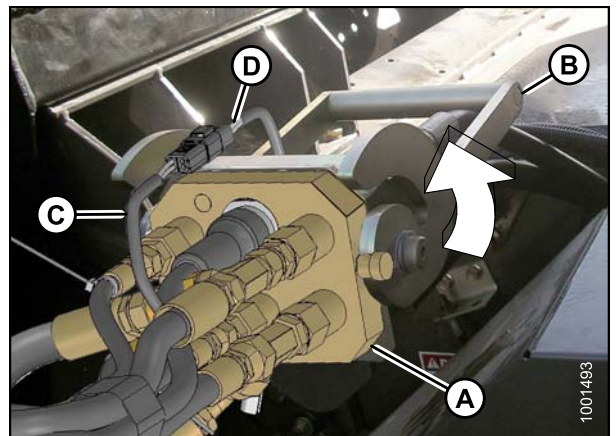


Figure 5.85: Coupler

HEADER ATTACHMENT/DETACHMENT

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

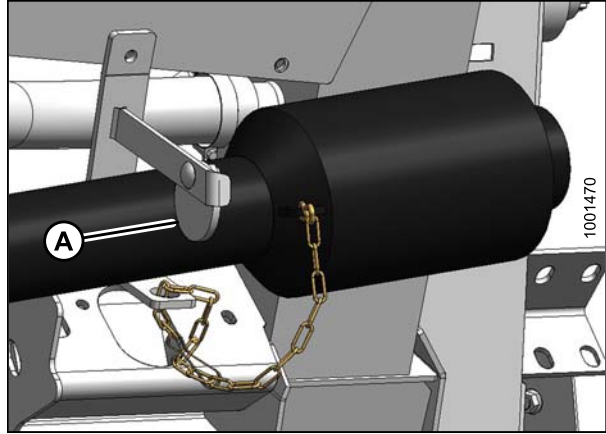


Figure 5.86: Driveline

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

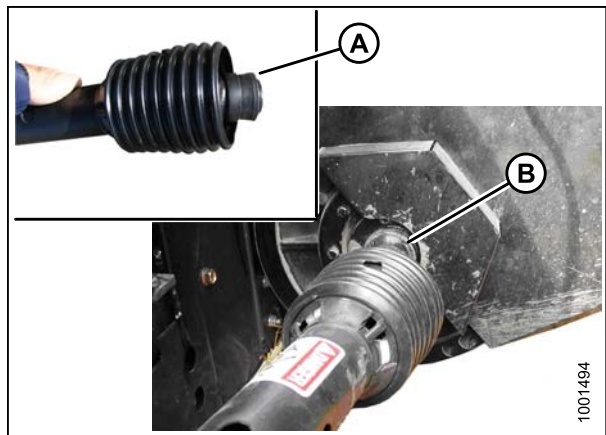


Figure 5.87: Driveline

HEADER ATTACHMENT/DETACHMENT

14. Disengage both adapter float locks by moving latch (A) away from adapter, and moving both header float lock levers (B) down (UNLOCK).

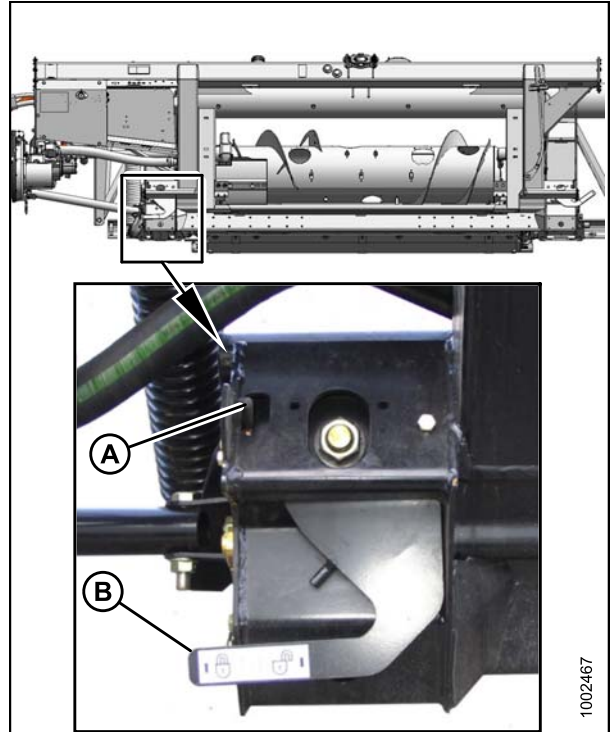


Figure 5.88: Float Lock in UNLOCK Position

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.

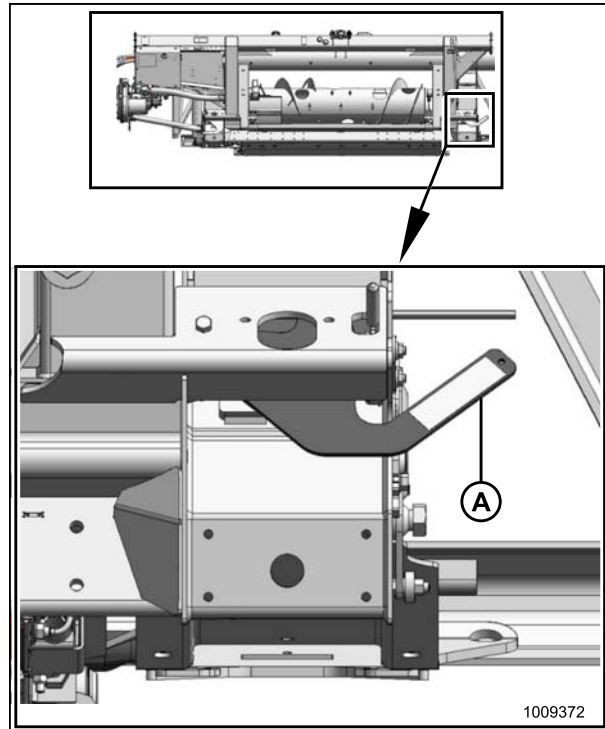


Figure 5.89: Float Locked

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 52](#).

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 52](#).

HEADER ATTACHMENT/DETACHMENT

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



Figure 5.90: Disconnect Driveline

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

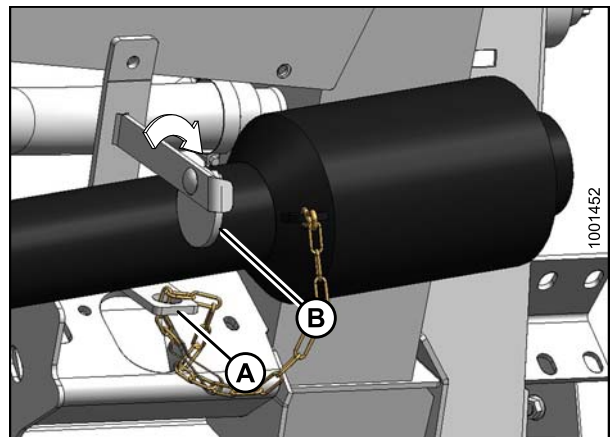


Figure 5.91: Driveline

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

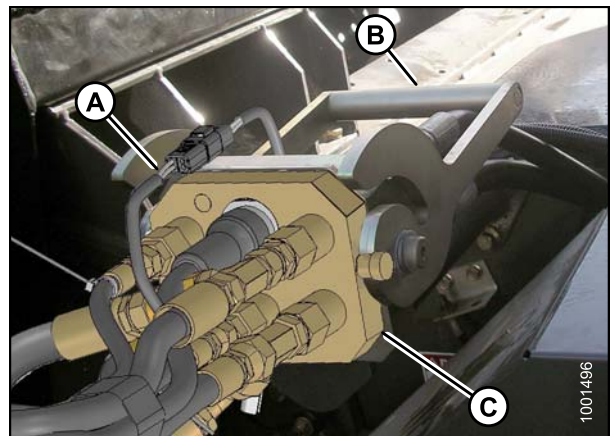


Figure 5.92: Couplers

HEADER ATTACHMENT/DETACHMENT

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

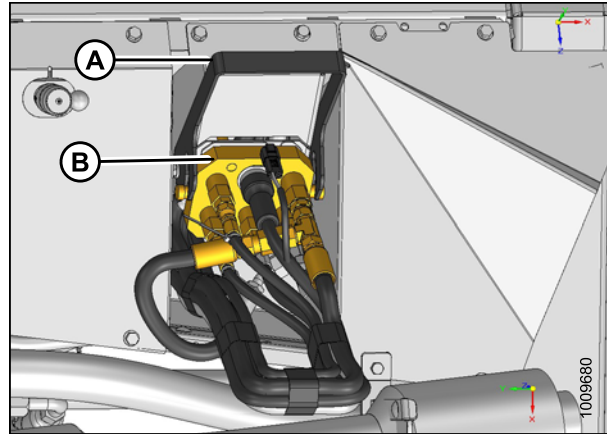


Figure 5.93: Adapter Couplers

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

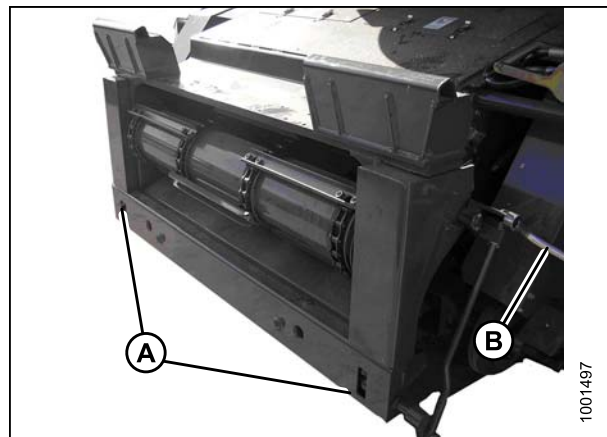


Figure 5.94: All AGCO except Gleaner R and S Series

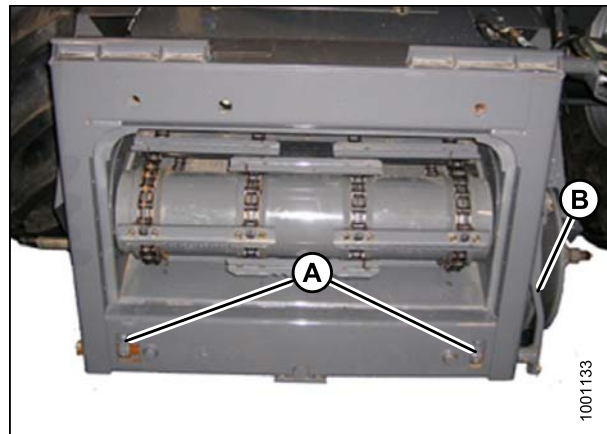


Figure 5.95: Gleaner R and S Series

HEADER ATTACHMENT/DETACHMENT

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

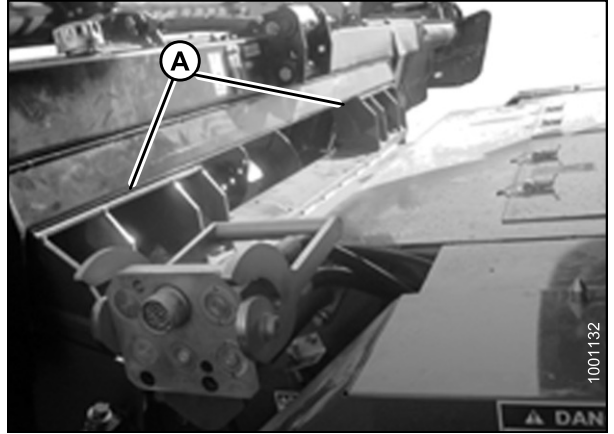


Figure 5.96: Header on Combine

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.

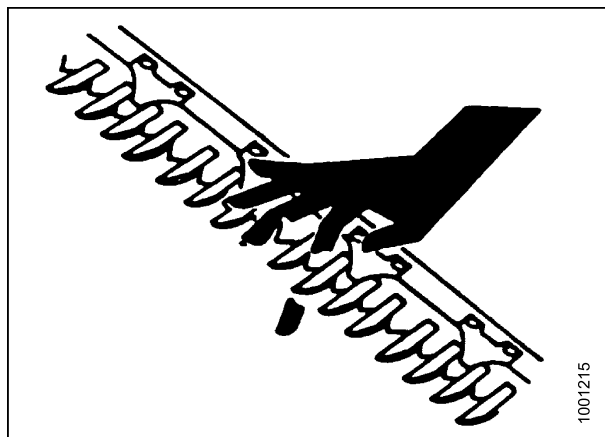


Figure 5.97: Cutterbar Hazard

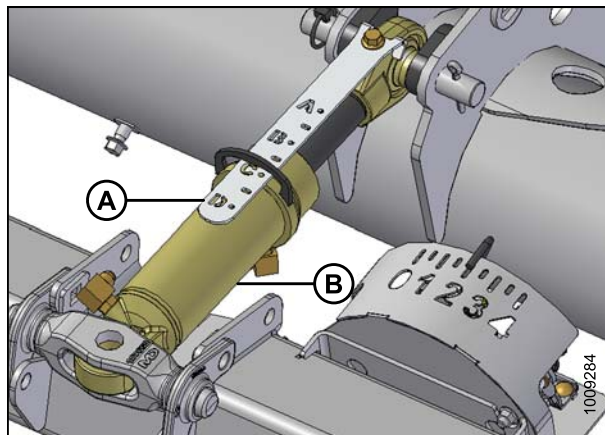


Figure 5.98: Center-Link

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.

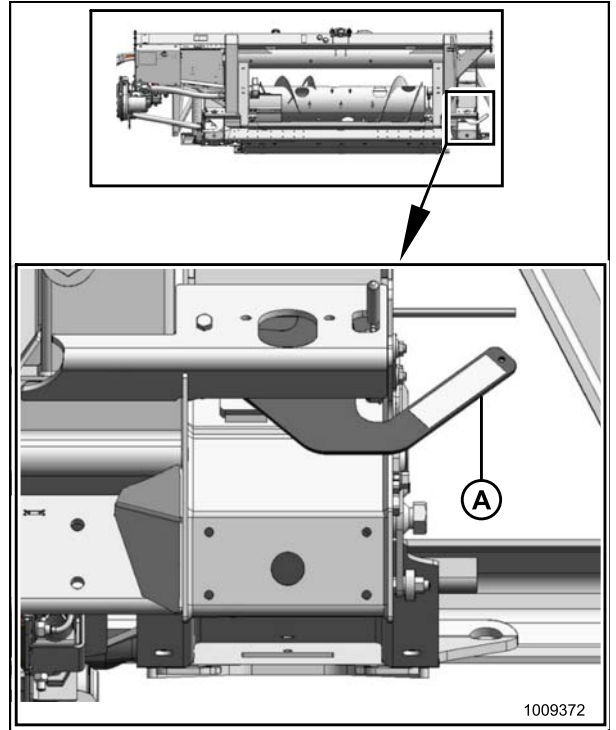


Figure 5.99: Float Locked

- 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.

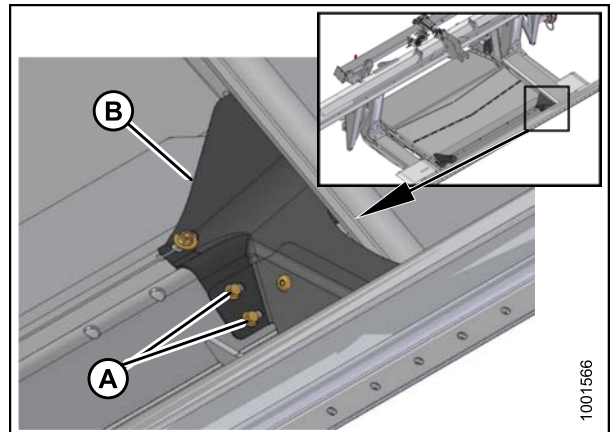


Figure 5.100: Fillers

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.
13. Remove ring (A) from pin (B), and remove pins from header legs at delivery opening.

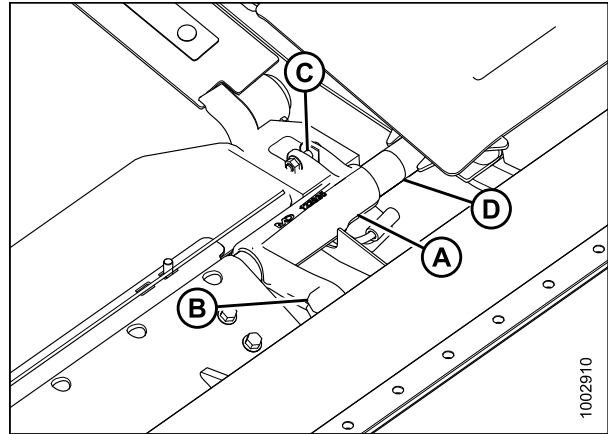


Figure 5.101: Adapter Latch

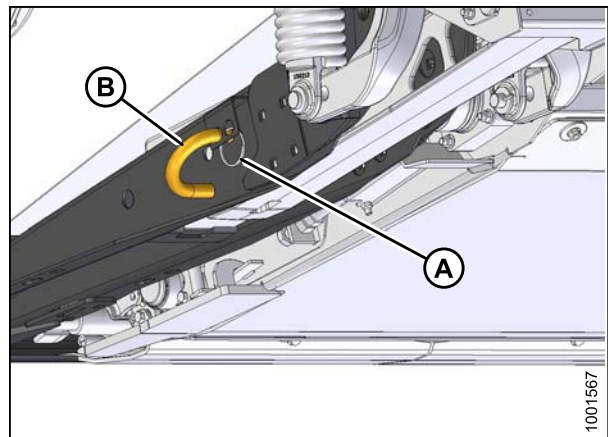


Figure 5.102: Header Leg

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

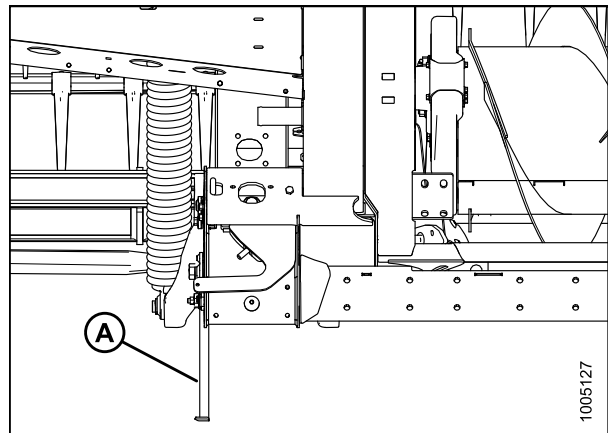


Figure 5.103: Stand

HEADER ATTACHMENT/DETACHMENT

16. 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.

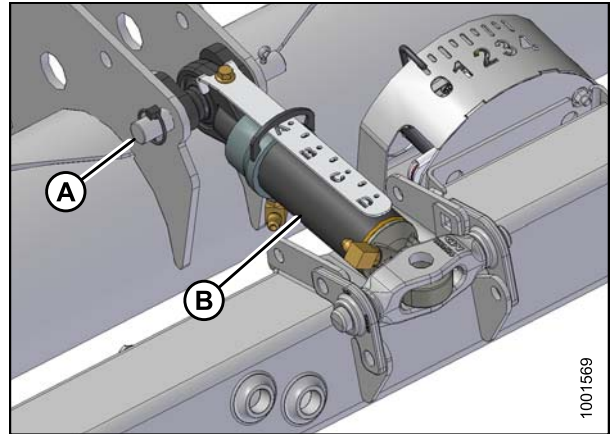


Figure 5.104: Hydraulic Center-Link

17. Disconnect knife and draper drive hydraulic hoses (A) at bracket. Cap off ends immediately to avoid loss of oil.
18. Store and secure hoses on adapter frame.
19. Disconnect electrical connector (B) by turning collar counterclockwise, and pulling connector to disengage.
20. Store and secure hoses and electrical connector on adapter.

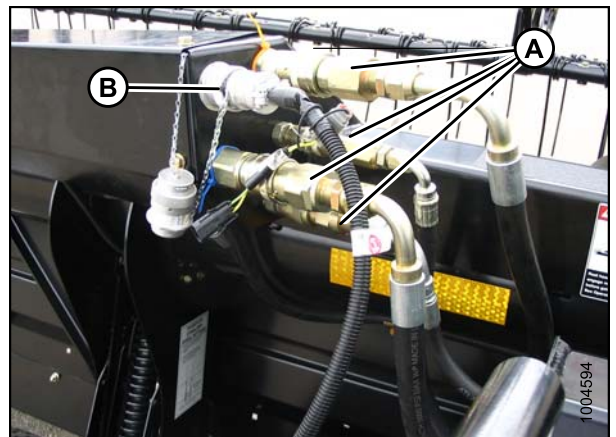


Figure 5.105: Header Connections

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).

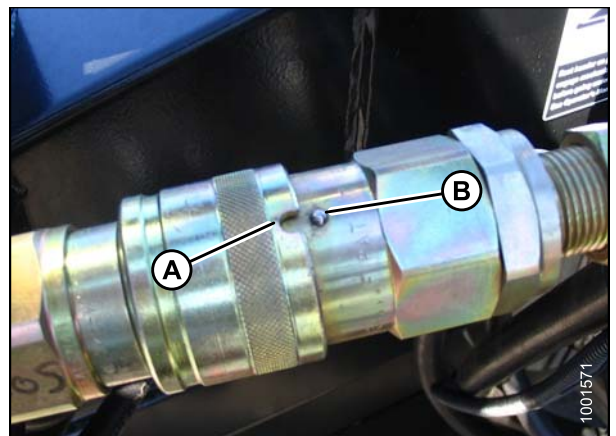


Figure 5.106: Quick Disconnect

HEADER ATTACHMENT/DETACHMENT

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

NOTE:

If optional multicoupler is installed for reel hydraulics. Press the button on the side. Raise handle on the adapter, and remove coupler.

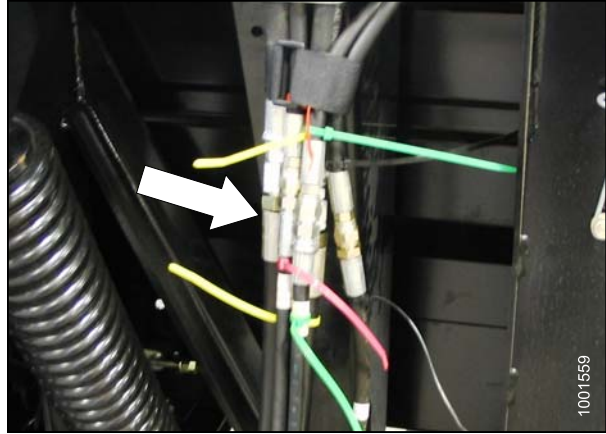


Figure 5.107: Disconnect Reel Hydraulics

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 5.108: Hose Storage

27. Replace pin (B) in header legs, and secure with ring (A).

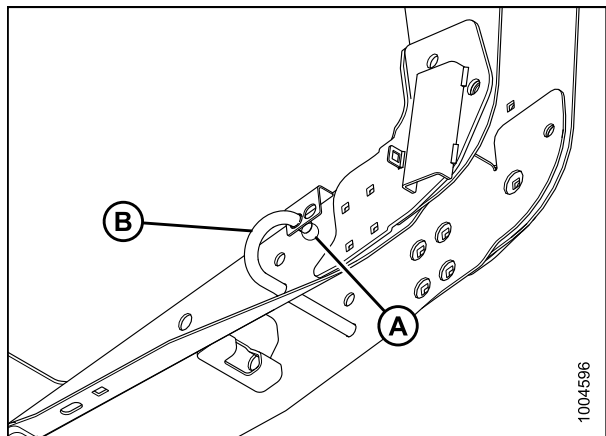


Figure 5.109: Header Leg

5.7.2 Attaching Header to Adapter and Combine

The D65 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 52](#).

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

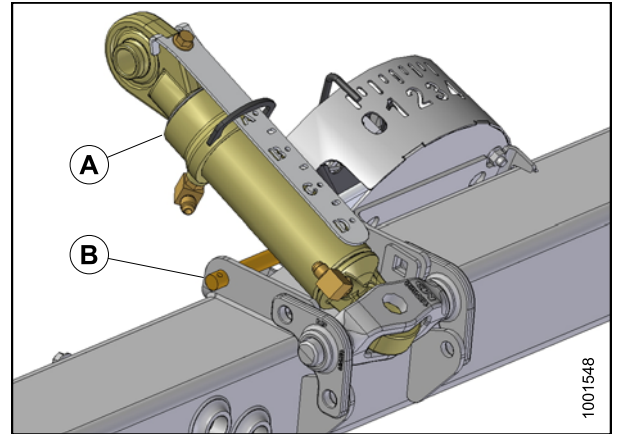


Figure 5.110: Center-Link

2. Remove ring (A) from pin (B), and remove pins from header legs at delivery opening.

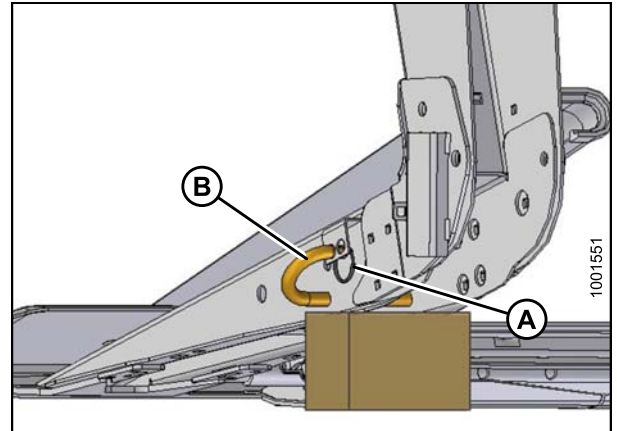


Figure 5.111: Block Under Leg

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 (A) are aligned with header legs (B).
5. Drive slowly forward, maintaining alignment between adapter arms (A) and header legs (B).
6. Keep adapter arms (A) just under the legs (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 legs (C).
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.

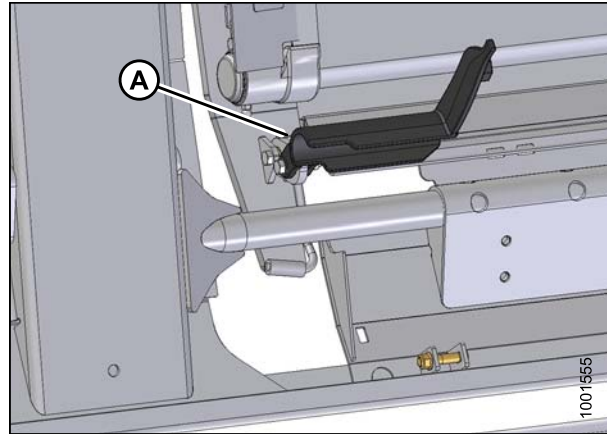


Figure 5.112: Latches

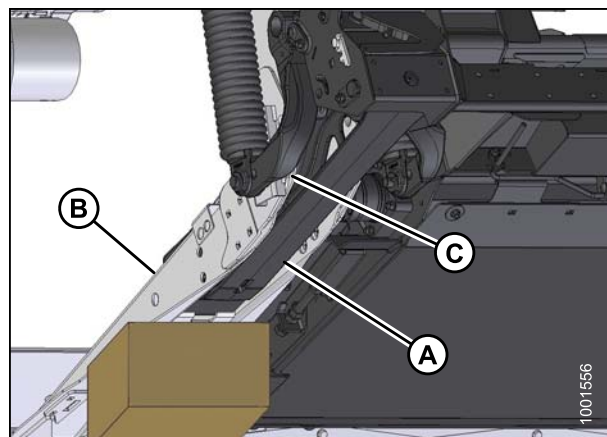


Figure 5.113: Adapter Underside

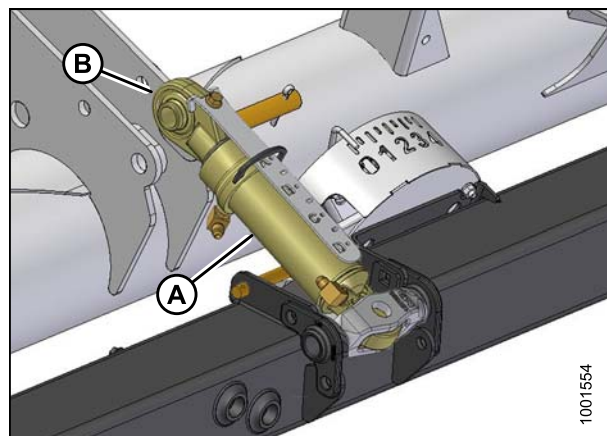


Figure 5.114: Center-Link

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.

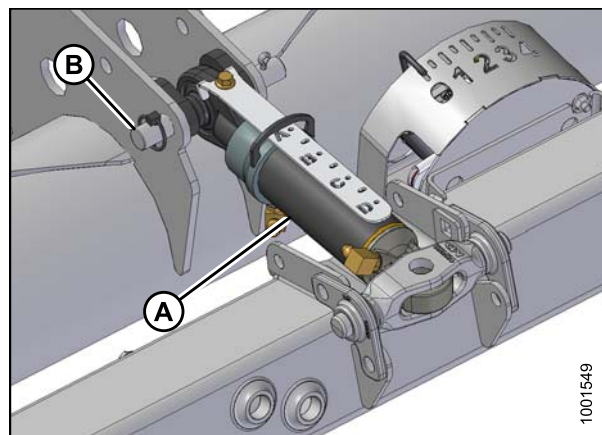


Figure 5.115: Center-Link

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

CAUTION

Always connect center-link before fully raising header.

NOTE:

If optional multicoupler is installed for reel hydraulics. Raise handle on adapter, and place coupler on adapter receptacle. Lower handle to lock coupler.

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.

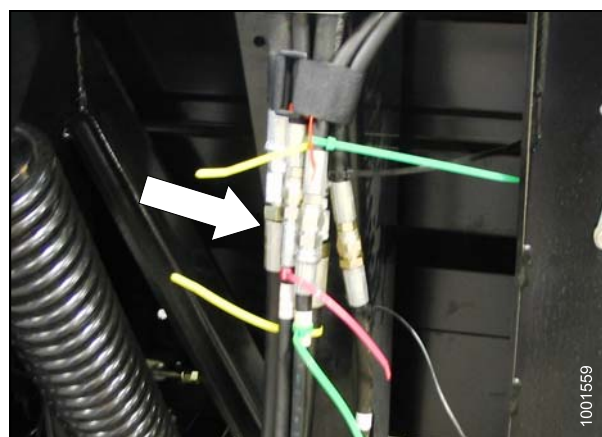


Figure 5.116: Reel Hydraulics

HEADER ATTACHMENT/DETACHMENT

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. Replace pin (B) in header legs, and secure with ring (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.

WARNING

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

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).

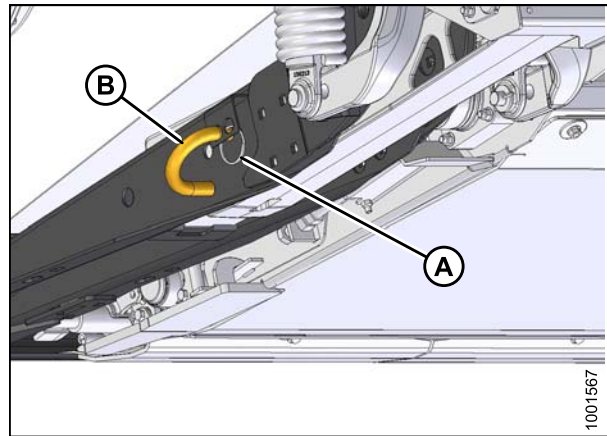


Figure 5.117: Header Leg

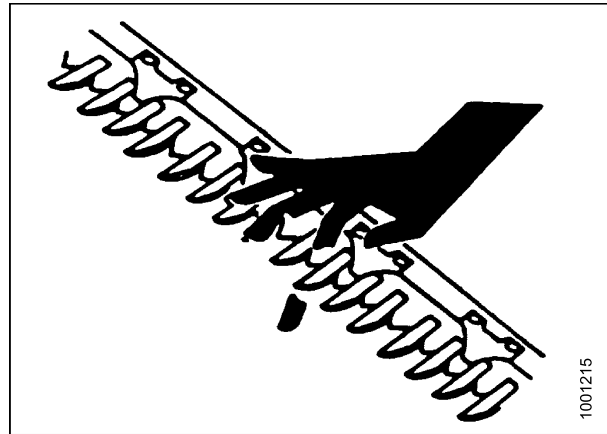


Figure 5.118: Cutterbar Hazard

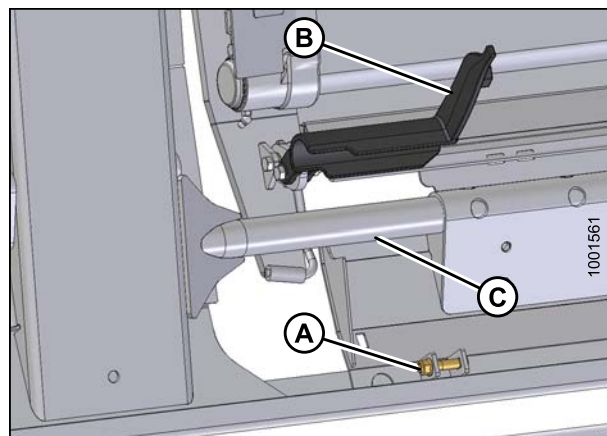


Figure 5.119: Adapter Latch

HEADER ATTACHMENT/DETACHMENT

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.

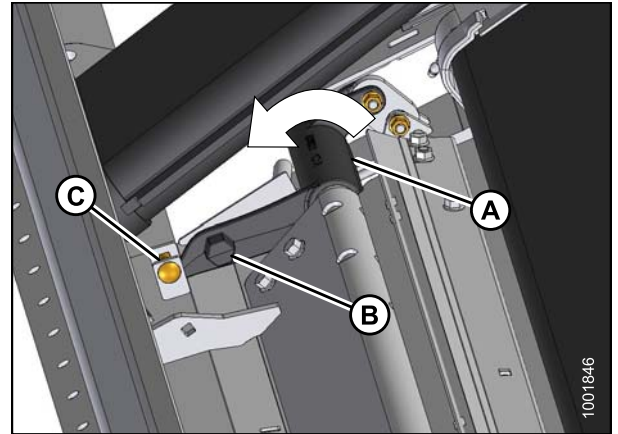


Figure 5.120: Adapter Latch

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.

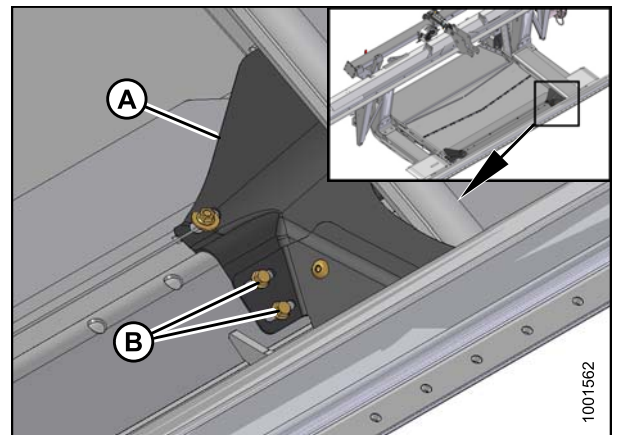


Figure 5.121: Fillers

25. Connect knife and draper drive hydraulics (A), matching colored plastic cable ties.
26. Attach electrical connector (B):
 - a. Remove cover on receptacle. Ensure it is clean and damage free.
 - b. Align lugs on connector with slots in receptacle, push connector onto receptacle, and turn collar on connector to lock it in place.
 - c. Attach cover to mating cover on combine wiring harness.

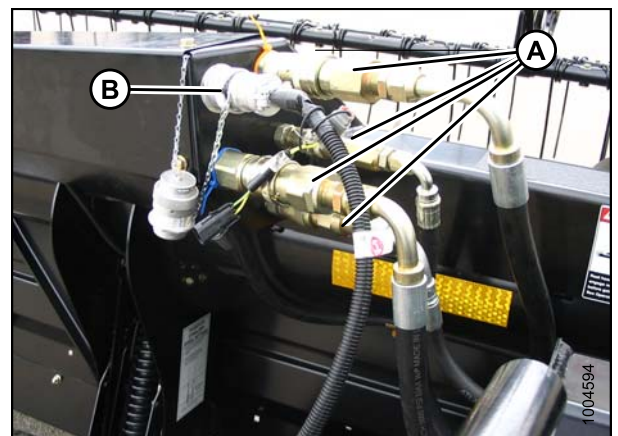


Figure 5.122: Header Connections

HEADER ATTACHMENT/DETACHMENT

27. If quick disconnects are installed, connect as follows:
- Remove covers (if installed) from receptacles and hose ends.
 - Check connectors, and clean if required.
 - Push hose connector onto mating receptacle until collar on receptacle snaps into lock position.

NOTE:

Ensure hoses are clear of driveline and adjacent structure.

NOTE:

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

28. Check float, and confirm that the header is level. Refer to:
- [Checking and Adjusting Header Float, page 144.](#)
 - [4.8 Leveling the Header, page 174.](#)
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 5.123: 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

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

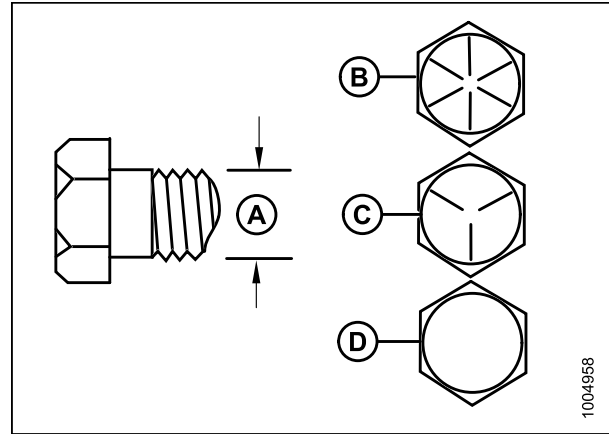


Figure 6.1: Bolt Grades

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

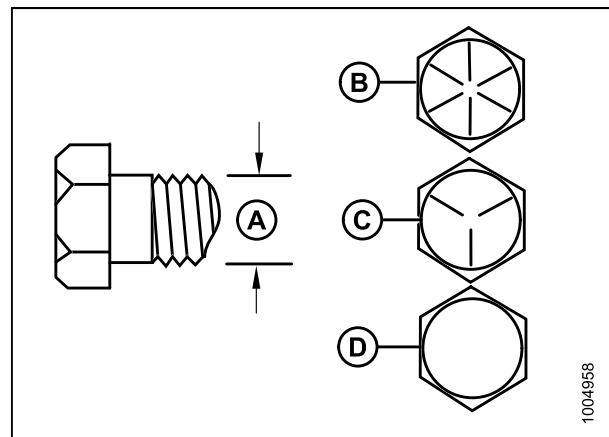


Figure 6.2: Bolt Grades

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

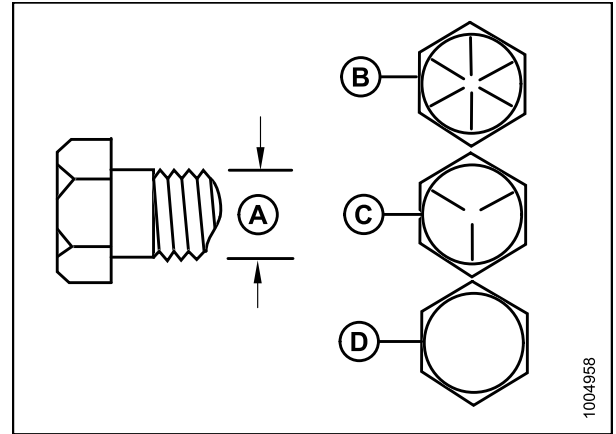


Figure 6.3: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
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

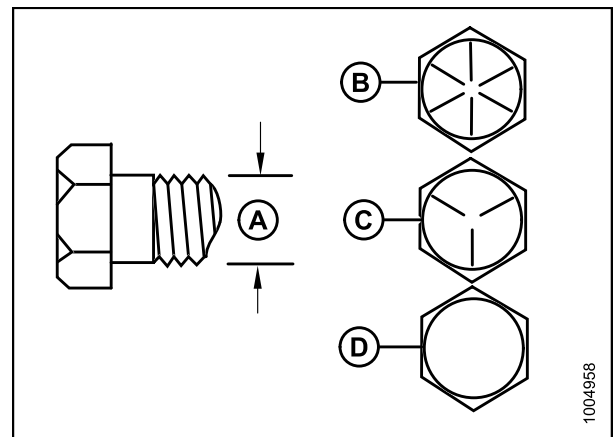


Figure 6.4: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
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

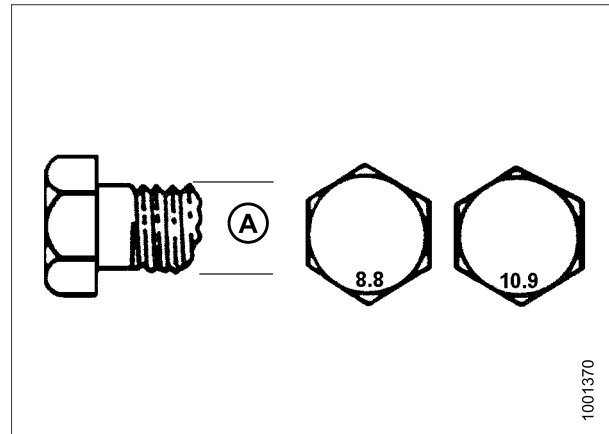


Figure 6.5: Bolt Grades

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

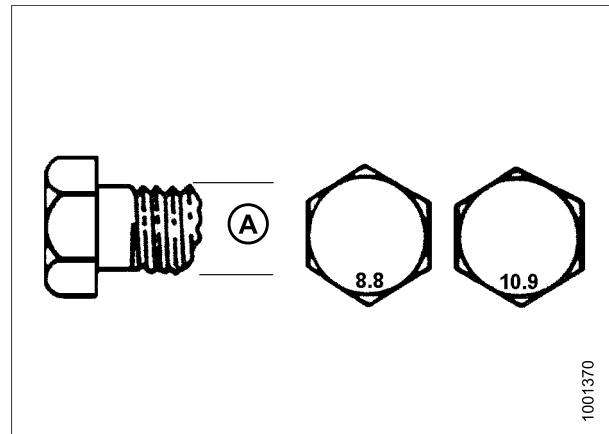


Figure 6.6: Bolt Grades

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

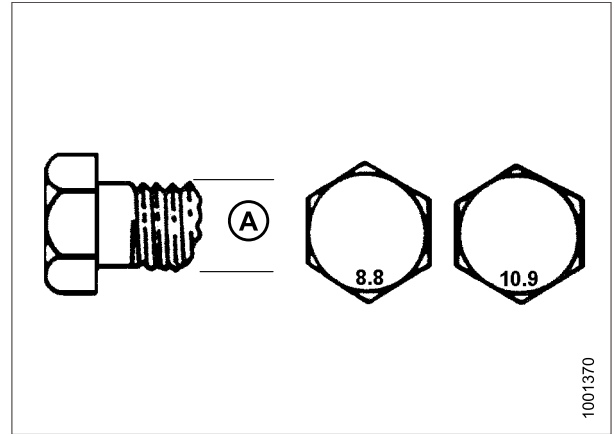


Figure 6.7: Bolt Grades

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

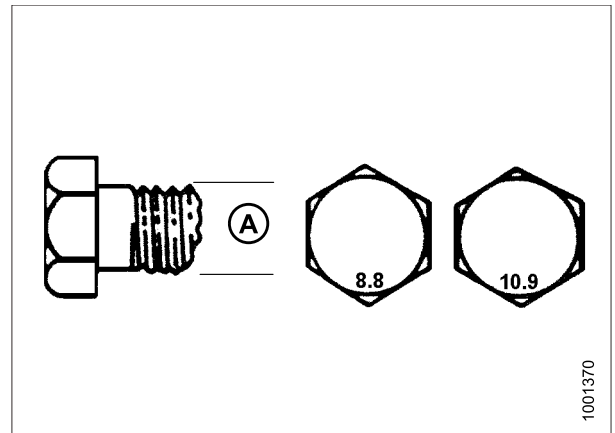


Figure 6.8: Bolt Grades

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	–	–	–	–

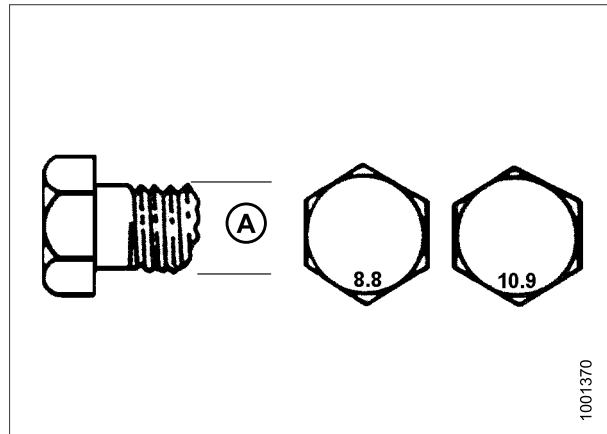


Figure 6.9: Bolt Grades

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 [Table 6.10 Flare-Type Hydraulic Tube Fittings, page 261](#).
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.

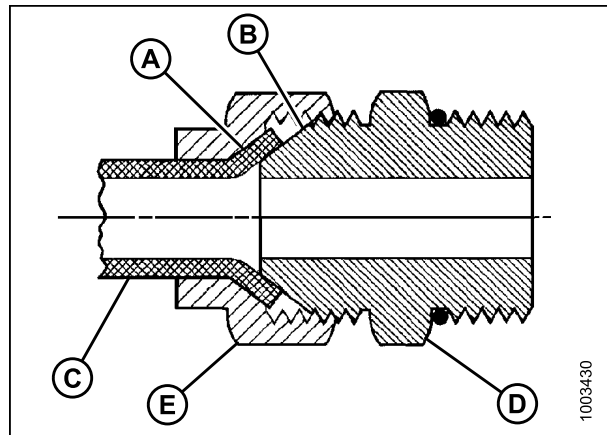


Figure 6.10: Hydraulic Fitting

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 ⁵		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

5. 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, and adjust if necessary.
4. Apply hydraulic system oil to the O-ring (A).

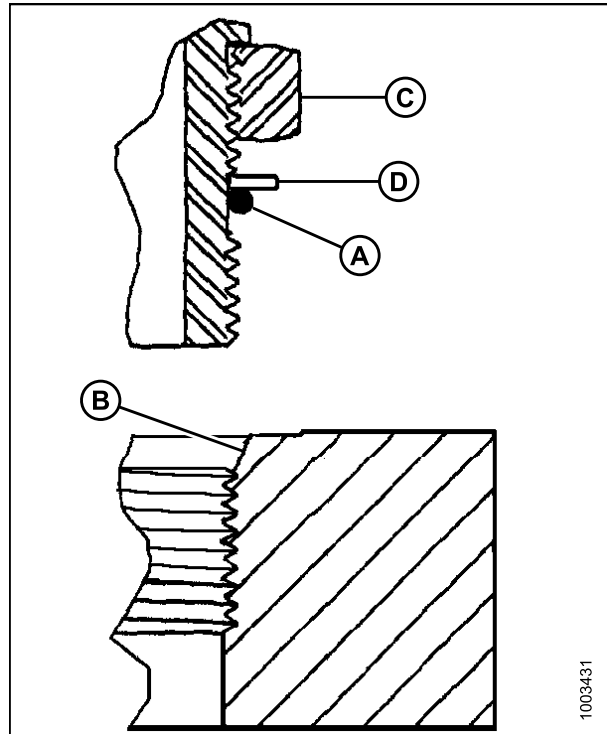


Figure 6.11: Hydraulic Fitting

5. Install fitting (B) into port until back up washer (D) and O-ring (A) contact the part face (E).
6. Position angle fittings by unscrewing no more than one turn.
7. Turn lock nut (C) down to washer (D) and tighten to torque shown. Use two wrenches, one on the fitting (B) and the other on the lock nut (C).
8. Check the final condition of the fitting.

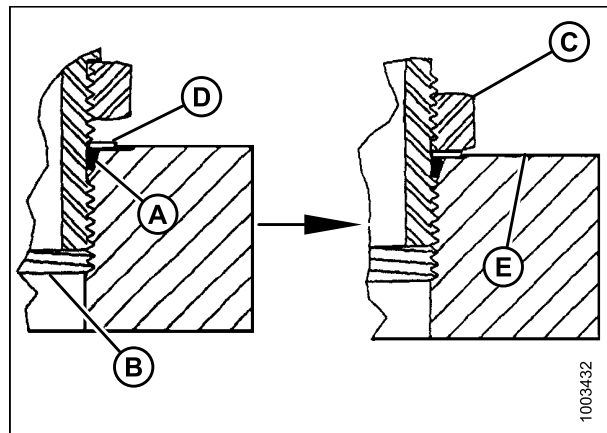


Figure 6.12: Hydraulic Fitting

MAINTENANCE AND SERVICING

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

SAE Dash Size	Thread Size (in.)	Torque Value ⁶	
		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

6. 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, and 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) according to the values in Table 6.12 *O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)*, page 264.
6. Check the final condition of the fitting.

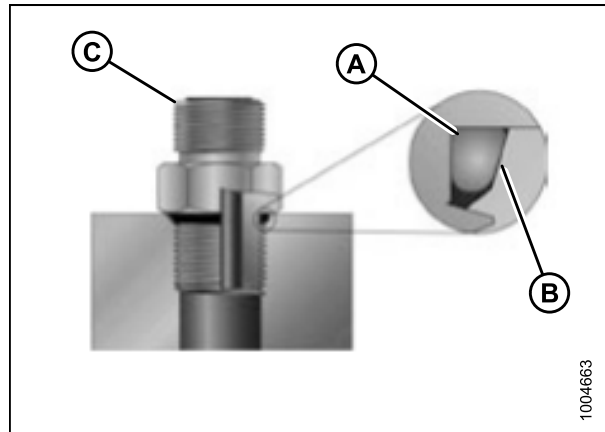


Figure 6.13: Hydraulic Fitting

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

SAE Dash Size	Thread Size (in.)	Torque Value ⁷	
		ft·lbf (*in·lbf)	N·m
-3	3/8-24	*106–115	12–13
-4	7/16–20	14–15	19–21
-5	1/2–20	15–24	21–33
-6	9/16–18	19–21	26–29
-8	3/4–16	34–37	46–50
-10	7/8–14	55–60	75–82
-12	1-1/16-12	88–97	120–132
-14	1-3/8-12	113–124	153–168
-16	1-5/16-12	130–142	176–193
-20	1-5/8-12	163–179	221–243
-24	1-7/8-12	199–220	270–298

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

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 fittings according to the values in Table [6.13 O-Ring Face Seal \(ORFS\) Hydraulic Fittings, page 266](#).

NOTE:

If applicable, hold the hex on the fitting body (E) to prevent rotation of fitting body and hose when tightening the fitting nut (D).

6. Use three wrenches when assembling unions or two hoses together.
7. Check the final condition of the fitting.

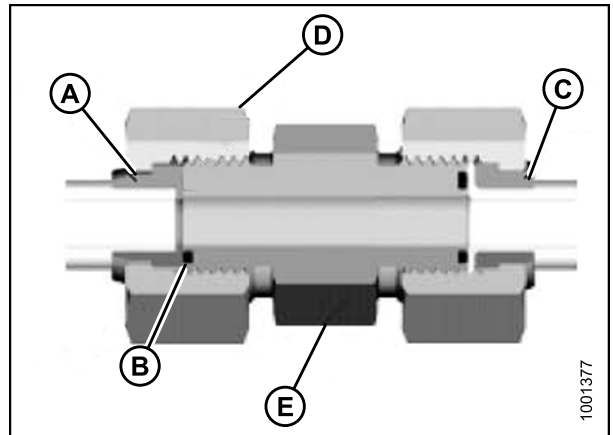


Figure 6.15: Hydraulic Fitting

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

SAE Dash Size	Thread Size (in.)	Torque Value ⁸	
		ft·lbf (*in·lbf)	N·m
-3	Note ⁹	–	–
-4	9/16–18	18–21	25–28
-5	Note ⁹	–	–
-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 ⁹	–	–
-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.

8. Torque values and angles shown are based on lubricated connection as in reassembly.

9. 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.

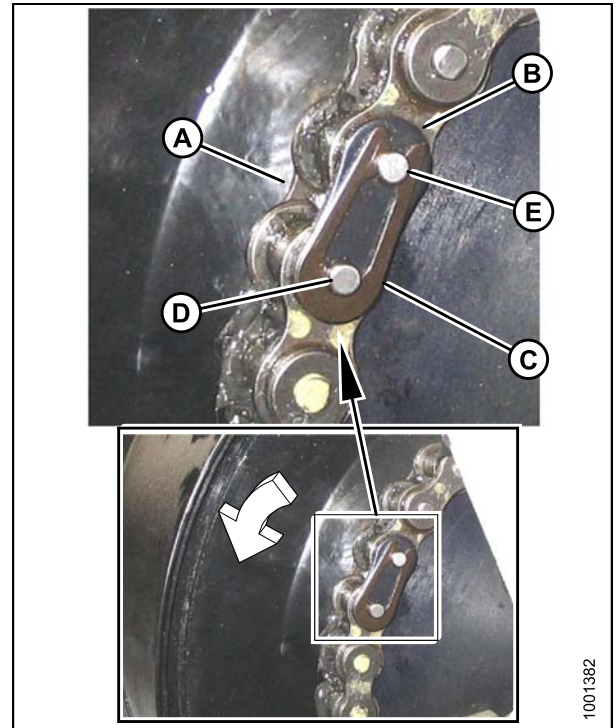


Figure 6.16: Arrow Shows Direction of Rotation

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.

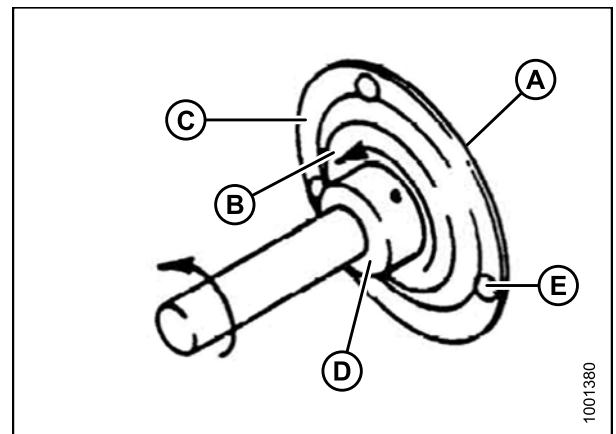


Figure 6.17: Sealed Bearing

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 255](#).

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 253](#) 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 271				
END OF SEASON, Refer to 6.3.4 End of Season Service, page 271				
10 HOURS OR DAILY¹⁰				
✓	Hydraulic Hoses and Lines ¹¹			
✓	Knife Sections, Guards, and Hold-Downs ¹¹			
✓	Tire Pressure ¹¹			
◆	Knife (except in sandy conditions) ¹¹			
25 HOURS				
✓	Hydraulic Oil Level at Reservoir ¹¹			
◆	Knifehead(s) ¹¹			
50 HOURS				
✱	Draper Roller Bearings			
◆	Driveline and Driveline Universals			
▲	Knife Drive Box Oil - First 50 Hours Only			
100 HOURS OR ANNUALLY¹⁰				
✓	Auger to Pan and Feed Draper Clearance			
✓	Draper Seal			
✓	Gearbox Lubricant Level			
✓	Reel Drive Chain Tension			
✓	Reel Tine/Cutterbar Clearance			
✓	Knife Drive Belt Tension			

10. Whichever occurs first.

11. 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 ANNUALLY¹⁰																	
✓ Draper Seal																	
◆ Adapter Auger Pivots																	
◆ Upper Cross Auger Center Support and U-Joint																	
◆ Reel Drive U-joint																	
◆ Transport Axle Pivot Bushings																	
▲ Hydraulic Oil Filter																	
500 HOURS OR ANNUALLY¹⁰																	
✓ Draper Seal																	
◆ Reel Shaft Bearings																	
◆ Stabilizer/Slow Speed Transport Wheel Bearings																	
✓ Gearbox Chain Tension																	
1000 HOURS OR 3 YEARS¹⁰																	
▲ Knife Drive Box Lubricant																	
▲ Gearbox Lubricant																	
▲ Hydraulic Oil																	

6.3.2 Break-In Inspection

A break-in inspection includes checking belts, fluids, and a general machine inspection for loose hardware or other areas of concern. The break-in inspection ensures that all components can 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 288
At 5 hours	Check for loose hardware. Tighten to required torque.	6.2.3 Torque Specifications, page 255
	Check knife drive belt tension. Periodically check for first 50 hours.	Tensioning Non-Timed Knife Drive Belts, page 337
At 10 hours	Check knife drive box mounting bolts.	Mounting Bolts, page 327
At 50 hours	Change adapter gearbox oil.	Changing Oil in Header Drive Gearbox, page 287
	Change adapter hydraulic oil filter.	6.4.2 Changing Oil Filter, page 290
	Change knife drive box lubricant.	Changing Oil in Knife Drive Box, page 335
	Check gearbox chain tension.	6.6.5 Adjusting Tension on Gearbox Drive Chain, page 299

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. Depending on your equipment, refer to [Tensioning Non-Timed Knife Drive Belts, page 337](#) or [Tensioning Timed Knife Drive Belts, page 342](#).
 2. Perform all annual maintenance. Refer to [6.3.1 Maintenance Schedule/Record, page 269](#).

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.

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 254](#).

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: High Pressure Warning

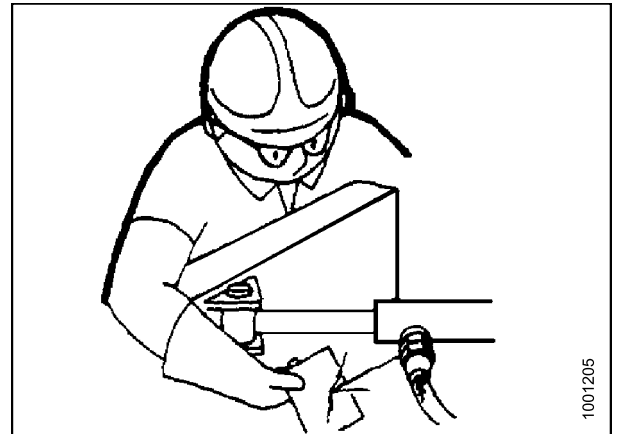


Figure 6.19: Checking Leak

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 253](#).

Refer to [6.2.2 Recommended Fluids and Lubricants, page 255](#) 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 269](#).

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: Except in sandy conditions.

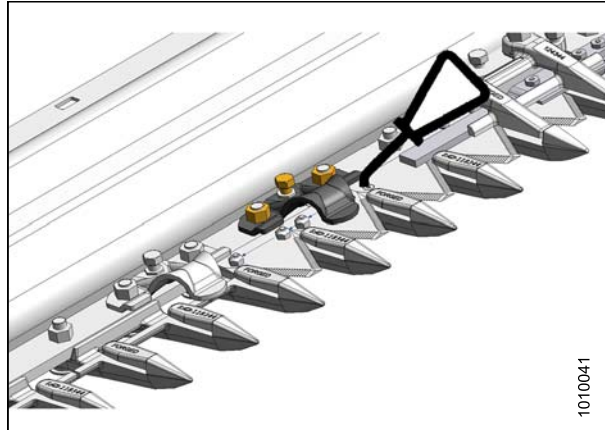


Figure 6.20: Every 10 Hours or Daily

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 316.

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))

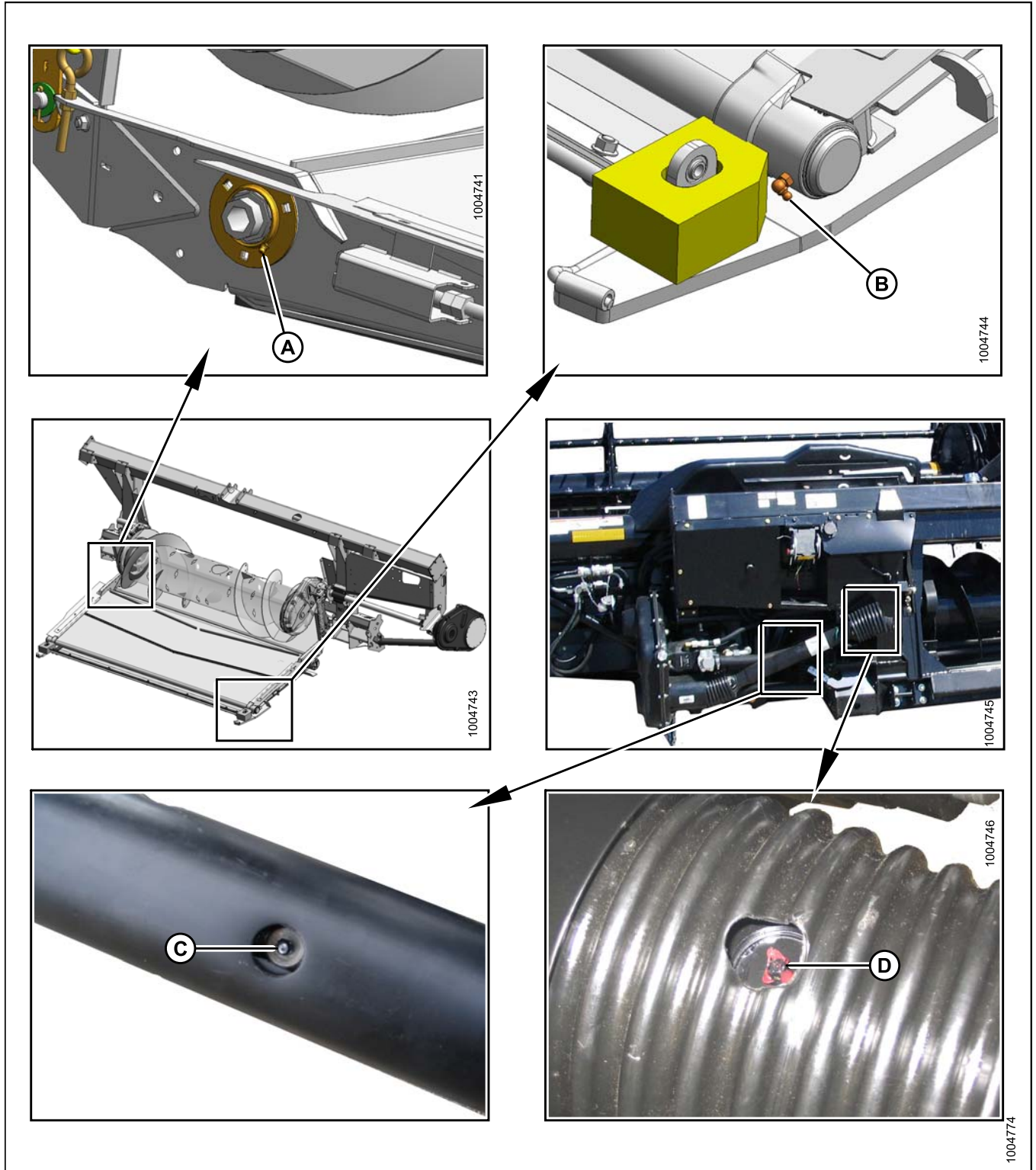


Figure 6.22: Every 50 Hours

A - Drive Roller Bearing

B - Idler Roller Bearing (Both Sides)

C - Driveline Slip Joint¹²

D - Driveline Universal (2 PLCS)

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

MAINTENANCE AND SERVICING

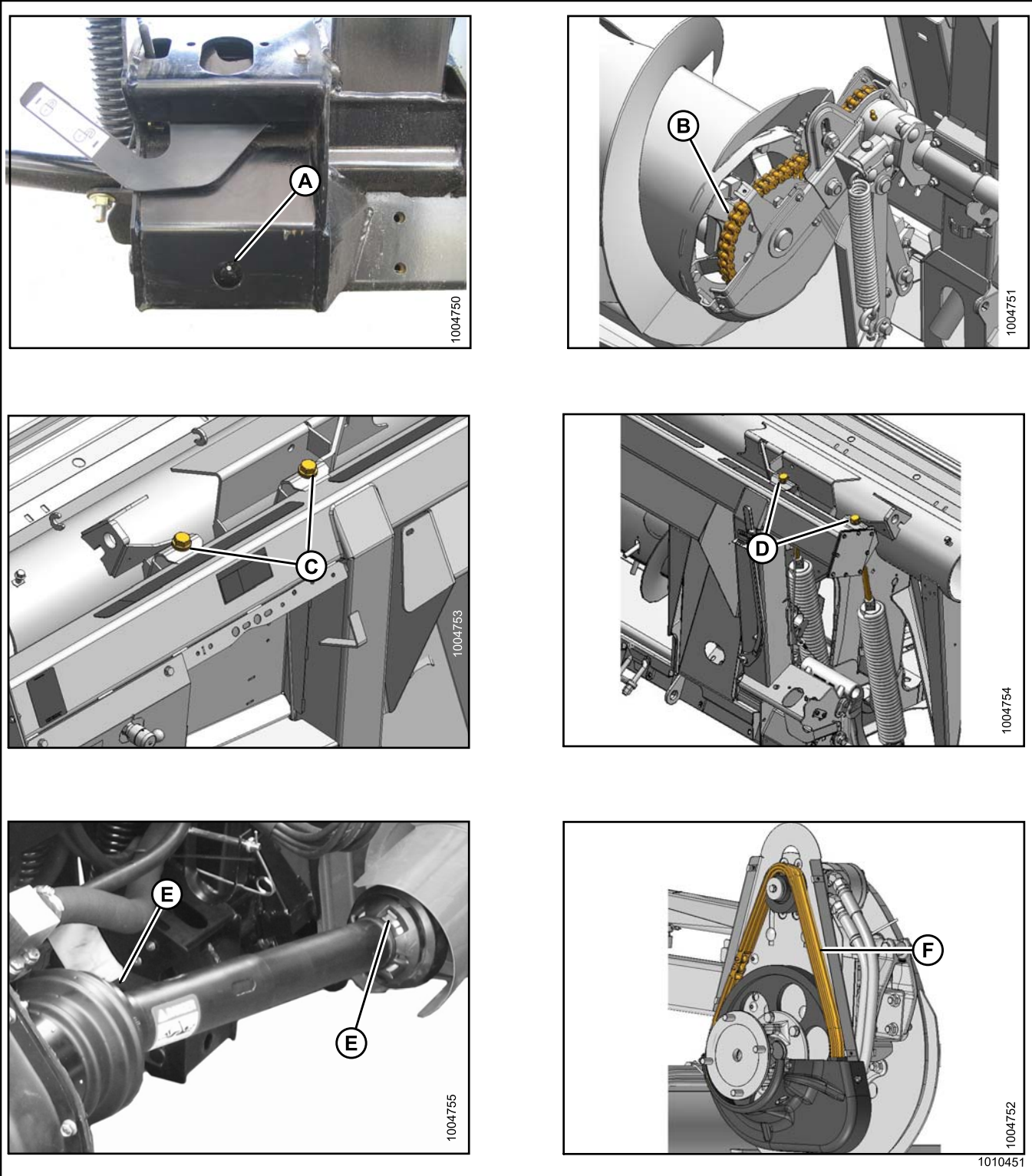


Figure 6.23: Every 100 Hours

A - Float Pivot - RH and LH

B - Auger Drive Chain - Refer to [Lubricating Auger Drive Chain, page 285](#)

C - LH Float Spring Tensioners

D - RH Float Spring Tensioners

E - Driveline Guard - 2 PLCS

F - Reel Drive Chain- 1 PLC - Refer to [Lubricating Reel Drive Chain, page 283](#)

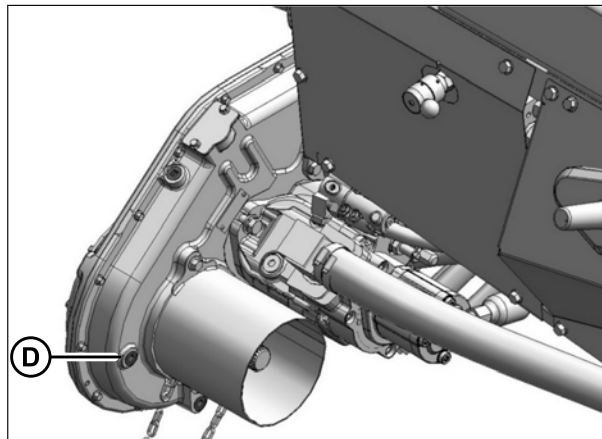
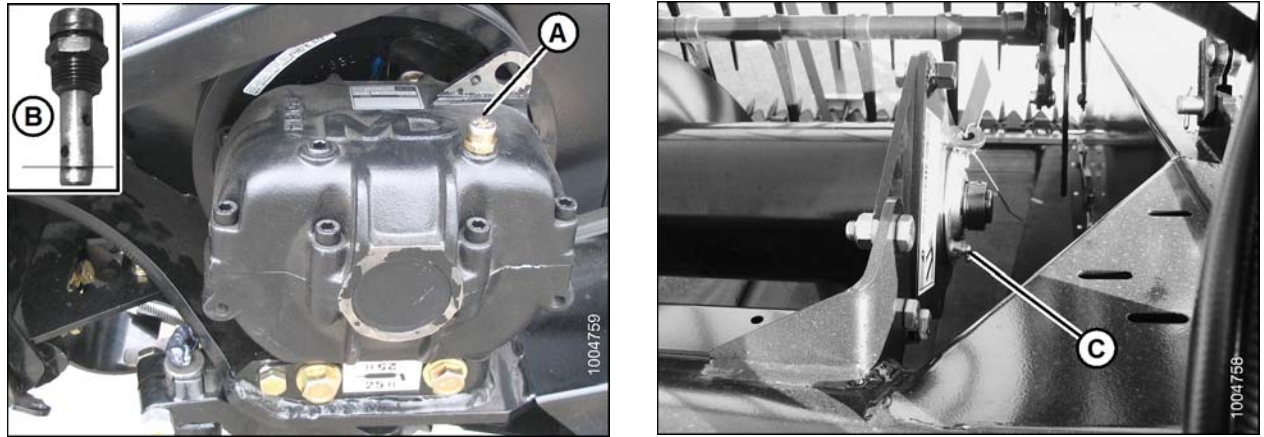


Figure 6.24: Every 100 Hours (Continued)

- A - Knife Drive Box (Check Oil Level Between Lower Hole and End of Dipstick)
- B - Upper Cross Auger Bearing (1 PLC)
- C - Main Drive Gearbox Oil Level - Refer to [Lubricating Header Drive Gearbox, page 286](#)

MAINTENANCE AND SERVICING

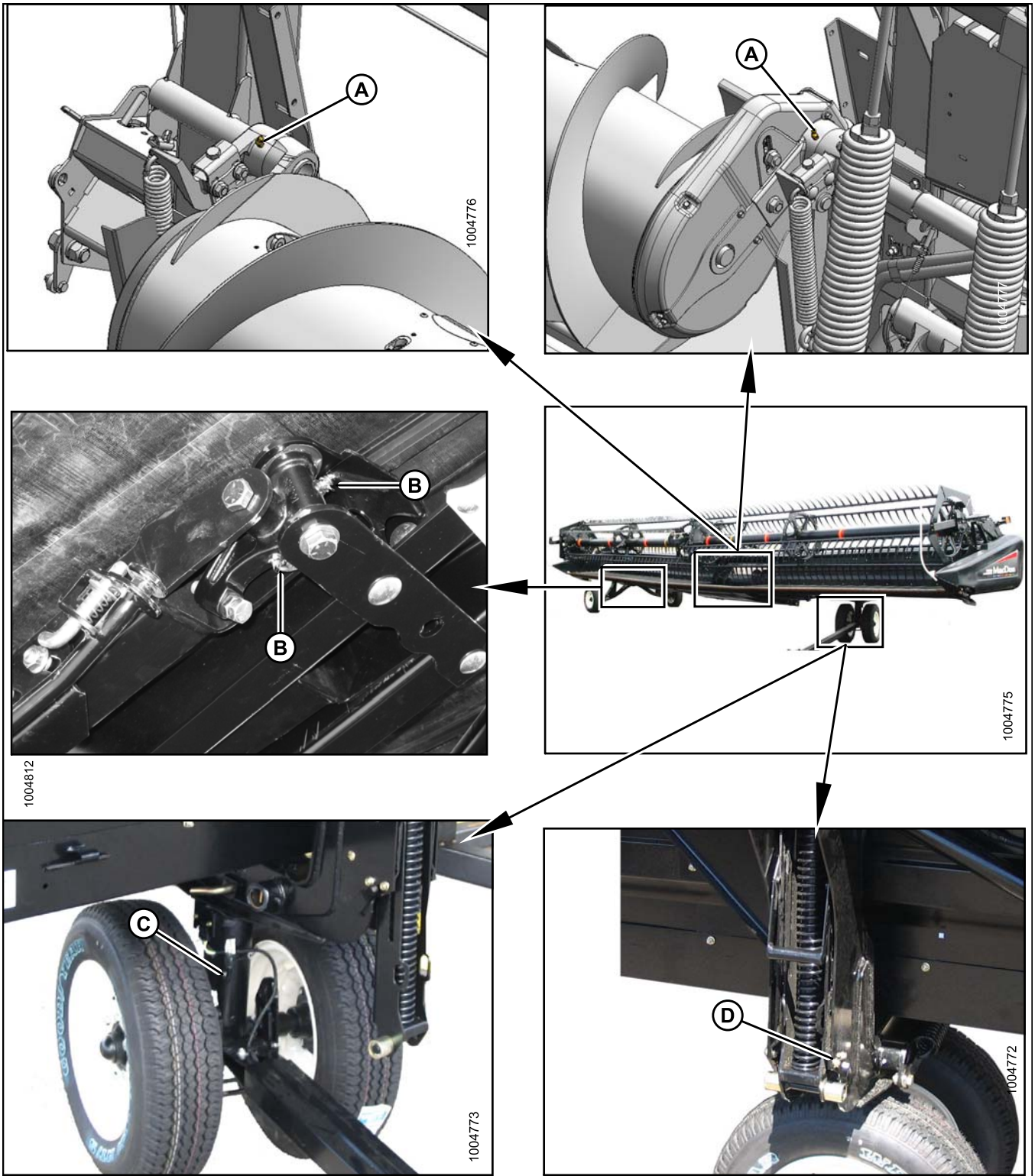


Figure 6.25: Every 250 Hours

A - Auger Pivots

C - Front Wheel Pivot (1 PLC)

B - Rear Axle Pivots

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

MAINTENANCE AND SERVICING

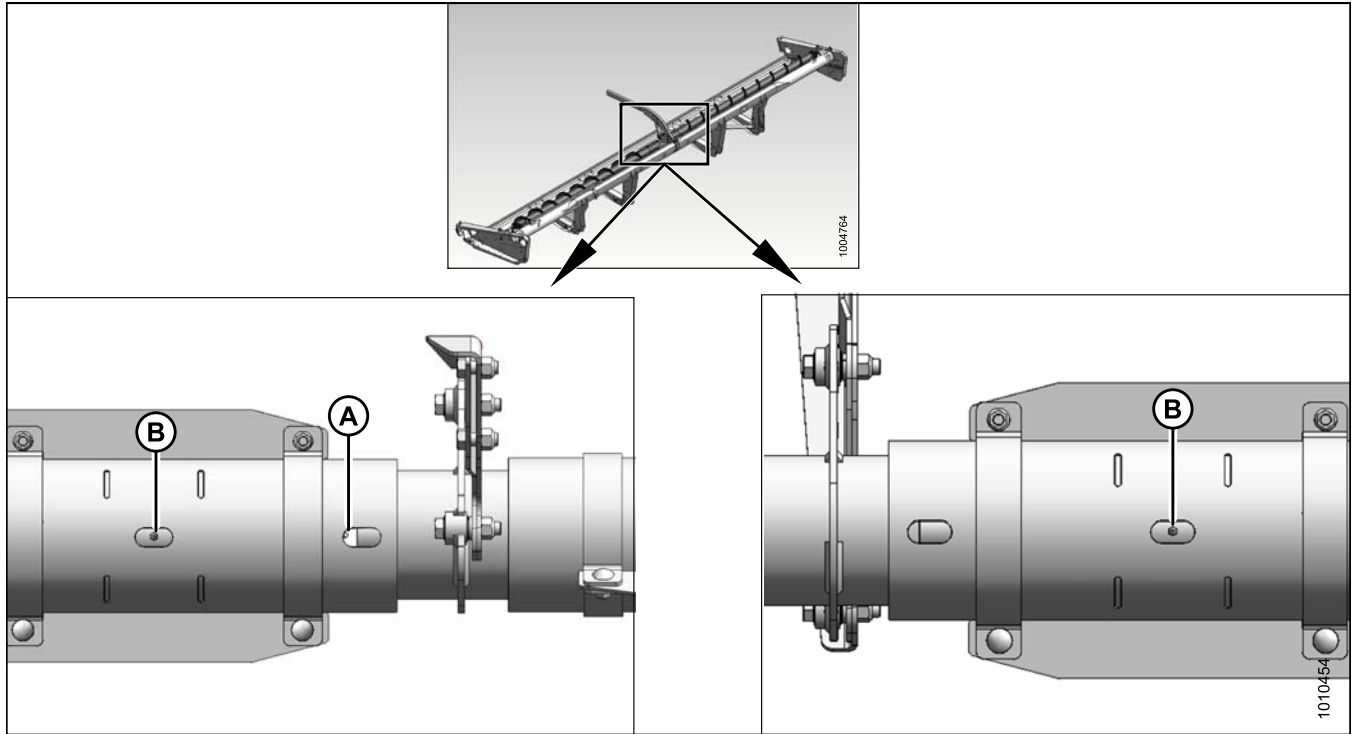
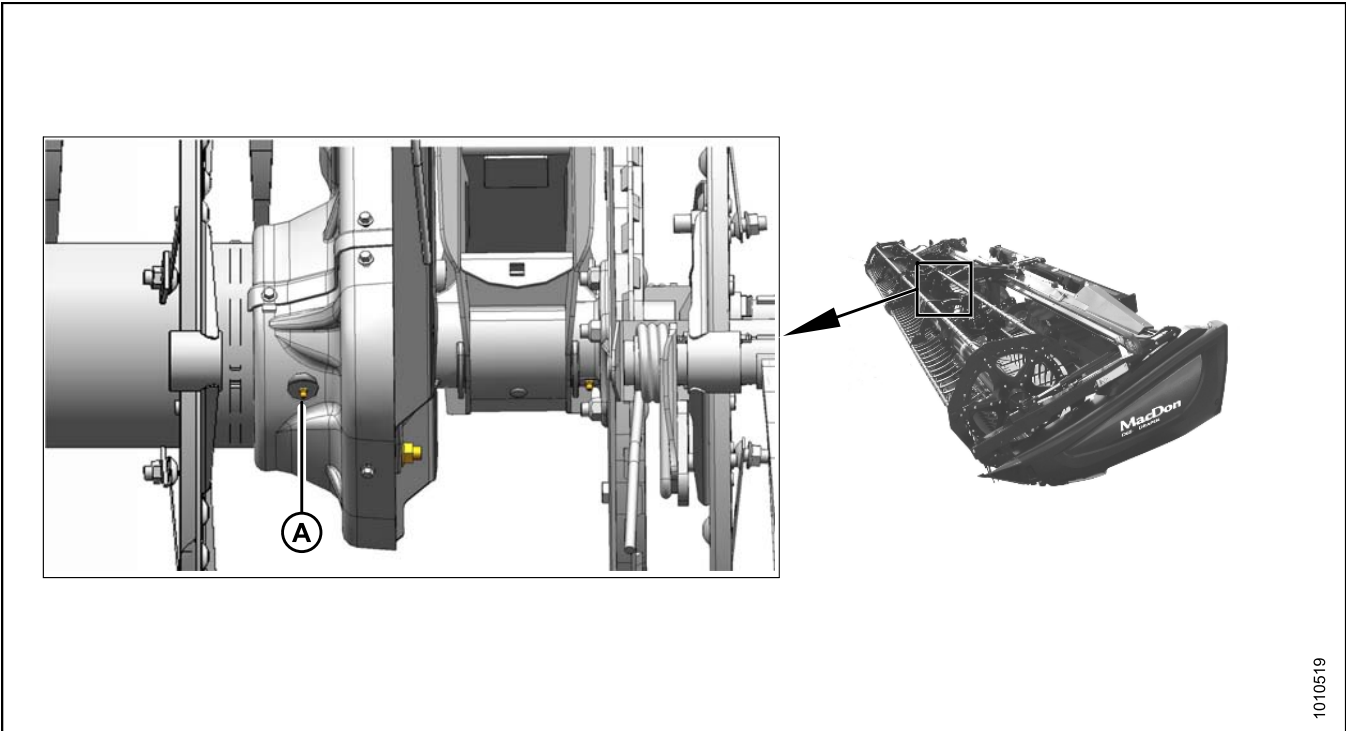


Figure 6.26: Every 250 Hours (Continued)

A - Upper Cross Auger U-joint¹³

B - Upper Cross Auger Bearing (2 PLCS)¹⁴

13. 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. six to eight pumps are sufficient at first grease (factory). Decrease grease interval as U-joint wears and requires more than six pumps.
14. Use High Temperature Extreme Pressure (EP2) Performance With 1.5–5.0% Molybdenum Disulphide (NLGI Grade 2) Lithium Base Grease



1010519

Figure 6.27: Every 250 Hours (Continued)

A - Double Reel U-Joint¹⁵

15. 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. six to eight pumps are sufficient at first grease (factory). Decrease grease interval as U-joint wears and requires more than six pumps.

MAINTENANCE AND SERVICING

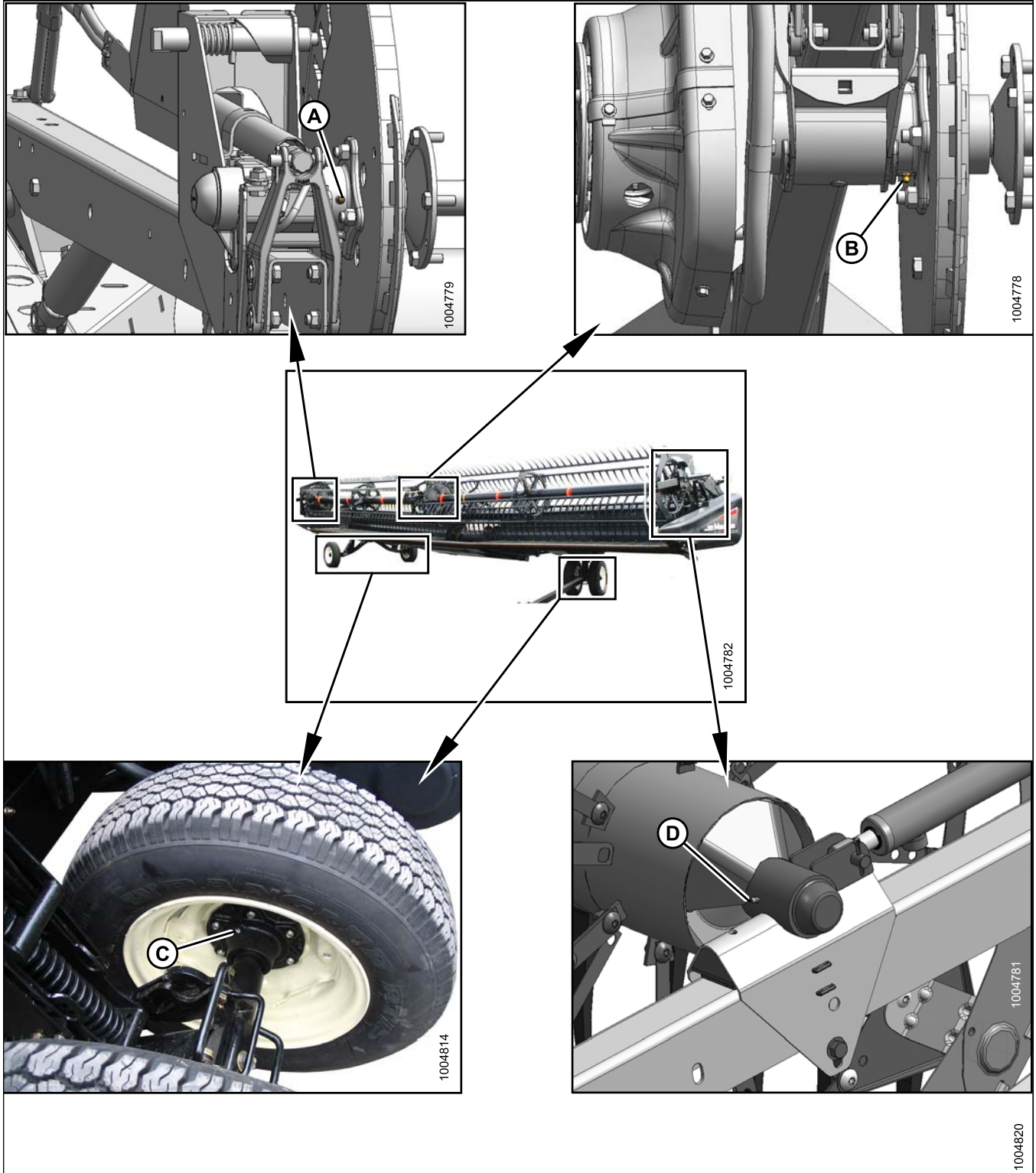


Figure 6.28: Every 500 Hours

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 255](#).

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. Remove and thoroughly clean any fitting that will not take grease. Also clean lubricant passageway. Replace fitting if necessary.
6. Use clean High Temperature Extreme Pressure grease as shown.

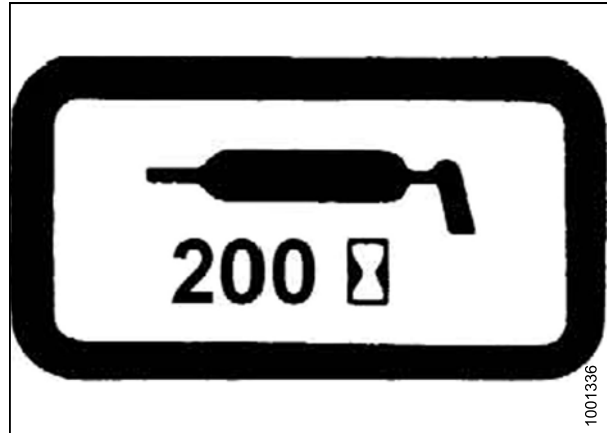


Figure 6.29: Greasing Point Decal

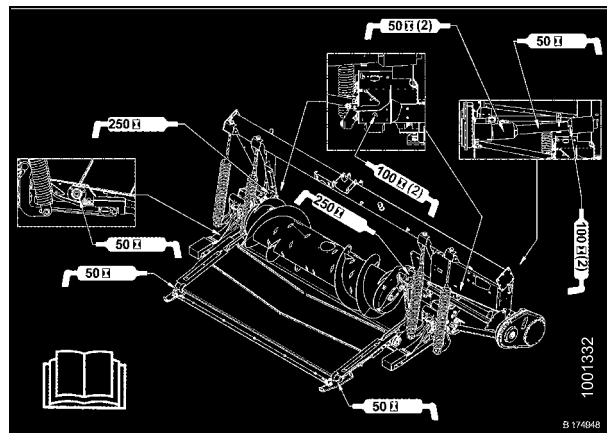


Figure 6.30: CA25 Adapter Greasing Decal

Lubricating Reel Drive Chain

1. Remove the reel drive cover (A) as follows:
 - a. For **SINGLE REEL DRIVE**, remove the four bolts (B) that secure the cover (A) to the reel drive.

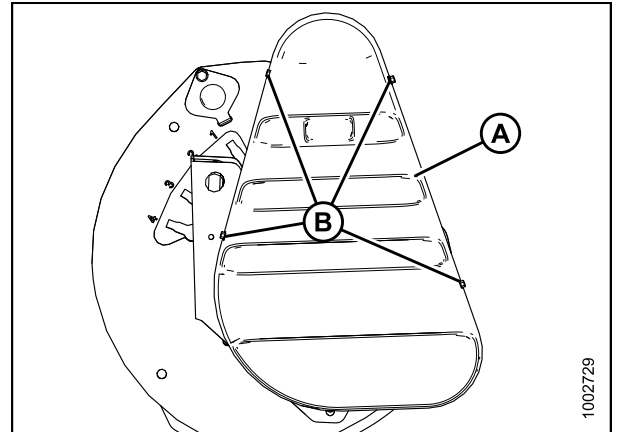


Figure 6.31: Single Reel

- b. For **DOUBLE REEL DRIVE**, remove the six bolts (B) that secure the upper cover (A) to the reel drive and to the lower cover (C).

NOTE:

The lower cover (C) may also be removed by taking off the three bolts (D).

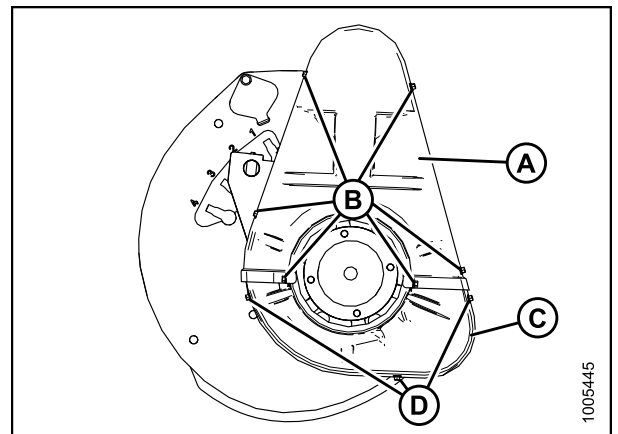


Figure 6.32: Double Reel Cover

2. Liberally apply grease to chain (A).

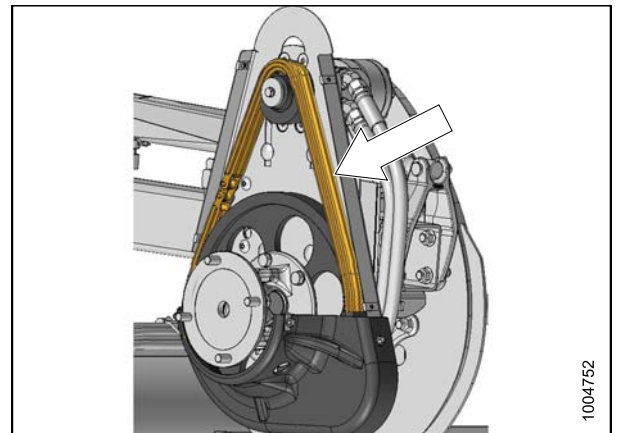


Figure 6.33: Drive Chain

MAINTENANCE AND SERVICING

3. Install reel drive cover as follows:
 - a. For **SINGLE REEL DRIVE**, position reel drive cover (A) to the reel drive and secure with four bolts (B).
 - b. For **DOUBLE REEL DRIVE**, position the lower cover (C) first (if removed) and secure with three bolts (D). Install upper cover (A) using the six bolts (B).

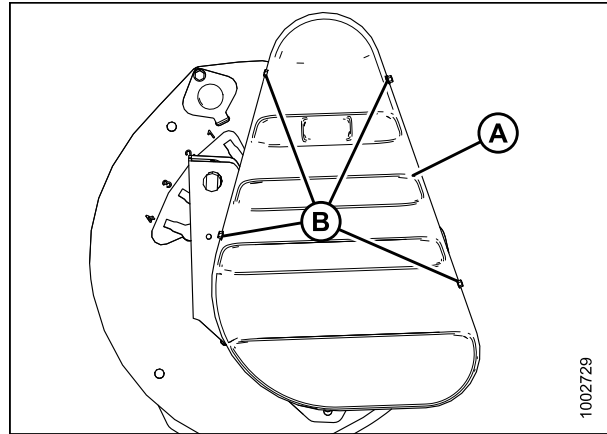


Figure 6.34: Single Reel Drive Cover

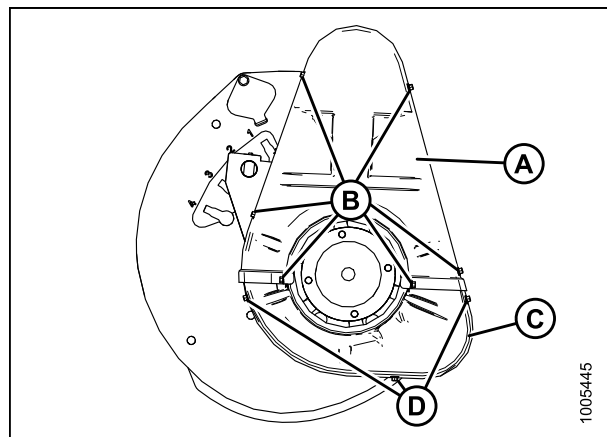


Figure 6.35: Double Reel Drive Cover

MAINTENANCE AND SERVICING

Lubricating Auger Drive Chain

Lubricate auger drive chain every 100 hours. This can be done with the adapter attached to the combine, but is easier if the adapter is detached.

To lubricate the auger drive chain, follow these steps:

1. The auger drive cover consists of an upper and a lower half. Only the upper half needs to be removed to grease the chain. Remove six bolts (A), securing the upper half (C).
2. Loosen two bolts (B) at the rear of the cover.
3. Rotate upper half (C) forward to remove.

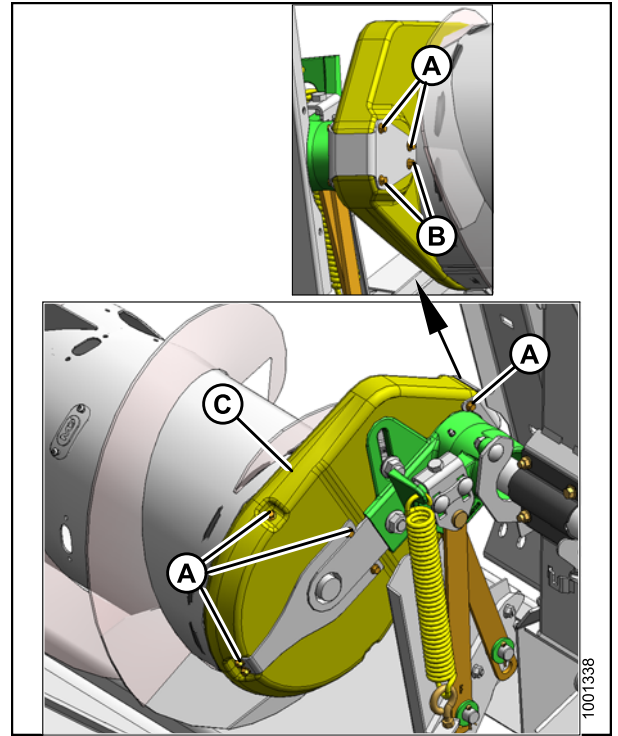


Figure 6.36: Auger Drive

4. Liberally apply grease to chain (A).

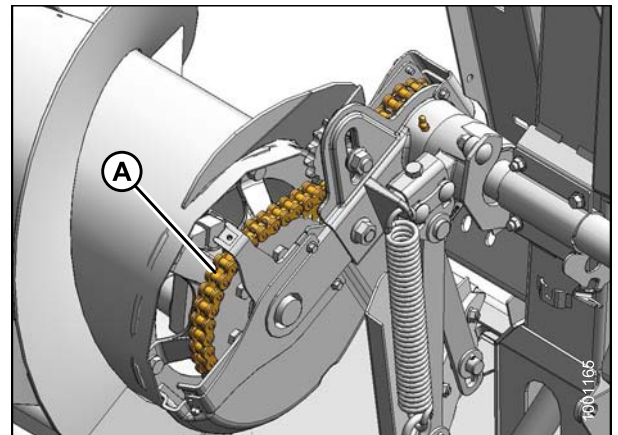


Figure 6.37: Auger Drive

MAINTENANCE AND SERVICING

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).

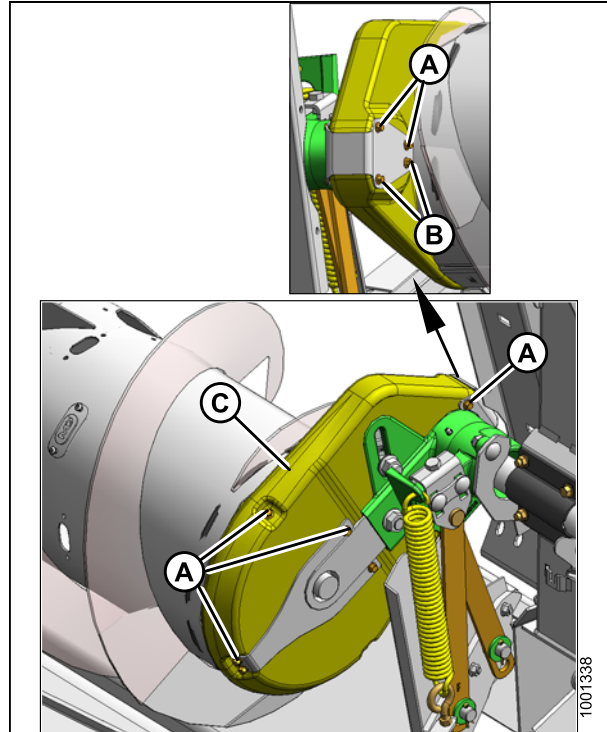


Figure 6.38: Auger Drive

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 287](#).

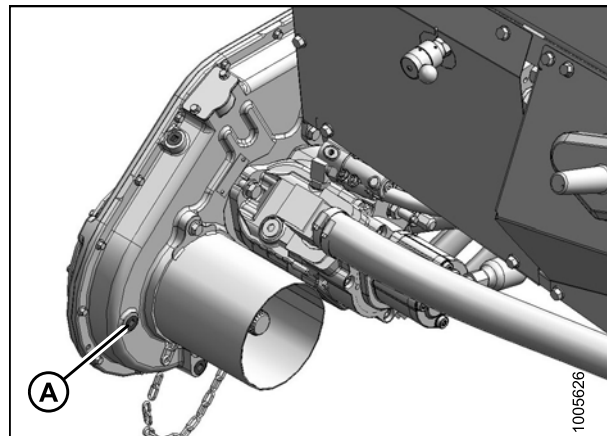


Figure 6.39: Gearbox

MAINTENANCE AND SERVICING

Adding Oil to Header Drive Gearbox

To add oil to the header drive gearbox, follow these steps:

1. Lower cutterbar to ground. Gearbox must be in working position. 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).

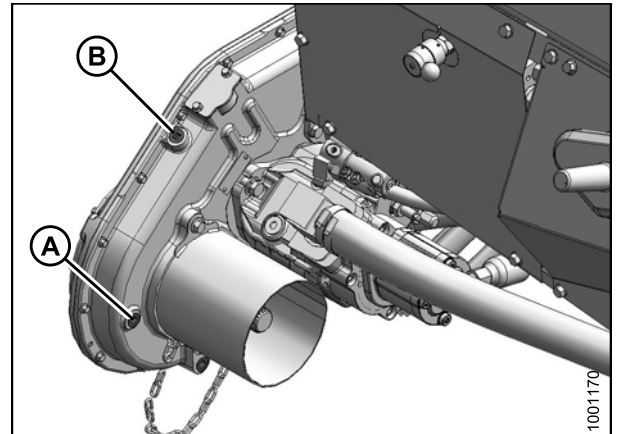


Figure 6.40: Gearbox

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).

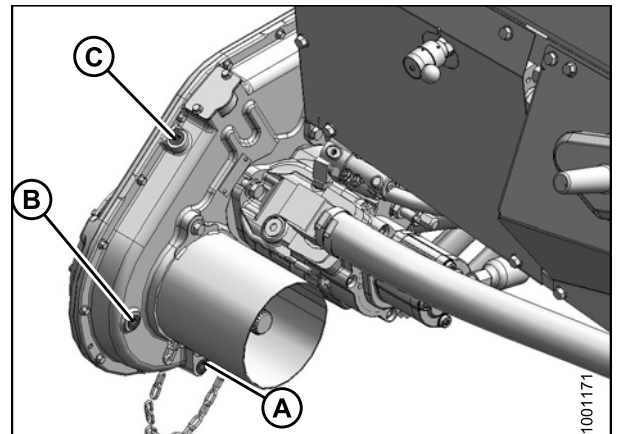


Figure 6.41: Gearbox

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 255](#) 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.

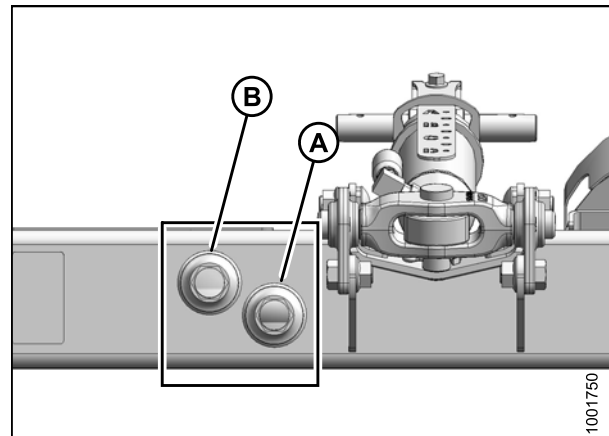


Figure 6.42: Oil Level Sights

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 255](#) 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 199](#).
2. Raise feeder house and engage lift cylinder safety props.

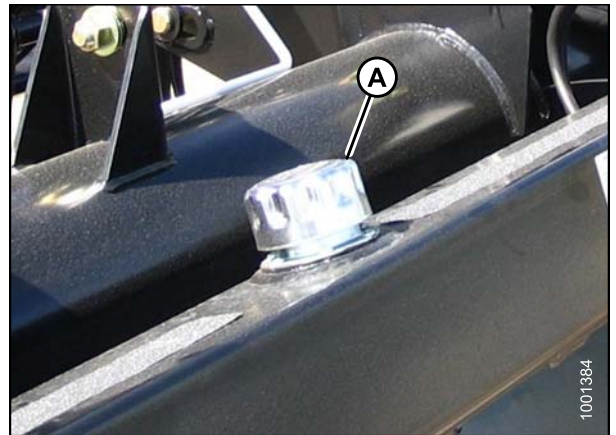


Figure 6.43: Oil Reservoir

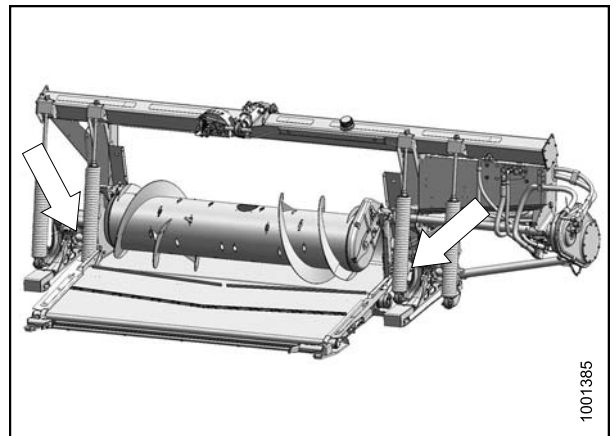


Figure 6.44: Adapter Reservoir Drains

MAINTENANCE AND SERVICING

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 290](#).
7. Add approximately 16 US gallons (60 liters) of oil to the reservoir. Refer to [Adding Oil, page 289](#).

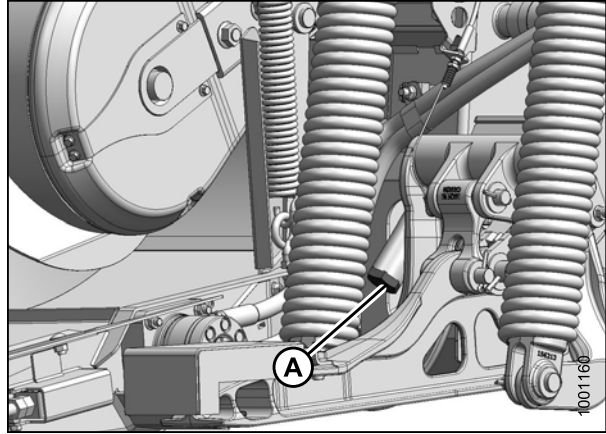


Figure 6.45: Reservoir Drain

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).

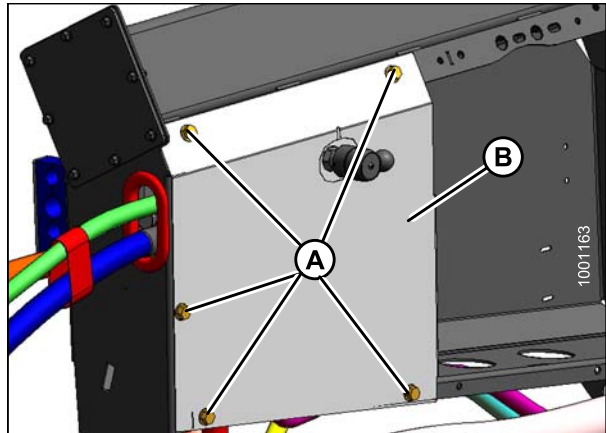


Figure 6.46: Adapter Hydraulics

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).

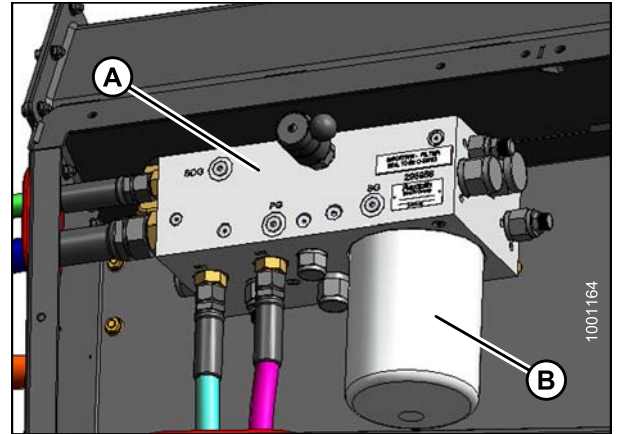


Figure 6.47: Adapter Hydraulics

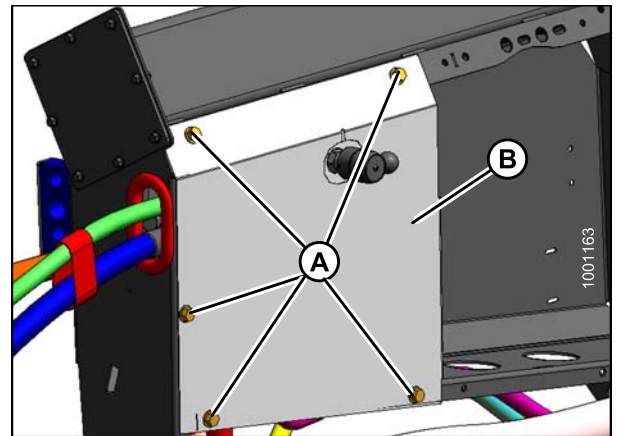


Figure 6.48: Adapter Hydraulics

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).

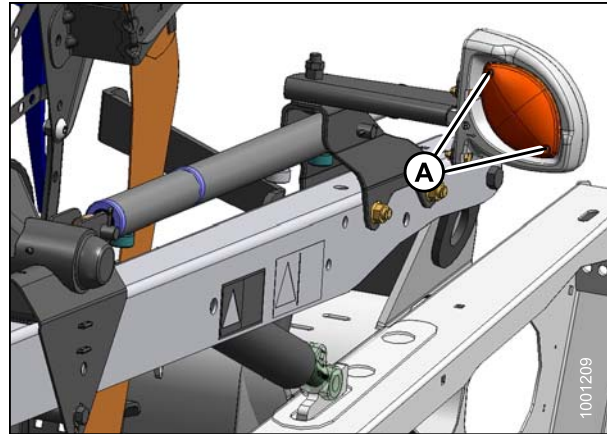


Figure 6.49: Clearance Light

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.

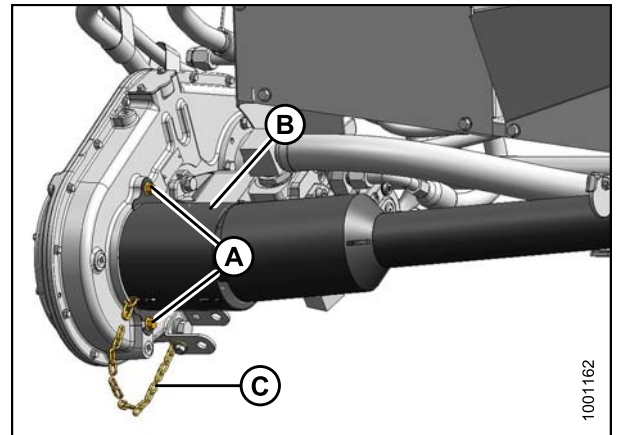


Figure 6.50: Driveline

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

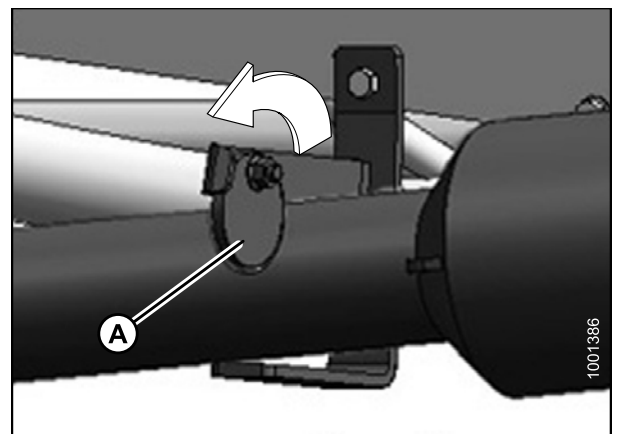


Figure 6.51: Driveline

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 29](#).

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

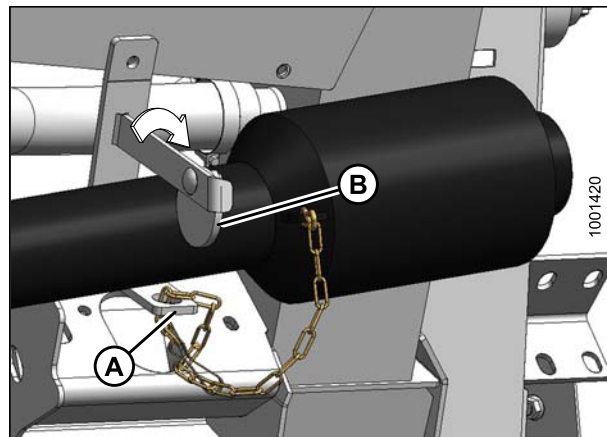


Figure 6.52: Driveline

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.

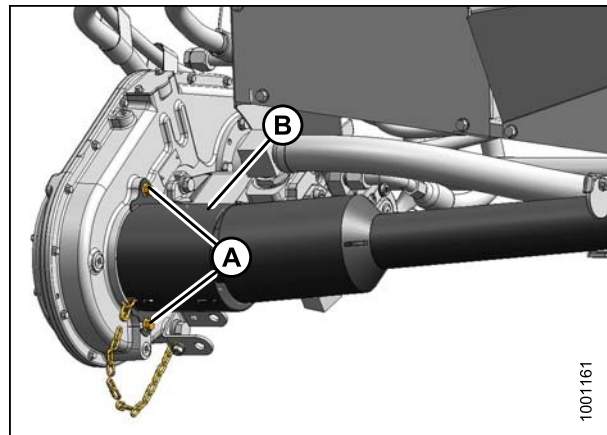


Figure 6.53: Driveline

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.

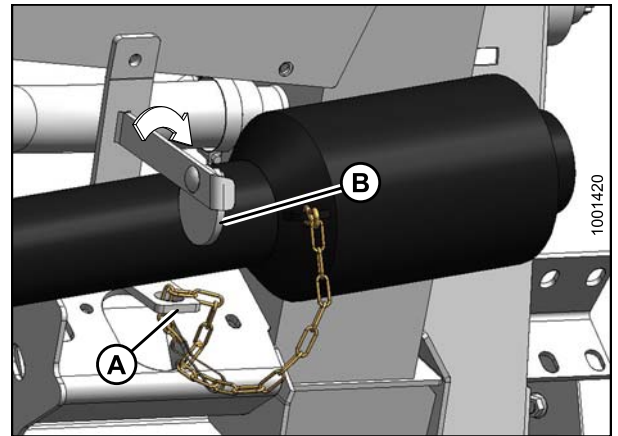


Figure 6.54: Driveline

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 6.55: Guard

MAINTENANCE AND SERVICING

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

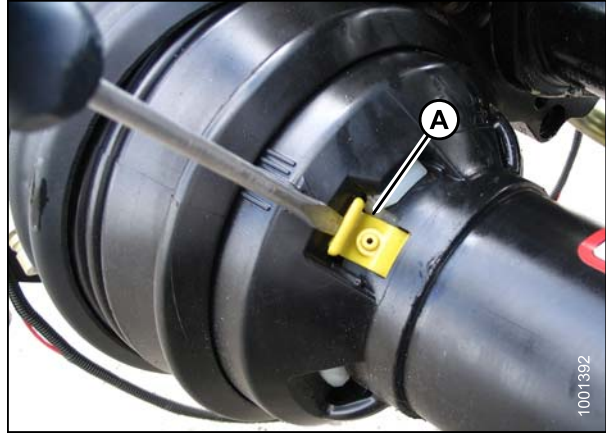


Figure 6.56: Guard

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

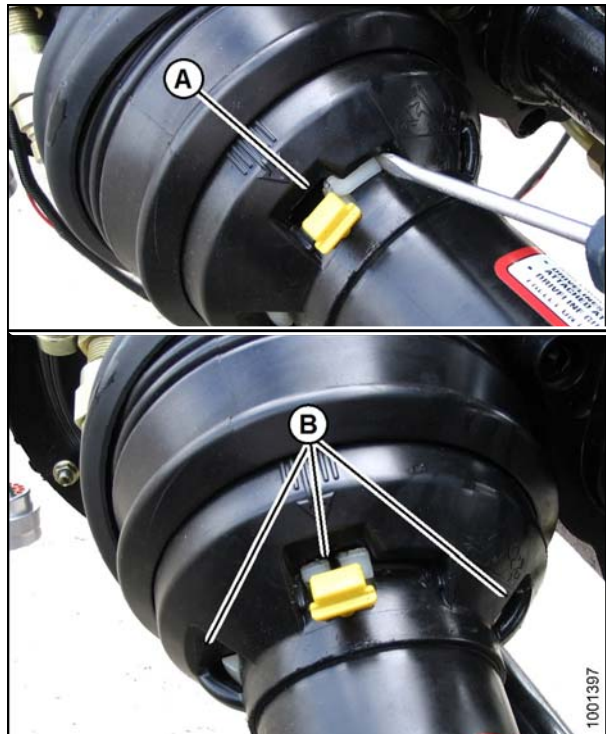


Figure 6.57: Guard

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 6.58: Guard

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

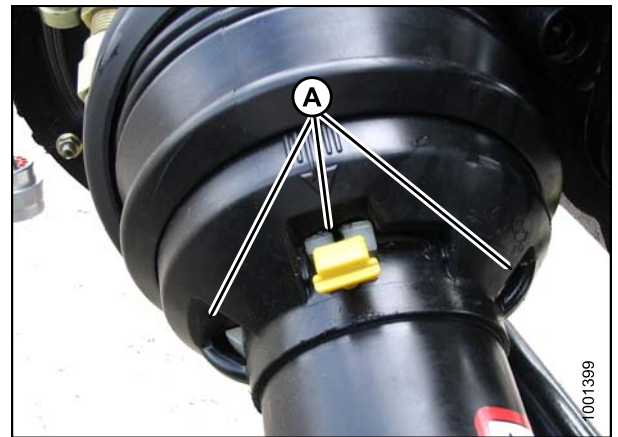


Figure 6.59: Guard

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

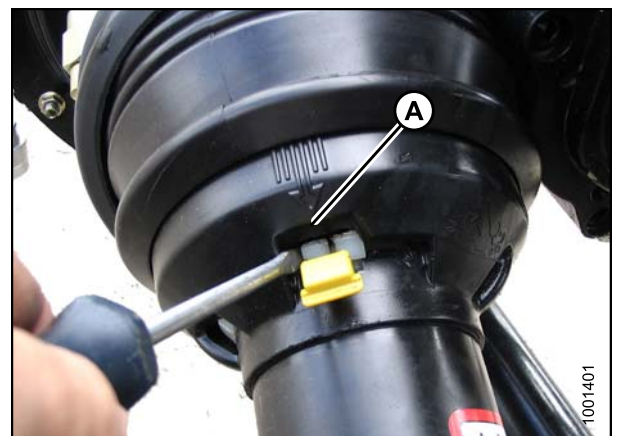


Figure 6.60: Guard

MAINTENANCE AND SERVICING

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



Figure 6.61: Guard

5. Reassemble driveline.

NOTE:

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

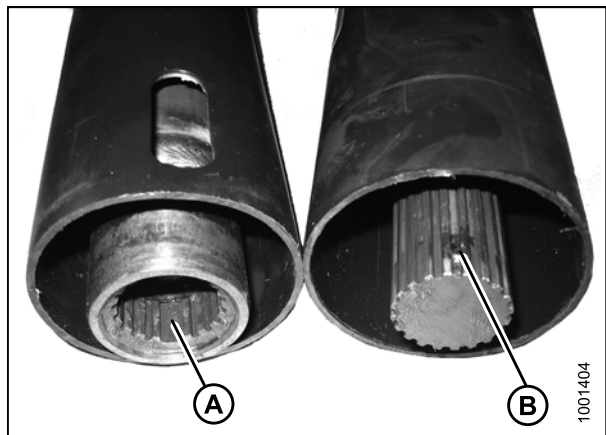


Figure 6.62: Driveline

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

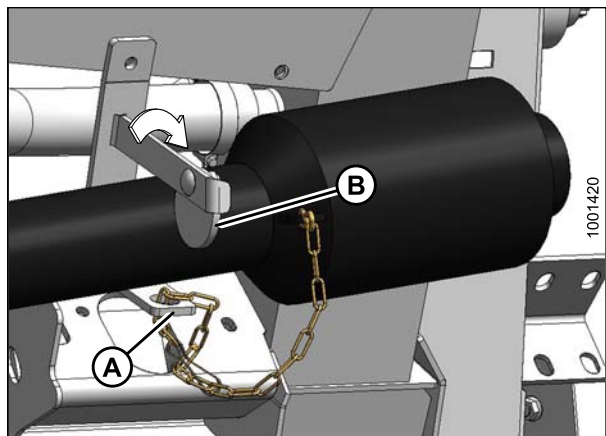


Figure 6.63: Driveline

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).

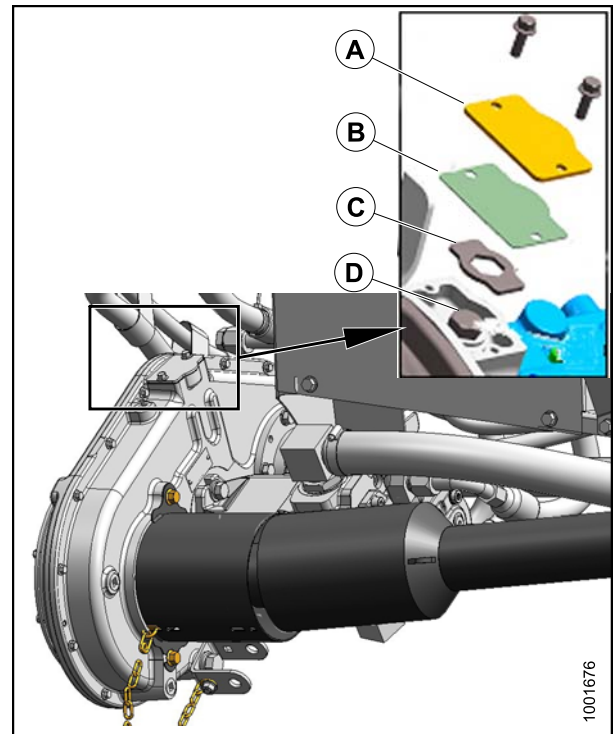


Figure 6.64: Chain Tensioner

A - Cover
 B - Gasket
 C - Retainer Plate
 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.

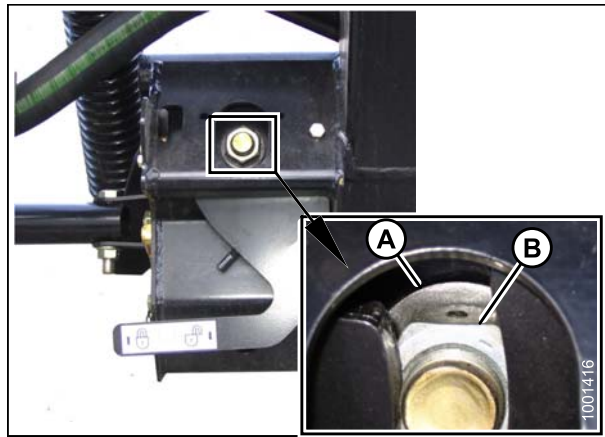


Figure 6.65: Float Lock

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

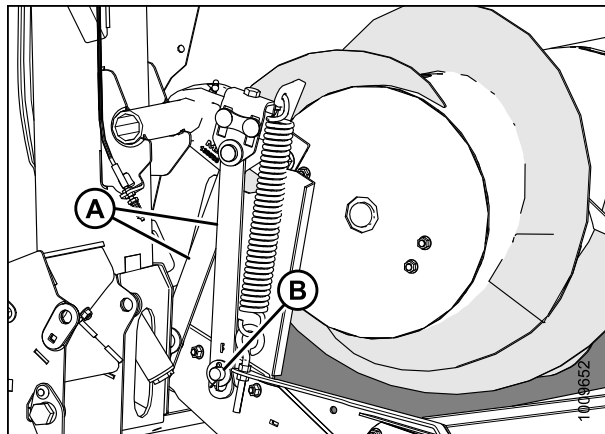


Figure 6.66: Linkage Bars

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. Torque nuts to 79–87 lbf·ft (106–118 N·m).

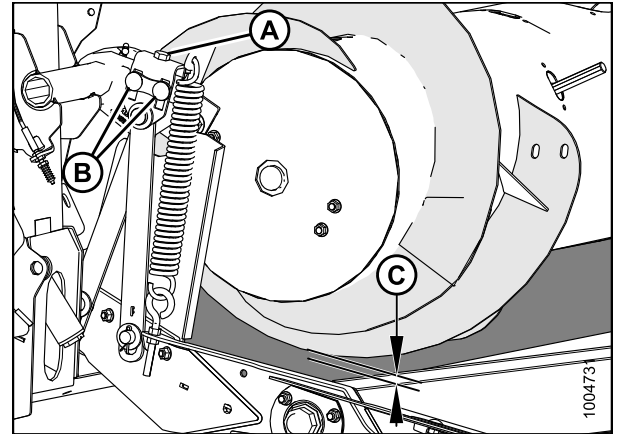


Figure 6.67: Auger Clearance

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 199](#).
- 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.

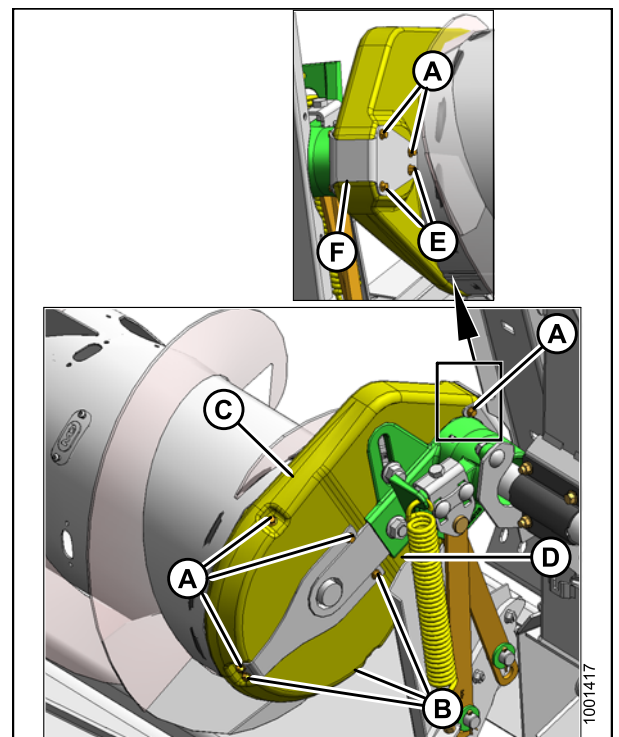


Figure 6.68: Auger Drive

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).

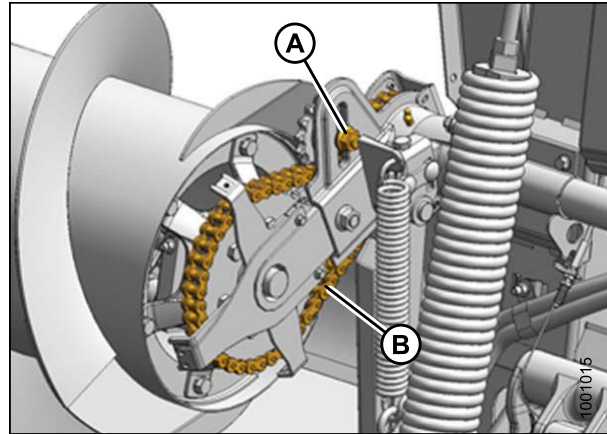


Figure 6.69: Auger Drive

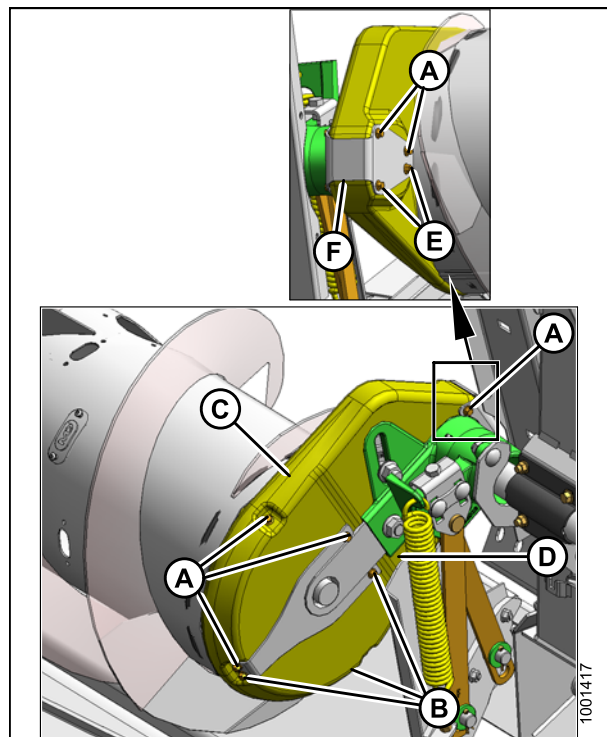


Figure 6.70: Auger Drive

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 199](#).
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.

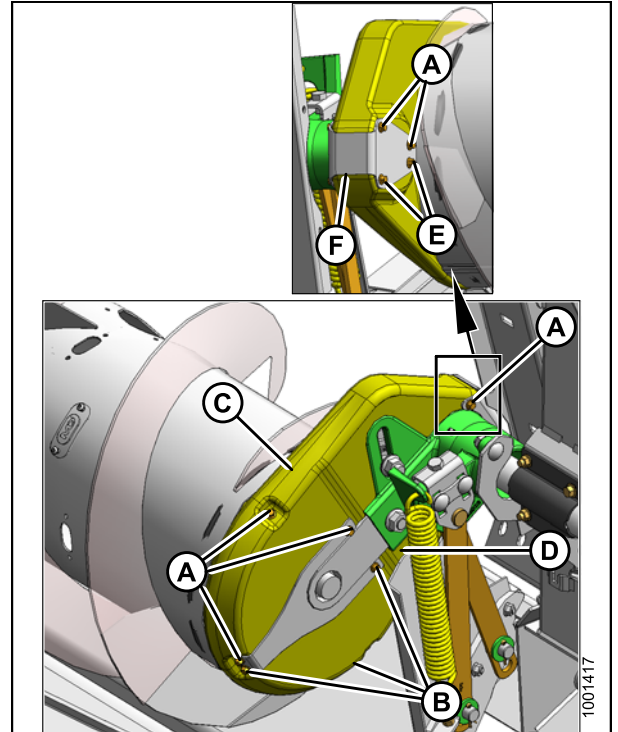


Figure 6.71: Auger Drive

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

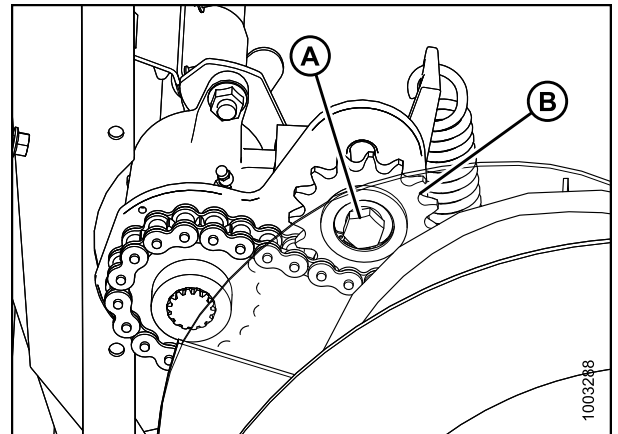


Figure 6.72: Auger Drive

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.

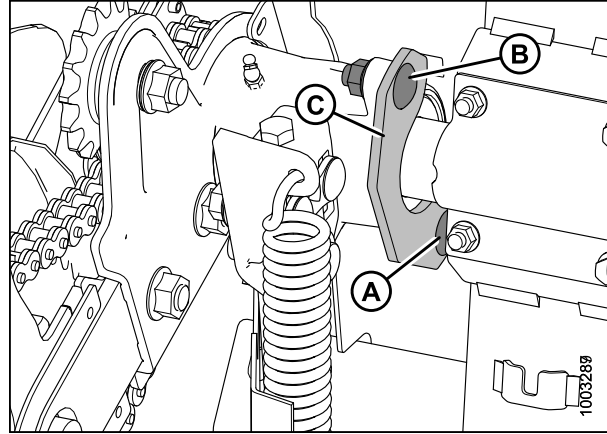


Figure 6.73: Auger Support

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

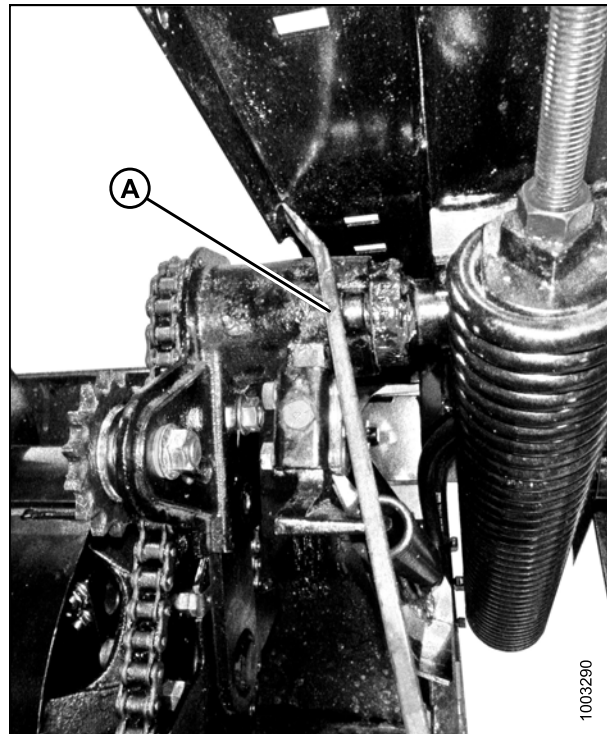


Figure 6.74: Auger Drive

MAINTENANCE AND SERVICING

NOTE:

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

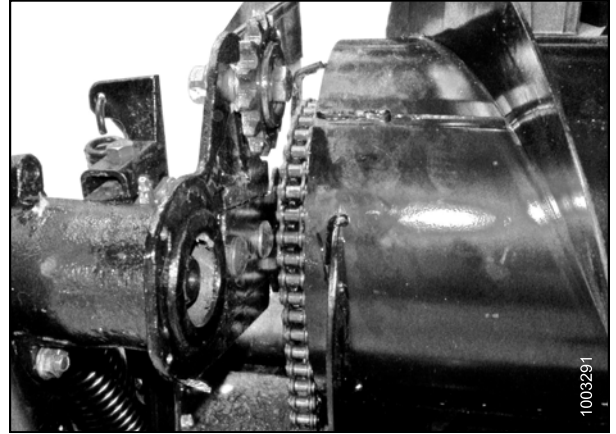


Figure 6.75: Auger Drive

9. Place a wooden block (A) under the drive end of the auger to prevent the auger from dropping onto the feed draper and damaging it.

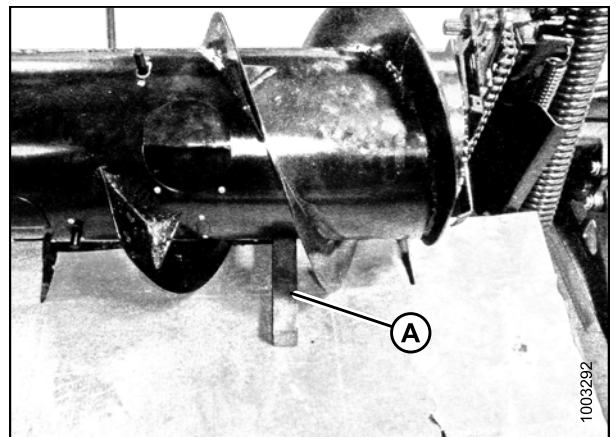


Figure 6.76: Auger

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.

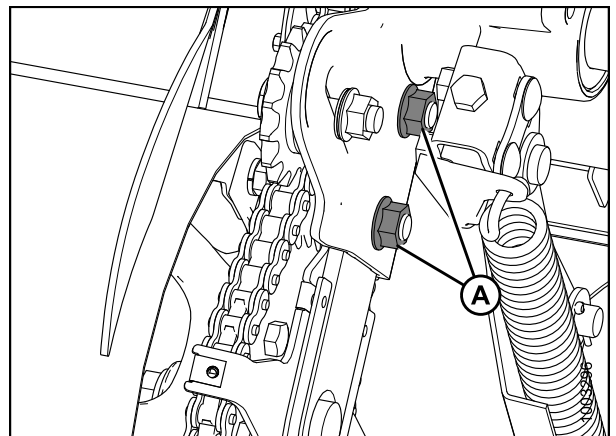


Figure 6.77: Auger Support

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

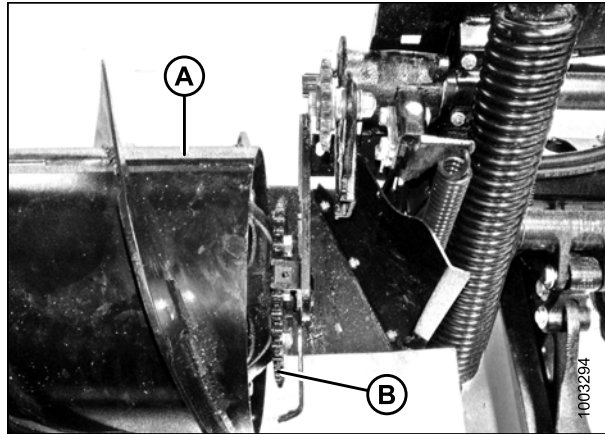


Figure 6.78: Auger Drive

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.

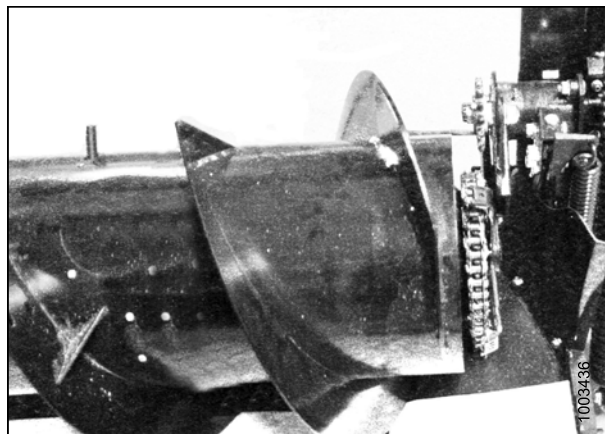


Figure 6.79: Auger Drive

- 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.

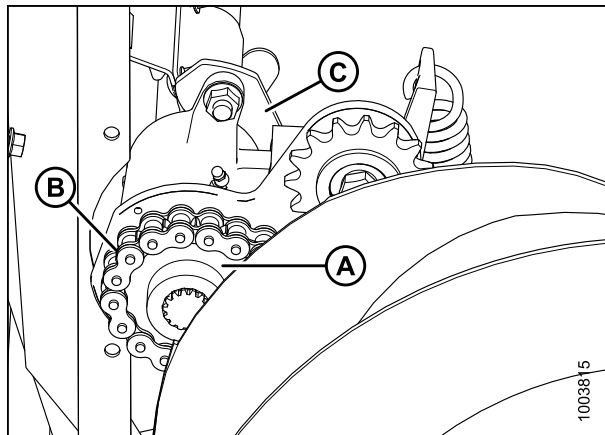


Figure 6.80: Auger Drive

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).

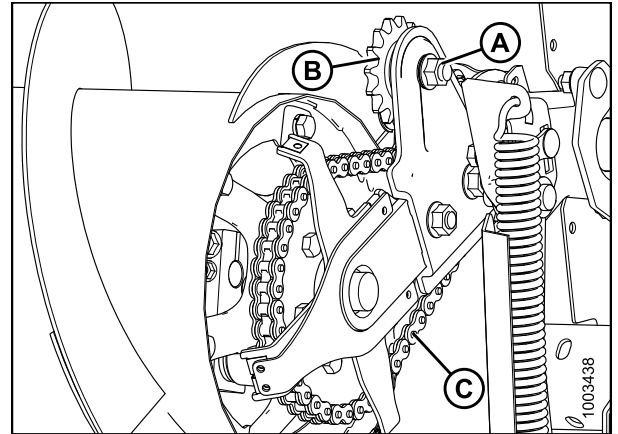


Figure 6.81: Auger Drive

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).

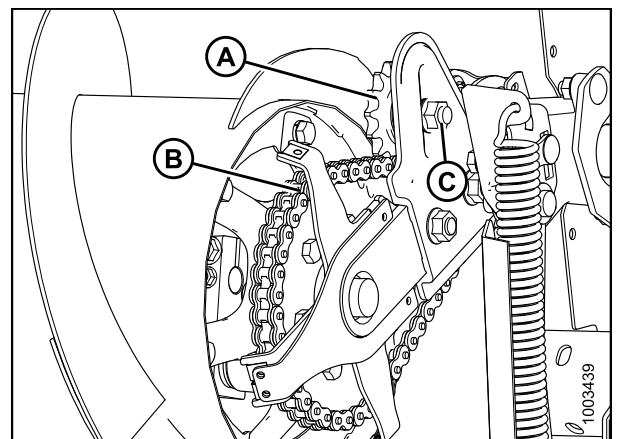


Figure 6.82: Auger Drive

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).

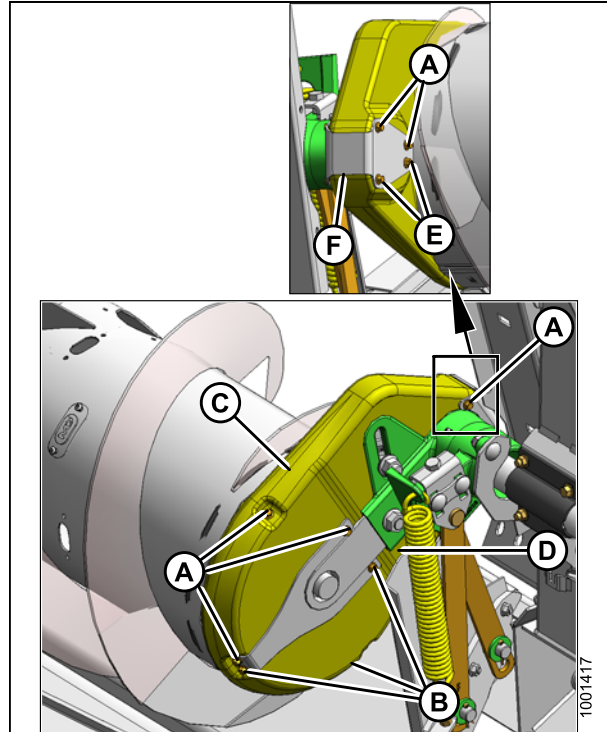


Figure 6.83: Auger Drive

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).

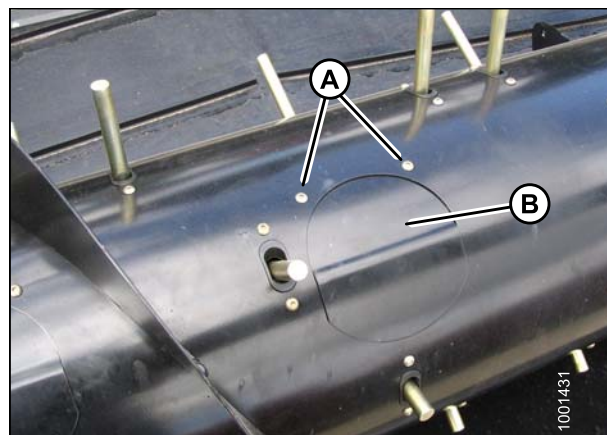


Figure 6.84: Auger

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.

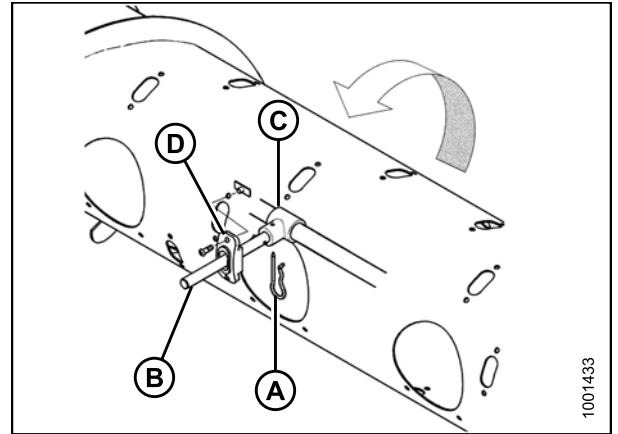


Figure 6.85: Auger

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 310](#).

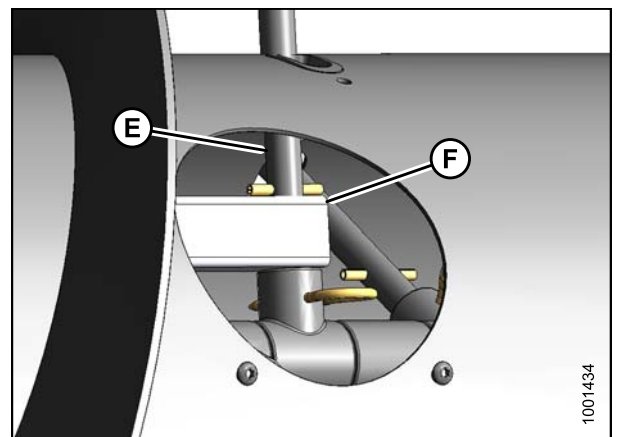


Figure 6.86: Inside Auger

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

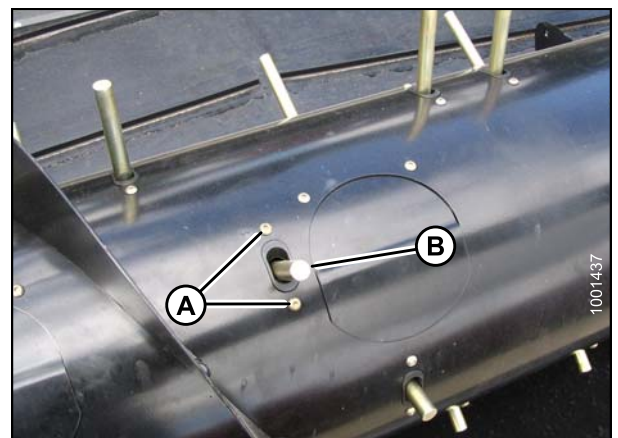


Figure 6.87: Auger

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).

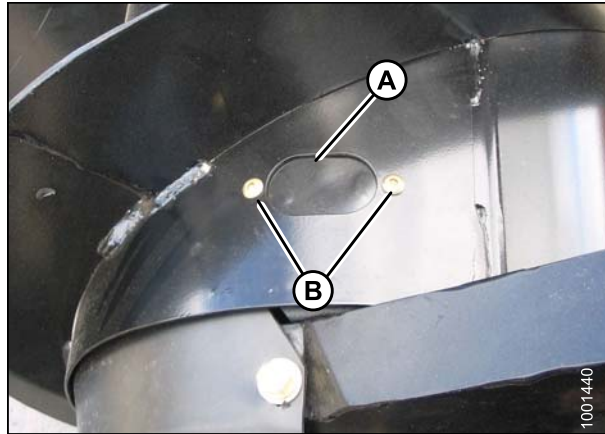


Figure 6.88: Auger

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.

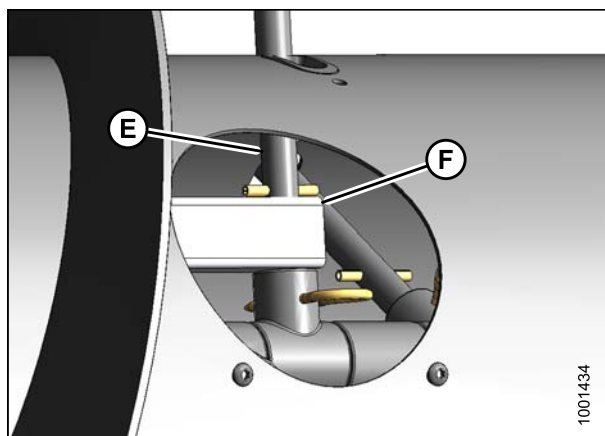
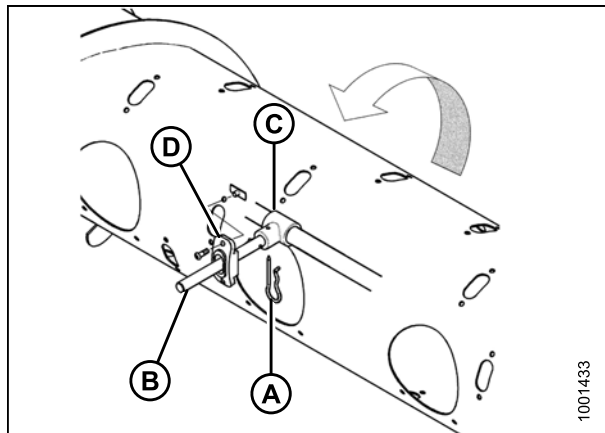


Figure 6.89: Installing Tine

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).

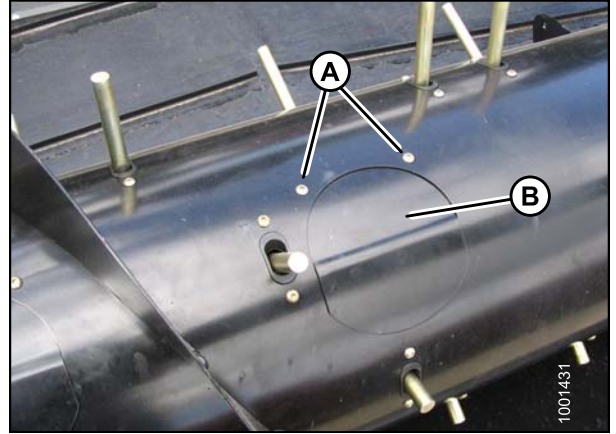


Figure 6.90: Auger

Replacing Auger Tine Guides

1. Remove tine (B) and plastic guide (D). Refer to [Removing Feed Auger Tines](#), page 308

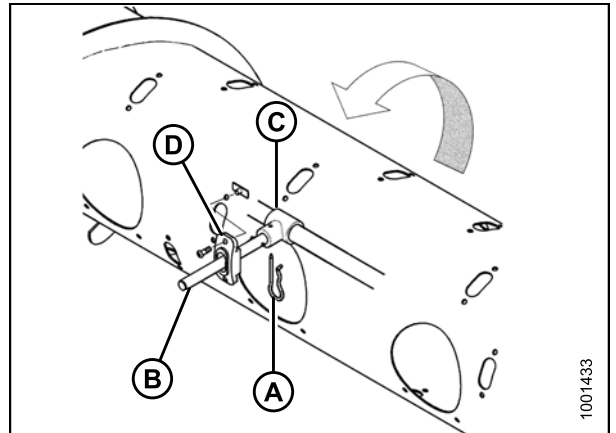


Figure 6.91: Auger

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).

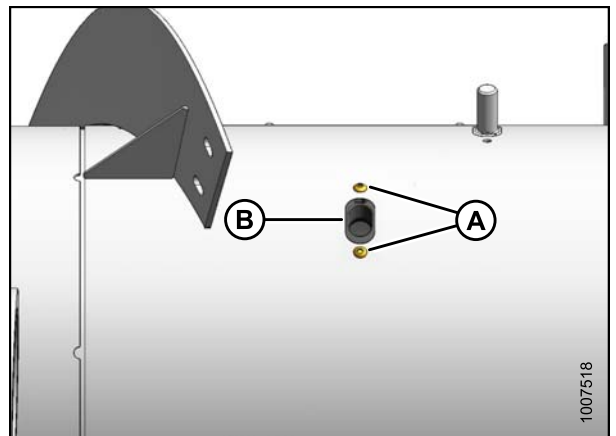


Figure 6.92: Auger

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

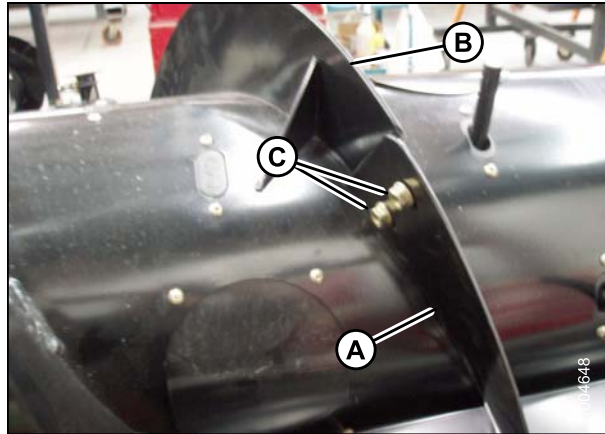


Figure 6.93: Flighting Extension

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

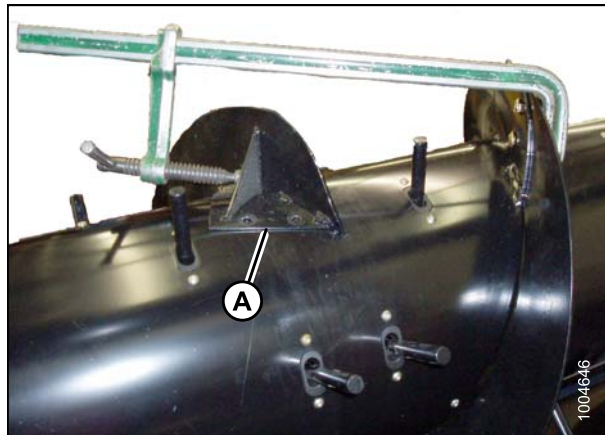


Figure 6.94: Flighting Extension

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

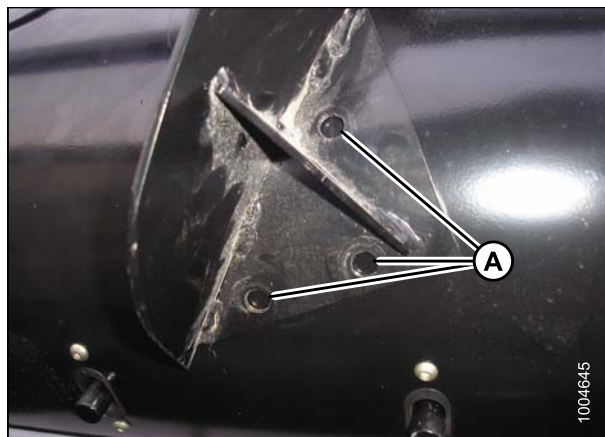


Figure 6.95: Flighting Extension

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.

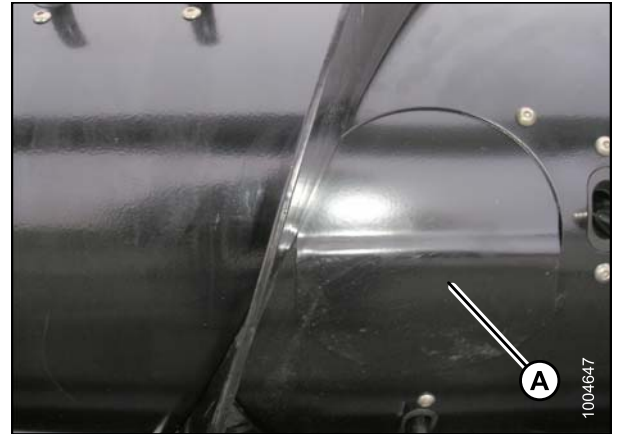


Figure 6.96: Auger Access Cover

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).

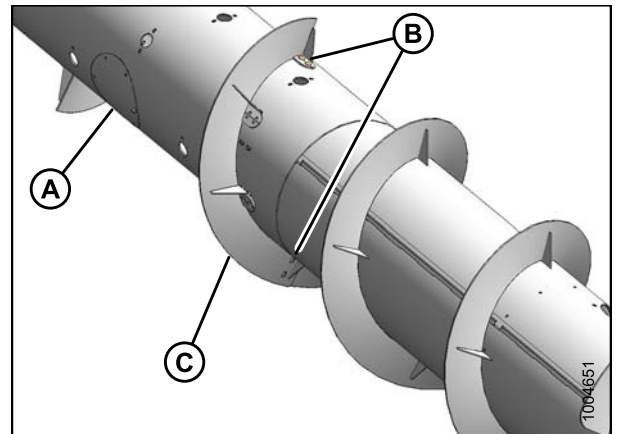


Figure 6.97: Auger Flighting Extensions

6.8 Knife

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 253](#).

CAUTION

Wear heavy gloves when working around or handling knives.

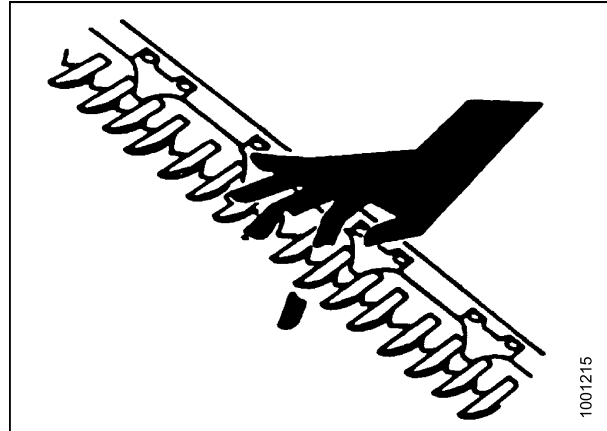


Figure 6.98: Cutterbar Hazard

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).

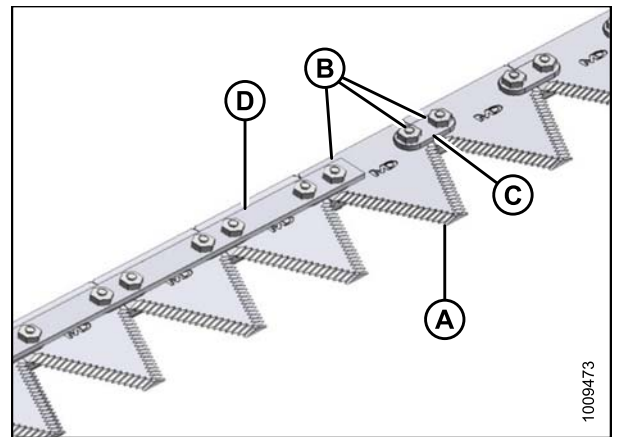
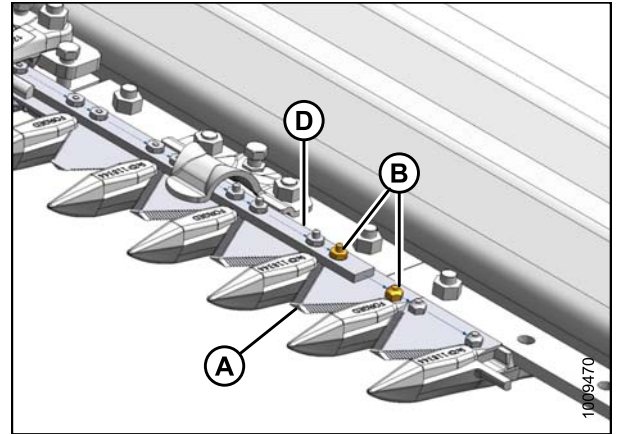


Figure 6.99: Cutterbar

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, unless it is being replaced.
8. Wrap a chain around knifehead and pull knife out.

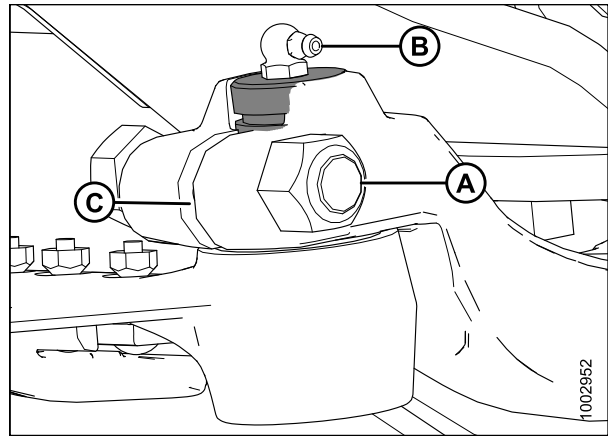


Figure 6.100: Knifehead

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.

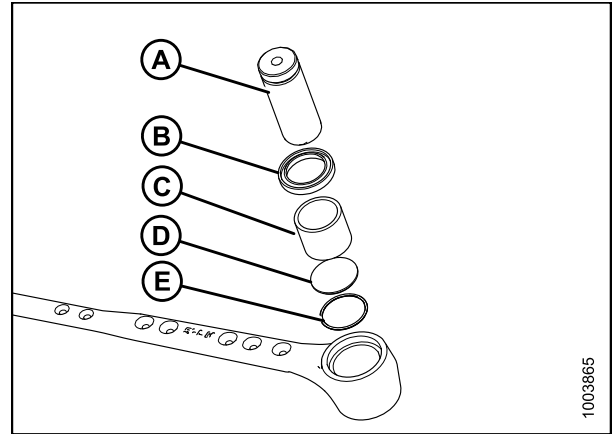


Figure 6.101: Removing Bearing

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 317](#).

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.

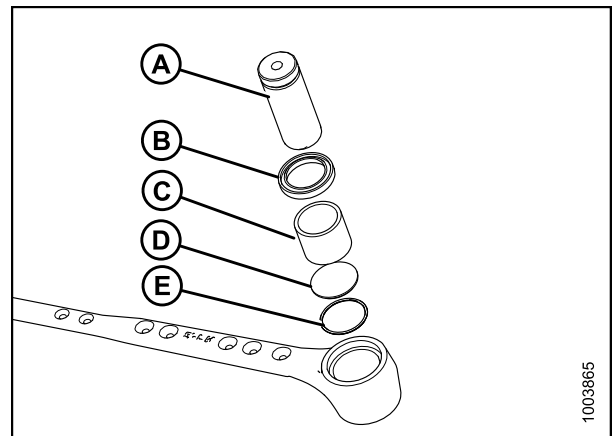


Figure 6.102: Knifehead

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

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.

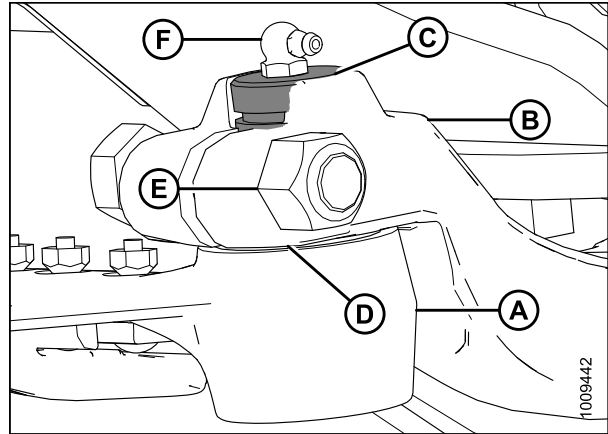


Figure 6.103: Installing Knife

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 6.104: 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:

NOTE:

The guard straightening tool (MD #140135) is available from your MacDon Dealer.

MAINTENANCE AND SERVICING

1. To adjust guard tips upward, position tool as shown, and pull up.



Figure 6.105: 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 [8.2.3 Stub Guard Conversion Kit, page 449](#).



Figure 6.106: 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.

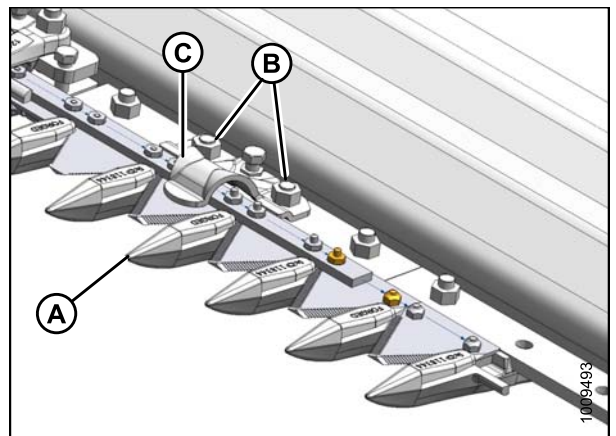


Figure 6.107: Cutterbar

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 .

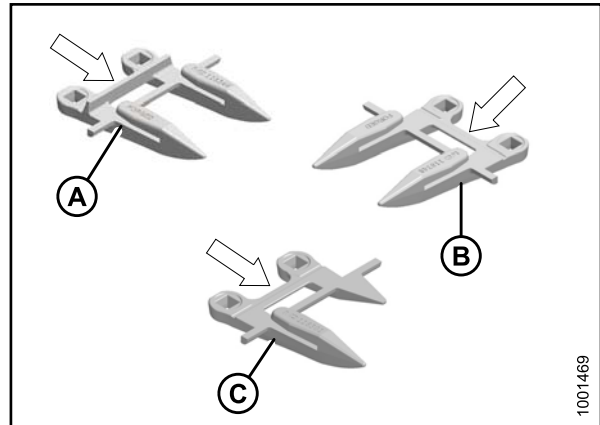


Figure 6.108: Guards

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 319](#) 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).

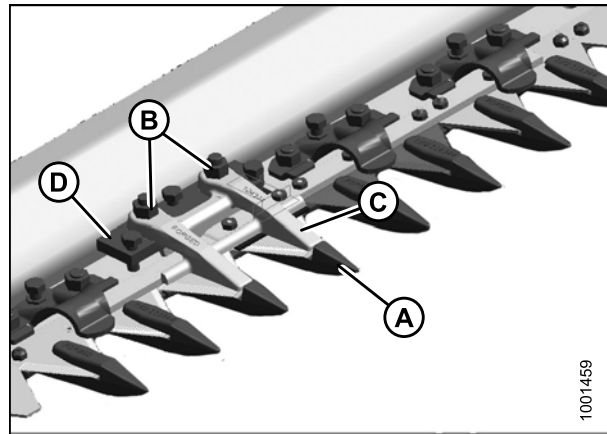


Figure 6.109: Double Knife Guard

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 [Checking Knife Hold-Downs, page 323](#).

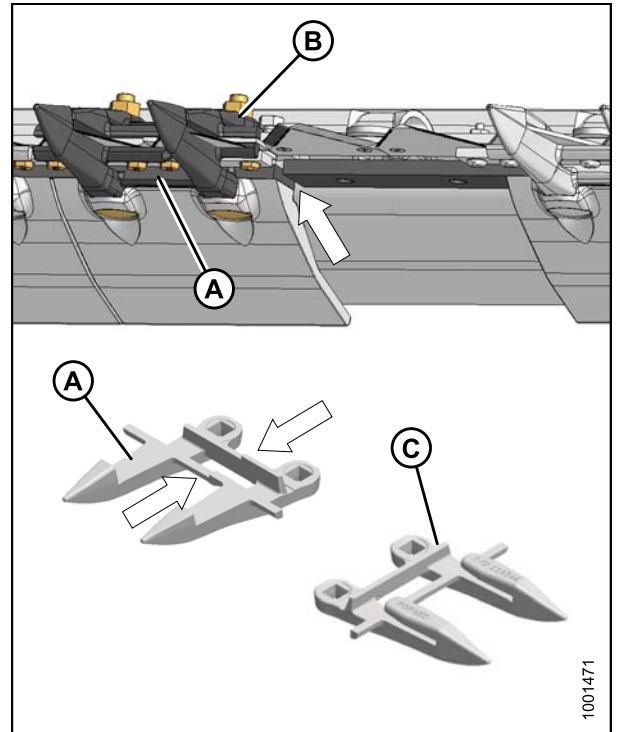


Figure 6.110: Double Knife Guard

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.

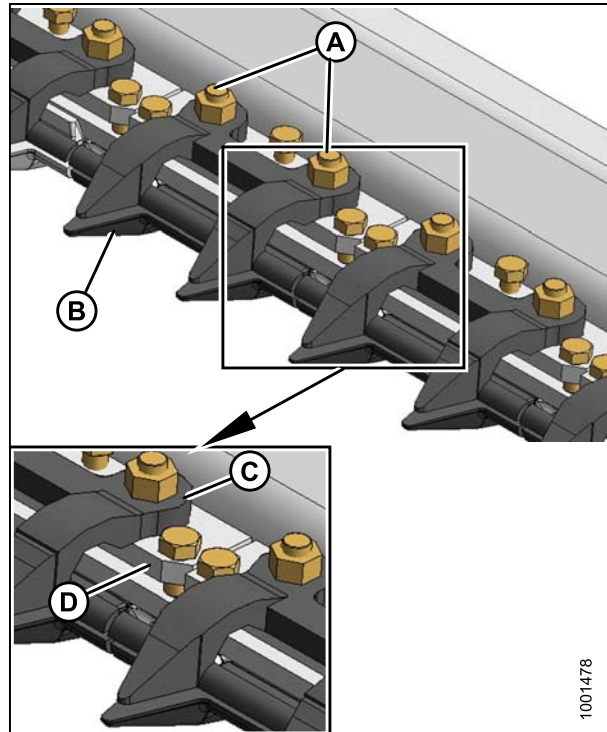


Figure 6.111: Stub Guards

A - Nuts

B - Stub Guard

C - Top Guide

D - Adjuster Bar

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 .

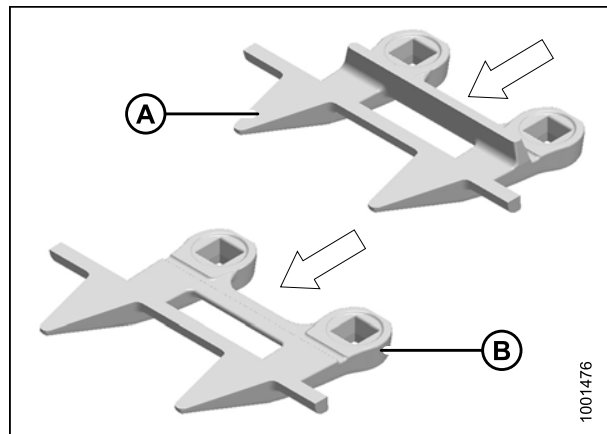


Figure 6.112: Stub Guards

A - Normal Guard

B - Drive Side Guard

Replacing Stub Guards on a Double Knife Header

Refer to [Replacing Stub Guards on a Single Knife Header, page 321](#) 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 .

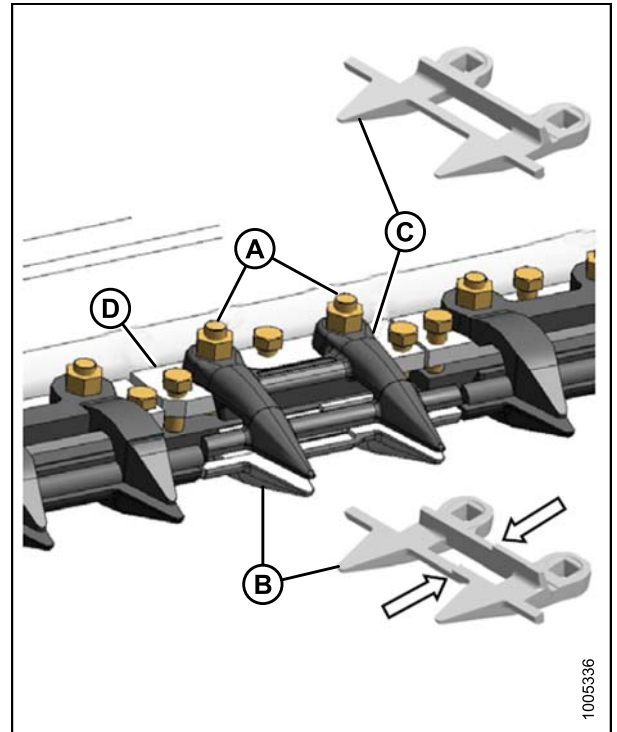


Figure 6.113: Stub Guards

A - Nuts
C - Normal Top Guide

B - Center Guard
D - Adjuster Bar

Checking 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 324](#)
- [Adjusting Hold-Downs with Stub Guards, page 325](#)

NOTE:

Guards should be aligned prior to adjusting hold-downs. Refer to [Adjusting Knife Guards, page 318](#).

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. Readjust as necessary.

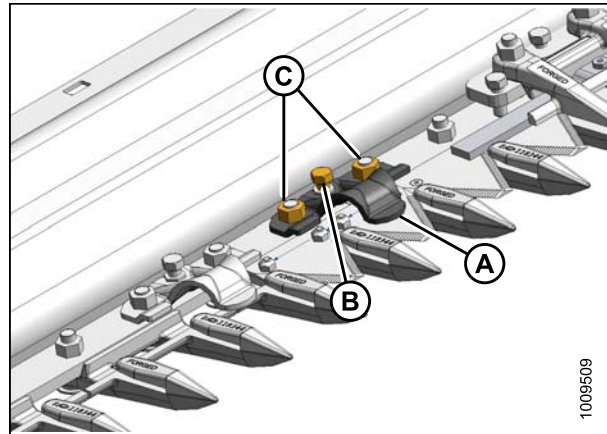


Figure 6.114: Hold-Down Clearance

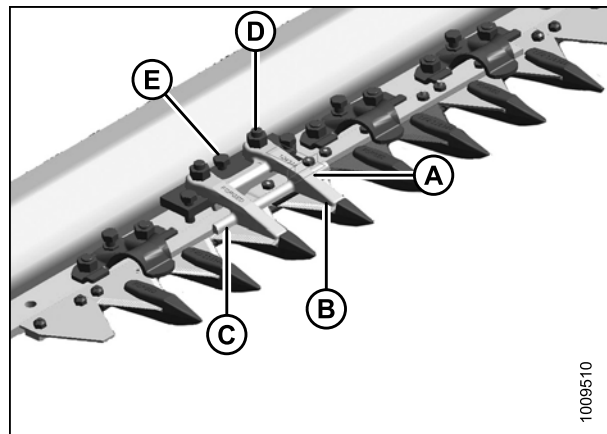


Figure 6.115: Hold-Down Clearance

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. Readjust as necessary.

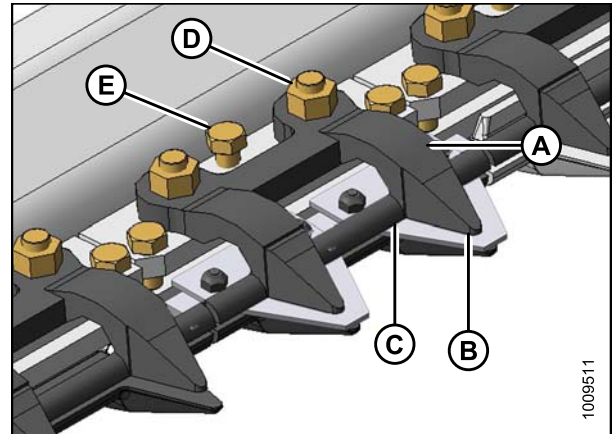


Figure 6.116: Stub Guards

6.8.8 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.

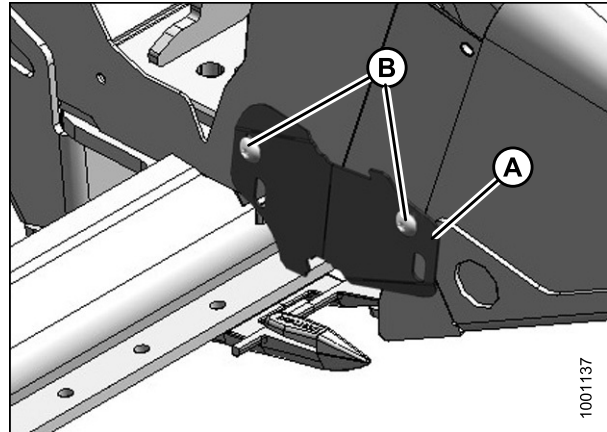


Figure 6.117: Knifehead Shield

6.9 Knife Drive

6.9.1 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 253](#).

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).

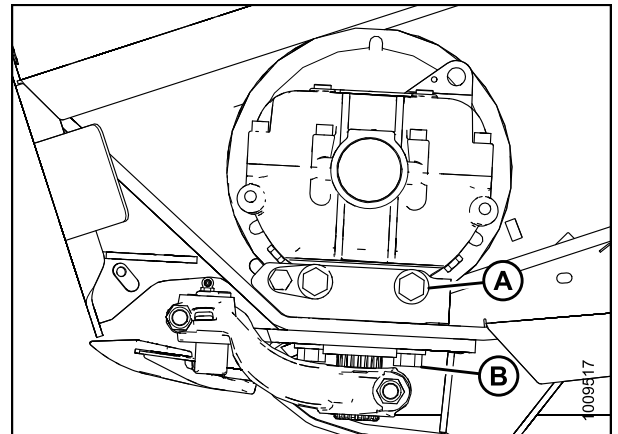


Figure 6.118: Knife Drive Box

Removing Knife Drive Box

Single and Untimed Double Knife

This procedure applies to single and untimed double knife drive box.

1. Open endshield. Refer to [Opening Endshields, page 37](#).
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.

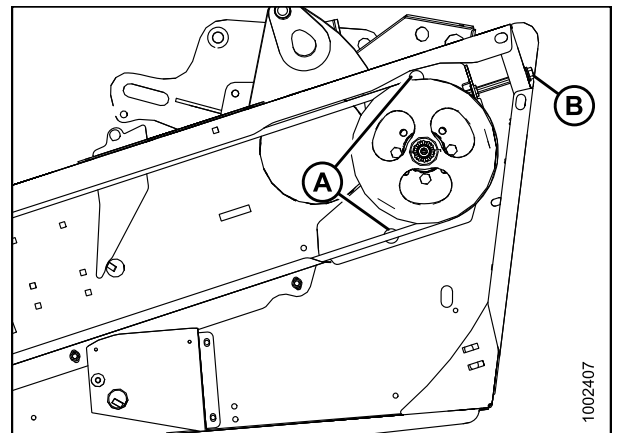


Figure 6.119: Knife Drive

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.

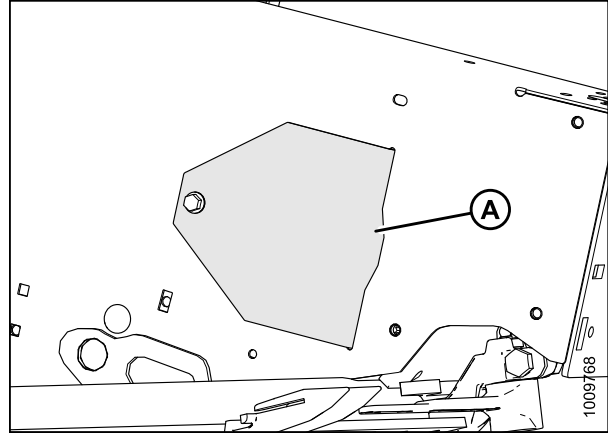


Figure 6.120: Access Cover

5. Remove belt (A) from drive pulley (B).
6. Slip belt (A) over and behind the knife drive box pulley (C). Use notch in pulley to assist in removing belt.

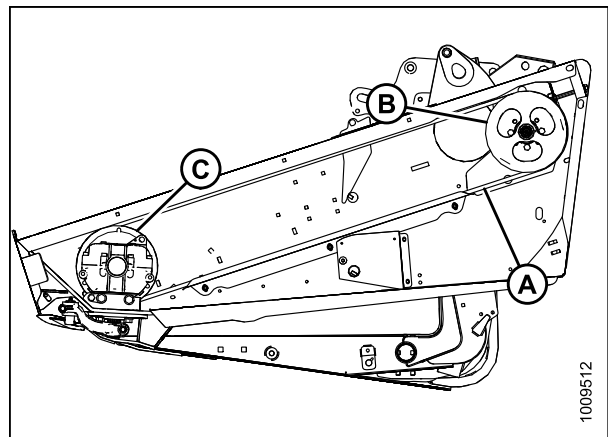


Figure 6.121: Knife Drive

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, unless it is being replaced.

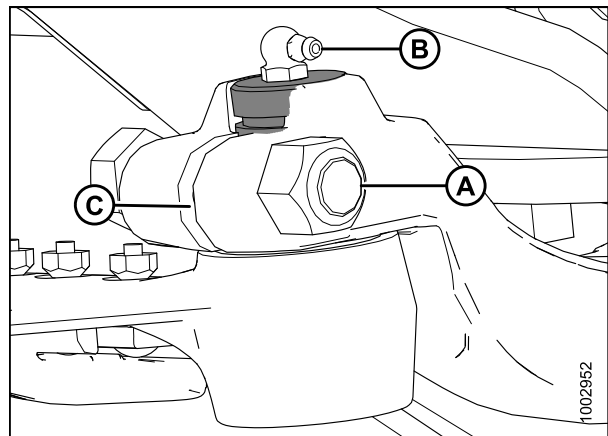


Figure 6.122: Knifehead

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, 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 and place on a bench for disassembly.

CAUTION

Knife drive box with pulley weighs over 65 lb (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.

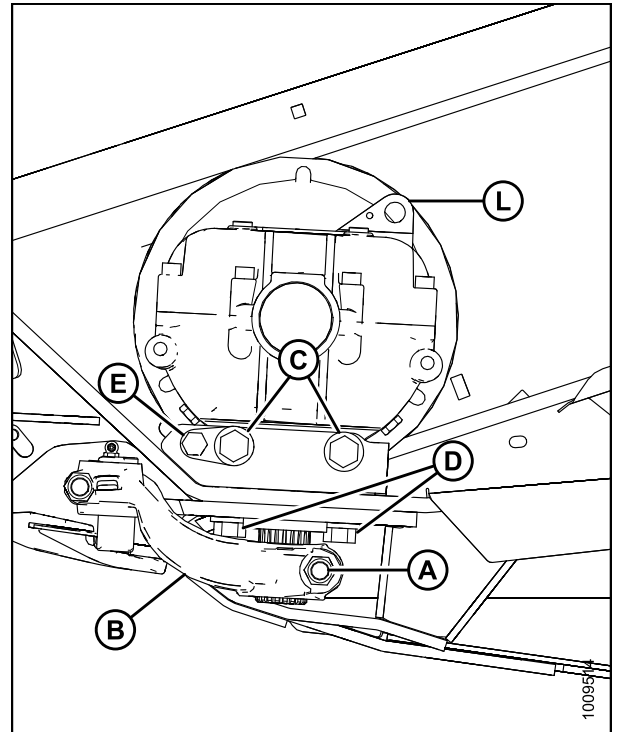


Figure 6.123: Knife Drive Box

Timed Double Knife

1. Open endshield. Refer to [Opening Endshields, page 37](#).
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

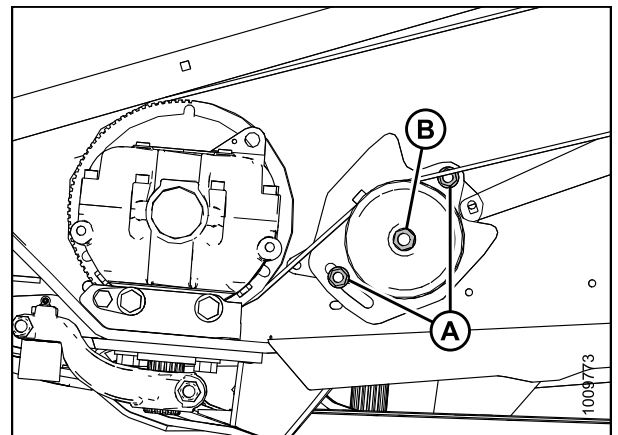


Figure 6.124: Knife Drive

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.

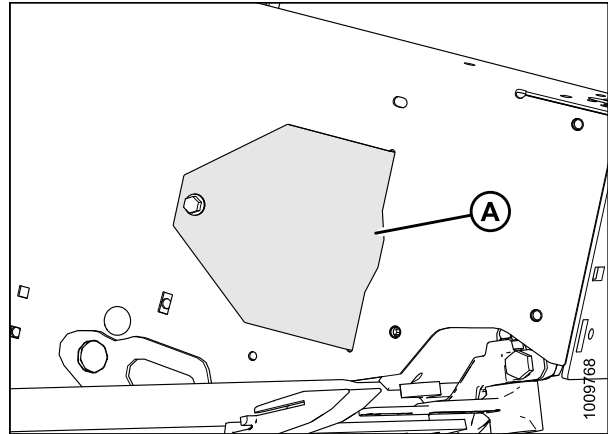


Figure 6.125: Access Cover

5. Manually stroke knife to its outer limit and clean area around the knifehead.
6. Remove bolt (A).
7. Remove the grease zerk (B) from the pin.
8. Use a screwdriver or a chisel in slot (C) to release load on knifehead pin.
9. Pry pin upward with a screwdriver in pin groove until pin is clear of knifehead.
10. Push the knife assembly inboard until it is clear of the output arm.
11. Seal bearing in knifehead with plastic or tape, unless it is being replaced.

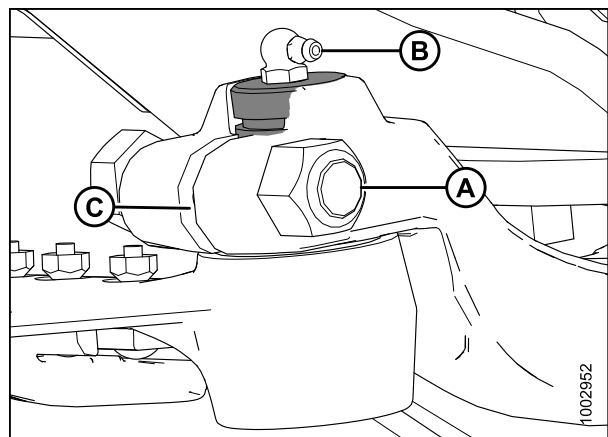


Figure 6.126: Knifehead

MAINTENANCE AND SERVICING

12. Remove bolt (A) that clamps the knife drive arm to the knife drive box output shaft.
13. Remove the knife drive arm (B) from the knife drive box output shaft.
14. Remove the four knife drive box mounting bolts (C, 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.

15. Remove knife drive box and place on a bench for disassembly.

CAUTION

Knife drive box with pulley weighs over 65 lb (35 kg). Use care when removing or installing. Lug (L) can be used for lifting. If speed sensor is installed at this location, you will need to remove it before using it for lifting.

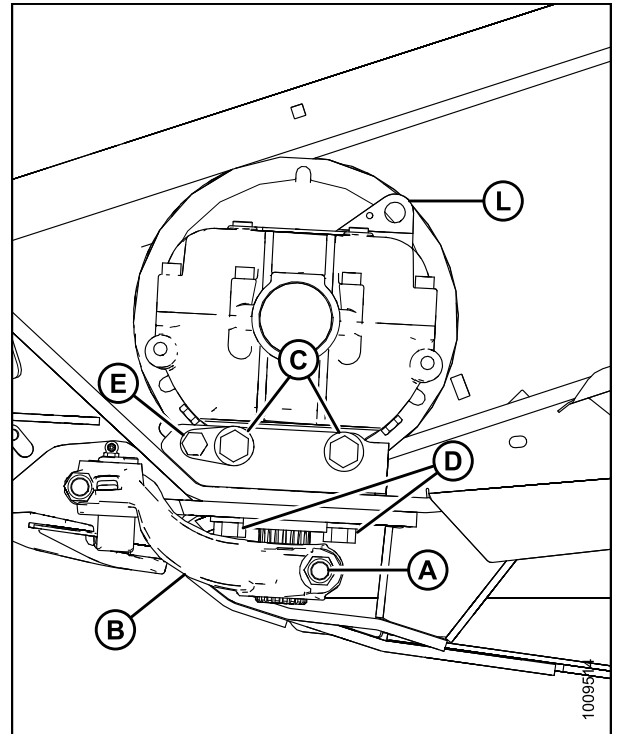


Figure 6.127: Knife Drive Box

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.

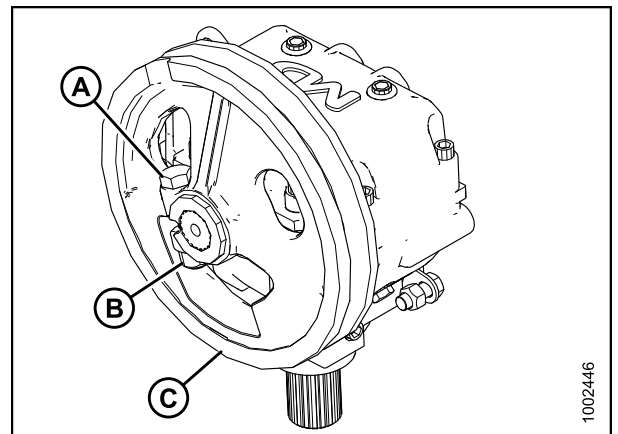


Figure 6.128: Knife Drive Box and Pulley

MAINTENANCE AND SERVICING

Installing Knife Drive Box Pulley

To install the knife drive box pulley, follow these steps:

1. Ensure splines and bores in pulley or drive arm are free of paint oil and solvents.
2. Apply Loctite® #243 adhesive (or equivalent) to spline. Apply in two bands (A) around shaft as shown, with one band at end of spline and one band approximately mid-way.
3. Install pulley (B) until flush with end of shaft.
4. Secure pulley with 5/8 in. x 3 hex head bolt with distorted thread NC lock nut and torque to 160 ft-lbf (217 N·m).

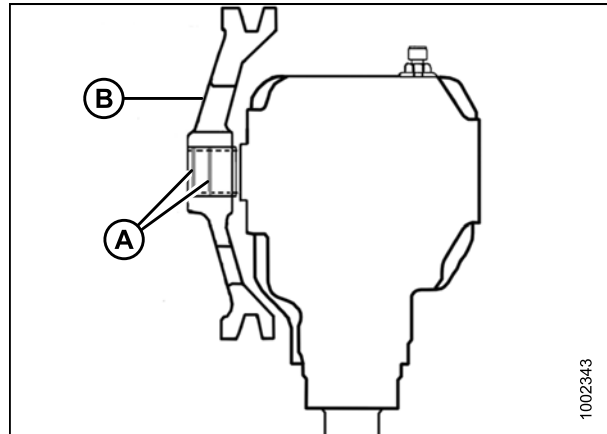


Figure 6.129: Knife Drive Box

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. Refer to [Installing Knife Drive Box Pulley, page 332](#). If the pulley was not removed, then proceed to Step 1., [Installing Knife Drive Box, page 332](#).

CAUTION

Knife drive box with pulley weighs over 65 lb (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 grade 8 hex head bolts (A) at the side and two 5/8 in. x 2.25 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.

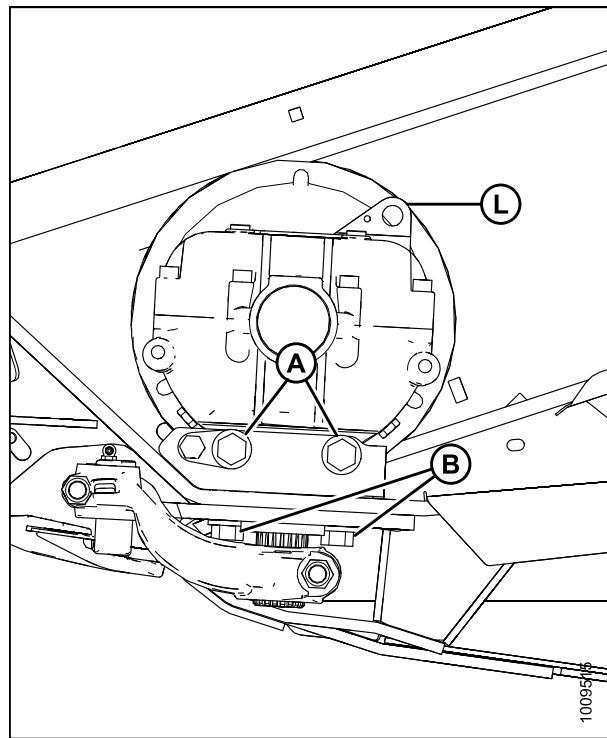


Figure 6.130: Knife Drive Box

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.

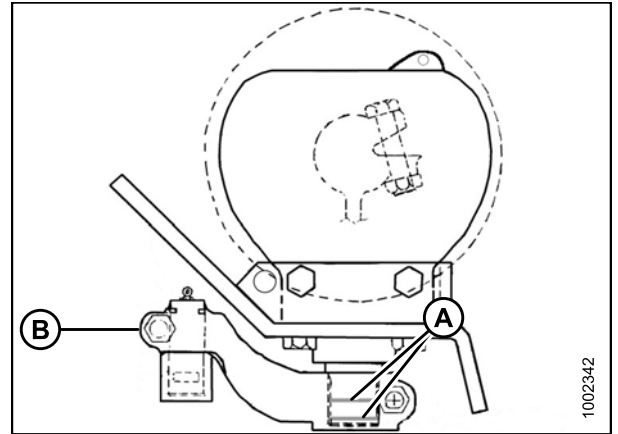


Figure 6.131: Knife Drive Box

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.

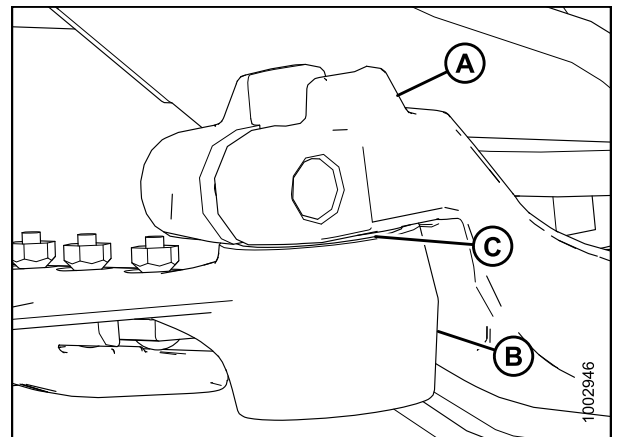


Figure 6.132: Knifehead

7. Torque output arm bolt (B) to 160 ft-lbf (217 N·m) to secure arm to knife drive output shaft.

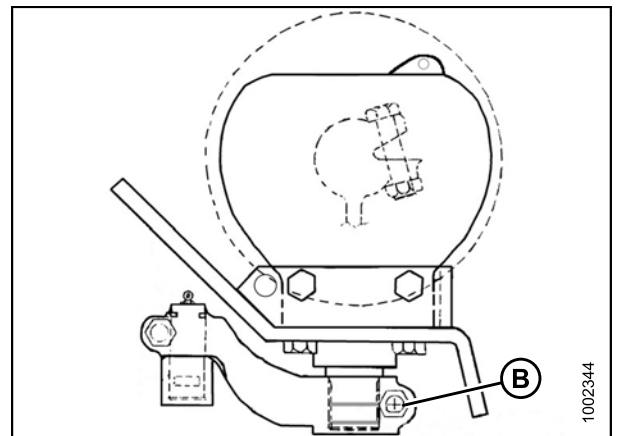


Figure 6.133: Knife Drive Box

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. Set groove (B) in knifehead pin 0.06 in. (1.5 mm) above (C). Install the 5/8 in. x 3 hex head bolt and nut (D) and torque to 160 ft-lbf (217 N·m).

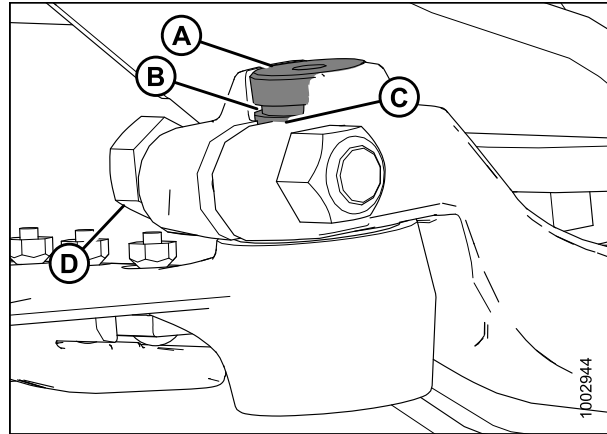


Figure 6.134: Knifehead

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.

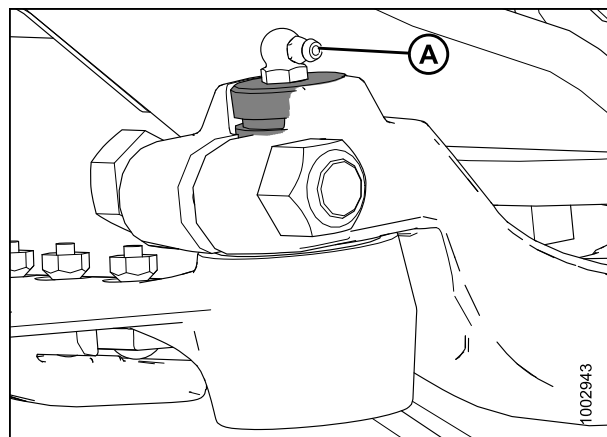


Figure 6.135: Knifehead

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 [6.9.2 Knife Drive Belts, page 335](#). For timed double-knife headers, also check the knife timing. Refer to [Adjusting Double Knife Timing, page 343](#) for timing instructions.
15. Close endshield. Refer to [Closing Endshields, page 38](#).

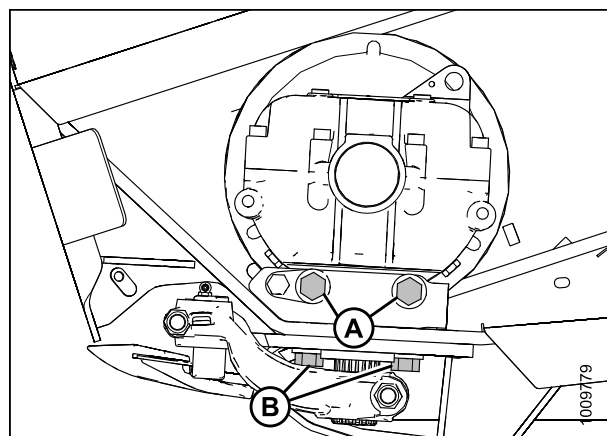


Figure 6.136: Knife Drive Box

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 37](#).
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 255](#) for quantity.
7. Close endshield(s). Refer to [Closing Endshields, page 38](#).

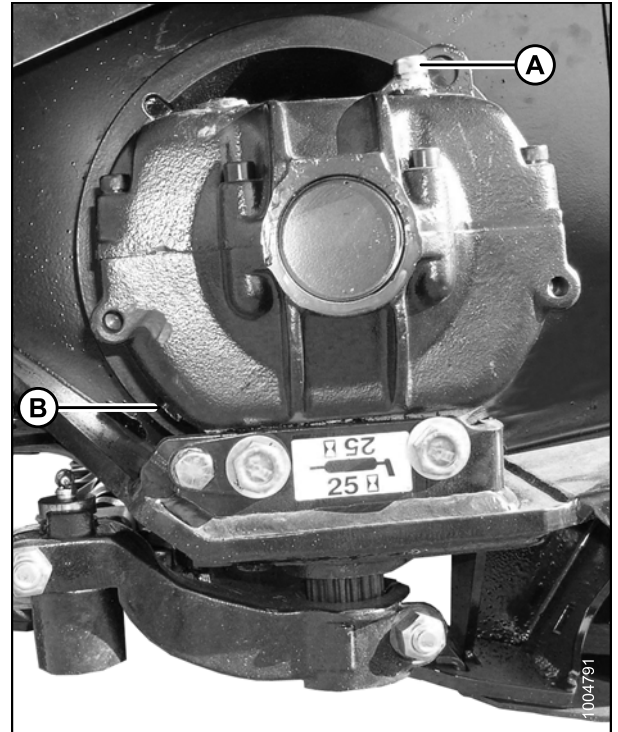


Figure 6.137: Knife Drive Box

6.9.2 Knife Drive Belts

Non-Timed Knife Drive Belts

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 Non-Timed Knife Drive Belt

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 ends of a double-knife header.

MAINTENANCE AND SERVICING

1. Open endshield. Refer to [Opening Endshields, page 37](#).
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.

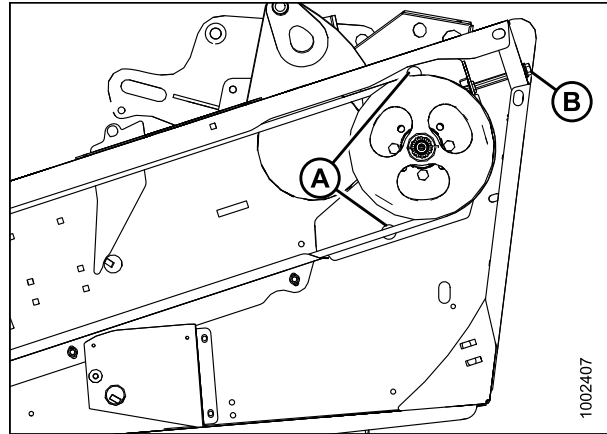


Figure 6.138: Knife Drive

4. Open the access cover (A) on the endsheet behind cutterbar to provide clearance between the knife drive box pulley and the endsheet.

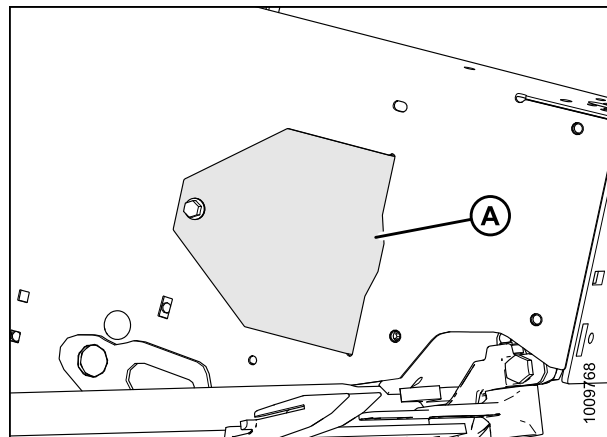


Figure 6.139: Access Cover

5. Remove belt (A) from drive pulley (B).
6. Slip belt (A) over and behind the knife drive box pulley (C). Use notch in pulley to assist in removing belt.

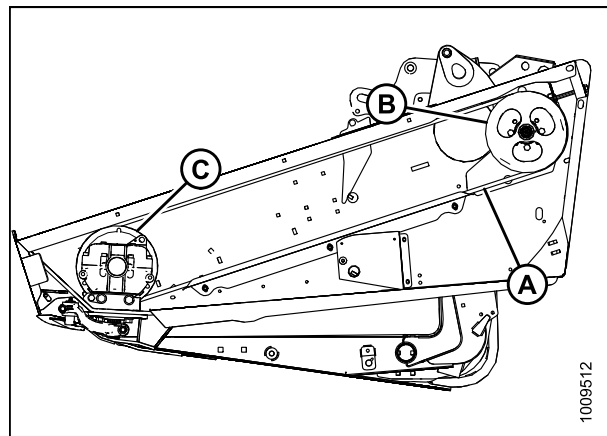


Figure 6.140: Knife Drive

Installing Non-Timed Knife Drive Belts

NOTE:

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

MAINTENANCE AND SERVICING

1. Route knife drive belt (A) around knife drive box pulley (C) and knife drive pulley (B). Use 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 Non-Timed Knife Drive Belts](#), page 337.

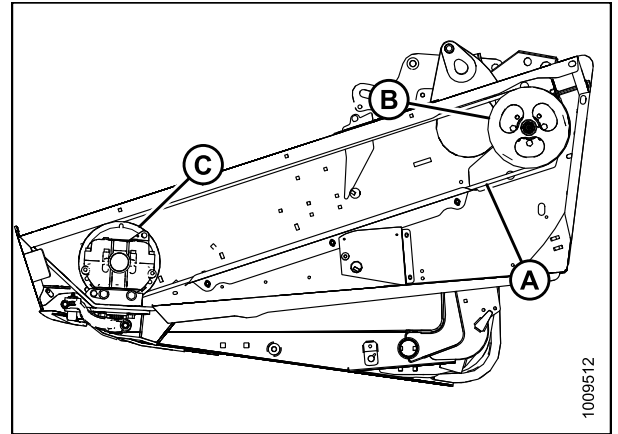


Figure 6.141: Knife Drive

3. Reinstall the access cover (A) and secure it with bolt.
4. Close endshield. Refer to [Closing Endshields](#), page 38.

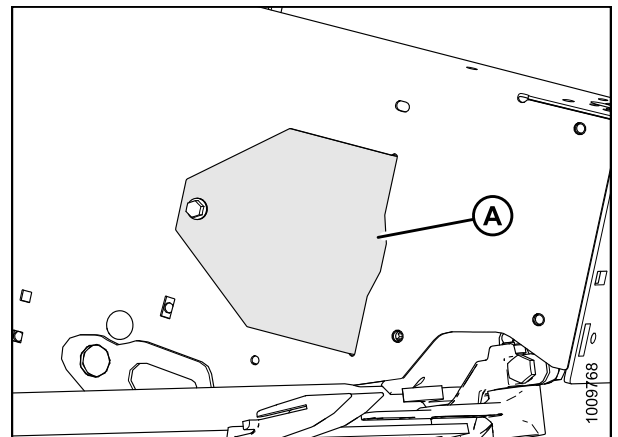


Figure 6.142: Access Cover

Tensioning Non-Timed Knife Drive Belts

This procedure applies to single- and double-knife headers with non-timed drives.

IMPORTANT:

To prolong belt and drive life, do **NOT** overtighten belt.

1. Open left endshield. Refer to [Opening Endshields](#), page 37.
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.

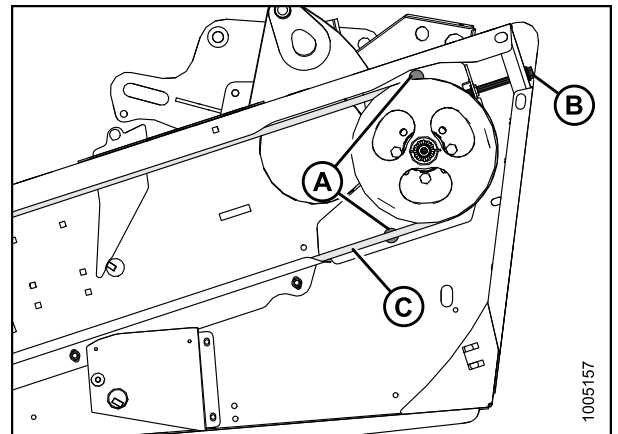


Figure 6.143: Left-Hand Shown – Right-Hand Opposite for Double-Knife Headers

MAINTENANCE AND SERVICING

4. Ensure that clearance between belt (A) and belt guide (B) is 1/32 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 38](#).

NOTE:

Readjust tension of a new belt after a short run-in period (about five hours).

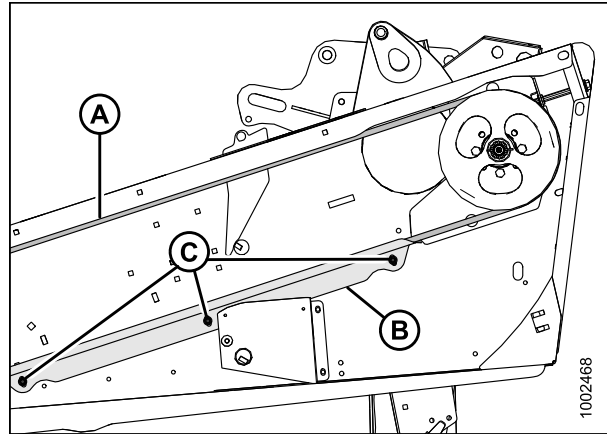


Figure 6.144: Knife Drive

Timed Double Knife Drive Belts

This section applies to 35-foot and smaller double knife model D65 Draper Headers with timed drives.

Removing Timed Drive V-Belts

1. Open left endshield. Refer to [Opening Endshields, page 37](#).
2. Loosen two bolts (A) on endsheet.
3. Turn adjuster bolt (B) to loosen the two V-belts (C) and remove them.

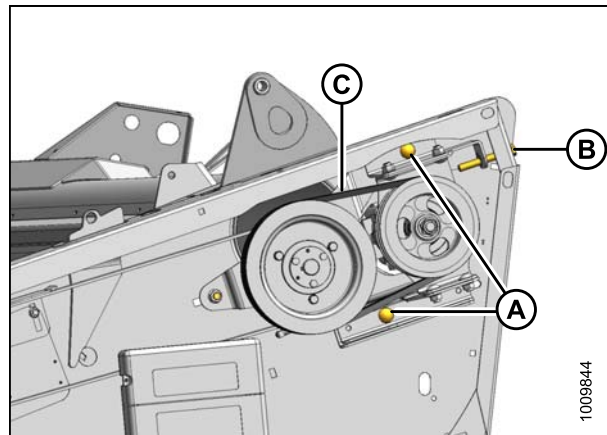


Figure 6.145: Knife Drive V-Belts

Installing Timed Drive V-Belts

NOTE:

New belts must be installed as a matched pair.

NOTE:

Never pry belt over pulley. Be sure drive motor is fully forward.

1. Install V-belts (C) onto pulleys.

IMPORTANT:

To prolong belt and drive life, do **NOT** overtighten belt.

2. Turn adjuster bolt (B) to tighten belts. The belts should deflect 5/32 in. (4 mm) with 12–17 lbf (52–77 N) of force applied to each belt at mid-span when properly tensioned.
3. Tighten the two bolts (A).
4. Close endshield. Refer to [Closing Endshields, page 38](#).
5. Check tension of new belts after a short run-in period (about 5 hours).

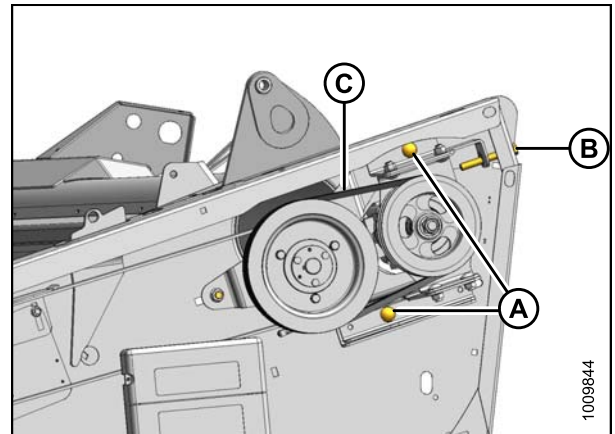


Figure 6.146: Knife Drive V-Belts

Removing Timed Knife Drive Belt

This procedure is applicable to the knife drive on both left and right sides.

1. Open endshield. Refer to [Opening Endshields, page 37](#).
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

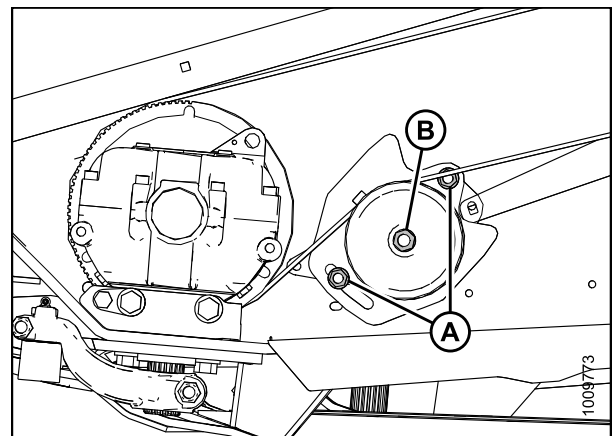


Figure 6.147: Knife Drive

MAINTENANCE AND SERVICING

NOTE:

The following two steps are not applicable to the right side drive.

4. Loosen two bolts (A) on endsheet.
5. Turn adjuster bolt (B) to loosen the two V-belts (C) and remove them.

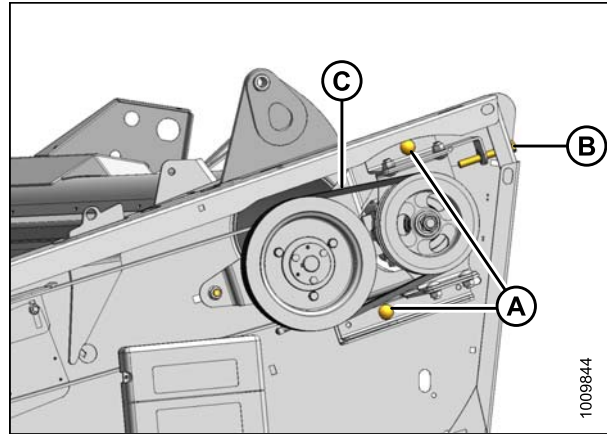


Figure 6.148: Knife Drive V-Belts

6. Open the access panel (A) inside the draper opening, just behind cutterbar. This will give you access to the knife drive pulley.
7. Remove the knife drive belt.

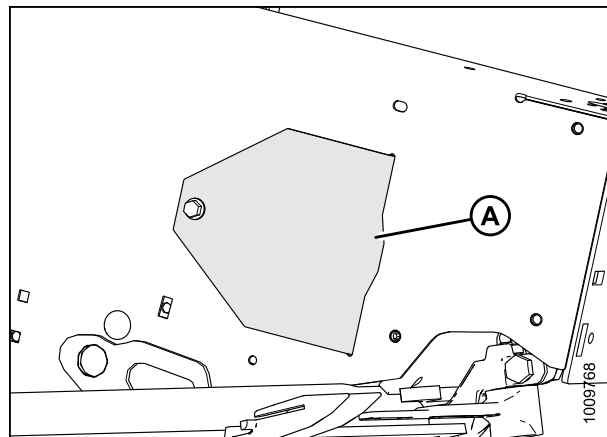


Figure 6.149: Access Cover

Installing Timed Knife Drive Belt

This procedure is applicable to the knife drive on both left and right sides.

If there are problems with belt alignment. Refer to [Adjusting Belt Tracking, page 346](#).

1. Route knife drive belt (A) around knife drive pulley (B) and knife drive box pulley (C).

NOTE:

When installing belt, never pry belt over pulley.

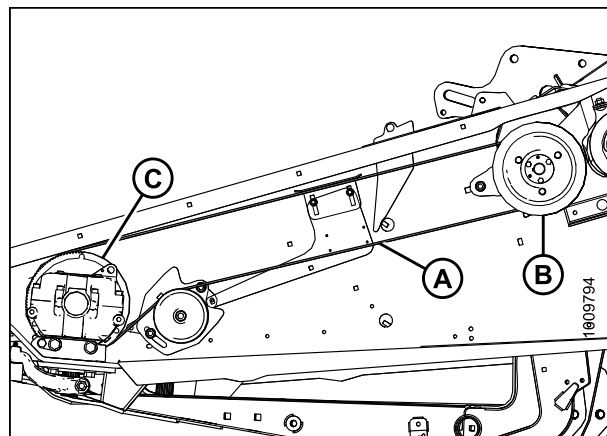


Figure 6.150: Left Side – Right Side Similar

MAINTENANCE AND SERVICING

NOTE:

The following two steps do not apply to the right site drive.

2. Install the two V-belts (C) and turn adjuster bolt (B) to tension them. Tension is checked at mid span of the belts. The belts should deflect 5/32 in. (4 mm) with 12–17 lbf (52–77 N) of force applied to each belt.

NOTE:

Ensure drive motor is fully forward to allow V-belt's installation.

3. Tighten the two bolts (A) on endsheet.
4. Ensure that knives are timed before tightening belt. Refer to [Adjusting Double Knife Timing, page 343](#).
5. Slide the idler pulley (A) in the slot on the support bracket (B) to take up the slack in the timing belt.

NOTE:

Ensure that the lower nut (C) is as high in the slot as possible.

6. Tighten the nut (D) to 157–173 ft·lbf (212–234 N·m).

7. Tension knife drive belt. Refer to [Tensioning Timed Knife Drive Belts, page 342](#).
8. Close endshield. Refer to [Closing Endshields, page 38](#).
9. Reinstall the access panel (A) and secure it with a bolt.

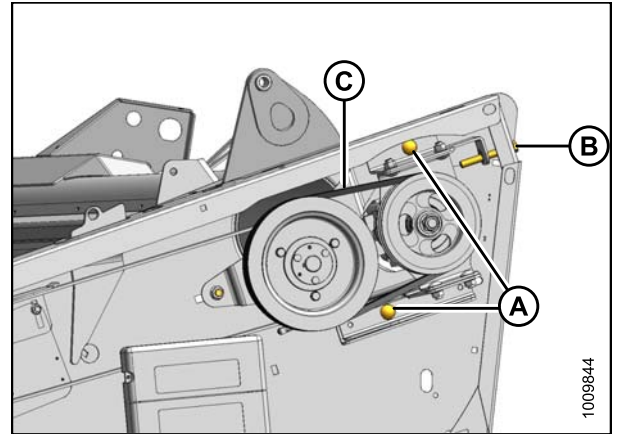


Figure 6.151: Knife Drive V-Belts

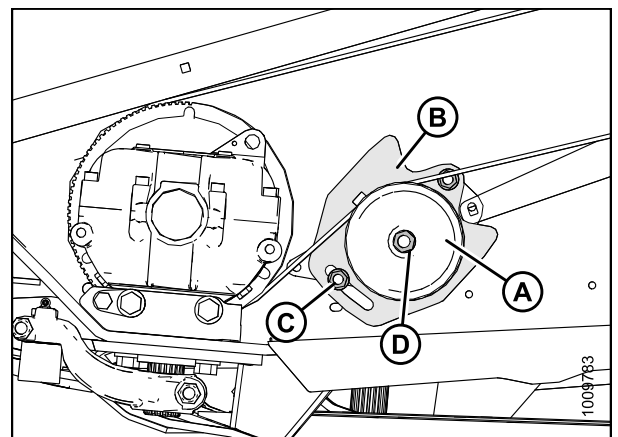


Figure 6.152: Knife Drive

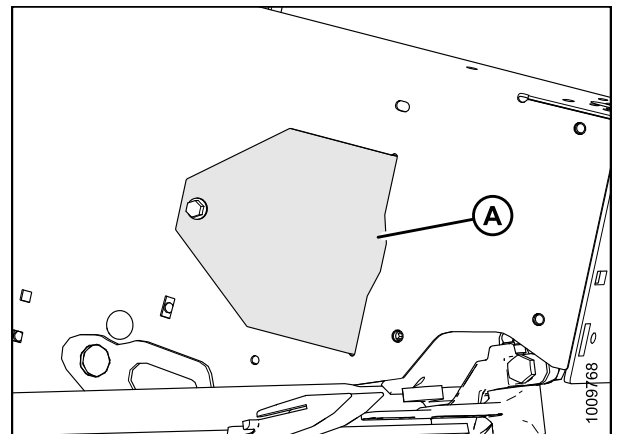


Figure 6.153: Access Cover

MAINTENANCE AND SERVICING

Tensioning Timed Knife Drive Belts

This describes the tensioning procedure for the timed left and right knife drive belts. The illustrations for the right side are opposite to what is shown.

IMPORTANT:

To prolong belt and drive life, do **NOT** over-tighten belt.

IMPORTANT:

Do **NOT** use the adjuster bolt at the drive pulley to adjust timing belt tension.

1. Open left endshield. Refer to [Opening Endshields](#), page 37.
2. Loosen two nuts (A) on knife drive belt idler bracket.

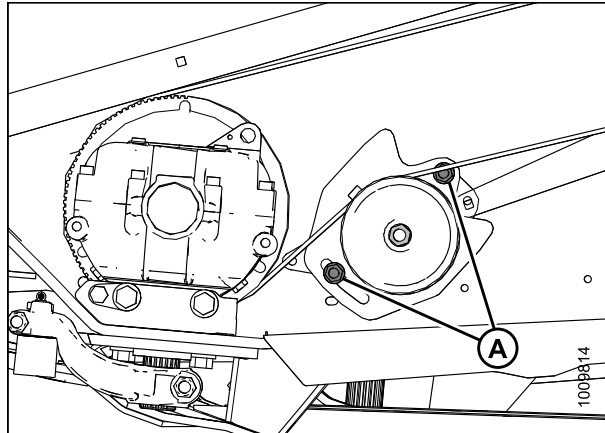


Figure 6.154: Knife Drive

3. Position pry bar (A) under the idler bracket (C), and push the bracket up until a force of 6 lb (27 N) deflects the belt 1/2 in. (13 mm) at mid-point of the upper span.

NOTE:

A piece of wood (B) is placed under pry bar (A) to protect paint.

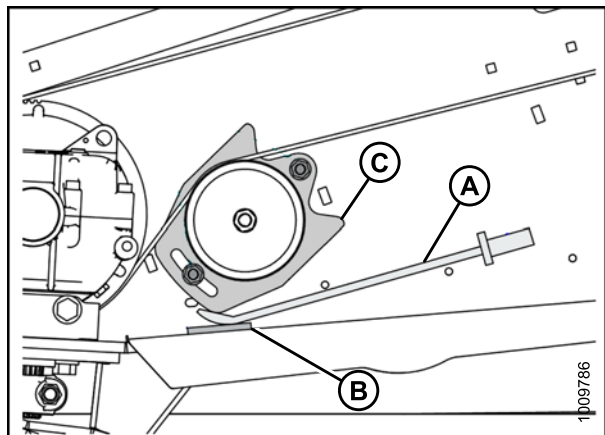


Figure 6.155: Knife Drive

MAINTENANCE AND SERVICING

4. Tighten nuts (C) to 54–59 ft·lbf (73–80 N·m) when proper belt tension is achieved.
5. Remove pry bar (A) and wood (B).

NOTE:

Readjust tension of a new belt after a short run-in period (about five hours).

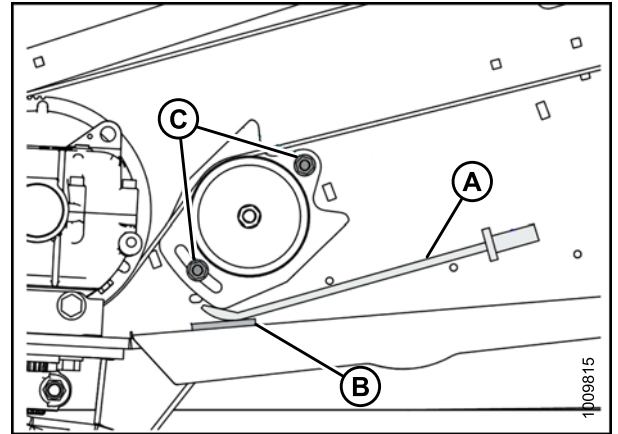


Figure 6.156: Knife Drive

6. Check that clearance (A) between belt (B) and guide (C) is 1/32–1/16 in. (0.5–1.5 mm).
7. If necessary, loosen bolts (D) and adjust guide as required. Tighten bolts.
8. Repeat procedure for opposite side of header.
9. Close endshields.

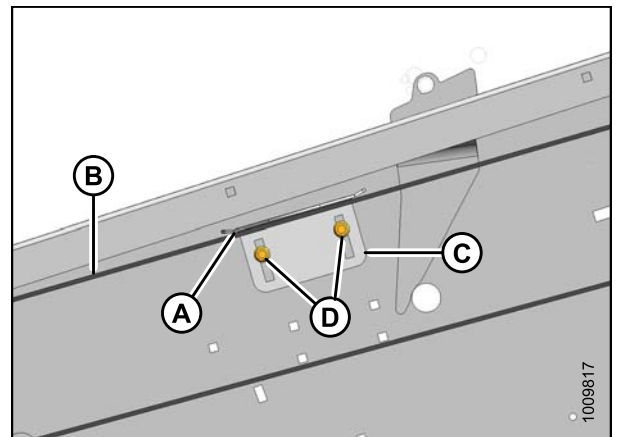


Figure 6.157: Belt Guide

Adjusting Double Knife Timing

Timed double knife D65 draper headers, 35 ft. and smaller, require that knives are properly timed to move in opposite directions.

1. Open both endshields. Refer to [Opening Endshields, page 37](#).
2. Remove the belt on the right-hand side. Refer to [Removing Timed Knife Drive Belt, page 339](#).

MAINTENANCE AND SERVICING

3. Rotate the left knife drive box driven pulley clockwise until the left knife (A) is at the center of the inboard stroke (B) (moving towards center of header).

NOTE:

Center stroke is when the knife sections (C) are centered between guard points.

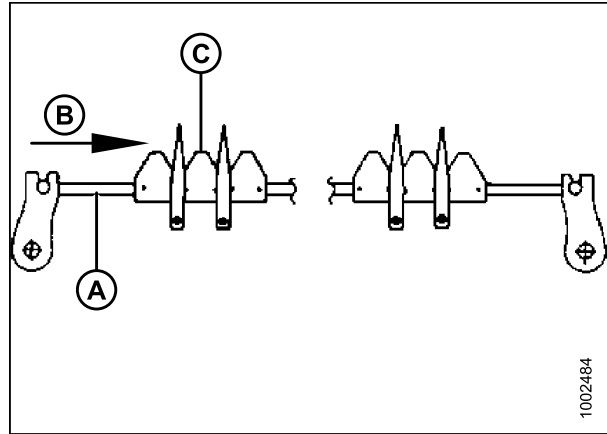


Figure 6.158: Timing: Left Side

4. Rotate the right knife drive box pulley counterclockwise until the right knife (A) is at the center of the inboard stroke (B) (moving towards center of header).

NOTE:

Center stroke is when the knife sections (C) are centered between guard points.

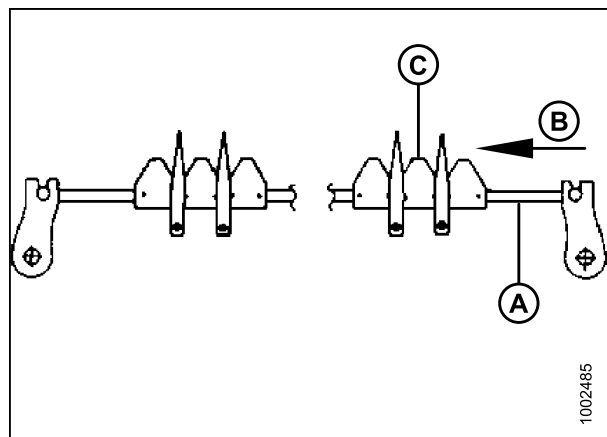


Figure 6.159: Timing: Right Side

5. Install right-hand belt (A).

NOTE:

To maintain timing, knife drive box driver and driven pulleys must not rotate as the belt is tightened.

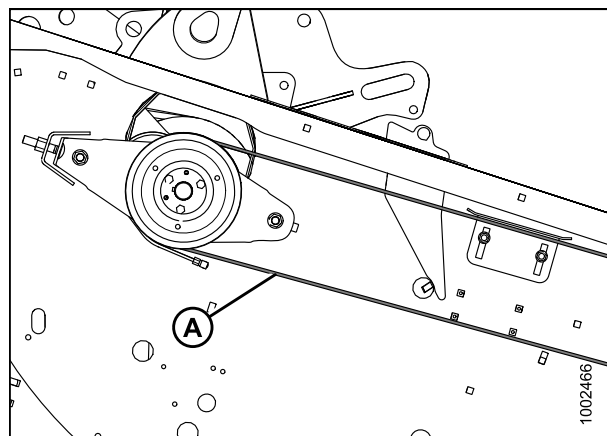


Figure 6.160: Knife Drive: Right Side

MAINTENANCE AND SERVICING

6. Rotate the idler pulley bracket (A) down and slide the idler pulley up by hand to remove most of the belt slack. Tighten nut (B).

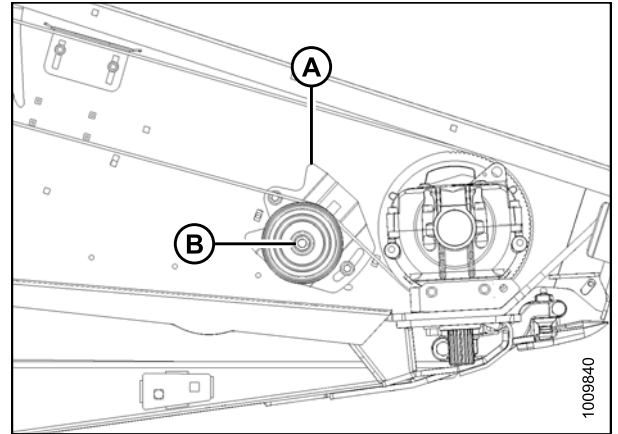


Figure 6.161: Knife Drive: Right Side

7. Position pry bar (A) under the idler bracket (C), and push the bracket up until a force of 6 lb (27 N) deflects the belt 1/2 in. (13 mm) at mid-point of the upper span.

NOTE:

Place a piece of wood (B) under pry bar (A) to protect paint.

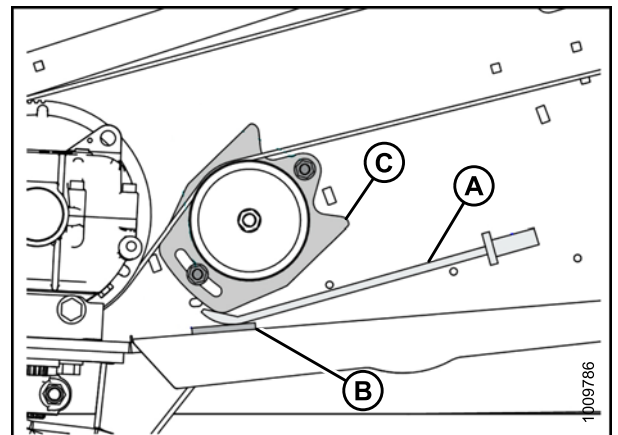


Figure 6.162: Left Side Shown-Right Side Opposite

8. Tighten nuts (C) to 54–59 ft·lbf (73–80 N·m) when proper belt tension is achieved.
9. Check that the timing belts are properly seated in the grooves on both driver and driven pulleys.
10. Check for correct knife timing by rotating the drive slowly by hand and observe knives where they overlap at the centre of the header.

IMPORTANT:

The knives must move in opposite directions and begin moving at exactly the same time.

11. If the knives do not begin moving at the same time, loosen the right side drive belt (B) just enough to allow the belt to be repositioned to the next cog(s) and proceed as follows:
 - a. If right knife 'leads' left knife, rotate RIGHT SIDE driven pulley (A) clockwise.
 - b. If right knife 'lags' left knife, rotate RIGHT SIDE driven pulley (A) counterclockwise.

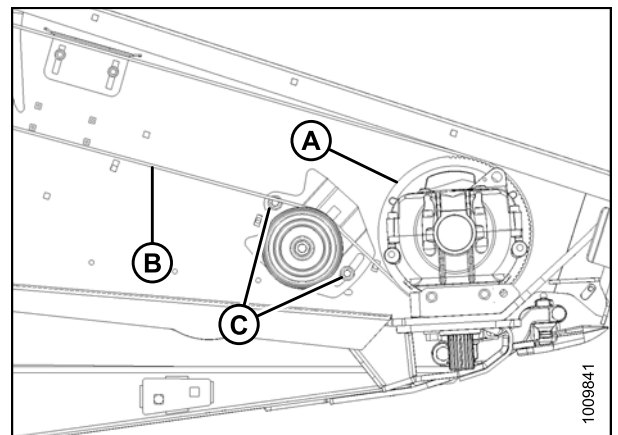


Figure 6.163: Knife Drive: Right Side

MAINTENANCE AND SERVICING

12. Re-tension the right side drive belt as per above, ensuring that the drive pulleys do not rotate.

IMPORTANT:

Do **NOT** use the adjuster bolt at the drive pulley to adjust timing belt tension.

13. Recheck the timing.
14. Close both endshields. Refer to *Closing Endshields*, page 38.

Adjusting Belt Tracking

The following procedure is applicable to the left side knife drive and the right side knife drive on timed drive headers.

IMPORTANT:

A belt that is not tracking properly is subject to premature failure. Ensure the pulleys are aligned and parallel. Follow the belt tensioning procedures in this manual to avoid misalignment.

The cogged timing belt should be centered on the knife drive box pulley and at least 0.08 in. (2 mm) from either edge when the header is running. The belt should also avoid constant contact with the flanges on the drive pulley but occasional contact is acceptable. A gap should be visible between the belt and the pulley flanges.

To correct tracking problems, proceed as follows:

1. Open the endshields.

CAUTION

Exercise extreme care when operating the header with the endshields open.

2. Operate the header and observe how the belt is tracking on both the drive pulley and the knife drive box pulley on both sides of the header. Shut down the windrower and remove key from ignition before making any adjustments.
3. If the belt is tracking toward the inboard side of the drive pulley, the likely cause is a toe-out problem (belt tends to move toward the low tension side of the pulley [inboard]). Proceed to Step to correct the problem.
4. If the belt is tracking toward the outboard side of the drive pulley, the likely cause is a toe-in problem (belt tends to move toward the low tension side of the pulley [outboard]). Proceed to Step to correct the problem.

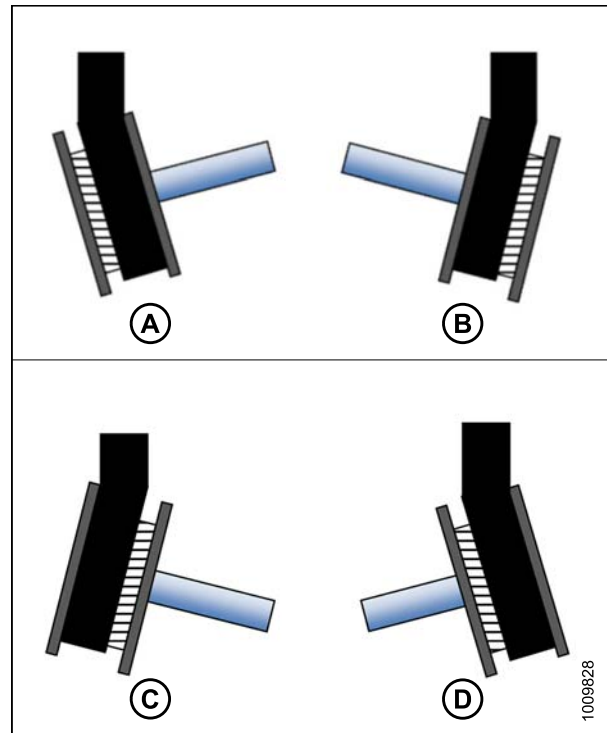


Figure 6.164: Knife Drive Pulley

A - Toe-Out: Left Side
C - Toe-In: Left Side

B - Toe-Out: Right Side
D - Toe-In: Right Side

MAINTENANCE AND SERVICING

5. If the belt (A) is tracking to one side of the knife drive box pulley (B), the likely cause is an out of position idler pulley (C). Proceed to Step to correct the problem.

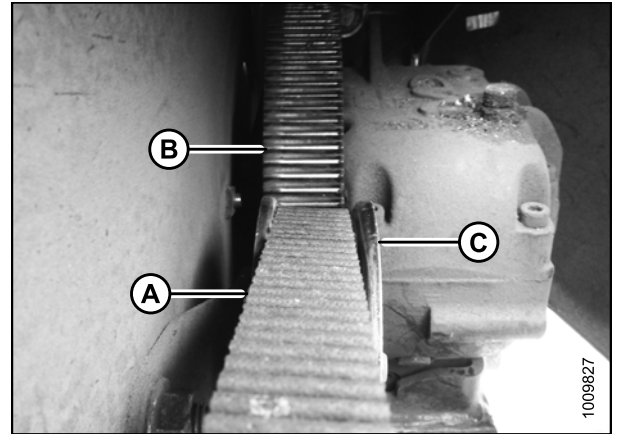


Figure 6.165: Knife Drive Belt

6. To correct the tracking problem on the drive pulley, adjust the position of the cross shaft support tube as follows:
 - a. Loosen nut (A) on support assembly (B).
 - b. Slide the support (B) rearward in slot (C) to correct toe-out condition, or forward to correct toe-in condition.
 - c. Retighten nut (A).
 - d. Operate the header and check the tracking. Adjust the support assembly as required.
 - e. If the belt tracking problem continues, proceed to Step .

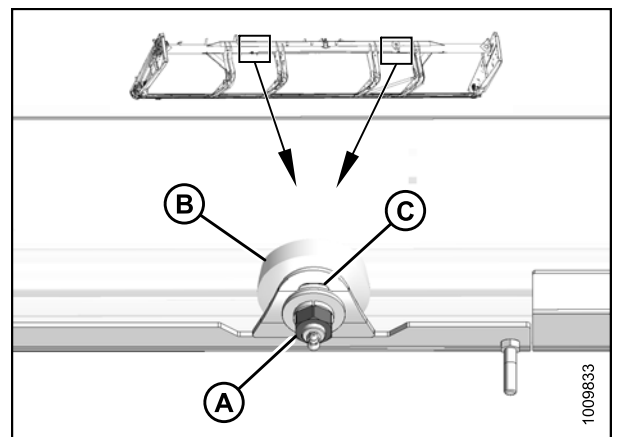


Figure 6.166: Cross-Shaft Support

MAINTENANCE AND SERVICING

7. To correct the tracking problem on the knife drive box pulley, adjust the position of the idler as follows:
 - a. Loosen nuts (A) and (B) and move bracket and idler until belt is loose.
 - b. Remove nut (B) securing idler to bracket, and remove lock washer, idler pulley, and flat washer.
 - c. Install the idler pulley (C), ensuring it lines up with the knife drive box pulley, using flat washer(s) (D) as required.
 - d. Reinstall lock washer (E) and nut (B).
 - e. Tension the belt. Refer to [Tensioning Timed Knife Drive Belts, page 342](#).
 - f. Operate the header and check the tracking.

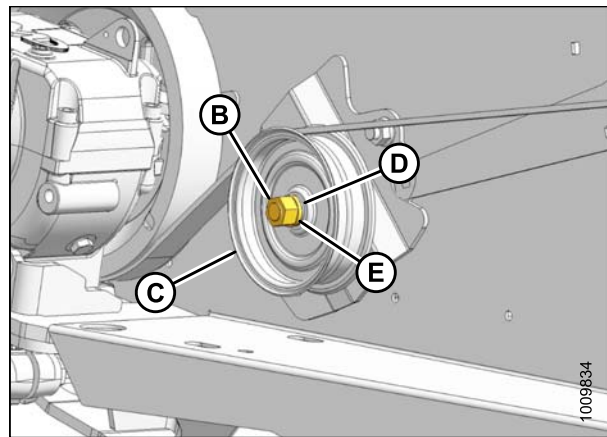
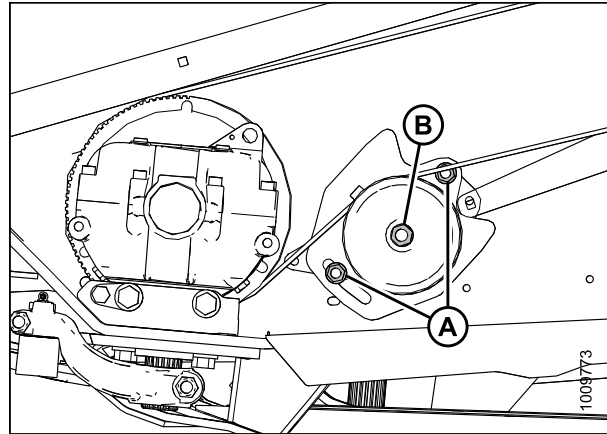


Figure 6.167: Knife Drive

MAINTENANCE AND SERVICING

8. If further adjustment to correct the drive pulley tracking, proceed as follows:
 - a. Loosen nut (A) on idler and nuts (B) on idler bracket.
 - b. Loosen nuts (C) at drive pulley location.
 - c. Turn adjuster bolt (D) clockwise to correct a toe-in problem, which will allow the belt to track inboard.
 - d. Turn adjuster bolt (D) counterclockwise to correct a toe-out problem, which will allow the belt to track outboard.
 - e. Tighten nuts (C) at drive pulley location.
 - f. Tension the belt. Refer to [Tensioning Timed Knife Drive Belts, page 342](#).
 - g. Operate the header and check the tracking. Adjust the drive pulley if required as per the above steps.

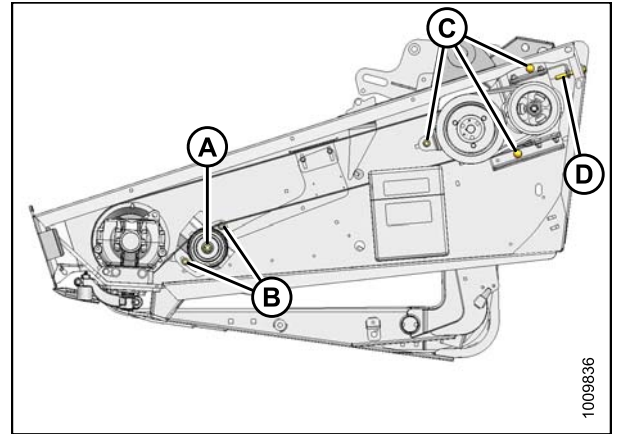


Figure 6.168: Knife Drive: Left Side

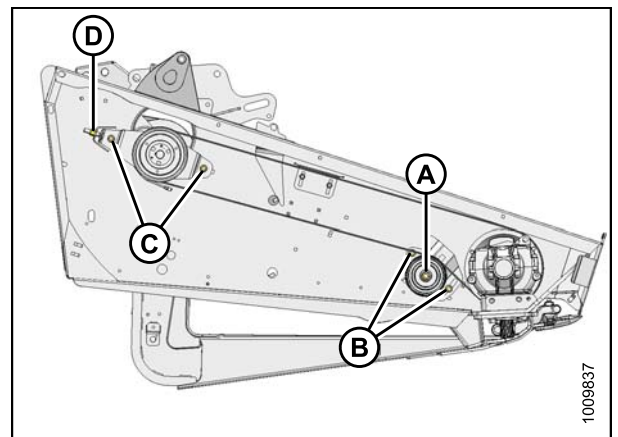


Figure 6.169: Knife Drive: Right Side

6.10 Adapter Feed Draper

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 253](#).

6.10.1 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 242](#).
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.

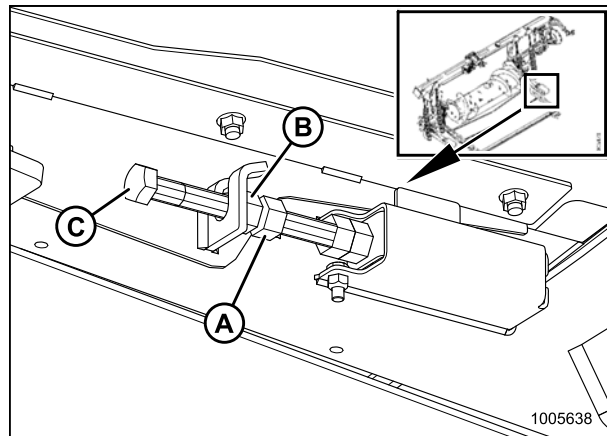


Figure 6.170: Tensioner

5. Remove the draper connector straps (A) along draper joint.
6. Pull draper from deck.

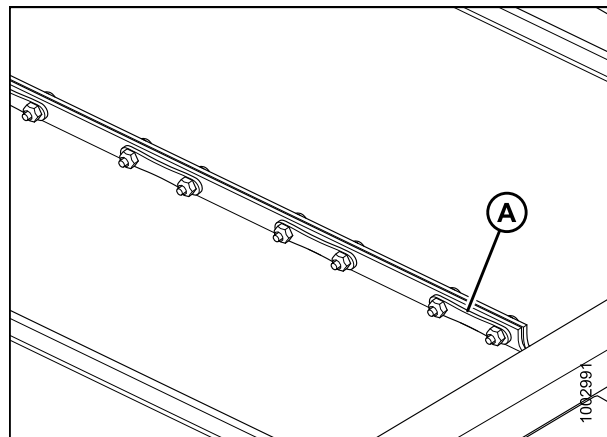


Figure 6.171: Draper Connector

MAINTENANCE AND SERVICING

7. Install new draper over drive roller (A) with chevron cleat (B) pointing to front of adapter. Make sure draper guides fit in drive roller grooves (C).
8. Pull draper along bottom of adapter deck and over draper supports (D).

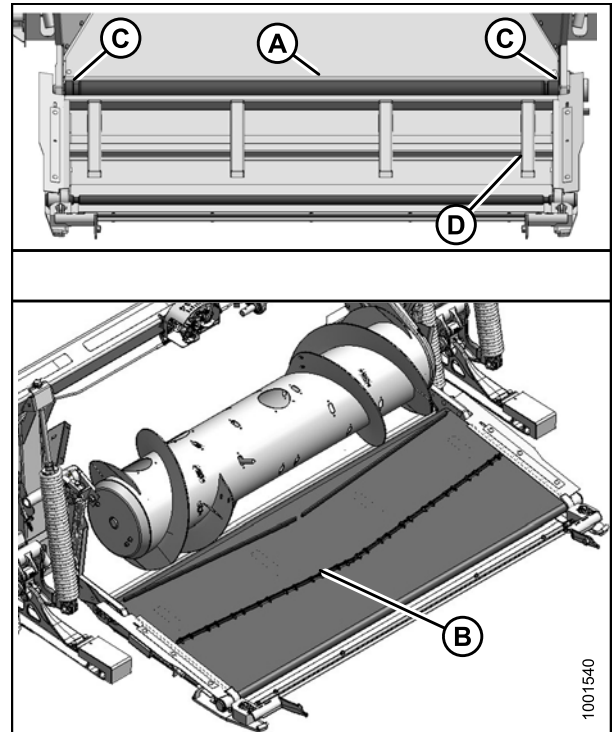


Figure 6.172: Adapter Draper

A - Drive Roller B - Chevron Cleat
C - Drive Roller Grooves D - Draper Supports

9. Connect draper joint with straps (A). Secure with nuts and screws. Screw heads should face toward rear of the deck. Tighten nuts so that end of screw is approximately flush with nut.
10. Adjust draper tension. See [6.10.2 Adjusting Feed Draper Tension](#), page 351.

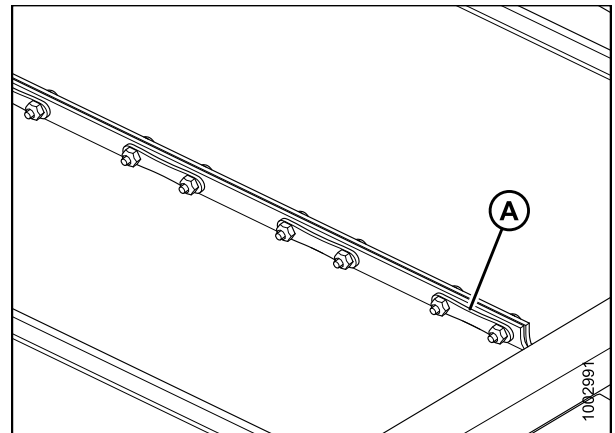


Figure 6.173: Draper Connector Straps

6.10.2 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).

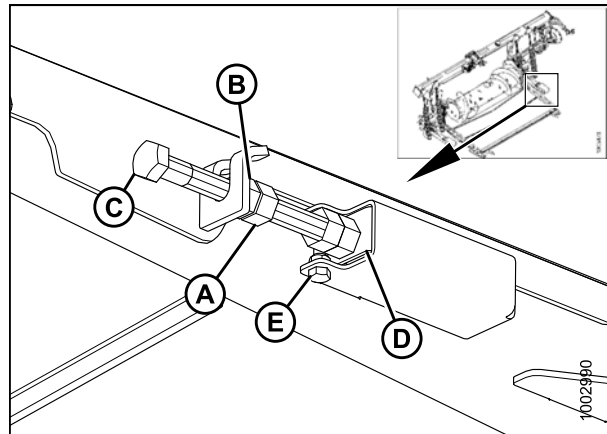


Figure 6.174: Tensioner

6.10.3 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 242](#).
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.

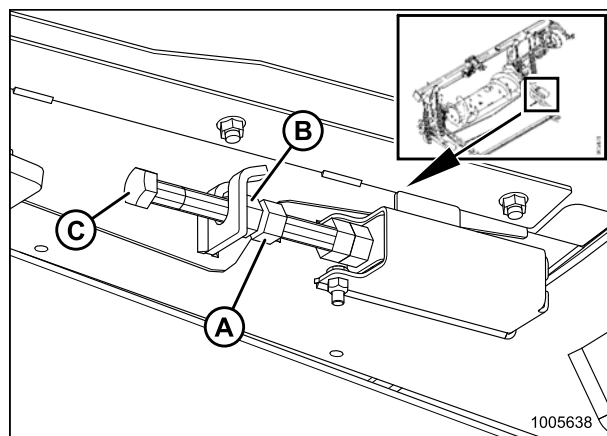


Figure 6.175: Tensioner

MAINTENANCE AND SERVICING

5. Remove the draper connector straps (A). along the draper joint.
6. Open the draper.

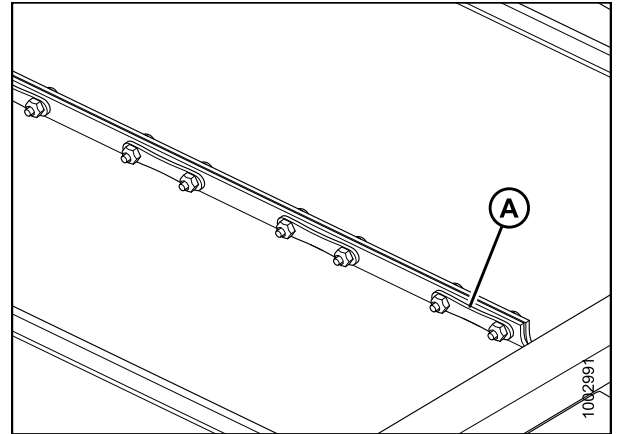


Figure 6.176: Draper Connection

7. Loosen setscrew and unlock the bearing lock collar (A).
8. Remove three bolts (B).
9. Remove bearing flangettes (C) and bearing.

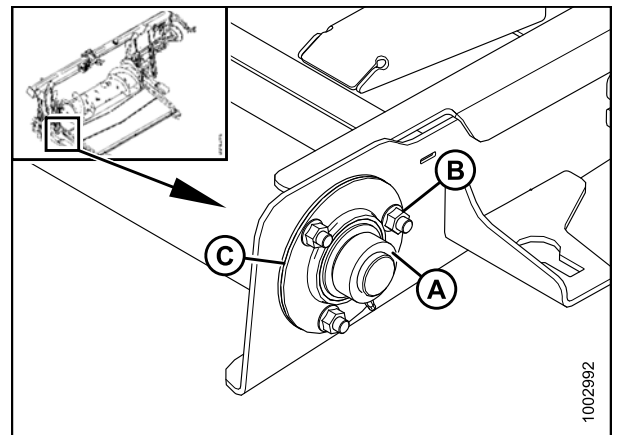


Figure 6.177: Bearing

10. Remove four bolts (A) that secure motor (B) to the frame. Slide motor (B) away from the drive roller.
11. Remove roller (C).

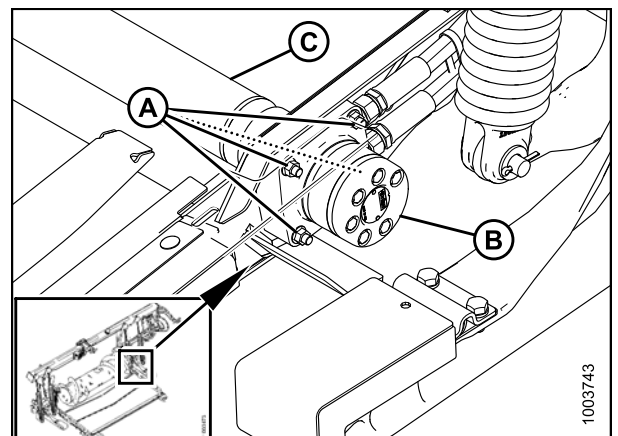


Figure 6.178: Motor

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).

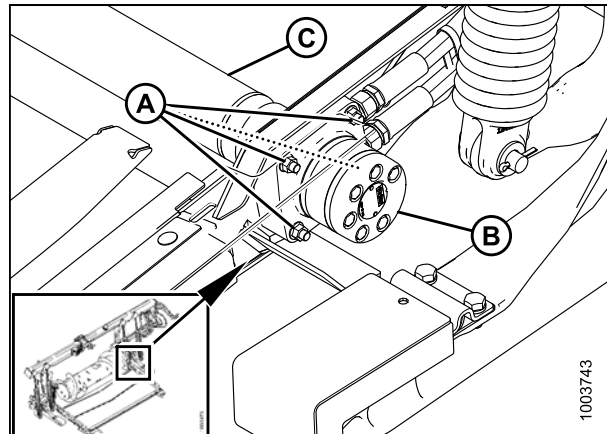


Figure 6.179: Motor

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 [6.10.1 Replacing Adapter Feed Draper](#), page 350.
7. Tension the feed draper. Refer to [6.10.2 Adjusting Feed Draper Tension](#), page 351.
8. Attach the header to the adapter. Refer to [5.7.2 Attaching Header to Adapter and Combine](#), page 247 for procedure.

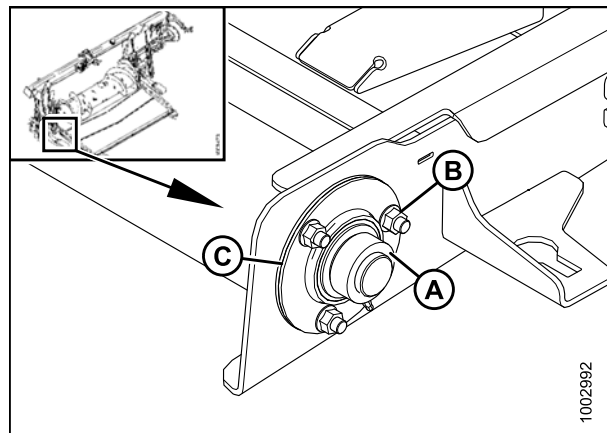


Figure 6.180: Bearing

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 242 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.

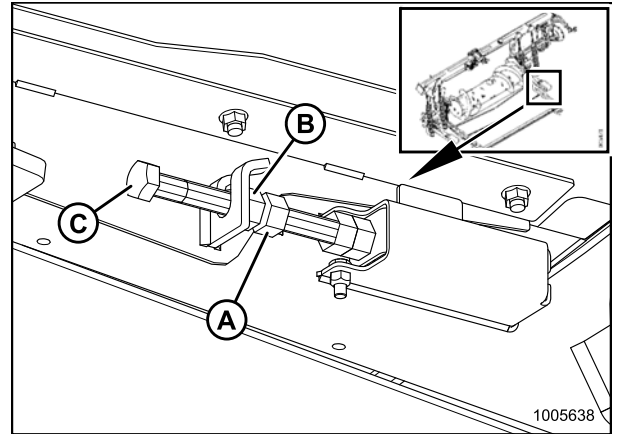


Figure 6.181: Tensioner

5. Loosen setscrew and unlock the bearing lock collar (A).
6. Remove three bolts (B)
7. Remove bearing flangettes (C) and bearing.

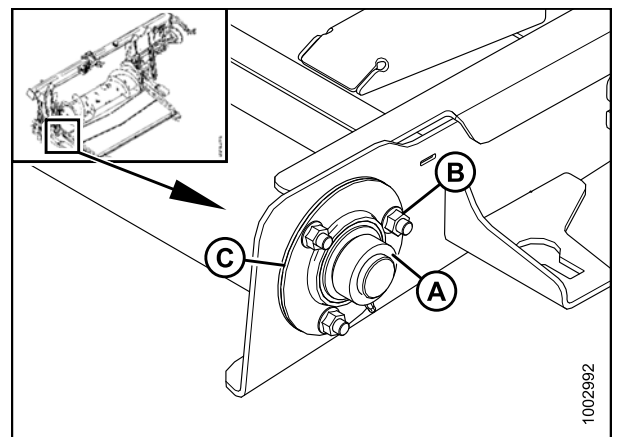


Figure 6.182: Bearing

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 [6.10.2 Adjusting Feed Draper Tension, page 351](#).
5. Attach the header to the adapter. Refer to [5.7.2 Attaching Header to Adapter and Combine, page 247](#) for procedure.

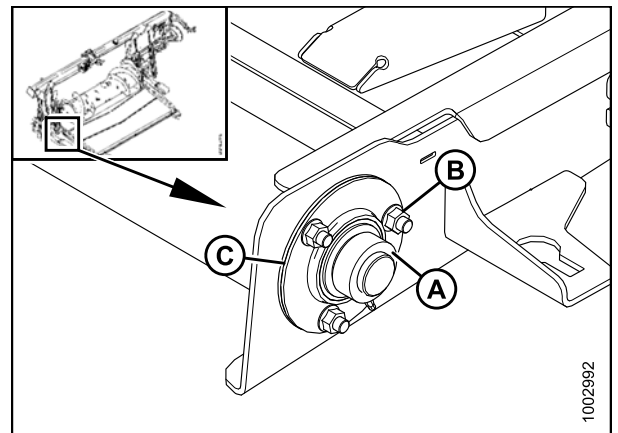


Figure 6.183: Drive Roller

6.10.4 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 242](#).
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.

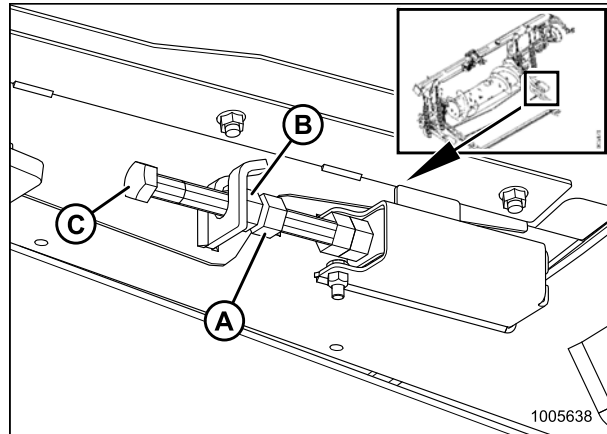


Figure 6.184: Tensioner

5. Remove draper connector straps (A).
6. Open the feed draper.

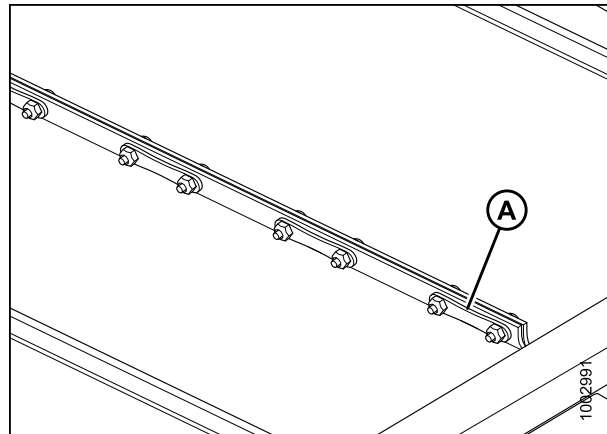


Figure 6.185: Draper Connector

MAINTENANCE AND SERVICING

7. Remove two bolts (A) at both ends of the idler roller.
8. Remove the idler roller assembly (B).

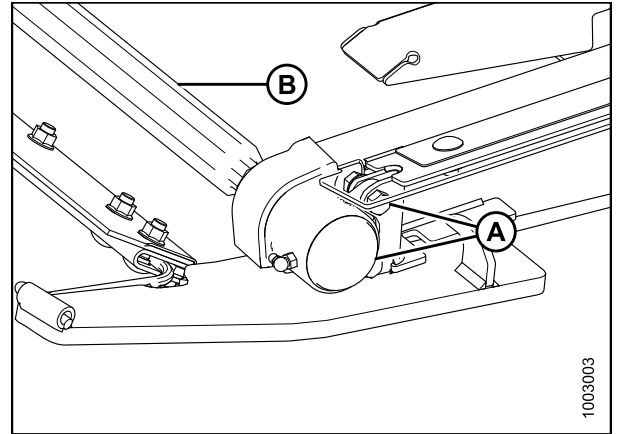


Figure 6.186: Idler Roller

Replacing Adapter Feed Draper Idler Roller Bearing

1. Remove dust cap (A).

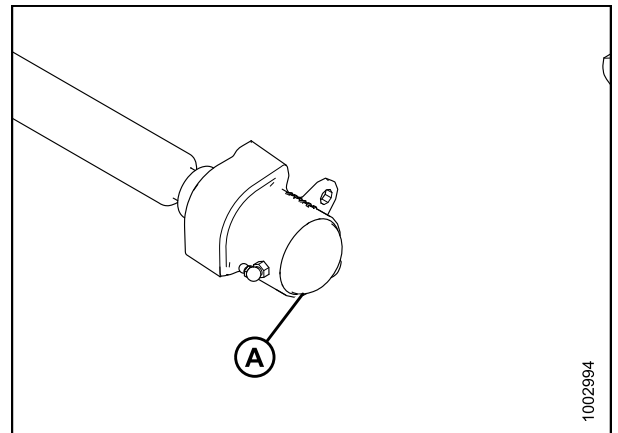


Figure 6.187: Idler Roller

2. Remove nut (A).
3. Using a hammer, tap the bearing assembly (B) until it slides off the shaft.

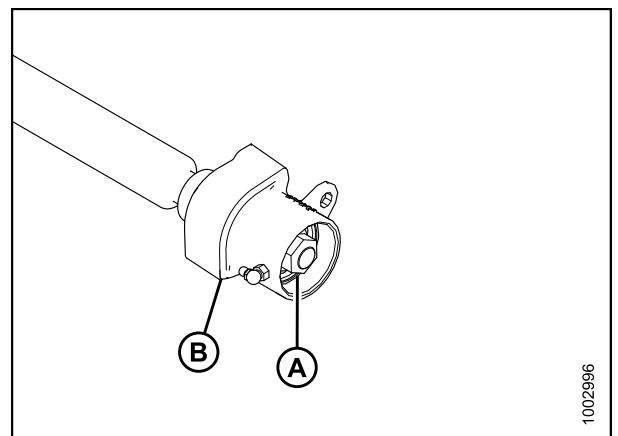


Figure 6.188: Idler Roller

MAINTENANCE AND SERVICING

- 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).

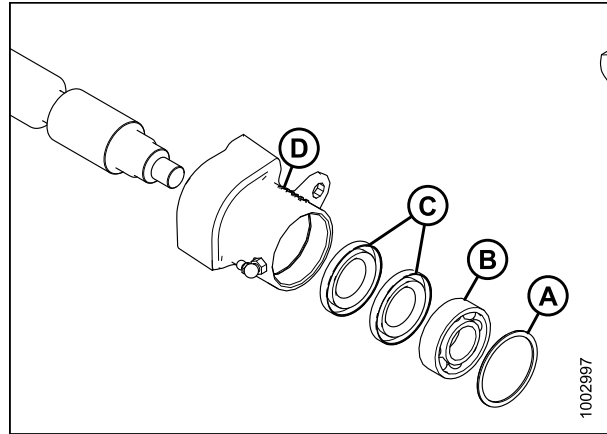


Figure 6.189: Bearing Assembly

- Install nut (A) to secure the bearing assembly to the shaft.
- Install the dust cap (B).
- Pump grease into bearing assembly.

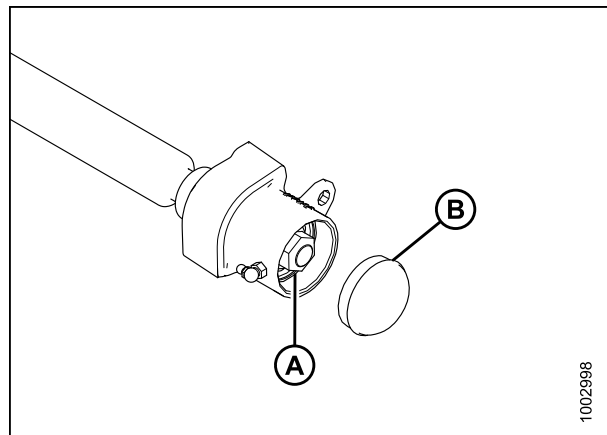


Figure 6.190: Idler Roller

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.

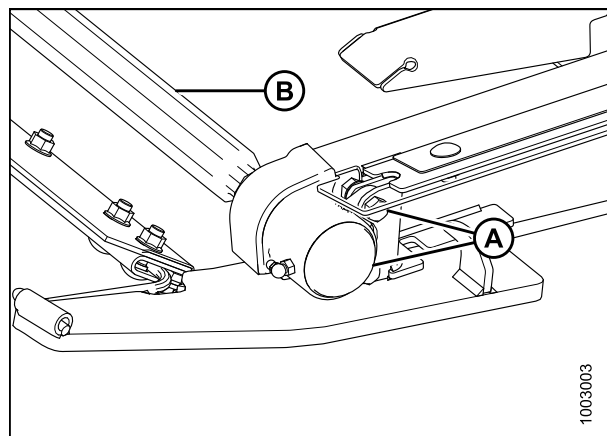


Figure 6.191: Idler Roller

MAINTENANCE AND SERVICING

3. Close the feed draper and connect with connector straps (A), bolts and nuts.
4. Tension the feed draper. Refer to [6.10.2 Adjusting Feed Draper Tension, page 351](#).
5. Attach the header to the adapter. Refer to [5.7.2 Attaching Header to Adapter and Combine, page 247](#).

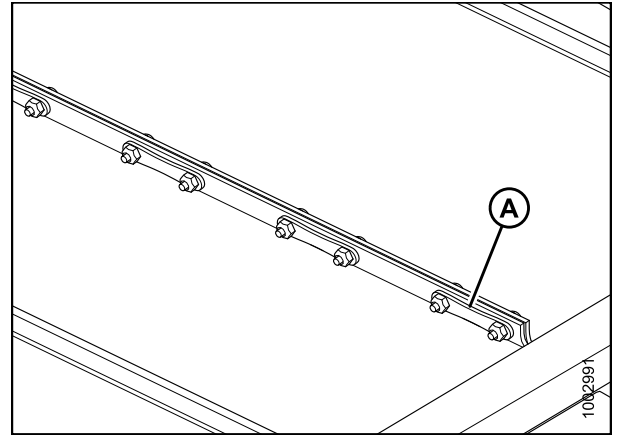


Figure 6.192: Draper Connector

6.11 Adapter Stripper Bars and Feed Deflectors

6.11.1 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 199](#) 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 199](#).

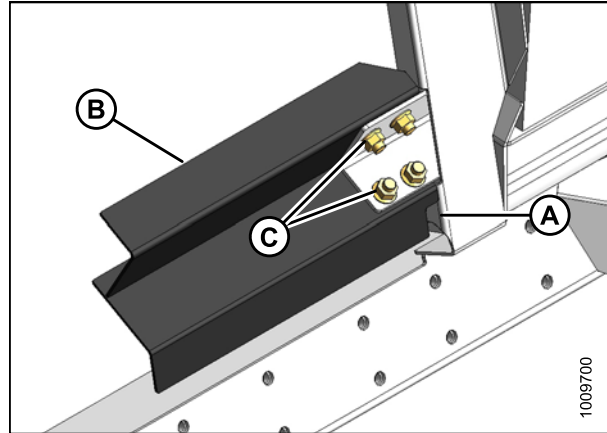


Figure 6.193: Stripper Bar

6.11.2 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.

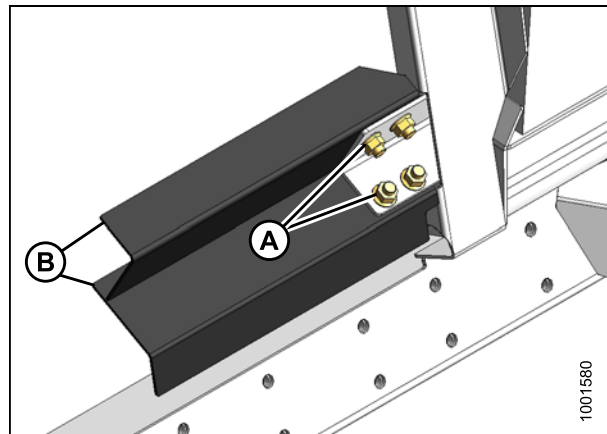


Figure 6.194: Stripper Bar

6.11.3 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.

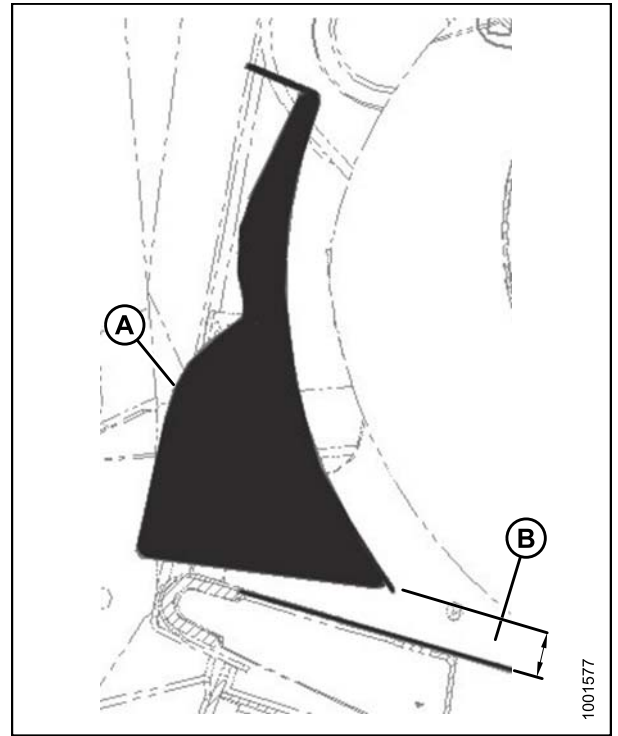


Figure 6.195: Feed Deflector-End View

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).

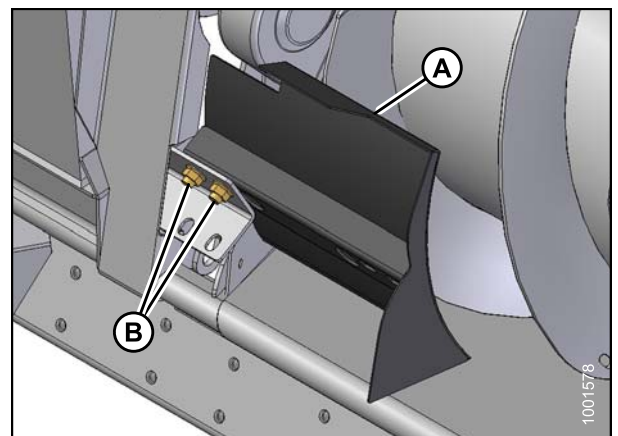


Figure 6.196: Feed Deflector

6.12 Header Drapers

The draper should be replaced or repaired if it is torn, missing slats, or cracked.

6.12.1 Removing Drapers

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. Move draper until draper joint is in work area.
4. Release tension on the draper. Refer to [6.12.3 Adjusting Side Draper Tension, page 364](#).
5. Remove fasteners (A) and tube connectors (B) at the draper joint.
6. Pull draper from deck.

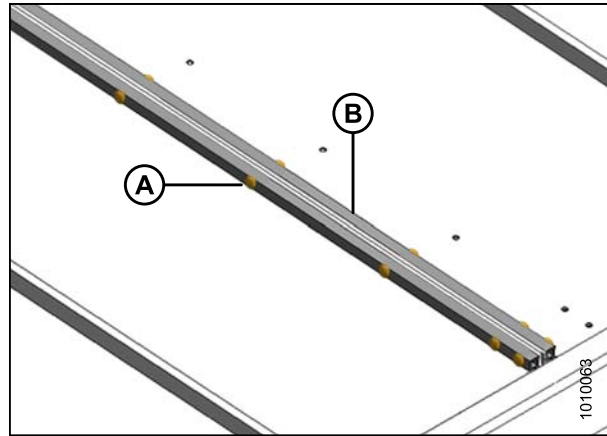


Figure 6.197: Draper Connector

6.12.2 Installing Drapers

To install 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.

NOTE:

Check deck height before installing drapers. Refer to [6.12.5 Adjusting Deck Height, page 367](#).

MAINTENANCE AND SERVICING

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 6.198: Installing Draper

5. Attach ends of draper with tube connectors (B), screws (A) with heads facing the center opening, and nuts.
6. Adjust tension. Refer to [6.12.3 Adjusting Side Draper Tension, page 364](#).

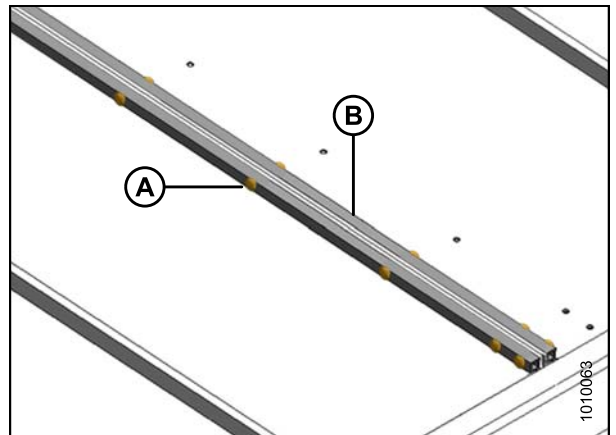


Figure 6.199: Draper Connector

7. Check for seal between the drapers and the cutter bar. There should be a 0.04–0.08 in. (1–2 mm) gap (A) between the cutterbar (C) and the draper (B).
8. To achieve the proper gap, refer to [6.12.5 Adjusting Deck Height, page 367](#).

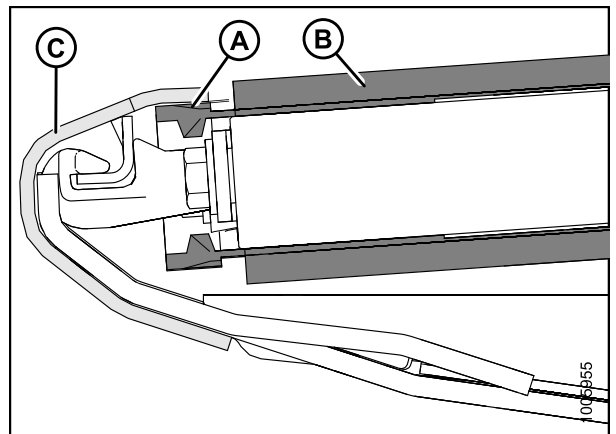


Figure 6.200: Draper Seal

6.12.3 Adjusting Side Draper Tension

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.

NOTE:

The drapers are tensioned at the factory and should NOT require adjustment. If adjustment is required, draper tension should be just enough to prevent slipping and to keep the draper from sagging below the cutterbar.

1. Ensure white bar (A) is about halfway in the window.

CAUTION

Check to be sure all bystanders have cleared the area.

2. Start engine and raise header.
3. Stop engine, remove key, and engage header safety props.

4. Check that draper guide (rubber track on underside of draper) is properly engaged in groove of drive roller.

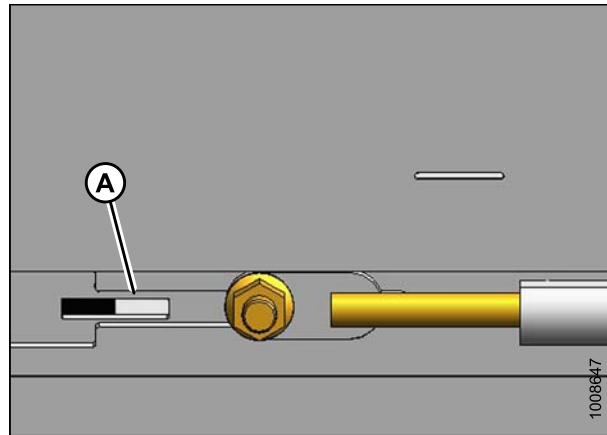


Figure 6.201: Tension Adjuster: Left-Hand Shown – Right-Hand Opposite

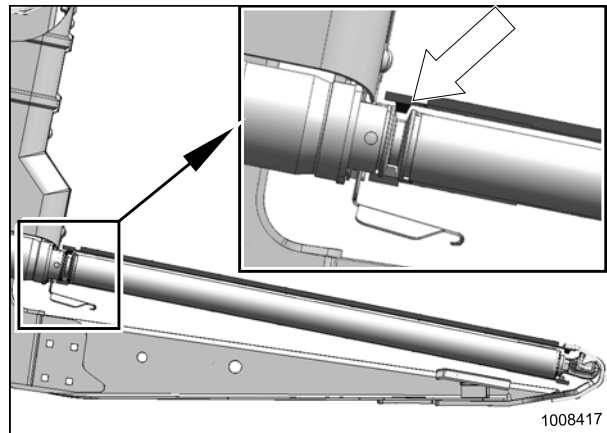


Figure 6.202: Drive Roller

5. Check that idler roller is between the guides.

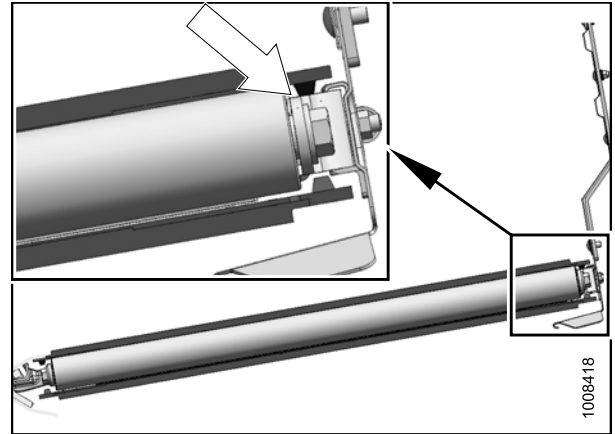


Figure 6.203: Idler Roller

IMPORTANT:

Do **NOT** adjust nut (C). This nut is used for draper alignment only.

6. Turn adjuster bolt (A) counterclockwise to loosen, and white indicator bar (B) will move outboard in direction of arrow (D) to indicate that draper is loosening. Loosen until bar is about halfway in window.
7. Turn adjuster bolt (A) clockwise to tighten, and white indicator bar (B) will move inboard in direction of arrow (E) to indicate that draper is tightening. Tighten 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.
- To prevent the draper from scooping dirt, ensure draper is tight enough that it does not sag below point where cutterbar contacts the ground.

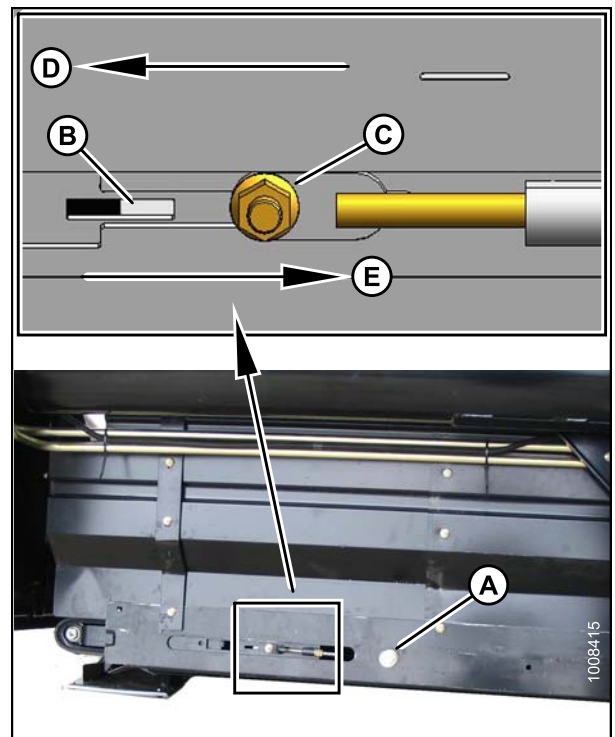


Figure 6.204: Tension Adjuster: Left-Hand Shown – Right-Hand Opposite

6.12.4 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 253](#).

MAINTENANCE AND SERVICING

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).
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 readjust the idler roller.

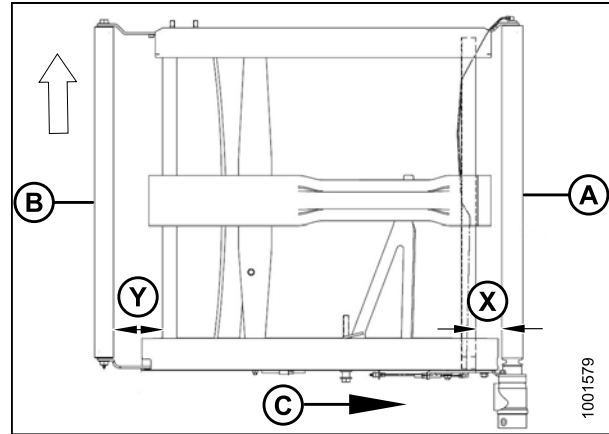


Figure 6.205: Adjustments

- A - Drive Roller
- B - Idler Roller
- C - Draper Direction
- X - Drive Roller Adjust.
- Y - Idler Roller Adjust.

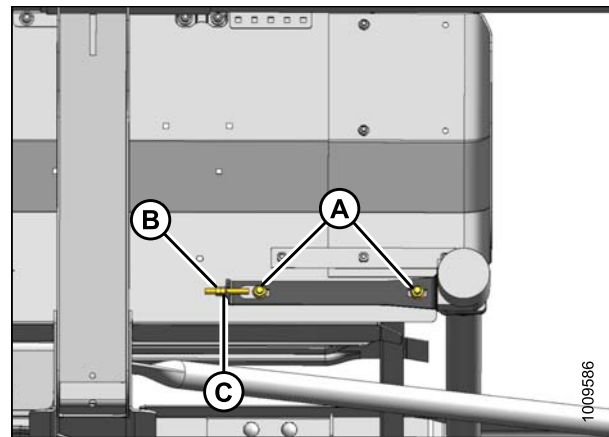


Figure 6.206: Drive Roller

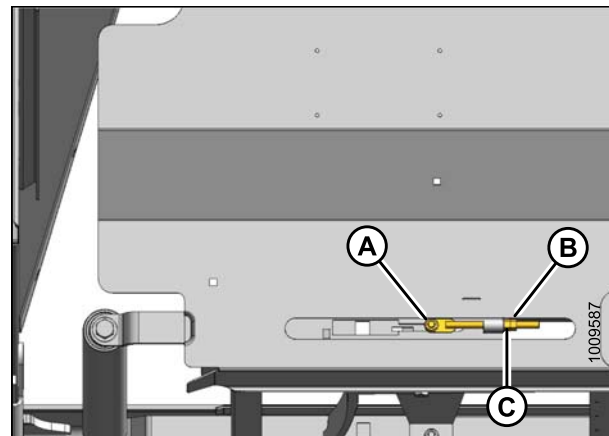


Figure 6.207: Idler Roller

6.12.5 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.

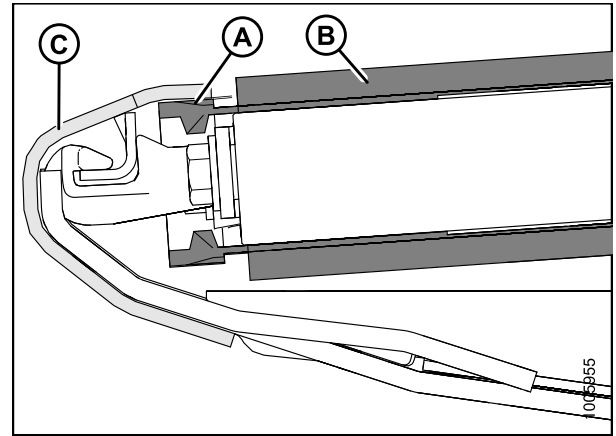


Figure 6.208: Draper Seal

A - Gap (Draper to Cutterbar) B - Draper C - Cutterbar

To adjust deck height, follow these steps:

1. Loosen tension on draper. Refer to [6.12.3 Adjusting Side Draper Tension, page 364](#).
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:

The number of supports is based on header size; four on single reel 15–30 ft., and eight on double reel 30–45 ft.

4. Tap deck (C) to lower deck relative to supports. Tap support (B) using a punch to raise deck relative to support.

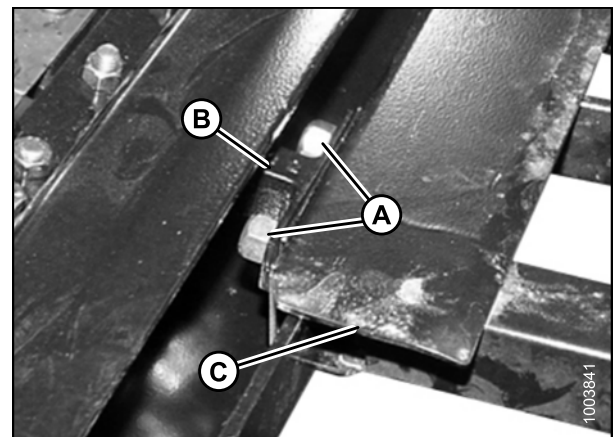


Figure 6.209: Deck Support

MAINTENANCE AND SERVICING

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 [6.12.3 Adjusting Side Draper Tension](#), page 364.

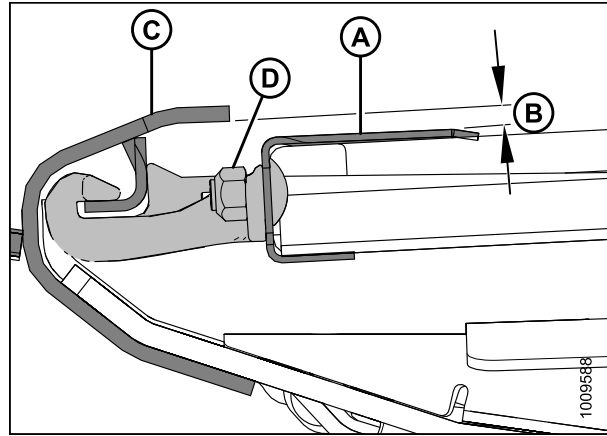


Figure 6.210: Deck Support

6.12.6 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° (44 C°) above ambient temperature.

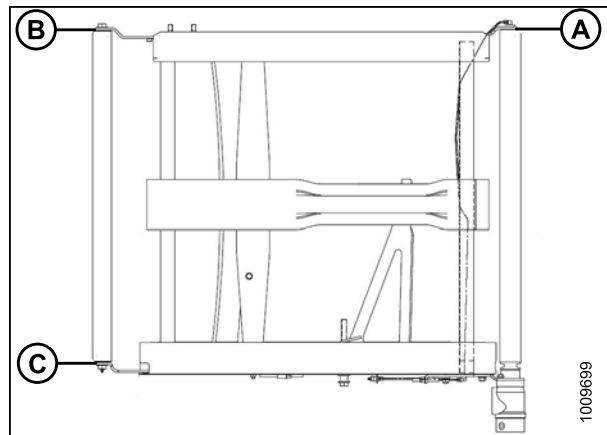


Figure 6.211: Roller Arms

Side Draper 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.

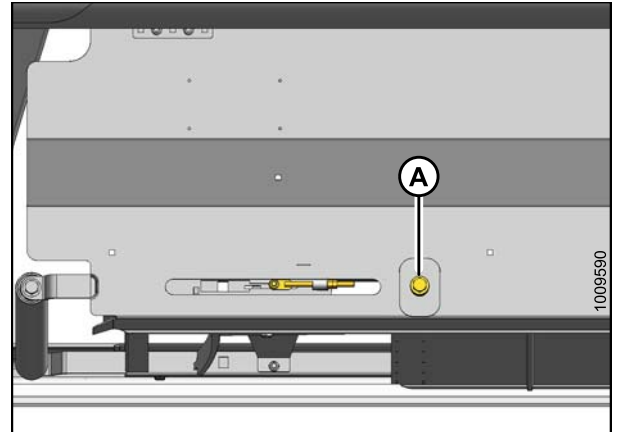


Figure 6.212: Tensioner

5. Remove fasteners (A) and tube connectors (B) at the draper joint to uncouple the draper.
6. Pull the draper off the idler roller.

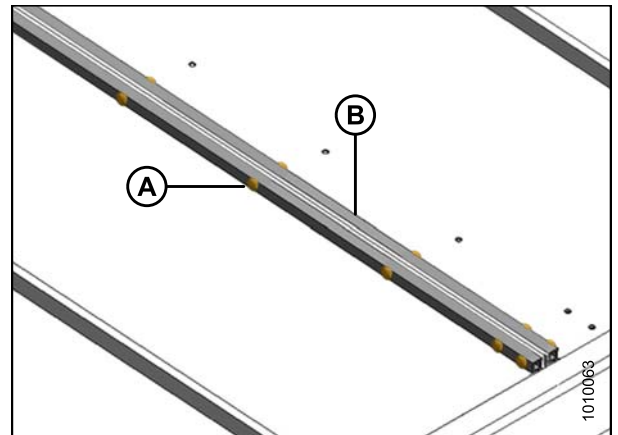


Figure 6.213: Draper Connector

7. Remove bolts (A) and washer at ends of idler roller.
8. Spread roller arms (B) and (C), and remove idler roller.

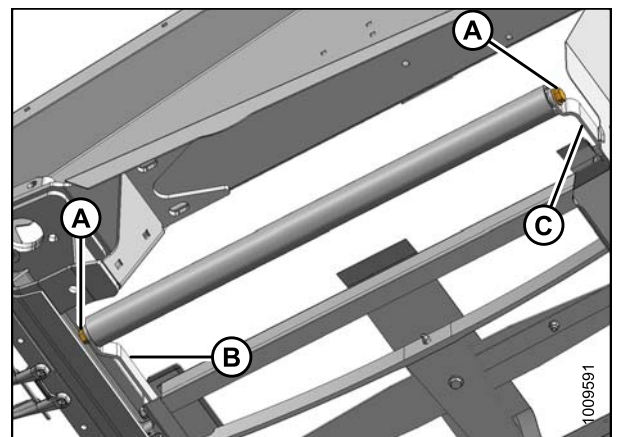


Figure 6.214: Idler Roller

MAINTENANCE AND SERVICING

Replacing Side Draper Idler Roller Bearing

1. Remove draper idler roller assembly. Refer to [Removing Side Draper Idler Roller, page 369](#).
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.

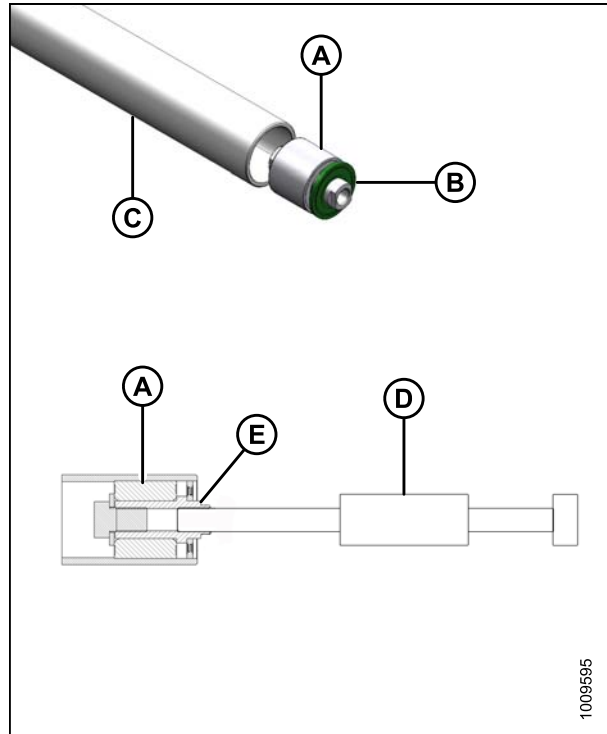


Figure 6.215: Idler Roller Bearing

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. Refer to [6.2.2 Recommended Fluids and Lubricants, page 255](#).
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.

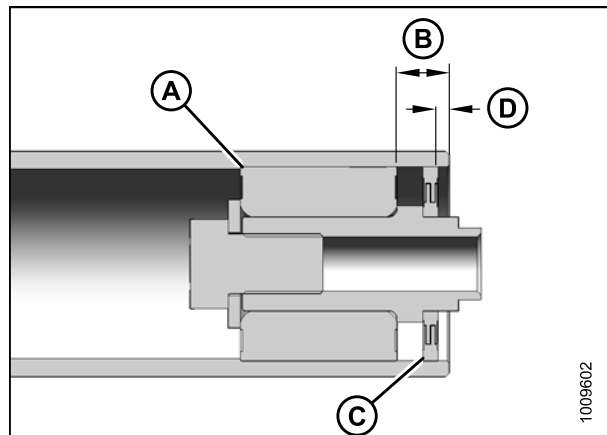


Figure 6.216: Idler Roller Bearing

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 [6.12.2 Installing Drapers, page 362](#).
5. Run machine to verify that draper tracks correctly. Adjust tracking if required. See [6.12.4 Adjusting Header Draper Tracking, page 365](#).

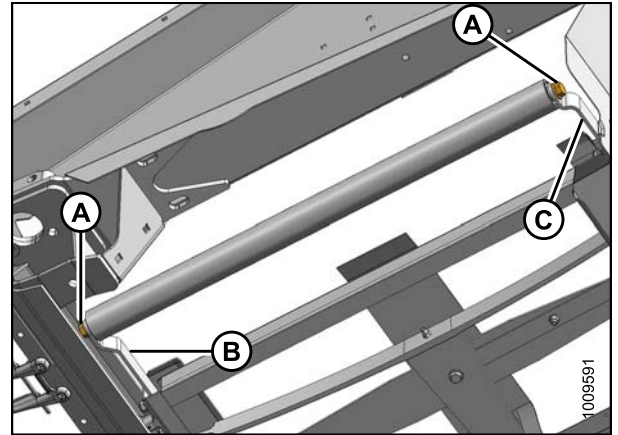


Figure 6.217: Idler Roller

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 engine.
3. Engage header lift cylinder safety props and reel lift cylinder safety props.
4. Loosen draper by turning adjuster bolt (A) counterclockwise.

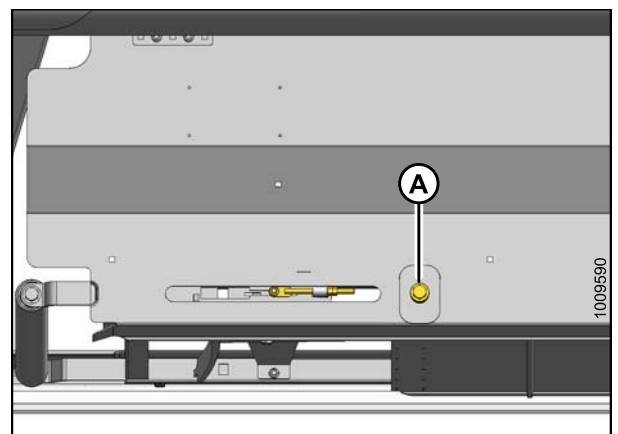


Figure 6.218: Tensioner

MAINTENANCE AND SERVICING

5. Remove fasteners (A) and tube connectors (B) at the draper joint to uncouple the draper.
6. Pull the draper off the drive roller.

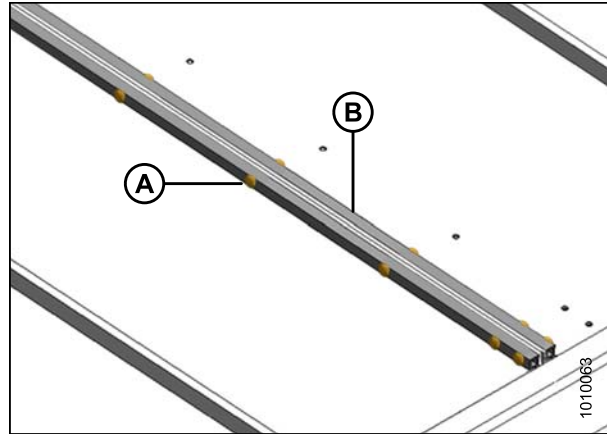


Figure 6.219: Draper Connector

7. 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.

8. 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.

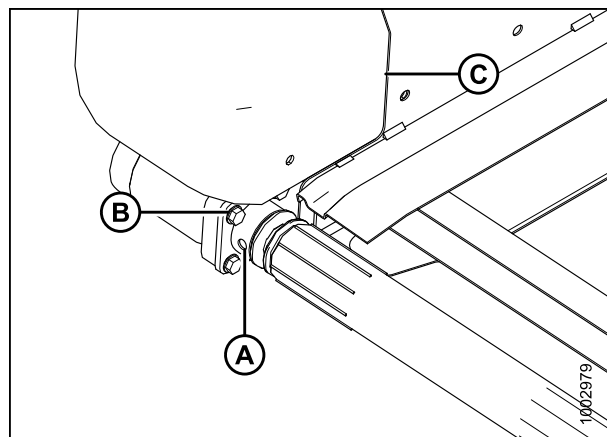


Figure 6.220: Drive Roller

9. Remove bolt (A) that secures the other end of the drive roller (B) to the support arm.
10. Remove the drive roller (B).

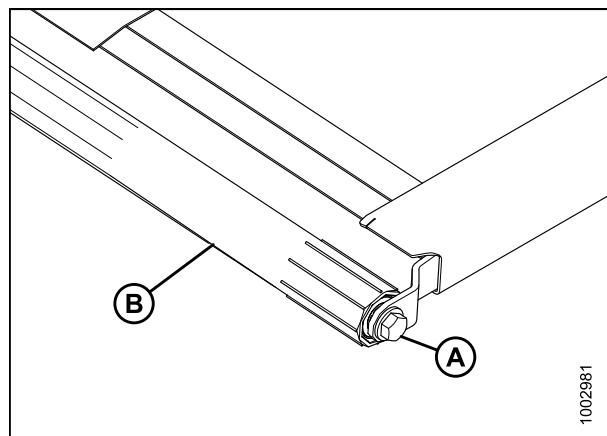


Figure 6.221: Drive Roller

Replacing Side Draper Drive Roller Bearing

1. Remove draper idler roller assembly. Refer to [Removing Side Draper Drive Roller, page 371](#).

MAINTENANCE AND SERVICING

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.

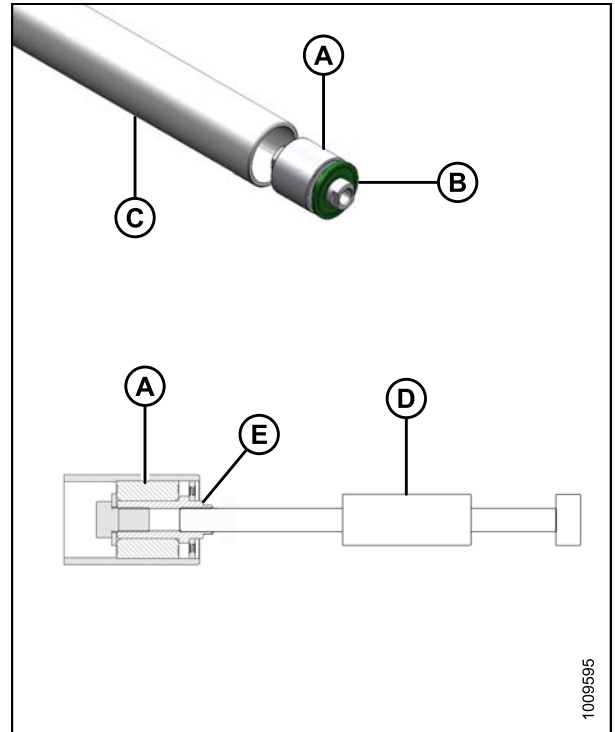


Figure 6.222: Drive Roller Bearing

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. Refer to [6.2.2 Recommended Fluids and Lubricants, page 255](#).
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.

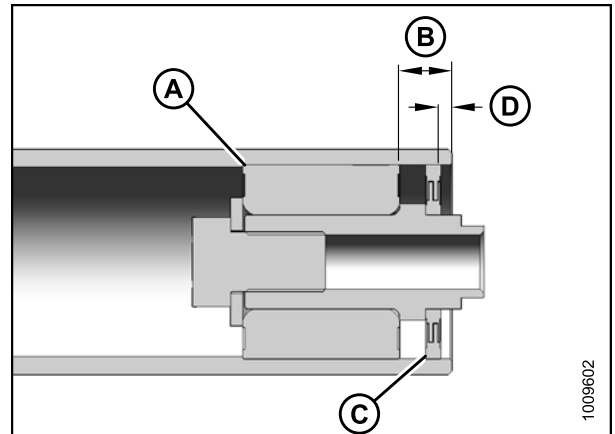


Figure 6.223: Drive Roller Bearing

MAINTENANCE AND SERVICING

Installing Side Draper Drive Roller

1. Locate the drive roller (B) between the roller support arms.
2. Install bolt (A) that holds the drive roller to the arm closest to the cutterbar. Torque bolt to 70 ft·lbf (95 N·m).
3. Grease motor shaft and insert into the end of the drive roller.

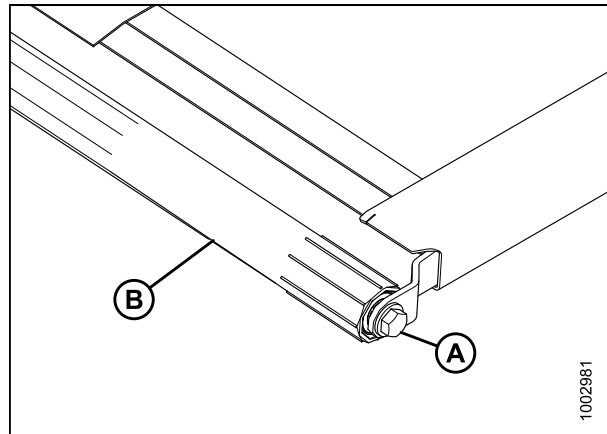


Figure 6.224: Drive Roller

4. 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.

5. Tighten the two set screws through access hole (C).

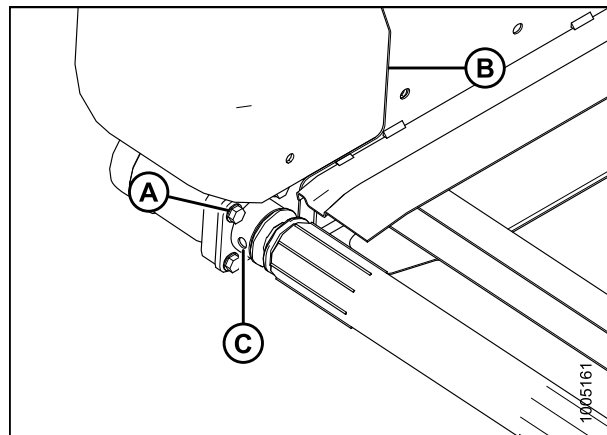


Figure 6.225: Drive Roller

6. Wrap the draper over the drive roller, and attach ends of draper with tube connectors (B), screws (A) with heads facing the center opening, and nuts.

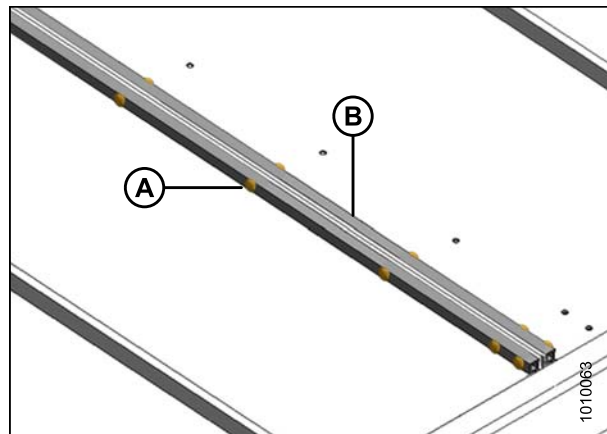


Figure 6.226: Draper Connector

MAINTENANCE AND SERVICING

7. Tension the draper, with tensioner bolt (A) and follow the directions on the decal for proper draper tensioning.
8. Disengage the reel and header safety props.
9. Start the engine and lower header and reel.
10. Run machine to verify that draper tracks correctly.
11. If adjustment is required, refer to [6.12.4 Adjusting Header Draper Tracking, page 365](#).

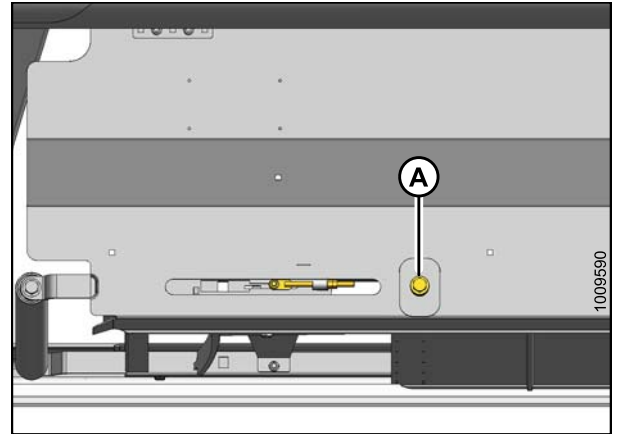


Figure 6.227: Draper Tensioner

6.12.7 Replacing Draper Deflectors

Removing Narrow Draper Deflectors

To remove narrow draper deflectors, follow these steps: Left end removal is illustrated.

1. Raise reel fully and lower header to ground.
2. Shift decks to allow work space at one end of header if hydraulic deck shift installed, otherwise move decks manually after shutting down windrower.
3. Stop engine, remove key, and engage reel safety props.
4. Open endshield.
5. Remove the two Torx® head screws (A) and lock nuts.
6. Remove the three carriage bolts (B) and lock nuts and remove aft deflector (C).

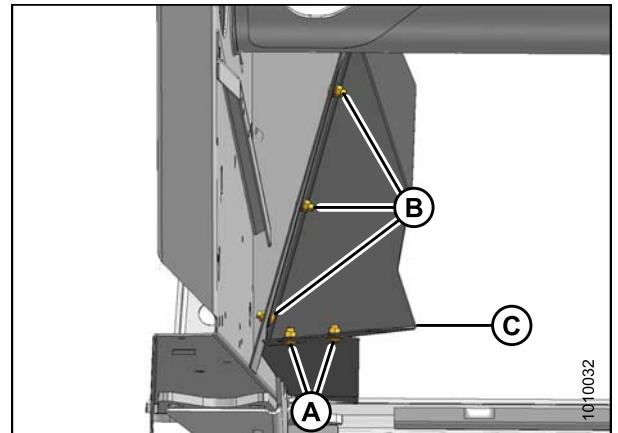


Figure 6.228: Aft Deflector

MAINTENANCE AND SERVICING

7. Remove the four screws (A) and remove deflector (B).
8. Repeat above steps for opposite end.

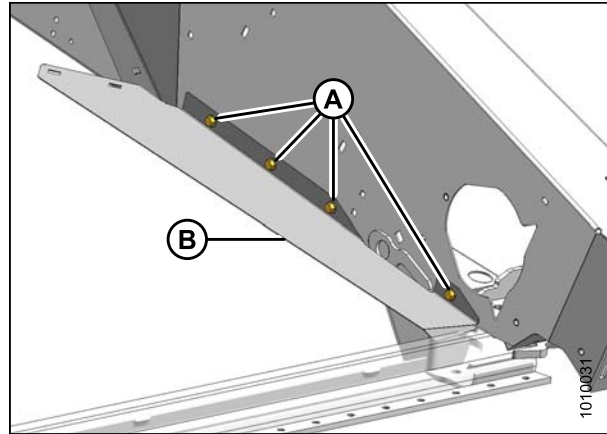


Figure 6.229: Forward Deflector

Installing Narrow Draper Deflectors

Narrow deflectors can replace wide deflectors if bunching occurs at the ends of the header when decks are set for center delivery.

To install narrow draper deflectors, follow these steps: Left end installation is illustrated.

1. Raise reel fully and lower header to ground.
2. Shift decks to allow work space at one end of header if hydraulic deck shift installed, otherwise move decks manually after shutting down windrower.
3. Stop engine, remove key, and engage reel safety props.
4. Open endshield.
5. Position forward deflector (B) onto endsheet and temporarily install forward and aft 3/8 in. x 5/8 self tapping screws (A).
6. Check fit of forward end of deflector onto cutterbar. There should be no gap between deflector and cutterbar. Remove and bend deflector as required to obtain best fit.
7. Install the four 3/8 in. x 5/8 self-tapping screws (A) and tighten.

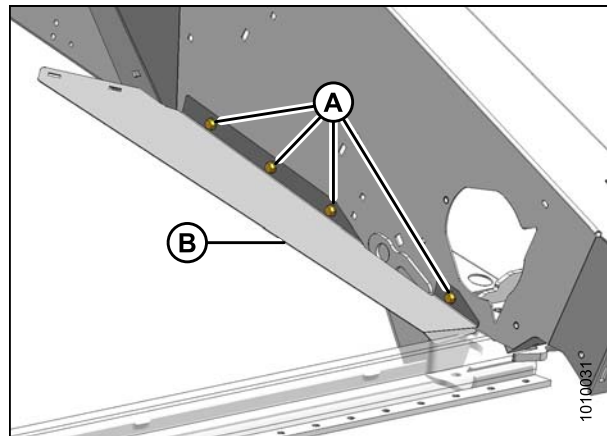


Figure 6.230: Forward Deflector

MAINTENANCE AND SERVICING

8. Position aft deflector (C) as shown and install three 3/8 in. x 3/4 carriage bolts (B) and lock nuts. Orientation of bolts not important.
9. Install two Torx® head screws (A) and lock nuts with heads facing down.
10. Tighten all fasteners.
11. Repeat above steps for opposite end.

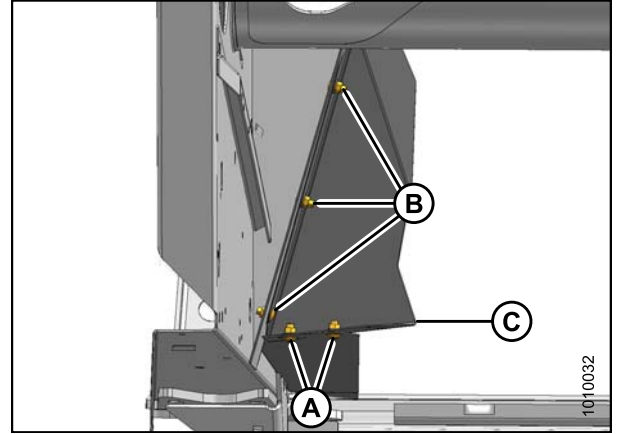


Figure 6.231: Aft Deflector

6.13 Reel

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, refer to [6.1 Preparation for Servicing, page 253](#).

6.13.1 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 adjustments may be necessary before the header is put into operation.

The finger to guard/cutterbar clearances with reels fully lowered are shown in [Table 6.15 Finger to Guard/Cutterbar Clearance, page 378](#).

Table 6.15 Finger to Guard/Cutterbar Clearance

Header Width	'X' +/- 1/8 in. (3 mm) at Reel Ends	
	Single Reel	Double Reel
20 ft.	3/4 in. (20 mm)	—
25 ft.	1 in. (25 mm)	
30 ft.	1-3/4 in. (45 mm)	3/4 in. (20 mm)
35 ft.	2-3/8 in. (60 mm)	
40 ft.	—	
45 ft.	—	

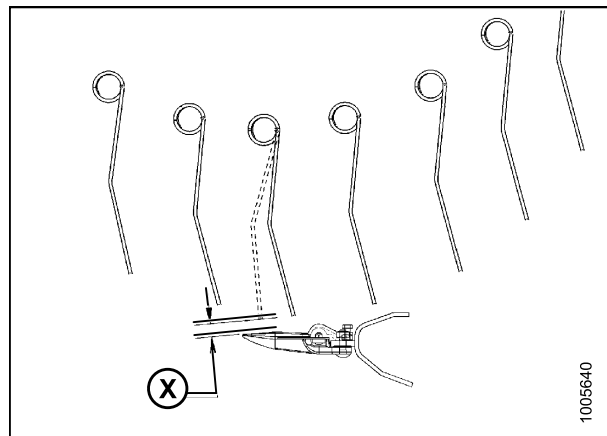


Figure 6.232: Finger Clearance

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.

MAINTENANCE AND SERVICING

2. Set the fore-aft position to mid-position ('5' on the reel arm indicator decal).
3. Fully lower the reel.
4. Shut down engine. Remove key from ignition.

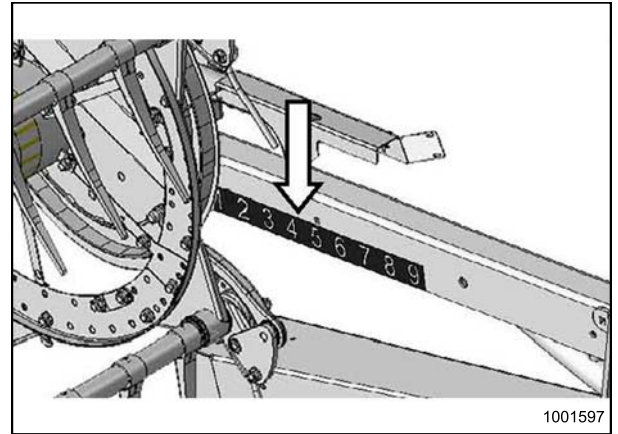


Figure 6.233: Fore-Aft Position

5. Measure clearance 'X' between points 'Y' and 'Z' at ends of each reel (A).

NOTE:

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.

6. Check all possible points of contact between points 'Y' and 'Z'. Depending on reel fore-aft position, minimum clearance can occur at guard tine, hold-down, or cutterbar.

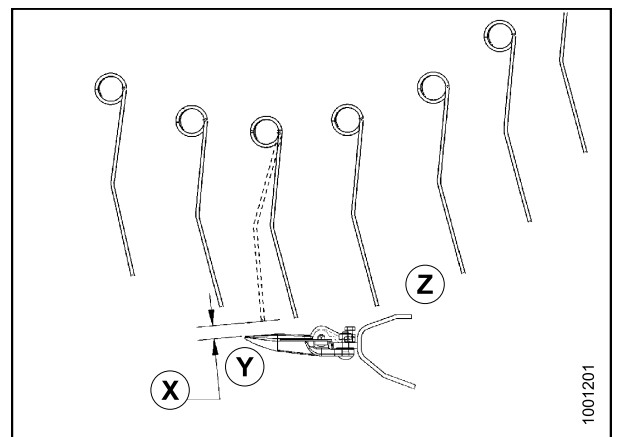


Figure 6.234: Clearance

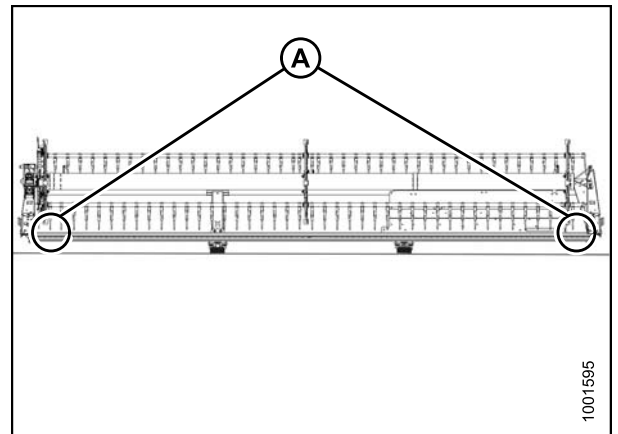


Figure 6.235: Single Reel Measurement Locations (Two Places)

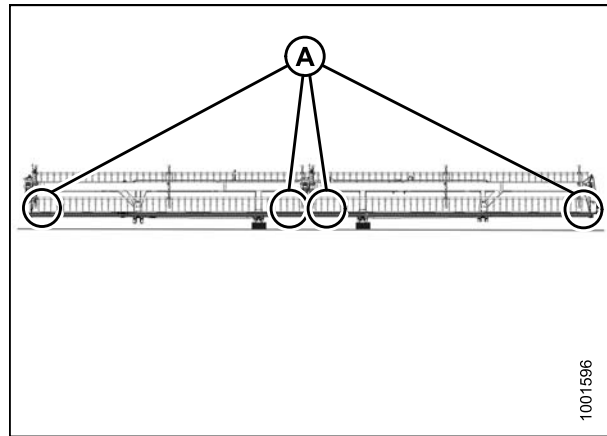


Figure 6.236: Double Reel Measurement Locations (Four Places)

7. If necessary, refer to [Adjusting Reel Clearance, page 380](#) for adjustment procedure.

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. Adjust outboard reel arm lift cylinders to set 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.

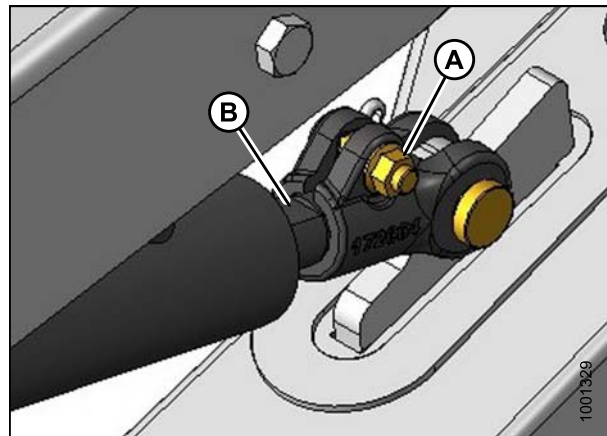


Figure 6.237: Outside Reel Arm

MAINTENANCE AND SERVICING

2. **For Double Reel Only:** Adjust center arm lift cylinder stop (A) to change clearance at inboard ends of reels as follows:

NOTE:

Instructions apply to double-reel headers only and are performed from the underside of the arm.

- 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).

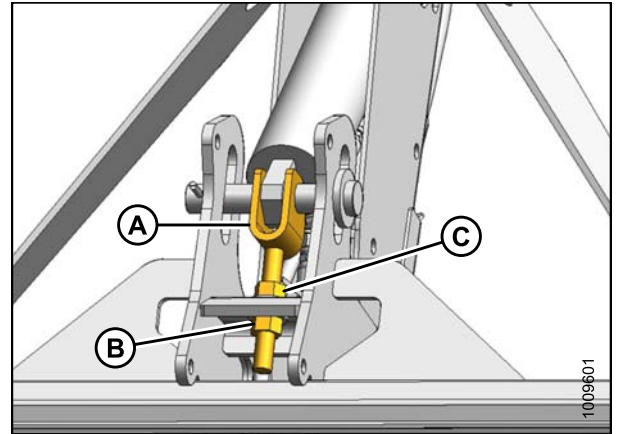


Figure 6.238: Looking Up at Arm Underside - Double Reel Only

6.13.2 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.

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.

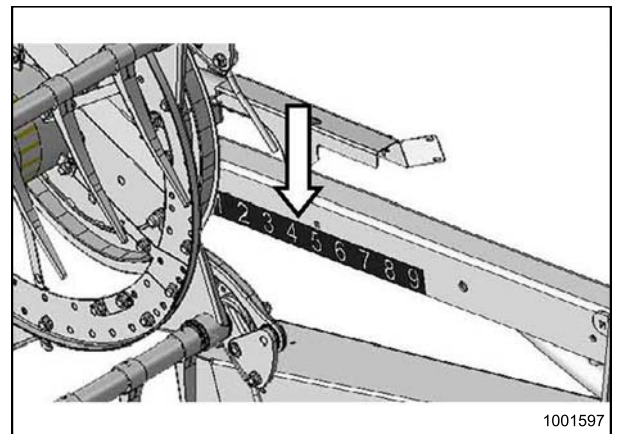


Figure 6.239: Arm Decal

MAINTENANCE AND SERVICING

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.

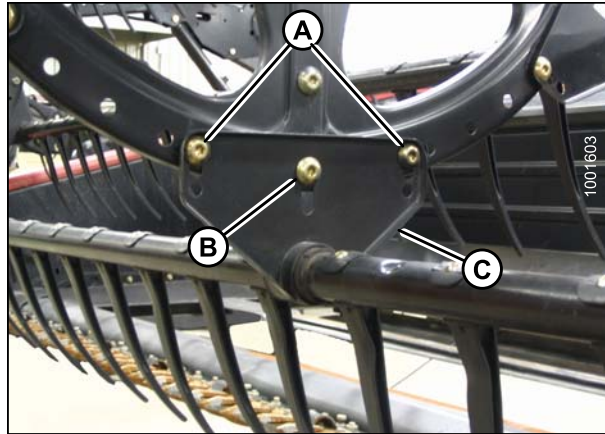


Figure 6.240: Reel Arm

6.13.3 Centering the Reel

The reel(s) should be centered between the endsheets.

Centering Double Reels

To center the reels, follow these steps:

1. Loosen bolt (A) on each brace (B).
2. Move forward end of reel center support arm (C) laterally as required to center both reels.
3. Tighten bolts (A) and torque to 265 ft·lbf (359 N·m).

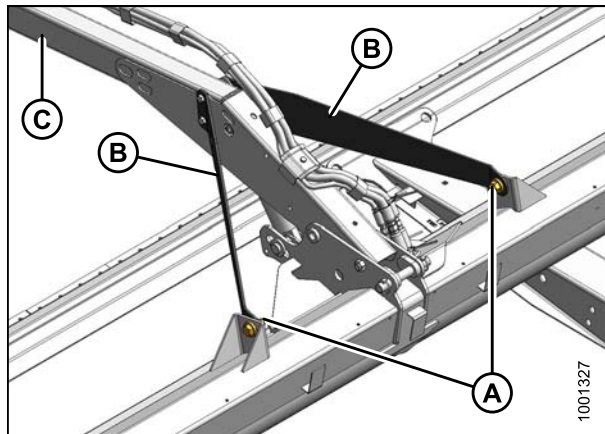


Figure 6.241: Centering Reel

Centering Single Reel

To center the reel, follow these steps:

1. Loosen bolt (A) on brace (B) at both ends of reel.
2. Move forward end of reel support arm (C) laterally as required to center reel.
3. Tighten bolts (A) and torque to 265 ft-lbf (359 N-m).

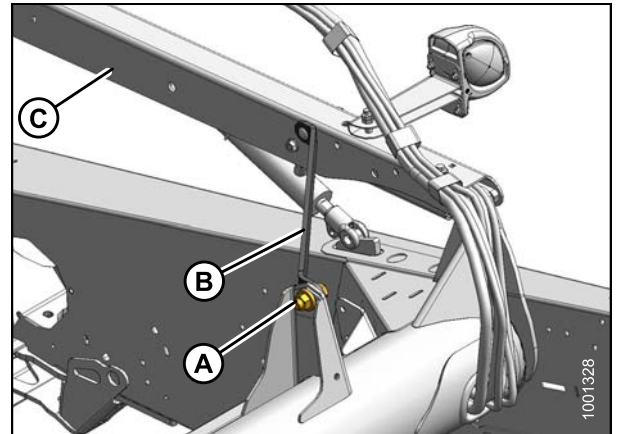


Figure 6.242: Centering Reel

6.13.4 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 385](#).
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.

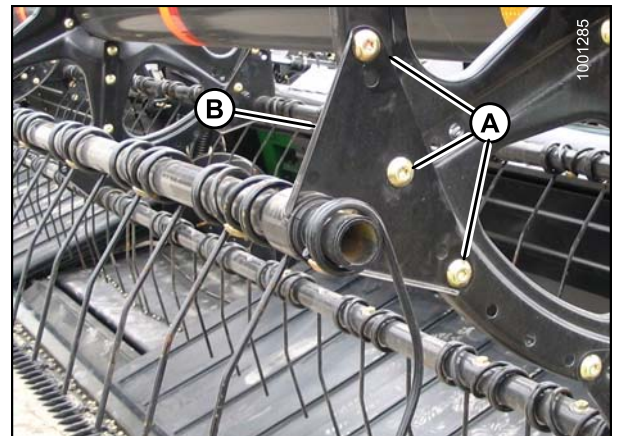


Figure 6.243: Reel Arm

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.

MAINTENANCE AND SERVICING

IMPORTANT:

Ensure tine tube is supported at all times to prevent damage to the tube or other components.

1. Slide new tines and reel arm (A) onto end of tube.
2. Install tine tube bushings. Refer to [6.13.5 Tine Tube Bushings, page 385](#).
3. Attach tines to tine bar with bolts and nuts (B).

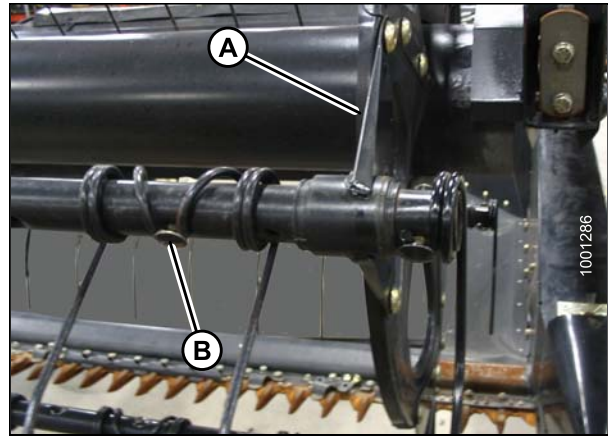


Figure 6.244: Tine Tube

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.
2. Push finger top clip back toward reel tube and remove from finger tube.

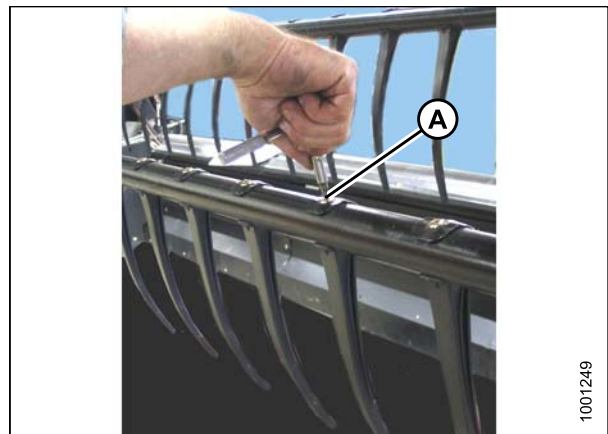


Figure 6.245: Removing Finger



Figure 6.246: 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 6.247: Installing Finger

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.

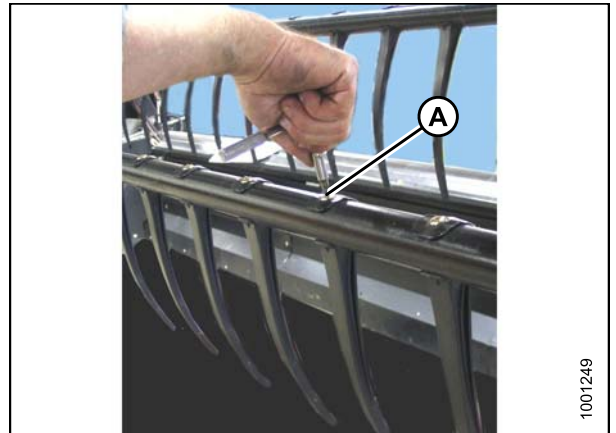


Figure 6.248: Installing Finger

6.13.5 Tine Tube Bushings

Removing Bushings from 5-, 6- or 9-Bat Reels

NOTE:

If only replacing the cam end bushing, Refer to **Cam End Bushings**.

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.

MAINTENANCE AND SERVICING

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 disc.

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.

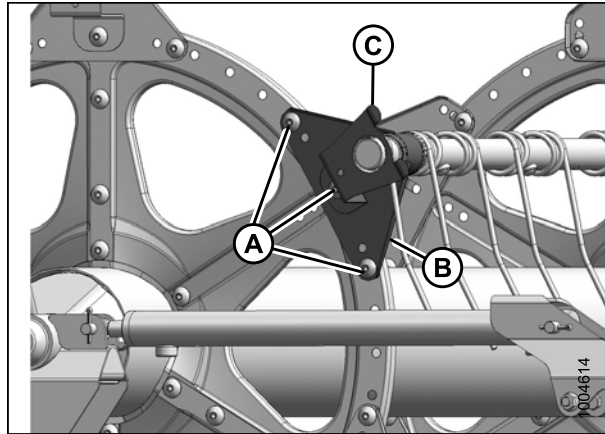


Figure 6.249: Tail End

4. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.

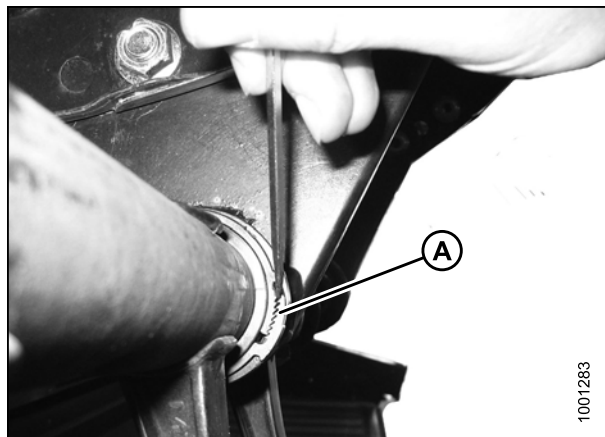


Figure 6.250: Bushing Clamp

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 384](#)
- [Removing Steel Tines, page 383](#)

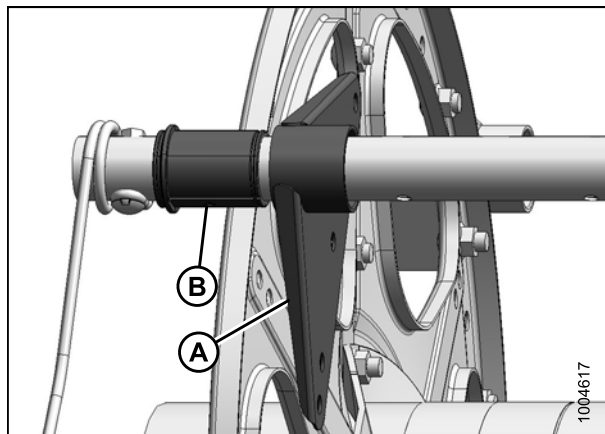


Figure 6.251: Bushing

Cam End Bushings

NOTE:

Removing cam end bushings requires that the tine tube be moved through the disc arms to expose the bushing.

6. At the cam end, remove endshields and endshield support (A) at applicable tine tube location on the cam end.

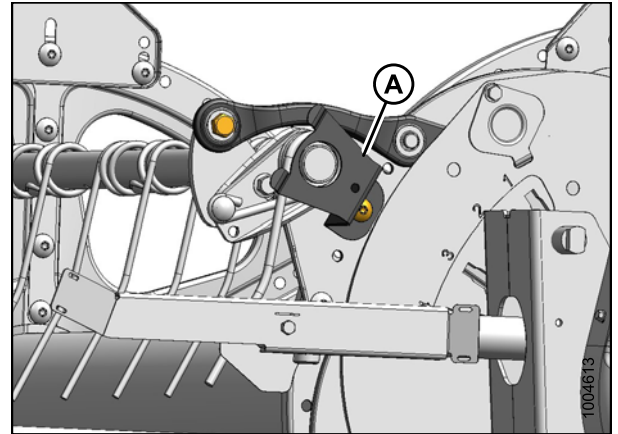


Figure 6.252: Cam End

7. At the tail end, remove reel endshields and endshield support (C) at applicable tine tube location.

NOTE:

There are no endshields on the center discs.

8. At the tail and center discs, remove bolts (A) securing arm (B) to disc.

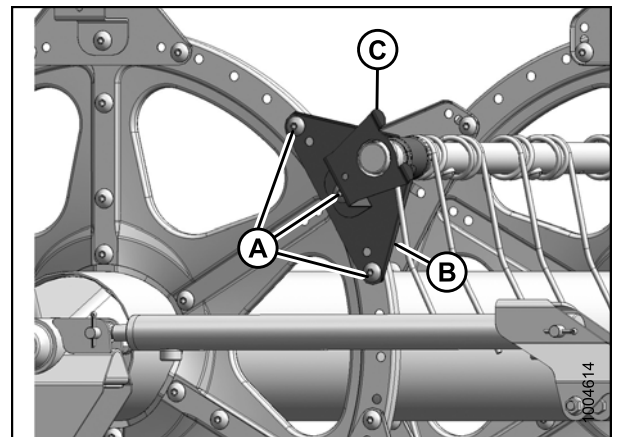


Figure 6.253: Tail End

9. At the tine tube support (if installed) locations, either release the bushing clamps or disconnect the support channels from the tube support, depending on which tine tube is being moved. Three tine tubes (B) require that the channels be disconnected and two (C) require only to remove the bushing clamp.

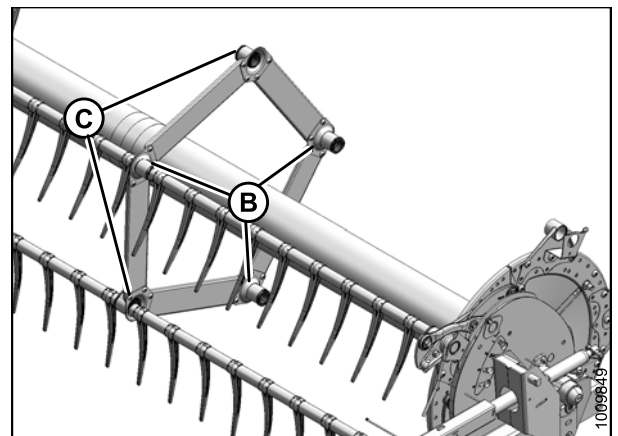


Figure 6.254: Tine Tube Supports

MAINTENANCE AND SERVICING

10. Remove bolt (A) at on cam linkage so that tine tube (B) is free to rotate.

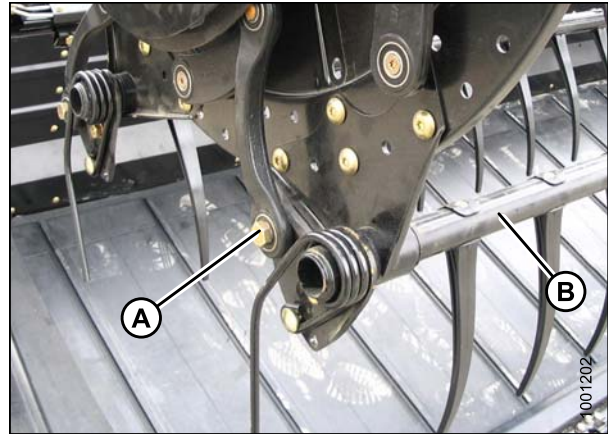


Figure 6.255: Cam End

11. Release bushing clamps (A) at the cam disc with a small screwdriver to separate the serrations. Move clamps off bushings.

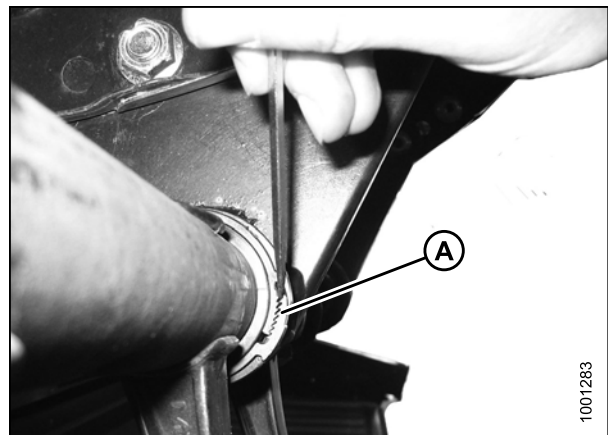


Figure 6.256: Bushing Clamp

12. 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 384](#)
- [Removing Steel Tines, page 383](#)

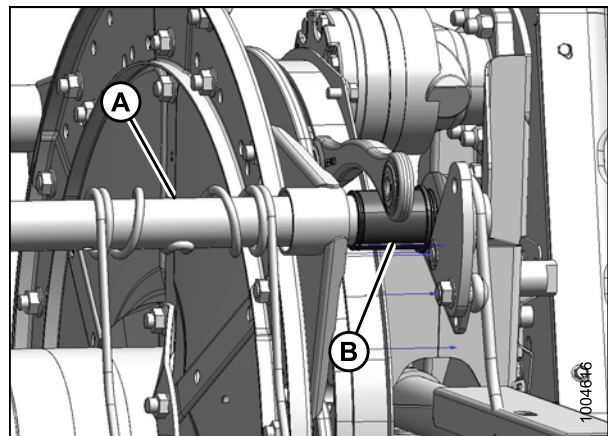


Figure 6.257: Cam End

MAINTENANCE AND SERVICING

Tine Tube Support Bushings (If installed)

If the tine tube reinforcing kit is installed:

13. Locate the support (A) that requires a new bushing.
14. Remove four bolts (B) securing channels (C) to support (A).
15. If finger (D) is too close to support to allow access to bushing, remove screw (E) and remove finger (D). Refer to [Removing Plastic Fingers, page 384](#).
16. Release bushing clamp (A) using a small screwdriver to separate the serrations. Move clamp clear of bushing.

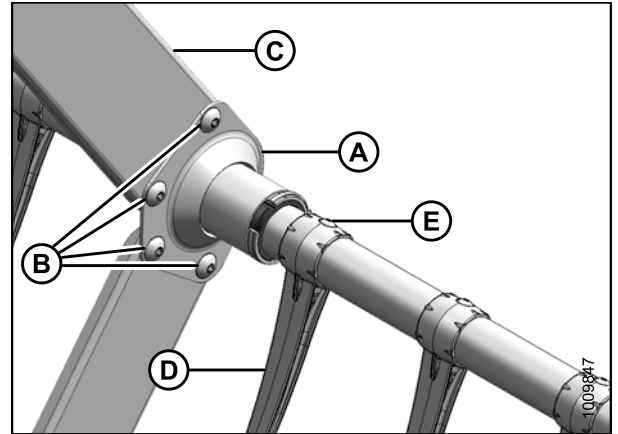


Figure 6.258: Tine Tube Support

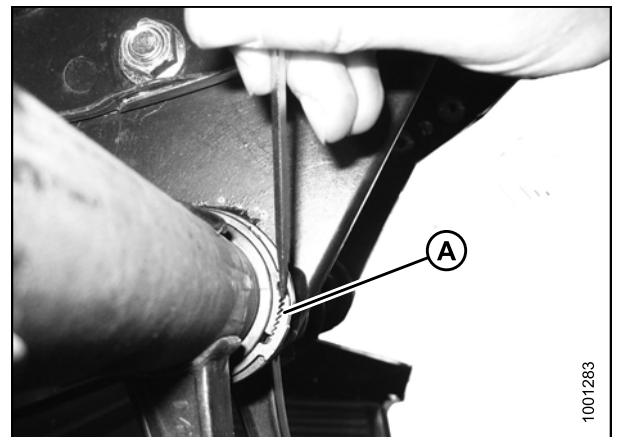


Figure 6.259: Bushing Clamp

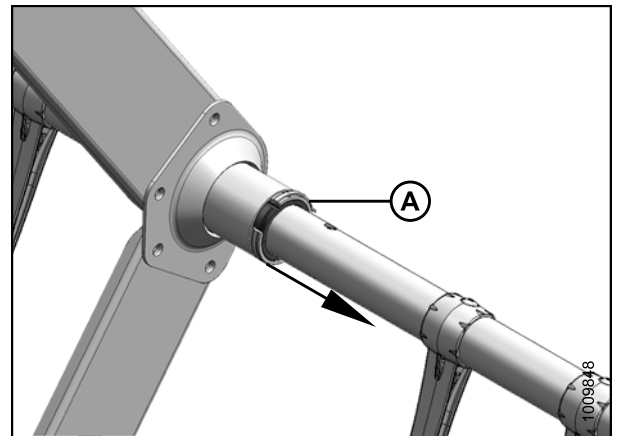


Figure 6.260: Bushing Clamp

MAINTENANCE AND SERVICING

17. Slide support (A) off of the bushing halves (B).

NOTE:

Two tine tubes have supports that are assembled opposite to what is shown. Those supports (A) can be rotated for the flange to clear the channels before they can be moved off the bushing. The tine tube can also be moved outward slightly.

18. Remove the bushing halves (B).

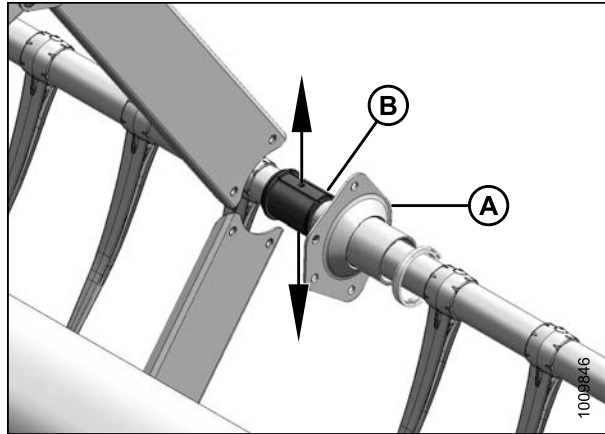


Figure 6.261: Support

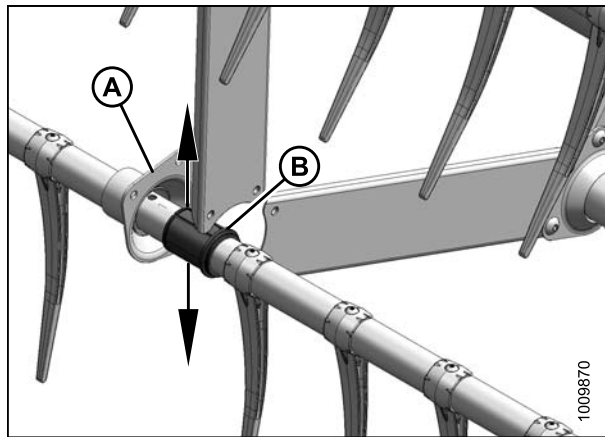


Figure 6.262: Opposite Support

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.

NOTE:

A pair of modified channel lock pliers is recommended to install the bushing clamps. Secure pliers (A) in vice and grind in a notch (B) at the end of each arm that fits the clamp (C).

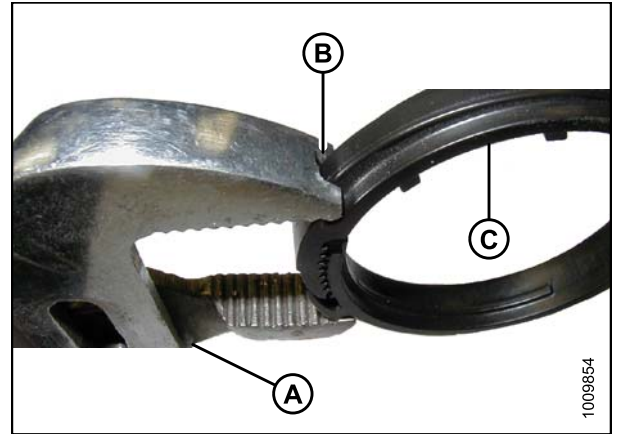


Figure 6.263: Modified Pliers

Cam End Bushings

1. Position bushing halves (B) on tine tube with flangeless end adjacent to reel arm, and locate lug in each bushing half in hole in tine tube.
2. Slide tine tube (A) toward tail end of reel to insert the bushing (B) into the reel arm. If tine tube supports are installed, ensure that the bushings at those locations slide into the support.
3. Re-install fingers or tines if removed. Refer to:
 - [Installing Steel Tines, page 383](#)
 - [Installing Plastic Fingers, page 385](#)
4. Install bushing clamp (A) onto tine tube adjacent to flangeless end of bushing (B).
5. Position clamp (A) on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.

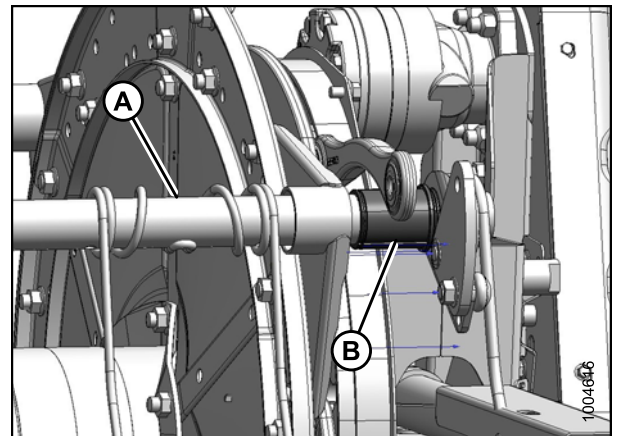


Figure 6.264: Cam End

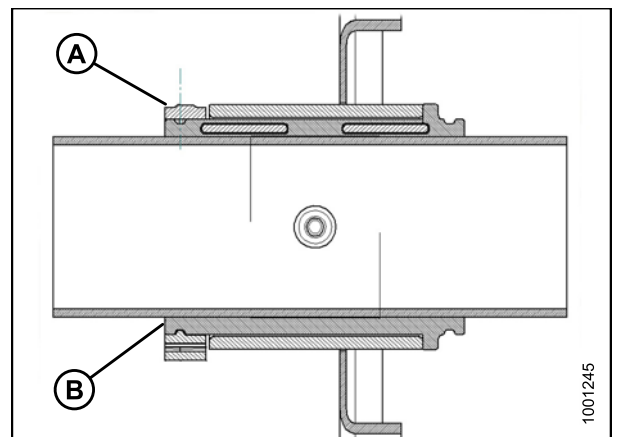


Figure 6.265: Bushing

MAINTENANCE AND SERVICING

6. 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.

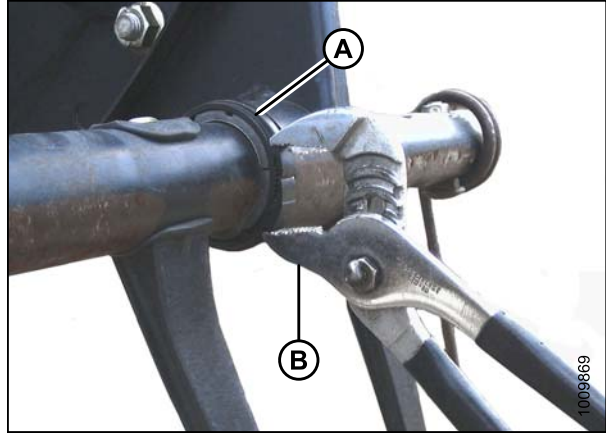


Figure 6.266: Installing Clamp

7. Line up tine bar (B) with cam arm and install bolt (A). Torque bolt to 120 ft-lbf (165 N·m).

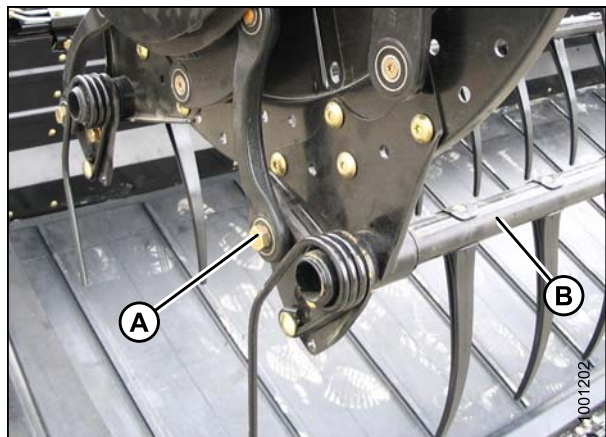


Figure 6.267: Cam End

8. At the center disc, install the bolts (A) securing arm (B) to disc.
9. 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 discs.

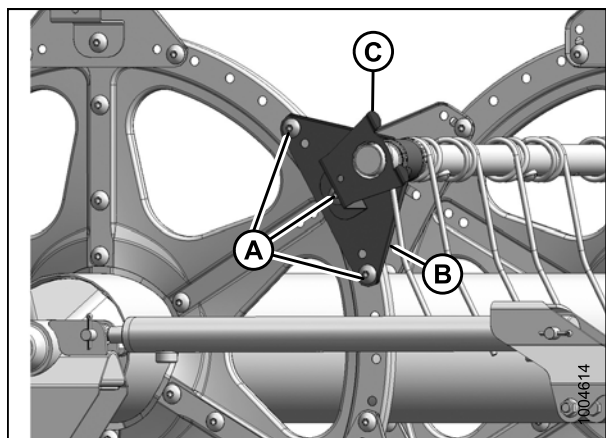


Figure 6.268: Tail End

MAINTENANCE AND SERVICING

- At the cam end, install endshield support (A) at applicable tine tube location on the cam end.
- Re-install reel endshields. Refer to [6.13.6 Reel Endshields, page 396](#).

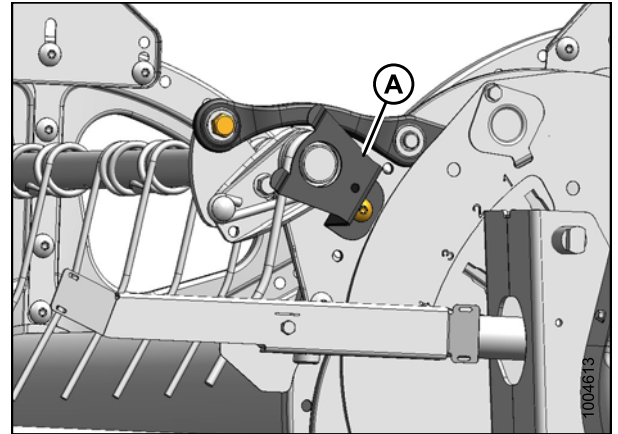


Figure 6.269: Cam End

Center Disc and Tail End Bushings

- Position bushing halves (B) on tine tube with flangeless end adjacent to reel arm, and locate lug in each bushing half in hole in tine tube.
- Slide reel arm (A) onto bushing (B) and position against disc at original location.
- Reinstall any fingers or tines that were removed. Refer to:
 - [Installing Steel Tines, page 383](#)
 - [Installing Plastic Fingers, page 385](#)

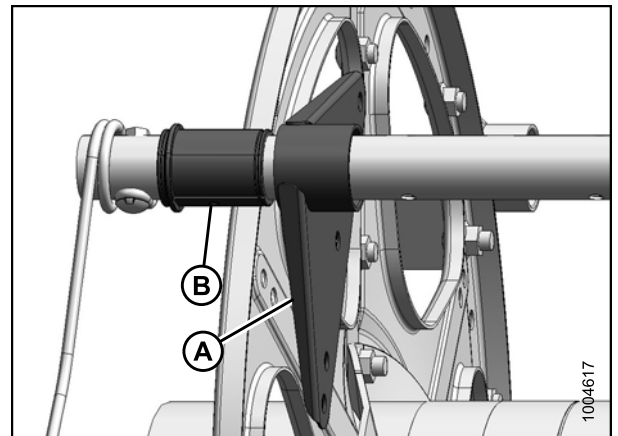


Figure 6.270: Tail End

- Install bushing clamp (A) onto tine tube adjacent to flangeless end of bushing (B).
- Position clamp (A) on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.

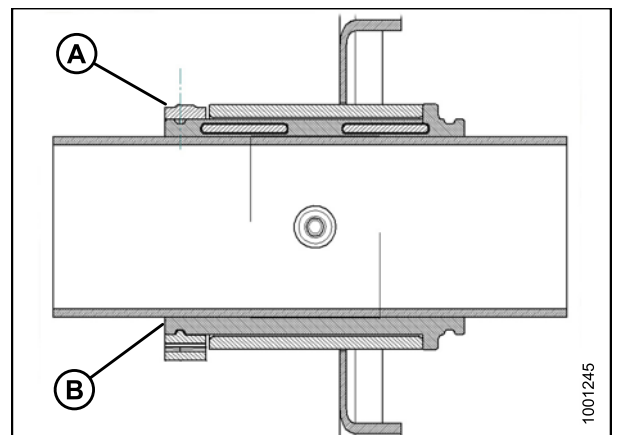


Figure 6.271: Bushing

MAINTENANCE AND SERVICING

17. 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.

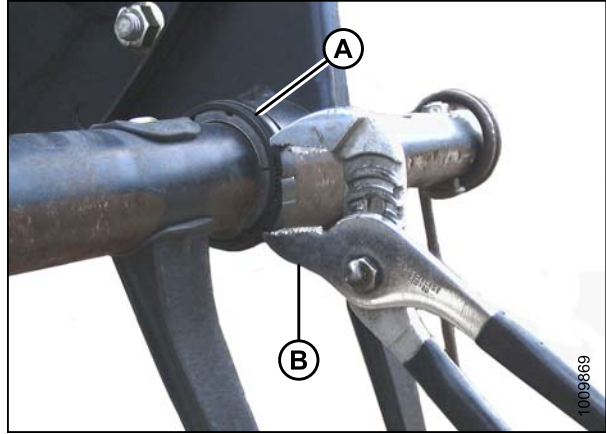


Figure 6.272: Installing Clamp

18. At the center disc, install the bolts (A) securing arm (B) to disc.
19. 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.

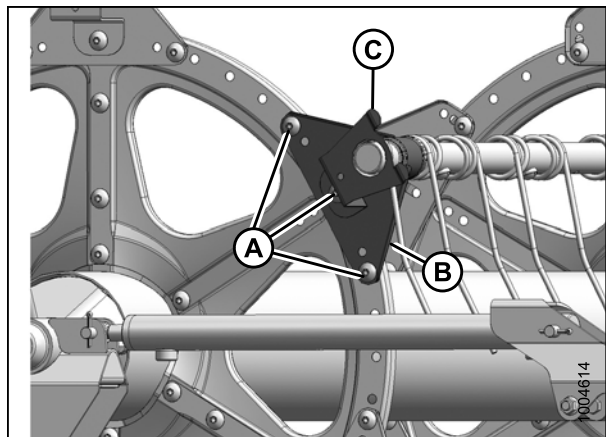


Figure 6.273: Tail End

MAINTENANCE AND SERVICING

Tine Tube Support (If installed) Bushings

20. Position bushing halves (B) on tine tube with flangeless end adjacent to reel arm, and locate lug in each bushing half in hole in tine tube.
21. Slide support (C) onto bushing (B). For the opposite tine tube, rotate support (C), or slightly move tine tube, so that it clears channels (D).

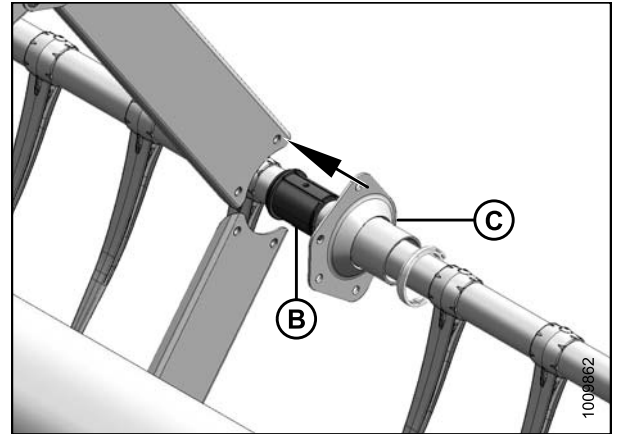


Figure 6.274: Support

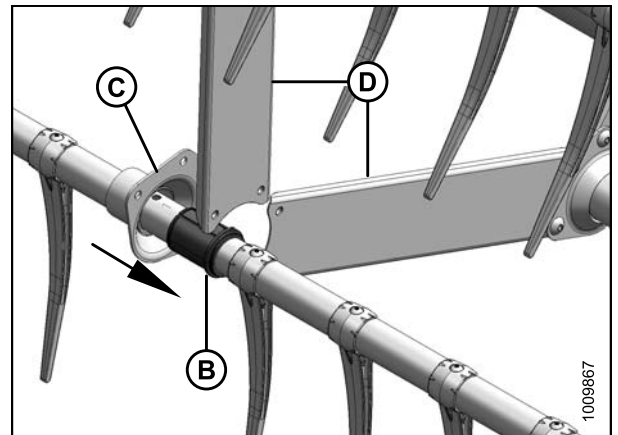


Figure 6.275: Opposite Support

22. Install bushing clamp (A) onto tine tube adjacent to flangeless end of bushing (B).
23. Position clamp (A) on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.

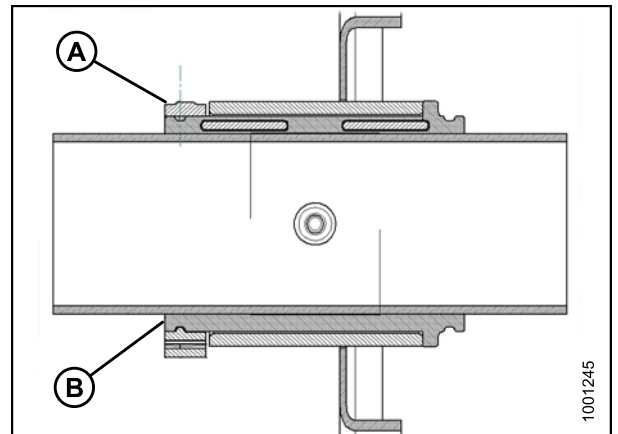


Figure 6.276: Bushing Clamp

MAINTENANCE AND SERVICING

24. 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.

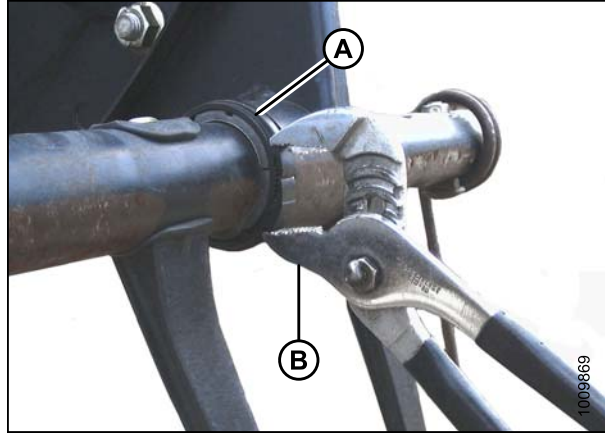


Figure 6.277: Installing Clamp

25. Re-attach channels (C) to support (A) with screws (B) and nuts. Torque screws to 32 lbf-ft (43 N·m).
26. Reinstall any fingers (D) that were removed with screws (E). Refer to [Installing Plastic Fingers, page 385](#).

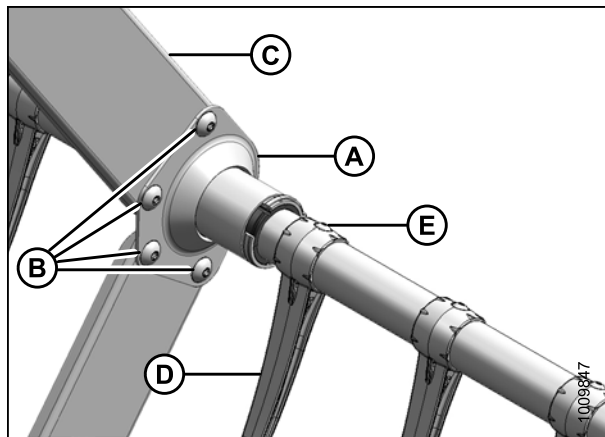


Figure 6.278: Support

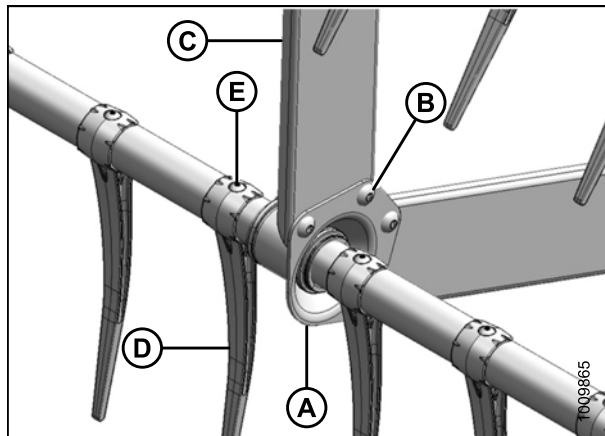


Figure 6.279: Opposite Support

6.13.6 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.

MAINTENANCE AND SERVICING

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).

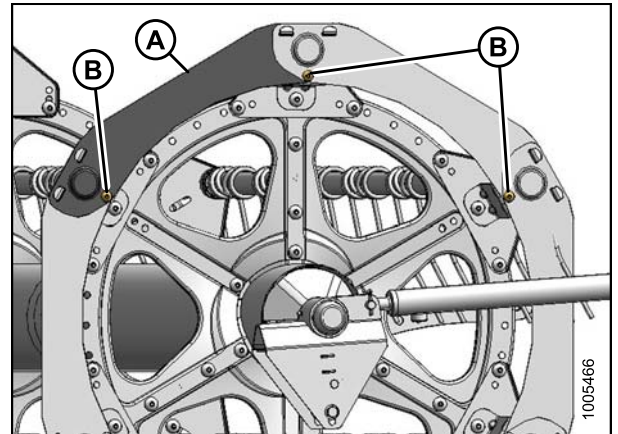


Figure 6.280: Endshields

4. Lift end of endshield (A) off support (B).

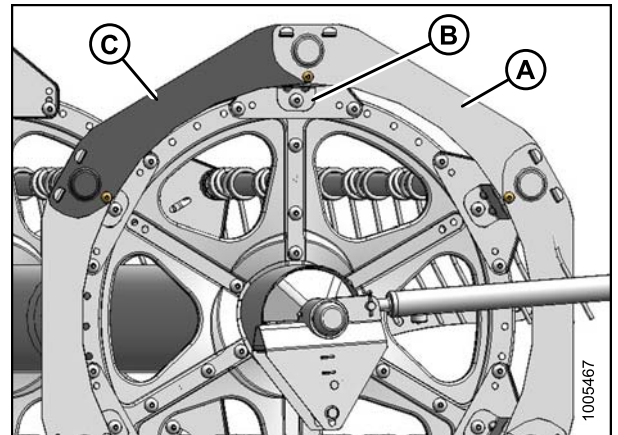


Figure 6.281: Endshields

5. Lift endshield off supports.

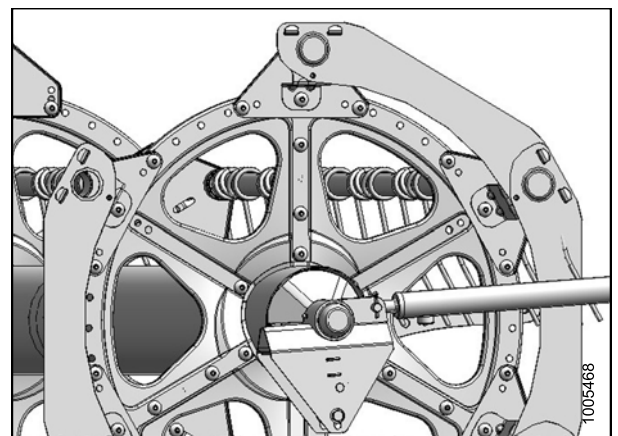


Figure 6.282: Endshields

MAINTENANCE AND SERVICING

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.

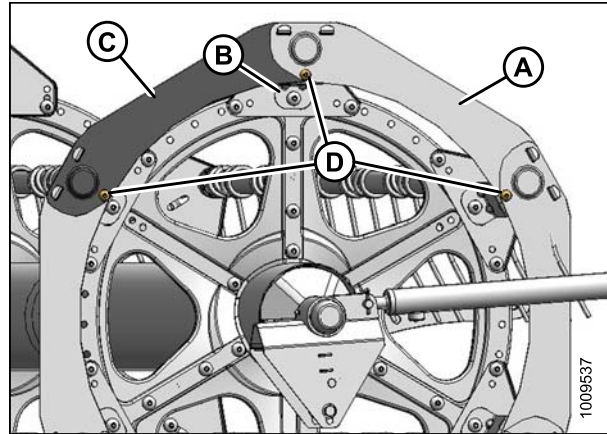


Figure 6.283: Endshields

Replacing Support

1. Lower header and reel, and shut down 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.

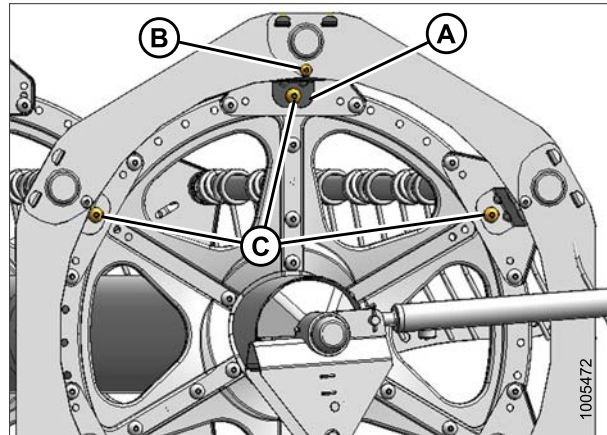


Figure 6.284: Endshield Supports

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).

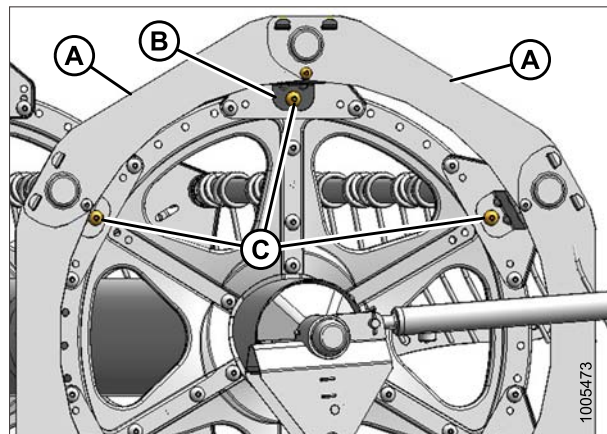


Figure 6.285: Endshield Supports

6.14 Reel Drive

The reel is hydraulically driven through a chain case that is attached to the right end on a single reel header, and between the reels on a double reel header.

6.14.1 Replacing 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.

Removing Drive Cover

1. Remove the reel drive cover (A) as follows:
 - a. For **SINGLE REEL DRIVE**, remove the four bolts (B) that secure the cover (A) to the reel drive.

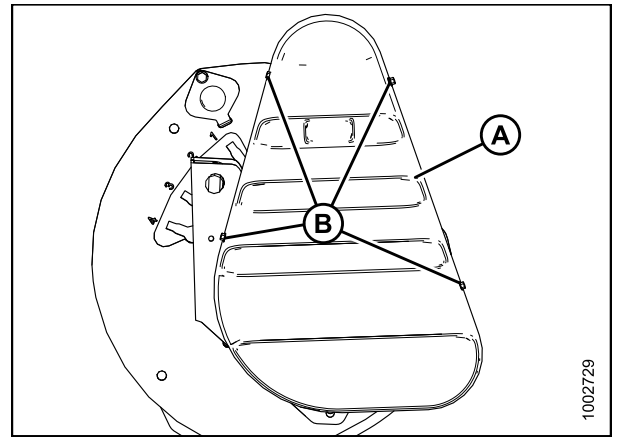


Figure 6.286: Single Reel Cover

- b. For **DOUBLE REEL DRIVE**, remove the six bolts (B) that secure the upper cover (A) to the reel drive and to the lower cover (C).

NOTE:

The lower cover (C) may also be removed by taking off the three bolts (D).

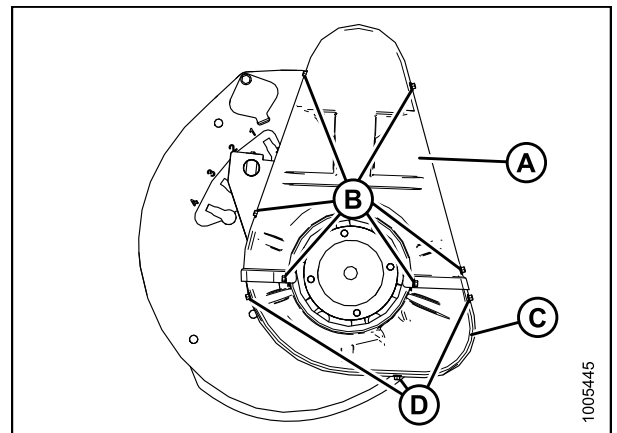


Figure 6.287: Double Reel Cover

Loosening Drive Chain

1. Loosen nuts (A). Slide motor (B) and motor mount (C) down towards reel shaft.

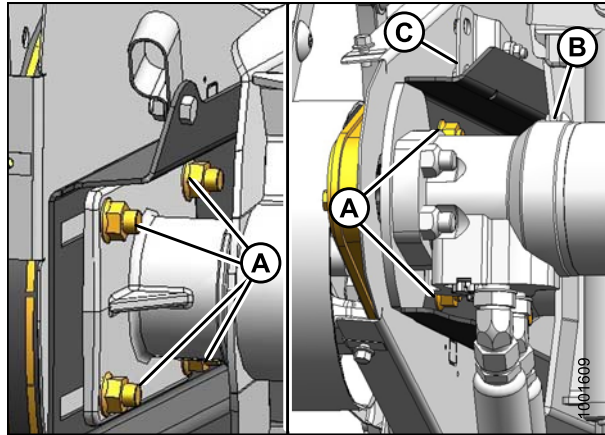


Figure 6.288: Reel Drive

Removing Drive Sprocket

1. Remove the drive chain (A) from the drive sprocket (B).

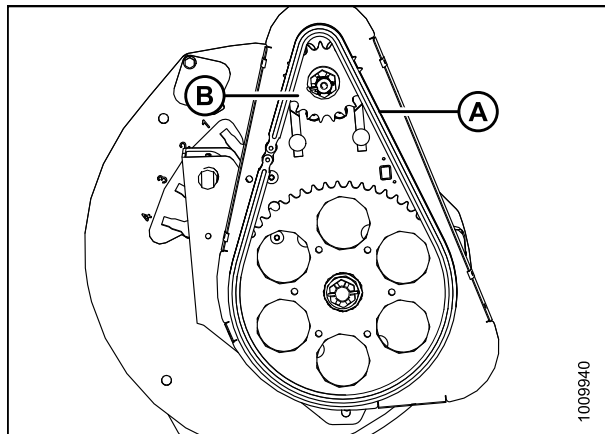


Figure 6.289: Reel Drive

2. Remove the cotter pin (A), slotted nut (B), and flat washer (C) from the motor shaft.
3. Remove the drive sprocket (D). Ensure key remains in the shaft.

IMPORTANT:

Do **NOT** use pry bar and/or hammer to remove drive sprocket (D). This will damage the motor. Use a puller if drive sprocket does not come off by hand.

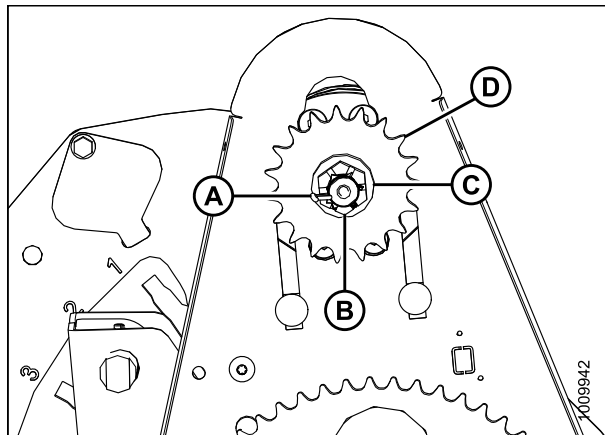


Figure 6.290: Reel Drive

MAINTENANCE AND SERVICING

Installing Drive Sprocket

1. Install the new drive sprocket (D), flat washer (C), and slotted nut (B), onto the motor shaft.
2. Torque nut to 40 lbf-ft (54 N·m). Tighten to next slot if necessary to install cotter pin (A).

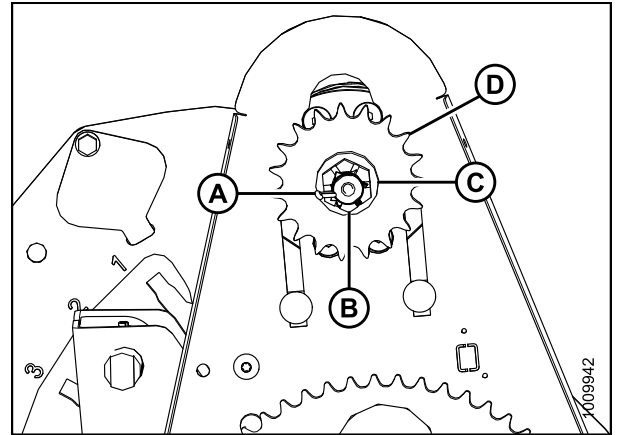


Figure 6.291: Reel Drive Sprocket

3. Install the chain (A) onto drive sprocket (B).

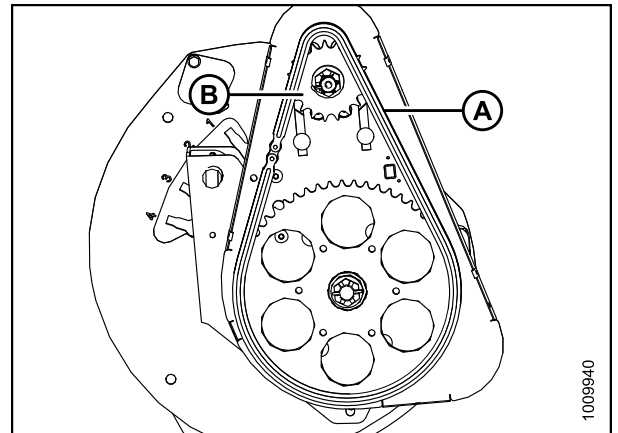


Figure 6.292: Reel Drive

Tightening Drive Chain

1. Ensure the six bolts (B) securing motor mount to chain case are loose.
2. Slide motor and motor mount upwards until chain (A) is tight, and tighten bolts (nuts on backside).
3. There should be 1/8 in. (3 mm) of slack in the chain. Adjust if necessary.
4. Torque bolts (B) to 54 lbf-ft (73 N·m).

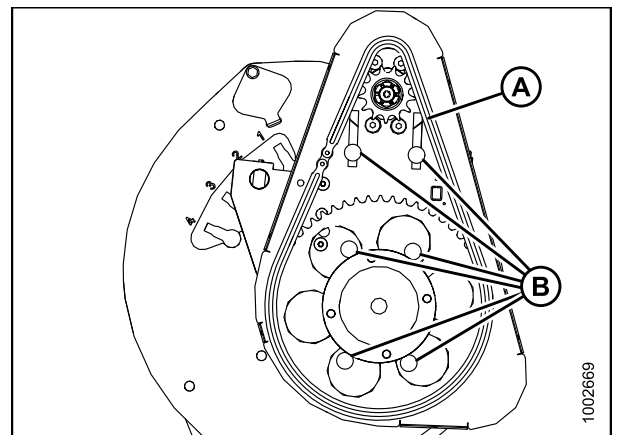


Figure 6.293: Reel Drive

MAINTENANCE AND SERVICING

Installing Drive Cover

Install reel drive cover as follows:

1. For **SINGLE REEL DRIVE**, position reel drive cover (A) to the reel drive and secure with four bolts (B).

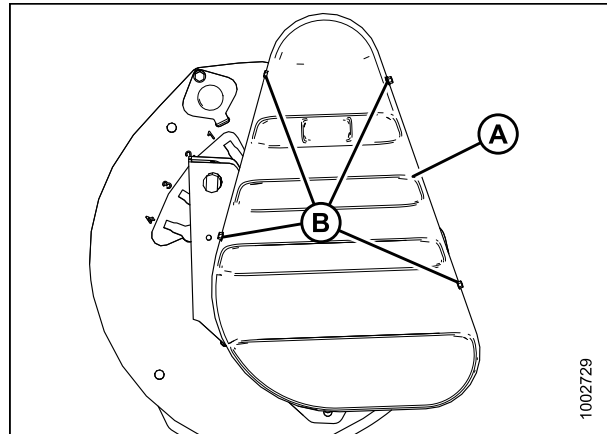


Figure 6.294: Single Reel Drive Cover

2. For **DOUBLE REEL DRIVE**, position the lower cover (C) first (if removed) and secure with three bolts (D). Install upper cover (A) using the six bolts (B).

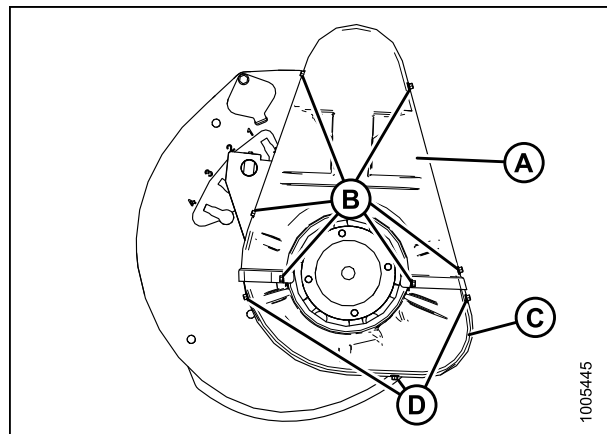


Figure 6.295: Double Reel Drive Cover

6.14.2 Replacing Double Reel 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 273](#). U-joint should be replaced if severely worn or damaged. Refer to [Removing Double Reel U-Joint, page 403](#).

Removing Drive Cover

1. Remove the six bolts (B) that secure the upper cover (A) to the reel drive and to the lower cover (C).

NOTE:

The lower cover (C) may also be removed by taking off the three bolts (D).

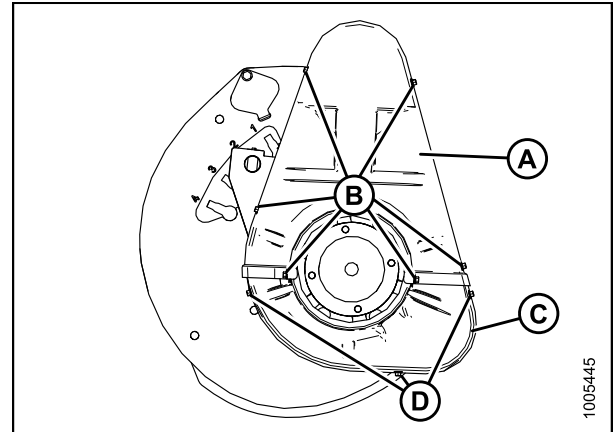


Figure 6.296: Double Reel

Removing Double Reel U-Joint

To remove the U-joint, follow these steps.

1. 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.

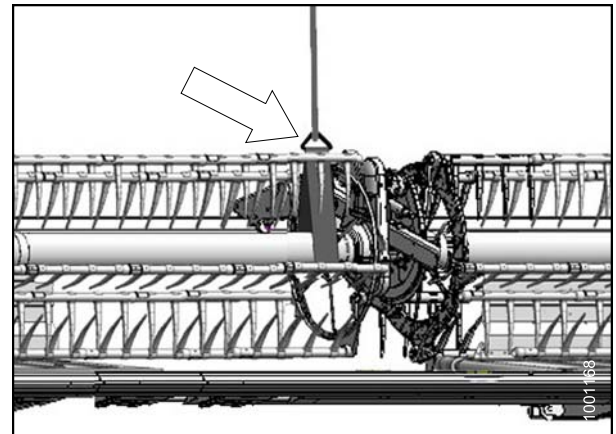


Figure 6.297: Supporting Reel

2. Remove four bolts (A) attaching reel tube to U-joint flange (B) and move reel sideways to disengage stub shaft from U-joint.

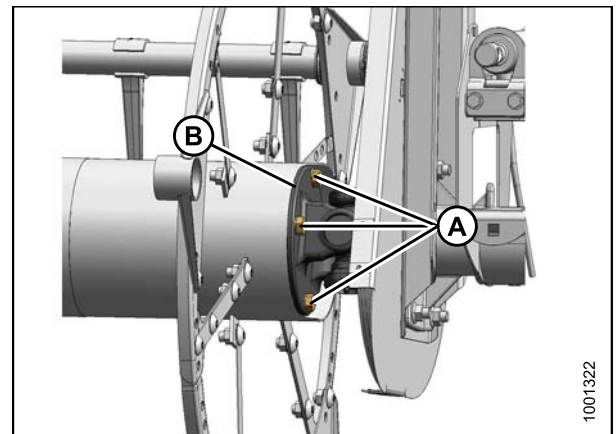


Figure 6.298: U-Joint

MAINTENANCE AND SERVICING

3. Remove six bolts (A) attaching U-joint flange (B) to driven sprocket (C).
4. Remove U-joint.

NOTE:

Right hand reel may need to be moved sideways for U-joint to clear reel tube.

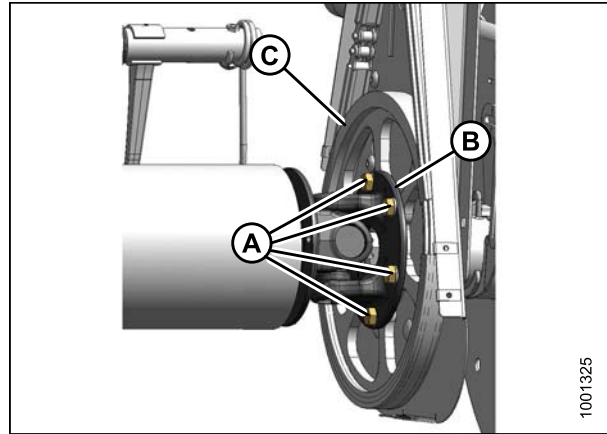


Figure 6.299: U-Joint

Installing Double Reel U-Joint

To install the U-joint, follow these steps.

NOTE:

Right hand reel may need to be moved sideways for U-joint to clear reel tube.

1. Position U-joint flange (B) onto driven sprocket (C) as shown. Install six bolts (A) and hand-tighten. Do **NOT** torque at this time.
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).

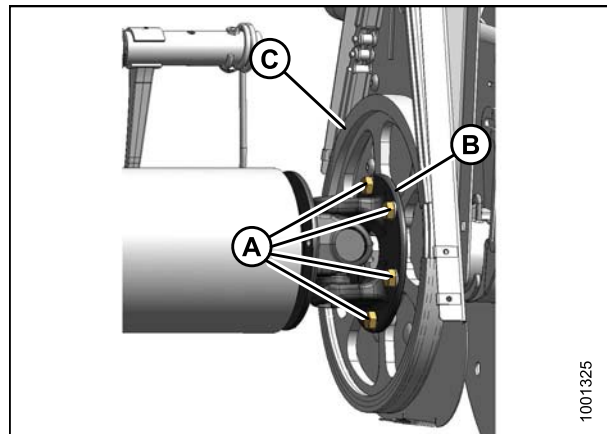


Figure 6.300: U-Joint

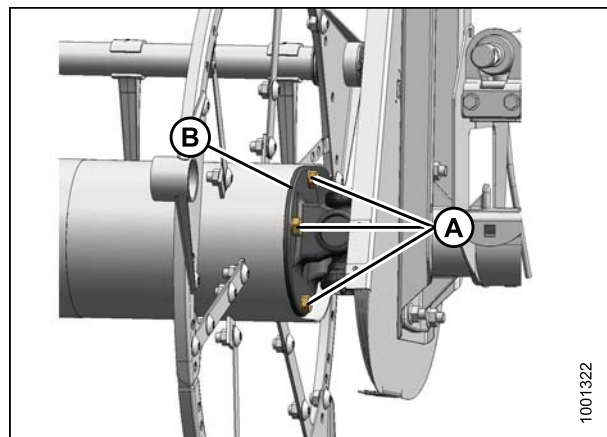


Figure 6.301: U-Joint

MAINTENANCE AND SERVICING

5. Remove temporary reel support.

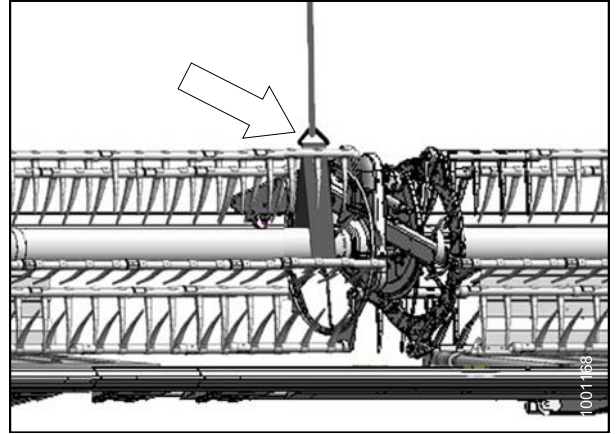


Figure 6.302: Supporting Reel

Installing Drive Cover

1. Position the lower cover (C) first (if removed) and secure with three bolts (D).
2. Install upper cover (A) using the six bolts (B).

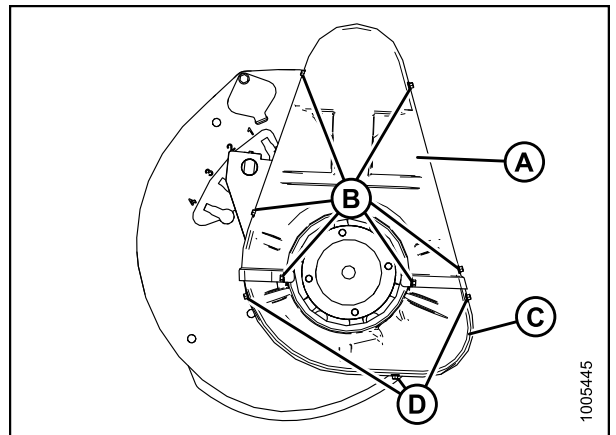


Figure 6.303: Double Reel Drive Cover

6.14.3 Replacing 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 Drive Cover

1. Remove the reel drive cover (A) as follows:
 - a. For **SINGLE REEL DRIVE**, remove the four bolts (B) that secure the cover (A) to the reel drive.

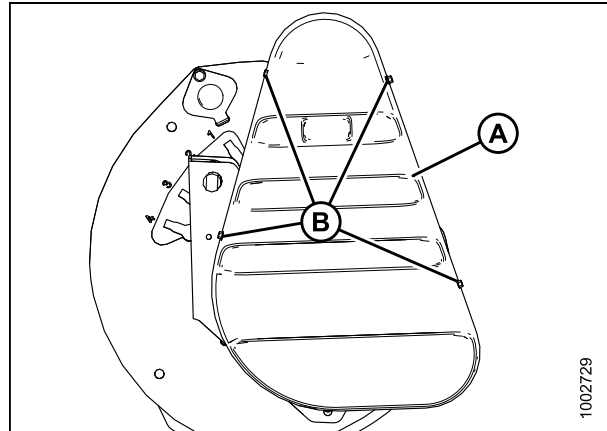


Figure 6.304: Single Reel Cover

- b. For **DOUBLE REEL DRIVE**, remove the six bolts (B) that secure the upper cover (A) to the reel drive and to the lower cover (C).

NOTE:

The lower cover (C) may also be removed by taking off the three bolts (D).

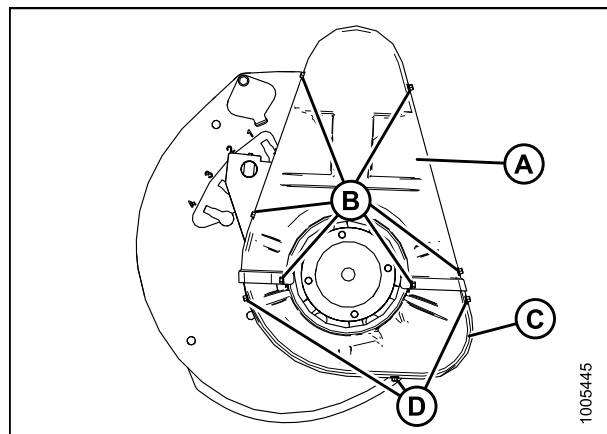


Figure 6.305: Double Reel Cover

Loosening Drive Chain

1. Loosen nuts (A). Slide motor (B) and motor mount (C) down towards reel shaft.

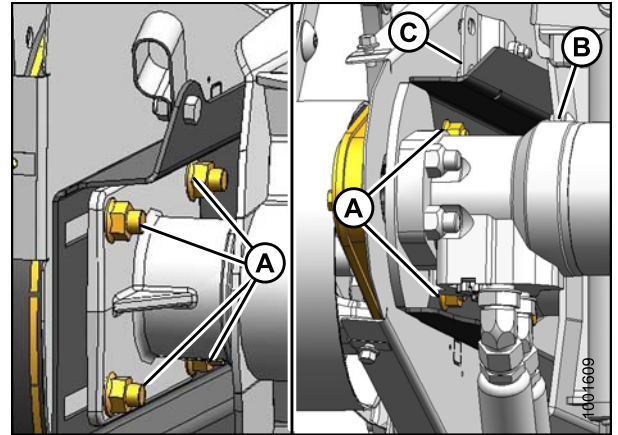


Figure 6.306: Reel Drive

Removing Drive Sprocket

1. Remove the drive chain (A) from the drive sprocket (B).

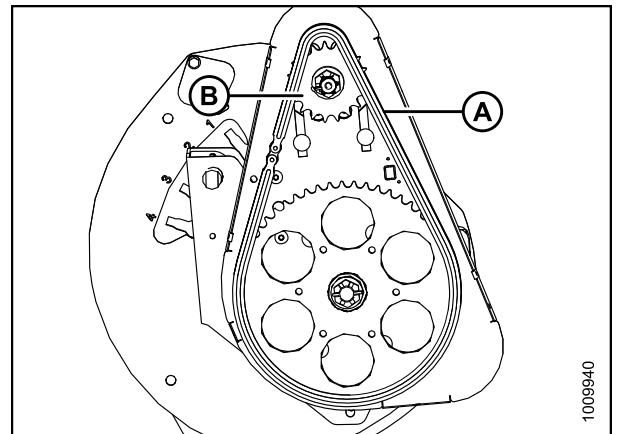


Figure 6.307: Reel Drive

2. Remove the cotter pin (A), slotted nut (B), and flat washer (C) from the motor shaft.
3. Remove the drive sprocket (D). Ensure key remains in the shaft.

IMPORTANT:

Do **NOT** use pry bar and/or hammer to remove drive sprocket (D). This will damage the motor. Use a puller if drive sprocket does not come off by hand.

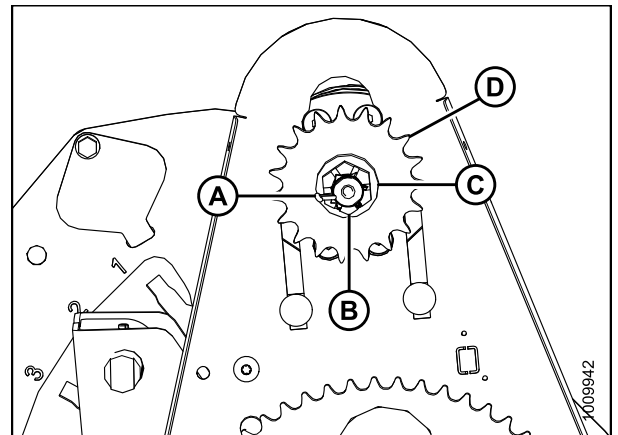


Figure 6.308: Reel Drive

MAINTENANCE AND SERVICING

Removing Reel Drive Motor

To remove the reel drive motor from a single or double reel header, follow these steps:

1. Disconnect hydraulic lines (A) at motor (B). Cap or plug open ports and lines.
2. Slide motor (B) and motor mount (C) up or down so that attachment bolts (D) are exposed in holes and slots in back plate.

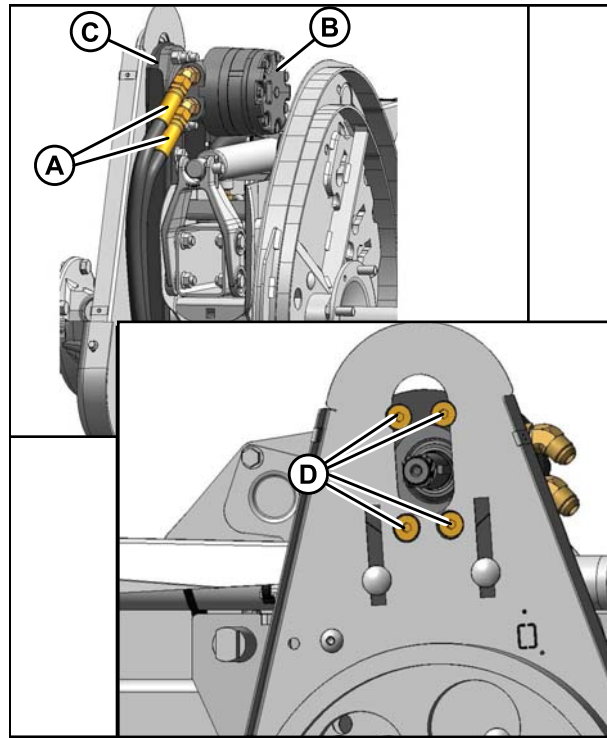


Figure 6.309: Reel Drive Motor

3. Remove four nuts (A) and attachment bolts and remove motor (B) from motor mount (C). Retrieve the spacer (if installed) from between the motor (B) and motor mount (C).

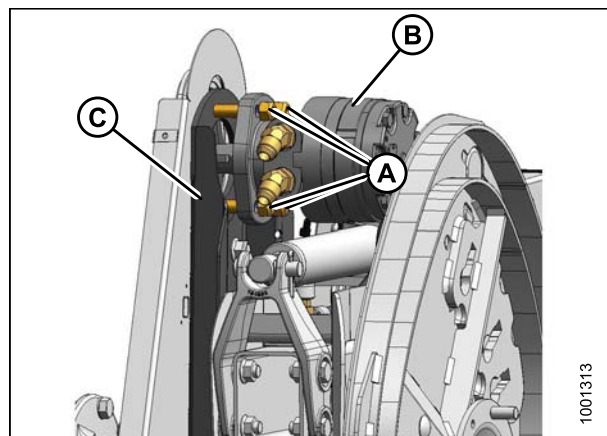


Figure 6.310: Reel Drive Motor

MAINTENANCE AND SERVICING

Installing Reel Drive Motor

To install the reel drive hydraulic motor, follow these steps:

1. Slide motor mount (A) up or down so that mounting holes are accessible through openings in chain case.
2. Attach motor (B) and spacer (C) to motor mount with four 1/2 in.x 1.75 countersunk bolts (D).
3. Secure motor with lock nuts (E).
4. Torque nuts to 54 lbf-ft (73 N·m).
5. If installing new motor, install fittings (F) from old motor onto new motor.

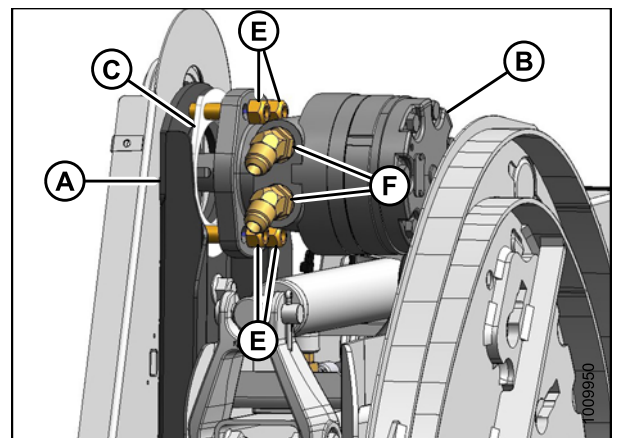
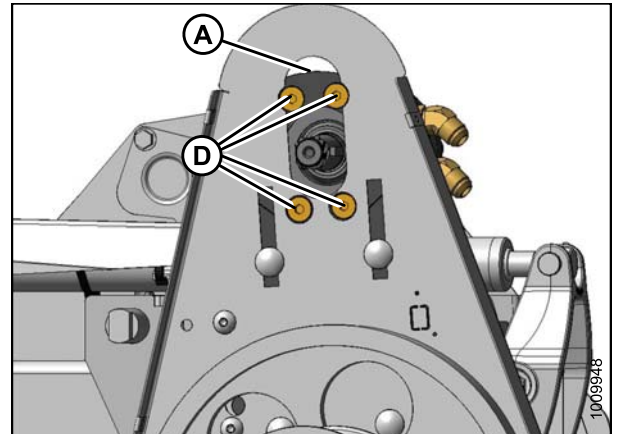


Figure 6.311: Reel Drive Motor

A - Motor Mount B - Hydraulic Motor C - Spacer
D - Bolts E - Lock Nuts F - Hydraulic Fittings

6. Reattach hydraulic lines (A) to motor (B).

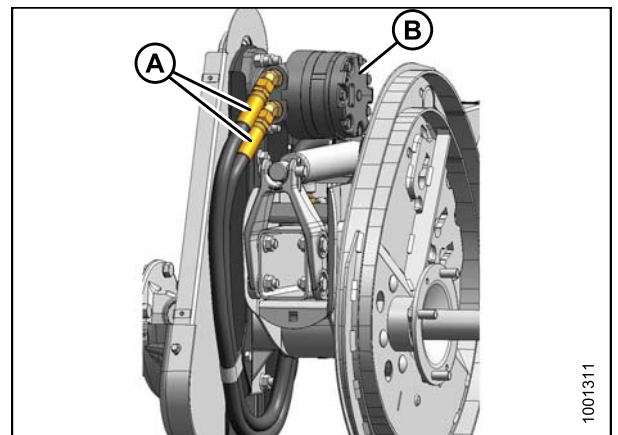


Figure 6.312: Reel Drive

MAINTENANCE AND SERVICING

Installing Drive Sprocket

1. Install the new drive sprocket (D), flat washer (C), and slotted nut (B), onto the motor shaft.
2. Torque nut to 40 lbf-ft (54 N·m). Tighten to next slot if necessary to install cotter pin (A).

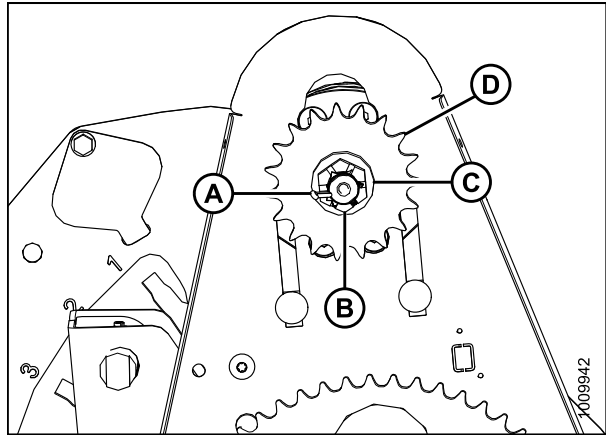


Figure 6.313: Reel Drive Sprocket

3. Install the chain (A) onto drive sprocket (B).

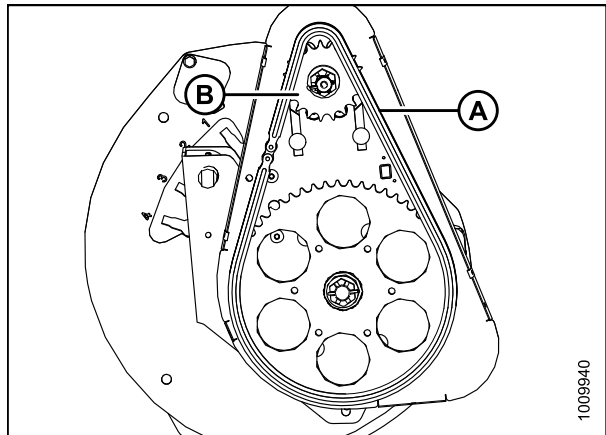


Figure 6.314: Reel Drive

Tightening Drive Chain

1. Ensure the six bolts (B) securing motor mount to chain case are loose.
2. Slide motor and motor mount upwards until chain (A) is tight, and tighten bolts (nuts on backside).
3. There should be 1/8 in. (3 mm) of slack in the chain. Adjust if necessary.
4. Torque bolts (B) to 54 lbf-ft (73 N·m).

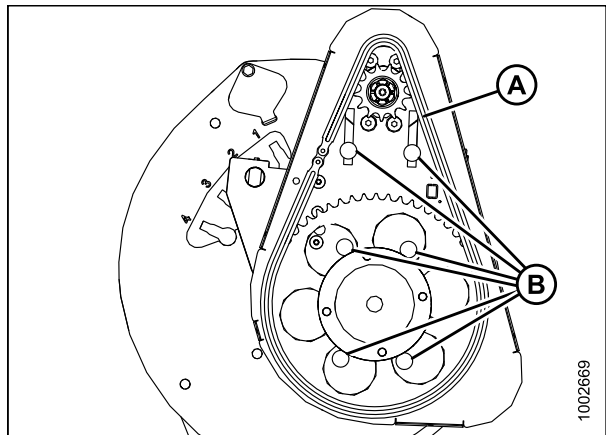


Figure 6.315: Reel Drive

Installing Drive Cover

Install reel drive cover as follows:

1. For **SINGLE REEL DRIVE**, position reel drive cover (A) to the reel drive and secure with four bolts (B).

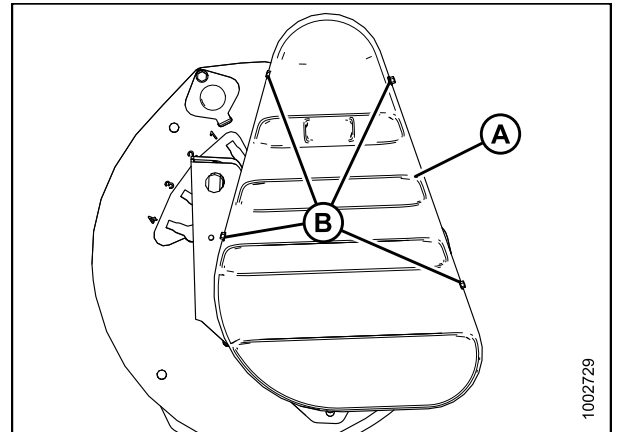


Figure 6.316: Single Reel Drive Cover

2. For **DOUBLE REEL DRIVE**, position the lower cover (C) first (if removed) and secure with three bolts (D). Install upper cover (A) using the six bolts (B).

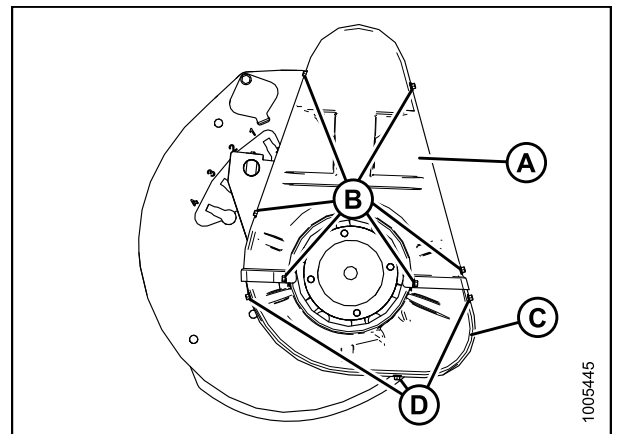


Figure 6.317: Double Reel Drive Cover

6.14.4 Replacing Drive Chain on Double Reel

The drive chain on a high torque double reel drive can be replaced using two methods. Refer to:

- [Disconnecting the Reel Drive Method, page 412](#)
- [Breaking the Chain Method, page 414](#)

Both procedures are acceptable, but disconnecting the reel drive method is preferred because the chain integrity is not affected.

Removing Drive Cover

1. Remove the six bolts (B) that secure the upper cover (A) to the reel drive and to the lower cover (C).

NOTE:

The lower cover (C) may also be removed by taking off the three bolts (D).

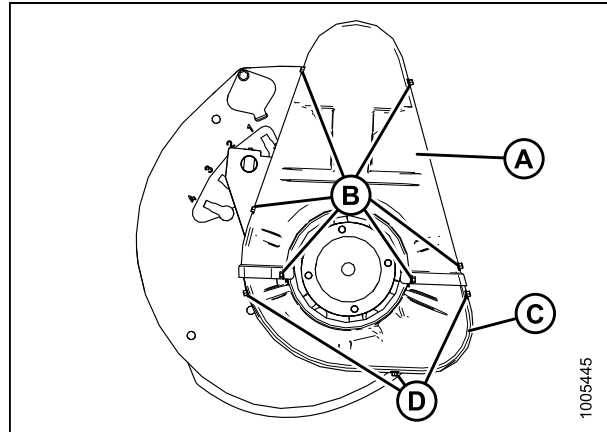


Figure 6.318: Double Reel

Loosening Drive Chain

1. Loosen nuts (A). Slide motor (B) and motor mount (C) down towards reel shaft.

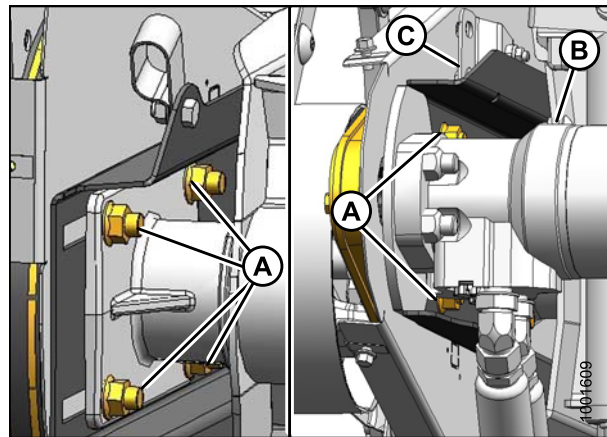


Figure 6.319: Reel Drive

Disconnecting the Reel Drive Method

1. 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 6.320: Supporting Reel

MAINTENANCE AND SERVICING

2. Remove four bolts (A) attaching reel tube to U-joint (B).

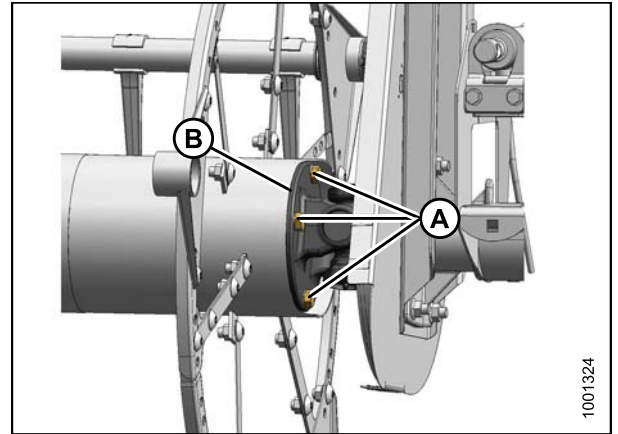


Figure 6.321: U-Joint

3. Move right-hand reel sideways to separate the reel tube (A) and U-joint (B).
4. Remove the chain (C).
5. Route new chain (C) over U-joint (B) and locate on sprockets.

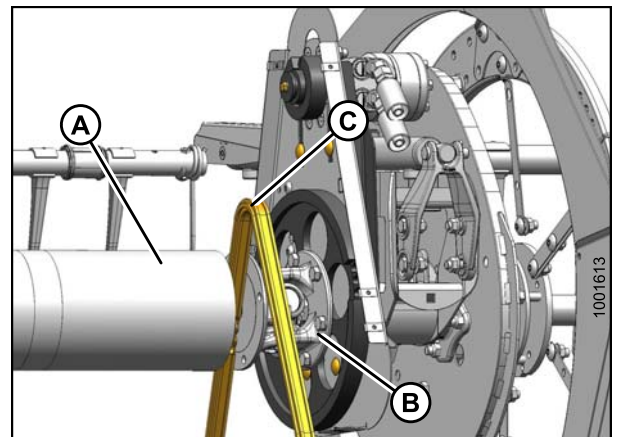


Figure 6.322: Replacing Chain

6. Position right-hand reel tube (A) against reel drive and engage stub shaft into U-joint (B) pilot hole.
7. Rotate reel until holes in end of reel tube and U-joint line up.
8. Apply Loctite® #243 (or equivalent) to four 1/2 in. bolts (A) and install with lock washers.
9. Torque to 75–85 ft-lbf (102–115 N·m).

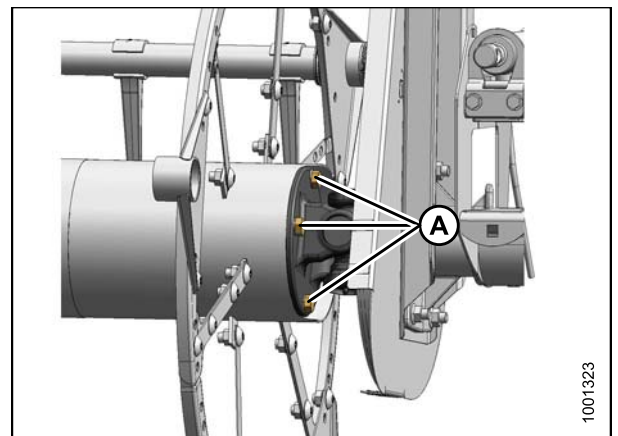


Figure 6.323: U-Joint

MAINTENANCE AND SERVICING

10. Remove temporary reel support.
11. Proceed to Tightening Drive Chain.



Figure 6.324: Supporting Reel

Breaking the Chain Method

1. Grind off head of a link rivet on chain (A), punch out the rivet, and remove chain.
2. Grind off the head from one of the link rivets on the new chain and punch out rivet to separate the chain.
3. Locate ends of chain on sprocket (B).

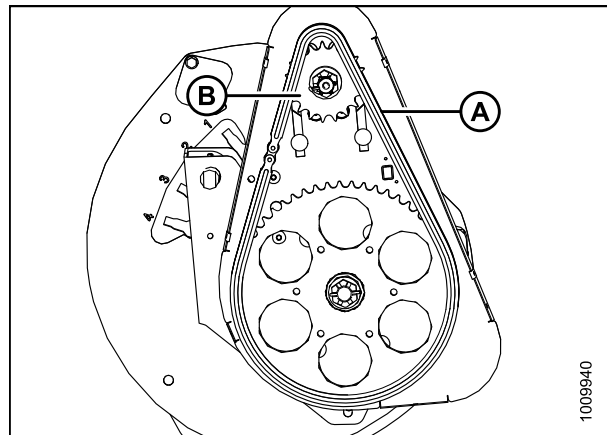


Figure 6.325: Reel Drive

4. Install pin connector (A) (not available as a MacDon part) into chain, preferably from sprocket backside.
5. Install connector (B) onto pins.
6. Install spring clip (C) onto front pin (D) with closed end of clip in direction of sprocket rotation.
7. Locate one leg of clip in groove of aft pin (E).
8. 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.
9. Ensure clip is seated in grooves of pins.

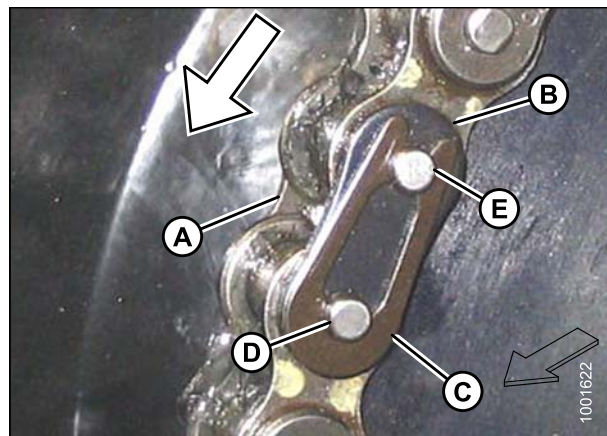


Figure 6.326: Chain

MAINTENANCE AND SERVICING

Tightening Drive Chain

1. Ensure the six bolts (B) securing motor mount to chain case are loose.
2. Slide motor and motor mount upwards until chain (A) is tight, and tighten bolts (nuts on backside).
3. There should be 1/8 in. (3 mm) of slack in the chain. Adjust if necessary.
4. Torque bolts (B) to 54 lbf-ft (73 N·m).

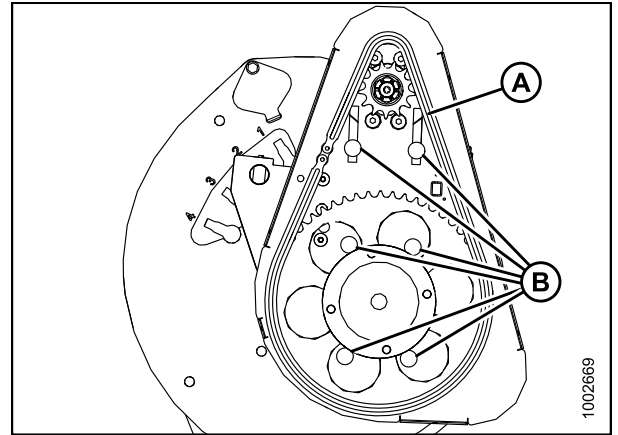


Figure 6.327: Reel Drive

Installing Drive Cover

1. Position the lower cover (C) first (if removed) and secure with three bolts (D).
2. Install upper cover (A) using the six bolts (B).

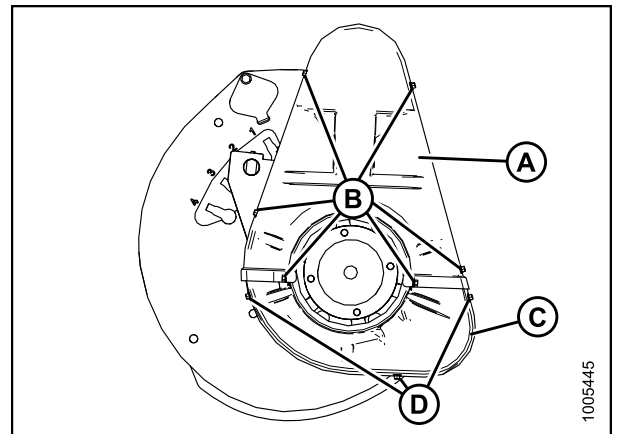


Figure 6.328: Double Reel Drive Cover

6.14.5 Replacing Drive Chain on Single Reel

Removing Drive Cover

1. Remove the reel drive cover (A) as follows:
 - a. For **SINGLE REEL DRIVE**, remove the four bolts (B) that secure the cover (A) to the reel drive.
 - b. Remove cover (A).

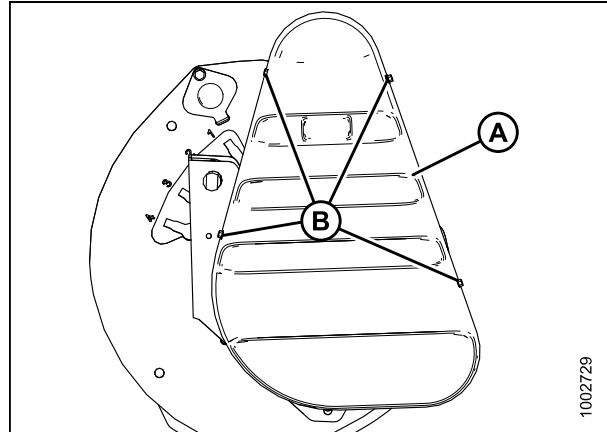


Figure 6.329: Single Reel

Loosening Drive Chain

1. Loosen nuts (A). Slide motor (B) and motor mount (C) down towards reel shaft.

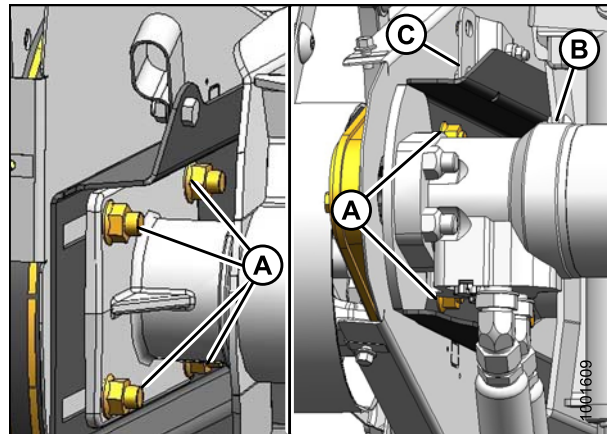


Figure 6.330: Reel Drive

MAINTENANCE AND SERVICING

Replacing Chain on Single Reel

1. Lift chain (A) off drive sprocket (B).
2. Lower chain until free of lower sprocket (C) and remove chain from drive.
3. Locate new chain (A) around bottom teeth on lower sprocket (C).
4. Lift chain onto drive sprocket (B) ensuring all links are properly engaged in teeth.

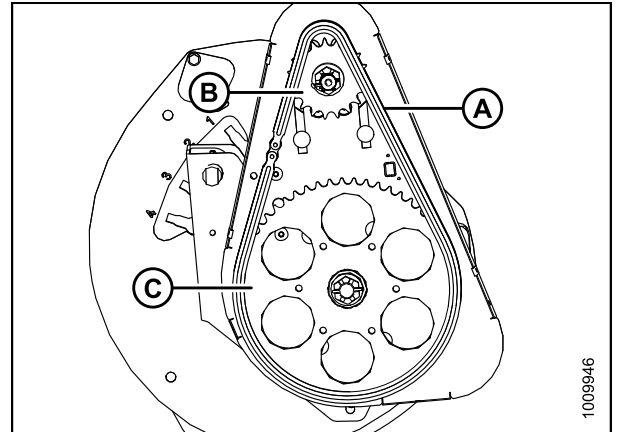


Figure 6.331: Reel Drive

Tightening Drive Chain

1. Ensure the six bolts (B) securing motor mount to chain case are loose.
2. Slide motor and motor mount upwards until chain (A) is tight, and tighten bolts (nuts on backside).
3. There should be 1/8 in. (3 mm) of slack in the chain. Adjust if necessary.
4. Torque bolts (B) to 54 lbf-ft (73 N·m).

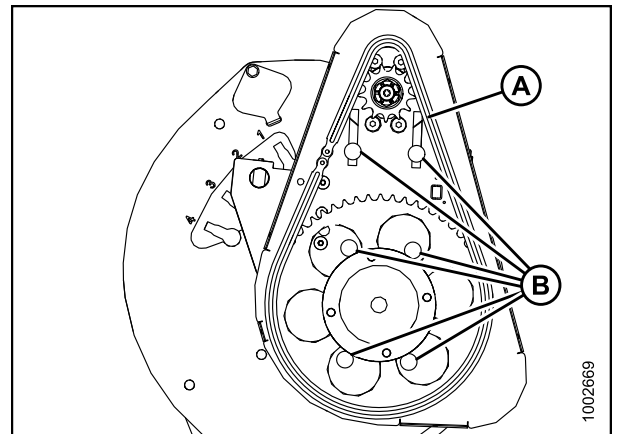


Figure 6.332: Reel Drive

Installing Drive Cover

Install reel drive cover as follows:

1. For **SINGLE REEL DRIVE**, position reel drive cover (A) to the reel drive and secure with four bolts (B).

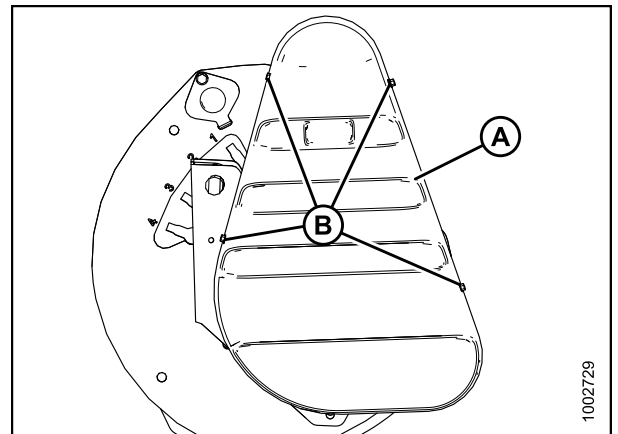


Figure 6.333: Single Reel Drive Cover

6.14.6 Adjusting Reel Drive Chain Tension

Removing Drive Cover

1. Remove the reel drive cover (A) as follows:
 - a. For **SINGLE REEL DRIVE**, remove the four bolts (B) that secure the cover (A) to the reel drive.

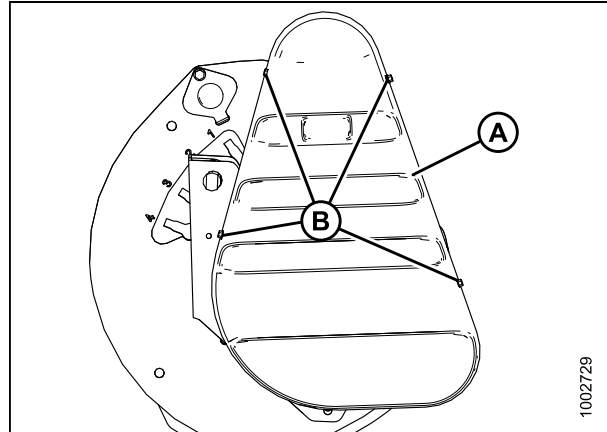


Figure 6.334: Single Reel Cover

- b. For **DOUBLE REEL DRIVE**, remove the six bolts (B) that secure the upper cover (A) to the reel drive and to the lower cover (C).

NOTE:

The lower cover (C) may also be removed by taking off the three bolts (D).

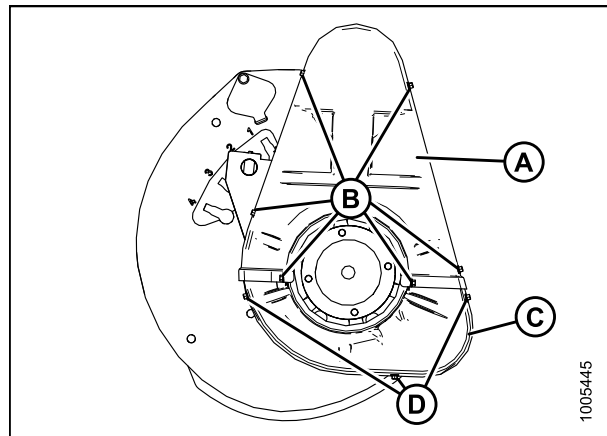


Figure 6.335: Double Reel Cover

Tightening Drive Chain

1. Ensure the six bolts (B) securing motor mount to chain case are loose.
2. Slide motor and motor mount upwards until chain (A) is tight, and tighten bolts (nuts on backside).
3. There should be 1/8 in. (3 mm) of slack in the chain. Adjust if necessary.
4. Torque bolts (B) to 54 lbf-ft (73 N·m).

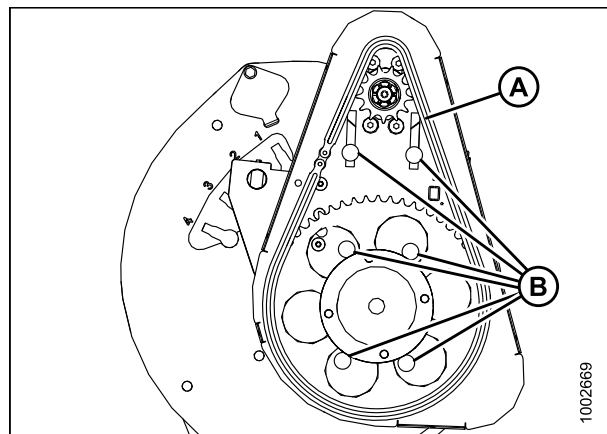


Figure 6.336: Reel Drive

MAINTENANCE AND SERVICING

Installing Drive Cover

Install reel drive cover as follows:

1. For **SINGLE REEL DRIVE**, position reel drive cover (A) to the reel drive and secure with four bolts (B).

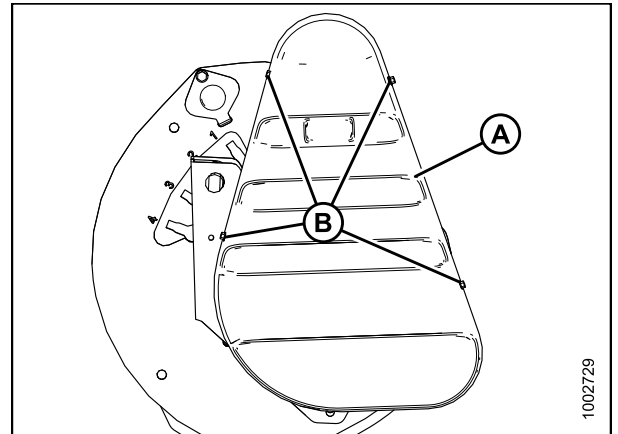


Figure 6.337: Single Reel Drive Cover

2. For **DOUBLE REEL DRIVE**, position the lower cover (C) first (if removed) and secure with three bolts (D). Install upper cover (A) using the six bolts (B).

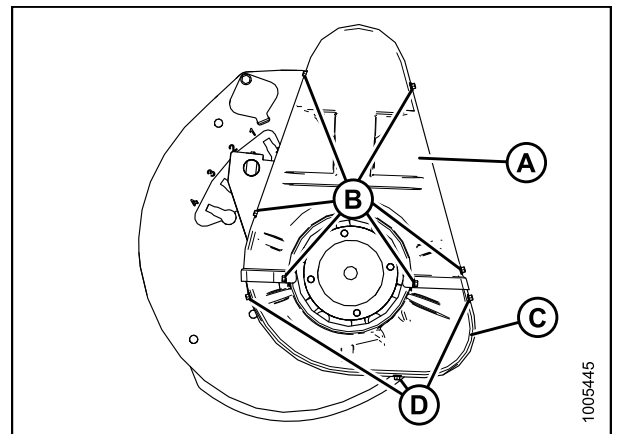


Figure 6.338: Double Reel Drive Cover

6.14.7 Replacing Reel Speed Sensor

The reel speed sensor system is located inside the reel drive cover.

Removing Drive Cover

1. Remove the reel drive cover (A) as follows:
 - a. For **SINGLE REEL DRIVE**, remove the four bolts (B) that secure the cover (A) to the reel drive.

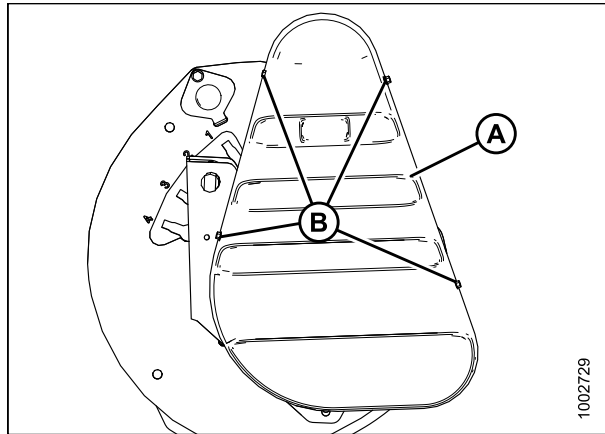


Figure 6.339: Single Reel Cover

- b. For **DOUBLE REEL DRIVE**, remove the six bolts (B) that secure the upper cover (A) to the reel drive and to the lower cover (C).

NOTE:

The lower cover (C) may also be removed by taking off the three bolts (D).

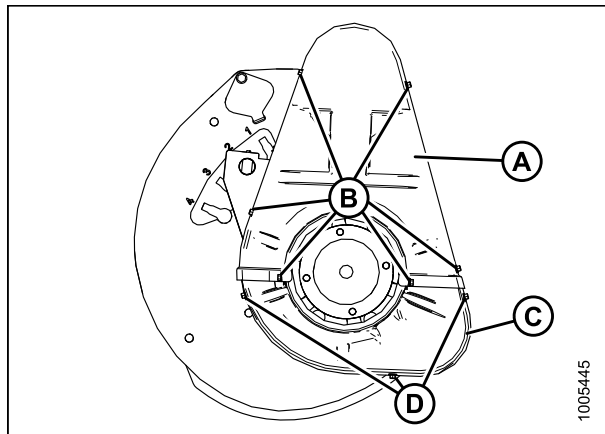


Figure 6.340: Double Reel Cover

Replacing AGCO Sensor

To replace the reel speed sensor for an AGCO combine, follow these steps.

1. Disconnect connector (A)

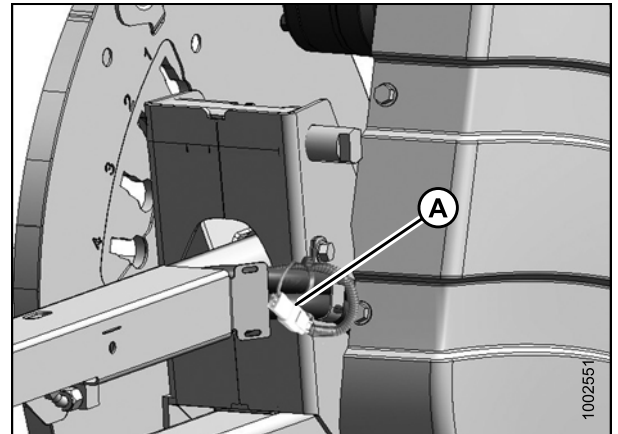


Figure 6.341: Electrical Harness

2. Cut cable tie (A) securing harness to cover.
3. Remove screws (B) and remove sensor (C) and harness. Bend cover (D) (if necessary) to remove harness.
4. Feed wire of new sensor behind cover (D) through chain case.
5. Locate new sensor in support (E) and attach with two screws (B).
6. Adjust gap between sensor disc (F) and sensor (C) to 0.02 in. (0.5 mm).

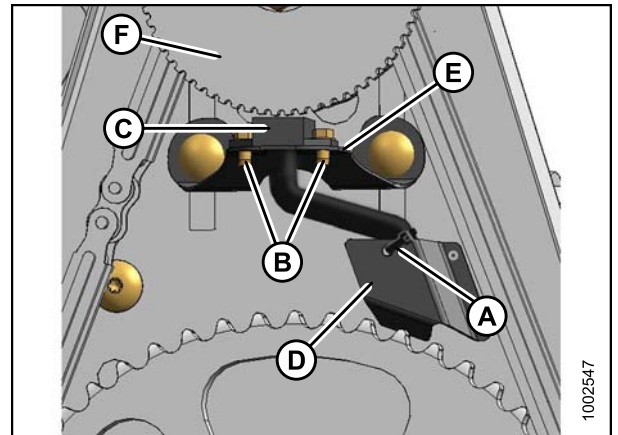


Figure 6.342

7. Connect to harness at (A).

IMPORTANT:

Ensure sensor electrical harness does NOT contact chain or sprocket.

8. Re-install cover. Refer to [Installing Drive Cover, page 419](#).

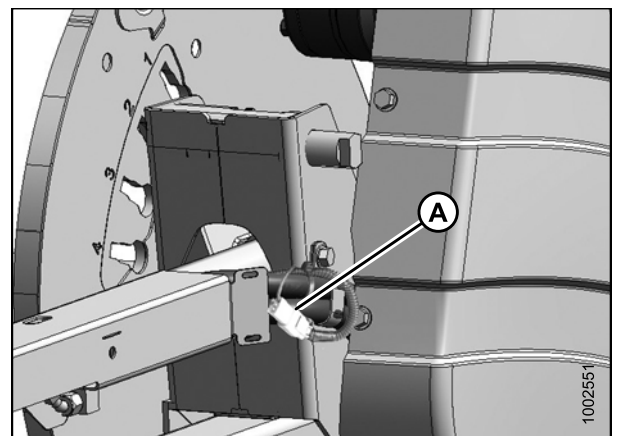


Figure 6.343: Electrical Harness

MAINTENANCE AND SERVICING

Replacing John Deere Sensor

To replace the reel speed sensor for a John Deere combine, follow these steps.

1. Disconnect connector (D).
2. Remove top nut (C) and remove sensor (B)
3. Remove top nut from new sensor (C) and position sensor in support. Secure with top nut (C)
4. Adjust gap between sensor disc (A) and sensor (B) to 1/8 in. (3 mm) with nuts (C).
5. Connect to harness at (D).

IMPORTANT:

Ensure sensor electrical harness does NOT contact chain or sprocket.

6. Re-install cover. Refer to [Installing Drive Cover, page 419](#).

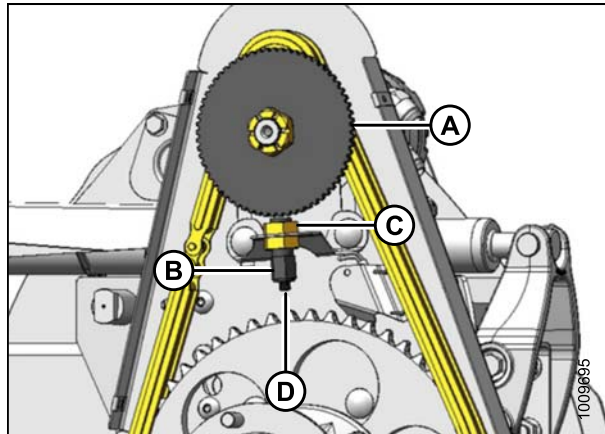


Figure 6.344: Speed Sensor

A - Sensor Disc
B - Speed Sensor
C - Nuts
D - Connector

Replacing Lexion 400 Series Sensor

To replace the reel speed sensor for a Lexion 400 series combine, follow these steps:

1. Disconnect connector (C).
2. Remove top nut (D) and remove sensor (B).
3. Remove top nut from new sensor and locate in support. Secure with top nut (D).
4. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) with nuts (D).
5. Connect to harness at (C).

IMPORTANT:

Ensure sensor electrical harness does NOT contact chain or sprocket.

6. Re-install cover. Refer to [Installing Drive Cover, page 419](#).

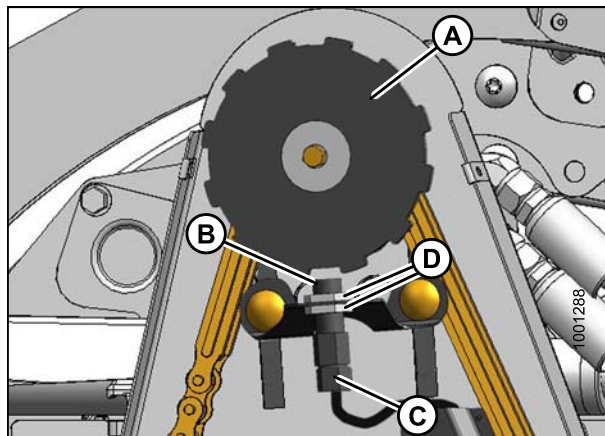


Figure 6.345

A - Sensor disc
B - Sensor
C - Connector
D - Nuts

MAINTENANCE AND SERVICING

Replacing Lexion 500/700 Series Sensor

To replace the reel speed sensor for a Lexion 500 or 700 series combine, follow these steps:

1. Disconnect connector (C).
2. Remove screw (D) attaching sensor and remove sensor (B).
3. Locate new sensor in support and secure with screw (D).
4. Adjust gap between sensor disc (A) and sensor (B) to 1/8 in. (3 mm) by bending support (E).
5. Connect to harness at (C).

IMPORTANT:

Ensure sensor electrical harness does NOT contact chain or sprocket.

6. Re-install cover. Refer to [Installing Drive Cover, page 419](#).

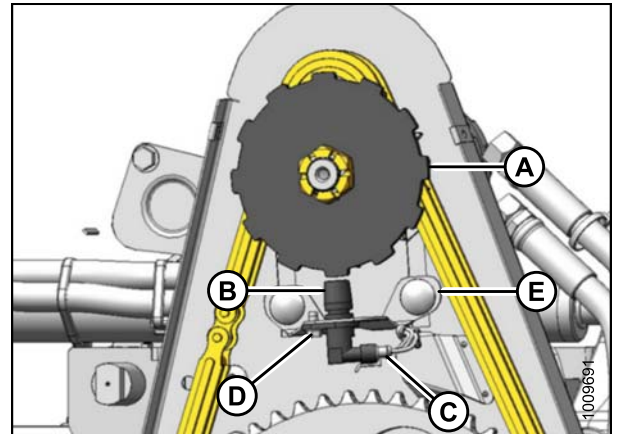


Figure 6.346: Speed Sensor

- | | |
|-----------------|------------|
| A - Sensor Disc | B - Sensor |
| C - Connector | D - Screw |
| E - Support | |

Installing Drive Cover

Install reel drive cover as follows:

1. For **SINGLE REEL DRIVE**, position reel drive cover (A) to the reel drive and secure with four bolts (B).

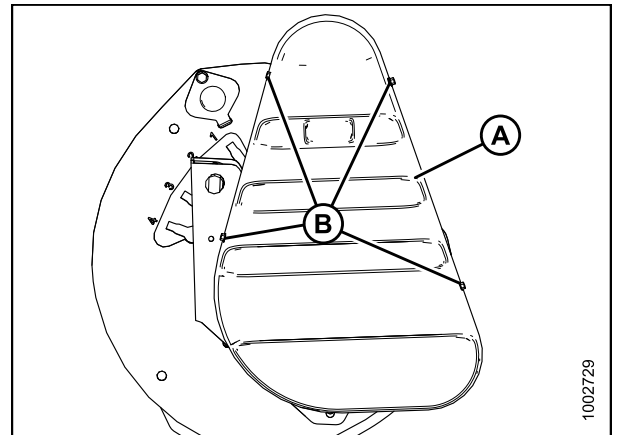


Figure 6.347: Single Reel Drive Cover

MAINTENANCE AND SERVICING

2. For **DOUBLE REEL DRIVE**, position the lower cover (C) first (if removed) and secure with three bolts (D). Install upper cover (A) using the six bolts (B).

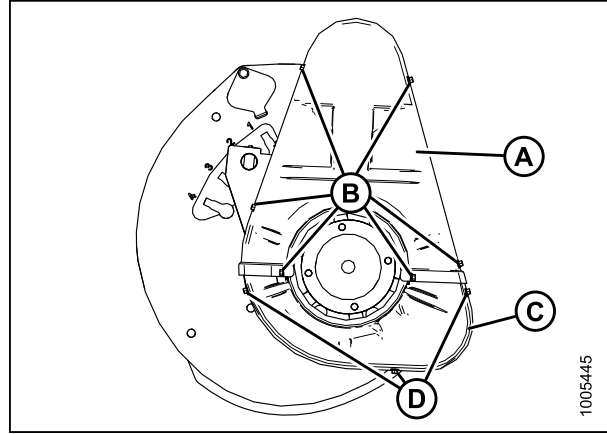


Figure 6.348: Double Reel Drive Cover

6.15 Transport System (Optional)

Refer to [8.3.4 Stabilizer/Slow Speed Transport Wheels, page 451](#) for more information.

6.15.1 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.

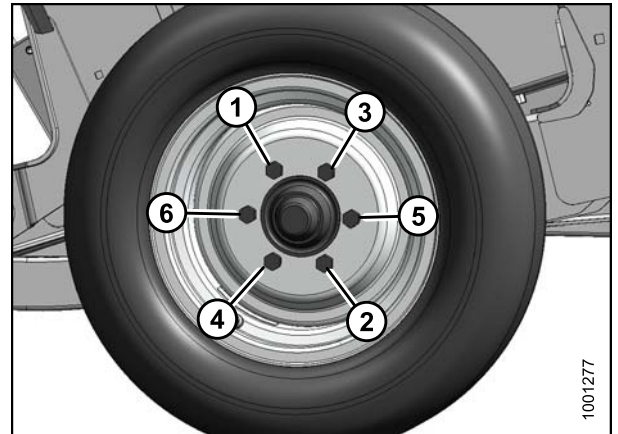


Figure 6.349: Bolt Tightening Sequence

6.15.2 Checking Axle Bolt Torque

If a transport system is installed, follow this procedure for torquing the axle bolts.

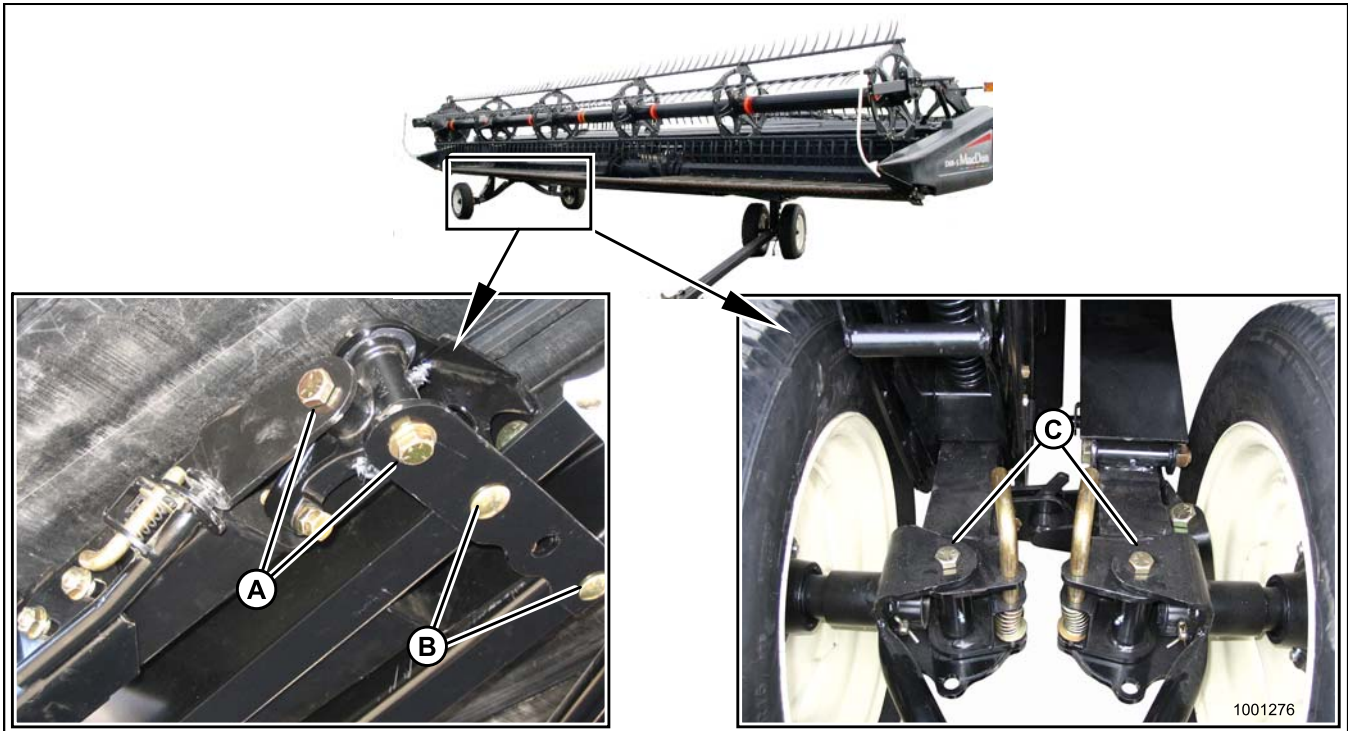


Figure 6.350: Axle Bolts

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)

6.15.3 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.

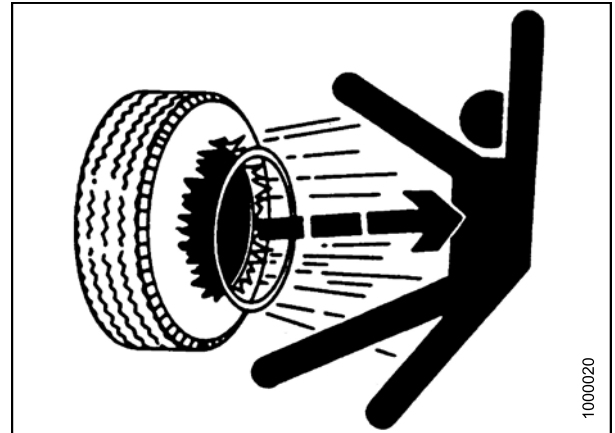


Figure 6.351: Inflation Warning

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 52
	Header angle too low	Increase header angle.	4.7.4 Header Angle, page 149
	Reel too high	Lower reel.	4.7.9 Reel Height, page 156
	Reel too far back	Move reel forward.	4.7.10 Reel Fore-Aft Position, page 156
	Ground speed too fast for reel speed	Reduce ground speed or increase reel speed.	4.7.5 Reel Speed, page 150 4.7.6 Ground Speed, page 151
	Reel fingers not lifting crop sufficiently	Increase finger pitch aggressiveness.	4.7.12 Reel Tine Pitch, page 165
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 150
	Reel too low	Raise reel.	4.7.9 Reel Height, page 156
	Ground speed too fast	Reduce ground speed.	4.7.6 Ground Speed, page 151
	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 151
	Reel speed too slow	Increase reel speed.	4.7.5 Reel Speed, page 150
	Reel too high	Lower reel.	4.7.9 Reel Height, page 156
	Cutterbar too high	Lower cutterbar.	4.7.1 Cutting Height, page 52
	Reel too far forward	Move reel back on arms.	4.7.10 Reel Fore-Aft Position, page 156
	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.	6.14.1 Replacing Reel Drive Sprocket, page 399
	Worn or broken knife components	Replace components.	6.8 Knife, page 314

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 314
Excessive bouncing at normal field speed	Float set too light	Adjust header float.	4.7.3 Header Float, page 143
Divider rod running down standing crop	Divider rods too long	Remove divider rod.	4.7.14 Crop Divider Rods, page 172
Bushy or tangled crop flows over divider rod, builds up on endsheets	Divider rods providing insufficient separation	Install long divider rods.	4.7.14 Crop Divider Rods, page 172
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 156 6.13.2 Reel Frown, page 381
	Knife hold-downs not adjusted properly	Adjust hold-downs so knife works freely, but still keep sections from lifting off guards.	Checking Knife Hold-Downs, page 323
	Knife sections or guards are worn or broken	Replace all worn and broken cutting parts.	6.8 Knife, page 314
	Header is not level	Level header.	4.8 Leveling the Header, page 174
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch.	4.7.10 Reel Fore-Aft Position, page 156 4.7.12 Reel Tine Pitch, page 165
	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 318 8.2.3 Stub Guard Conversion Kit, page 449
Material accumulating in gap between cut-out in endsheet and knifehead	Crop heads leaning away from knifehead hole in endsheet	Add knifehead shield(s), except in damp/sticky soils.	8.2.2 Knifehead Shield, page 448

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	Checking Knife Hold-Downs, page 323
	Knife sections or guards are worn or broken	Replace all worn and broken cutting parts	6.8 Knife, page 314
	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 150 4.7.6 Ground Speed, page 151
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	4.7.10 Reel Fore-Aft Position, page 156 4.7.12 Reel Tine Pitch, page 165
	Cutterbar too high	Lower cutting height	4.7.1 Cutting Height, page 52
	Header angle too flat	Steepen header angle	4.7.4 Header Angle, page 149
	Bent knife, causing binding of cutting parts	Straighten bent knife and align guards	6.8.7 Knife Guards, page 318
	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, 6.8.7 Knife Guards, page 318 Checking Knife Hold-Downs, page 323 8.2.3 Stub Guard Conversion Kit, page 449
	Reel too far back	Move reel forward	4.7.10 Reel Fore-Aft Position, page 156
	Loose knife drive belt	Adjust drive belt tension	Non-Timed Knife Drive Belts, page 335

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 156 4.7.10 Reel Fore-Aft Position, page 156
	Ground speed too slow	Increase ground speed	4.7.6 Ground Speed, page 151
	Loose knife drive belt	Adjust drive belt tension	Non-Timed Knife Drive Belts, page 335
	Improper knife hold-down adjustment	Adjust hold-down	Checking Knife Hold-Downs, page 323
	Dull or broken knife section	Replace knife section	6.8.1 Replacing Knife Section, page 314
	Bent or broken guards	Align or replace guards	6.8.7 Knife Guards, page 318
	Reel fingers not lifting crop properly ahead of knife	Adjust reel position/finger pitch	4.7.10 Reel Fore-Aft Position, page 156 4.7.12 Reel Tine Pitch, page 165
	Steel pick-up fingers contacting knife	Increase reel clearance to cutterbar or adjust "frown"	6.13.1 Reel Clearance to Cutterbar, page 378 6.13.2 Reel Frown, page 381
	Float too heavy	Adjust springs for lighter float	4.7.3 Header Float, page 143
	Mud or dirt build-up on cutterbar	Raise cutterbar by lowering skid shoes	Cutting On the Ground, page 56
		Install cut-out sections	See your MacDon Dealer
		Flatten header angle	4.7.4 Header Angle, page 149
Knife is not operating at recommended speed	Check engine speed of combine	See your MacDon Dealer	

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Excessive header vibration	Knife on double knife drive not timed ¹⁶	Adjust knife timing ¹⁶	Adjusting Double Knife Timing, page 343 ¹⁶
	Knife hold-downs not adjusted properly	Adjust hold-downs	Checking Knife Hold-Downs, page 323
	Knife not operating at recommended speed	Check engine speed of combine	See your MacDon Dealer
	Excessive knife wear	Replace knife	6.8.2 Removing Knife, page 316 6.8.5 Installing Knife, page 317
	Loose or worn knifehead pin or drive arm	Tighten or replace parts	6.8.1 Replacing Knife Section, page 314
Excessive vibration of adapter and header	Incorrect knife speed	Adjust knife speed	4.7.8 Knife Speed, page 154
	Driveline U-joints worn	Replace U-joints	See your MacDon Dealer
	Bent cutterbar	Straighten cutterbar	See your MacDon Dealer
Excessive breakage of knife sections or guards	Knife hold-downs not adjusted properly	Adjust hold-downs	Checking Knife Hold-Downs, page 323
	Cutterbar operating too low in stony conditions	Raise cutterbar, using skid shoes	Cutting On the Ground, page 56
	Float is set too heavy	Adjust float springs for lighter float	4.7.3 Header Float, page 143
	Bent or broken guard	Straighten or replace guard	6.8.7 Knife Guards, page 318
	Header angle too steep	Flatten header angle	4.7.4 Header Angle, page 149
Knife back breakage	Bent or broken guard	Straighten or replace guard	6.8.7 Knife Guards, page 318
	Worn knifehead pin	Replace knifehead pin	6.8.3 Removing Knifehead Bearing, page 316
	Dull knife	Replace knife	6.8.2 Removing Knife, page 316 6.8.5 Installing Knife, page 317

¹⁶. Applies to timed double knife drive headers only.

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 150
	Reel too low	Raise reel	4.7.9 Reel Height, page 156
	Reel tines too aggressive	Reduce cam setting	4.7.12 Reel Tine Pitch, page 165
	Reel too far back	Move reel forward	4.7.10 Reel Fore-Aft Position, page 156
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)	4.7.12 Reel Tine Pitch, page 165
Wrapping on reel end	Reel tines too aggressive	Reduce cam setting	4.7.12 Reel Tine Pitch, page 165
	Reel too low	Raise reel	4.7.9 Reel Height, page 156
	Reel speed too fast	Reduce reel speed	4.7.5 Reel Speed, page 150
	Crop conditions	Install optional endshields	See your MacDon Dealer
	Reel not centered in header	Center reel in header	6.13.3 Centering the Reel, page 382
Reel releases crop too quickly	Reel tines not aggressive enough	Increase cam setting	4.7.12 Reel Tine Pitch, page 165
	Reel too far forward	Move reel back	4.7.10 Reel Fore-Aft Position, page 156
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	6.14.4 Replacing Drive Chain on Double Reel, page 411 6.14.5 Replacing Drive Chain on Single Reel, page 416
Reel motion uneven under no load	Excessive slack in reel drive chain	Tighten chain	6.14.6 Adjusting Reel Drive Chain Tension, page 418

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 150
	Reel fingers not aggressive enough	Move to a more aggressive finger pitch notch	4.7.12 Reel Tine Pitch, page 165
	Reel too low	Raise reel	4.7.9 Reel Height, page 156
	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	6.14.1 Replacing Reel Drive Sprocket, page 399
Plastic fingers cut at tip	Insufficient reel to cutterbar clearance	Increase clearance	6.13.1 Reel Clearance to Cutterbar, page 378
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 52
		Decrease header tilt	4.7.4 Header Angle, page 149
		Move reel aft	4.7.10 Reel Fore-Aft Position, page 156
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 52
		Decrease header tilt	4.7.4 Header Angle, page 149
		Move reel aft	4.7.10 Reel Fore-Aft Position, page 156
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 176
		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 152
	Relief pressure too low	Increase relief pressure to recommended setting	See your MacDon Dealer
	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	6.12.3 Adjusting Side Draper Tension, page 364
	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	6.12.6 Draper Roller Maintenance, page 368
	Low hydraulic oil	Fill reservoir to full level	Adding Oil, page 289
	Incorrect relief setting at flow control valve	Adjust relief setting	See your MacDon Dealer
Draper stalling	Material not feeding evenly off knife	Lower reel	4.7.9 Reel Height, page 156
		Install stub guards	See your MacDon Dealer, 6.8.7 Knife Guards, page 318 Knife Hold-Downs 8.2.3 Stub Guard Conversion Kit, page 449
	Material accumulates inside or under front edge of draper	Adjust deck height	6.12.5 Adjusting Deck Height, page 367

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 300
	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 149
	Material overload on drapers	Increase side draper speed	4.7.7 Draper Speed, page 152
		Install upper cross auger	See your MacDon Dealer
		Add fighting extensions	5.1.1 Using Fighting Extensions, page 199
	Material accumulation at auger ends	Install stripper bars	5.1.2 Using Stripper Bars, page 199
	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 152
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 199 5.1.2 Using Stripper Bars, page 199
	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 199

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	6.12.4 Adjusting Header Draper Tracking, page 365
		Replace roller bearing(s)	Replacing Adapter Drive Roller Bearing, page 354
		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 300
		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 300
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 152
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 152
	Excessive overlap of feeder draper	Center side draper drive rollers over feed draper side deflectors	Refer to your header technical manual
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 199
		Add stripper bars	5.1.2 Using Stripper Bars, page 199
		Remove auger outer tines	Removing Feed Auger Tines, page 308
		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 308
		Remove fighting extensions	5.1.1 Using Fighting Extensions, page 199
		Remove auger stripper bars	5.1.2 Using Stripper Bars, page 199
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	6.8.8 Knifehead Shield, page 325
Material accumulates inside or under front edge of draper	Deck height improperly adjusted	Adjust deck height	6.12.5 Adjusting Deck Height, page 367

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 178
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 143
	Float set too heavy	Adjust float	
	Header angle too steep	Adjust header to optimum angle	4.7.4 Header Angle, page 149
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 149
	Float too light, header legs do not rest on stops	Adjust to heavier float	4.7.3 Header Float, page 143
Wing float assembly binding	Float locked out	Disengage adapter float lockout	Header Float 4.7.3 Header Float, page 143
	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	6.13.3 Centering the Reel, page 382
	Loose reel arm brace	Center reel in header and tighten brace	

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	4.7.14 Crop Divider Rods, page 172
	Vines and plants build up on endsheet	Install divider rod	
Reel Ends Wrap Up With Crop	Uncut crop interfering on reel ends	Add reel endshields	4.2.3 Endshields, page 37 See your MacDon Dealer
Reel Wraps Up With Crop	Reel too low	Raise reel	4.7.9 Reel Height, page 156
Plants Being Stripped and Complete or Partial Plants Left Behind	Header being carried off ground	Lower header to ground and run on skid shoes and/or cutterbar	Cutting On the Ground, page 56
	Float set too light—cutterbar not following ground	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 143
	Reel too high	Fully retract reel cylinders	4.7.9 Reel Height, page 156
	Reel too high with cylinders fully retracted	Adjust reel height	Adjusting Reel Clearance, page 380
	Finger pitch too retarded	Adjust finger pitch	4.7.12 Reel Tine Pitch, page 165
	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 156
	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 149
	Reel too slow	Adjust reel speed to be marginally faster than ground speed	4.7.5 Reel Speed, page 150
	Ground speed too high	Lower ground speed	4.7.6 Ground Speed, page 151
	Header skid shoes adjusted too low	Raise skid shoes to maximum up position	Cutting On the Ground, page 56

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 314 6.8.2 Removing Knife, page 316 6.8.5 Installing Knife, page 317	
	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 174	
	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 318 Checking Knife Hold-Downs, page 323 8.2.3 Stub Guard Conversion Kit, page 449	
Plant Vines Pinched Between Top Of Draper And Cutterbar	Cutterbar has filled up with trash with draper to cutterbar gap properly adjusted	Manually remove debris from cutterbar cavity to prevent damage to drapers	—	
	Shifting of decks ¹⁷ 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 too retarded	Increase finger aggressiveness (cam position)	4.7.12 Reel Tine Pitch, page 165	
	Reel too high relative to knife	Readjust reel minimum height with cylinders fully retracted	Adjusting Reel Clearance, page 380	
	Reel too far forward of cutterbar	Reposition reel	4.7.10 Reel Fore-Aft Position, page 156	

17. Applies only to D65 SP header

TROUBLESHOOTING

Symptom	Problem	Solution	Section
Cutterbar Guards Breaking	Float insufficient	Increase float	4.7.3 Header Float, page 143
	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	8.2.3 Stub Guard Conversion Kit, page 449 See your MacDon Dealer
Reel Shattering Pods	Reel running too fast	Reduce reel speed	4.7.5 Reel Speed, page 150
	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)	4.7.12 Reel Tine Pitch, page 165
	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 143
	Header angle too steep	Decrease header angle with lift cylinders	4.7.4 Header Angle, page 149
		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 318 , Checking Knife Hold-Downs, page 323 8.2.3 Stub Guard Conversion Kit, page 449
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	6.12.5 Adjusting Deck Height, page 367
		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 156
		Adjust reel fore and aft location to move fingers out of the ground	4.7.10 Reel Fore-Aft Position, page 156
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 152
	Finger pitch too retarded	Increase finger pitch	4.7.12 Reel Tine Pitch, page 165

8 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 Reel

8.1.1 Multi-Crop Rapid Reel Conversion Kit

This kit decreases the time required to change the fore-aft cylinder position on the reel support arm from the normal operating location to a further aft location that minimizes disturbance of the crop. The reel fore-aft cylinders can also be quickly re-located back to the normal operating position.

MD #5943.

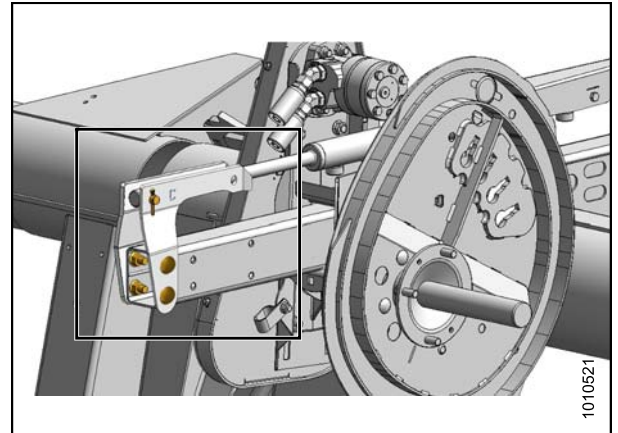


Figure 8.1: Center Arm - Left and Right Similar

8.1.2 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.

Each kit contains three fingers for the cam end and three fingers for the tail end of the reel. Hardware, installation and adjustment instructions are included with the kit.

MD #B4831



Figure 8.2: Lodged Crop Finger

8.1.3 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:

- 25 ft. – Plastic Fingers MD #B5277
- 25 ft. – Steel Fingers MD #B5656
- 30 ft. – Plastic Fingers MD #B5278¹⁸
- 30 ft. – Steel Fingers MD #B5657
- 35 ft. – Plastic Fingers MD #B5674

NOTE:

Must order additional endshields when converting reel.

8.1.4 Reel Endshield Kit

The steel shields attach to ends of the reel(s) and help in clearing material in heavy, hard-to-cut crops. They are standard equipment on all, except 9-bat, headers. See your MacDon Dealer for more information. Installation and adjustment instructions are included with the kit.

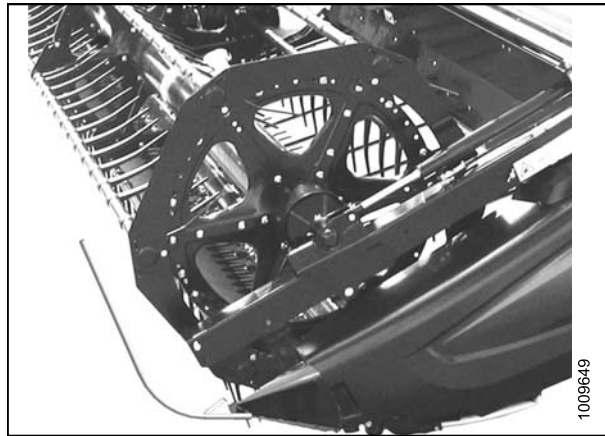


Figure 8.3: Reel Endshields

18. Double reel units only

8.1.5 Reel Tine Tube Reinforcing Kit

The reel tine tube reinforcing kit is available for 5-bat and 6-bat reels when cutting extremely heavy crops where high reel loads are experienced.

- 5-Bat – MD #B5825
- 6-Bat – MD #B5826

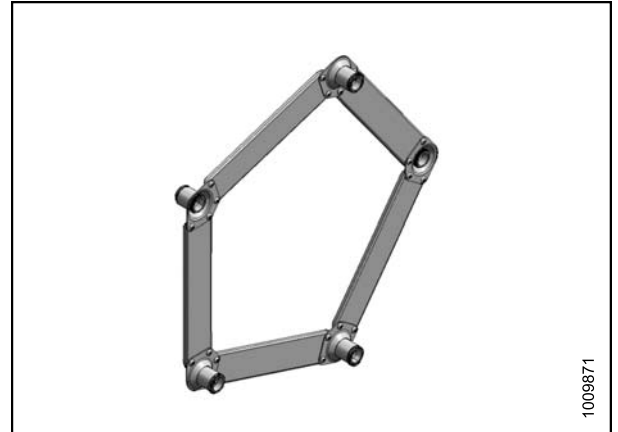


Figure 8.4: 5-Bat Shown– 6-Bat Similar

8.2 Cutterbar

8.2.1 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:

- 20 ft. – MD #B4865
- 25 ft. – MD #B4838
- 30 ft. – MD #B4839
- 35 ft. – MD #B4840
- 40 ft. – MD #B4841
- 45 ft. – MD #B5114



Figure 8.5: Wear Strips

8.2.2 Knifehead Shield

The shields attach to the endsheets and reduce the knifehead opening to prevent cut crop, particularly severely lodged crop, from accumulating over the knifehead, which could damage the knife drive box and the endsheet.

Order kit according to header size and guard type.

Regular Guards :

- 25 ft. and smaller – MD #220100
- 30 ft. and larger – MD #220101

Stub Guards :

- 25 ft. and smaller – MD #220102
- 30 ft. and larger – MD #220103

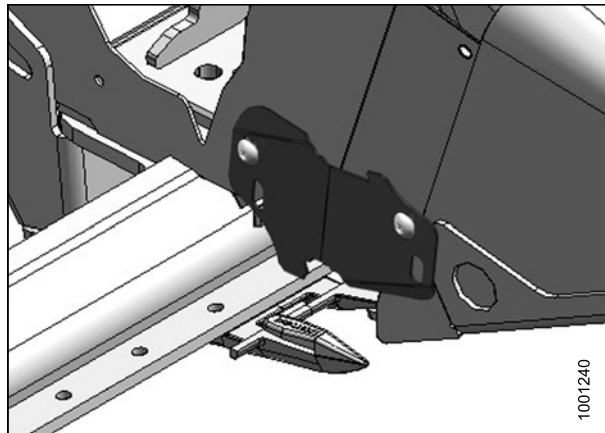


Figure 8.6: Knifehead Shield

8.2.3 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:

- 20 ft. – MD #B5010
- 25 ft. – MD #B5011
- 30 ft. – MD #B5012
- 35 ft. – MD #B5013

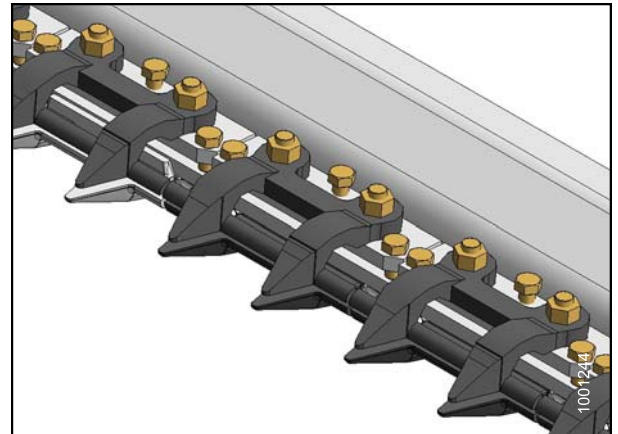


Figure 8.7: Stub Guards

8.2.4 Vertical Knife Mounts

The vertical knife¹⁹ 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.

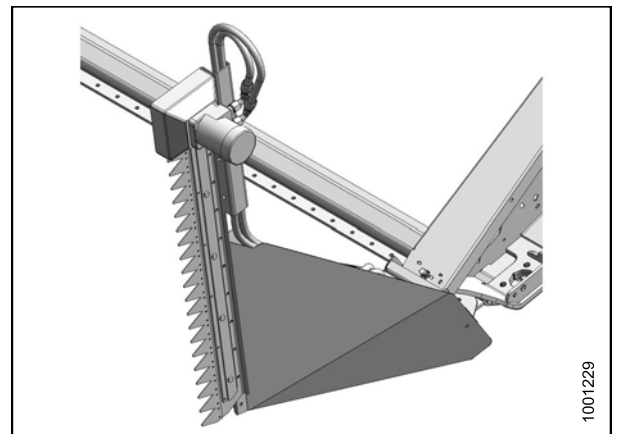


Figure 8.8: Vertical Knife Mount

19. Must be purchased from a separate supplier.

8.3 Header

8.3.1 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

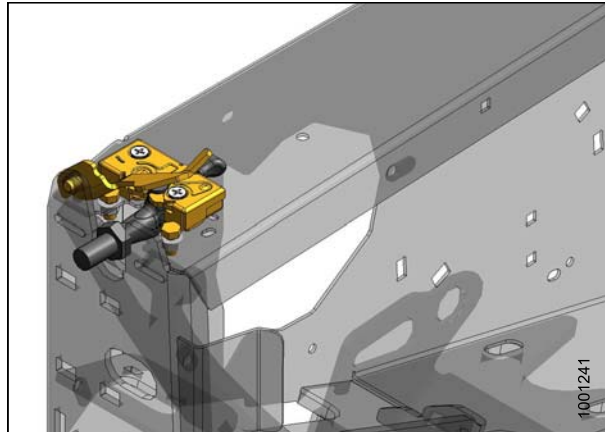


Figure 8.9: Divider Latch

8.3.2 Stabilizer Wheels

The stabilizer wheels help stabilize the header in field conditions that would otherwise cause the header to bounce and result in uneven cutting height. Installation and adjustment instructions are included with the kit.

Available as an attachment for use with 30, 35, 40, and 45 ft. headers.

MD #C1986

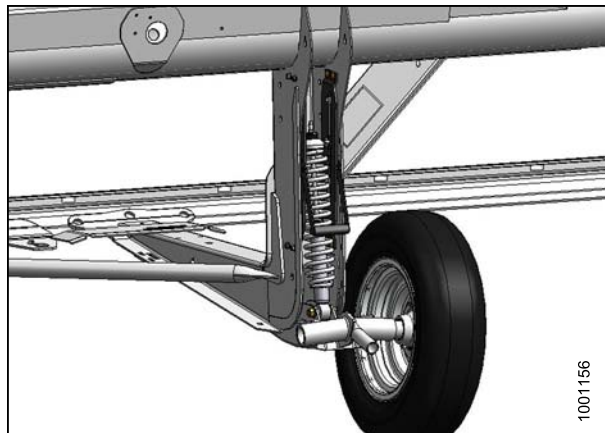


Figure 8.10: Stabilizer Wheel

8.3.3 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 8.11: Rice Divider Rod

8.3.4 Stabilizer/Slow Speed Transport Wheels

The Stabilizer/Slow Speed Transport Wheels help stabilize the header in field conditions that would otherwise cause the header to bounce, and result in uneven cutting height. This system is similar to the Stabilizer Wheel option.

The Stabilizer/Slow Speed Transport Wheels convert to transport mode to allow the header to be towed behind a properly configured MacDon windrower (or agricultural tractor) at slow speed. A tow pole is included in the kit.

For use on 30, 35, 40, and 45 ft. headers.

MD #C1997



Figure 8.12: Stabilizer/Transport Wheels

8.4 Crop Delivery

8.4.1 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

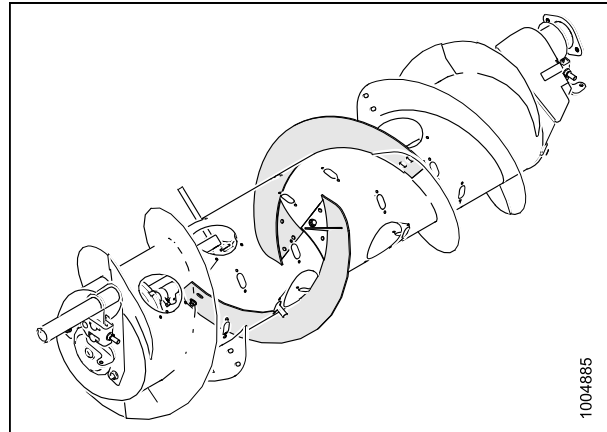


Figure 8.13

8.4.2 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

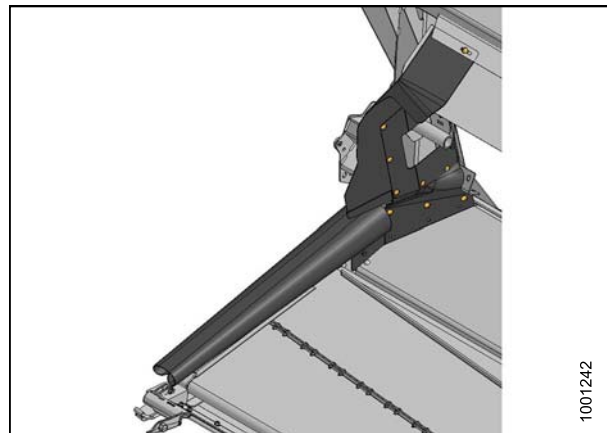


Figure 8.14: European Adapter Seal Kit

8.4.3 Draper Deflector (Narrow)

Narrow metal deflectors attach to the inboard side of the endsheets and prevent material from falling through the gap between the endsheet and draper while minimizing reel carryover in bushy type crops.

Refer to the D65 Draper Header Parts Catalog (MD #169902) for required parts.

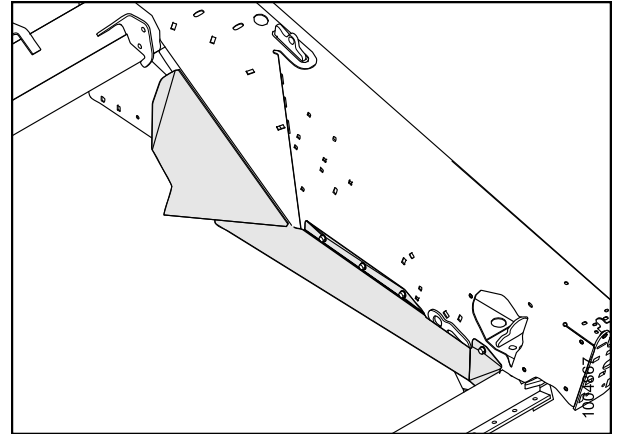


Figure 8.15: Draper Deflector

8.4.4 Stripper Bars

Stripper bar kits are available as an option to improve feeding in certain crops such as rice. They are **NOT** recommended in cereal crops.

The model of combine determines which Stripper Bar Kit is required.

Order the correct bundle listed below for your combine:

- Lexion (Narrow Body) – MD #B4830
- Lexion (Wide Body) – MD #B4920
- CIH 2377/88 and 2577/2588 – MD #B4830
- JD CTS/STS – MD #B4921
- CIH 7010/8010 – MD #B4922
- NH CR 970/980/9070/9080 – MD #B4922
- NH CX/TX CIH 2366 – MD #B4920
- NH CR 940/960/9040/9060 – MD #B4923

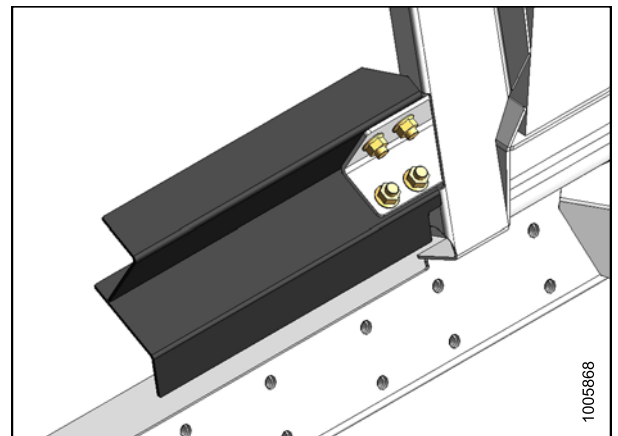


Figure 8.16: Order Based on Combine Model and Type

8.4.5 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 ²⁰according to the length of your header:

- 25 ft. – MD #B4846
- 30 ft. – MD #B4847
- 35 ft. – MD #B4848
- 40 ft. – MD #B4849
- 45 ft. – MD #B4849

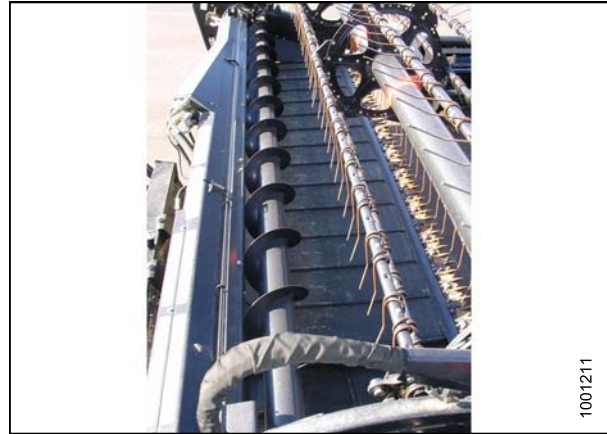


Figure 8.17: Upper Cross Auger

20. MD #B5606 is required to operate both upper cross auger (UCA) and double draper drive (DDD) on an SP Windrower.

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	D65 Draper Header and CA25 Combine Adapter	MD #169904
Export (that is, anywhere except North America)	D65 Draper Header and CA25 Combine Adapter	MD #169905

Index

A

- adapter
 - adapter setup 199
 - auger 300
 - auger drive 200
 - tension springs 48
 - components 26
 - detaching from
 - AGCO combine 238
 - Case IH combine 205
 - Challenger combine 238
 - Gleaner combine 238
 - John Deere combine 212
 - Lexion combine 220
 - Massey combine 238
 - New Holland CR/CX combine 227
- feed deck
 - adapter drive roller
 - installing drive roller bearing 355
 - adjusting draper tension 351
 - draper
 - replacing 350
 - drive roller
 - bearing 354
 - installing 354
 - removing 352
 - idler roller
 - installing 358
 - removing 356
 - replacing idler roller bearing 357
- feed draper 350
- feeder deflectors 231
- flighting extensions
 - installing 312
 - removing 313
- stripper bars
 - installing 360
 - kits 199
 - removing 360
 - unplugging 177
- adapter setup
 - auger drive 200
 - feed deflectors 231
- AGCO combine
 - attaching header to combine 232
 - detaching from adapter 238
 - replacing reel speed sensor 421
- AHHC
 - definition 23
- API
 - definition 23
- ASTM
 - definition 23
- auger 300
 - adjusting auger to pan clearance 300
 - drive 200
 - drive chain
 - adjusting 301
 - installing 306
 - lubricating 285
 - removing 302
 - flighting extensions 199
 - installing 312
 - removing 313
 - tension springs 48
 - tines 308
- auto header height
 - adjusting auto reel speed
 - Lexion 500 Series 125
 - Lexion 700 Series 133
 - adjusting drop rate threshold
 - John Deere 60 Series 103
 - adjusting ground pressure
 - Gleaner R65/R75 90
 - adjusting header height
 - AGCO 6 Series 67
 - adjusting raise/lower rate
 - AGCO 6 Series 67
 - Gleaner R65/R75 90
 - John Deere 70 Series - manual 109
 - John Deere S Series 115
 - New Holland CR/CX Series 140–141
 - adjusting sensitivity
 - AGCO 6 Series 69
 - Case IH 2300/2500 and 5088/6088/7088 72
 - Gleaner R65/R75 91
 - John Deere 60 Series 102
 - John Deere 70 Series 108
 - John Deere S Series 114
 - Lexion 500 Series 122
 - Lexion 700 Series 131
 - adjusting voltage limits 61
 - calibrating feeder house speed
 - John Deere 70 Series 107
 - calibrating maximum stubble height 139
 - calibrating the system
 - AGCO 6 Series 65
 - Case 5130/6130/7130, 7010/8010, 7120/8120/9120, 7230/8230/9230
 - universal display 78
 - Case combines with software version 28.00 or higher 80

INDEX

Case IH 2300/2500	71
Gleaner R62/R72	82
Gleaner R65/R75	88
John Deere 50 Series	96
John Deere 50/60 Series	99
John Deere 70 Series	107
John Deere S Series	113
Lexion 500 Series	118
Lexion 700 Series	128
New Holland CR/CX Series	138
checking voltage range from the combine cab	
AGCO 6, 7 Series	63
Case 8010	74
Case IH 5130/6130/7130, 7010/8010; 7120/8120/9120; 7230/8230/9230	76
Gleaner R65/R75	85
John Deere 50 Series	95
John Deere 60 Series	98
John Deere 70 Series	104
John Deere S Series	110
New Holland CR/CX Series	134
configuring combine	
New Holland CR/CX Series	137
description	58
diagnostics	
Gleaner R65/R75	92
engaging the system	
AGCO 6 Series	64
Case IH 2300	70
Gleaner R65/R75	86
manually checking the sensor's output voltage range	60
operation settings	
Gleaner R62/R72 Series	82
sensor operation	142
setting cutting height	
Lexion 500 Series	120
Lexion 500 Series - manually	121
Lexion 500 Series - preset	120
Lexion 700 Series	130
setting preset cutting height	
John Deere S Series	116
setting sensitivity	
New Holland CR/CX Series	141
setting the sensing grain header height	
John Deere 60 Series	102
setting the sensor's output voltage range	59
system requirements	
Gleaner R65/R75	81
turning the accumulator off	
Gleaner R65/R75	89
John Deere 60 Series	101
axle bolt	426

B

bearing	
drive roller, side draper	372
feed draper drive roller	
removing	354
replacing side draper idler	370
beater bar	
installing	180
removing	178
belt	
knife drive	
adjusting (35 ft. and smaller) double knife timing	343
installing on DK headers – LH (timed)	340
installing on SK and DK headers (non-timed)	336
removing from DK headers – LH (timed)	339
removing from SK and DK headers (non-timed)	335
tensioning on single-knife and double-knife headers (non-timed)	337
tensioning timed drive	342
tracking timed drive	346
knife timing	
adjusting	343
break-in inspection	271
break-in period	43

C

cam	
adjusting	167
Case IH combine	
attaching header to combine	201
detaching from adapter	205
center-link	23
<i>See also</i> hydraulic link	
<i>See also</i> mechanical link	
definition	23
Challenger combine	
attaching header to combine	232
detaching from adapter	238
combine	
attaching to	
Agco	232
Case IH	201
Challenger	232
Gleaner	232
John Deere	208
Lexion 500 and 700 series	216
Massey	232
New Holland CR/CX	224
detaching from	
AGCO	238

INDEX

- Case IH..... 205
 - Challenger..... 238
 - Gleaner..... 238
 - John Deere..... 212
 - Lexion..... 220
 - Massey..... 238
 - New Holland CR/CX..... 227
 - header attachment/detachment..... 199
 - transporting header..... 181
 - component identification..... 25
 - CA25 combine adapter..... 26
 - D65 Combine Header..... 25
 - conversion chart..... 254
 - CR feeder deflector..... 231
 - crop divider..... 168
 - installing on header with latch option..... 169
 - installing on header without latch option..... 171
 - removing from header with latch option..... 168
 - removing from header without latch option..... 169
 - crop divider rod..... 172
 - removing..... 173
 - cutterbar
 - unplugging..... 176
 - cutterbar plastic wear strip..... 448
 - cutting
 - edible beans..... 440
 - height..... 52
 - off the ground..... 52
 - adjusting stabilizer wheels..... 55
 - adjusting stabilizer/slow speed transport wheels..... 53
 - on the ground..... 56
 - cutting action troubleshooting..... 431
- D**
- daily start-up check..... 42
 - decals location..... 10
 - definition of terms..... 23
 - divider latch kit..... 450
 - divider rod..... 172
 - removing..... 173
 - DK
 - definition..... 23
 - DR
 - definition..... 23
 - draper
 - adapter..... 350
 - adjusting tension..... 364
 - installing..... 362
 - removing..... 362
 - speed..... 152
 - troubleshooting..... 436
 - draper deflector
 - narrow..... 453
 - installing..... 376
 - removing..... 375
 - drive
 - header..... 293
 - drive chain
 - lubricating..... 285
 - drive roller
 - feed draper
 - installing..... 354
 - installing bearing..... 355
 - removing..... 352
 - removing bearing..... 354
 - side draper
 - installing..... 374
 - removing..... 371
 - replacing bearing..... 372
 - driveline
 - driveline guard
 - installing driveline guard..... 297
 - removing driveline guard..... 295
 - installing driveline..... 294
 - removing driveline..... 293

E

 - electrical
 - maintenance..... 292
 - replacing light bulbs..... 292
 - end of season service..... 271
 - endshield..... 37
 - adjusting..... 41
 - closing..... 38
 - installing..... 40
 - opening..... 37
 - removing..... 39
 - European adapter seal kit..... 452

F

 - feed auger
 - tine installing..... 310
 - feed draper..... 350
 - adjusting tension..... 351
 - drive roller
 - installing..... 354
 - installing bearing..... 355
 - removing..... 352
 - removing bearing..... 354
 - idler roller
 - installing..... 358
 - removing..... 356
 - replacing bearing..... 357
 - replacing..... 350

INDEX

- feeder deflector 231
 - replacing..... 361
- flighting extension..... 199
 - installing 312
 - removing 313
- float 149
 - header float
 - checking and adjusting 144
 - wing float locks..... 148

- G**
- gearbox drive chain
 - adjusting..... 299
- Gleaner combine
 - attaching header to combine 232
 - detaching from adapter 238
- glossary 23
- greasing procedure..... 282–283
- ground speed 151
- GSL
 - definition 23
- guard 318
 - adjusting knife guards..... 318
 - replacing
 - pointed guards on a single knife header..... 319
 - pointed guards on double knife header 320
 - stub guards on a double knife header..... 322
 - stub guards on a single knife header 321

- H**
- header
 - adjusting header angle 150
 - assembly 455
 - attaching to combine and adapter..... 247
 - controls 45
 - deck height
 - adjusting 367
 - definition 23
 - detaching from combine and adapter 242
 - float 143
 - float locks 148
 - leveling..... 174
 - operating variables 52
 - recommended settings 47
 - setup 46
 - transporting..... 181
 - transporting on combine 181
 - troubleshooting 436
- header angle
 - adjustment range 149
- header draper..... 362
 - adjusting side draper tension..... 364
 - adjusting tracking 365
 - installing draper..... 362
 - removing draper 362
- header drive 293
- header drive gearbox
 - adding oil 287
 - changing oil 287
 - checking oil level 286
 - lubricating 286
- header driveline
 - installing 294
- header safety prop..... 34
- hold-down
 - adjusting on headers with pointed guards..... 324
 - adjusting on headers with stub guards 325
- hoses and lines
 - hydraulic 273
- hydraulic fitting
 - flare-type 260
 - O-ring boss (ORB) adjustable 262
 - O-ring boss (ORB) non-adjustable..... 264
 - O-ring face seal (ORFS) 265
- hydraulics 288
 - adding oil 289
 - checking oil level 288
 - hoses and lines 273
 - oil change 289
 - oil filter..... 290
 - reservoir 288
 - safety 7

- I**
- idler roller
 - feed draper
 - installing..... 358
 - removing 356
 - replacing bearing 357
 - side draper
 - installing..... 371
 - removing 369
 - replacing bearing 370
- inspection
 - break-in 271

- J**
- John Deere combine
 - attaching header to combine 208
 - detaching from adapter 212

INDEX

- replacing reel speed sensor 422
- K**
- knife 314
 - checking speed 155
 - guards 320–322
 - adjusting 318
 - checking 318
 - knifehead bearing
 - removing 316
 - replacing
 - knife section 314
 - pointed guards on a single knife header 319
 - pointed guards on double knife header 320
 - stub guards on a double knife header 322
 - stub guards on single knife header 321
 - spare knife location 318
 - speed 154
 - troubleshooting 431
 - knife components troubleshooting 431
 - knife drive 314, 327
 - adjusting hold-downs on headers with pointed guards 324
 - adjusting hold-downs on headers with stub guards 325
 - adjusting timing of double knives 343
 - double knife timed 338
 - installing knife 317
 - removing knife 316
 - knife drive belt, *See* belt
 - knife drive box 327
 - changing oil 335
 - installing pulley 332
 - installing single and double knife untimed 332
 - mounting bolts 327
 - removing double knife timed 329
 - removing pulley 331
 - removing single and double knife untimed 327
 - knife hold-down
 - checking 323
 - hold-down, *See* knife hold-down
 - knifehead bearing
 - installing 317
 - knifehead shield 325, 448
 - installing 325
- L**
- Lexion combine, *See* Lexion combines
 - attaching header to combine 216
 - detaching from adapter 220
 - replacing
 - reel speed sensor on double reel header 423
 - Lexion combines
 - replacing
 - reel speed sensor 422
 - light bulbs
 - replacing 292
 - lodged crop reel finger kit 445
 - lubrication
 - auger drive chain 285
 - greasing procedure 282–283
 - lubricating header drive gearbox 286
 - lubrication and servicing 273
- M**
- main driveline
 - adjusting tension on gearbox drive chain 299
 - removing 293
 - maintenance
 - annual 271
 - electrical 292
 - end of season 271
 - pre-season 271
 - preparing for servicing 253
 - requirements 268
 - schedule/record 269
 - service intervals 274
 - specifications 254
 - storage 198
 - maintenance and servicing
 - conversion chart 254
 - maintenance safety 6
 - Massey combine
 - attaching header to combine 232
 - detaching from adapter 238
 - metric bolt
 - torque 258
 - torque when bolting onto cast aluminum 260
 - model number
 - record v
 - motor
 - reel drive 406
 - mounting bolt
 - knife drive box 327
 - mult-crop kit 445
 - multi-crop conversion option 163
- N**
- New Holland CR/CX combine
 - attaching header to combine 224
 - detaching from adapter 227

INDEX

New Holland feeder deflector..... 231

O

oil

adding oil to header drive gearbox..... 287
adding oil to hydraulic system 289
changing hydraulic oil filter..... 290
changing oil in header drive gearbox 287
changing oil in hydraulic system 289
checking oil level in header drive gearbox..... 286
checking oil level in hydraulic system..... 288

operating variable 52
operator responsibility 33

option

auger drive sprockets 200
cutterbar plastic wear strips..... 448
divider latch kit 450
draper deflector
 narrow..... 453
European adapter seal kit 452
knifehead shield 325, 448
lodged crop reel finger kit..... 445
mult-crop conversion kit..... 445
PR15 tine tube reel conversion kit 446
reel drive sprockets 151
reel endshield kit 446
rice divider rods..... 451
rice dividers 173
stabilizer wheels..... 450
stabilizer/slow speed transport wheels 451
stub guard conversion kit 449
tine tube kit 447
transport system..... 425
upper cross auger 178, 454
vertical knife mount kit 449
options..... 445
owner responsibility 33

P

pick-up reel, See PR15 pick-up reel

PR15 pick-up reel

drive chain
 replacing chain on double reel drive 411
reel drive
 installing U-joint 404
 removing U-joint..... 403
reel drive system
 reel speed sprocket..... 399
reel settings 165
tine tube bushing..... 385
 installing on 5-, 6- or 9-bat reels 390
 removing from 5-, 6- or 9-bat reels 385

pre-season/annual service 271
preparation for servicing..... 253
pulley
 installing 332

R

recommended fluids and lubricant 255
recommended setting 47
reel 378
 adjusting
 cam..... 167
 fore-aft position 157
 frown..... 381
 reel clearance 380
 clearance to cutterbar 378
 frown 381
 height 156
 measuring reel clearance..... 378
 PR15 pick-up reel..... 378
 recommended settings 50
 replacing reel speed sensor
 AGCO 421
 John Deere..... 422
 Lexion 400..... 422
 Lexion 500/700 423
reel centering 382
 double reel..... 382
 single reel 383
reel drive 378
 installing motor 409
 installing sprocket..... 401, 410
 reel drive U-joint..... 402
 removing sprocket..... 400, 407
 replacing chain
 single reel..... 416
 sprockets..... 151
reel drive chain
 replacing chain on double reel drive
 breaking the chain method..... 414
 disconnecting the reel method 412
reel drive motor 406
 removing 408
reel endshield..... 396
 replacing endshield 397
 replacing support..... 398
reel endshield kit 446
reel fore-aft position 156
 adjusting..... 157
 repositioning cylinder on double
 reel 160, 163
 repositioning cylinder on single reel 157
 repositioning cylinders with multi-crop
 option 163

INDEX

- reel safety prop..... 35
 - disengaging 36
 - engaging 35
- reel speed..... 150
- reel tine..... 383
 - installing plastic fingers 385
 - installing steel tines 383
 - removing plastic fingers 384
 - removing steel tines..... 383
- reel tine pitch..... 165
- rice divider 173
- rice divider rod..... 451
- roller chain
 - installing 266
- rpm
 - definition 23

- S**
- SAE
 - bolt torque 255
 - definition 23
- safety..... 1
 - alert symbols..... 1
 - daily start-up check 42
 - decals locations 10
 - general safety 3
 - header props..... 34
 - hydraulic safety 7
 - maintenance and servicing..... 6
 - operational..... 34
 - reel props 35
 - safety sign decals..... 9
 - installing 9
 - interpreting 16
 - signal words..... 2
 - tire safety..... 8
- sealed bearing
 - installing 267
- serial number
 - location..... v
 - record..... v
- service interval 274
- servicing preparation..... 253
- set up the header..... 455
- shutdown procedure 44
- sickle drive, *See* knife drive
- sickle drive box, *See* knife drive box
- side draper deck
 - idler roller
 - installing..... 371
 - inspecting roller bearing..... 368
 - installing drive roller..... 374
 - removing drive roller 371
 - removing idler roller 369
 - replacing drive roller bearing 372
 - replacing idler roller bearing 370
- SK
 - definition 23
- skid shoe, *See* cutting on the ground
 - adjusting inner skid shoe 56
 - adjusting outer skid shoe 57
- spare knife 318
- specification 29
 - torque specifications..... 255
- speed
 - draper..... 152
 - ground..... 151
 - knife 154
 - reel..... 150
- speed sensor
 - replacing speed sensor
 - AGCO 421
 - John Deere..... 422
 - Lexion 400..... 422
 - Lexion 500/700 423
- spm
 - definition 23
- sprocket..... 399
 - optional reel drive sprockets..... 151
- SR
 - definition 23
- stabilizer wheel..... 450
 - adjusting 55
- stabilizer/slow speed transport wheel 451
 - adjusting 53
- start-up
 - daily check..... 42
- steel tine
 - installing 383
 - removing 383
- stripper bar..... 199
 - installing 360
 - removing 360
- stub guard conversion kit 449

- T**
- tine 308
 - feed auger
 - removing 308
 - tine tube bushings 385
 - installing on 5-, 6- or 9-bat reels 390
 - removing from 5-, 6- or 9-bat reels 385
- tine tube
 - reel conversion kit 446
- tine tube kit 447
- tire inflation/pressure..... 427

INDEX

torque specification	255	tire inflation/pressure	427
axle bolts	426	tow-bar	
flare-type hydraulic fittings	260	attaching	194
metric bolt	258	removing	183
metric bolt bolting into cast aluminum	260	storing	184
O-ring boss (ORB) hydraulic fitting		wheel bolt torque	425
adjustable	262	troubleshooting	429
non-adjustable	264	crop loss at cutterbar	429
O-ring face seal (ORFS) hydraulic fitting	265	cutting action and knife components	431
SAE bolt	255	cutting edible beans	440
tow-bar		headers and drapers	436
attaching	194	reel delivery	434
removing	183	truck	
storing	184	definition	23
towing	181		
attaching header to towing vehicle	182	U	
attaching tow-bar	183, 194	u-joint	
converting from field to transport	189	reel drive	402
converting from transport to field	183	unloading	455
moving front (left) wheels to field position	185	upper cross auger	178, 454
moving front (left) wheels to transport		installing beater bars	180
position	189	removing beater bars	178
moving rear (right) wheels to field position	187		
moving rear (right) wheels to transport		V	
position	191	v-belt	
towing the header	182	knife drive	
tractor		installing	339
definition	23	removing	338
transport system	425	vertical knife mount kit	449
axle bolt torque	426		
converting from field to transport	189	W	
moving front (left) wheels to transport		wheel and tire	427
position	189	safety	8
moving rear (right) wheels to transport		wheel bolt torque	425
position	191	wobble box, See knife drive box	
converting from transport to field	183		
moving front (left) wheels to field			
position	185		
moving rear (right) wheels to field			
position	187		

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