

D65 Draper Header for Combines

**IMPORTANT: PAGE 41 HAS BEEN
UPDATED SINCE THIS MANUAL WAS
PUBLISHED.**

Operator's Manual

169593 Rev. C

Original Instruction

D65 Draper Header for Combines



1000888

Published: October, 2013

Declaration of Conformity



EC Declaration of Conformity

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

The person named below declares that:

Machine type: *Combine Header*
Model: *Series 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.

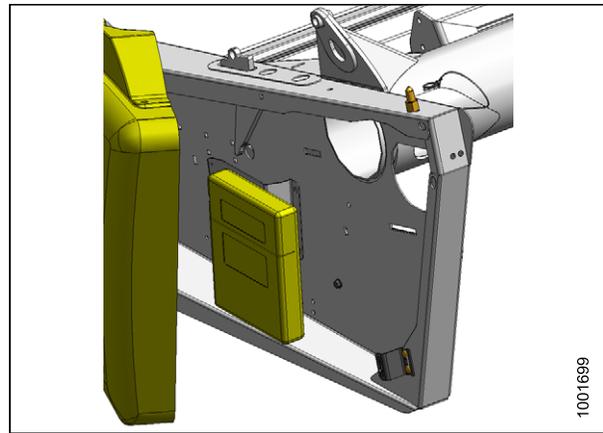


Figure 1: Manual storage location

Model and Serial Number

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

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

Draper Header

Header Model: _____

Serial Number: _____

Year: _____

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

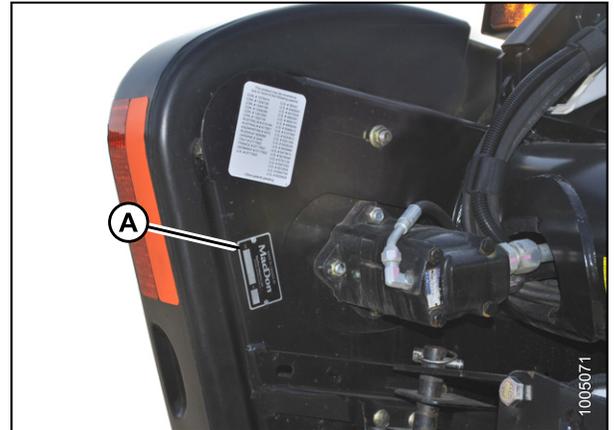


Figure 2: Header serial number location

Combine Adapter

Adapter Model: _____

Serial Number: _____

Year: _____

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

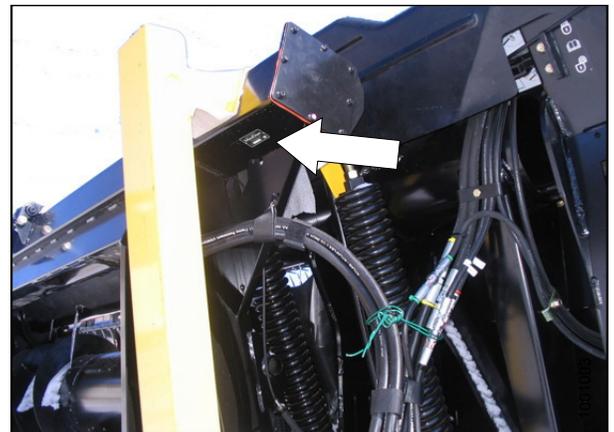


Figure 3: Adapter serial number location

Slow Speed Transport/Stabilizer Wheel Option

Serial Number: _____

Year: _____

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

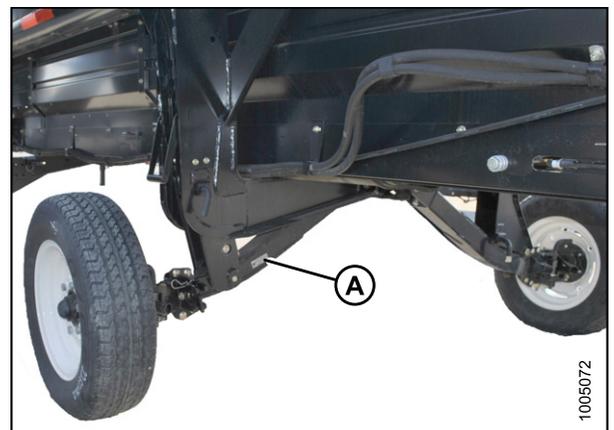


Figure 4: Slow Speed Transport/Stabilizer Wheel Option serial number location

TABLE OF CONTENTS

| | |
|---|-----------|
| Declaration of Conformity | i |
| Introduction | ii |
| Model and Serial Number | iii |
| 1 Safety | 1 |
| 1.1 Safety Alert Symbols | 1 |
| 1.2 Signal Words | 2 |
| 1.3 General Safety | 3 |
| 1.4 Maintenance Safety | 5 |
| 1.5 Hydraulic Safety | 6 |
| 1.6 Tire Safety | 7 |
| 1.7 Safety Signs | 8 |
| 1.7.1 Installing Safety Decals | 8 |
| 1.8 Safety Decal Locations | 9 |
| 1.8.1 Upper Cross Auger (UCA) | 9 |
| 1.8.2 Slow Speed Transport | 10 |
| 1.8.3 Vertical Knife | 11 |
| 1.8.4 All Headers | 12 |
| 15 – Foot Header | 13 |
| 20 – Foot Header | 14 |
| 25 – Foot Header | 15 |
| 30 – Foot Header | 16 |
| 35 – Foot Header | 17 |
| 40 – Foot Header | 18 |
| 45 – Foot Header | 19 |
| 1.9 Interpreting Safety Signs | 20 |
| 2 Reference | 29 |
| 2.1 Definitions | 29 |
| 2.2 Component Identification | 32 |
| 2.2.1 D65 Combine Header | 32 |
| 2.2.2 CA25 Combine Adapter | 33 |
| 3 Specifications | 35 |
| 4 Operation | 39 |
| 4.1 Owner/Operator Responsibilities | 39 |
| 4.2 Operational Safety | 40 |
| 4.2.1 Header Safety Props | 40 |
| 4.2.2 Reel Safety Props | 41 |
| Engaging Reel Safety Props | 41 |
| Disengaging Reel Safety Props | 42 |
| 4.2.3 Endshields | 44 |
| Opening Endshields | 44 |
| Closing Endshields | 45 |
| Removing Endshields | 46 |
| Installing Endshields | 46 |
| Adjusting Endshields | 47 |
| 4.2.4 Daily Start-Up Check | 49 |
| 4.3 Break-in Period | 50 |
| 4.4 Shutdown Procedure | 51 |
| 4.5 Cab Controls | 52 |
| 4.6 Header Setup | 53 |
| 4.6.1 Header Settings | 53 |
| 4.6.2 Reel Settings | 54 |
| 4.7 Header Operating Variables | 56 |
| 4.7.1 Cutting Height | 56 |

TABLE OF CONTENTS

| | | |
|----------|---|------------|
| | Cutting Off The Ground | 56 |
| | Cutting On the Ground | 60 |
| | Setting Feeder House Height and Header Angle | 62 |
| 4.7.2 | Header Float | 63 |
| | Header Float Locks | 63 |
| | Checking and Adjusting Header Float | 64 |
| 4.7.3 | Header Angle | 68 |
| | Angle Adjustment | 69 |
| 4.7.4 | Reel Speed | 70 |
| | Optional Reel Drive Sprockets | 70 |
| 4.7.5 | Ground Speed | 71 |
| 4.7.6 | Draper Speed | 72 |
| 4.7.7 | Knife Speed | 73 |
| | Adjusting Knife Speed | 74 |
| 4.7.8 | Reel Height | 74 |
| 4.7.9 | Reel Fore-Aft Position | 75 |
| | Adjusting Reel Fore-Aft Position | 75 |
| | Repositioning Fore-Aft Cylinder on Single Reel | 76 |
| | Repositioning Fore-Aft Cylinder on Double Reel | 78 |
| 4.7.10 | Reel Tine Pitch | 81 |
| | Pickup Reel Settings | 81 |
| | Adjusting Reel Cam | 83 |
| 4.7.11 | Crop Dividers | 84 |
| | Removing Crop Dividers from Header with Latch Option | 84 |
| | Removing Crop Dividers from Header without Latch Option | 85 |
| | Installing Crop Dividers on Header with Latch Option | 85 |
| | Installing Crop Dividers on Header without Latch Option | 87 |
| 4.7.12 | Crop Divider Rods | 88 |
| | Removing Crop Divider Rods | 89 |
| | Rice Dividers | 89 |
| 4.8 | Levelling the Header | 90 |
| 4.9 | Unplugging Cutterbar | 92 |
| 4.10 | Unplugging Adapter | 93 |
| 4.11 | Upper Cross Auger (UCA) | 94 |
| 4.11.1 | Removing Beater Bars | 94 |
| 4.11.2 | Installing Beater Bars | 96 |
| 4.12 | Transporting Header | 97 |
| 4.12.1 | Transporting Header on Combine | 97 |
| 4.12.2 | Towing | 97 |
| | Attaching Header to Towing Vehicle | 98 |
| | Towing the Header | 98 |
| 4.12.3 | Converting from Transport to Field Position | 99 |
| | Removing Tow-Bar | 99 |
| | Storing Tow-Bar | 100 |
| | Moving Front (Left) Wheels into Field Position | 101 |
| | Moving Rear (Right) Wheels into Field Position | 103 |
| 4.12.4 | Converting from Field to Transport Position | 105 |
| | Moving Left (Front) Wheels into Transport Position | 105 |
| | Moving Right (Rear) Wheels into Transport Position | 107 |
| 4.13 | Storage | 111 |
| 5 | Header Attachment/Detachment | 113 |
| 5.1 | Adapter Setup | 113 |
| 5.1.1 | Flighting Extensions | 113 |
| | Installing Flighting Extensions | 114 |

TABLE OF CONTENTS

| | | |
|----------|--|------------|
| 5.1.2 | Removing Flighting Extensions | 116 |
| 5.1.2 | Stripper Bars | 116 |
| 5.1.2.1 | Installing Stripper Bars | 117 |
| 5.1.2.2 | Removing Stripper Bars | 117 |
| 5.1.3 | Auger Drive | 117 |
| 5.2 | Case IH Combines | 118 |
| 5.2.1 | Attaching Adapter to Case IH Combine | 118 |
| 5.2.2 | Detaching Case IH Combine from Adapter | 121 |
| 5.3 | John Deere 60, 70, and S Series Combines | 125 |
| 5.3.1 | Attaching John Deere Combine to Adapter | 125 |
| 5.3.2 | Detaching John Deere Combine from Adapter | 129 |
| 5.4 | Lexion 500, 700 Series Combines | 132 |
| 5.4.1 | Attaching Lexion 500 and 700 Series Combine to Adapter | 132 |
| 5.4.2 | Detaching Lexion Combine from Adapter | 137 |
| 5.5 | New Holland CR/CX Combines | 141 |
| 5.5.1 | Attaching New Holland CR/CX Combine to Adapter | 141 |
| 5.5.2 | Detaching New Holland CR/CX Combine from Adapter | 144 |
| 5.5.3 | CR Feeder Deflectors | 148 |
| 5.5.3.1 | Replacing Feed Deflectors | 149 |
| 5.6 | AGCO Combines | 150 |
| 5.6.1 | Attaching Combine to Adapter | 150 |
| 5.6.2 | Detaching AGCO Combine from Adapter | 155 |
| 5.7 | Attaching and Detaching Header With Combine and Adapter | 159 |
| 5.7.1 | Detaching Header from Combine and Adapter | 159 |
| 5.7.2 | Attaching Header to Combine and Adapter | 163 |
| 6 | Automatic Header Height Control | 169 |
| 6.1 | Sensor Adjustment | 169 |
| 6.1.1 | Automatic Header Height Control | 169 |
| 6.1.2 | Setting the AHHC Sensor's Output Voltage Range | 170 |
| 6.1.2.1 | Manually Checking Voltage Range | 170 |
| 6.1.2.2 | Checking Voltage Range from the Combine Cab (AGCO 6, 7 Series) | 172 |
| 6.1.2.3 | Checking Voltage Range from the Combine Cab (Case 8010) | 173 |
| 6.1.2.4 | Checking Voltage Range from the Combine Cab (Case IH 7/8010; 7/8/9120; 7/8/9230) | 175 |
| 6.1.2.5 | Checking Voltage Range from the Combine Cab (Gleaner R65/R75) | 177 |
| 6.1.2.6 | Checking Voltage Range from the Combine Cab (John Deere 50/60 Series) | 179 |
| 6.1.2.7 | Checking Voltage Range from the Combine Cab (John Deere 70 Series) | 180 |
| 6.1.2.8 | Checking Voltage Range from the Combine Cab (John Deere S Series) | 183 |
| 6.1.2.9 | Checking Voltage Range from the Combine Cab (New Holland) | 185 |
| 6.1.2.10 | Adjusting Voltage Limits | 187 |
| 6.1.3 | Preparing Combine to Use Auto Header Height Control | 188 |
| 6.1.3.1 | Engaging the Auto Header Height System (AGCO 6 Series) | 188 |
| 6.1.3.2 | Engaging the Auto Header Height System (Case IH 2300) | 189 |
| 6.1.3.3 | System Requirements (Gleaner R62/R75) | 190 |
| 6.1.3.4 | Engaging the Auto Header Height System (Gleaner R65/R75) | 190 |
| 6.1.3.5 | Calibrating Feeder House Speed (John Deere 70 Series) | 191 |
| 6.1.3.6 | Configuring Combine (New Holland CR/CX Series) | 191 |
| 6.1.4 | Calibrating the Auto Header Height System | 192 |
| 6.1.4.1 | Calibrating the Auto Header Height System (AGCO 6 Series) | 192 |
| 6.1.4.2 | Calibrating the Auto Header Height System (Case IH 2300/2500) | 194 |
| 6.1.4.3 | Calibrating the Auto Header Height System (Case 7/8010; 7/8/9120; 7/8/9230) | 195 |
| 6.1.4.4 | Calibrating the Auto Header Height System (Gleaner R62/R72) | 197 |
| 6.1.4.5 | Calibrating the Auto Header Height System (Gleaner R65/R75) | 198 |
| 6.1.4.6 | Calibrating the Auto Header Height System (John Deere 50/60 Series) | 199 |

TABLE OF CONTENTS

| | | |
|----------|---|------------|
| | Calibrating the Auto Header Height System (John Deere 70 Series)..... | 201 |
| | Calibrating the Auto Header Height System (John Deere S Series)..... | 202 |
| | Calibrating the Auto Header Height System (Lexion 500 Series)..... | 204 |
| | Calibrating the Auto Header Height System (Lexion 700 Series)..... | 206 |
| | Calibrating the Auto Header Height System (New Holland CR/CX Series)..... | 208 |
| 6.1.5 | Field Operation Settings | 211 |
| | Adjusting the Header Height (AGCO 6 Series)..... | 211 |
| | Adjusting the Header Raise/Lower Rate (AGCO 6 Series)..... | 211 |
| | Adjusting the Sensitivity of the Auto Header Height (AGCO 6 Series)..... | 212 |
| | Operation Settings (Gleaner R62/R72 Series)..... | 213 |
| | Turning the Accumulator Off (Gleaner R65/R75)..... | 216 |
| | Adjusting the Header Raise/Lower Rate (Gleaner R65/R75)..... | 217 |
| | Adjusting Ground Pressure (Gleaner R65/R75)..... | 217 |
| | Adjusting the Sensitivity of the Auto Header Height (Gleaner R65/R75)..... | 218 |
| | Turning the Accumulator Off (John Deere 60 Series)..... | 219 |
| | Setting the Sensing Grain Header Height to 50 (John Deere 60 Series)..... | 220 |
| | Increasing the Sensitivity of the Auto Header Height (John Deere 60 Series)..... | 220 |
| | Adjusting the Threshold for the Drop Rate Valve (John Deere 60 Series)..... | 221 |
| | Increasing the Sensitivity of the Auto Header Height (John Deere 70 Series)..... | 222 |
| | Adjusting the Manual Header Raise/Lower Rate (John Deere 70 Series)..... | 223 |
| | Increasing the Sensitivity of the Auto Header Height (John Deere S Series) | 224 |
| | Adjusting the Manual Header Raise/Lower Rate (John Deere S Series) | 224 |
| | Setting Preset Cutting Height (John Deere S Series)..... | 225 |
| | Setting Cutting Height (Lexion 500 Series) | 227 |
| | Adjusting the Sensitivity of the Auto Header Height (Lexion 500 Series) | 229 |
| | Adjusting Auto Reel Speed (Lexion 500 Series)..... | 232 |
| | Setting Cutting Height (Lexion 700 Series) | 234 |
| | Adjusting Sensitivity of the Auto Header Height (Lexion 700 Series)..... | 235 |
| | Adjusting Auto Reel Speed (Lexion 700 Series)..... | 236 |
| | Adjusting Header Raise Rate (New Holland CR/CX Series)..... | 237 |
| | Setting the Header Lower Rate to 50 (New Holland CR/CX Series)..... | 238 |
| | Setting the Auto Header Height Sensitivity to 200 (New Holland CR/CX Series)..... | 239 |
| 6.1.6 | Diagnostics (Gleaner R65/R75)..... | 239 |
| | Sensor Operation..... | 241 |
| 7 | Maintenance and Servicing | 243 |
| 7.1 | Preparation for Servicing..... | 243 |
| 7.2 | Maintenance Specifications..... | 244 |
| 7.2.1 | Conversion Chart | 245 |
| 7.2.2 | Recommended Fluids and Lubricants..... | 245 |
| 7.2.3 | Torque Specifications | 246 |
| | SAE Bolt Torque Specifications..... | 247 |
| | Metric Bolt Specifications | 249 |
| | Metric Bolt Specifications Bolting into Cast Aluminum | 251 |
| | Flare-Type Hydraulic Fittings | 251 |
| | O-Ring Boss (ORB) Hydraulic Fittings..... | 252 |
| | O-Ring Face Seal (ORFS) Hydraulic Fittings | 253 |
| 7.2.4 | Installing a Roller Chain | 255 |
| 7.2.5 | Installing a Sealed Bearing | 256 |
| 7.3 | Maintenance Requirements..... | 257 |
| 7.3.1 | Maintenance Schedule/Record..... | 258 |
| 7.3.2 | Break-In Inspection | 260 |
| 7.3.3 | Preseason/Annual Service..... | 260 |
| 7.3.4 | End of Season Service | 261 |
| 7.3.5 | Hydraulic Hoses and Lines | 262 |

TABLE OF CONTENTS

| | | |
|-------|--|-----|
| 7.3.6 | Lubrication and Servicing..... | 262 |
| | Service Intervals..... | 263 |
| | Greasing Procedure..... | 270 |
| | Lubricating Auger Drive Chain..... | 271 |
| | Lubricating Main Drive Gearbox..... | 273 |
| 7.4 | Hydraulics..... | 275 |
| 7.4.1 | Reservoir..... | 275 |
| | Checking Hydraulic Oil Level..... | 275 |
| | Adding Hydraulic Oil..... | 276 |
| | Changing Hydraulic Oil..... | 276 |
| 7.4.2 | Changing Hydraulic Oil Filter..... | 277 |
| 7.4.3 | Multicoupler..... | 278 |
| | Lexion 500, 700 Series Multicoupler..... | 278 |
| | Lexion MultiCoupler Valve Block..... | 280 |
| | MacDon, Case 7/8010 and NH CR/CX Multicoupler..... | 281 |
| | John Deere 60/70 Series Multicoupler..... | 282 |
| | AGCO Multicoupler..... | 283 |
| 7.5 | Electrical..... | 285 |
| 7.5.1 | Replacing Light Bulbs..... | 285 |
| 7.6 | Main Drive..... | 286 |
| 7.6.1 | Removing The Main Driveline..... | 286 |
| 7.6.2 | Installing Driveline..... | 287 |
| 7.6.3 | Removing Driveline Guard..... | 288 |
| 7.6.4 | Installing Driveline Guard..... | 290 |
| 7.6.5 | Adjusting Tension on Gearbox Drive Chain..... | 292 |
| 7.7 | Auger..... | 294 |
| 7.7.1 | Adjusting Auger to Pan Clearance..... | 294 |
| 7.7.2 | Adjusting Auger Drive Chain..... | 295 |
| 7.7.3 | Removing Auger Drive Chain..... | 296 |
| 7.7.4 | Installing Auger Drive Chain..... | 300 |
| 7.7.5 | Auger Tines..... | 302 |
| | Removing Feed Auger Tines..... | 302 |
| | Installing Feed Auger Tines..... | 304 |
| 7.8 | Knife and Knife Drive..... | 306 |
| 7.8.1 | Replacing Knife Section..... | 306 |
| 7.8.2 | Removing Knife..... | 307 |
| 7.8.3 | Removing Knifehead Bearing..... | 307 |
| 7.8.4 | Installing Knifehead Bearing..... | 308 |
| 7.8.5 | Installing Knife..... | 309 |
| 7.8.6 | Spare Knife..... | 310 |
| 7.8.7 | Knife Guards..... | 310 |
| | Adjusting Knife Guards..... | 310 |
| | Replacing Pointed Guards on a Single-Knife Header..... | 312 |
| | Replacing Pointed Guards on a Double-Knife Header..... | 313 |
| | Replacing Stub Guards on a Single-Knife Header..... | 314 |
| | Replacing Stub Guards on a Double-Knife Header..... | 315 |
| | Knife Hold-Downs..... | 316 |
| 7.8.8 | Knife Drive Belt..... | 318 |
| | Single Knife and Double Knife Untimed..... | 318 |
| | Double Knife Timed..... | 320 |
| | Adjusting Double Knife Timing..... | 336 |
| 7.8.9 | Knife Drive Box..... | 338 |
| | Mounting Bolts..... | 338 |
| | Removing Knife Drive Box..... | 338 |

TABLE OF CONTENTS

| | |
|--|-----|
| Removing Knife Drive Box Pulley | 344 |
| Installing Knife Drive Box Pulley | 345 |
| Installing Knife Drive Box | 345 |
| Changing Oil in Knife Drive Box | 348 |
| 7.8.10 Knifehead Shield | 348 |
| Installing Knifehead Shield | 349 |
| 7.9 Adapter Feed Draper | 350 |
| 7.9.1 Replacing Adapter Feed Draper | 350 |
| 7.9.2 Adjusting Feed Draper Tension | 352 |
| 7.9.3 Adapter Drive Roller | 352 |
| Removing Adapter Feed Deck Drive Roller | 352 |
| Installing Adapter Feed Deck Drive Roller | 354 |
| Replacing Adapter Drive Roller Bearing | 355 |
| 7.9.4 Adapter Idler Roller | 356 |
| Removing Adapter Feed Deck Idler Roller | 356 |
| Replacing Adapter Feed Deck Idler Roller Bearing | 357 |
| Installing Adapter Feed Deck Idler Roller | 359 |
| 7.10 Header Drapers | 360 |
| 7.10.1 Removing Side Draper | 360 |
| 7.10.2 Installing Side Draper | 361 |
| 7.10.3 Adjusting Side Draper Tension | 362 |
| 7.10.4 Adjusting Header Draper Tracking | 363 |
| 7.10.5 Adjusting Deck Height | 366 |
| 7.10.6 Draper Roller Maintenance | 367 |
| Inspecting Draper Roller Bearing | 367 |
| Side Draper Deck Idler Roller | 368 |
| Side Draper Deck Drive Roller | 371 |
| 7.11 Reel and Reel Drive | 375 |
| 7.11.1 Reel Clearance to Cutterbar | 375 |
| Measuring Reel Clearance | 375 |
| Adjusting Reel Clearance | 378 |
| 7.11.2 Reel Frown | 378 |
| Adjusting Reel Frown | 379 |
| 7.11.3 Reel Centering | 380 |
| Centering Double Reels | 380 |
| Centering Single Reel | 380 |
| 7.11.4 Reel Drive Chain | 381 |
| Adjusting Chain Tension <u>on Single and Double Reel Drive – High Torque</u> | 381 |
| Removing Chain from Single Reel Drive <u>– High Torque</u> | 383 |
| Installing Chain on a Single Reel Drive | 384 |
| Replacing Chain on Double Reel Drive | 385 |
| 7.11.5 Reel Drive Sprocket | 390 |
| Replacing <u>Reel Drive Sprocket</u> High Torque Reel Drive Sprocket on Single Reel, <u>– High Torque</u> | 391 |
| Replacing Reel Drive Sprocket on Double Reel | 393 |
| 7.11.6 Reel Drive U-Joint | 395 |
| Removing U-Joint | 395 |
| Installing U-Joint | 397 |
| 7.11.7 Reel Drive Motor | 399 |
| Removing Single Reel Drive - High Torque Motor | 399 |
| Installing Single Reel Drive - High Torque Motor | 401 |
| Removing Double Reel Drive Motor | 403 |
| Installing Double Reel Drive | 405 |
| 7.11.8 Reel Speed Sensor | 407 |

TABLE OF CONTENTS

| | | |
|-----------|---|------------|
| | Replacing John Deere Reel Speed Sensor - Single Reel | 407 |
| | Replacing John Deere Reel Speed Sensor - Double Reel | 408 |
| | Replacing Lexion 500 Series Reel Speed Sensor - Single Reel | 409 |
| | Replacing Lexion 500/700 Series Reel Speed Sensor - Double Reel | 410 |
| | Replacing Lexion 400 Series Reel Speed Sensor Replacement - Single Reel | 411 |
| | Replacing Lexion 400 Series Reel Speed Sensor - Double Reel | 412 |
| | Replacing AGCO Reel Speed Sensor - Single Reel | 413 |
| | Replacing AGCO Reel Speed Sensor - Double Reel | 415 |
| 7.11.9 | Reel Tines | 417 |
| | Removing Steel Tines | 417 |
| | Installing Steel Tines | 417 |
| | Removing Plastic Fingers | 418 |
| | Installing Plastic Fingers | 419 |
| 7.11.10 | Tine Tube Bushings | 420 |
| | Removing Bushings from 5, 6 or 9 Bat Reels | 420 |
| | Installing Bushings on 5, 6, or 9 Bat Reels | 423 |
| 7.11.11 | Reel Endshields | 428 |
| | Replacing Endshield | 428 |
| | Replacing Support | 430 |
| 7.11.12 | Transport System (Optional) | 431 |
| | Torquing Transport System Wheel Bolts | 431 |
| | Axle Bolts | 431 |
| | Tire Inflation | 433 |
| 8 | Troubleshooting | 435 |
| 8.1 | Crop Loss at Cutterbar | 435 |
| 8.2 | Cutting Action and Knife Components | 437 |
| 8.3 | Reel Delivery | 440 |
| 8.4 | Header and Drapers | 442 |
| 8.5 | Cutting Edible Beans | 446 |
| 9 | Options and Attachments | 451 |
| 9.1 | Options and Attachments | 451 |
| 9.1.1 | Cutterbar Plastic Wear Strips | 451 |
| 9.1.2 | Divider Latches | 451 |
| 9.1.3 | Draper Deflector (Narrow) | 452 |
| 9.1.4 | Draper Deflector (Wide) | 452 |
| 9.1.5 | End Swath Deflector Rods (End Delivery) | 453 |
| 9.1.6 | European Adapter Seal Kit | 453 |
| 9.1.7 | CA25 Feed Auger Flighting | 454 |
| 9.1.8 | Knifehead Shield | 454 |
| 9.1.9 | Lodged Crop Reel Finger Kit | 454 |
| 9.1.10 | Outboard Skid Shoes with Poly | 455 |
| 9.1.11 | Compression Molded Skid Shoes | 455 |
| 9.1.12 | PR15 Tine Tube Reel Conversion Kit | 456 |
| 9.1.13 | Rice Divider Rods | 456 |
| 9.1.14 | Rock Retarder | 457 |
| 9.1.15 | Short Brace Kit For Center Reel Arm | 457 |
| 9.1.16 | Stabilizer Wheels | 457 |
| 9.1.17 | Stabilizer/Slow Speed Transport Wheels | 458 |
| 9.1.18 | Stripper Bars | 458 |
| 9.1.19 | Stub Guard Conversion Kit | 459 |
| 9.1.20 | Upper Cross Auger (UCA) | 459 |
| 9.1.21 | Vertical Knife Mounts | 460 |
| 10 | Unloading and Assembly | 461 |

TABLE OF CONTENTS

| | |
|-------------|-----|
| Index | 463 |
|-------------|-----|

1 Safety

1.1 Safety Alert Symbols

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

This symbol means:

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

Carefully read and follow the safety message accompanying this symbol.

Why is safety important to you?

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



Figure 1.1: Read operator's manual before operating

SAFETY

1.2 Signal Words

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



DANGER

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



WARNING

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



CAUTION

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

1.3 General Safety

CAUTION

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

Protect yourself

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

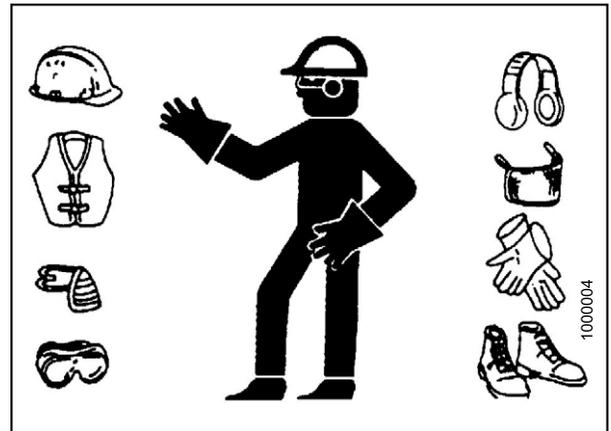


Figure 1.2

- You may need:
 - A hard hat
 - Protective footwear with slip resistant soles
 - Protective glasses or goggles
 - Heavy gloves
 - Wet weather gear
 - A respirator or filter mask
 - Hearing protection
 - Be aware that exposure to loud noise can cause impairment, or loss of hearing. Wearing suitable hearing protection devices such as ear muffs, or ear plugs. These will help protect against objectionable, or loud noises.



Figure 1.3

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

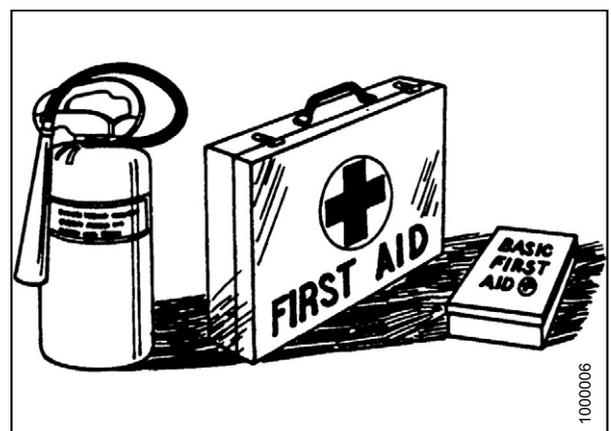


Figure 1.4

SAFETY

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



Figure 1.5

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

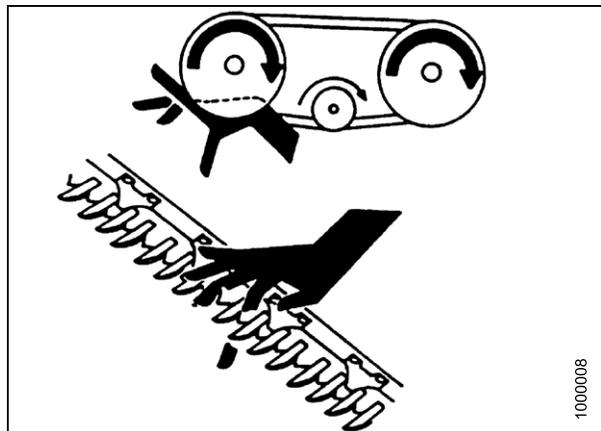


Figure 1.6

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



Figure 1.7

SAFETY

1.4 Maintenance Safety

To ensure your safety while maintaining the machine:

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



Figure 1.8: Slip on puddle



Figure 1.9: Keep away

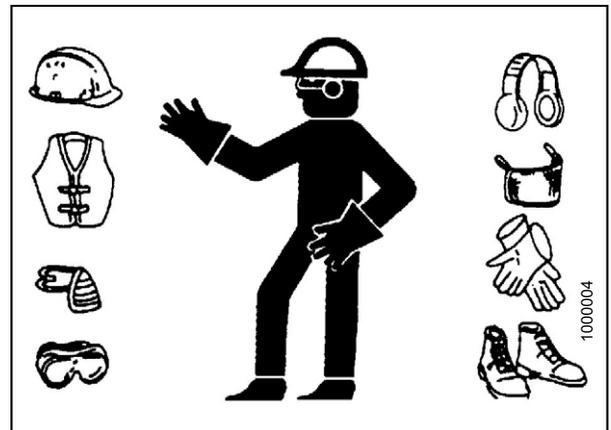


Figure 1.10: Safety gear

SAFETY

1.5 Hydraulic Safety

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

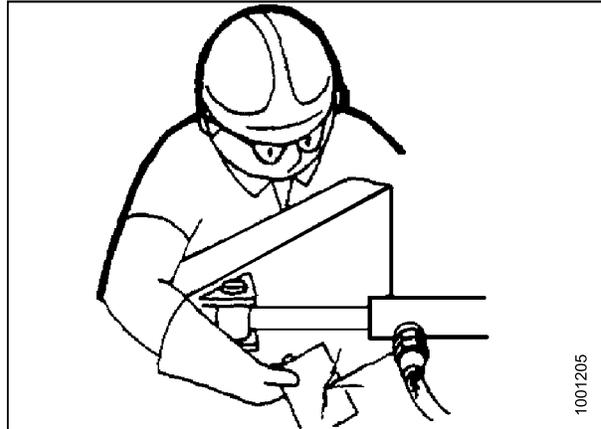


Figure 1.11: Checking hydraulic leaks

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



Figure 1.12: Hydraulic pressure hazard

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

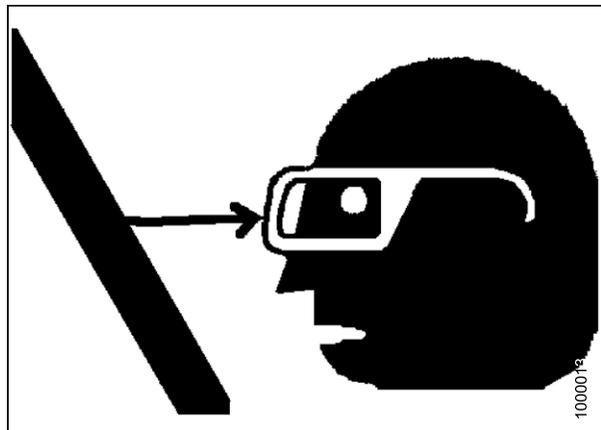


Figure 1.13: Wear safety glasses

SAFETY

1.6 Tire Safety

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



Figure 1.14: Lower all safety stops

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

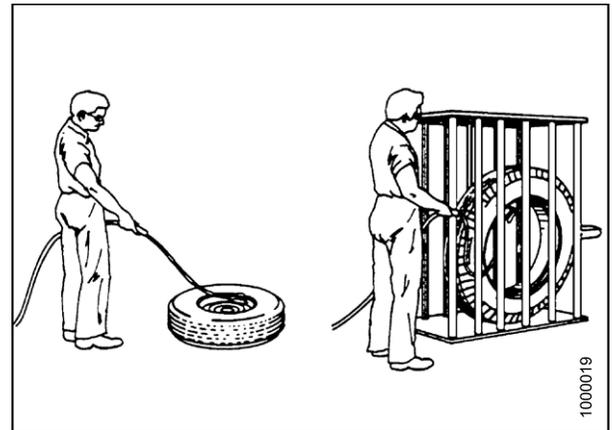


Figure 1.15: Safely filling a tire with air

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

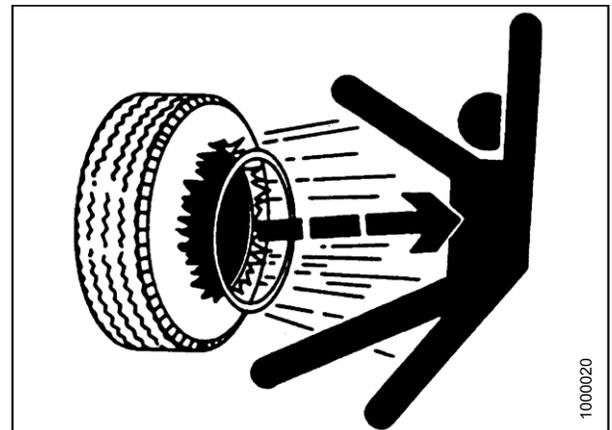


Figure 1.16: Over-inflation of tire

SAFETY

1.7 Safety Signs

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

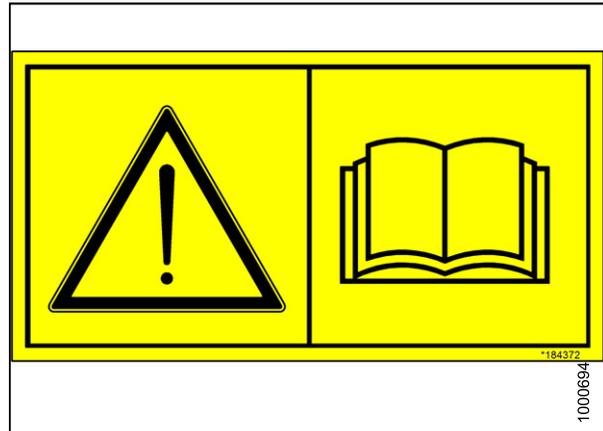


Figure 1.17: Read operator's manual before operating

1.7.1 Installing Safety Decals

To install a safety decal, follow these steps:

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

SAFETY

1.8 Safety Decal Locations

1.8.1 Upper Cross Auger (UCA)

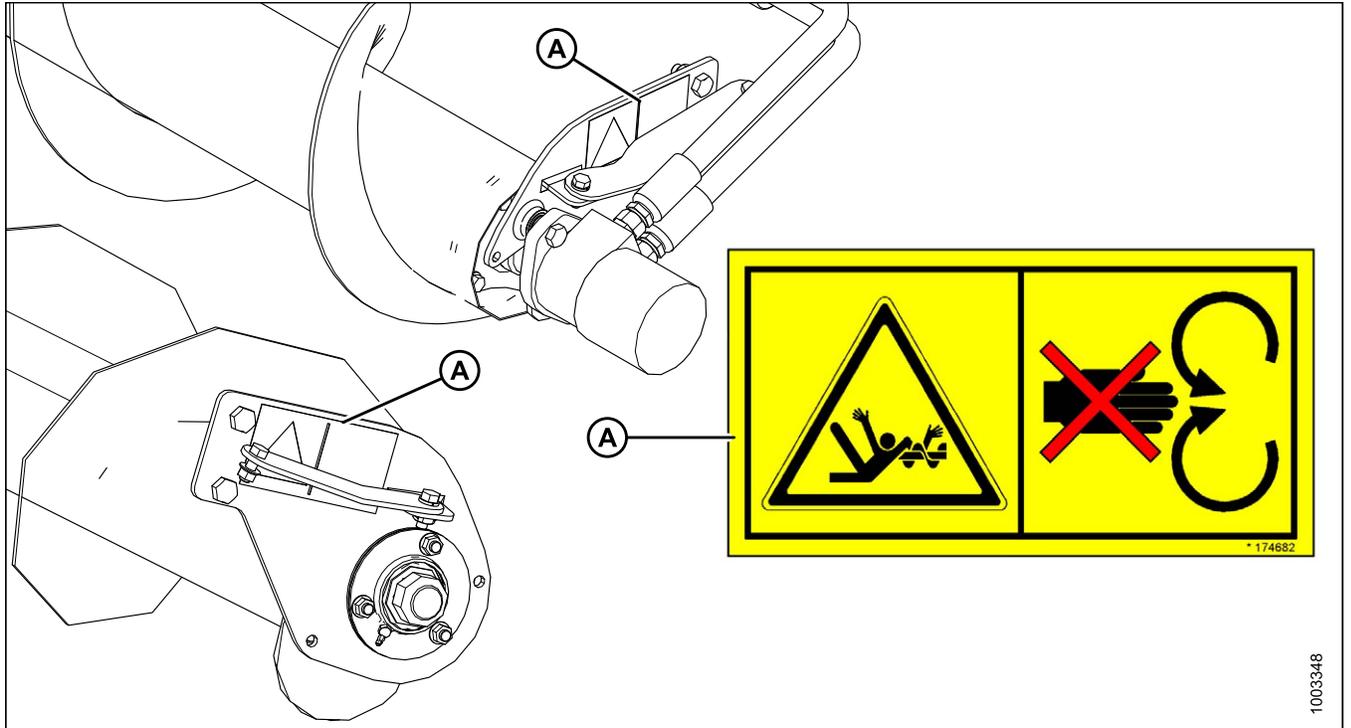
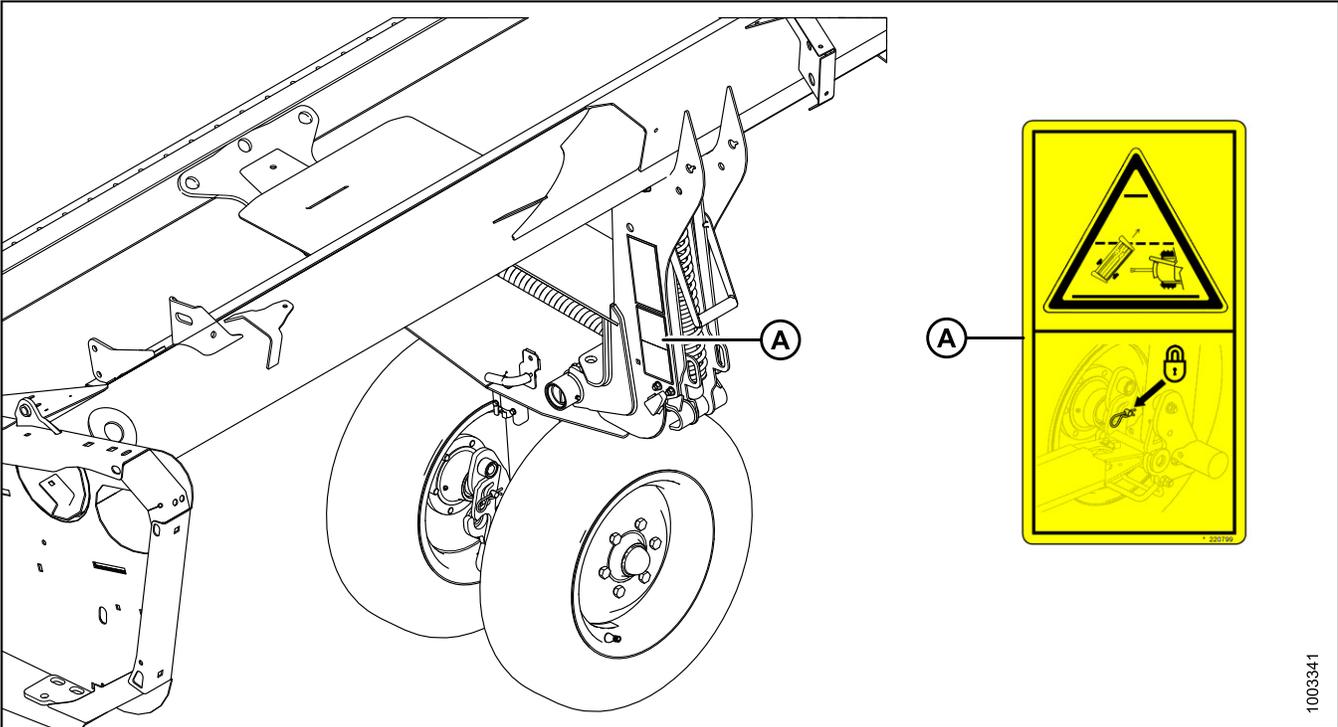


Figure 1.18: Safety sign locations

A - Auger bracket MD #174682

SAFETY

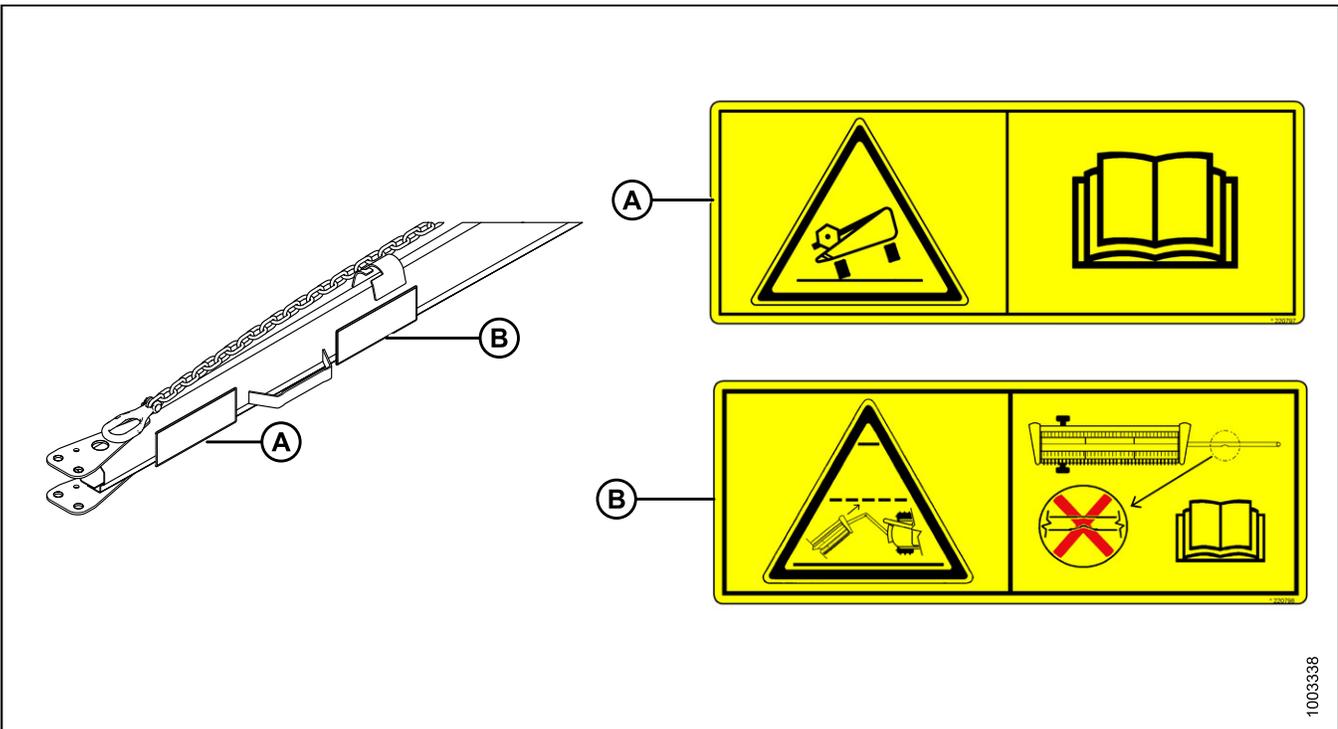
1.8.2 Slow Speed Transport



1003341

Figure 1.19: Safety sign locations (header)

A - Front transport leg MD #220799



1003338

Figure 1.20: Safety sign locations (hitch)

A - MD #220797

B - MD #220798

SAFETY

1.8.3 Vertical Knife

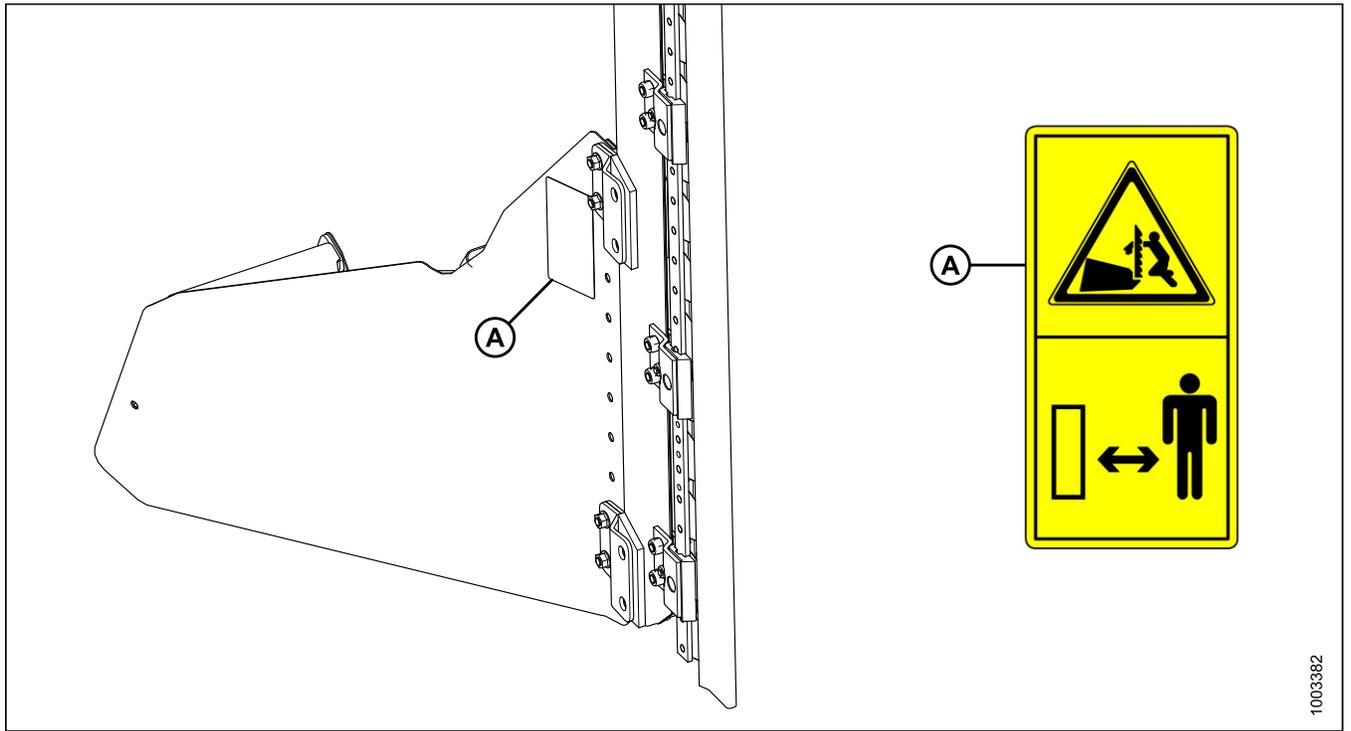


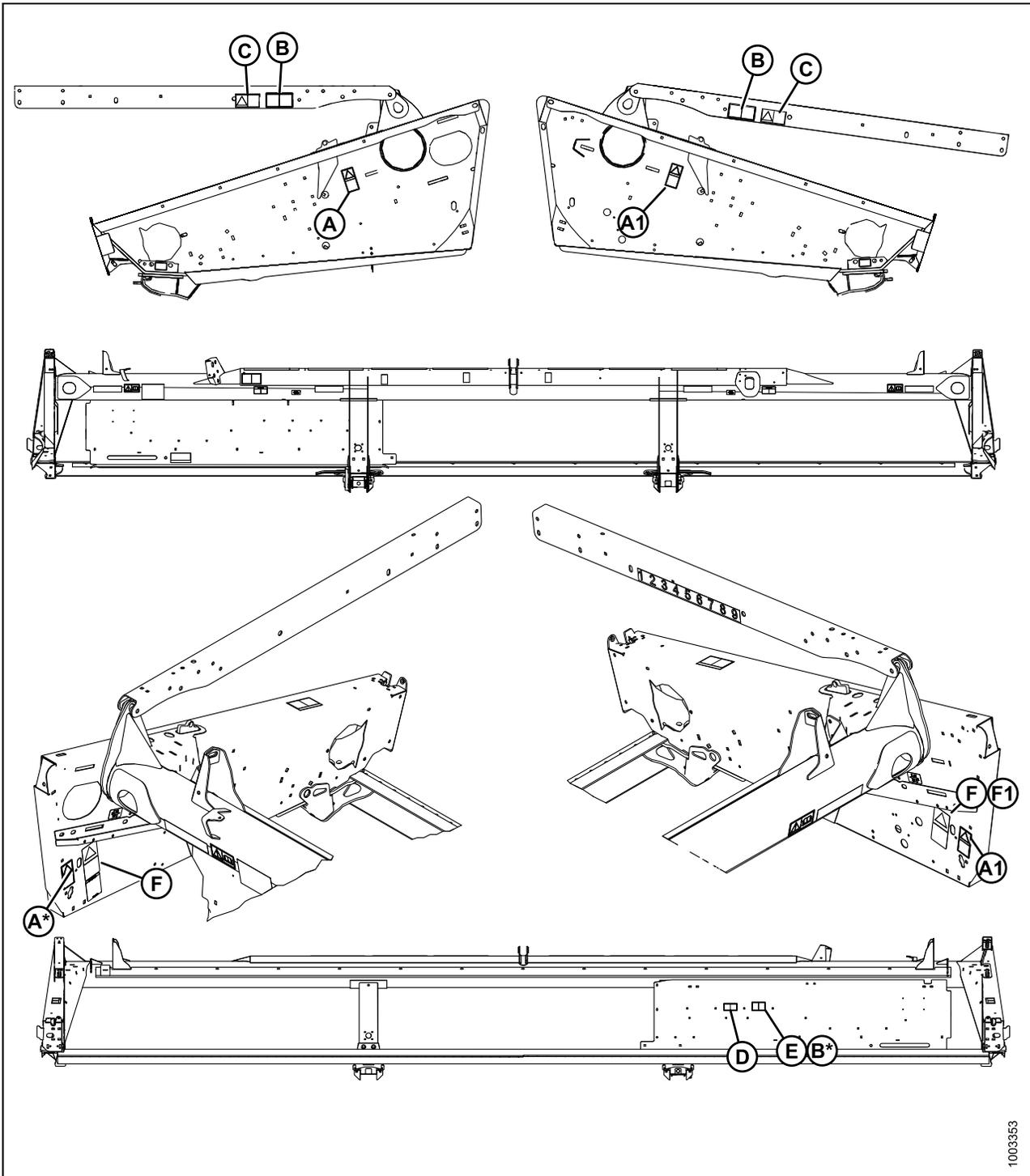
Figure 1.21: Safety sign locations

A - MD #174684

1003382

SAFETY

1.8.4 All Headers



1003353

Figure 1.22: All headers

A - MD #184422¹ (A1 - double knife [DK])
 D - MD #131391

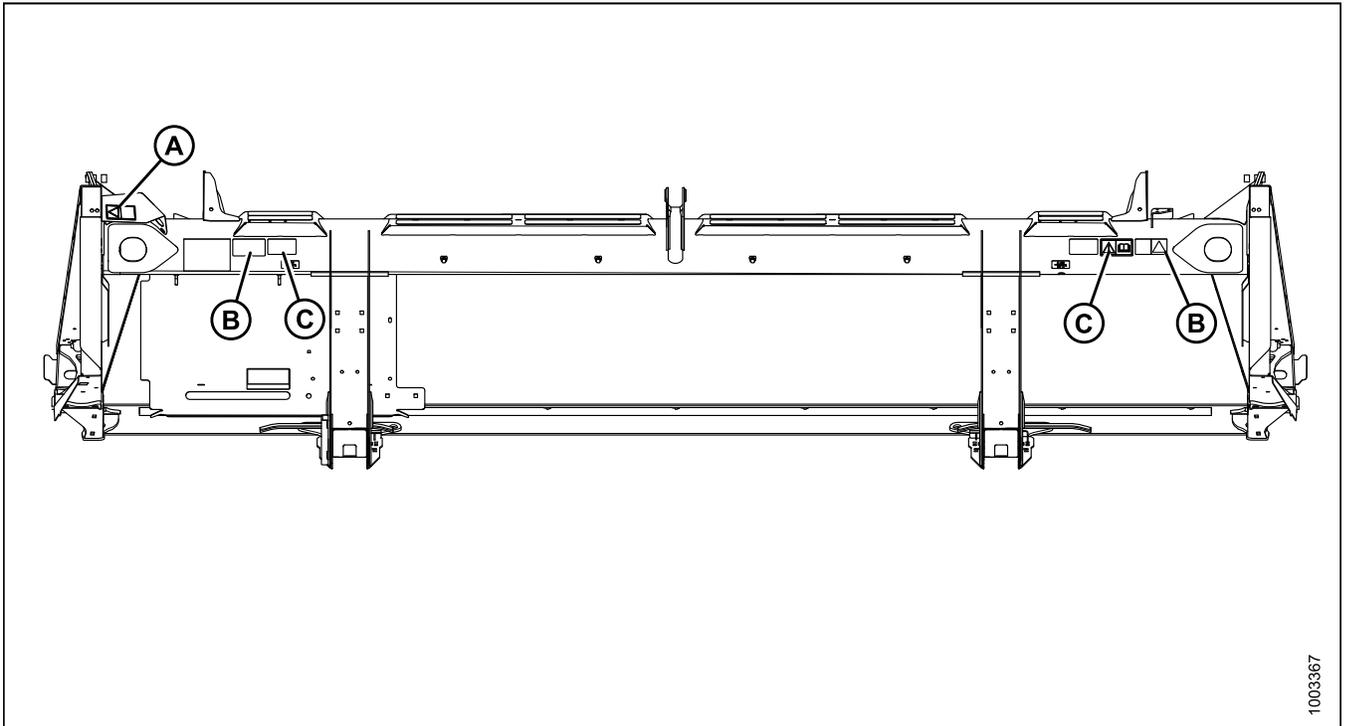
B - MD #131393²
 E - MD #131392

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

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

SAFETY

15 – Foot Header



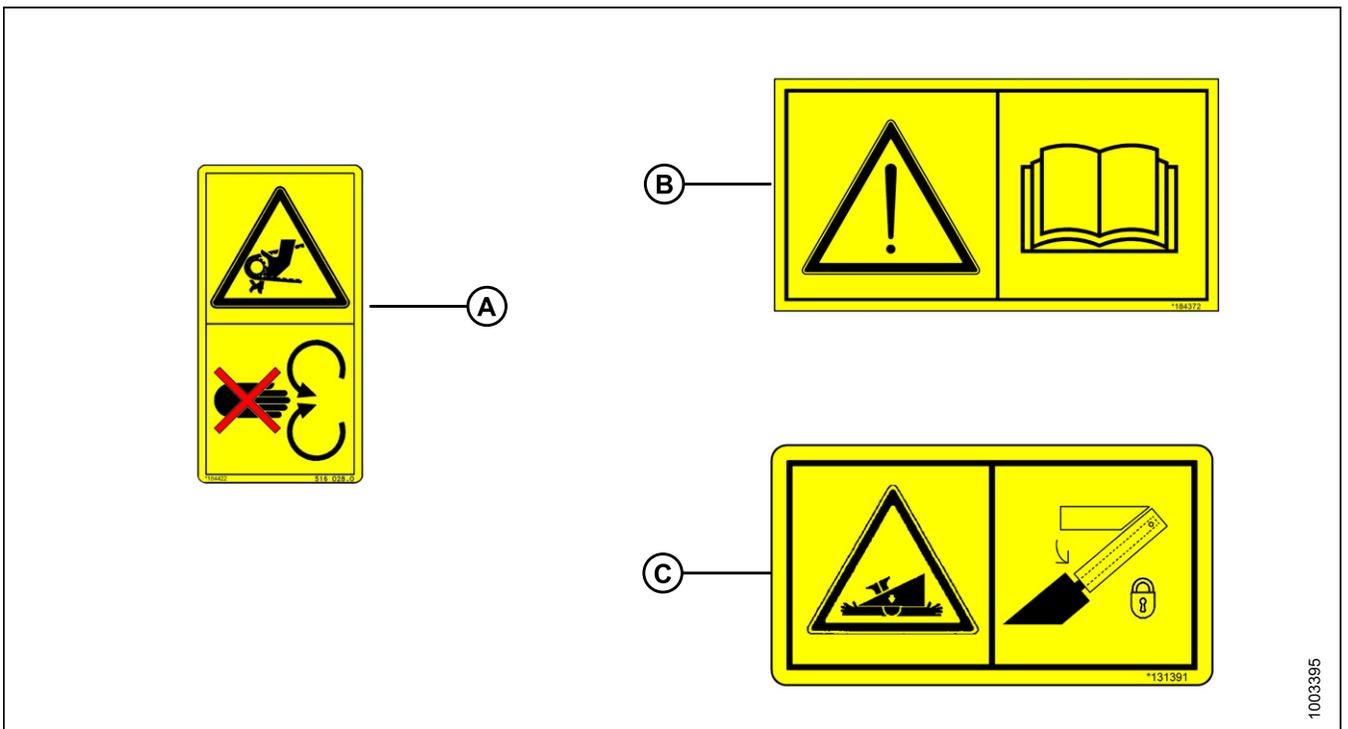
1003367

Figure 1.23

A - MD #184422

B - MD #184372

C - MD #131391

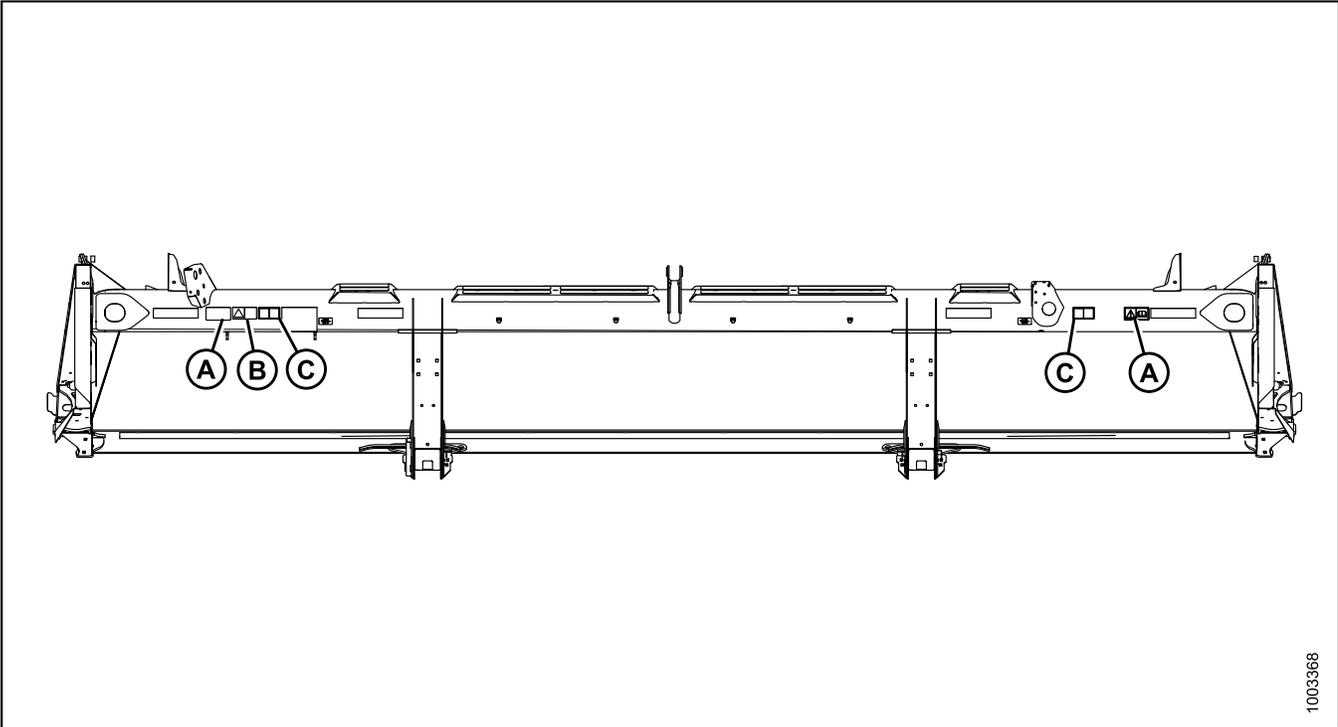


1003395

Figure 1.24

SAFETY

20 – Foot Header



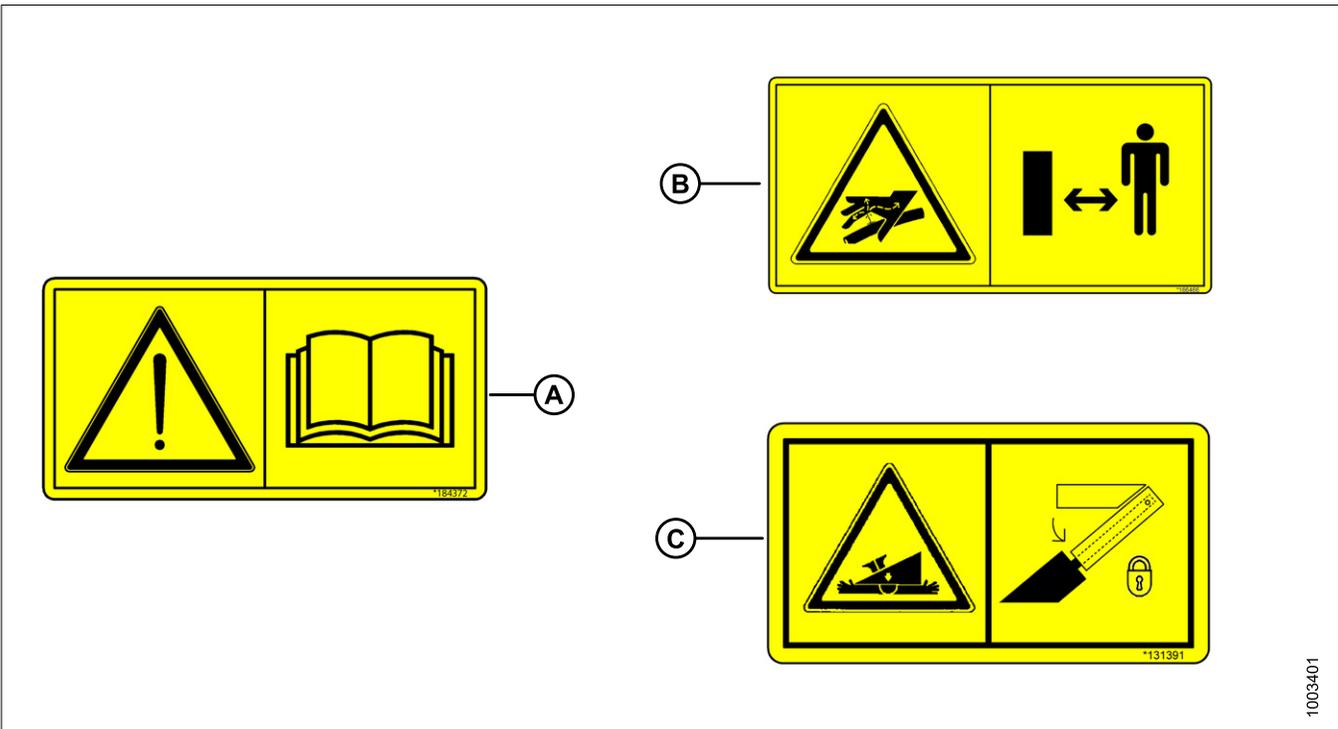
1003368

Figure 1.25

A - MD #184372

B - MD #166466

C - MD #131391

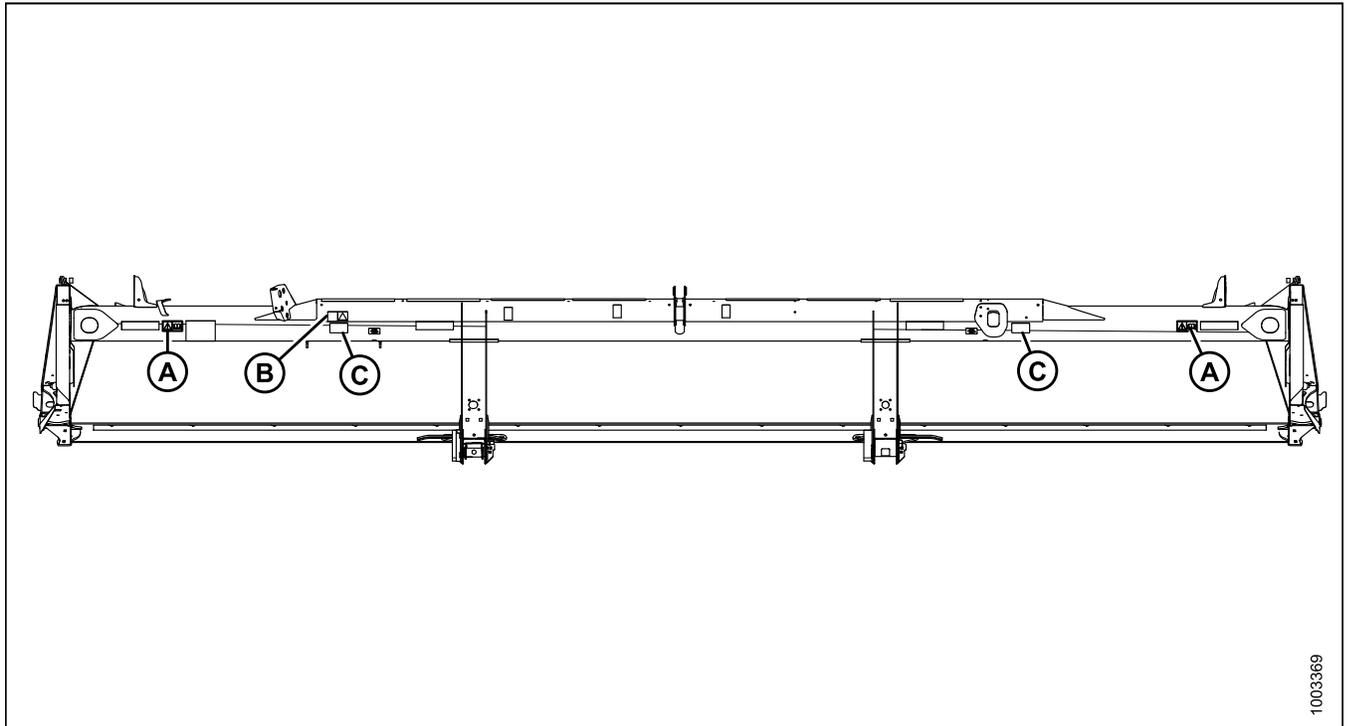


1003401

Figure 1.26

SAFETY

25 – Foot Header



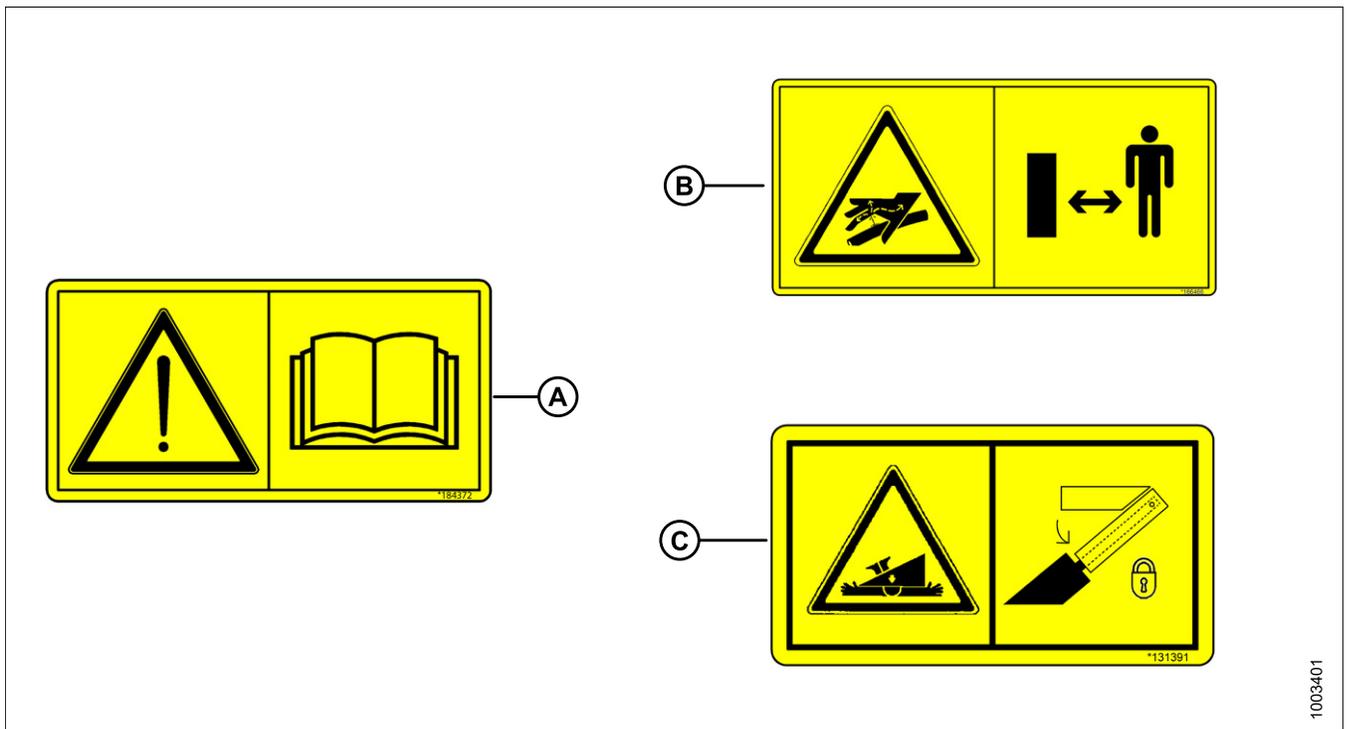
1003369

Figure 1.27

A - MD #184372

B - MD #166466

C - MD #131391

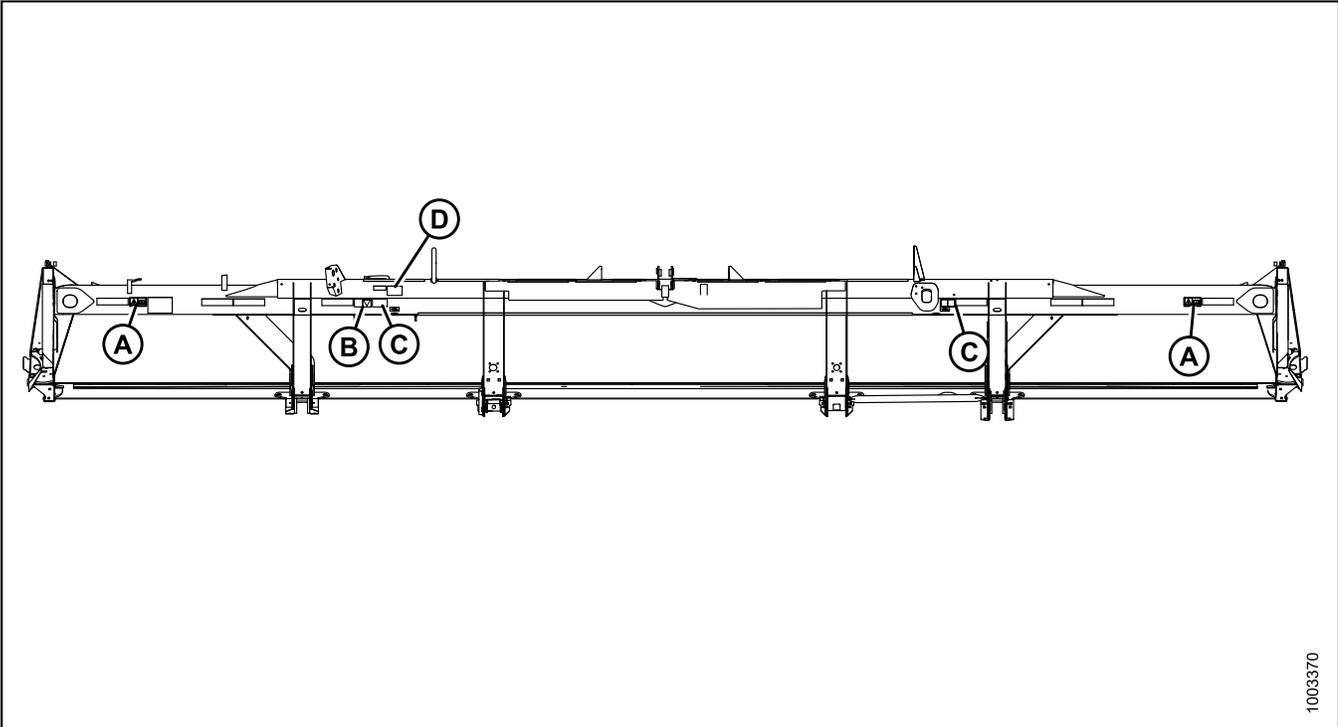


1003401

Figure 1.28

SAFETY

30 – Foot Header



1003370

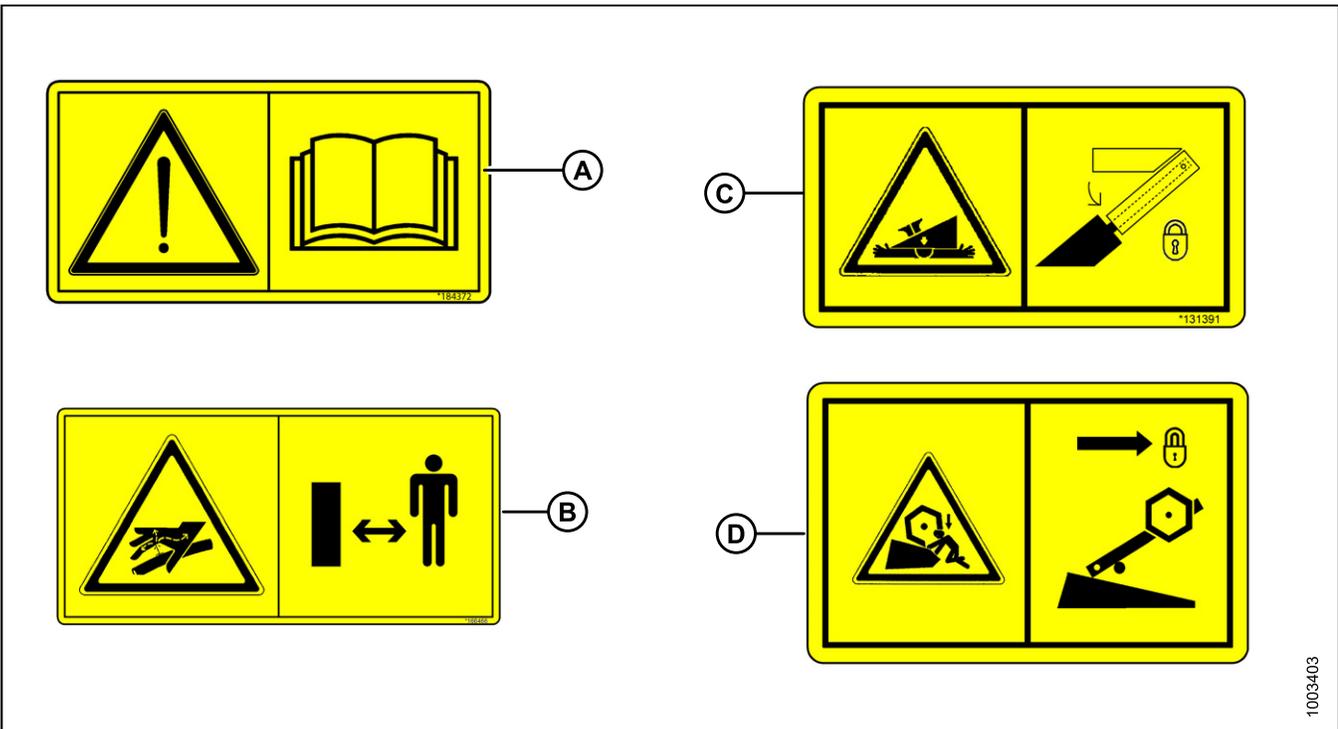
Figure 1.29

A - MD #184372

B - MD #131391

C - MD #166466

D - MD #131392 (DR only)

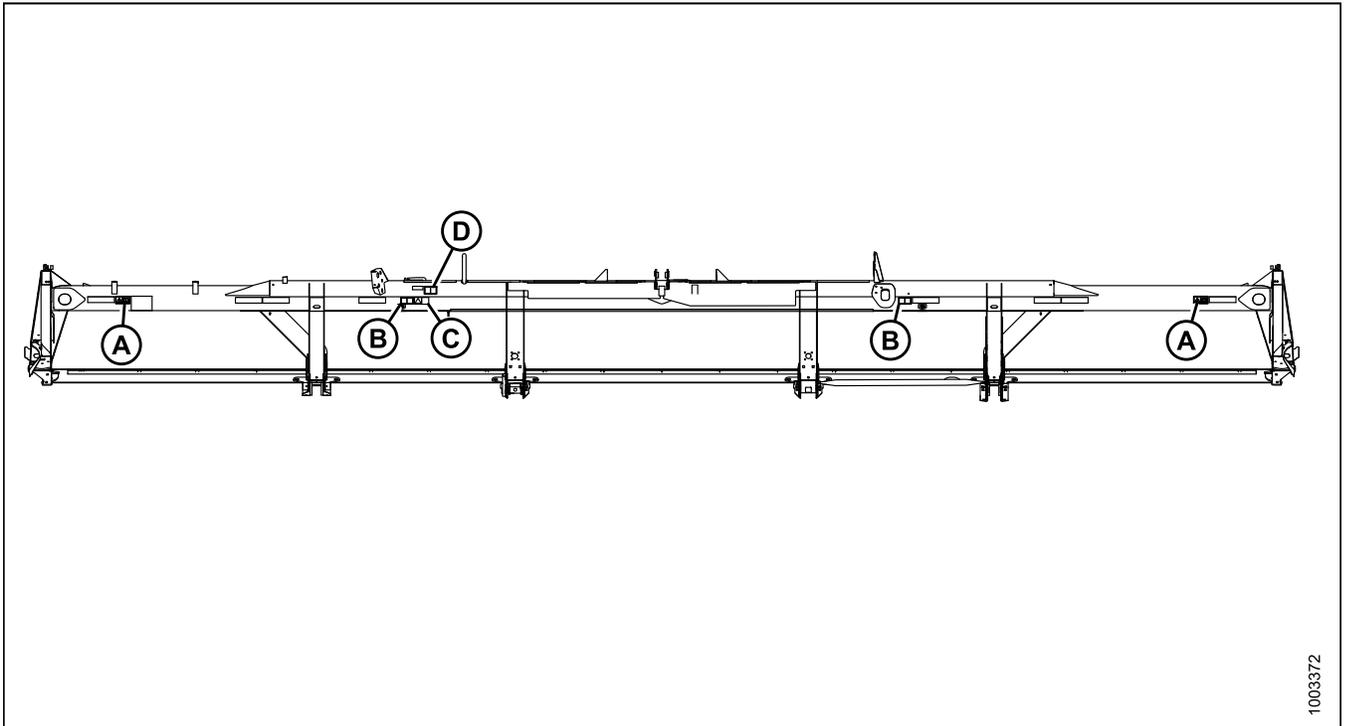


1003403

Figure 1.30

SAFETY

35 – Foot Header



1003372

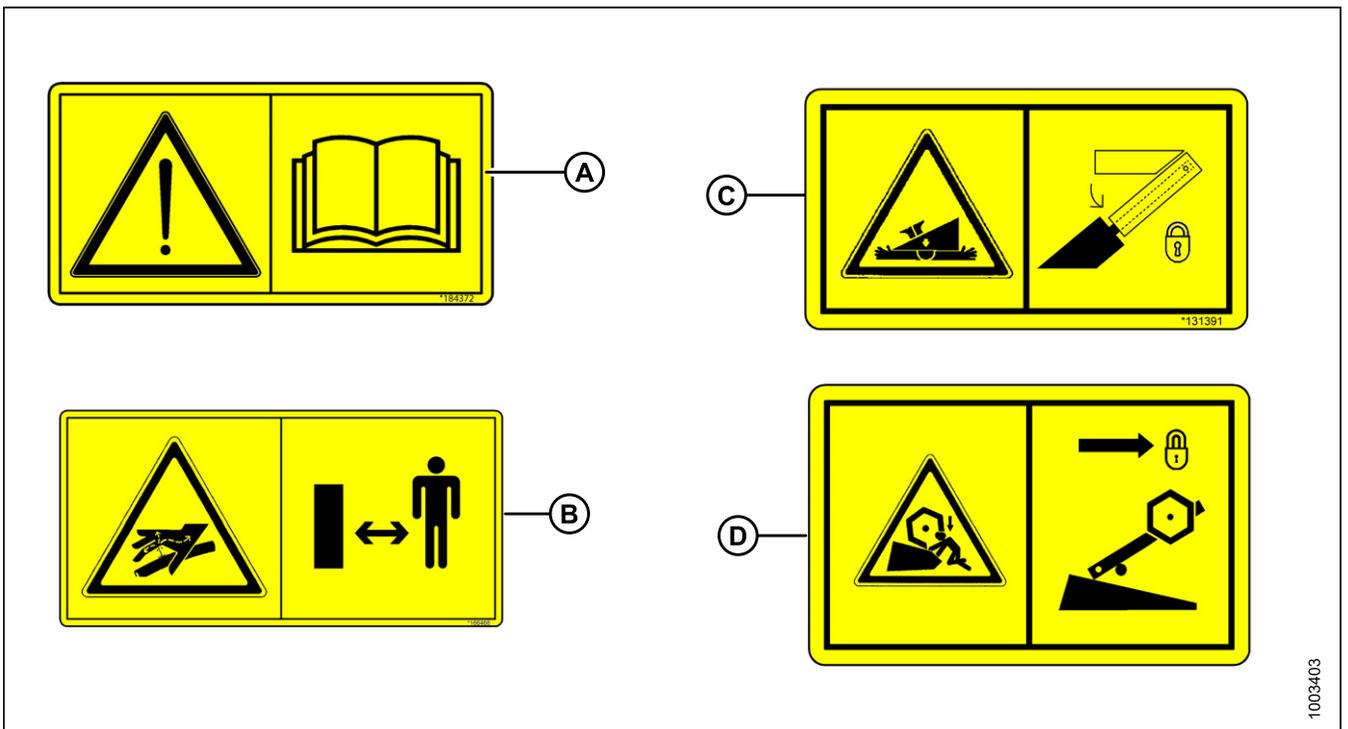
Figure 1.31

A - MD #184372

B - MD #131391

C - MD #166466

D - MD #131392 (DR only)

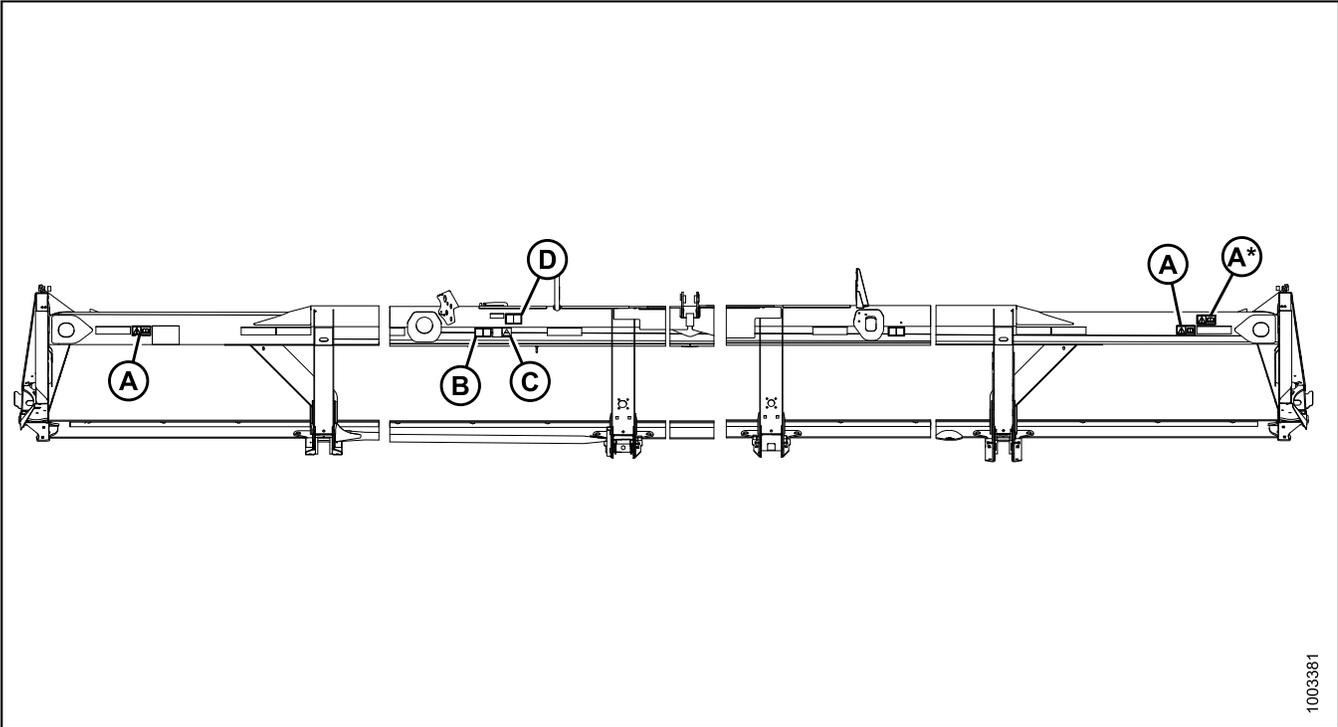


1003403

Figure 1.32

SAFETY

40 – Foot Header



1003381

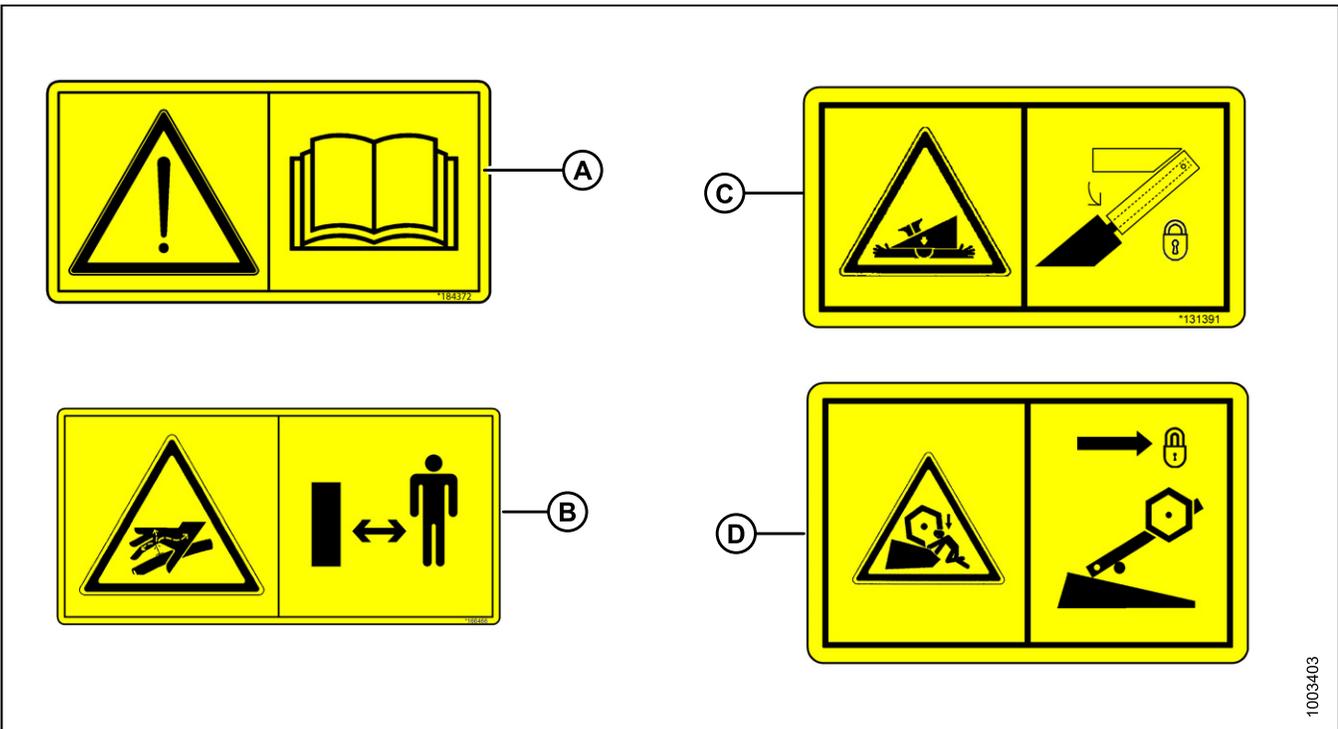
Figure 1.33

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

B - MD #131391

C - MD #166466

D - MD #131392

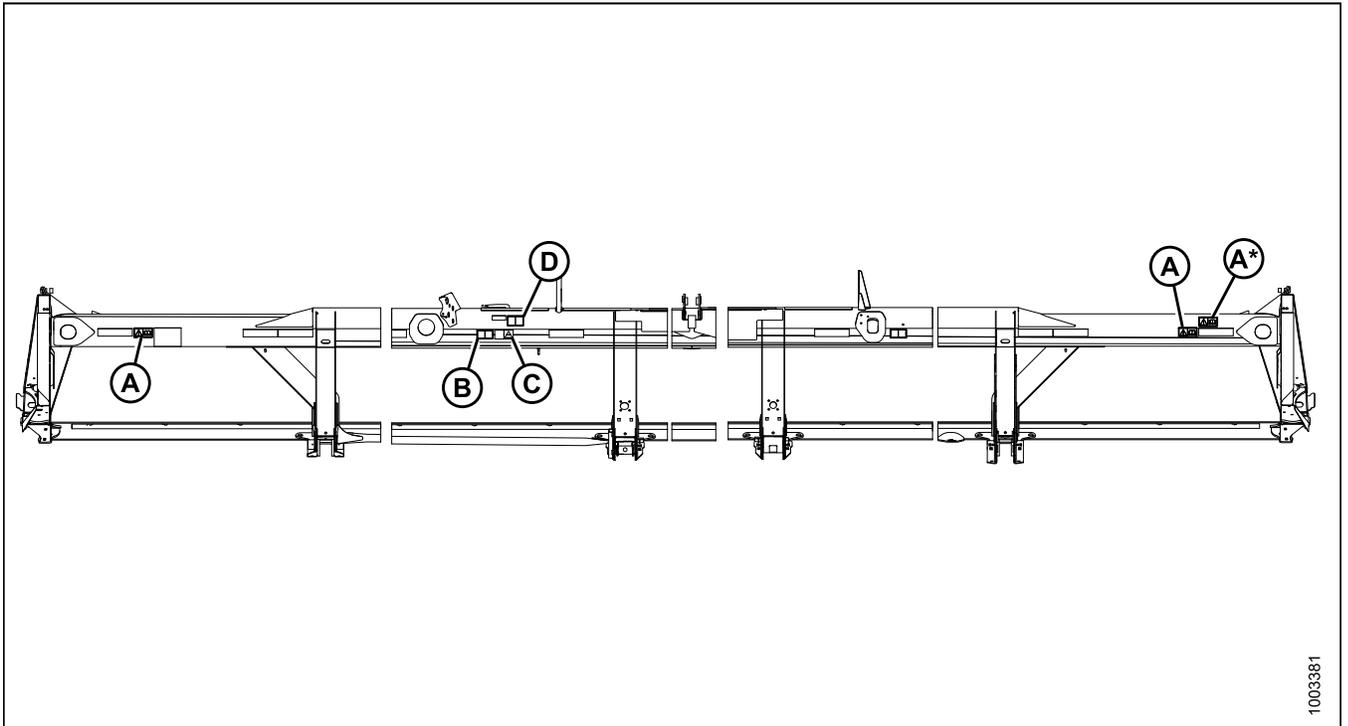


1003403

Figure 1.34

SAFETY

45 – Foot Header



1003381

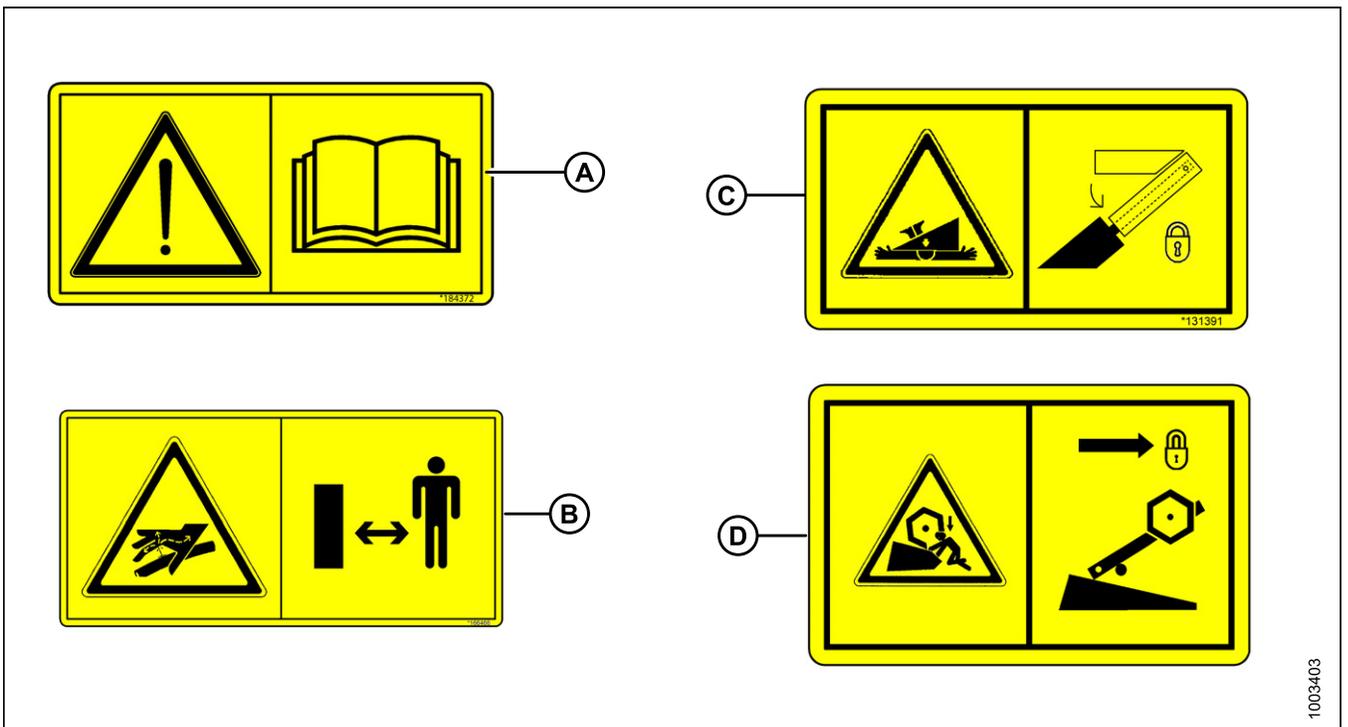
Figure 1.35

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

B - MD #131391

C - MD #166466

D - MD #131392



1003403

Figure 1.36

SAFETY

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 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 down the engine and remove the key from ignition before servicing, adjusting, lubricating, cleaning, or unplugging machine.
- Engage locks to prevent lowering of header or reel before servicing in the raised position.
- Use slow moving vehicle emblem and flashing warning lights when operating on roadways unless prohibited by law.

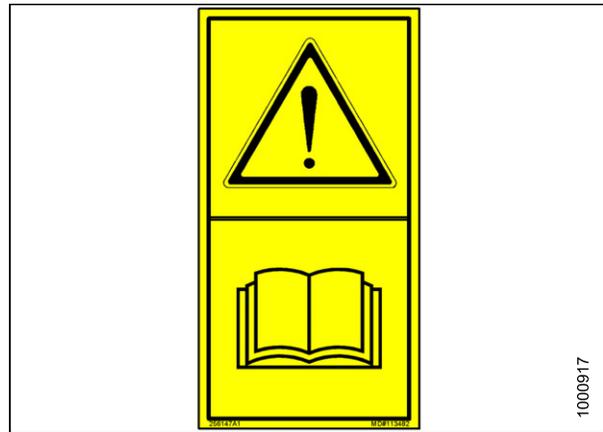


Figure 1.37: MD #113482

SAFETY

2. MD #131391

- a. Crushing hazard.
- b. **Danger**
 - Rest header on ground or engage mechanical locks before going under unit.

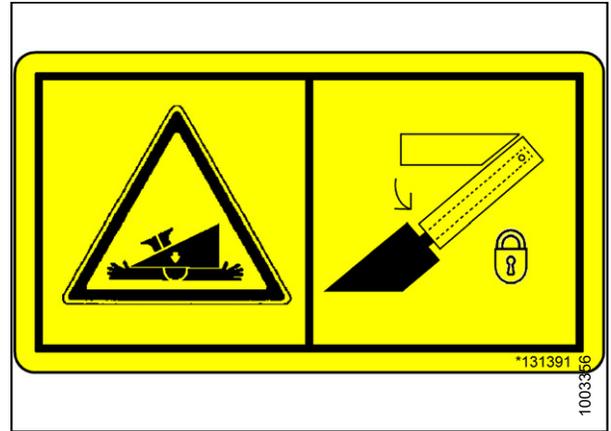


Figure 1.38: MD #131391

3. MD #131392

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

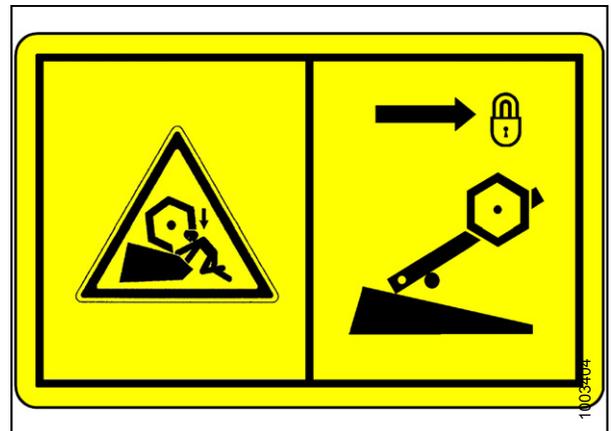


Figure 1.39: MD #131392

4. MD #131393

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



Figure 1.40: MD #131393

SAFETY

5. MD #166466

a. High pressure oil hazard.

b. **WARNING**

Do not go near leaks.

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



Figure 1.41: MD #166466

SAFETY

6. 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 1.42: MD #174436

7. MD #174632

a. Reel entanglement hazard.

b. **CAUTION**

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

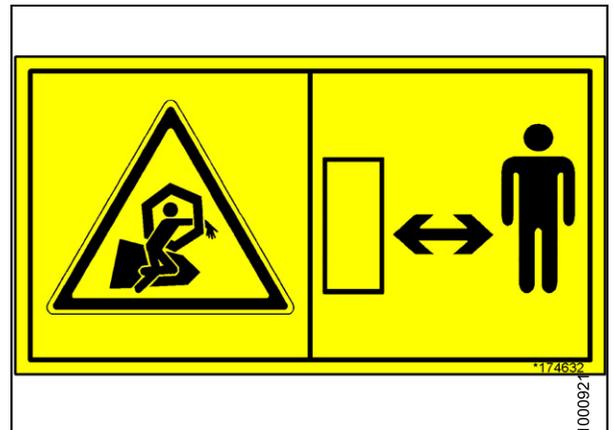


Figure 1.43: MD #174632

8. MD #174682

a. Auger entanglement hazard.

b. **CAUTION**

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

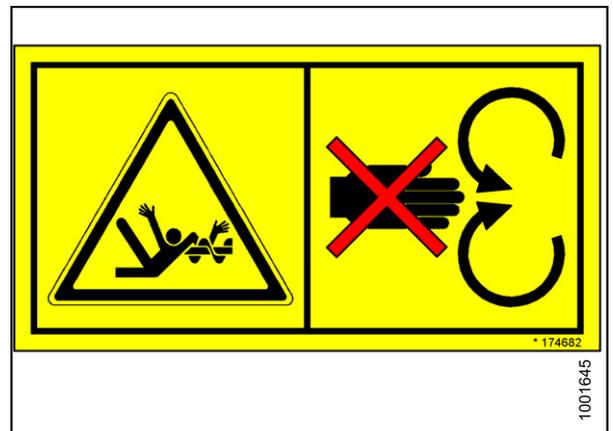


Figure 1.44: MD #174682

SAFETY

9. 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 1.45: MD #174684

SAFETY

10. 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 down the engine and remove the key from ignition before servicing, adjusting, lubricating, cleaning, or unplugging machine.
- Engage locks to prevent lowering of header or reel before servicing in the raised position.
- Use slow moving vehicle emblem and flashing warning lights when operating on roadways unless prohibited by law.

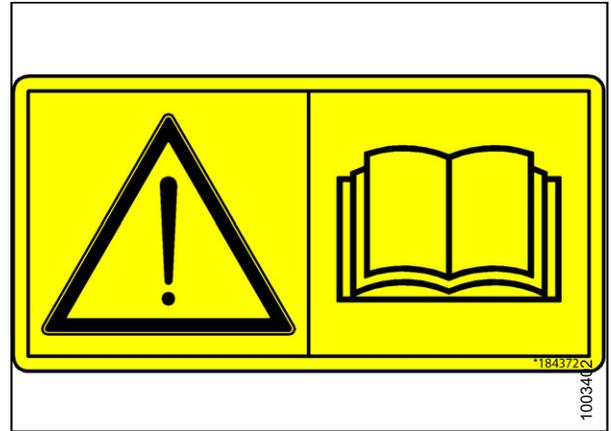


Figure 1.46: MD #184372

SAFETY

11. MD #184422

- a. Keep shields in place hazard
- b. **WARNING**
 - To avoid injury, stop engine before opening power drive system shield.
 - Keep all shields in place.



Figure 1.47: MD #184422

12. 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.

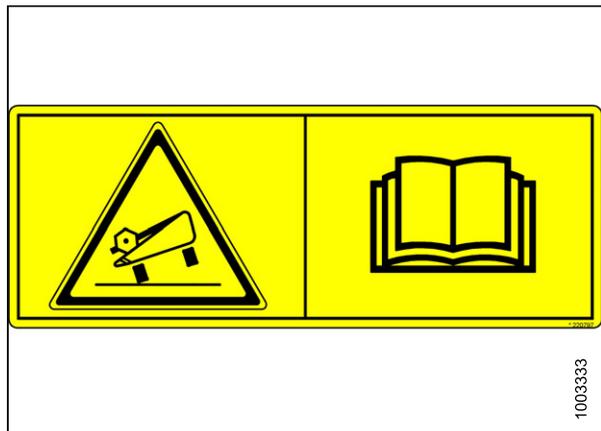


Figure 1.48: MD #220797

SAFETY

13. 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.

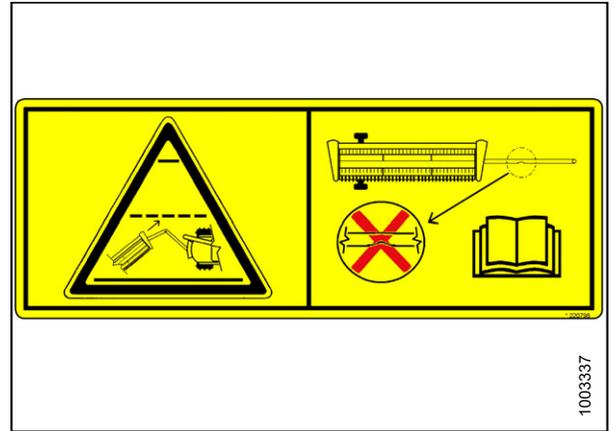


Figure 1.49: MD #220798

14. MD #220799

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



Figure 1.50: 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 |
| A-Series header | MacDon auger header. |
| API | American Petroleum Institute. |
| APT | Articulating Power Tongue. |
| ASTM | American Society of Testing and Materials. |
| Bolt | A headed and externally threaded fastener that is designed to be paired with a nut. |
| CDM | Cab Display Module on a self-propelled windrower. |
| Center-link | A hydraulic cylinder or manually adjustable turnbuckle type link between the header and the machine to which it is attached. It is used to change header angle. |
| CGVW | Combined Vehicle Gross Weight. |
| D-Series header | MacDon draper headers. |
| DK | Double Knife |
| DKD | Double knife drive. |
| DDD | Double draper drive. |
| ECM | Engine Control Module. |
| Finger tight | Finger tight is a reference position where sealing surfaces or components are making contact with each other and the fitting has been tightened to a point where the fitting is no longer loose. |
| F.F.F.T | Flats from finger tight. |
| GSL | Ground Speed Lever. |
| GSS | Grass Seed Special. |
| GVW | Gross Vehicle Weight. |
| Hard joint | A joint made with the use of a fastener where the joining materials are highly incompressible. |
| Header | A machine that cuts and lays crop into a windrow, and is attached to a self-propelled windrower. |
| HDS | Hydraulic Deck Shift. |
| hp | Horsepower |
| ISC | Intermediate Speed Control. |
| JIC | Joint Industrial Council: a standards body that developed the standard sizing and shape for original 37° flared fitting. |
| Knife | A cutting device which uses a reciprocating cutter. Also called a sickle. |
| Mower conditioner | A machine that cuts and conditions hay, and is pulled by an agricultural tractor. |

REFERENCE

| Term | Definition |
|--|---|
| n/a | Not applicable |
| Nut | An internally threaded fastener that is designed to be paired with a bolt. |
| NPT | National Pipe Thread: a style of fitting used for low pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit. |
| ORB | O-ring Boss: a style of fitting commonly used in port opening on manifolds, pumps and motors. |
| ORFS | O-ring Face Seal: a style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring Seal. |
| PTO | Power Take-Off. |
| RoHS (Reduction of Hazardous Substances) | A directive by the European Union to restrict the use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings). |
| SAE | Society Of Automotive Engineers. |
| Screw | A headed and externally threaded fastener that threads into preformed threads or forms its own thread in one of the mating parts. |
| SDD | Single draper drive. |
| Self-Propelled Windrower (SP) | Self-propelled machine consisting of a power unit with a header and/or conditioner. |
| Sickle | A cutting device which uses a reciprocating cutter. Also called a knife. |
| SK | Single knife |
| SKD | Single knife drive. |
| Soft joint | A joint made with the use of a fastener where the joining materials are compressible or experience relaxation over a period of time. |
| spm | Strokes per minute |
| SR | Single reel. |
| Tractor | Agricultural type tractor. |
| Truck | A four-wheel highway/road vehicle weighing no less than 7500 lbs (3400 kg) |
| Timed | One hydraulic motor drives both sickles boxes on double sickle headers. |
| Tension | Axial load placed on a bolt or screw, usually measured in pounds (lb) or Newtons (N). |
| T.F.F.T. | Turns from finger tight. |
| Torque | The product of a force X lever arm length, usually measured in foot-pounds (ft-lbf) or Newton-meters (Nm). |
| Torque angle | A tightening procedure where the fitting is assembled to a precondition (finger tight) and then the nut is turned further a number of degrees or a number of flats to achieve its final position. |
| Torque-tension | The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in the bolt or screw. |
| UCA | Upper Cross Auger. |
| Untimed | Two hydraulic motors operate the two knife drive boxes independently on double knife headers. |

REFERENCE

| Term | Definition |
|-------------|--|
| 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. |
| WCM | Windrower Control Module. |

REFERENCE

2.2 Component Identification

2.2.1 D65 Combine Header

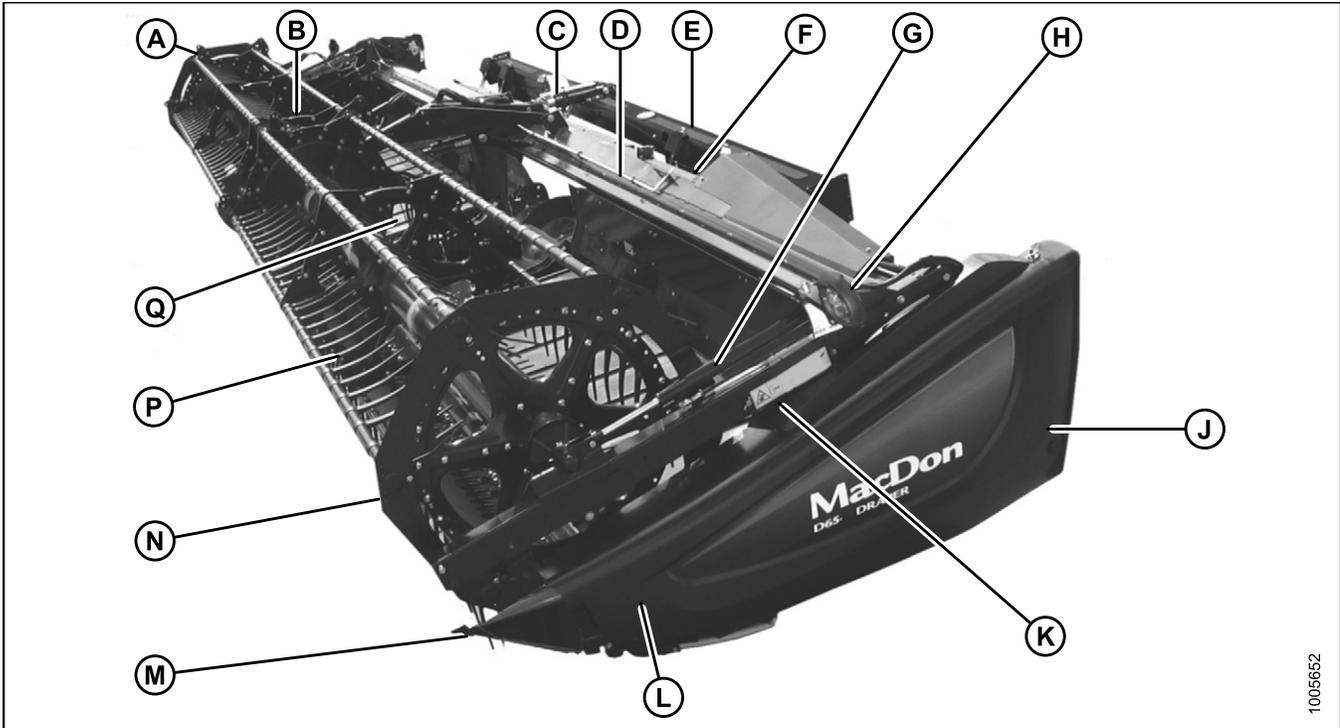


Figure 2.1: D65 Draper Header

- | | | | | |
|--|---|---------------------|---------------------------------|------------------------|
| A - Pick-up reel | B - Reel drive and cam | C - Center-link | D - Center reel arm prop handle | E - CA25 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 - Nose Cone (Crop divider attachment) | N - Reel endshields | P - Reel fingers | Q - Transition pan |

1005652

REFERENCE

2.2.2 CA25 Combine Adapter

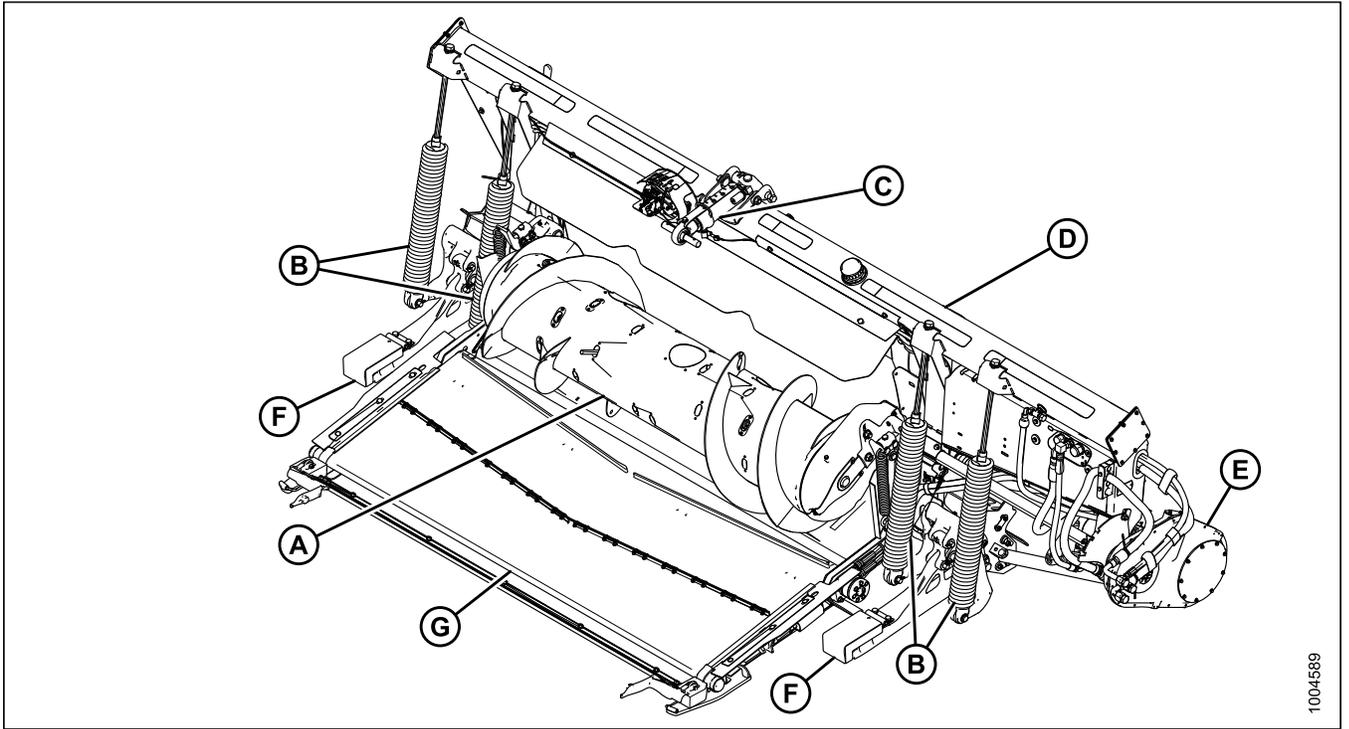


Figure 2.2: Header Side of CA25 Combine Adapter

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

B - Header float springs
E - Gearbox

C - Center-link
F - Header support arm

1004589

REFERENCE

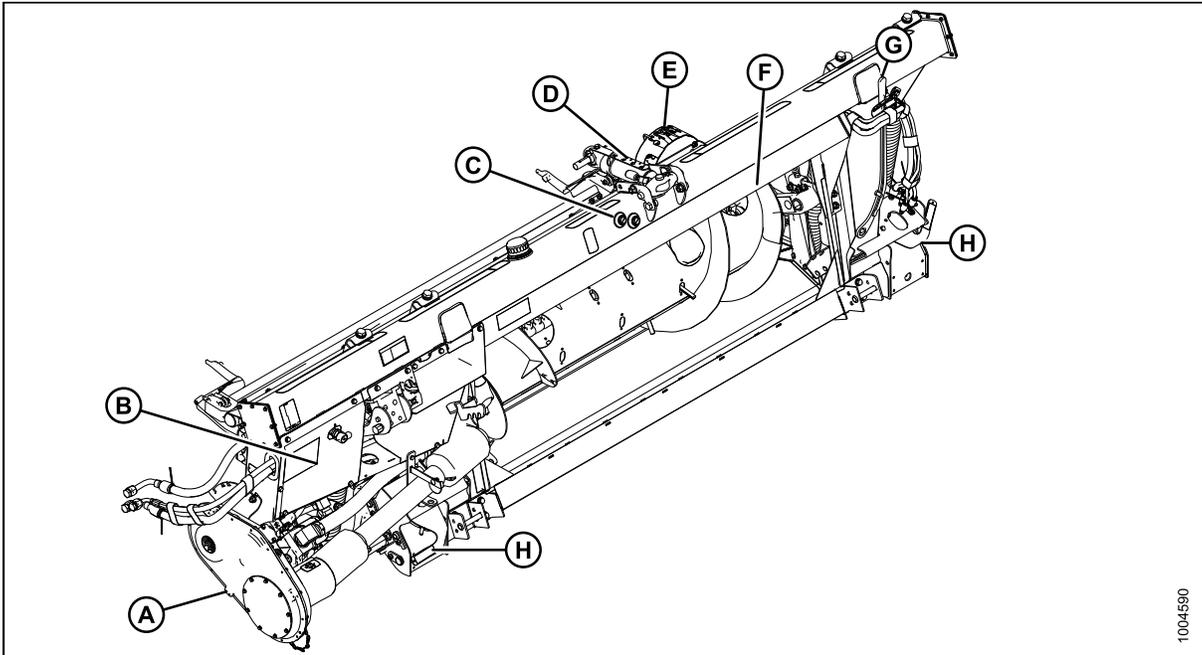


Figure 2.3: Combine Side of CA25 Combine Adapter

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

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

C - Reservoir oil level sight glass
F - Transition frame

3 Specifications

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

D65 | CA25 | Options

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

| | | D65 |
|---|--------------------------------|------------------------|
| CUTTERBAR | | |
| Effective cutting width (distance between crop divider points) | | |
| 15 ft. header | 15.00 ft. (180 in. [4572 mm]) | S |
| 20 ft. header | 20.00 ft. (240 in. [6096 mm]) | S |
| 25 ft. header | 25.00 ft. (300 in. [7620 mm]) | S |
| 30 ft header | 30.00 ft. (360 in. [9144 mm]) | S |
| 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 ft. (540 in. [13716 mm]) | S |
| Single knife drive: hydraulic motor to “C” belt to enclosed heavy duty (MD) knife drive box | | O _F |
| Double knife drive 35 ft. and smaller sizes: hydraulic motor to 2 “B” belts to enclosed heavy duty (MD) knife drive boxes | | O _F |
| Double knife drive 40 and 45 ft.: 2 hydraulic motors to “C” belts, untimed to enclosed heavy duty (MD) knife drive boxes | | O _F |
| Knife Stroke | 3 in. (76 mm) | S |
| Knife Speed (strokes per minute) | | |
| Single Knife header on Combine | | Min – Max strokes/min. |
| 25 ft. | | 1200–1450 S |
| 30 ft. | | 1200–1400 S |
| 35 ft. | | 1100–1300 S |
| 40 ft. | | 1050–1200 S |
| Double Knife header on Combine | | |
| 20 and 25 ft. | | 1400–1700 S |
| 30 and 35 ft. | | 1200–1500 S |
| 40 and 45 ft. | | 1100–1400 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 |
| Guard: Stub / Forged bottom / Forged top / adjustment plate | | O _F |

SPECIFICATIONS

| | | | |
|--|---------------------------|--------------|----------------|
| | | | D65 |
| 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 |
| 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) | 3 mm | | S |
| Cutterbar Lift Range (measured at guard tip) | | | . |
| Combine Header | Varies With Combine Model | | S |
| Guard Angle (cutterbar on ground) | | | |
| Combine (CA25) / Center-Link Retracted | 20–25 ft. | 7.0 Degrees | S |
| Combine (CA25) / Center-Link Retracted | 30–45 ft. | 2.0 Degrees | S |
| Combine (CA25) / Center-Link Extended | 20–25 ft. | 12.4 Degrees | S |
| Combine (CA25) / Center-Link Extended | 30–45 ft. | 7.4 Degrees | S |

| | | |
|--|------------------------|---|
| CONVEYOR (Draper) and DECKS | | |
| Draper Width | -41.6 in. (1057 mm) | S |
| Draper Drive | -Hydraulic | S |
| Draper Speed: CA25 (Combine Adapter) | 0–464 fpm (141 m/min.) | S |
| Delivery Opening Width (Center Delivery) / variable by shifting decks | | |
| 20, 25, 30, 35, 40, 45 ft. (Combine configuration) | 73.6 in. (1870 mm) | S |

| | | |
|--|---|---|
| REEL | | |
| Pick-Up Reel PR15 | | S |
| Quantity of Tine Tubes | 5, 6, or 9 | . |
| Center tube diameter: all reel sizes except 35 ft. single span | 8 in. (203 mm) | . |
| 35 ft. single span (ONLY) | 10 in. (254 mm) | . |
| Finger Tip Radius (adjustment range / factory assembled) | 30.2–31.5 in. (766 mm–800 mm) / - 31.5 in. (800 mm) | . |
| Effective Reel Diameter (via “shaped” cam action) | 65 in. (1650 mm) | . |
| Finger Length | 11 in. (290 mm) | . |
| Finger Spacing (staggered on alternate bats) | 6.0 in. (150 mm) | . |
| Reel Drive | Hydraulic | S |
| Reel Speed | | S |
| Combine (adjustable from cab) | 0–67 rpm (Varies with combine model) | S |
| export configured | | . |

SPECIFICATIONS

| | | |
|---|--|------------|
| | | D65 |
| FRAME and STRUCTURE | | |
| Header Width (Field Position) | cut width + 15.1 in. (384 mm) | S |
| Header Width (Transport Position) - reel fore-aft fully retracted | | |
| With CA25 Combine Adapter installed (shortest center-link) | (A) (Long Dividers Installed) 106 in. (2684 mm) | - |
| | (B) (Long Dividers Removed) 98 in. (2500 mm) | - |

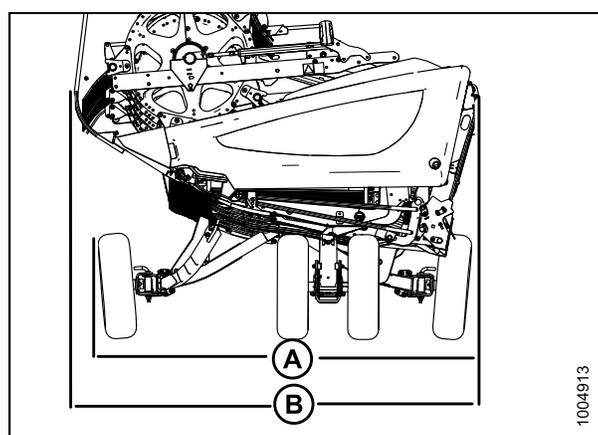


Figure 3.1: Header width

| | | |
|--|-------------------------------------|----------------------|
| | | D65 |
| ATTACHMENTS | | |
| CA25 Combine Adapter | | O_D |
| Feed Draper Width | 78.7 in. (2000 mm) | |
| Feed Draper Speed | 350–400 fpm (107–122 m/min) | |
| Feed Auger Width | 65.3 in. (1660 mm) | |
| Feed Auger Outside (Flighting) Diameter (O.D.) | 22 in. (559 mm) | |
| Feed Auger Tube Diameter (O.D.) | 14 in. (356 mm) | |
| Feed Auger Speed | 150 rpm (Varies with combine model) | |
| Oil Reservoir Capacity | 16 US Gallons (60 Litres) | |
| Oil Type | 15W40 | |
| Upper Cross Auger | | O_D |
| Outside (Flighting) Diameter (O.D.) | 12 in. (305 mm) | |
| Tube Diameter (O.D.): All sizes except 25 ft. | 6 in. (152 mm) | |

SPECIFICATIONS

| | | |
|--|----------------|----------------|
| | | D65 |
| Tube Diameter 25 ft. (O.D.) | 7 In. (178 mm) | |
| Stabilizer Wheel / Slow Speed Transport | | O _D |
| Wheels | 15 in. | |
| Tires | P205/75 R-15 | |

| WEIGHT | |
|---|---------------------------|
| Estimated Weight Range – Base Header, No Adapter (lb [kg]) – Variances are due to different package configurations. | |
| 20 ft. header | 3146 – 3600 (1430 – 1633) |
| 25 ft. header | 3547 – 3872 (1605 – 1753) |
| 30 ft header | 4370 – 4812 (1981 – 2178) |
| 35 ft. header | 4808 – 5337 (2181 – 2480) |
| 40 ft. header | 5197 – 5704 (2352 – 2593) |
| 45 ft. header | 5990 (2711) |

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.

OPERATION

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 51](#).
- Operate only in daylight or good artificial light.

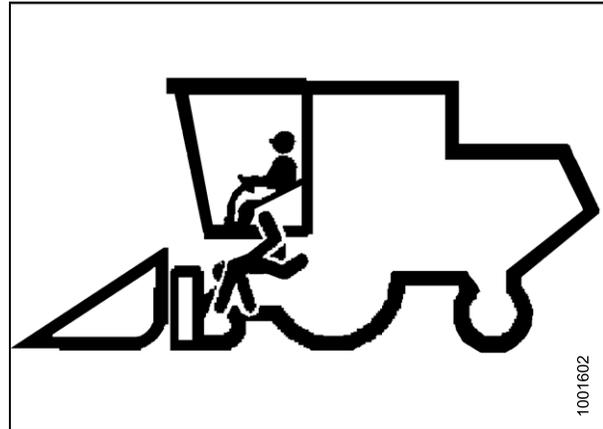


Figure 4.1

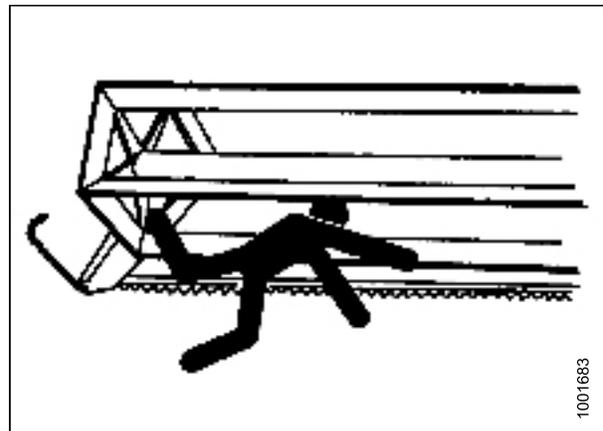


Figure 4.2

4.2.1 Header Safety Props

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

OPERATION

DANGER

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

4.2.2 Reel Safety Props

WARNING

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

Reel safety props are located at the reel support arms.

IMPORTANT

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

Engaging Reel Safety Props

DANGER

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

WARNING

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

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

NOTE:

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

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

THE CONTENT ON THIS PAGE HAS CHANGED SINCE THIS MANUAL (169593 REVISION C) WAS PUBLISHED.

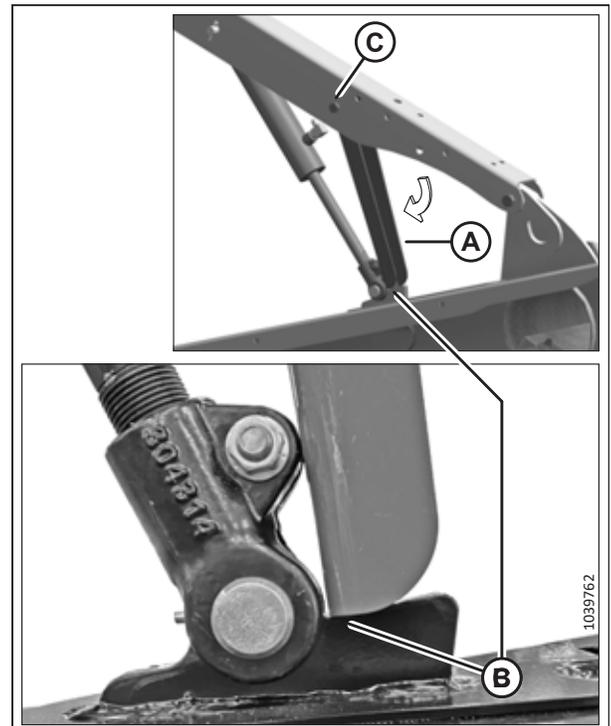


Figure 4.3

OPERATION

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

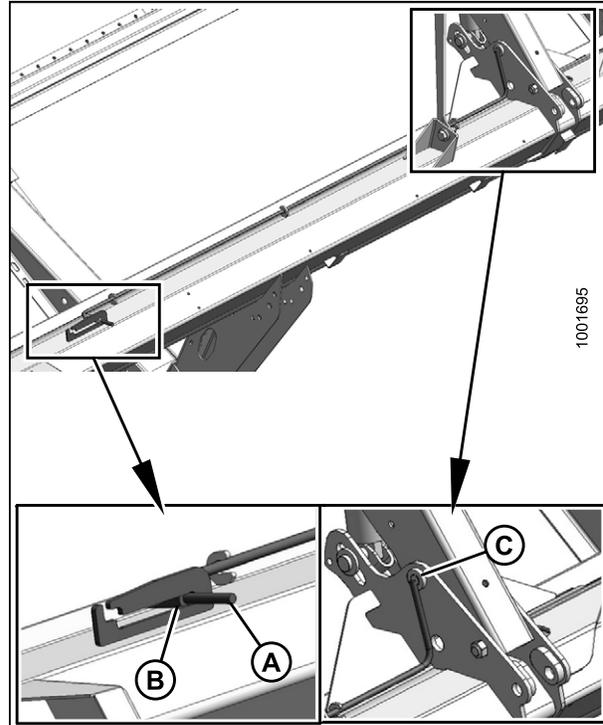


Figure 4.4

A - Handle
C - Pin

B - Inboard position

Disengaging Reel Safety Props

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

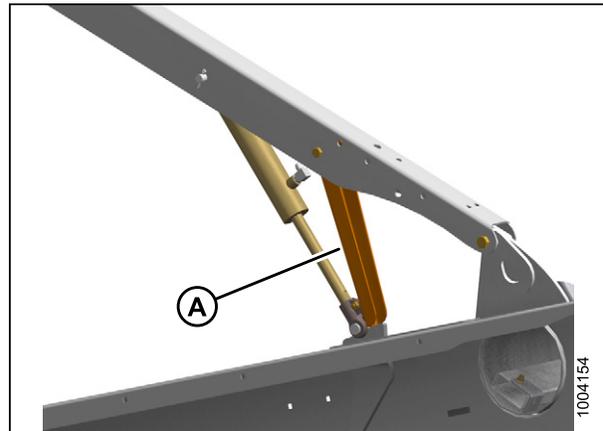


Figure 4.5: Push props inside reel arms

OPERATION

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

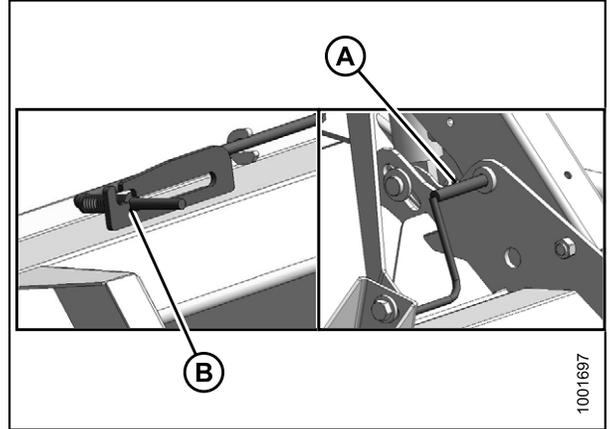


Figure 4.6: Move lock rod to outboard position

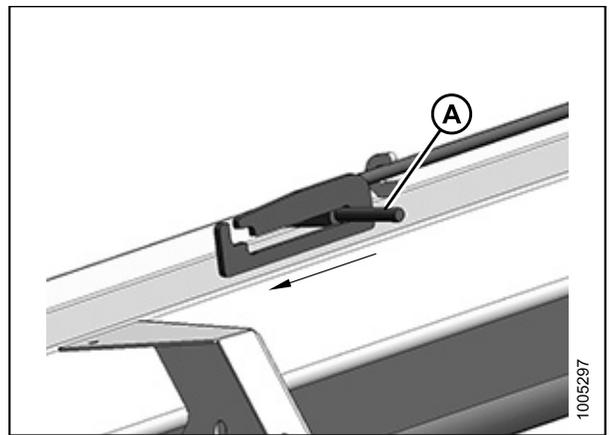


Figure 4.7

OPERATION

4.2.3 Endshields

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

Opening Endshields

To open an endshield, follow these steps.

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

IMPORTANT

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

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

NOTE: If complete access to the endsheet area is required, the shield can be removed. [Refer to See Section Removing Endshields, page 46.](#)

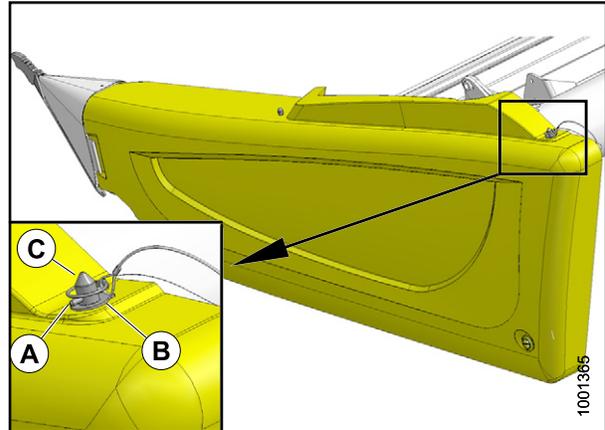


Figure 4.8

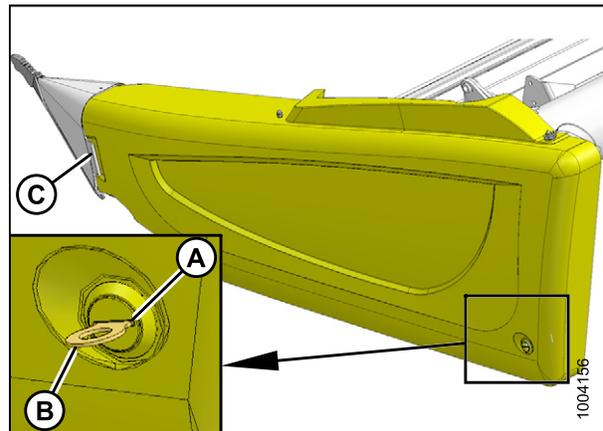


Figure 4.9

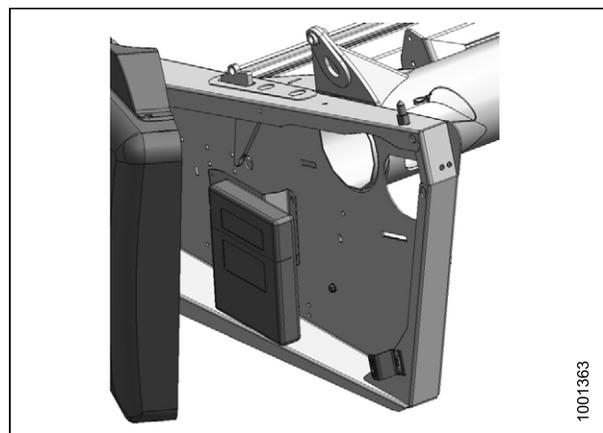


Figure 4.10

OPERATION

Closing Endshields

To close an endshield, follow these steps.

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

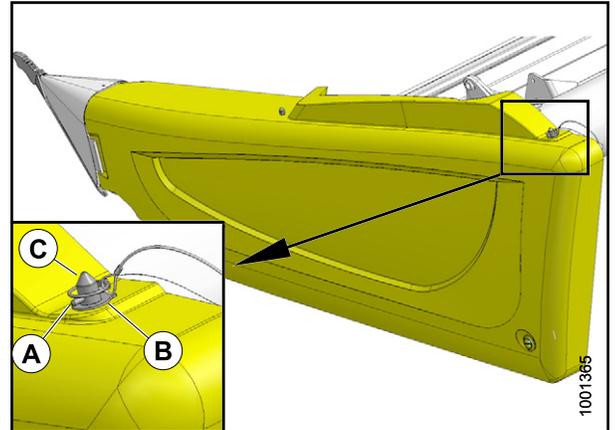


Figure 4.11

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

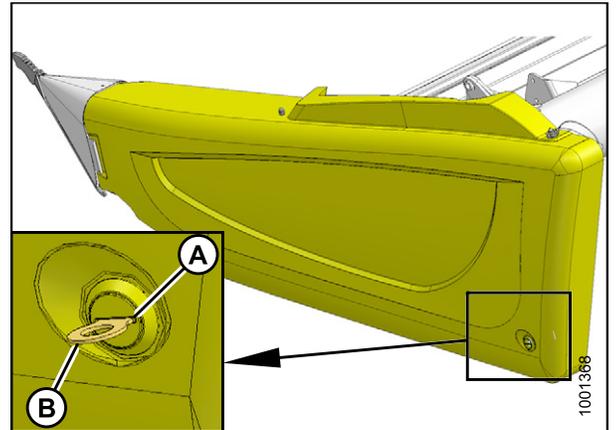


Figure 4.12

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

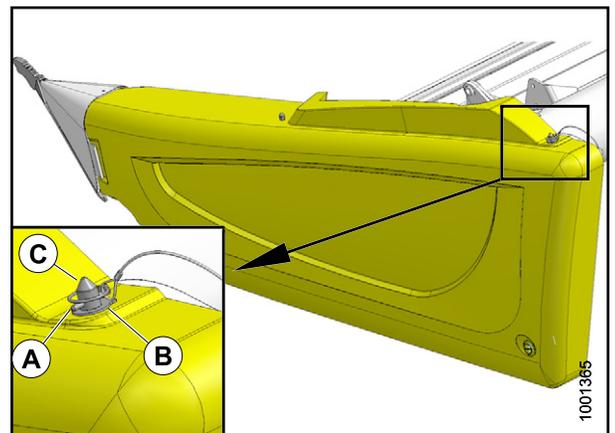


Figure 4.13

OPERATION

Removing Endshields

To remove an endshield, follow these steps:

1. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
2. Remove acorn nut (A) that secures the endshield to support (B).
3. Lift endshield off support (B).

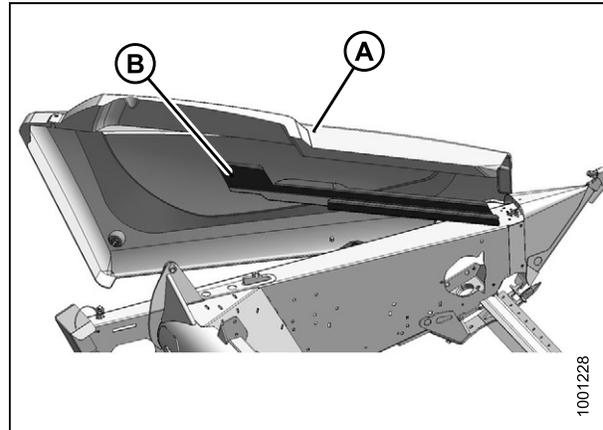


Figure 4.14

Installing Endshields

To install an endshield, follow these steps.

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

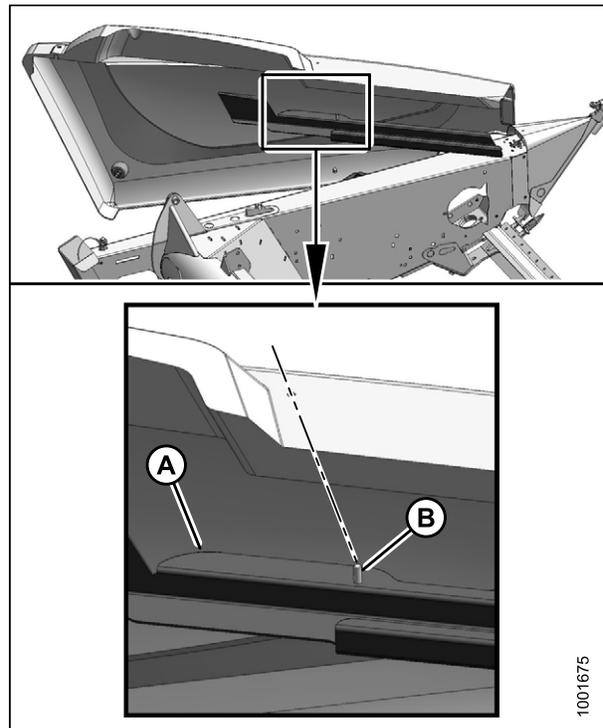


Figure 4.15

OPERATION

- Secure endshield to the support with acorn nut (A).
- Close endshield. ~~Refer to~~ [See Section Closing Endshields, page 45.](#)

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~~ [See Section Adjusting Endshields, page 47.](#)

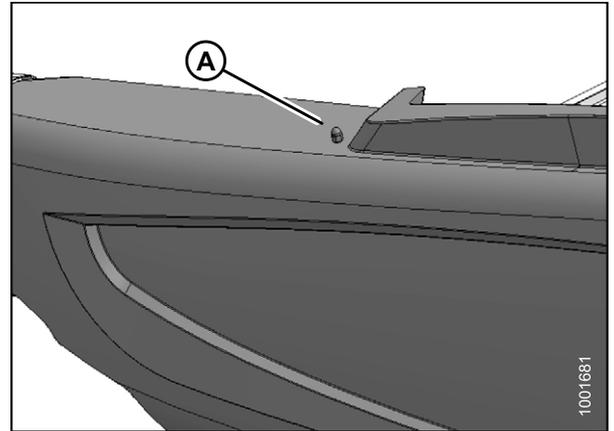


Figure 4.16

Adjusting Endshields

To adjust an endshield, follow these steps.

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

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

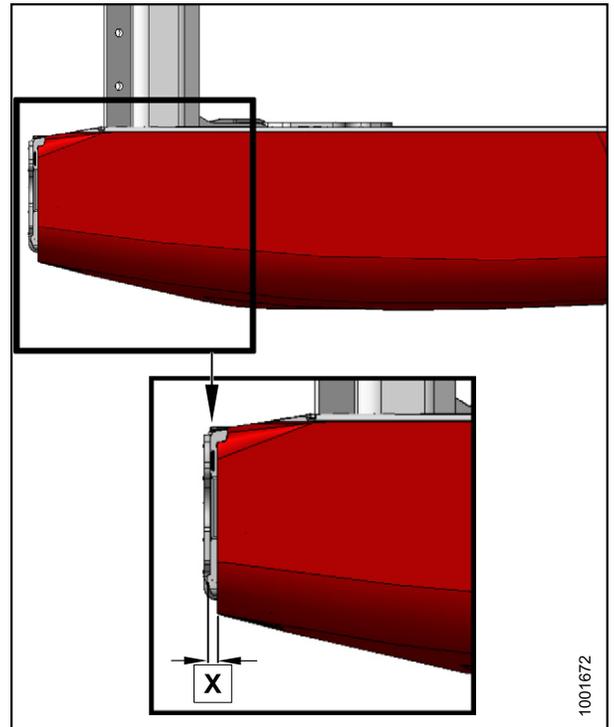


Figure 4.17

OPERATION

If adjustments are required, proceed as follows:

2. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
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~~ [See Section Closing Endshields, page 45.](#)

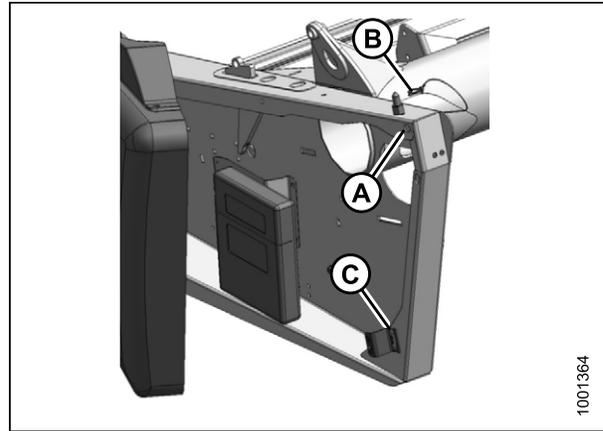


Figure 4.18

OPERATION

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. Don't take chances. You may need a hard hat, protective glasses or goggles, heavy gloves, a respirator or filter mask, or wet weather gear.
- Protect against noise. Wear a suitable hearing protective device such as ear muffs or ear plugs to protect against objectionable or uncomfortable loud noises.

Complete the following tasks each day before start-up:

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

NOTE: Use proper procedure when searching for pressurized fluid leaks. Refer to Section [7.4 Hydraulics, page 275](#).

2. Clean all lights and reflective surfaces on the machine.
3. Perform all daily maintenance. Refer to Section [7.3.1 Maintenance Schedule/Record, page 258](#).

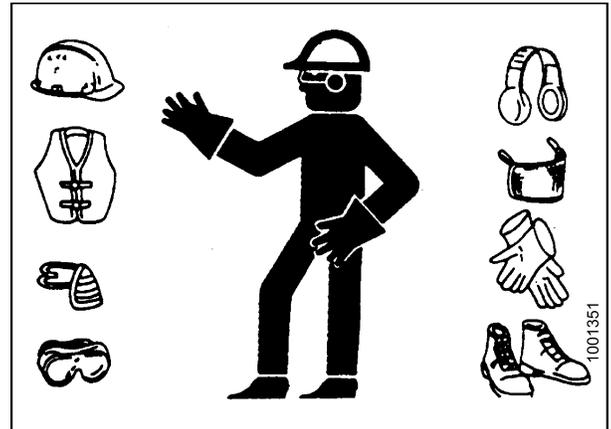


Figure 4.19: Use protective clothing and personal safety devices

OPERATION

4.3 Break-in Period

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

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

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

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

2. Perform the items specified. Refer to Section [7.3.2 Break-In Inspection, page 260](#).



CAUTION

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

4.4 Shutdown Procedure



CAUTION

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

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

4.5 Cab Controls



CAUTION

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

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

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

OPERATION

4.6 Header Setup

4.6.1 Header Settings

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

| D65/CA25 Combine Header Recommended Settings | | | | | | | | | | | | | | |
|--|----------------------|---------------------------|---------------------------|-------------------------------|------------------------------|------------------------------|------------------|-----------------------|----------------|-----------------------------|--|-------------------|---|-------------|
| Crop Type | Stubble Height (in.) | Crop Condition | Divider Rods | Draper Speed Setting (Note 7) | Header Angle (Notes 1 and 4) | Knife Speed Setting (Note 2) | Reel Cam Setting | Reel Speed % (Note 3) | Reel Position | Skid Shoe Position (Note 4) | Stabilizer Wheel (Notes 4 and 5) | Upper Cross Auger | Notes | |
| Cereals | 0 | Light | Off | 8 | B - C | 600-650 | 3 | 10-15 | 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 Parts Department. Rice Divider Rod not required on both ends of header.</p> <p>Note 7: Setting on CA25 draper control.</p> | |
| | | Normal | On | 7 | | 550-600 | 2 | 10 | | | | | | |
| | | Lodged | Off | 7 | | 525-600 | 3 or 4 | 5-10 | | | | | | 4 or 5 |
| | 4-8 | Light | Off | 8 | A | 600-650 | 4 | 10-15 | 6 or 7 | Center or Down | Note 5 | Not Required | | |
| | | Normal | On | 7 | | 550-600 | 2 | 10 | | | | | | |
| | | Heavy | On | 7 | | 525-600 | 3 or 4 | 5-10 | | | | | | 4 or 5 |
| | 10 + | Light | Off | 8 | A | 600-650 | 4 | 10-15 | 6 or 7 | Not Applicable | Note 5 | Not Required | | |
| | | Normal | On | 7 | | 550-600 | 2 | 10 | | | | | | |
| | | Heavy | On | 7 | | 525-600 | 3 or 4 | 5-10 | | | | | | 4 or 5 |
| | Canola | 4-8 | Light | On | 7 | A | 600-650 | 2 | 5-10 | 6 or 7 | Down Center or Down Down Center or Down | Note 5 | | Recommended |
| | | | Normal | | | B - C | 550-600 | 1 | 10 | | | | | |
| | | | Heavy | | | D | 525-600 | 2 | 5-10 | | | | | |
| 10 + | | Light | On | 7 | A | 600-650 | 2 | 5-10 | 6 or 7 | Not Applicable | Note 5 | Recommended | | |
| | | Normal | | | B - C | 550-600 | 1 or 2 | 10 | | | | | | |
| | | Heavy | | | D | 525-600 | 2 or 3 | 5-10 | | | | | | |
| California Rice | 0 | Light | Rice Divider Rod (Note 6) | 4 | D | 600-650 | 2 | 10-15 | 6 or 7 | Up or Center | Storage | Not Required | | |
| | | Normal | | | B - C | 550-600 | | 10 | | | | | | |
| | | Heavy | | | D | 525-600 | | 5-10 | | | | | | |
| | 4-8 | Light | Rice Divider Rod (Note 5) | 4 | D | 600-650 | 3 | 10-15 | 6 or 7 | Center or Down | Note 5 | Not Required | | |
| | | Normal | | | B - C | 550-600 | | 10 | | | | | | |
| | | Heavy | | | D | 525-600 | | 4 | | | | | 5-10 | |
| 10 + | Light | Rice Divider Rod (Note 5) | 4 | A | 600-650 | 3 | 10-15 | 6 or 7 | Not Applicable | Note 5 | Not Required | | | |
| | Normal | | | B - C | 550-600 | | 10 | | | | | | | |
| | Heavy | | | D | 525-600 | | 4 | | | | | 5-10 | | |
| Delta Rice | 2-6 | Light | Off | 6 | D | 600-650 | 2 or 3 | 10-15 | 6 or 7 | Center or Down | Note 5 | Not Required | | |
| | | Normal | | | B - C | 550-600 | | 10 | | | | | | |
| | | Heavy | | | D | 525-600 | | 3 or 4 | | | | | 5-10 | 4 or 5 |
| | 8 + | Light | Off | 6 | A | 600-650 | 2 or 3 | 10-15 | 6 or 7 | Not Applicable | Note 5 | Not Required | | |
| | | Normal | | | B - C | 550-600 | | 10 | | | | | | |
| | | Heavy | | | D | 525-600 | | 3 or 4 | | | | | 5-10 | 4 or 5 |
| Soybeans | 0 | Light | On | 8 | D | 600-650 | 2 | 5-10 | 6 or 7 | Up or Center | Storage | Not Required | | |
| | | Normal | | 7 | B - C | 550-600 | | 10 | | | | | | |
| | | Heavy | | 7 | D | 525-600 | | 5-10 | | | | | | |
| Flax | 2-6 | Light | On | 7 | B - C | 600-650 | 2 | 5-10 | 6 or 7 | Center or Down Down | Note 5 | Not Required | | |
| | | Normal | | | A | | | 10 | | | | | | |
| | | Heavy | | | B - C | | | 10 | | | | | | |
| | | Lodged | | | D | | | 5-10 | | | | | | |
| Peas | 0 | Light | On | 7 | B - C | 600-650 | 2 | 5-10 | 6 or 7 | Up or Center | Storage | Recommended | | |
| | | Normal | | | 7 | 550-600 | | 10 | | | | | | |
| | | Heavy | | | 7 | 525-600 | | 5-10 | | | | | | |
| | | Lodged | | | D | 525-600 | | 5-10 | | | | | | |
| Lentils | 0 | Light | On | 8 | B - C | 600-650 | 2 | 5-10 | 6 or 7 | Up or Center | Storage | Not Required | | |
| | | Normal | | 7 | | 550-600 | | 10 | | | | | | |
| | | Heavy | | 7 | | 525-600 | | 5-10 | | | | | | |
| | | Lodged | | D | | 525-600 | | 5-10 | | | | | | |

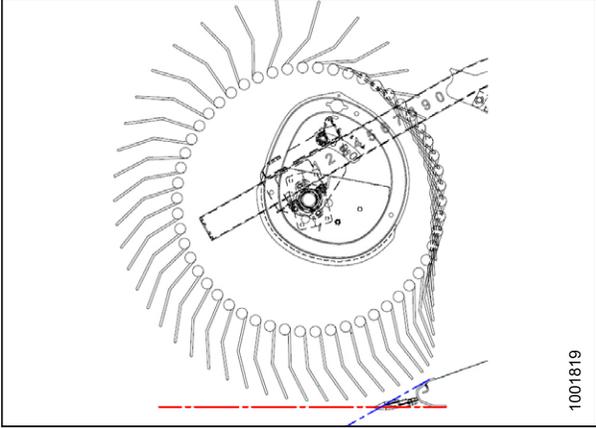
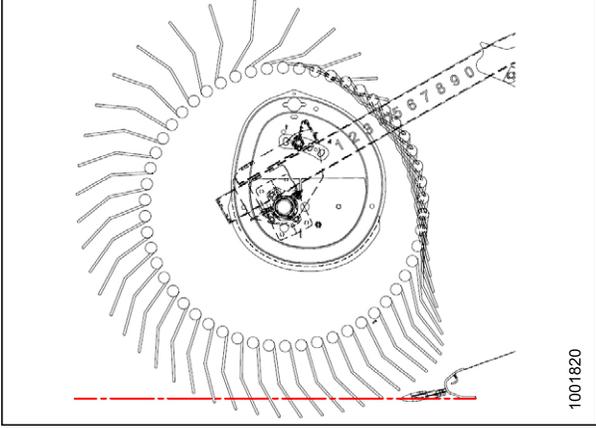
Figure 4.20

Also See Section 4.6.2 Reel Settings, page 54.

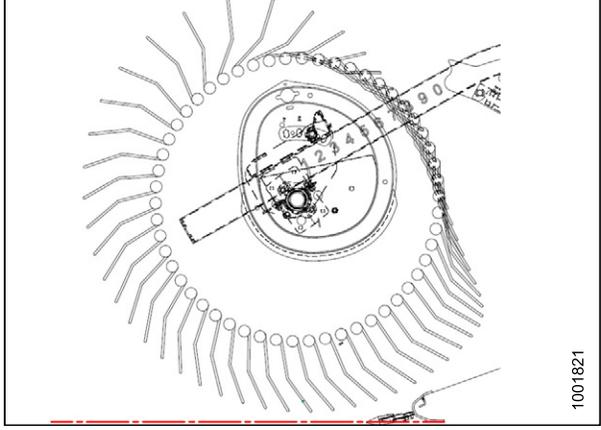
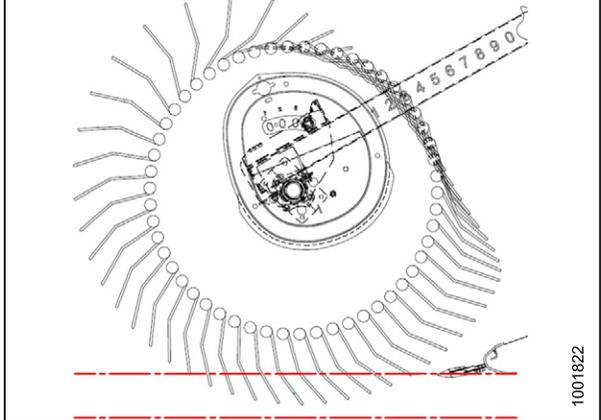
OPERATION

4.6.2 Reel Settings

Table 4.1 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.

OPERATION

4.7 Header Operating Variables

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

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

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

| Variable | Section |
|------------------------|---|
| Cutting height | 4.7.1 Cutting Height, page 56 |
| Header float | 4.7.2 Header Float, page 63 |
| Header angle | 4.7.3 Header Angle, page 68 |
| Reel speed | 4.7.4 Reel Speed, page 70 |
| Ground speed | 4.7.5 Ground Speed, page 71 |
| Draper speed | 4.7.6 Draper Speed, page 72 |
| Knife speed | 4.7.7 Knife Speed, page 73 |
| Reel height | 4.7.8 Reel Height, page 74 |
| Reel fore-aft position | 4.7.9 Reel Fore-Aft Position, page 75 |
| Reel tine pitch | 4.7.10 Reel Tine Pitch, page 81 |
| Crop divider rods | 4.7.12 Crop Divider Rods, page 88 |

4.7.1 Cutting Height

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

Cutting Off The Ground

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

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

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

If you have stabilizer wheels installed, Refer to [Adjusting the Stabilizer Wheels, page 58](#) to modify the height of the wheels.

If you have stabilizer/slow speed transport wheels installed, Refer to [Adjusting Stabilizer/Slow Speed Transport Wheels, page 57](#) to modify the height of the wheels.

OPERATION

Adjusting Stabilizer/Slow Speed Transport Wheels

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

Refer to Section [4.6.1 Header Settings](#), page 53 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 64.
3. On the RH wheel assembly, remove hairpin (A) from latch.
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 hand wheel back into Field position and ensure latch (B) is engaged.
9. Secure latch with hairpin (A).
10. On the LH wheel assembly, support 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.

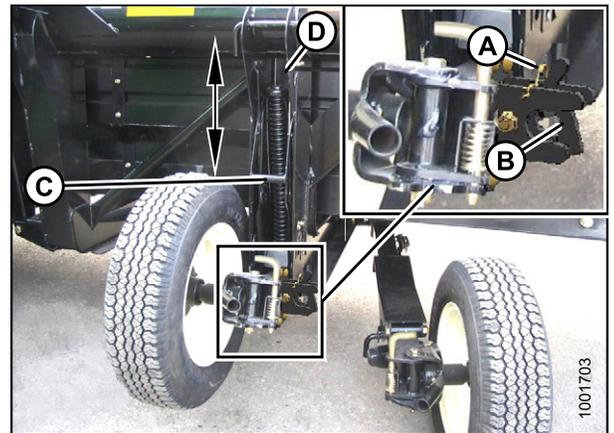


Figure 4.21: RH wheel

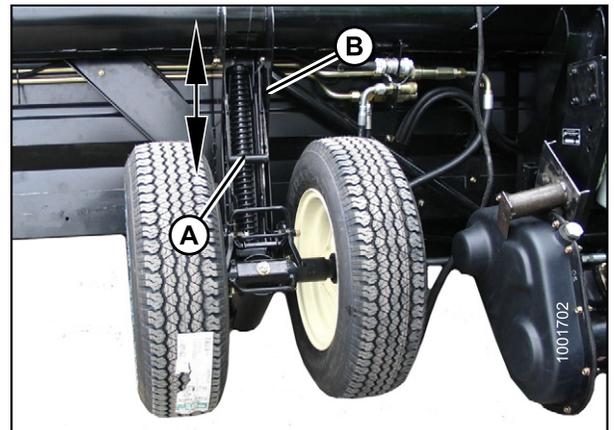


Figure 4.22: LH wheel

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.

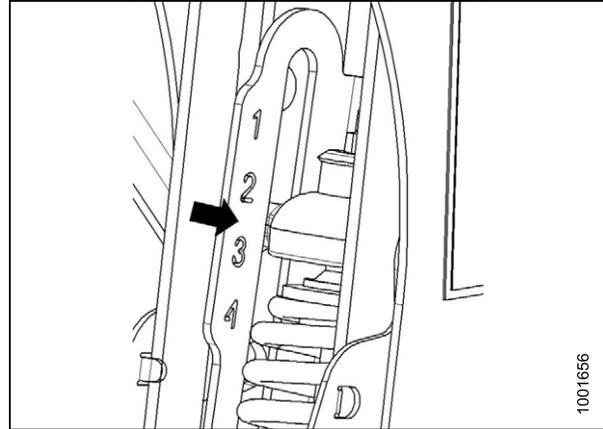


Figure 4.23: Load indicator between 2 and 3

IMPORTANT

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

- 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 Section 6 [Automatic Header Height Control](#), page 169 and your combine operator's manual for details.

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

Adjusting the Stabilizer Wheels

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

Refer to Section 4.6.1 [Header Settings](#), page 53 for recommended use in specific crops and crop conditions.

- Raise the header so that the stabilizer wheels are off the ground. Shut down engine and remove the key.
- Check that the float is working properly. Refer to [Checking and Adjusting Header Float](#), page 64.

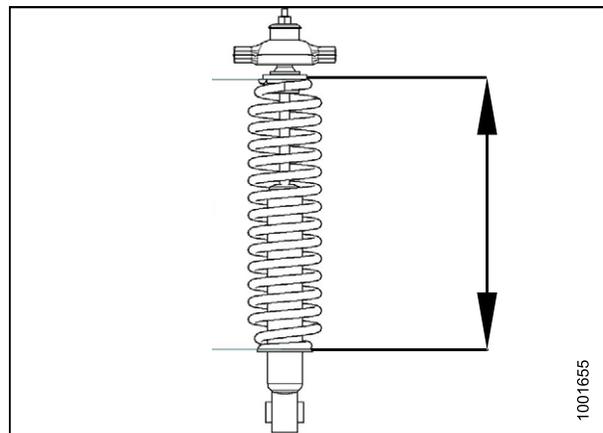


Figure 4.24: Spring compression

OPERATION

CAUTION

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

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.
-
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.

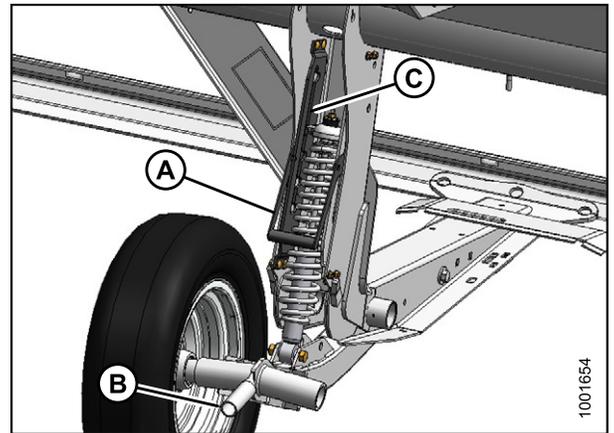


Figure 4.25: LH shown

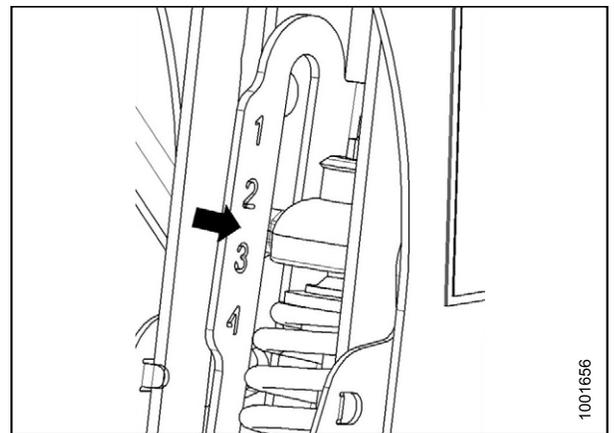


Figure 4.26: Load indicator between 2 and 3

OPERATION

IMPORTANT

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

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

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

NOTE: Skid shoes are standard equipment on the D65 header.

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

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

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

Refer to Section 4.6.1 [Header Settings](#), page 53 for recommended skid shoe positions in specific crops and crop conditions.

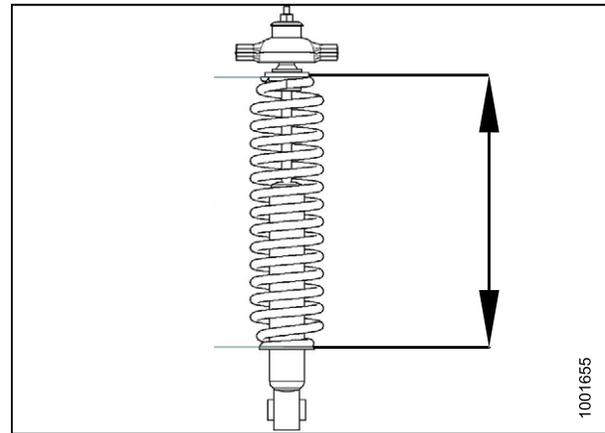


Figure 4.27: Spring compression

OPERATION

Adjusting Inner Skid Shoe

1. Fully raise the stabilizer wheels or slow speed transport wheels if installed. Refer to
 - [Adjusting the Stabilizer Wheels, page 58](#), or
 - [Adjusting Stabilizer/Slow Speed Transport Wheels, page 57](#) for procedure.

DANGER

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

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

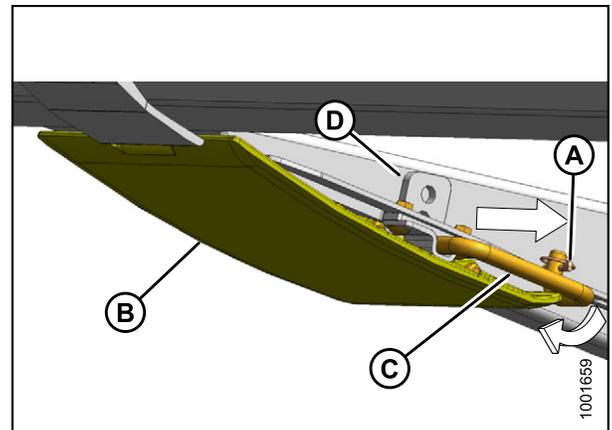


Figure 4.28: Inner skid shoes

A - Lynch pin
B - Shoe
C - Pin
D - Support

6. Reinsert pin (B), engage in frame, and secure with lynch pin (A).
7. Check that all of the skid shoes are adjusted to the same position.
8. Adjust header angle to desired working position using the machine's header angle controls. If angle is not critical, set it to mid-position.
9. Check header float. Refer to [Checking and Adjusting Header Float, page 64](#).

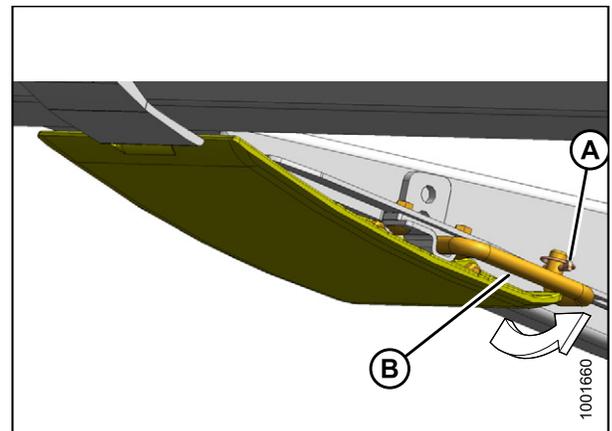


Figure 4.29

OPERATION

Adjusting Outer Skid Shoe

1. Fully raise the stabilizer wheels or slow speed transport wheels if installed. Refer to
 - [Adjusting the Stabilizer Wheels, page 58](#) or
 - [Adjusting Stabilizer/Slow Speed Transport Wheels, page 57](#) for procedure.

DANGER

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

2. Fully raise header, engage safety props, shut off engine, and remove key.
3. Remove lynch pin (A) at each skid shoe (B).
4. Hold shoe and remove pin (C) by disengaging frame and then pulling away from shoe.
5. Raise or lower skid shoe to desired position using holes in support as a guide.
6. Reinstall pin (C), engage in frame, and secure with lynch pin (A).
7. Check that skid shoes are adjusted to the same position.
8. Check header float. Refer to [Checking and Adjusting Header Float, page 64](#).

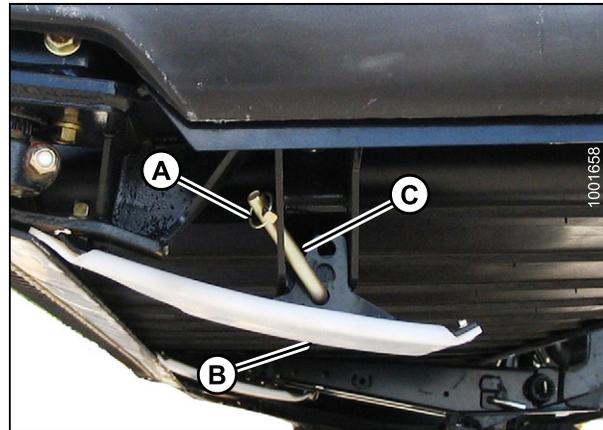


Figure 4.30: Outer skid shoes

A - Lynch pin
C - Pin

B - Skid shoe

Setting Feeder House Height and Header Angle

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

OPERATION

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

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

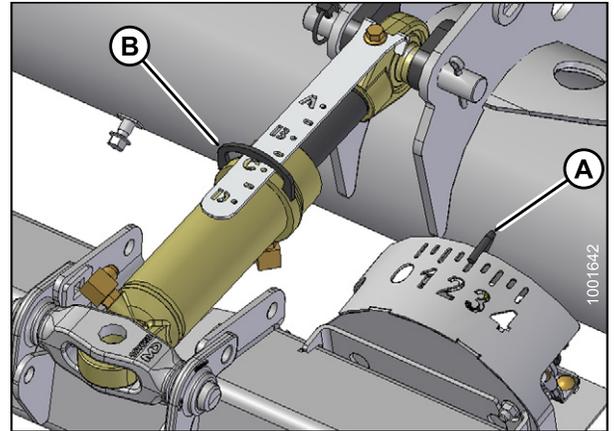


Figure 4.31

A - Float indicator

B - Header angle indicator

4.7.2 Header Float

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

The D65 combine headers perform best with minimum extra weight on the header, under normal conditions.

Header Float Locks

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

IMPORTANT

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

OPERATION

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

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

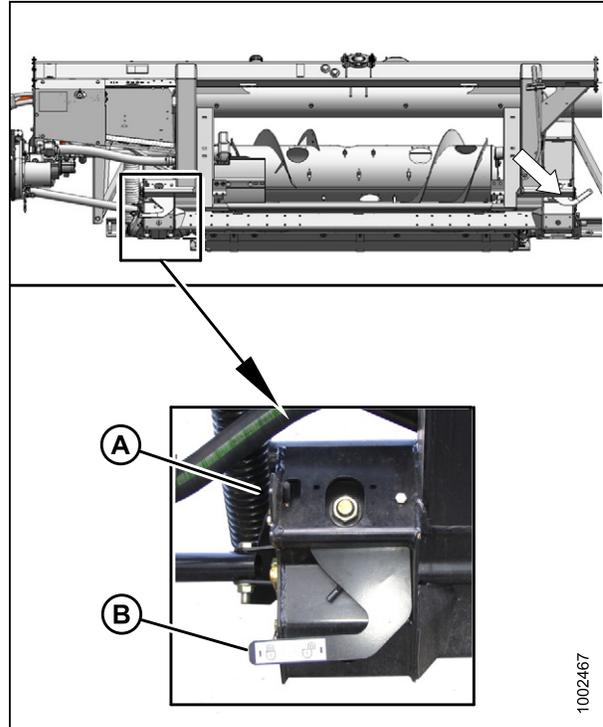


Figure 4.32: Lever Up = LOCK, Down = UNLOCK

Checking and Adjusting Header Float

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

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

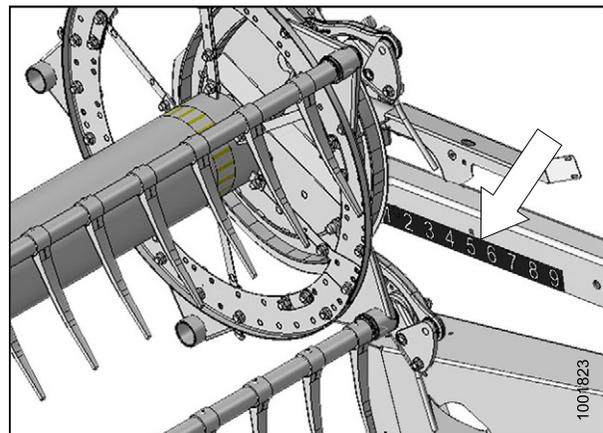


Figure 4.33: Adjust fore-aft position

OPERATION

3. Adjust center-link to mid-range (tilt to 'B' 1/2).
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.

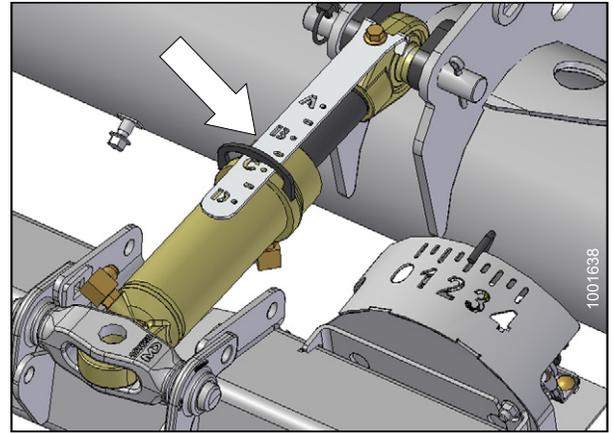


Figure 4.34: Adjust center-link

IMPORTANT

The adapter float springs are not used 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).
8. If header is equipped with stabilizer wheels or slow speed transport wheels, place them in storage position.

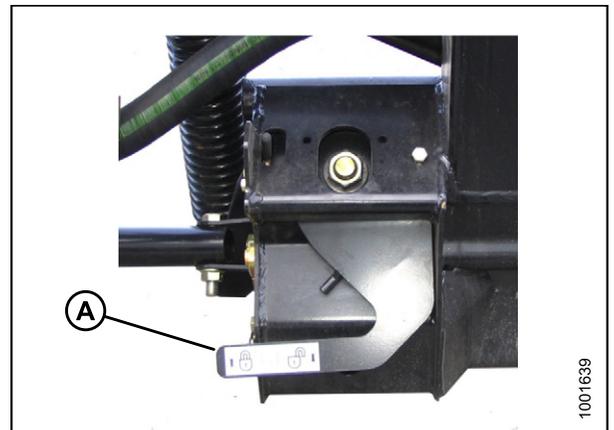


Figure 4.35

OPERATION

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

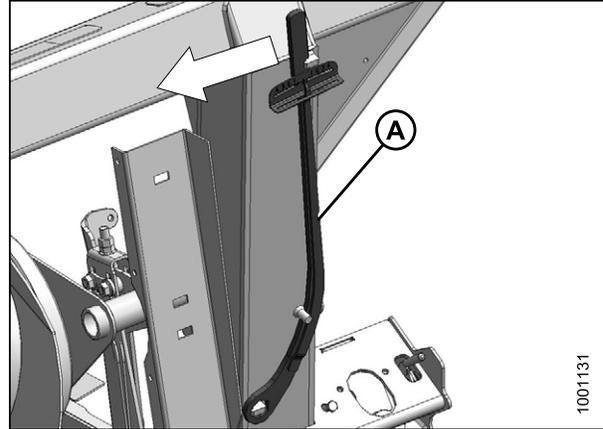


Figure 4.36: Torque wrench

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

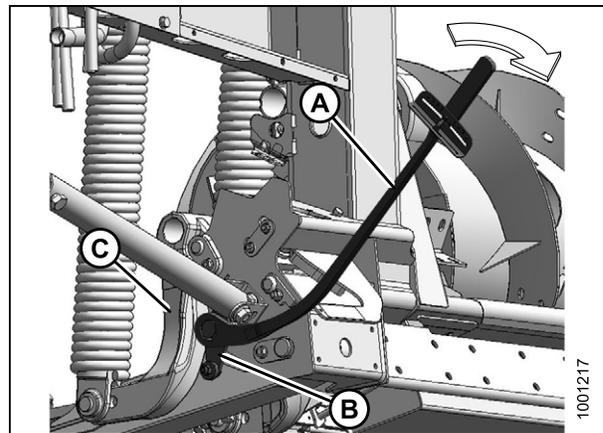


Figure 4.37: Left side

A - Torque wrench
C - Bell crank

B - Float lock

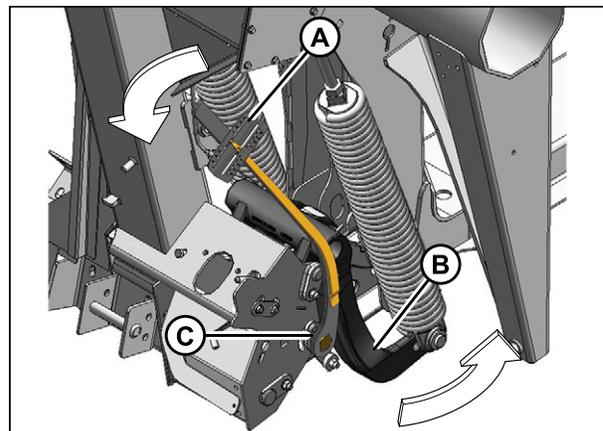


Figure 4.38: Right side

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 table below as a guide for float settings. If reading on wrench is **high**, header is **heavy**. If reading on wrench is **low**, header is **light**.

| 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 (lighten header), 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**.

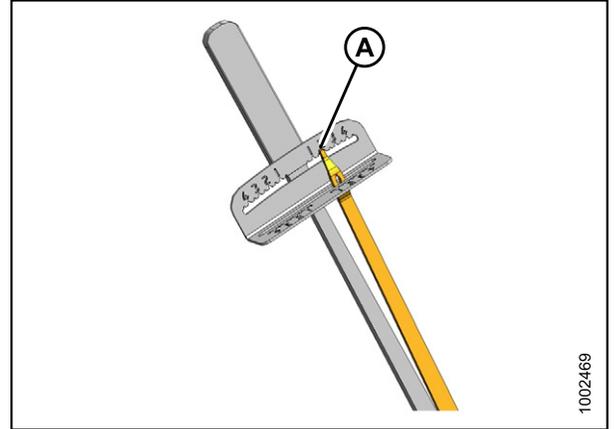


Figure 4.39: Indicator

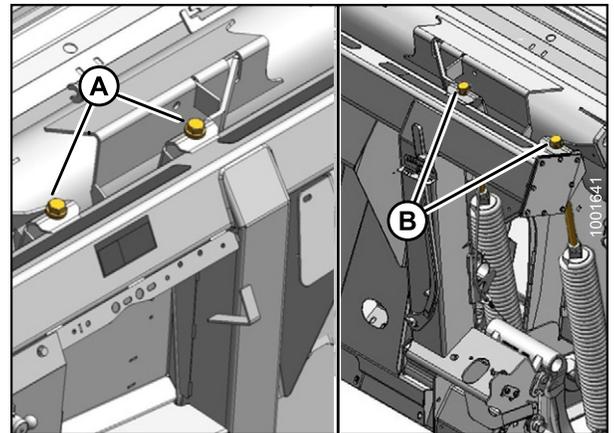


Figure 4.40: Left side and right side float

OPERATION

16. Use the following guidelines when adjusting float:
- For **single-knife headers**: Adjust the float so the wrench reading is equal for both sides.
 - For **40 and 45 ft double-knife headers**: Adjust the float so that torque settings are equal for both sides, and then loosen both right side spring bolts two turns.
 - Turn each bolt pair equal amounts. After adjustment has been made, repeat torque wrench reading procedure.
 - To avoid frequent breakage of knife components, scooping soil, or soil build-up at cutterbar in wet conditions, header float should be set as light as possible without causing excessive bouncing.
 - With a light float setting, it may be necessary to use a slower ground speed to avoid excessive bouncing, and leaving a ragged cut.
 - The stabilizer wheels may be used in conjunction with float to minimize bouncing at the header ends and control cut height when cutting off the ground. Refer to Section [4.7.1 Cutting Height, page 56](#) 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.

4.7.3 Header Angle

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

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

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

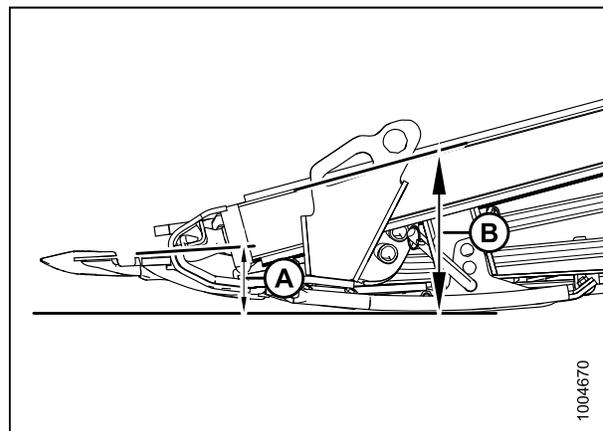


Figure 4.41: Shortest center-link

OPERATION

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

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

Refer to Section 4.6.1 [Header Settings](#), page 53 for recommended header angle in specific crops and crop conditions.

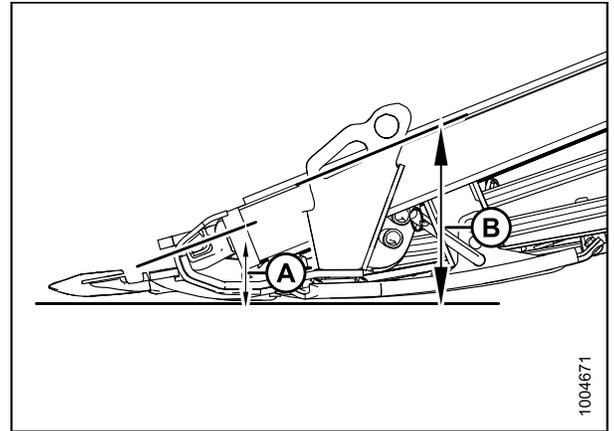


Figure 4.42: Longest center-link

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

Table 4.2 D65 Header Angle

| Header size | Guard angle |
|-------------|-------------|
| 20, 25 ft. | 7.0°–12.4° |
| 30–45 ft. | 2.0°–7.4° |

Angle Adjustment

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

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

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

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

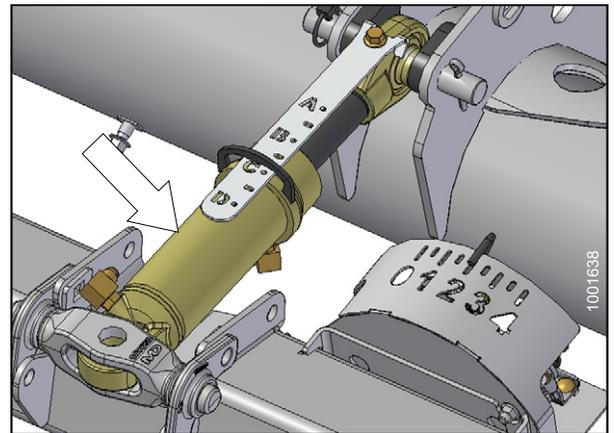


Figure 4.43: Adjust center-link length

OPERATION

4.7.4 Reel Speed

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

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

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

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

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

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

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

NOTE: 9-bat reels are available on D65 15, 20, 25 ft. from the factory. If you have a D65 15, 20, 25, 30, or 35 ft. double reel header. You can purchase conversion kits to upgrade a 6-bat reel to the 9-bat reel.

Refer to Section [4.6.1 Header Settings, page 53](#) for recommended reel speeds in specific crops and crop conditions.

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

Optional Reel Drive Sprockets

| Machine hydraulics | Combine | Application | Drive sprocket |
|------------------------------------|--|---|-----------------------|
| All | All | Standard | 19-Tooth |
| 2000–2100 psi (13.79–14.48 MPa) | AGCO Transverse Rotary | Combining Down Rice | 10-Tooth ³ |
| 2500 psi (17.24 MPa) | CAT 500, 700 Series, AGCO Axial Rotary | | 12-Tooth ³ |
| 3000 psi (20.68 MPa) | NH CR, CX, Case IH 7010, 8010, 7120, 8120, 88 Series | | 14-Tooth ³ |
| Low Flow (under 11 gpm) | — | Combining Light Crops Above 10 mph (16 km/hr) | 21-Tooth ³ |

For installation details, Refer to Section [7.11.5 Reel Drive Sprocket, page 390](#).

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

OPERATION

4.7.5 Ground Speed

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

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

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

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

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

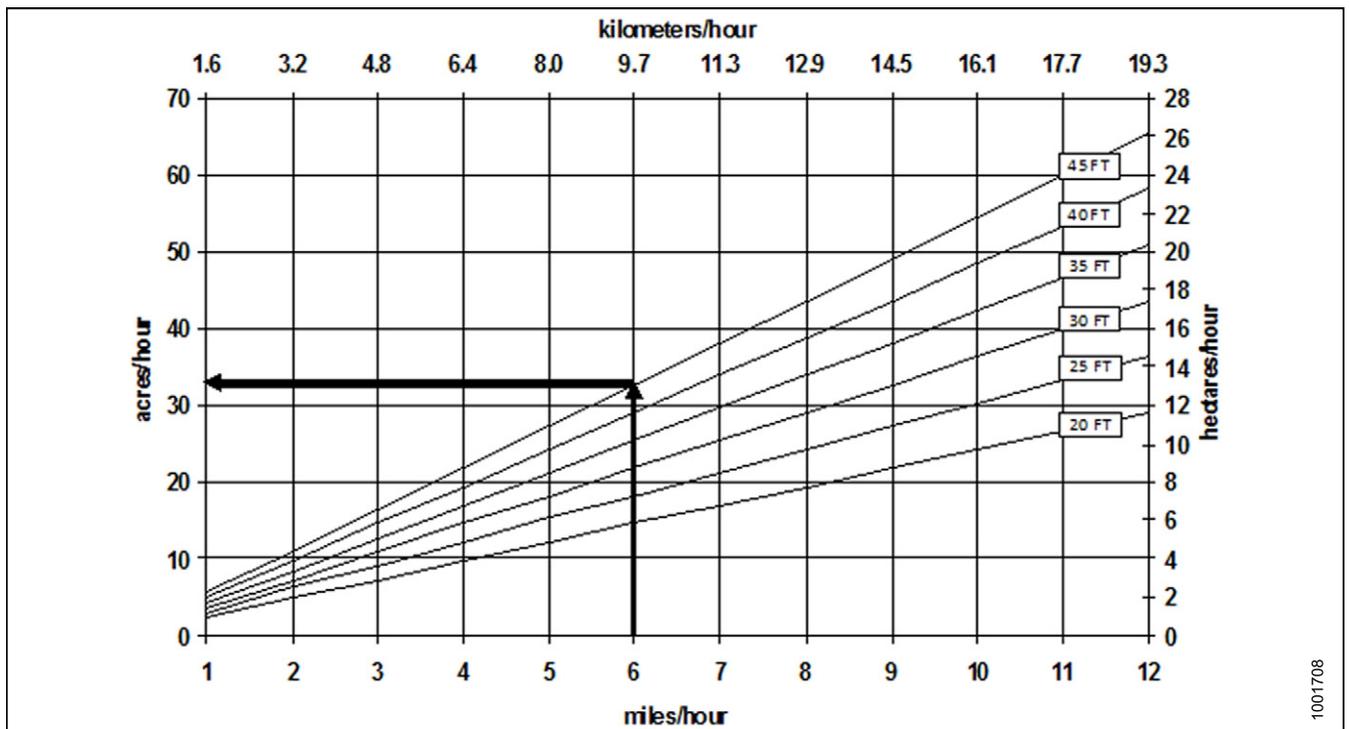


Figure 4.44: D65 ground speed

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).

OPERATION

4.7.6 Draper Speed

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

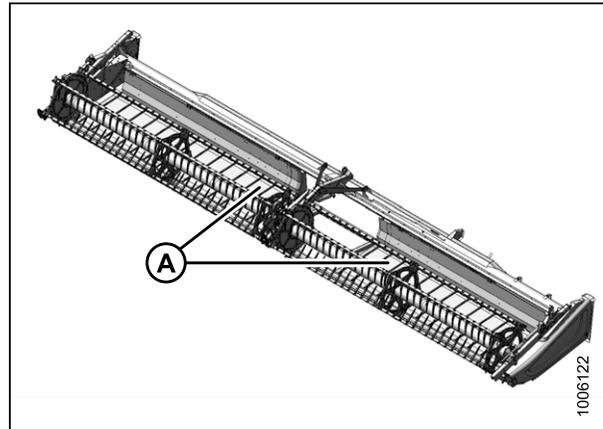


Figure 4.45

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

If a different draper speed is desired, shut down the combine, and adjust the control accordingly.

Refer to Section [4.6.1 Header Settings](#), page 53 for guidelines on setting the proper draper speed for optimum feeding of the crop.

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

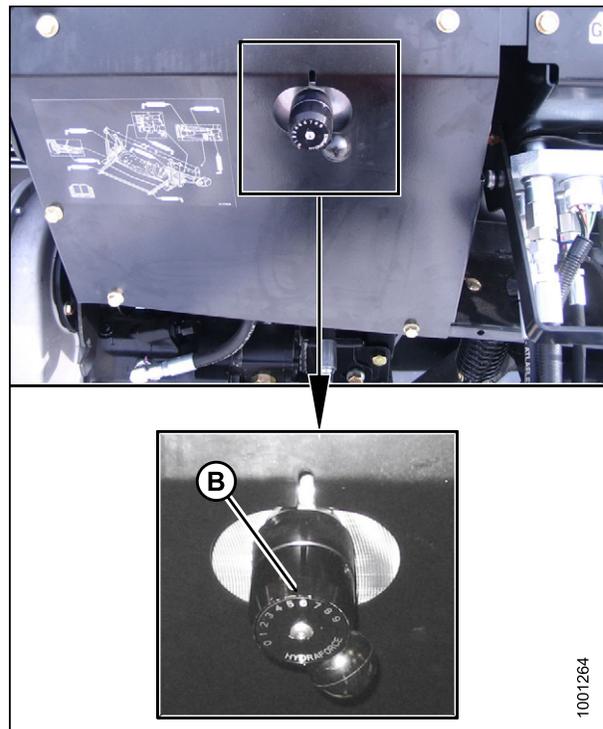


Figure 4.46: Flow control

OPERATION

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

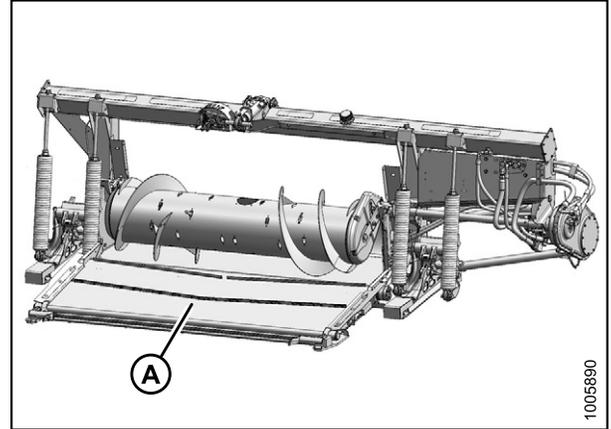


Figure 4.47: CA25 Combine Adapter

4.7.7 Knife Speed

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

IMPORTANT

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

| Combine | Feeder house speed (rpm) |
|---------------------|--------------------------|
| John Deere | 490 |
| CIH | 575 |
| Gleaner | 624 |
| Massey | 624 |
| Challenger | 624 |
| New Holland | 575 |
| Lexion ⁴ | 420 |

IMPORTANT

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

Table 4.3 D65 headers

| Header size | Recommended knife drive speed range | |
|-------------|-------------------------------------|---------|
| | 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 |

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

Adjusting Knife Speed

To adjust the knife speed, follow these steps:

WARNING

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

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

WARNING

Ensure bystanders are clear before starting engine.

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

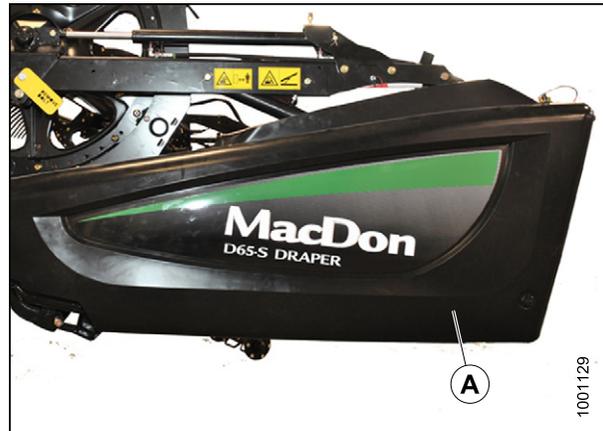


Figure 4.48: Open LH endshield



Figure 4.49: Check rpm

4.7.8 Reel Height

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

Table 4.4 Reel Height Chart

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

Indications that reel may be too low are as follows:

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

Refer to Section [4.6.1 Header Settings, page 53](#) for recommended reel height in specific crops and crop conditions.

OPERATION

IMPORTANT

Maintain adequate clearance to prevent fingers contacting the knife or the ground. Refer to [Section 7.11.1 Reel Clearance to Cutterbar, page 375](#).

4.7.9 Reel Fore-Aft Position

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

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

Refer to [Section 4.6.1 Header Settings, page 53](#) for recommended reel positions in specific crops and crop conditions.

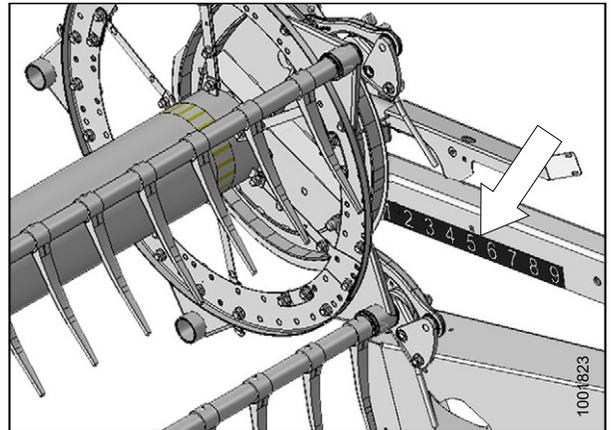


Figure 4.50: Decal

Adjusting Reel Fore-Aft Position

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

1. Select FORE-AFT mode on the selector switch in the cab.
2. Operate the hydraulics to move the reel to the desired position, again using the gauge as a reference.
3. Check reel clearance to cutterbar after making changes to cam setting. Refer to
 - [Section 7.11.1 Reel Clearance to Cutterbar, page 375](#)
 - [Section 7.11.2 Reel Frown, page 378](#) for measurements and adjustment procedures.

IMPORTANT

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

OPERATION

Repositioning Fore-Aft Cylinder on Single Reel

The reel can be moved approximately 9 in. (227 mm) further aft by repositioning the cylinders on the reel arms. This may be desirable when straight-combining canola.

WARNING

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

NOTE: Header may also be configured for a swather, if so filler panels at the end of the header are different and will need to be changed or damage will occur.

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.

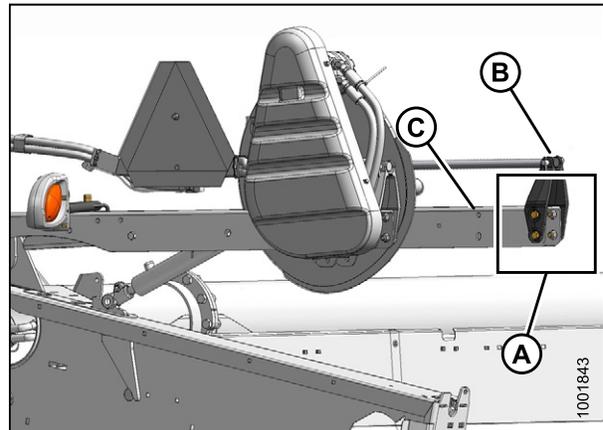


Figure 4.51: Right arm cylinder - Forward position

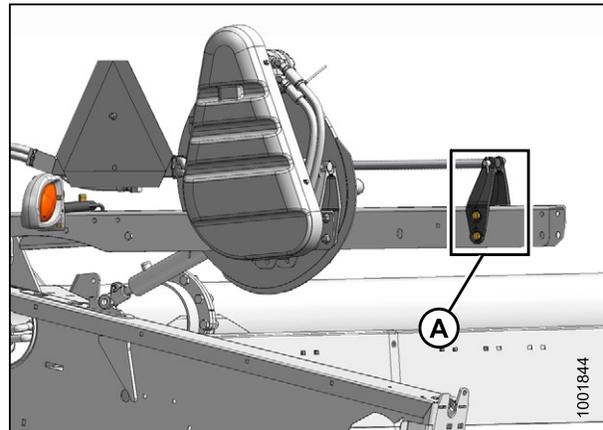


Figure 4.52: Right arm cylinder - Rearward position

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.

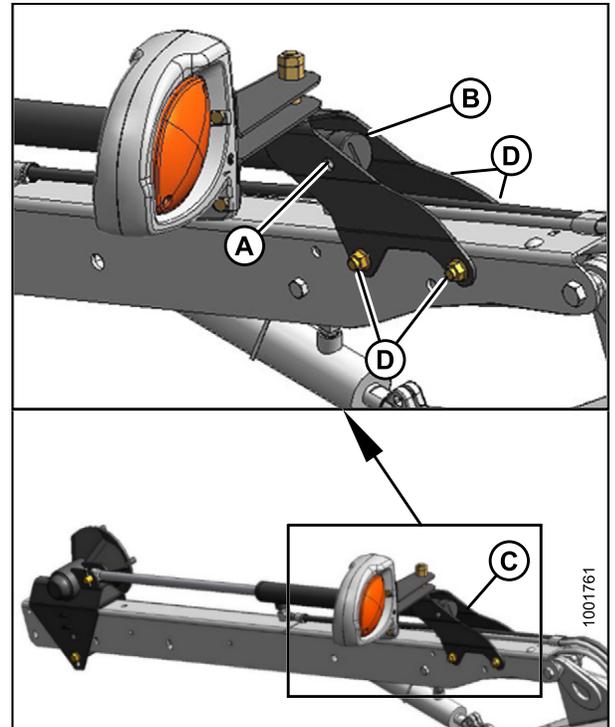


Figure 4.53: Forward position

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

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
 - Section [4.7.10 Reel Tine Pitch](#), page 81 or
 - Section [7.11.1 Reel Clearance to Cutterbar](#), page 375

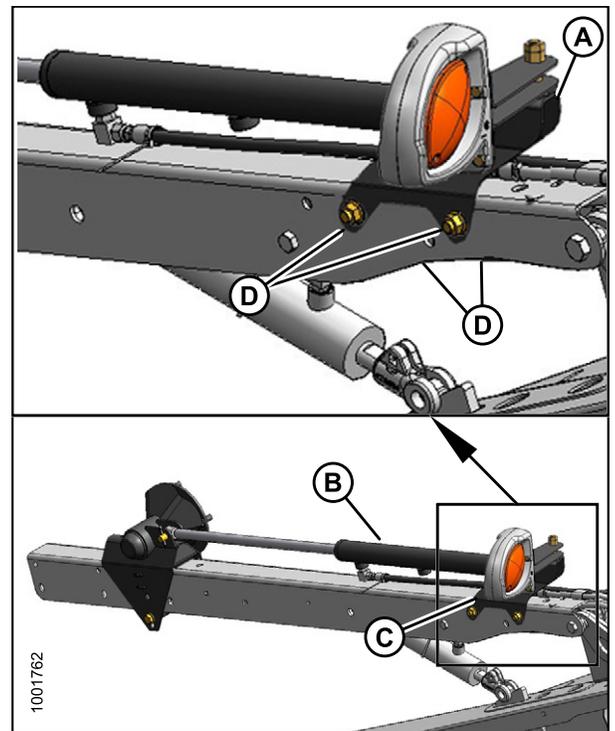


Figure 4.54: Rearward position

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

OPERATION

Repositioning Fore-Aft Cylinder on Double Reel

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

WARNING

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

NOTE: Header may also be configured for a swather, if so filler panels at the end of the header are different and will need to be changed or damage will occur.

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.

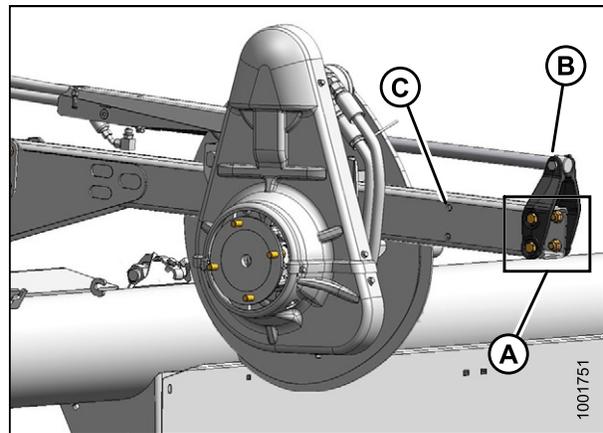


Figure 4.55: Center arm cylinder- Forward position

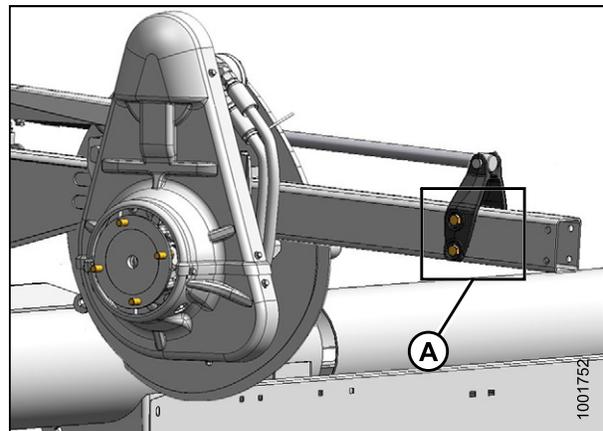


Figure 4.56: Center arm cylinder - Rearward position

OPERATION

Reposition right arm cylinder as follows:

NOTE: Reel components are not shown for clarity.

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

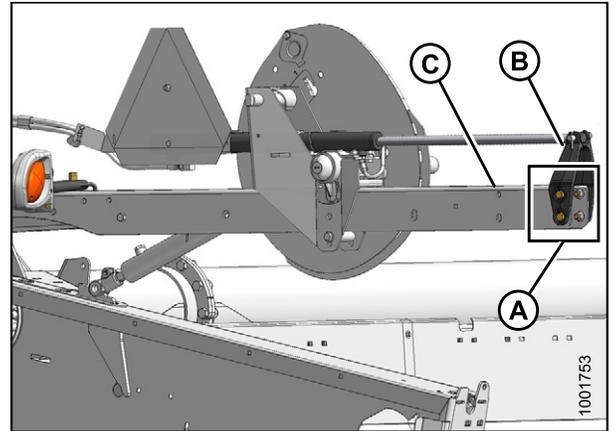


Figure 4.57: Right arm cylinder - Forward position

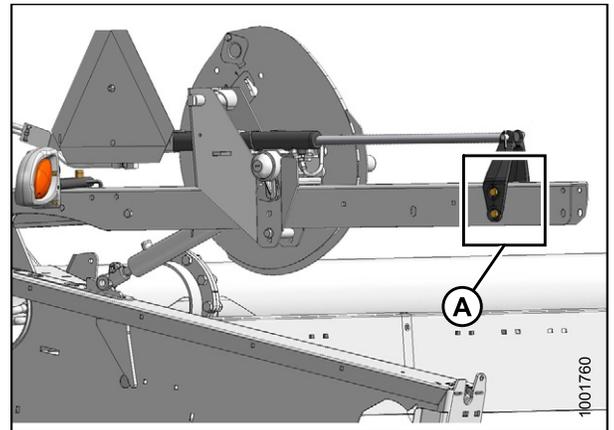


Figure 4.58: Center arm cylinder - Rearward position

OPERATION

Reposition left arm cylinder as follows:

NOTE: Reel components are not shown for clarity.

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

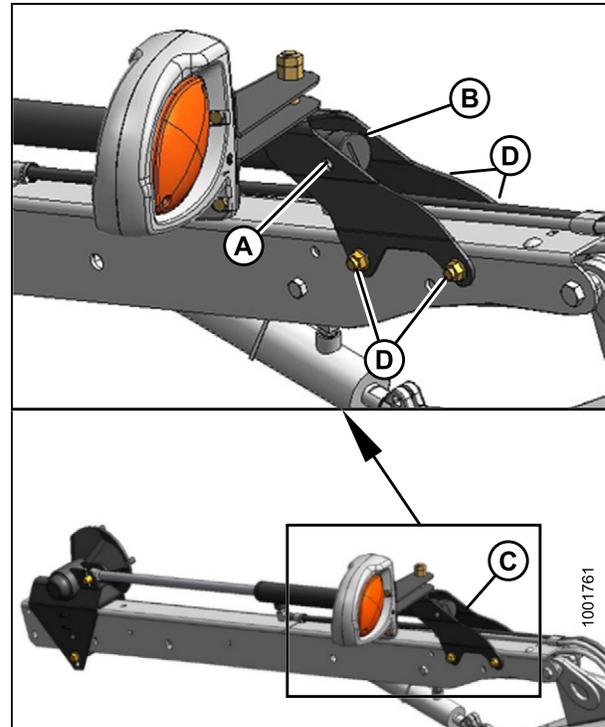


Figure 4.59: Forward position

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

13. Reposition bracket/light assembly (C) on reel arm as shown and reinstall the four bolts (D) to secure bracket to reel arm. Tighten bolts.
14. Push reel back and reinstall cylinder (B) to bracket with pin (A). Secure pin with cotter pin.
15. Secure light harness to bracket with plastic tie wrap.
16. Check reel clearance to backsheet, upper cross auger (if installed) and reel braces.
17. Adjust reel tine pitch (if required). For adjustment procedures, Refer to
 - Section [4.7.10 Reel Tine Pitch](#), page 81 or
 - Section [7.11.1 Reel Clearance to Cutterbar](#), page 375

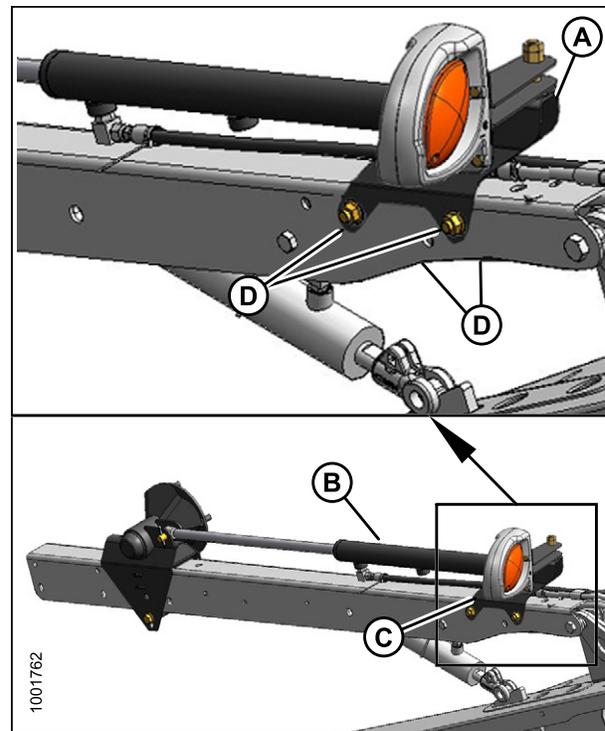


Figure 4.60: Rearward position

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

OPERATION

4.7.10 Reel Tine Pitch

IMPORTANT

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

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

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

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

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

Pickup Reel Settings

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

The setting numbers are visible above the slots on the cam disc. Refer to [Adjusting Reel Cam, page 83](#).

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.

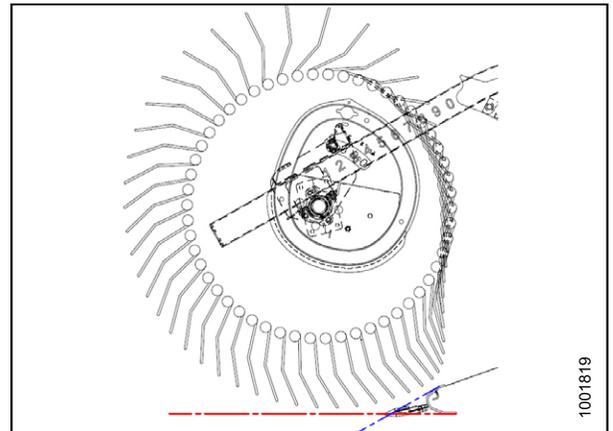


Figure 4.61

OPERATION

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

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

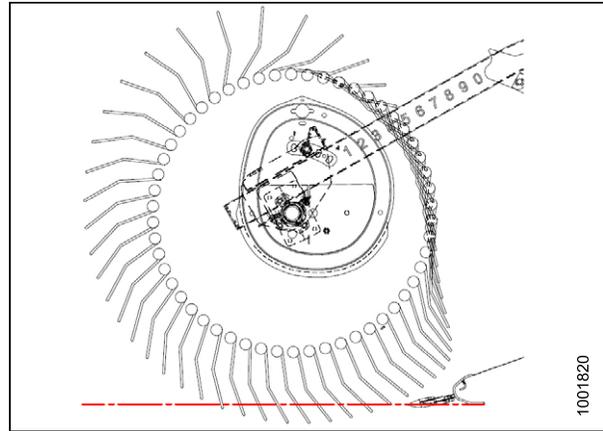


Figure 4.62

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

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

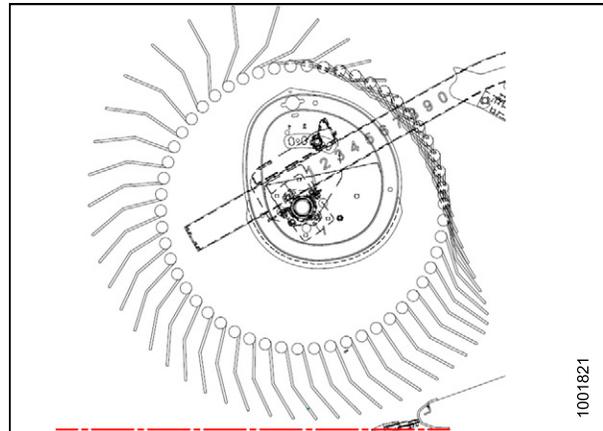


Figure 4.63

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.

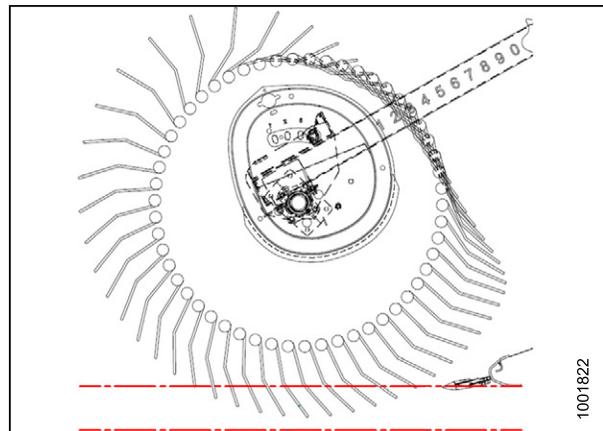


Figure 4.64

OPERATION

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

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

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

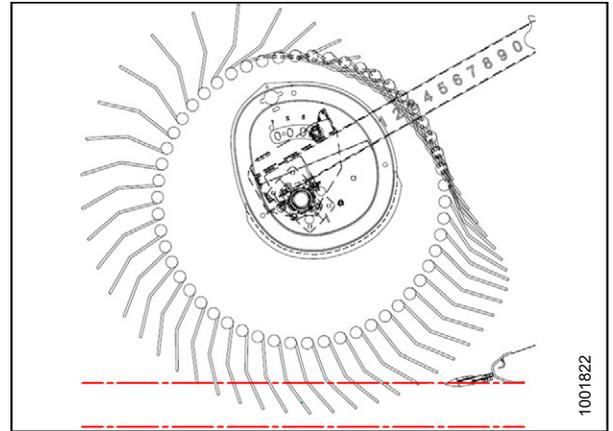


Figure 4.65

IMPORTANT

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

Refer to Section 7.11.1 Reel Clearance to Cutterbar, page 375.

Refer to Section 4.6.1 Header Settings, page 53 for recommended reel tine pitch in specific crops and crop conditions.

Adjusting Reel Cam



WARNING

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

1. Using a 3/4 in. wrench, turn the cam latch pin (A) counterclockwise to release the cam disc.
2. Use the wrench on bolt (B) to rotate cam disc and align latch pin (A) with desired hole (1 to 4) at (C) in cam disc.

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

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

IMPORTANT

Secure cam position before operating machine.

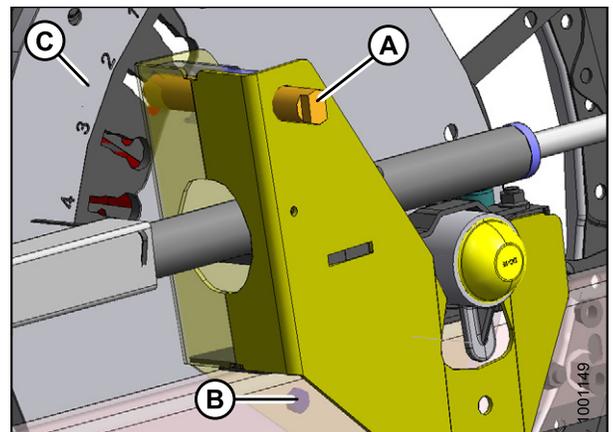


Figure 4.66

A - Cam latch pin

B - Bolt

C - Cam disc

OPERATION

4.7.11 Crop Dividers

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

Removing Crop Dividers from Header with Latch Option

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

DANGER

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

1. Raise header, stop engine, remove key, and engage header safety props. For instructions, refer to your combine operator's manual.
2. Open/remove header endshields. See Section [4.2.3 Endshields, page 44](#).
3. Lift safety lever (A).
4. Hold onto divider (B), push lever (C) to open latch and lower divider.

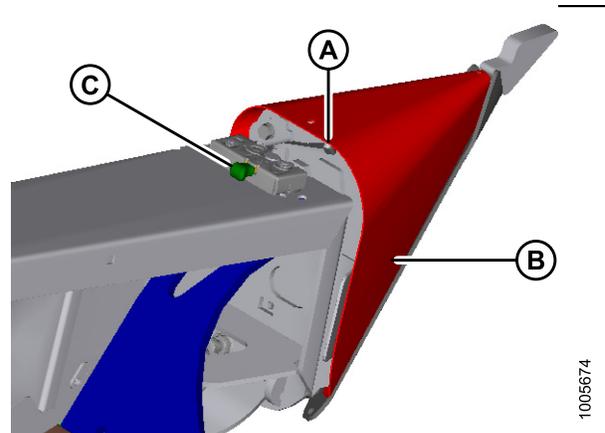


Figure 4.67

5. Lift divider off endsheet and store as follows:
 - a. Locate pin (A) on divider in hole in endsheet at location shown.
 - b. Lift divider and locate lugs (B) on divider into bracket on endsheet. Ensure lugs engage bracket.
6. Close/replace header endshields. See Section [4.2.3 Endshields, page 44](#).

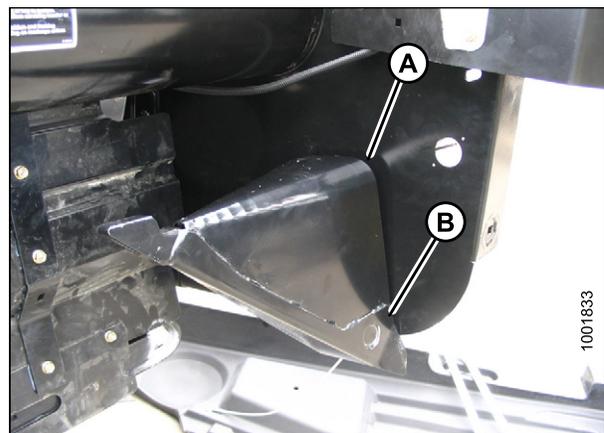


Figure 4.68

OPERATION

Removing Crop Dividers from Header without Latch Option

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



DANGER

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

1. Raise header, stop engine, remove key, and engage safety props. For instructions, see your combine operator's manual.
2. Open/remove header endshield. See Section [4.2.3 Endshields, page 44](#).
3. Remove bolt (A), lock washer and flat washer.
4. Lower divider (B) and lift off endsheet.
5. Close/replace header endshield. See Section [4.2.3 Endshields, page 44](#).

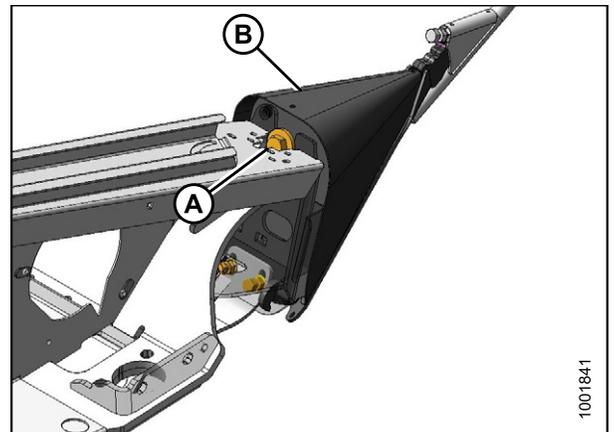


Figure 4.69

Installing Crop Dividers on Header with Latch Option

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



DANGER

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

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

OPERATION

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

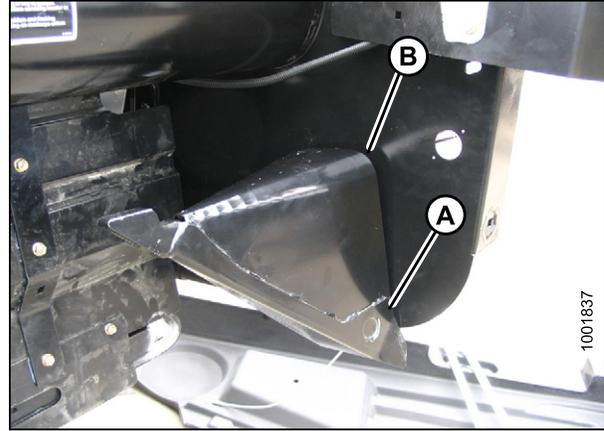


Figure 4.70

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.

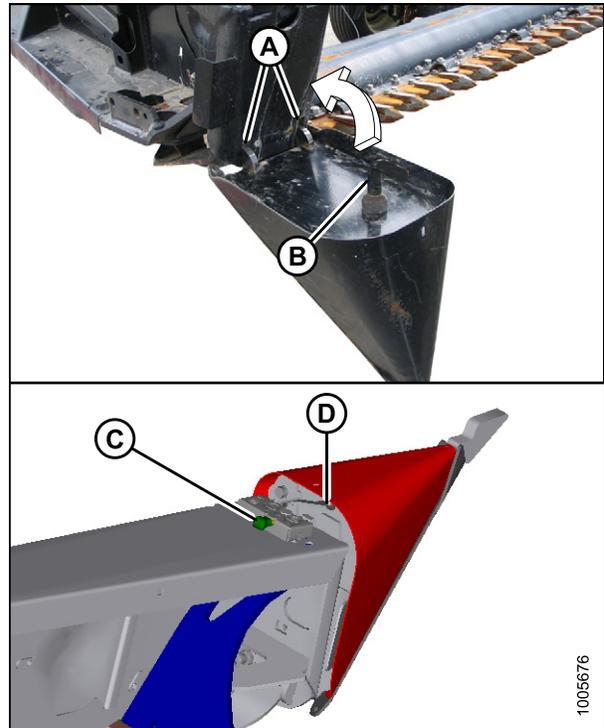


Figure 4.71

A - Lugs
C - Latch

B - Pin
D - Safety lever

OPERATION

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

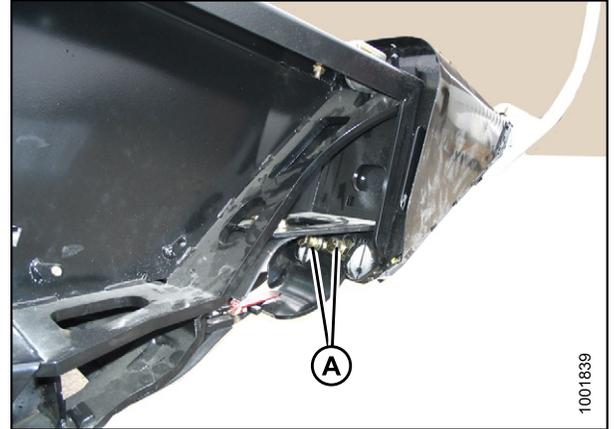


Figure 4.72

Installing Crop Dividers on Header without Latch Option

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



DANGER

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

1. Raise header, stop engine, remove key, and engage safety props. For instructions, see the combine operator's manual.
2. Open endshield. See Section [4.2.3 Endshields, page 44](#).
3. Remove crop divider from storage.
4. Position crop divider as shown by locating lugs (A) in holes in endsheet.

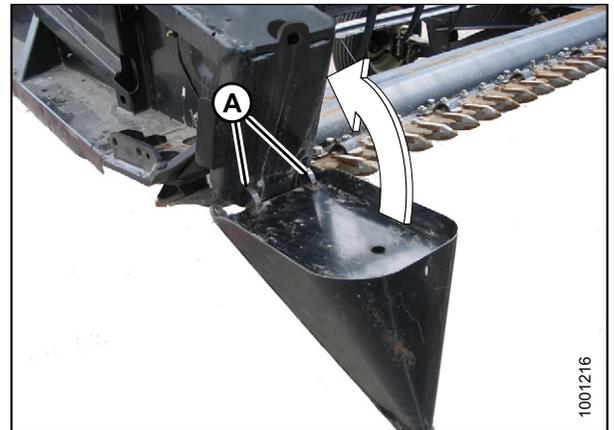


Figure 4.73

OPERATION

5. Lift forward end of divider and install bolt (A) and special stepped washer (B) (step towards divider). Tighten bolt.
6. Check that divider does **NOT** move laterally. Adjust bolts (C) as required to tighten divider and remove lateral play when pulling at divider tip.
7. Close endshield. See Section [4.2.3 Endshields, page 44](#).

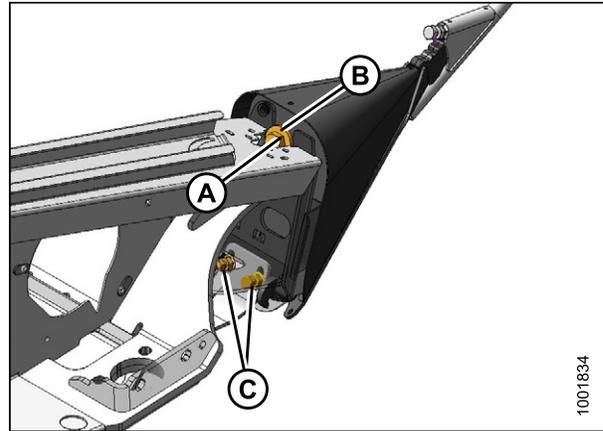


Figure 4.74

4.7.12 Crop Divider Rods

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

Table 4.5 Recommend Use of The Crop Divider Rods

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

OPERATION

Removing Crop Divider Rods

To remove divider rods, follow these steps:

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

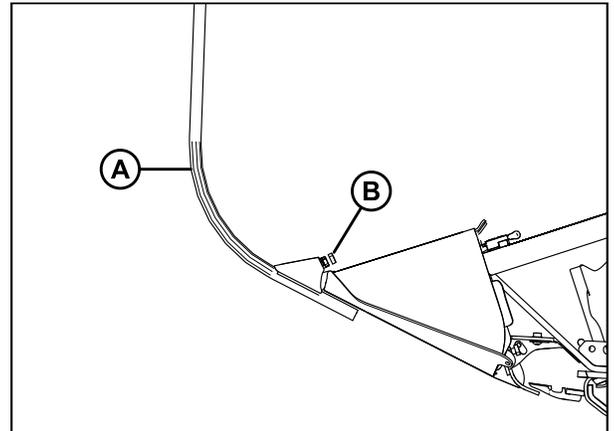


Figure 4.75

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

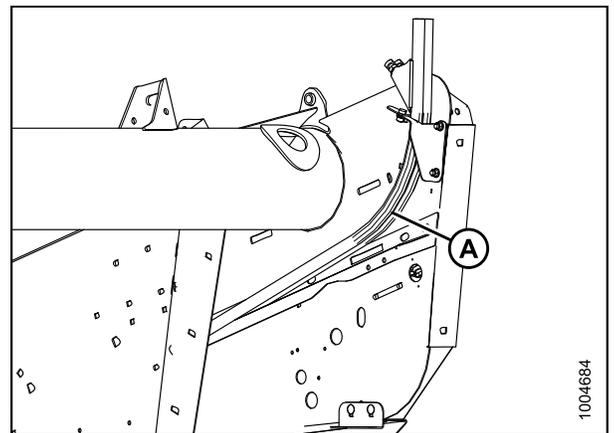


Figure 4.76

Rice Dividers

Optional special rice dividers can be installed and used when required. See [Section 9.1.13 Rice Divider Rods, page 456](#).

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

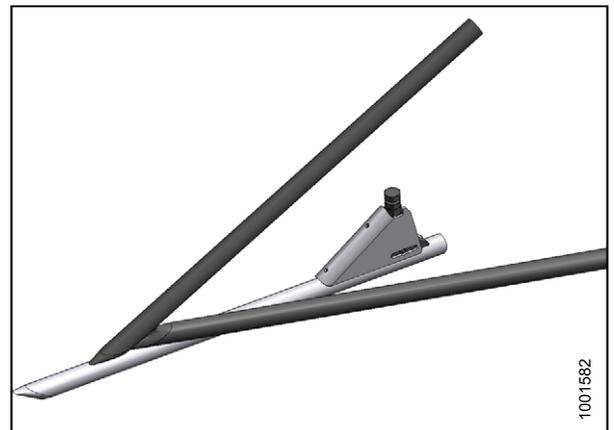


Figure 4.77

OPERATION

4.8 Levelling the Header

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

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

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

IMPORTANT

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

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

1. Park combine on level ground.
2. Check and set float adjustment. Refer to [Checking and Adjusting Header Float, page 64](#).
3. 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.
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.

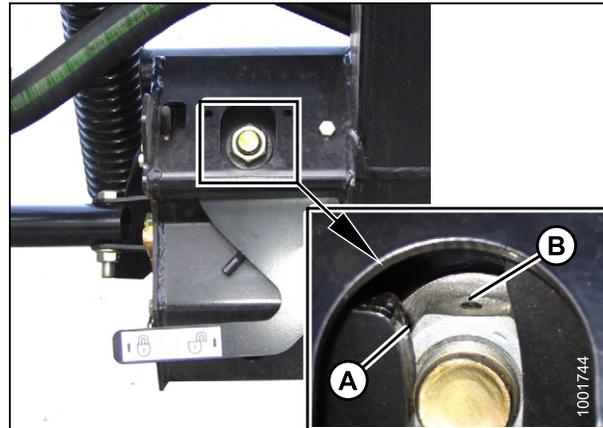


Figure 4.78

A - Nut

B - Setscrew

OPERATION

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

NOTE: Float should be checked after levelling header. Refer to [Checking and Adjusting Header Float](#), page 64.

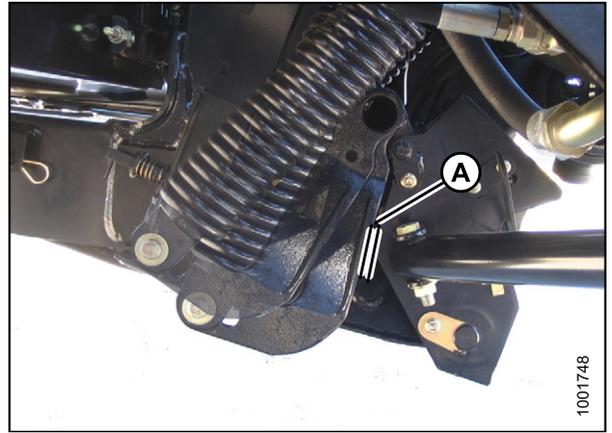


Figure 4.79

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

OPERATION

4.9 Unplugging Cutterbar

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

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



CAUTION

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

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



WARNING

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

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



CAUTION

Wear heavy gloves when working around or handling knives.

6. Clean off cutterbar by hand.

NOTE: If cutterbar plugging persists, See Section [8 Troubleshooting, page 435](#).

OPERATION

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.

OPERATION

4.11 Upper Cross Auger (UCA)

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

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



Figure 4.80: 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.

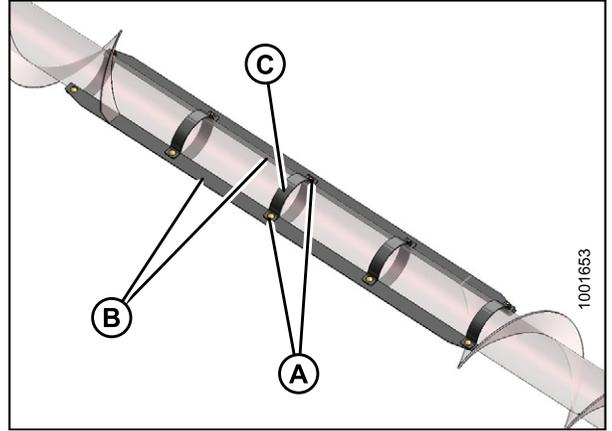


Figure 4.81: Single-reel headers

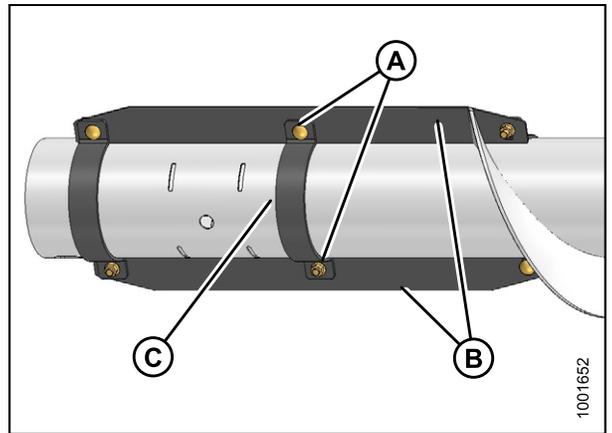


Figure 4.82: Double-reel headers

OPERATION

4.11.2 Installing Beater Bars

To install beater bars, follow these steps.

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

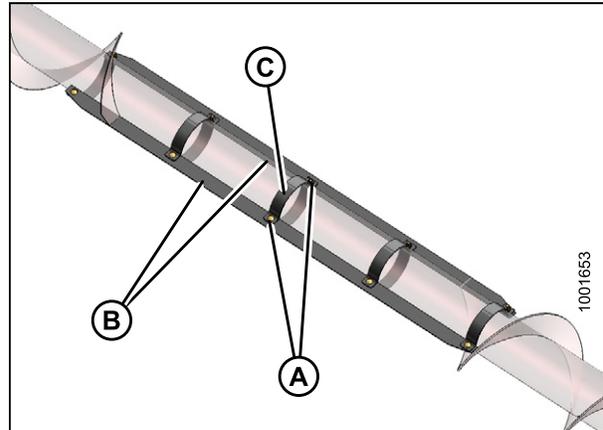


Figure 4.83: Single-reel headers

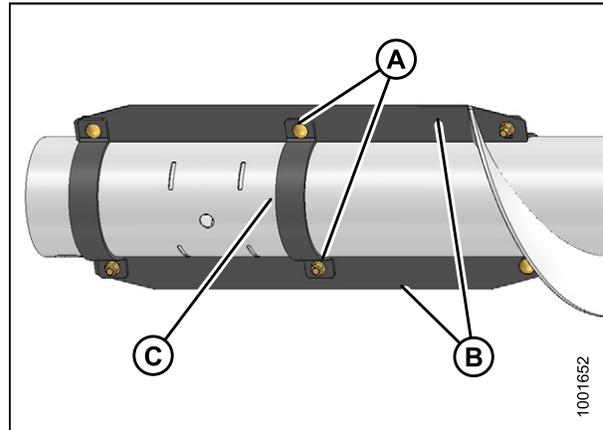


Figure 4.84: Double-reel headers

OPERATION

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).

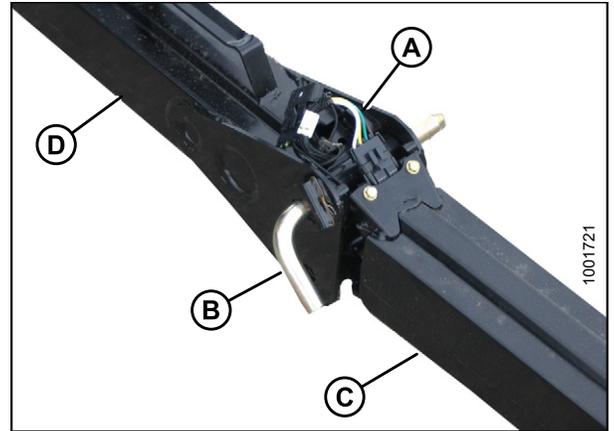


Figure 4.85

A - Wiring connector
C - Outer section

B - Pin
D - Inner section

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

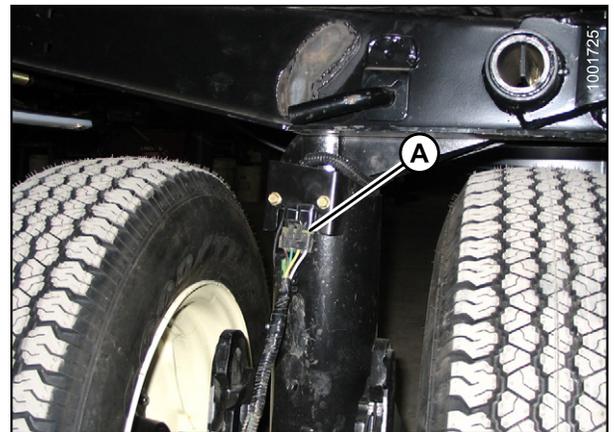


Figure 4.86: Wiring connector

OPERATION

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

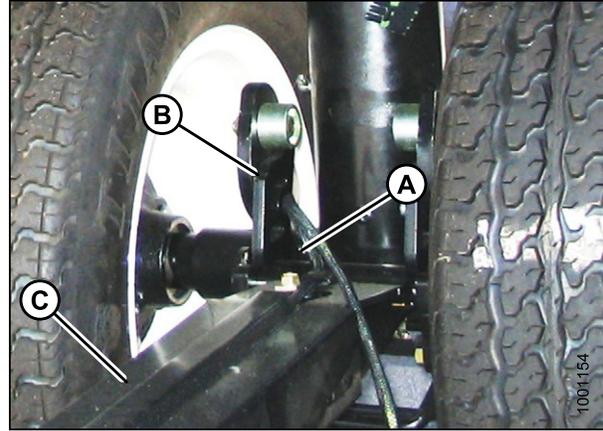


Figure 4.87

A - Clevis pin
C - Tow-bar

B - Latch

Storing Tow-Bar

Store tow-bar as follows:

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

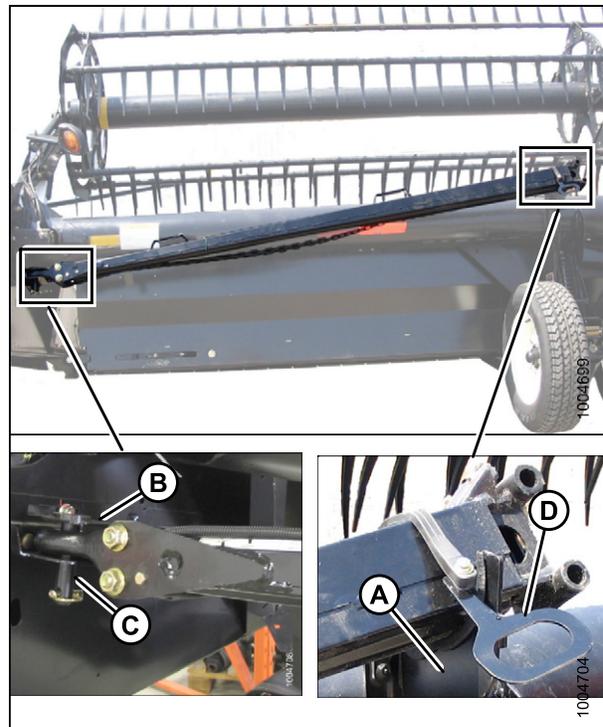


Figure 4.88

A - Cradle
C - Hitch pin

B - Support
D - Rubber strap

OPERATION

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

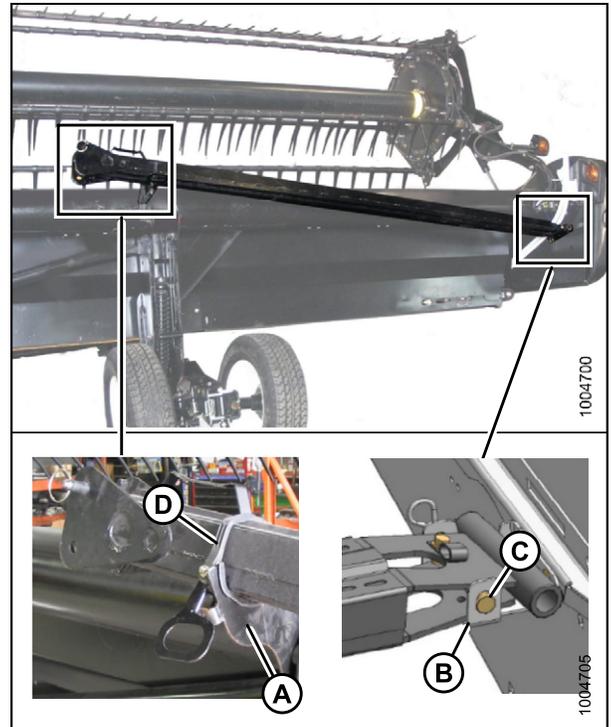


Figure 4.89

A - Cradle
C - Clevis pin

B - Support
D - Rubber strap

7. Attach header to combine. Refer to Section [5 Header Attachment/Detachment](#), page 113.
8. Put front and rear transport wheels into Field position. Refer to
 - [Moving Front \(Left\) Wheels into Field Position](#), page 101
 - [Moving Rear \(Right\) Wheels into Field Position](#), page 103

Moving Front (Left) Wheels into Field Position

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

OPERATION

DANGER

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

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

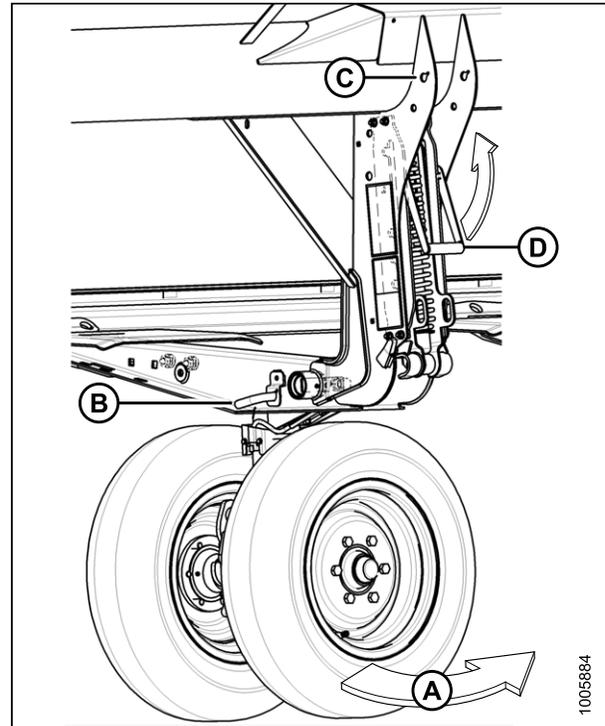


Figure 4.90

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.

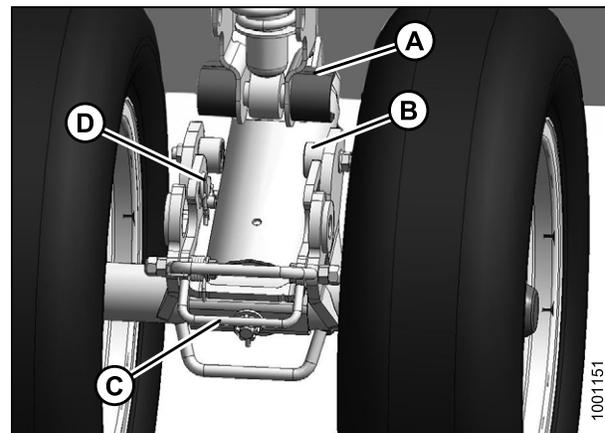


Figure 4.91

A - Hook
C - Latch

B - Lug
D - Clevis pin

OPERATION

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

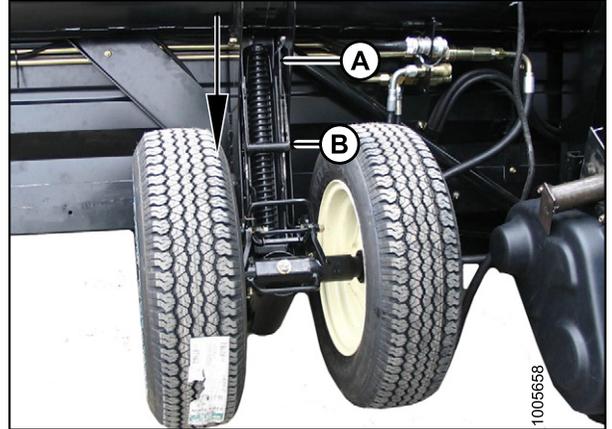


Figure 4.92

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).

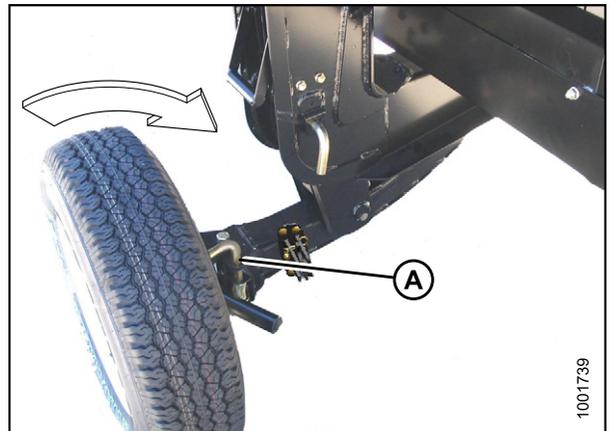


Figure 4.93

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

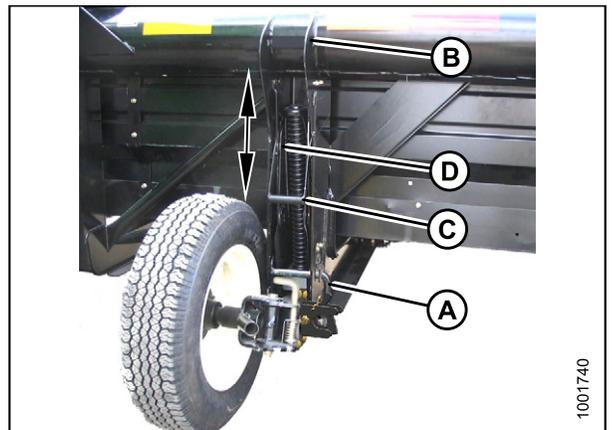


Figure 4.94

A - Pin
C - Handle

B - Pin storage location
D - Slot

OPERATION

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

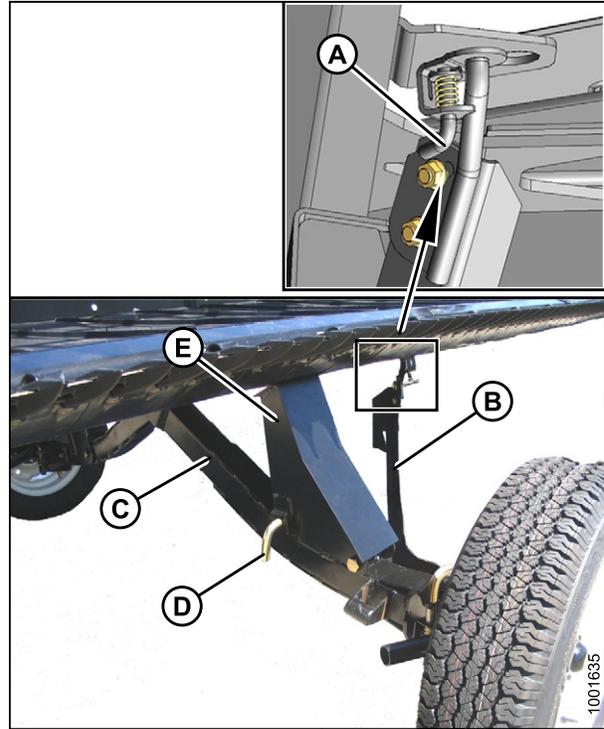


Figure 4.95

A - Pin
D - Pin

B - Brace
E - Support

C - Axle

OPERATION

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

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

IMPORTANT

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

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

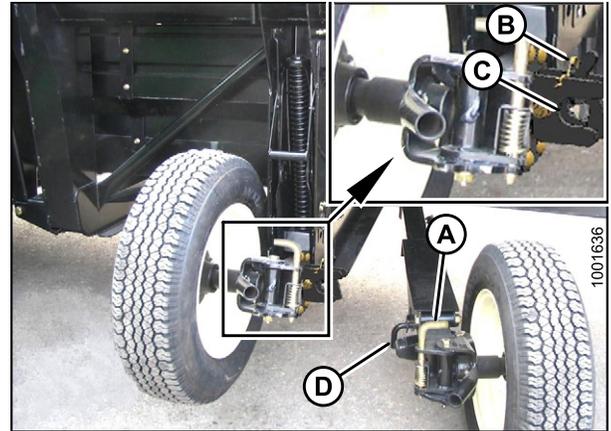


Figure 4.96: RH side

A - Pin
C - Latch

B - Hairpin
D - Lug

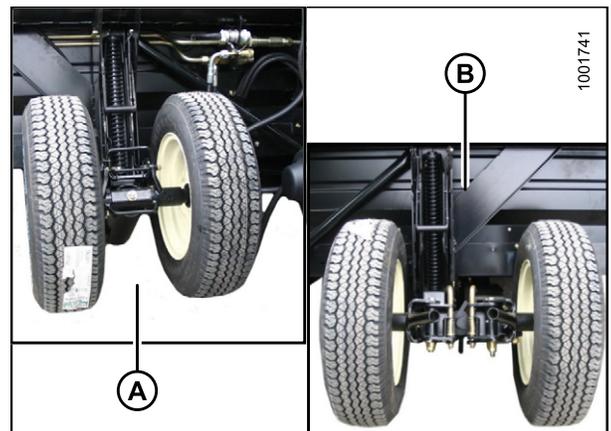


Figure 4.97: Field position - (A) shows left side; (B) shows right side

4.12.4 Converting from Field to Transport Position

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



DANGER

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

Moving Left (Front) Wheels into Transport Position

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

OPERATION

CAUTION

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

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

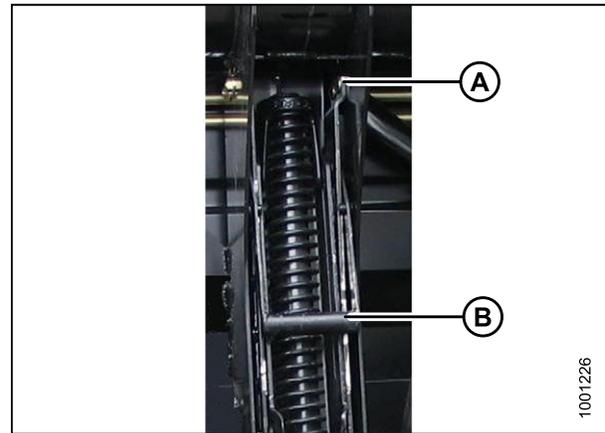


Figure 4.98

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

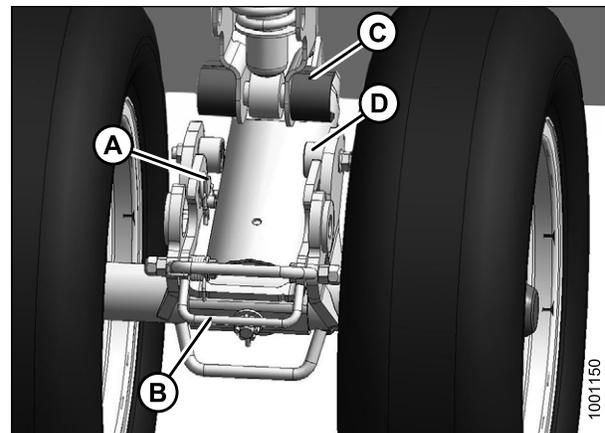


Figure 4.99

5. Lower handle (B) to lock.

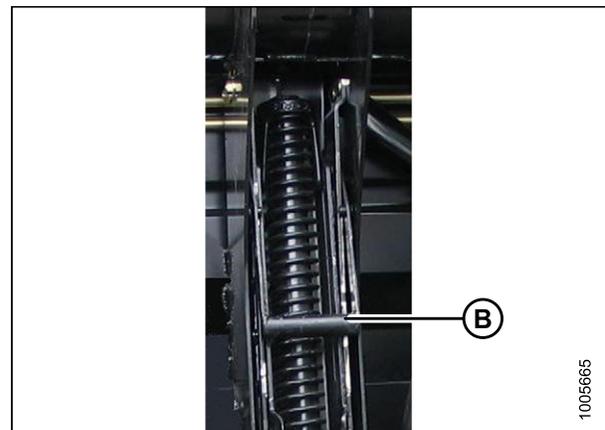


Figure 4.100

OPERATION

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

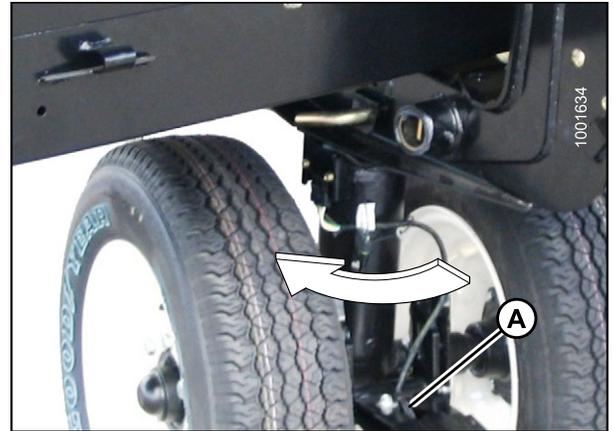


Figure 4.101

8. Insert pin (A) and turn pin to lock.



Figure 4.102

Moving Right (Rear) Wheels into Transport Position

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

OPERATION

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

CAUTION

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

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

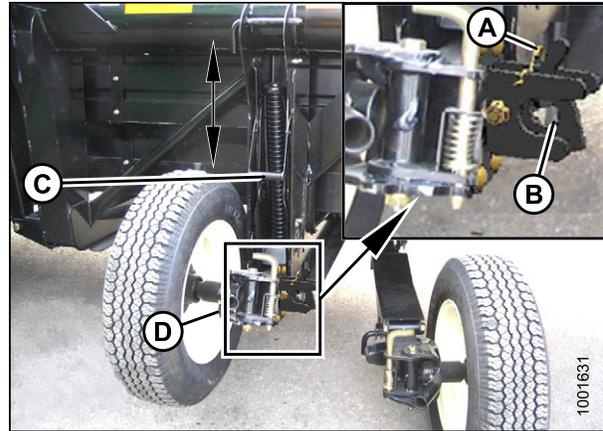


Figure 4.103

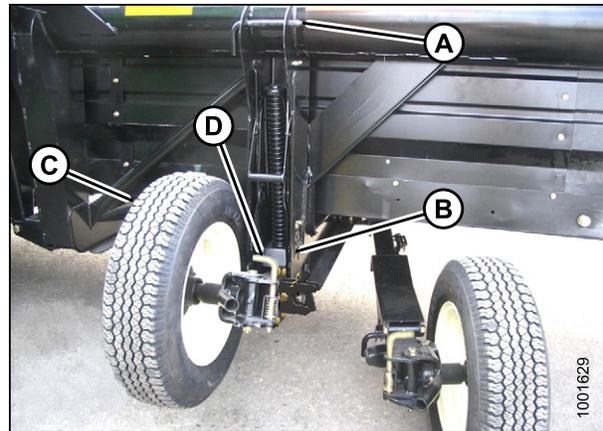


Figure 4.104

A - Pin
C - Left wheel

B - Pin installation location
D - Pin

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



Figure 4.105

OPERATION

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



Figure 4.106

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

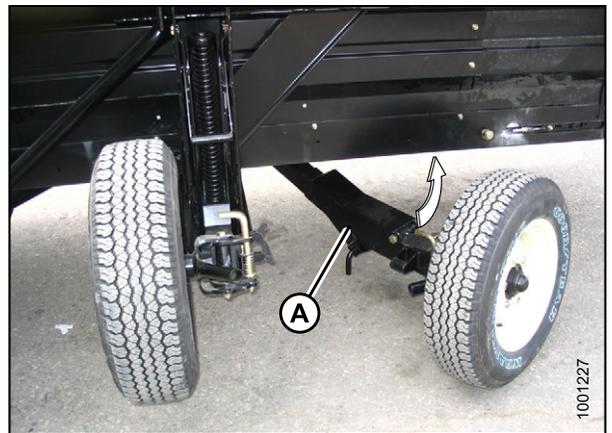


Figure 4.107

OPERATION

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

IMPORTANT

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

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

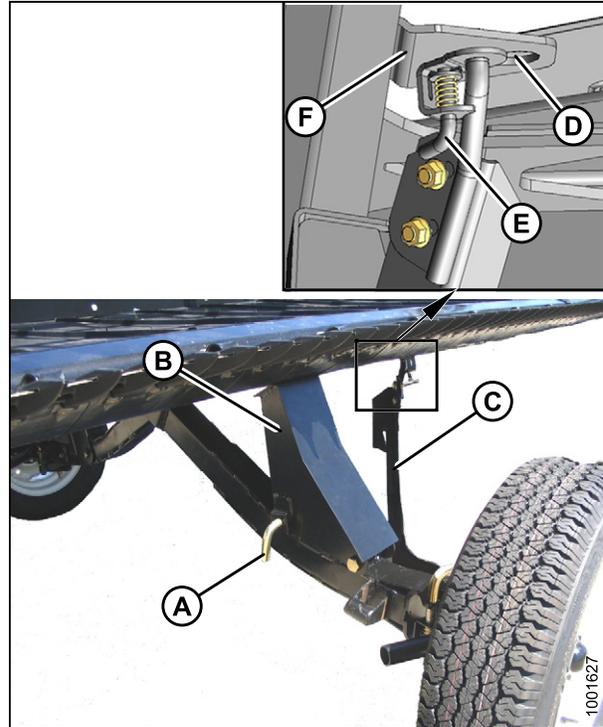


Figure 4.108

OPERATION

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 118 |
| John Deere 60, 70, and S Series | 5.3 John Deere 60, 70, and S Series Combines, page 125 |
| Lexion 500, 700 (R Series) | 5.4 Lexion 500, 700 Series Combines, page 132 |
| New Holland CR, CX | 5.5 New Holland CR/CX Combines, page 141 |
| AGCO Gleaner R and S Series, Challenger 660, 670, 680B, 540C, 560C, Massey 9690, 9790, 9895, 9520, 9540, 9560 | 5.6 AGCO Combines, page 150 |

IMPORTANT

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

5.1 Adapter Setup

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

If feeding problems develop with adapter operation, Refer to [Section 8 Troubleshooting, page 435](#).

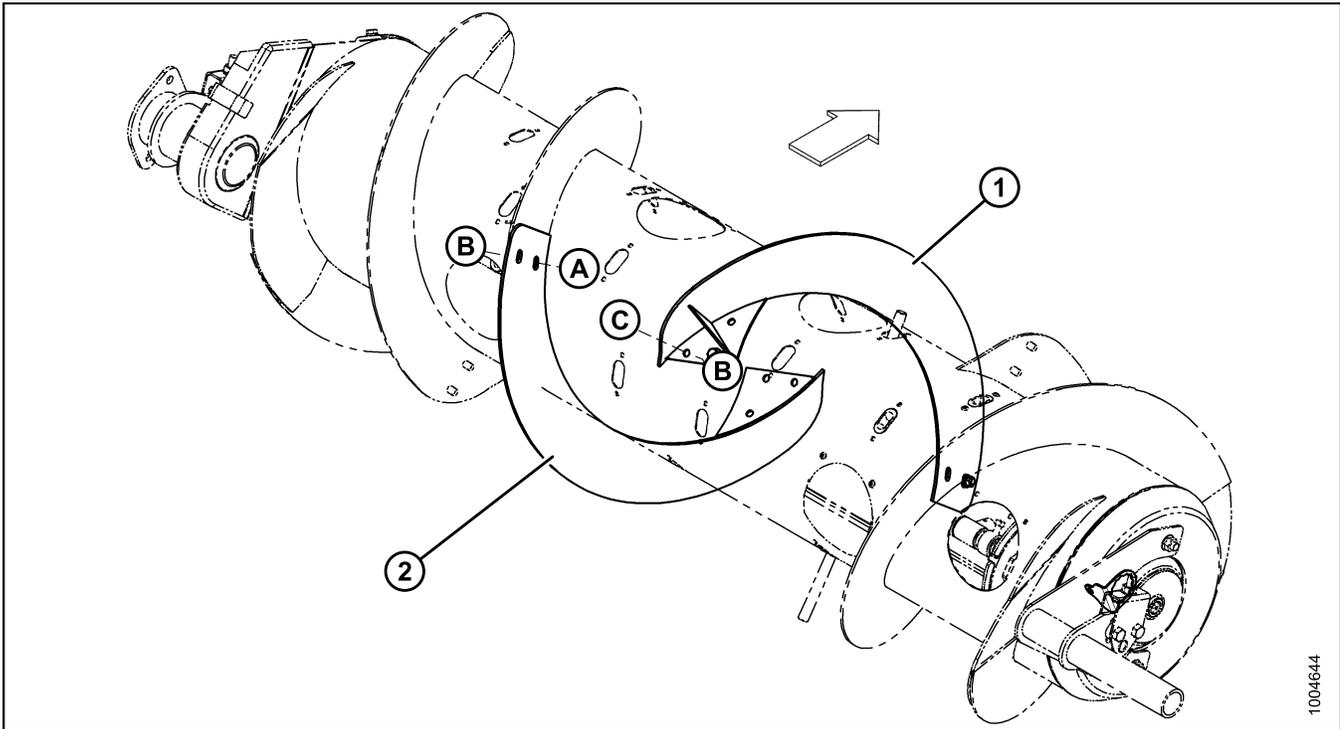
5.1.1 Flighting Extensions

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

See [Section 9.1.7 CA25 Feed Auger Flighting, page 454](#) for more information.

HEADER ATTACHMENT/DETACHMENT

Installing Flighting Extensions



1004644

Figure 5.1

A - MD #133147 - RH Flighting Extension

B - MD #133148 - LH Flighting Extension

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

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

HEADER ATTACHMENT/DETACHMENT

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

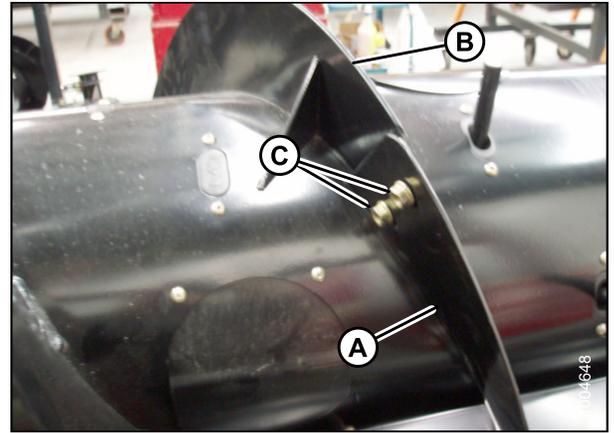


Figure 5.2

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

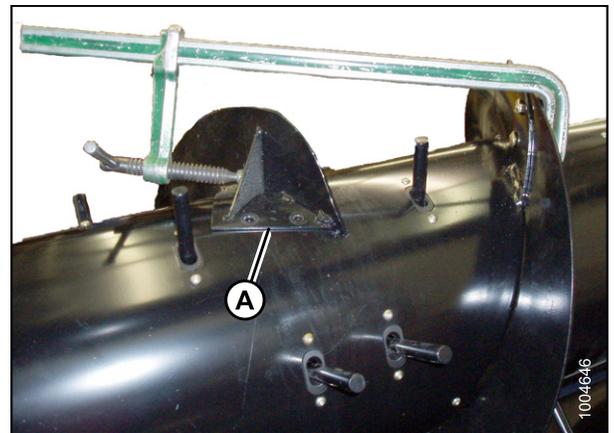


Figure 5.3

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

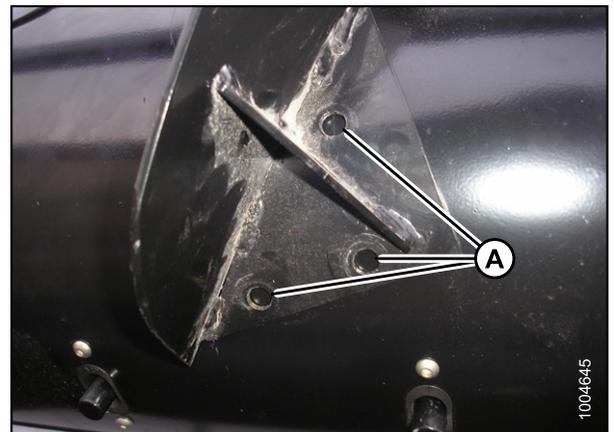


Figure 5.4

HEADER ATTACHMENT/DETACHMENT

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

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

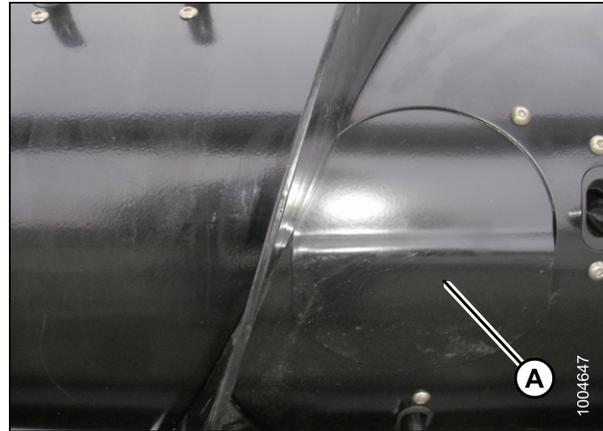


Figure 5.5

Removing Flighting Extensions

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

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

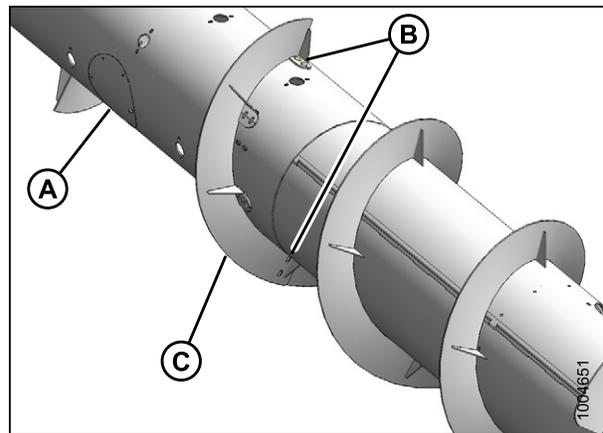


Figure 5.6: Auger flighting extensions

5.1.2 Stripper Bars

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

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

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

HEADER ATTACHMENT/DETACHMENT

Installing Stripper Bars

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

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

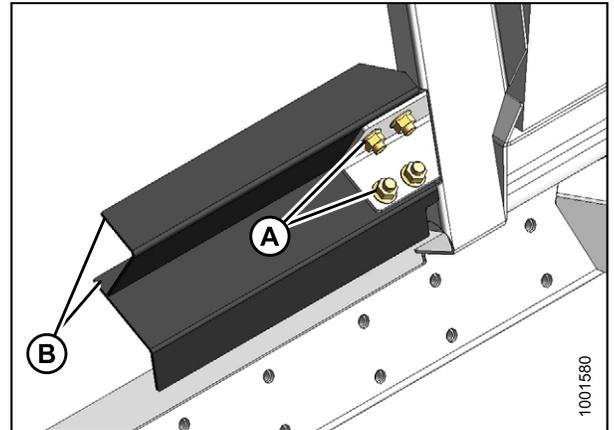


Figure 5.7: Stripper bar

Removing Stripper Bars

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

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

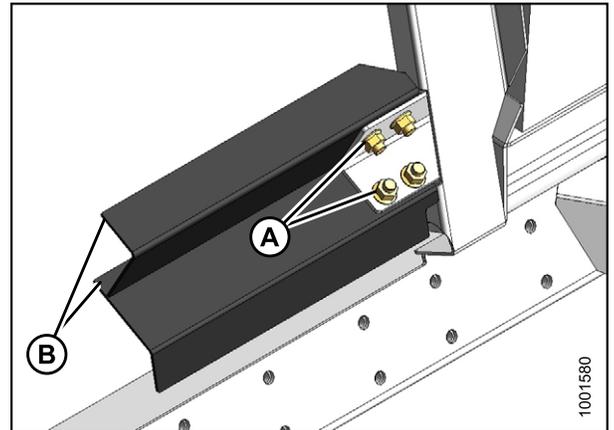


Figure 5.8: Stripper bar

5.1.3 Auger Drive

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

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

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

HEADER ATTACHMENT/DETACHMENT

5.2 Case IH Combines

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

5.2.1 Attaching Adapter to Case IH Combine

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

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



CAUTION

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

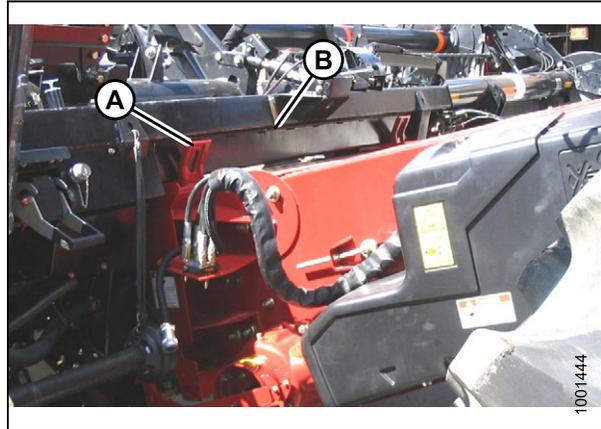


Figure 5.9

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

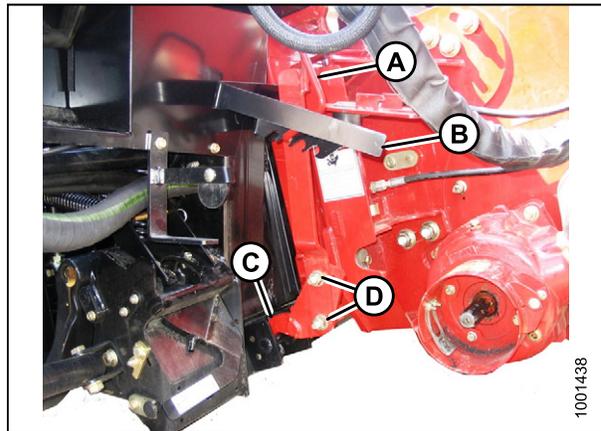


Figure 5.10

A - Lever
C - Locks

B - Handle
D - Bolts

HEADER ATTACHMENT/DETACHMENT

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

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

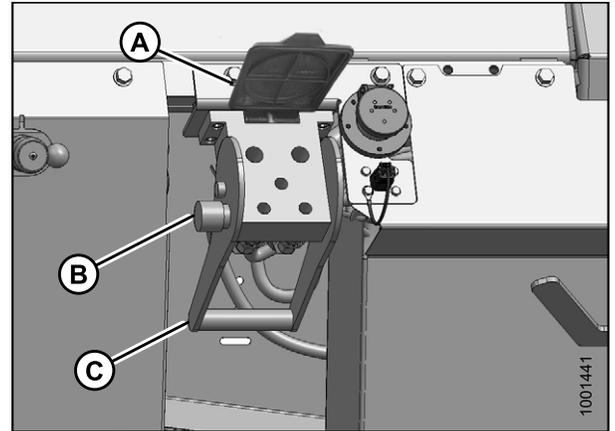


Figure 5.11

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

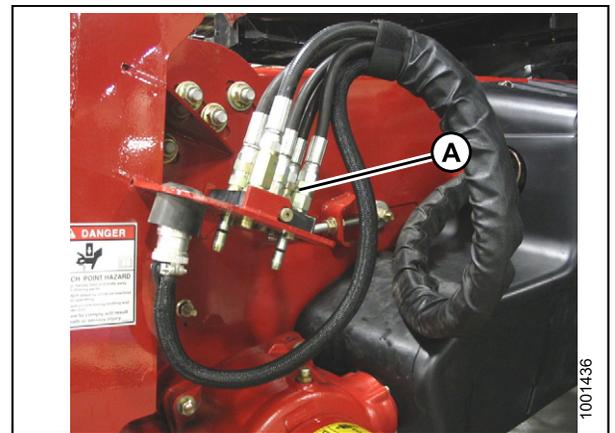


Figure 5.12

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

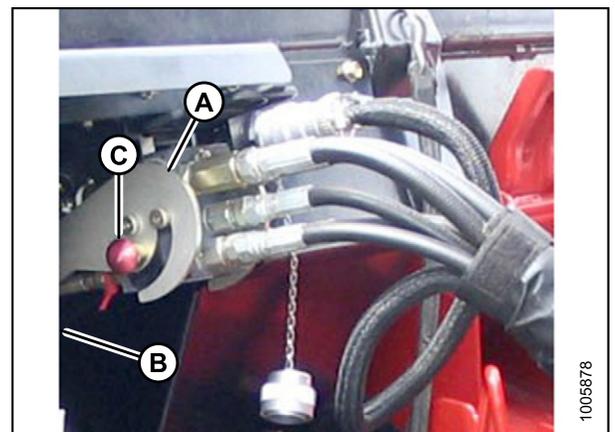


Figure 5.13

A - Adapter receptacle
C - Lock Button

B - Handle

HEADER ATTACHMENT/DETACHMENT

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

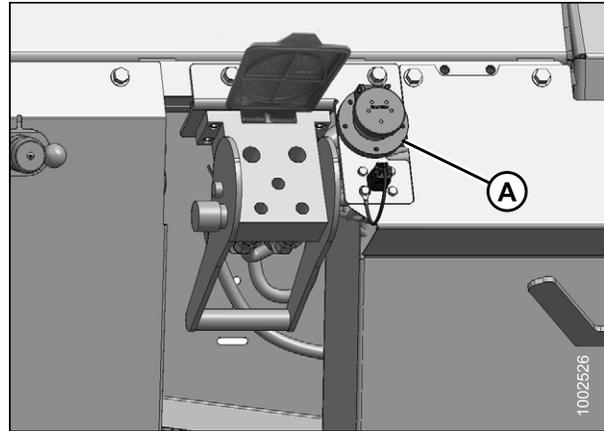


Figure 5.14

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

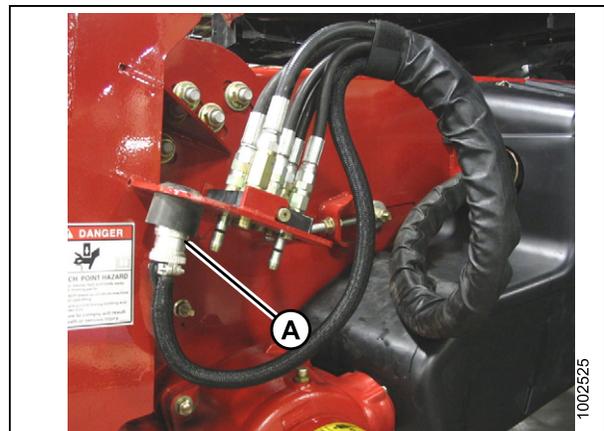


Figure 5.15

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

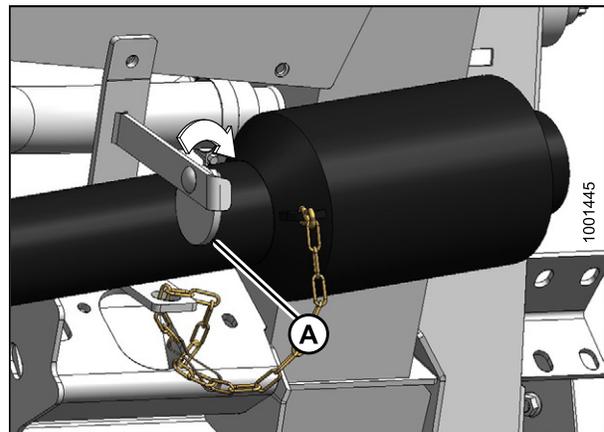


Figure 5.16

HEADER ATTACHMENT/DETACHMENT

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

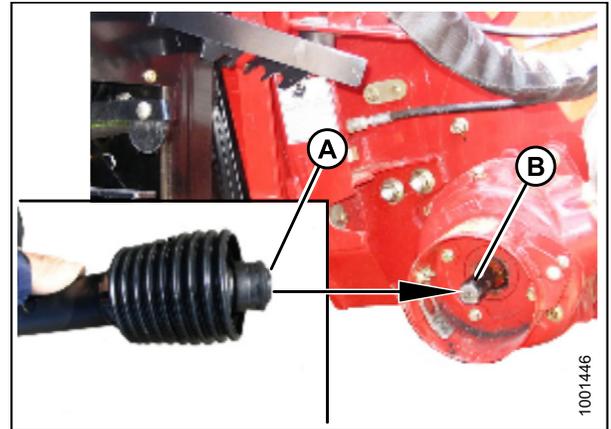


Figure 5.17

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

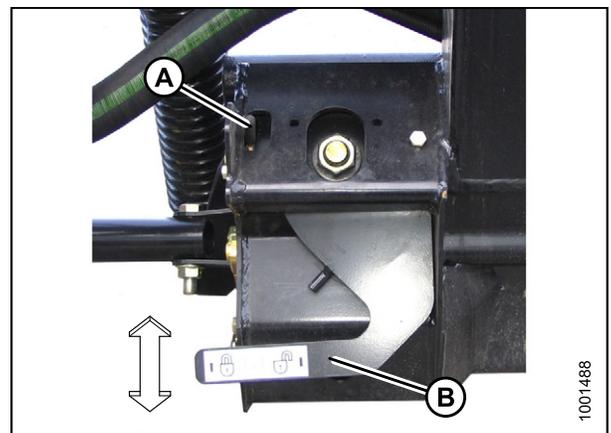


Figure 5.18: Lever Up = LOCK, Down = UNLOCK

5.2.2 Detaching Case IH Combine from Adapter

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

HEADER ATTACHMENT/DETACHMENT

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

DANGER

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

CAUTION

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

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

IMPORTANT

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section 4.7.1 Cutting Height, page 56.

IMPORTANT

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section 4.7.1 Cutting Height, page 56.

3. Disconnect driveshaft (A) from combine.

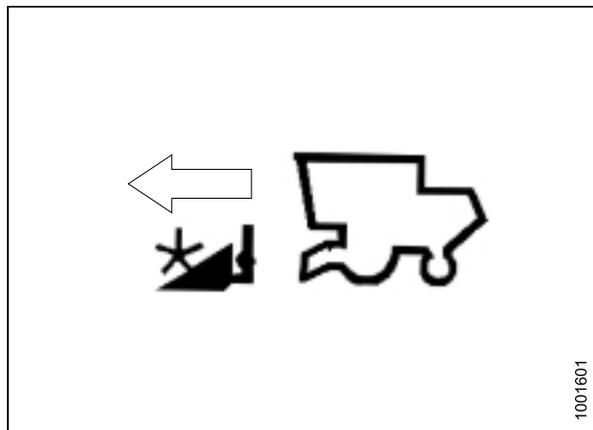


Figure 5.19

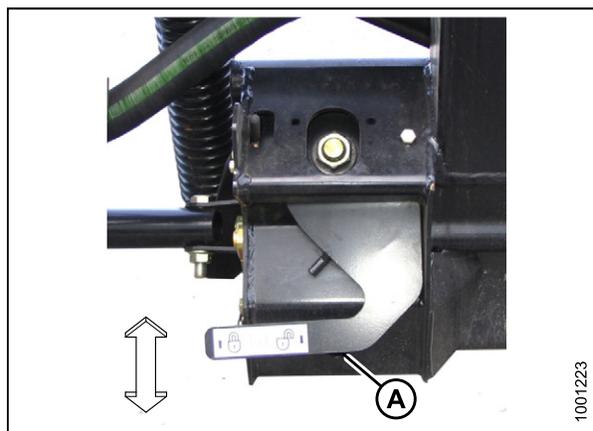


Figure 5.20: Lever Up = LOCK, Down = UNLOCK

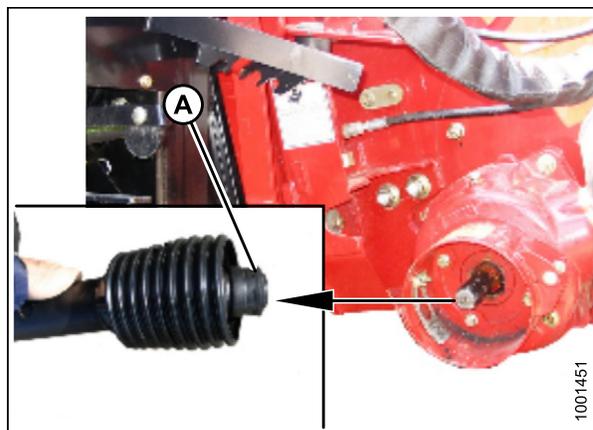


Figure 5.21

HEADER ATTACHMENT/DETACHMENT

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

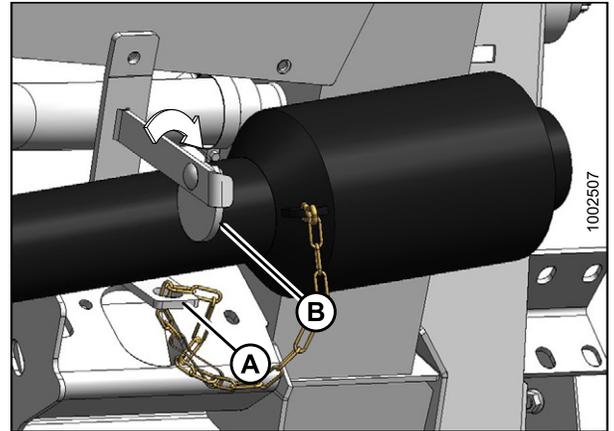


Figure 5.22

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

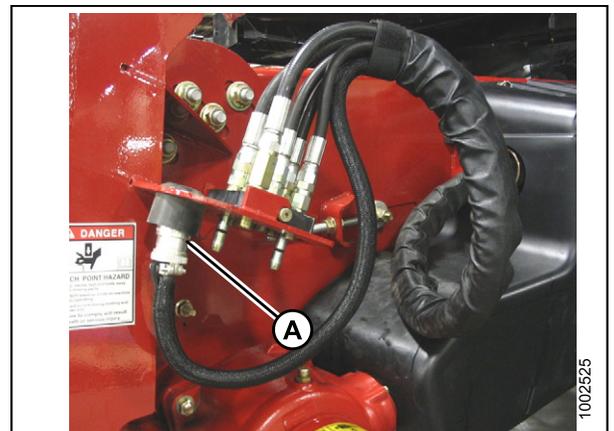


Figure 5.23

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

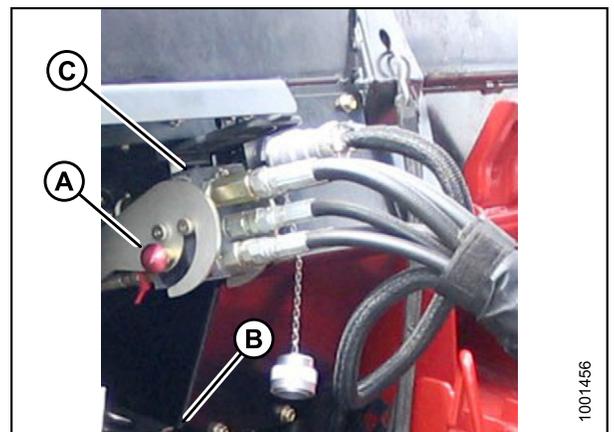


Figure 5.24

HEADER ATTACHMENT/DETACHMENT

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

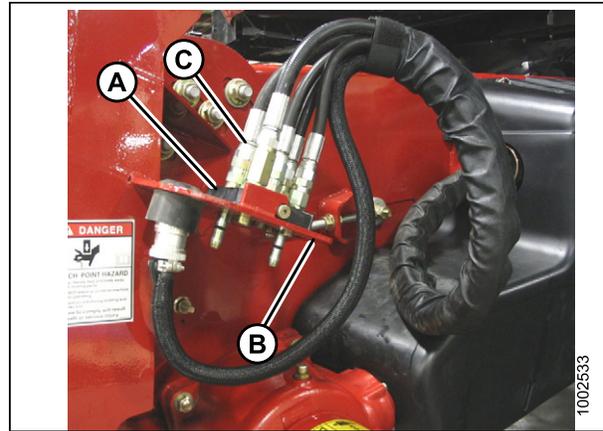


Figure 5.25

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

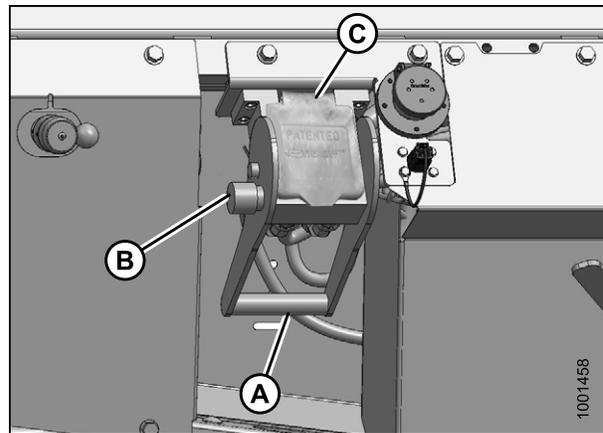


Figure 5.26

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 adapter.

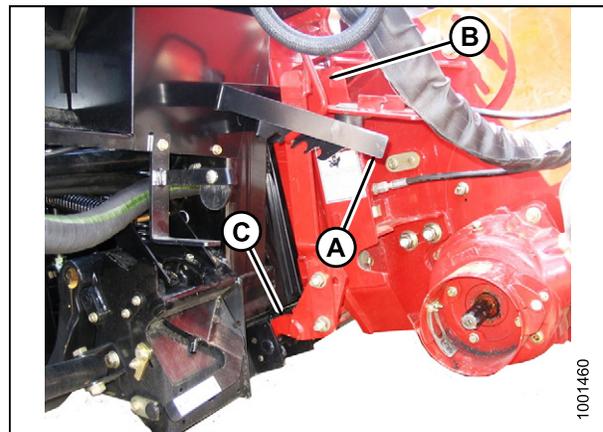


Figure 5.27

HEADER ATTACHMENT/DETACHMENT

5.3 John Deere 60, 70, and S Series Combines

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

5.3.1 Attaching John Deere Combine to Adapter

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

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



CAUTION

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

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

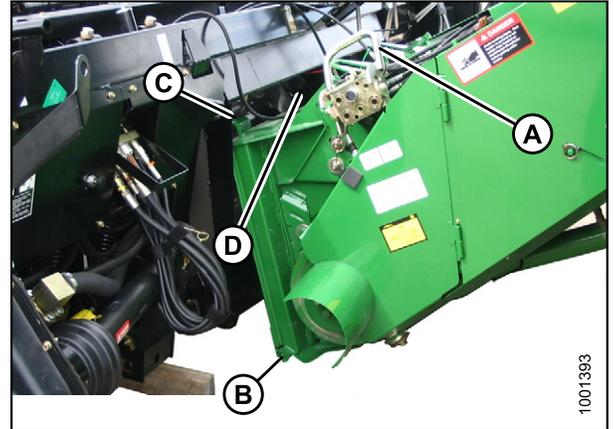


Figure 5.28

A - Handle

C - Feeder house saddle

B - Pins

D - Adapter top cross member

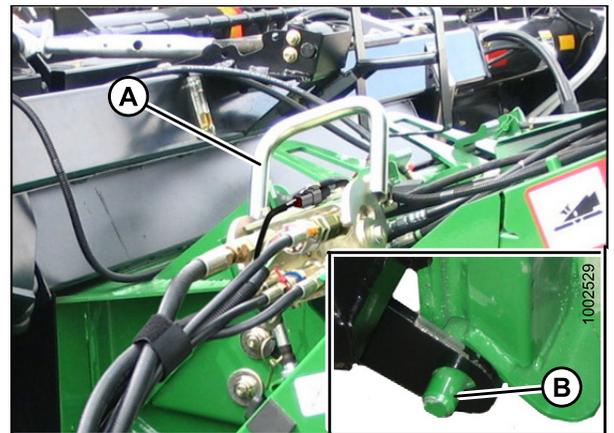


Figure 5.29

HEADER ATTACHMENT/DETACHMENT

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

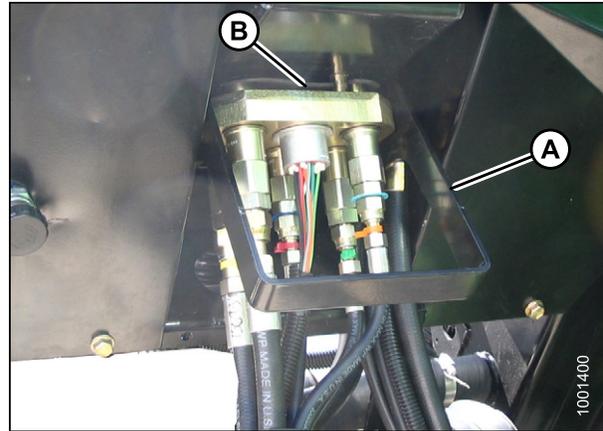


Figure 5.30

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



Figure 5.31

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

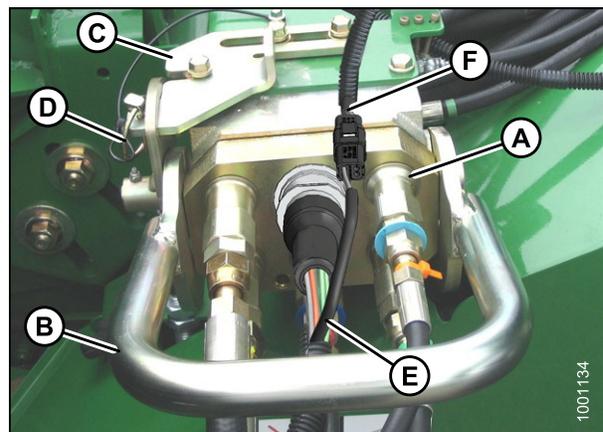


Figure 5.32

A - Coupler
B - Handle
C - Latch
D - Lynch pin
E - Harness
F - Combine connector

HEADER ATTACHMENT/DETACHMENT

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

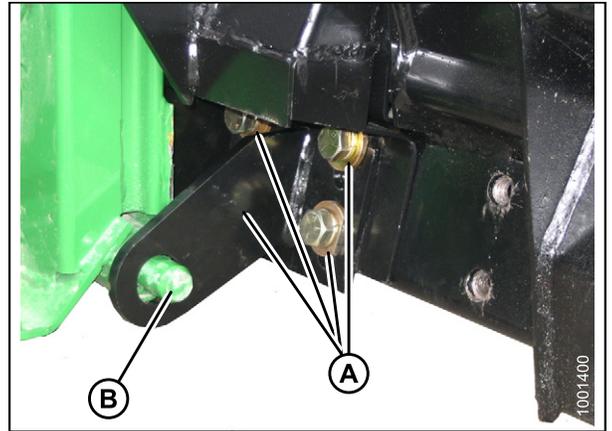


Figure 5.33

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

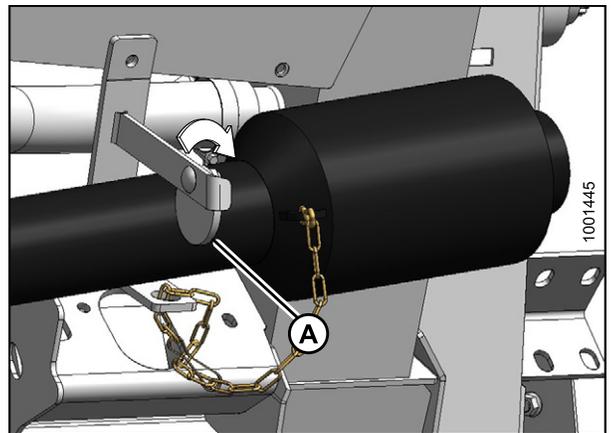


Figure 5.34

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

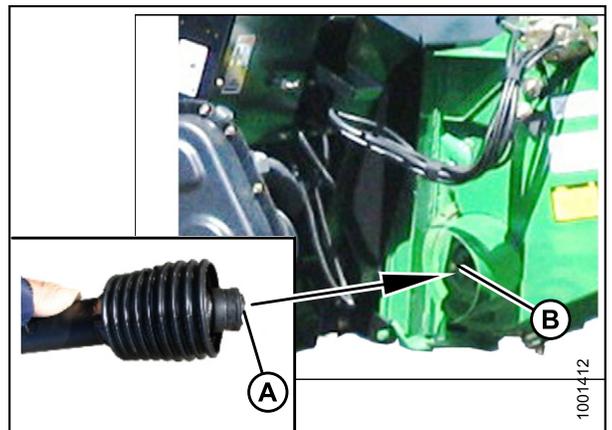


Figure 5.35

HEADER ATTACHMENT/DETACHMENT

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

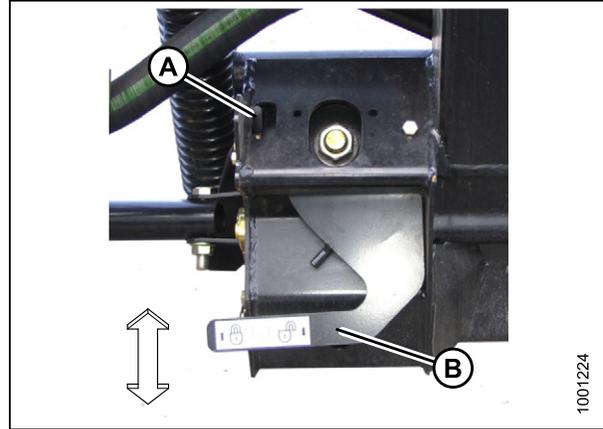


Figure 5.36: Lever Up = LOCK, Down = UNLOCK

HEADER ATTACHMENT/DETACHMENT

5.3.2 Detaching John Deere Combine from Adapter

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

DANGER

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

CAUTION

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

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

IMPORTANT

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

IMPORTANT

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

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

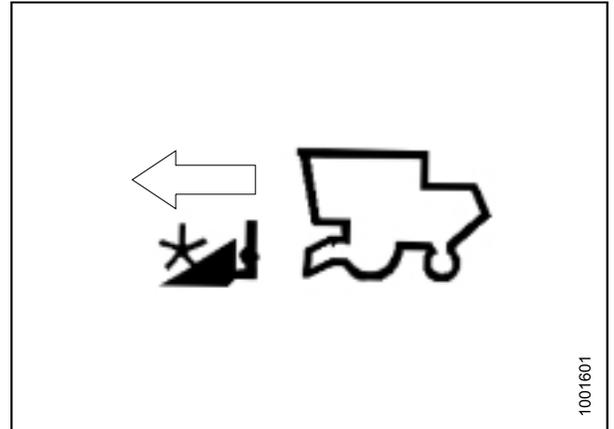


Figure 5.37

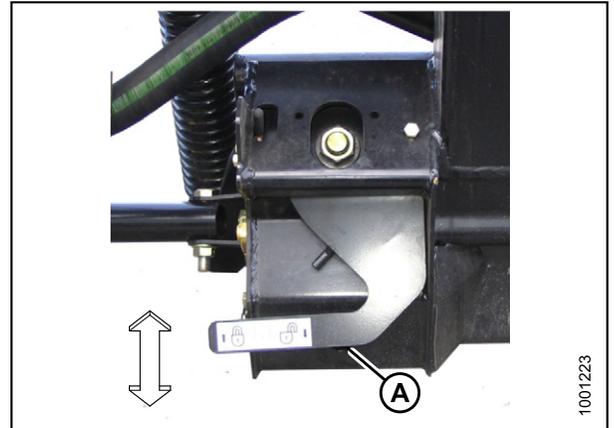


Figure 5.38: Lever Up = LOCK, Down = UNLOCK

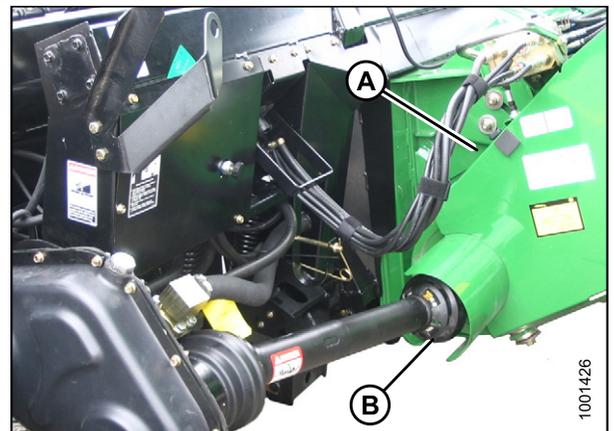


Figure 5.39

HEADER ATTACHMENT/DETACHMENT

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

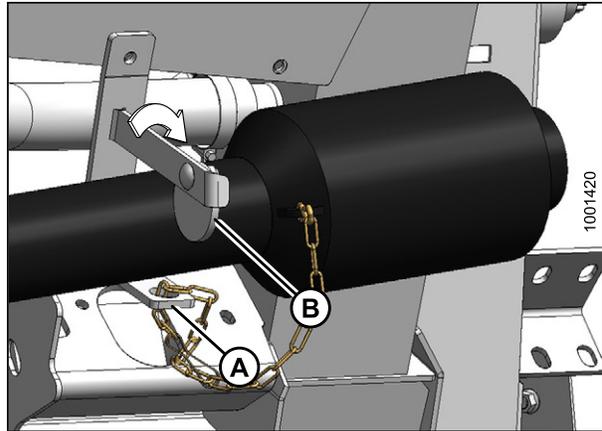


Figure 5.40

- Lift handle (A) on adapter.

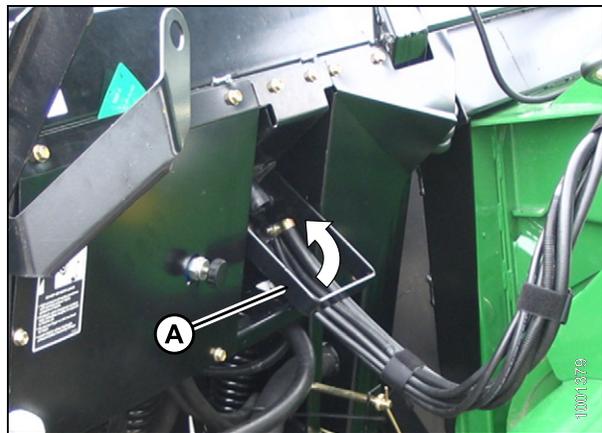


Figure 5.41

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

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

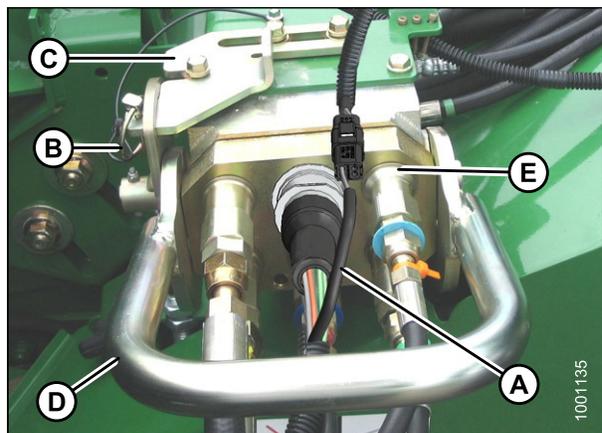


Figure 5.42

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

HEADER ATTACHMENT/DETACHMENT

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

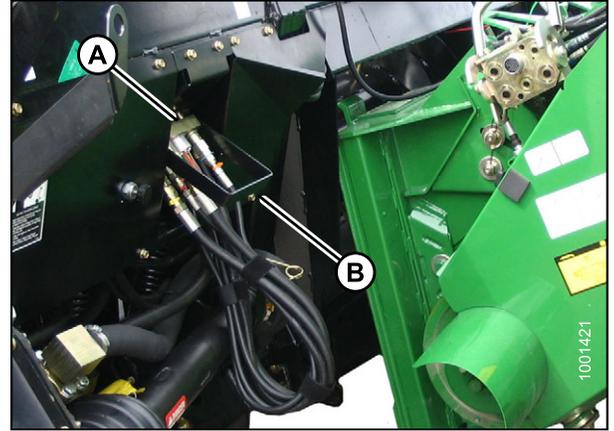


Figure 5.43

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

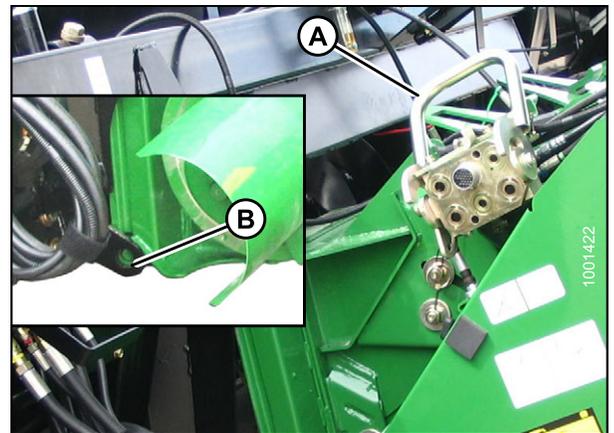


Figure 5.44

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

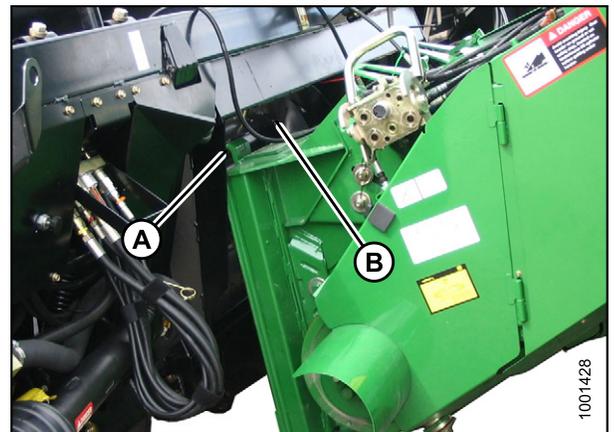


Figure 5.45

HEADER ATTACHMENT/DETACHMENT

5.4 Lexion 500, 700 Series Combines

These procedures cover Lexion 500 and 700 Series combines.

5.4.1 Attaching Lexion 500 and 700 Series Combine to Adapter

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

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

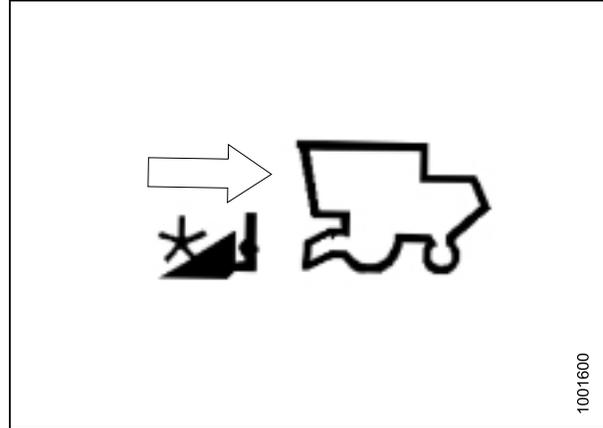


Figure 5.46

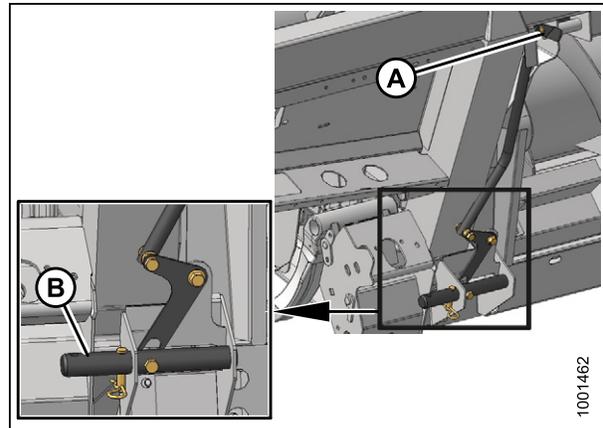


Figure 5.47

A - Handle

B - Pins

HEADER ATTACHMENT/DETACHMENT

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



CAUTION

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

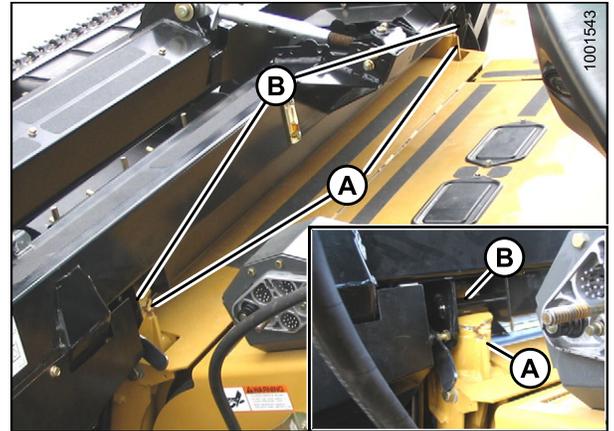


Figure 5.48

A - Feeder house posts

B - Adapter frame

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

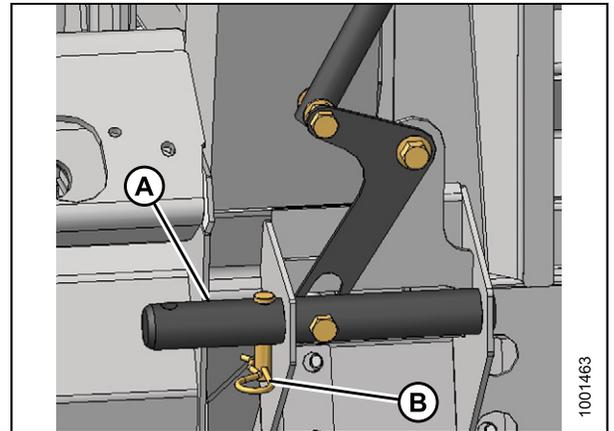


Figure 5.49

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

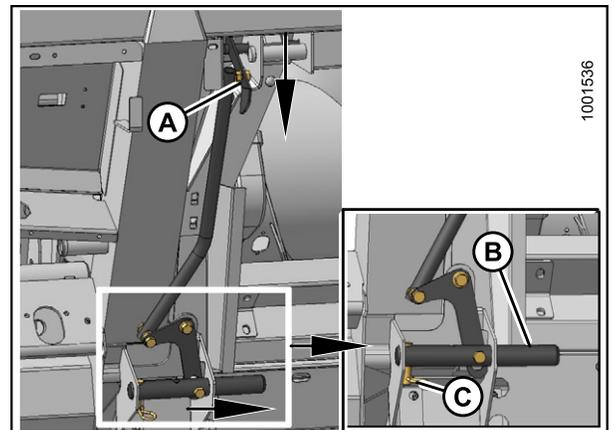


Figure 5.50

A - Handle

B - Adapter pins

C - Locking pin

HEADER ATTACHMENT/DETACHMENT

The following steps show how to connect the hydraulic hoses.

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

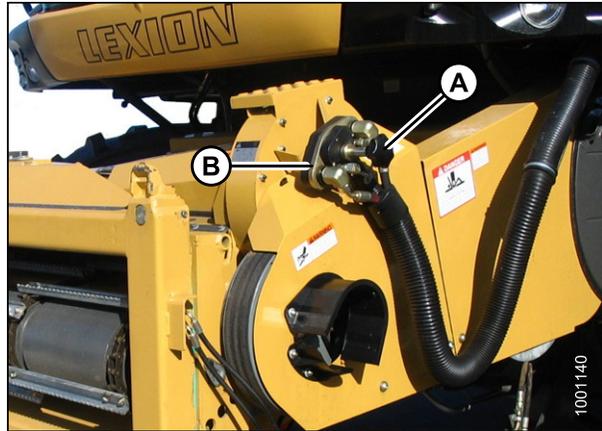


Figure 5.51

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

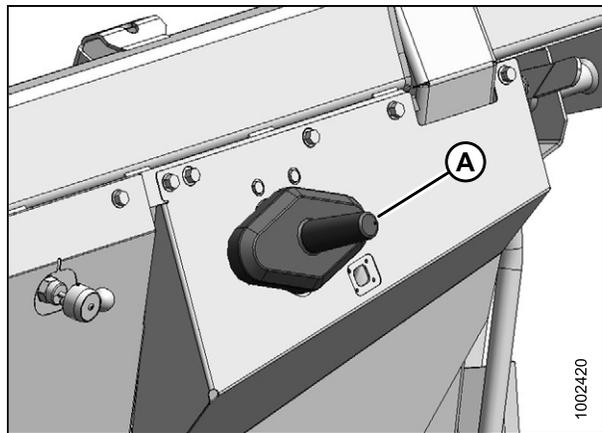


Figure 5.52

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

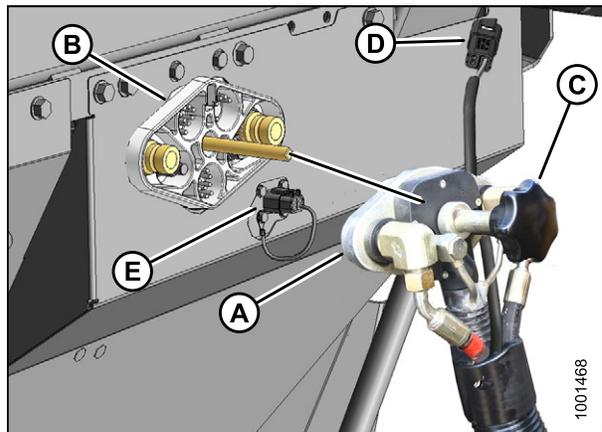


Figure 5.53

A - Coupler mating surface B - Adapter receptacle
C - Knob D - Combine harness
E - Reel fore-aft/header tilt selector receptacle

HEADER ATTACHMENT/DETACHMENT

12. Place cover (A) on combine receptacle.



Figure 5.54

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

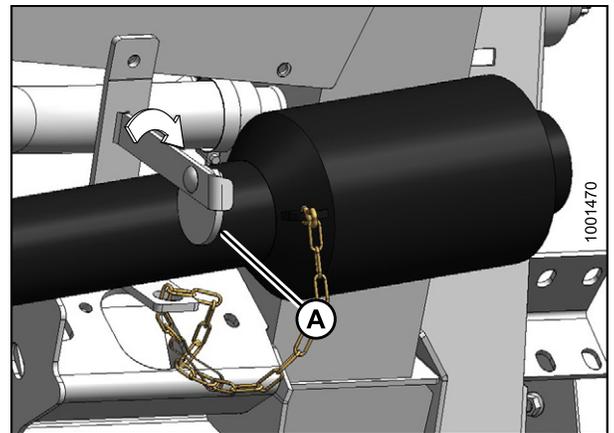


Figure 5.55

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

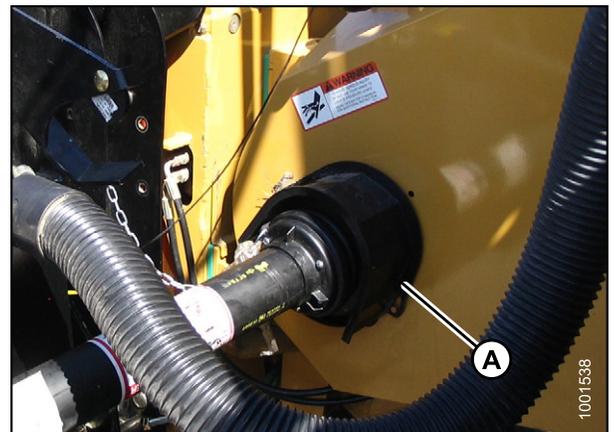


Figure 5.56

HEADER ATTACHMENT/DETACHMENT

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

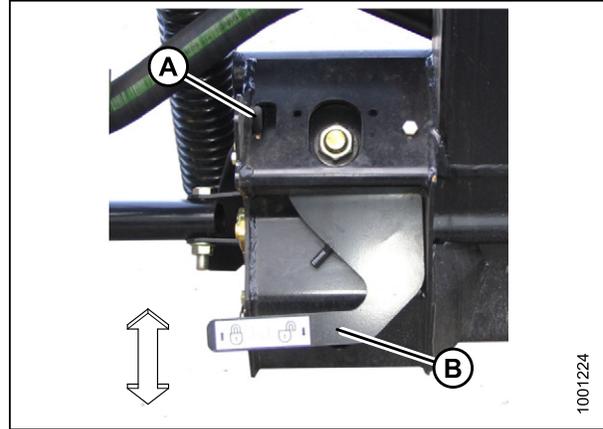


Figure 5.57: Lever Up = LOCK, Down = UNLOCK

HEADER ATTACHMENT/DETACHMENT

5.4.2 Detaching Lexion Combine from Adapter

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

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

DANGER

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

CAUTION

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

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

IMPORTANT

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

IMPORTANT

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

3. Disconnect driveline (A) from combine.



Figure 5.58

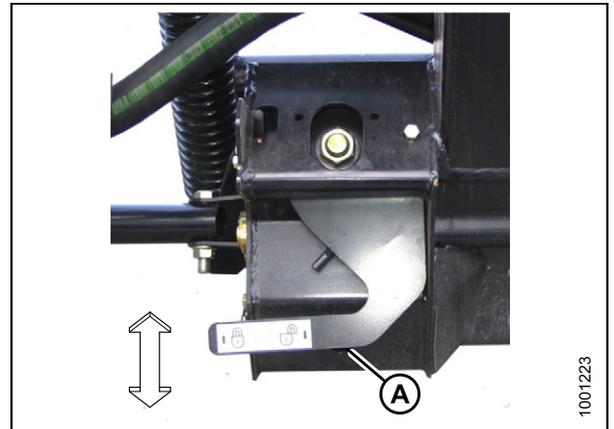


Figure 5.59: Lever Up = LOCK, Down = UNLOCK

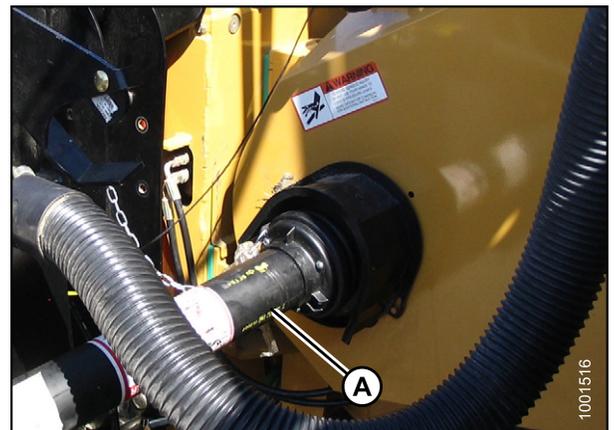


Figure 5.60

HEADER ATTACHMENT/DETACHMENT

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

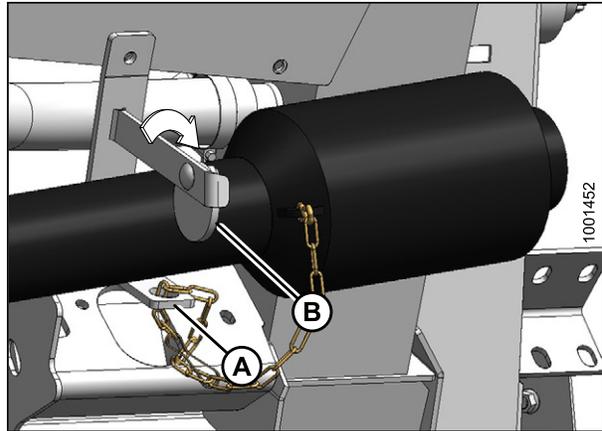


Figure 5.61

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

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

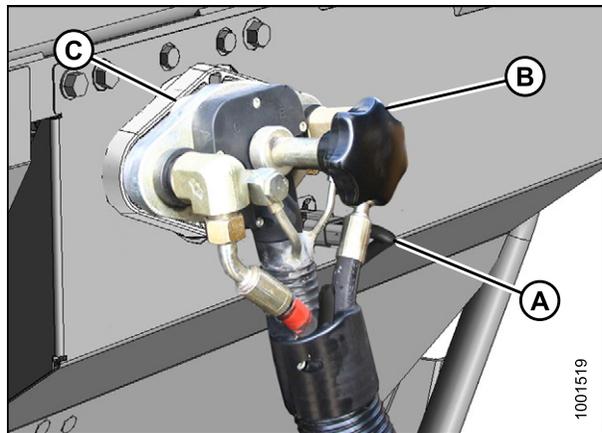


Figure 5.62

- Remove cover (A) from combine receptacle.

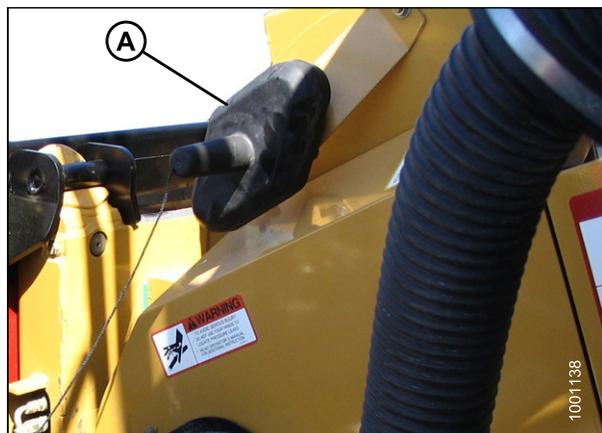


Figure 5.63

HEADER ATTACHMENT/DETACHMENT

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

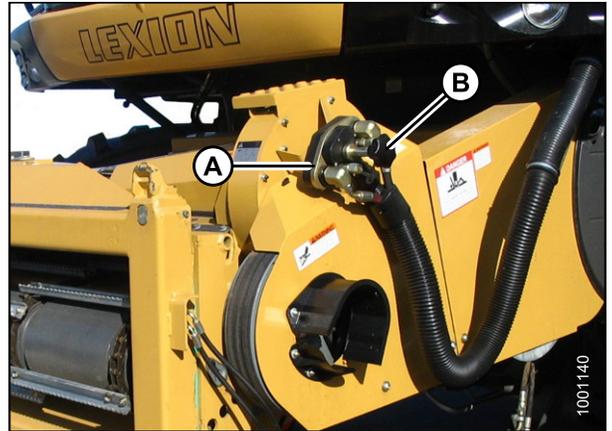


Figure 5.64

- Place cover (A) on adapter receptacle.

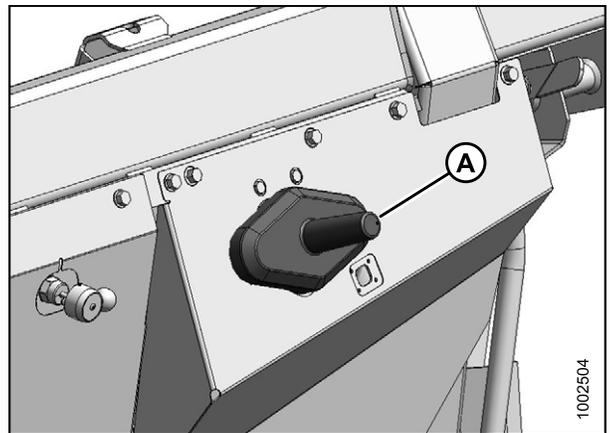


Figure 5.65

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

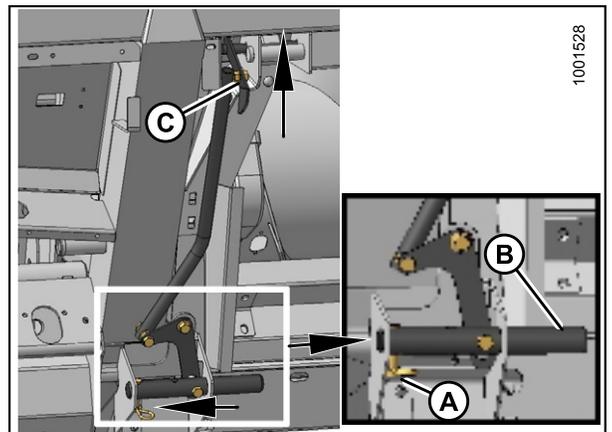


Figure 5.66

A - Locking pin

B - Adapter pin

C - Handle

HEADER ATTACHMENT/DETACHMENT

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

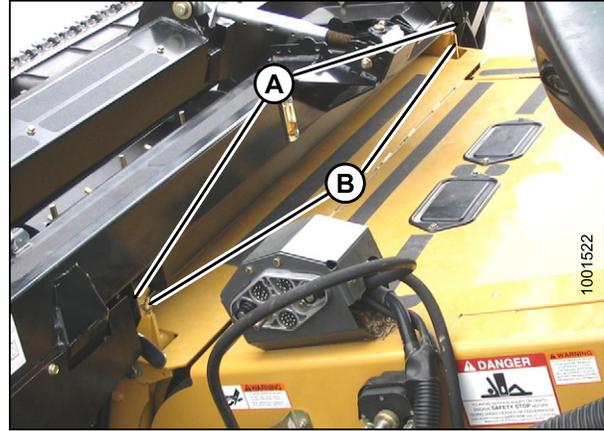


Figure 5.67

A - Feeder house posts

B - Adapter

HEADER ATTACHMENT/DETACHMENT

5.5 New Holland CR/CX Combines

These procedures cover New Holland CR and CX combines.

5.5.1 Attaching New Holland CR/CX Combine to Adapter

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

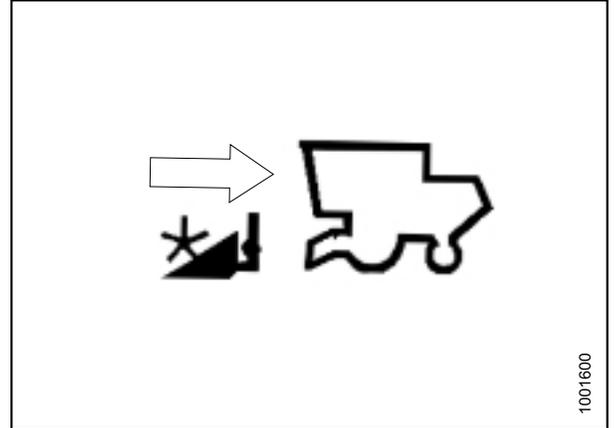


Figure 5.68: Attach New Holland CR or CX combine to the adapter

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

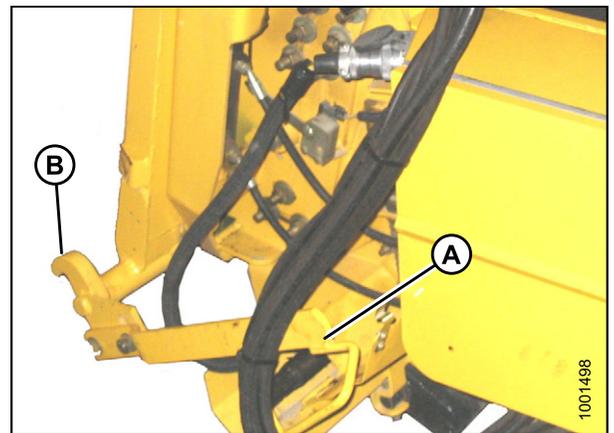


Figure 5.69

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



CAUTION

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

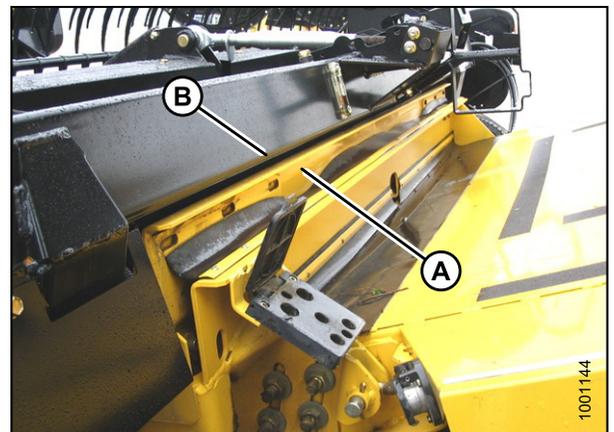


Figure 5.70

HEADER ATTACHMENT/DETACHMENT

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

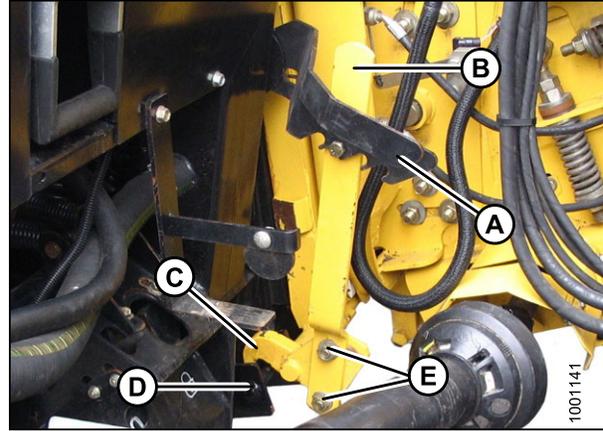


Figure 5.71

A - Adapter lever
B - Combine handle
C - Combine hooks
D - Adapter pins
E - Combine bolts

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

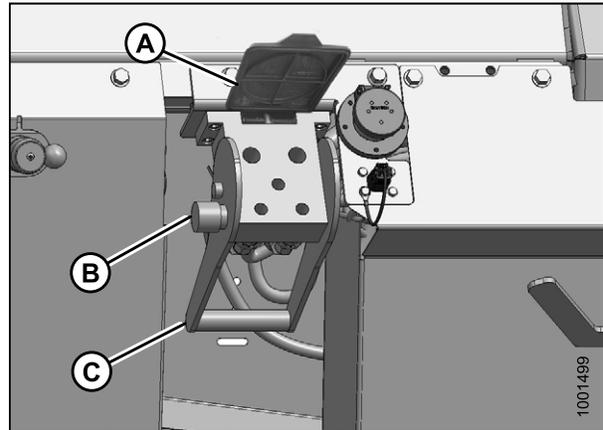


Figure 5.72

A - Cover
B - Lock button
C - Handle

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

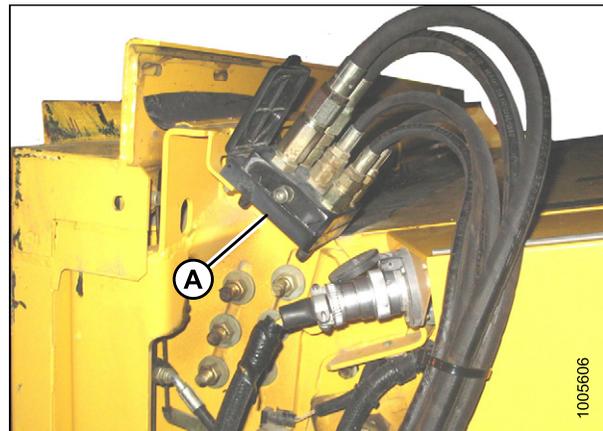


Figure 5.73

HEADER ATTACHMENT/DETACHMENT

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

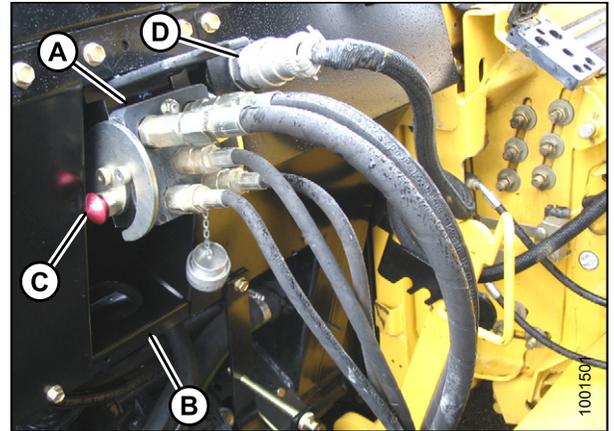


Figure 5.74

A - Coupler
B - Handle

C - Lock button
D - Connector

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

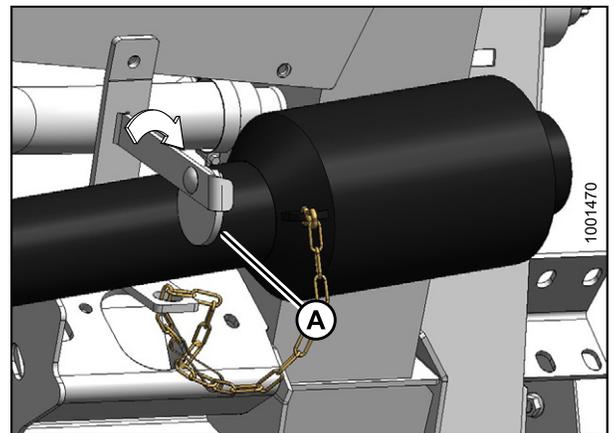


Figure 5.75

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

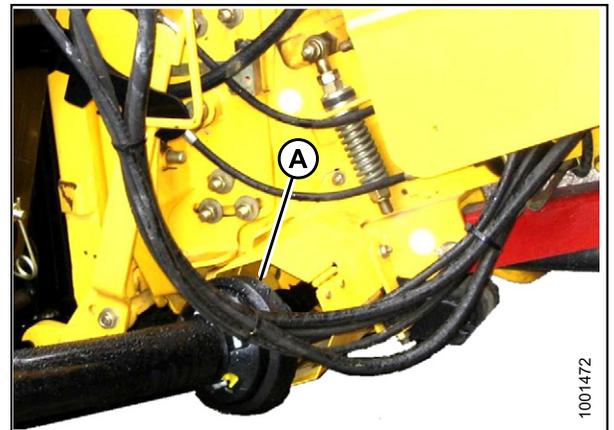


Figure 5.76

HEADER ATTACHMENT/DETACHMENT

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

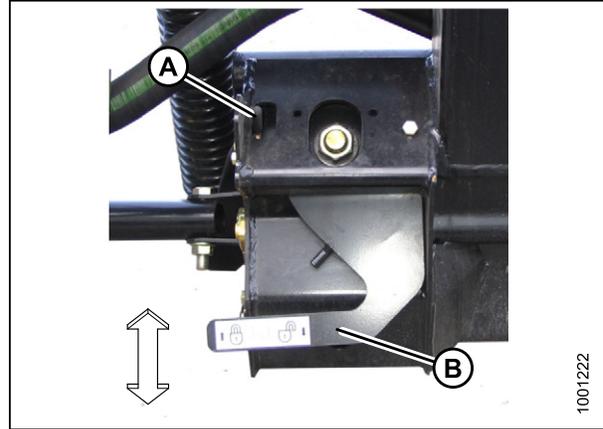


Figure 5.77: Lever Up = LOCK, Down = UNLOCK

5.5.2 Detaching New Holland CR/CX Combine from Adapter

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

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

DANGER

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

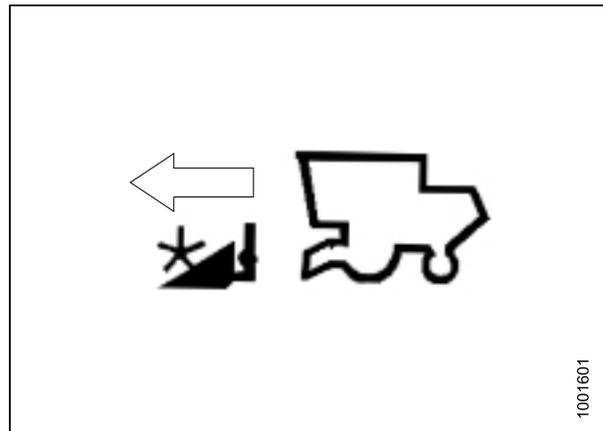


Figure 5.78

HEADER ATTACHMENT/DETACHMENT



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.

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

IMPORTANT

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

IMPORTANT

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

- Disconnect driveshaft (A) from combine.

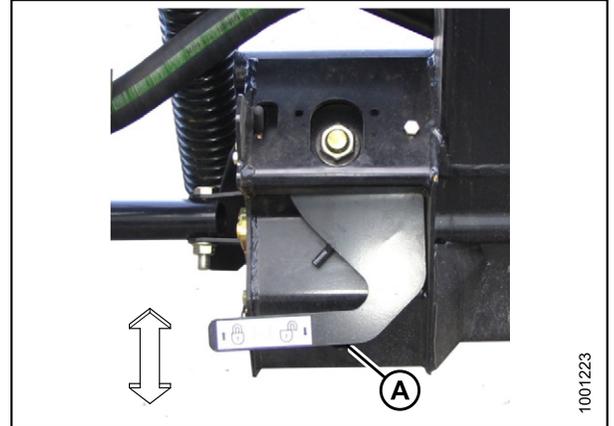


Figure 5.79: Lever Up = LOCK, Down = UNLOCK

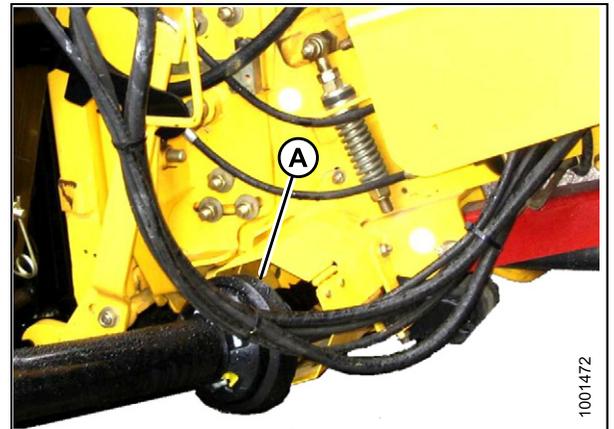


Figure 5.80

HEADER ATTACHMENT/DETACHMENT

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

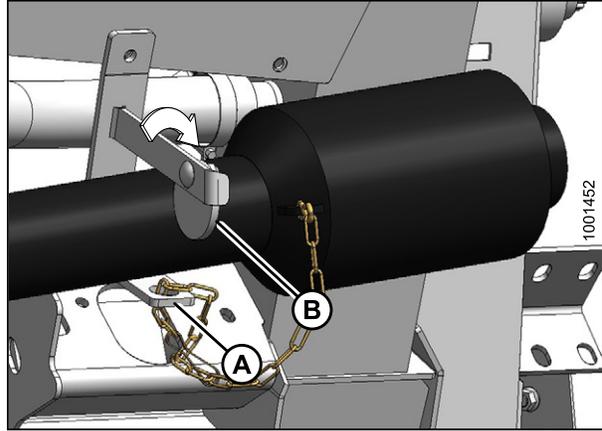


Figure 5.81

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

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

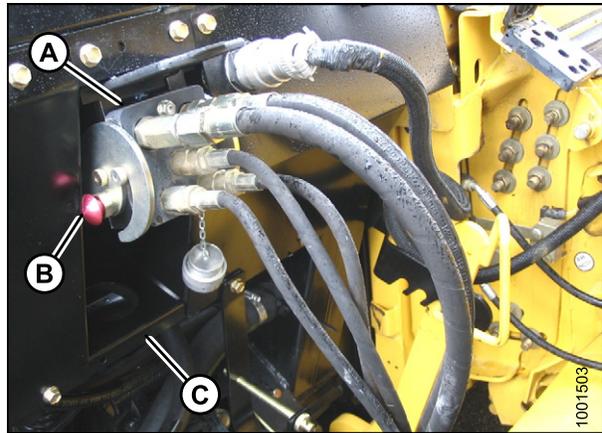


Figure 5.82

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

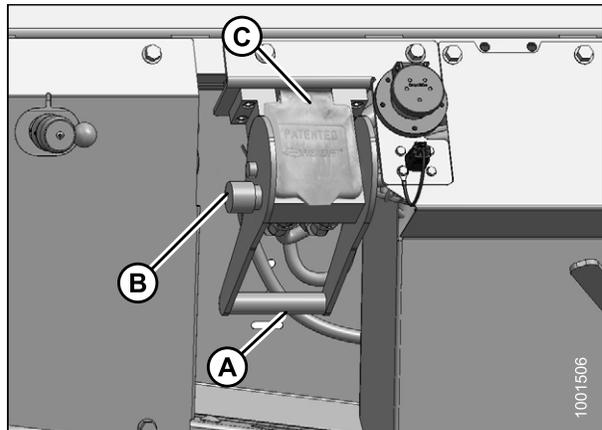


Figure 5.83

HEADER ATTACHMENT/DETACHMENT

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

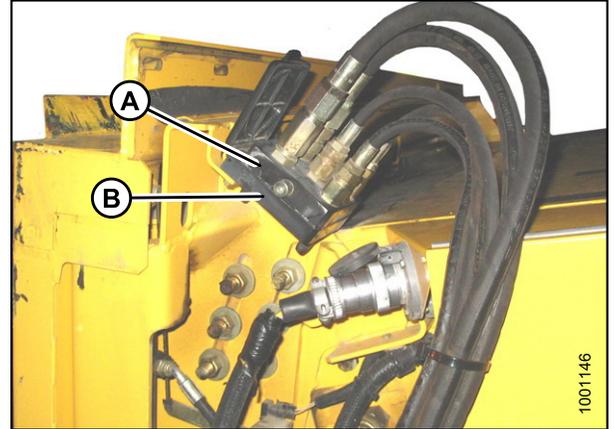


Figure 5.84

8. Remove electrical connector (A) from adapter.

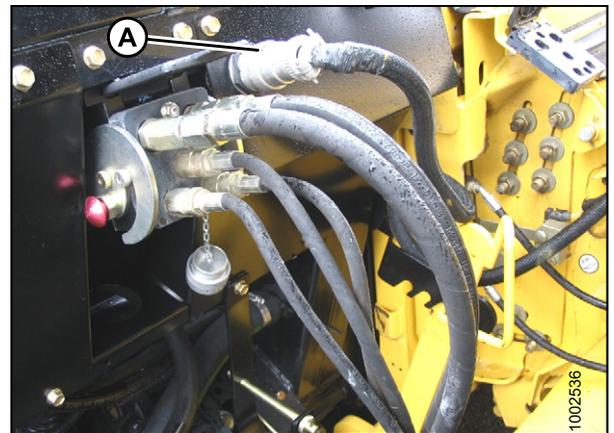


Figure 5.85

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



Figure 5.86

HEADER ATTACHMENT/DETACHMENT

10. Replace cover (A) on adapter receptacle.

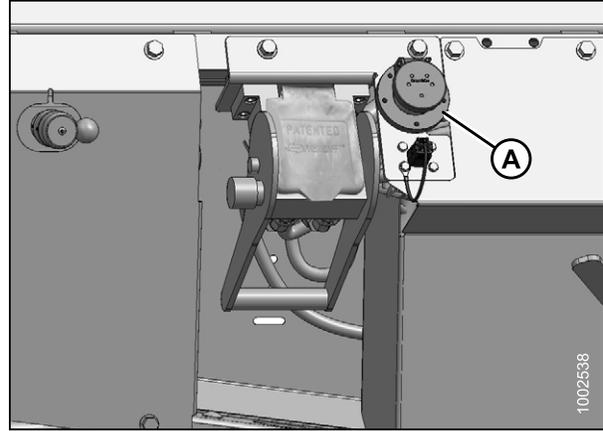


Figure 5.87

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

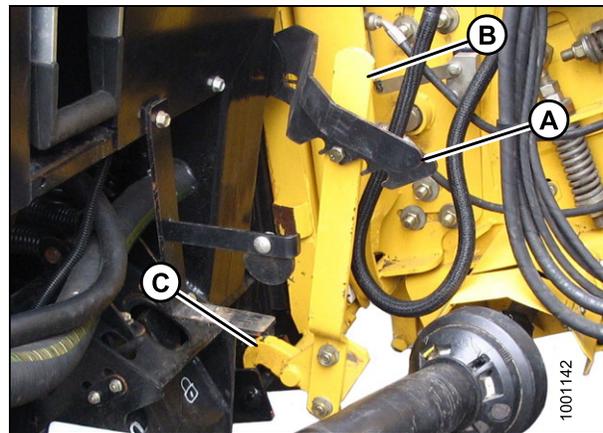


Figure 5.88

A - Adapter lever
B - Combine handle
C - Feeder house/adapter lock

12. Lower feeder house until feeder house (A) disengages adapter support (B).

13. Slowly back combine away from adapter.

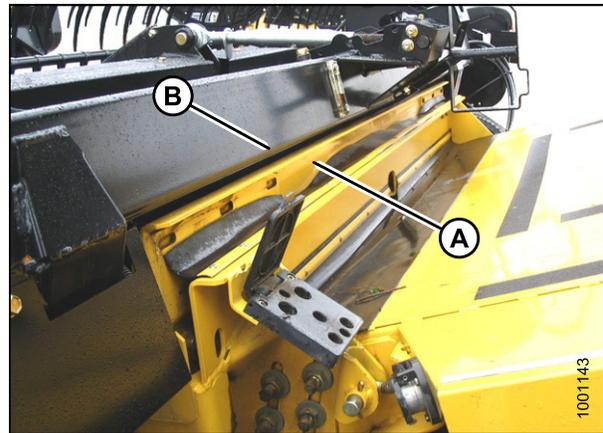


Figure 5.89

5.5.3 CR Feeder Deflectors

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

HEADER ATTACHMENT/DETACHMENT

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

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

Replacing Feed Deflectors

To replace feeder deflectors, follow these steps:

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

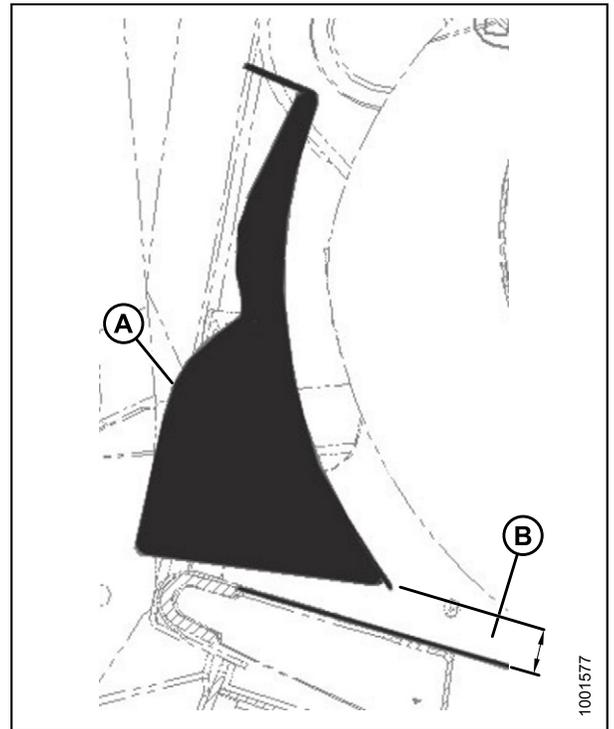


Figure 5.90

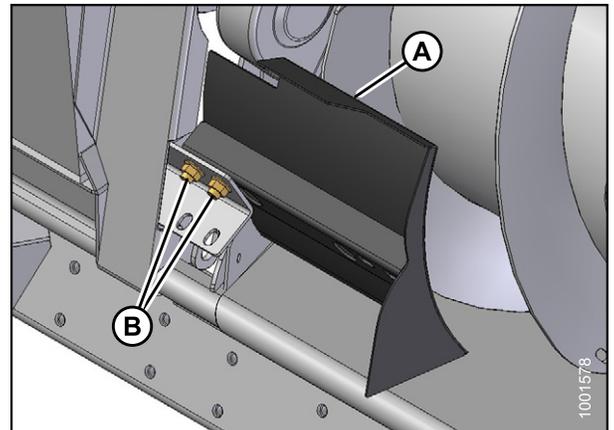


Figure 5.91

HEADER ATTACHMENT/DETACHMENT

5.6 AGCO Combines

These procedures are for the following AGCO combine models:

- Challenger 660, 670, and 680B
- Gleaner R and S Series
- Massey 9690, 9790, and 9895

5.6.1 Attaching Combine to Adapter

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

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

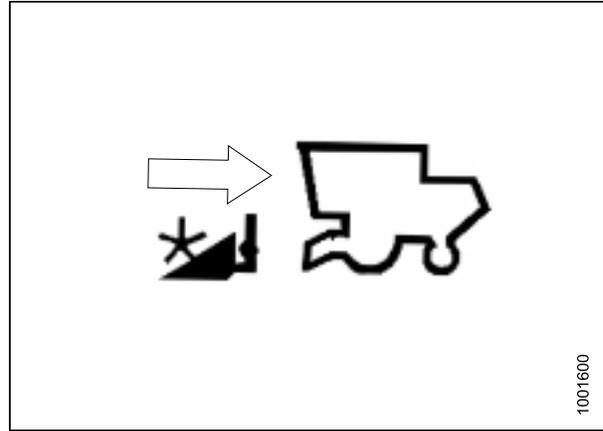


Figure 5.92: Attach AGCO combine to adapter

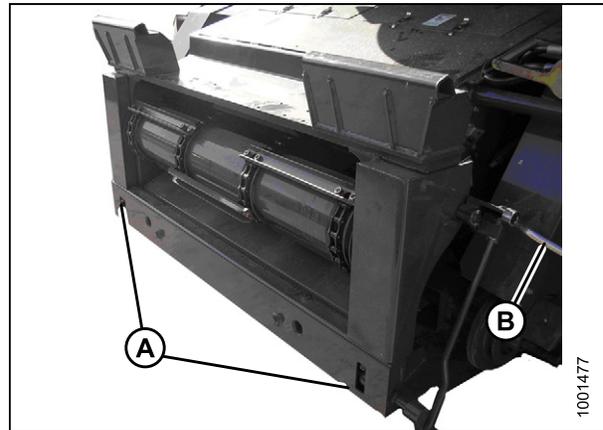


Figure 5.93: All AGCO except Gleaner R and S Series

HEADER ATTACHMENT/DETACHMENT

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

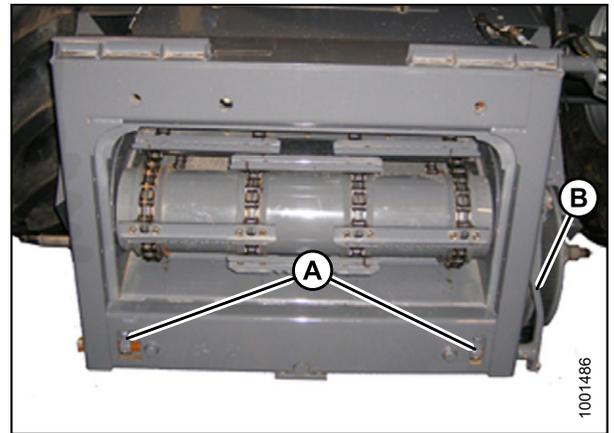


Figure 5.94: Gleaner R and S Series

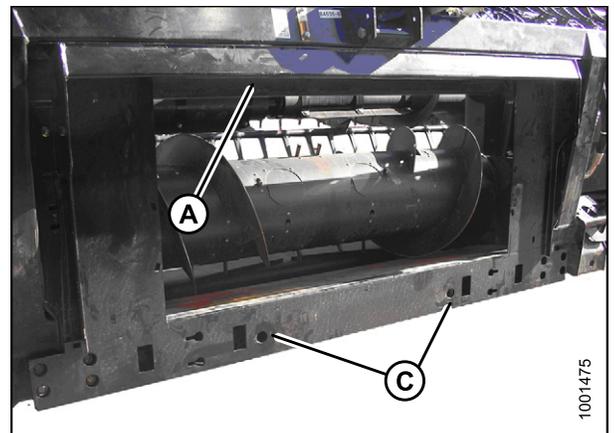


Figure 5.95: Adapter cross member and alignment pins

A - Adapter top cross member

C - Holes

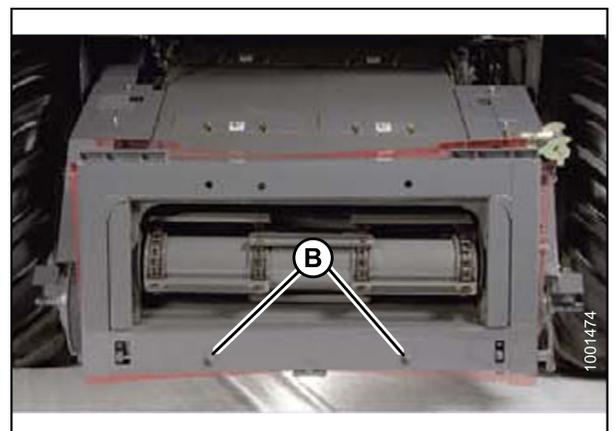


Figure 5.96: Alignment pins for all AGCO except Gleaner R and S Series and LL Models

HEADER ATTACHMENT/DETACHMENT

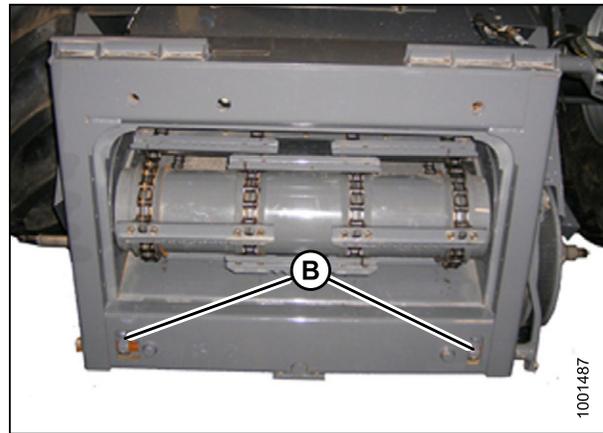


Figure 5.97: Gleaner R and S Series alignment pins

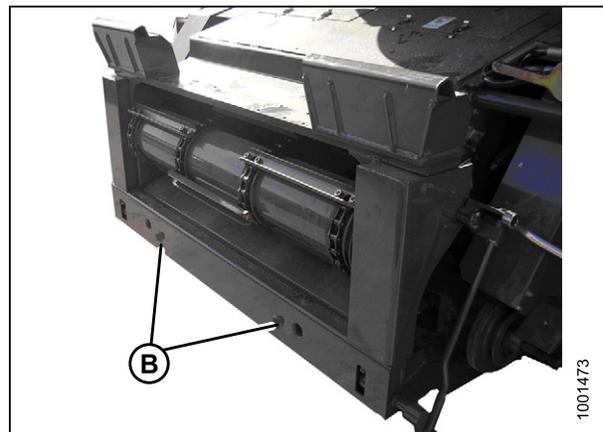


Figure 5.98: AGCO LL Model alignment pins

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

CAUTION

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

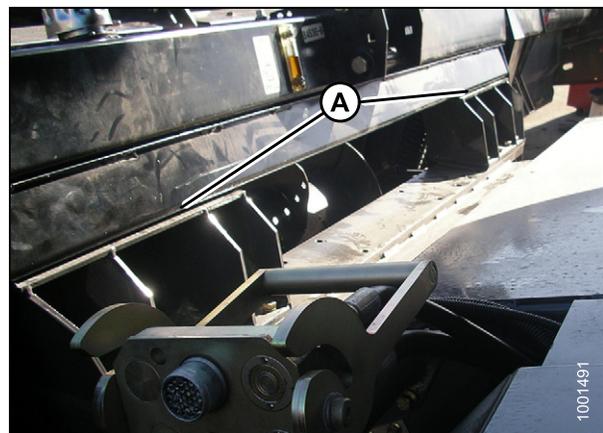


Figure 5.99

HEADER ATTACHMENT/DETACHMENT

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

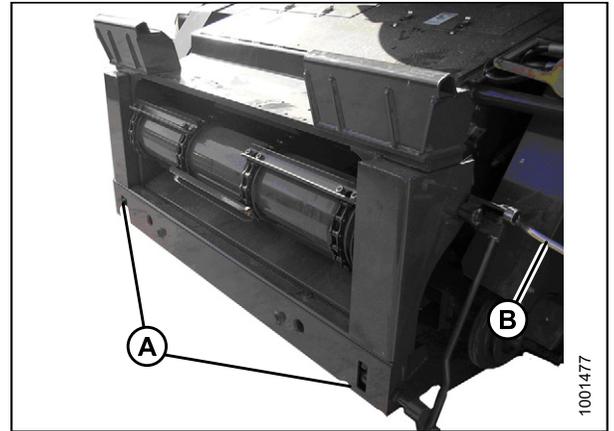


Figure 5.100: All AGCO except Gleaner R and S Series

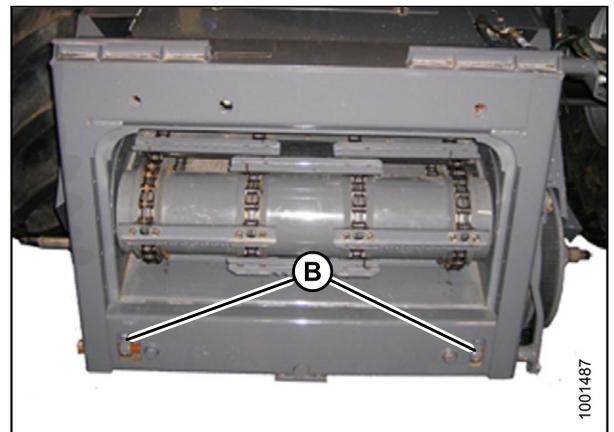


Figure 5.101: Gleaner R and S Series

The following steps show how to connect the adapter hydraulic quick coupler to the combine receptacle:

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

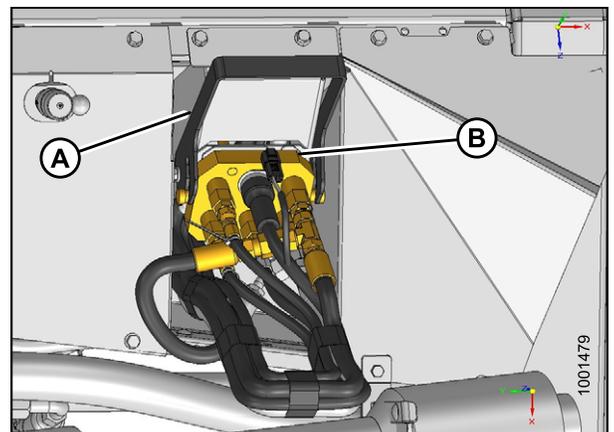


Figure 5.102

HEADER ATTACHMENT/DETACHMENT

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

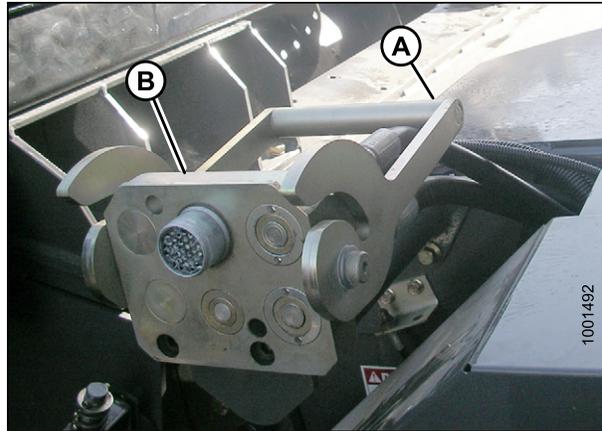


Figure 5.103

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

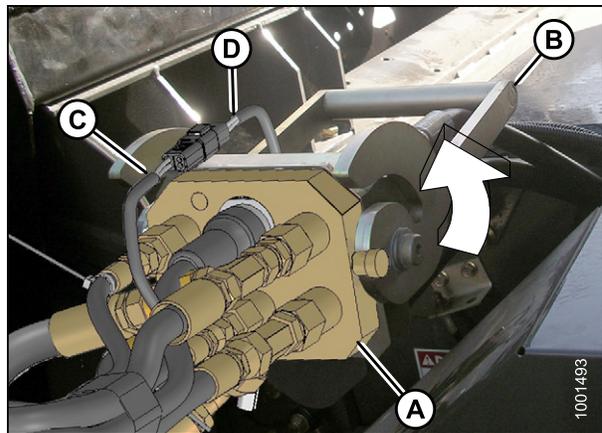


Figure 5.104

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

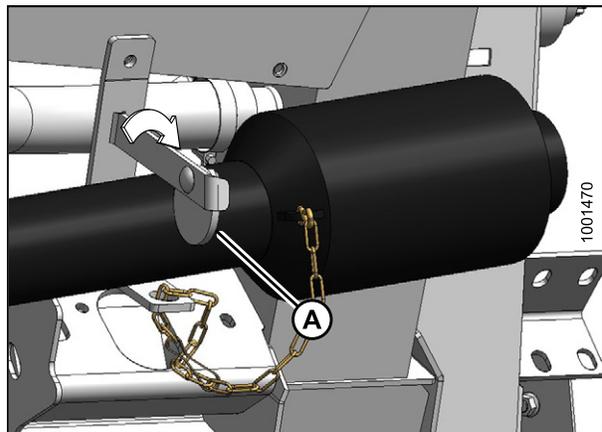


Figure 5.105

HEADER ATTACHMENT/DETACHMENT

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

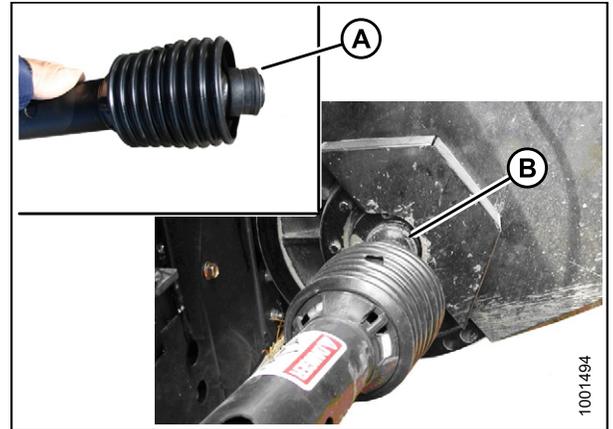


Figure 5.106

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

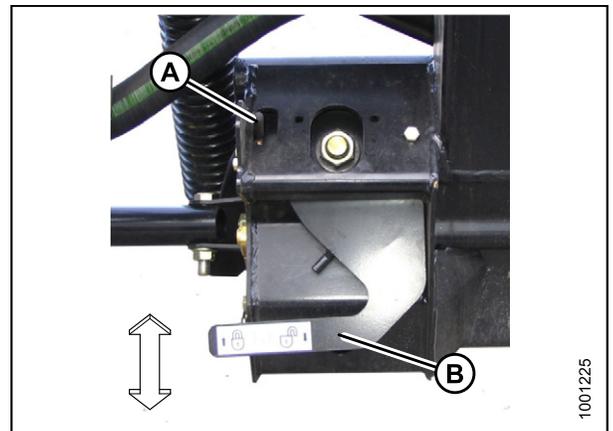


Figure 5.107: Lever Up = LOCK, Down = UNLOCK

5.6.2 Detaching AGCO Combine from Adapter

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

HEADER ATTACHMENT/DETACHMENT

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

DANGER

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

CAUTION

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

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

IMPORTANT

If slow speed transport wheels are installed, header may be detached in either Transport or Field mode. If detaching with wheel in Field mode, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

IMPORTANT

If stabilizer wheels are installed, set wheels to storage or uppermost working position. Otherwise header may tilt forward so that reattachment will be difficult. Refer to Section [4.7.1 Cutting Height, page 56](#).

3. Disconnect driveshaft (A) from combine.

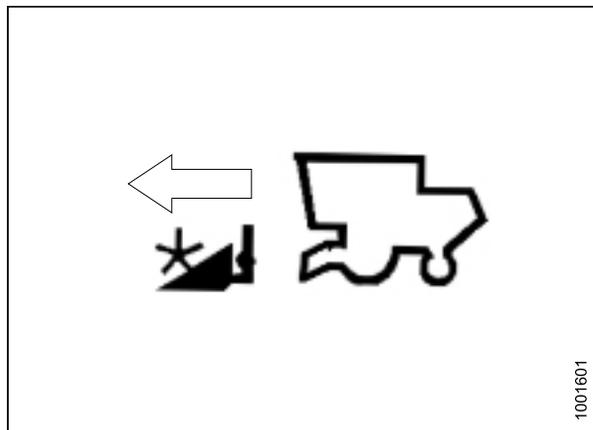


Figure 5.108: Detach Header

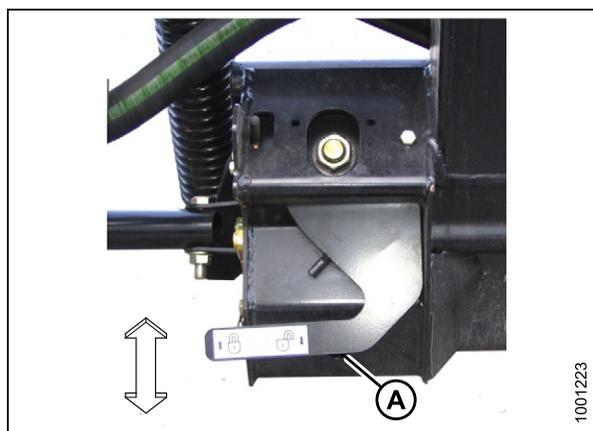


Figure 5.109: Lever Up = LOCK, Down = UNLOCK



Figure 5.110: Disconnect driveshaft

HEADER ATTACHMENT/DETACHMENT

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

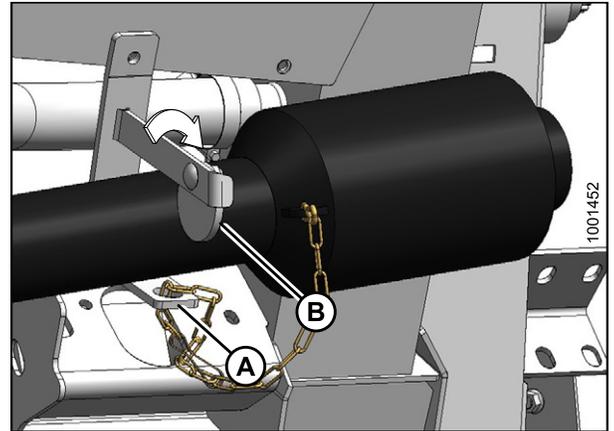


Figure 5.111

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

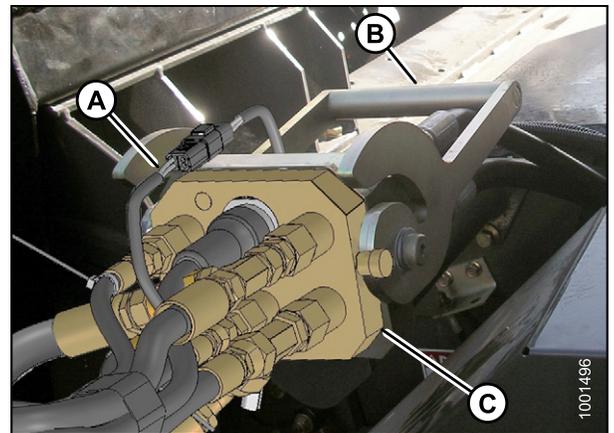


Figure 5.112

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

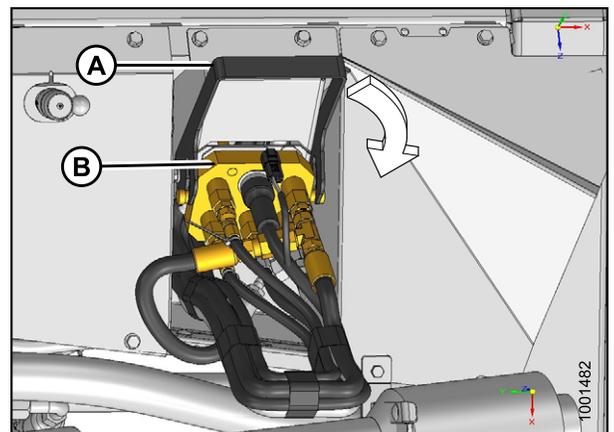


Figure 5.113

HEADER ATTACHMENT/DETACHMENT

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

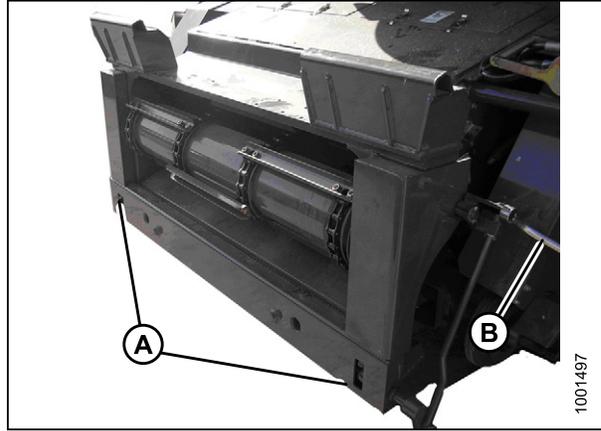


Figure 5.114: All AGCO except Gleaner R and S Series

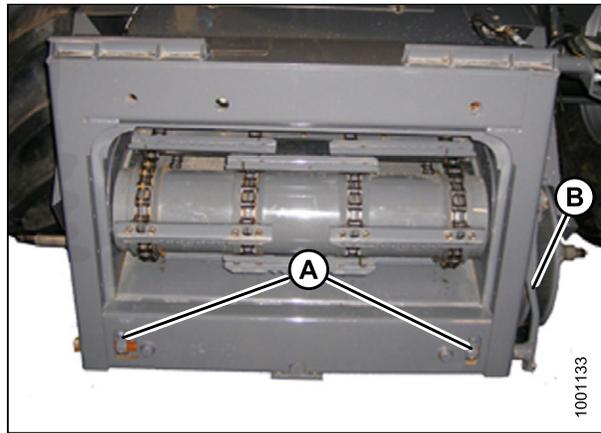


Figure 5.115: Gleaner R and S Series

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

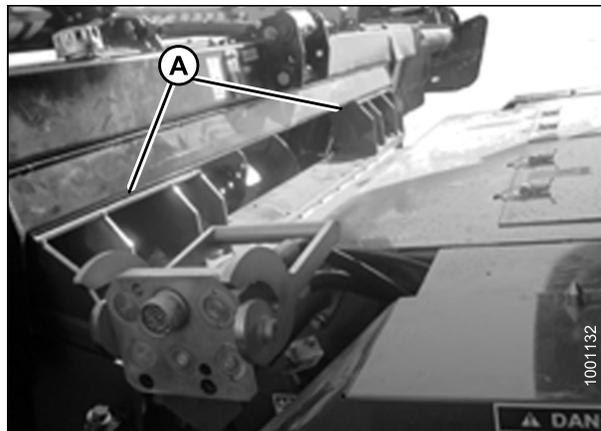


Figure 5.116

HEADER ATTACHMENT/DETACHMENT

5.7 Attaching and Detaching Header With Combine and Adapter

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

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

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

5.7.1 Detaching Header from Combine and Adapter

To detach the header from the combine and adapter.

WARNING

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

CAUTION

Wear heavy gloves when working around or handling knives.

DANGER

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

Disconnect the adapter deck from the cutterbar as follows:

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

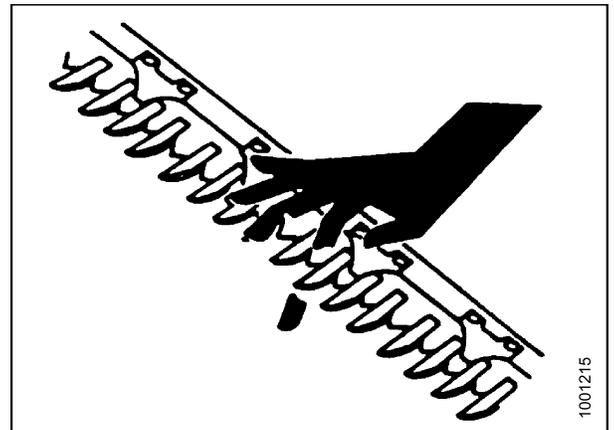


Figure 5.117

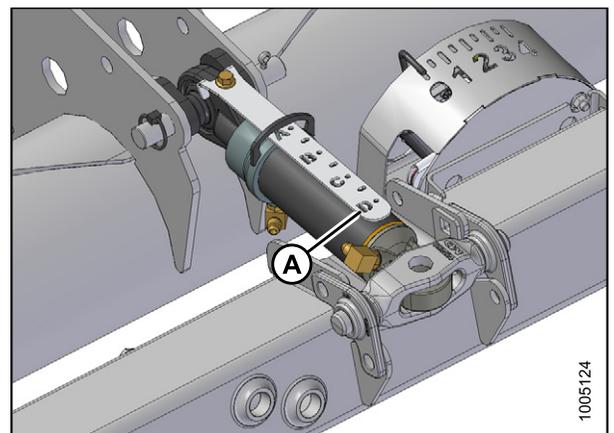


Figure 5.118

HEADER ATTACHMENT/DETACHMENT

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

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

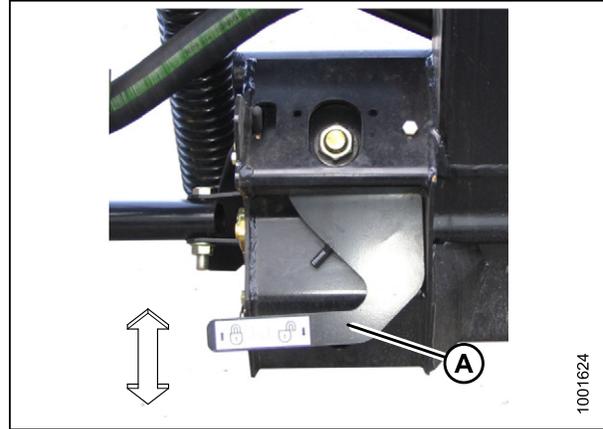


Figure 5.119: Lever Up = LOCK, Down = UNLOCK

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

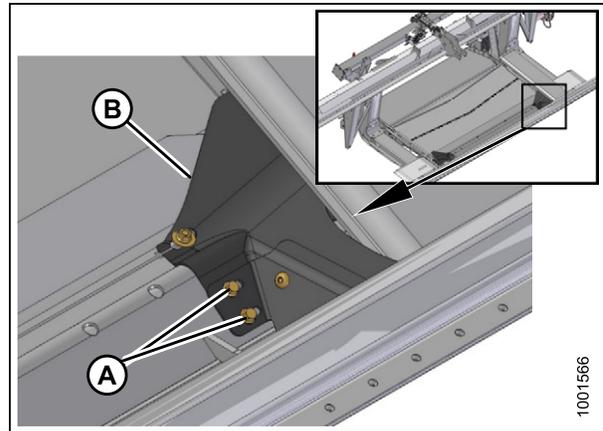


Figure 5.120

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

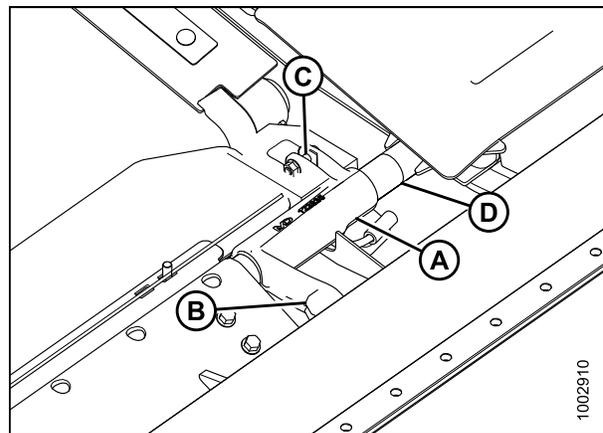


Figure 5.121

HEADER ATTACHMENT/DETACHMENT

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

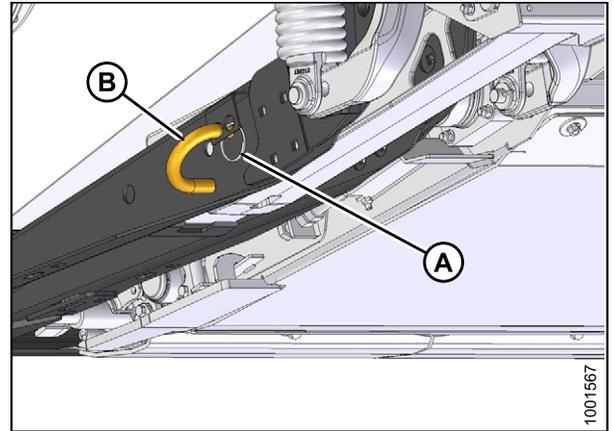


Figure 5.122: Remove ring and pins

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.

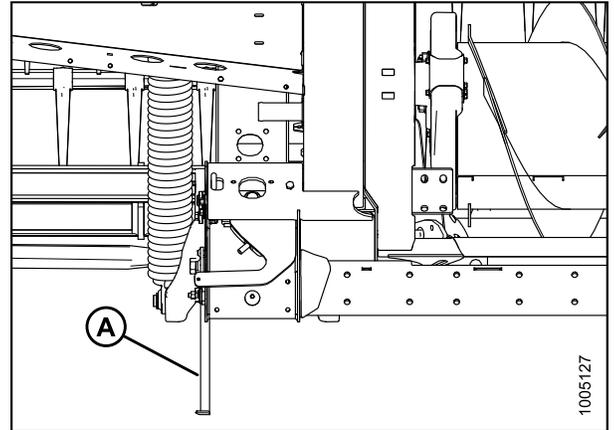


Figure 5.123

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.

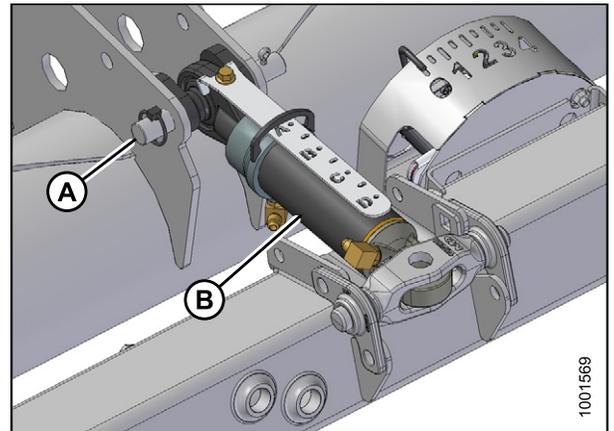


Figure 5.124: Disconnect hydraulic center-link

HEADER ATTACHMENT/DETACHMENT

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.

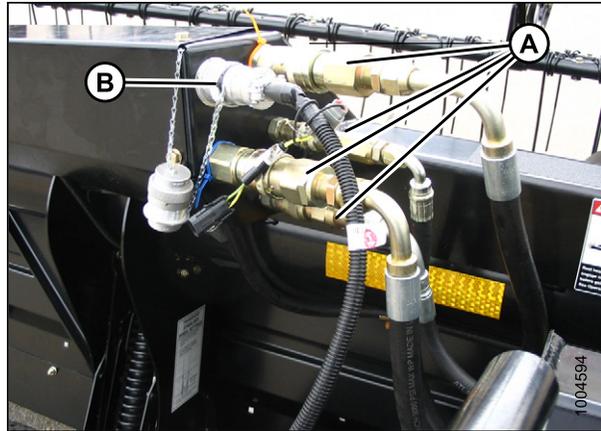


Figure 5.125

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).

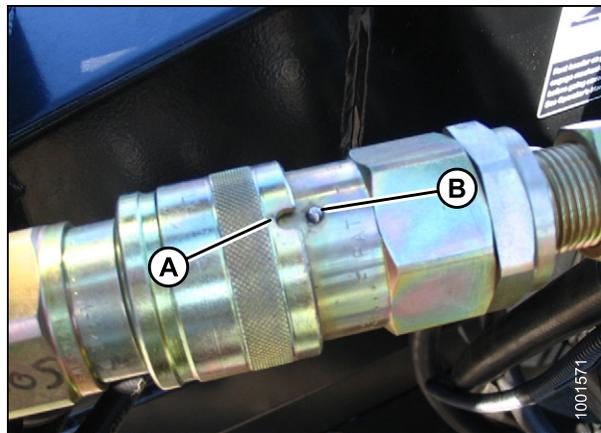


Figure 5.126: Disconnect quick disconnects

22. Disconnect reel hydraulics. 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.

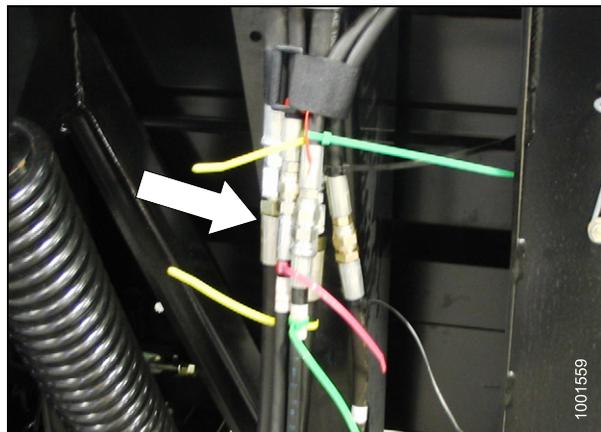


Figure 5.127: Disconnect reel hydraulics

HEADER ATTACHMENT/DETACHMENT

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.

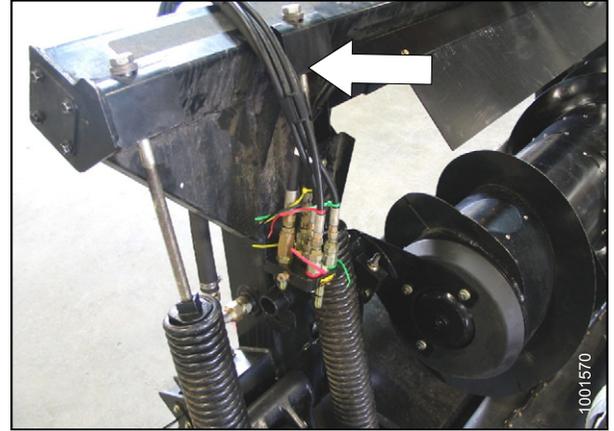


Figure 5.128: Store and secure hoses

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

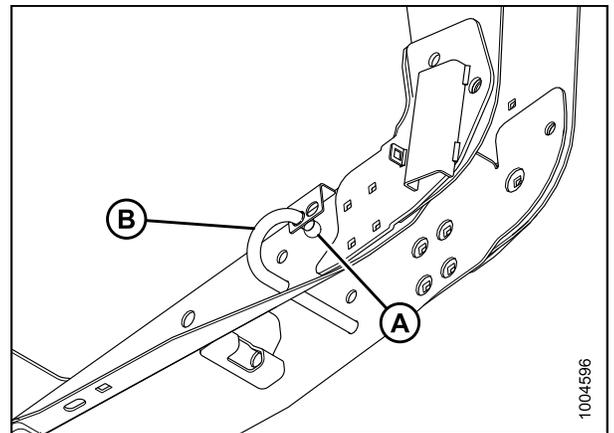


Figure 5.129

5.7.2 Attaching Header to Combine and Adapter

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 Section [4.7.1 Cutting Height](#), page 56.

HEADER ATTACHMENT/DETACHMENT

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

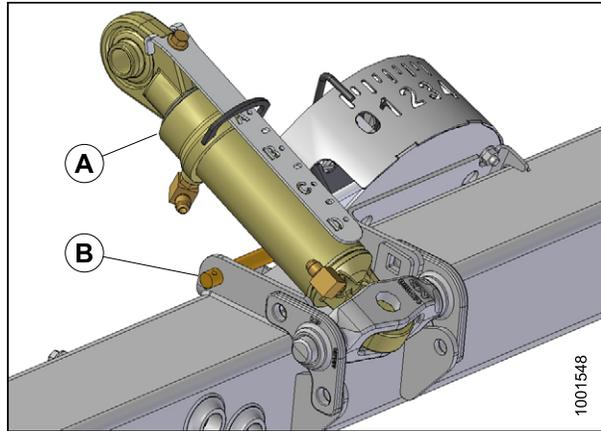


Figure 5.130

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

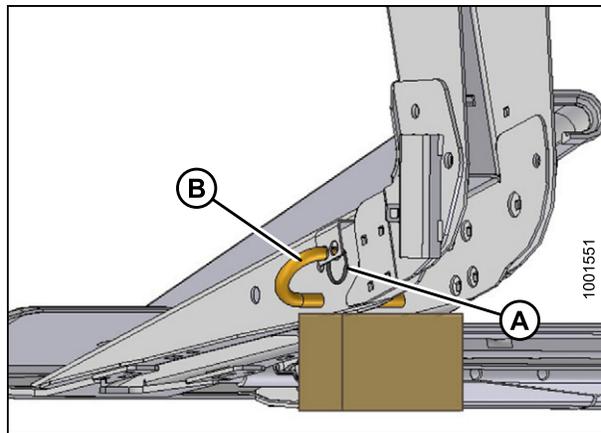


Figure 5.131

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



CAUTION

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

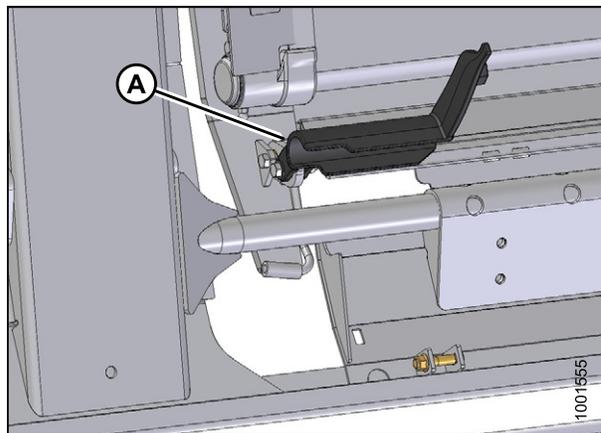


Figure 5.132: Latches

HEADER ATTACHMENT/DETACHMENT

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.

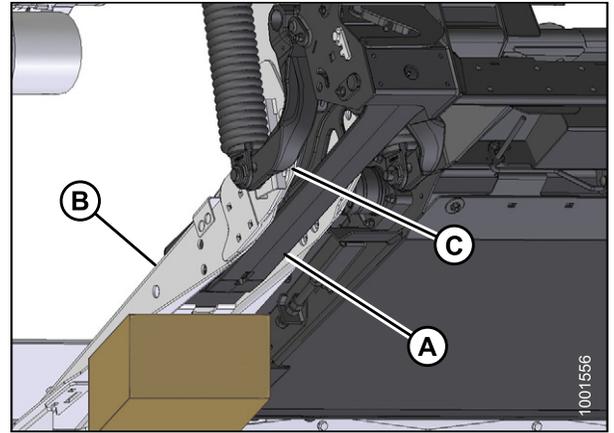


Figure 5.133

A - Adapter arms
B - Header legs
C - Header linkage supports

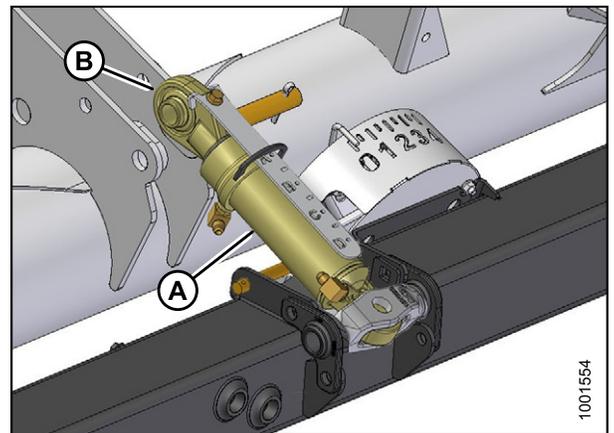


Figure 5.134

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.

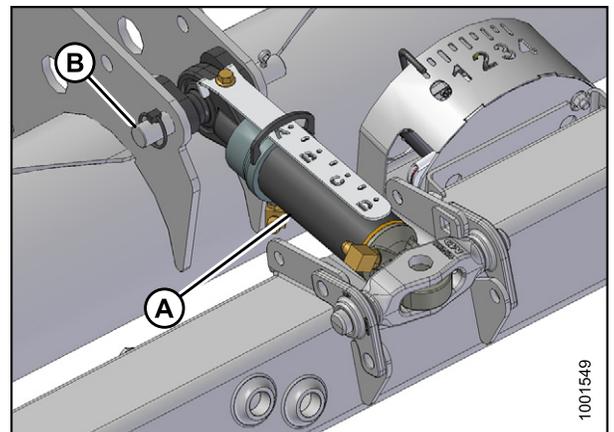


Figure 5.135

HEADER ATTACHMENT/DETACHMENT

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

CAUTION

Always connect center-link before fully raising header.

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.

DANGER

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

15. 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.

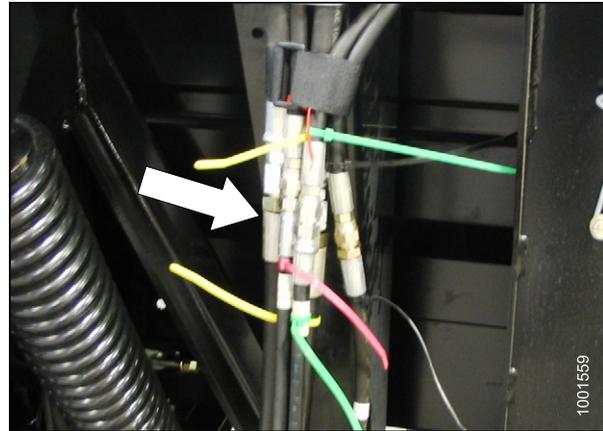


Figure 5.136: Connect reel hydraulics

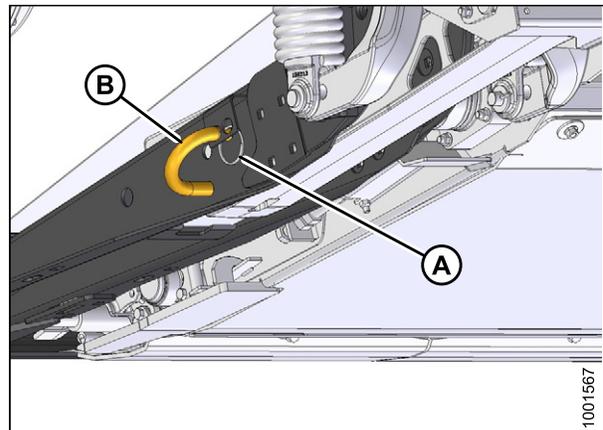


Figure 5.137: Remove ring and pins

HEADER ATTACHMENT/DETACHMENT

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



WARNING

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

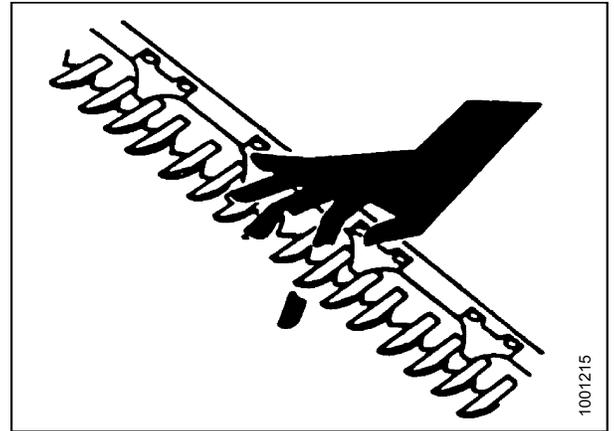


Figure 5.138

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).

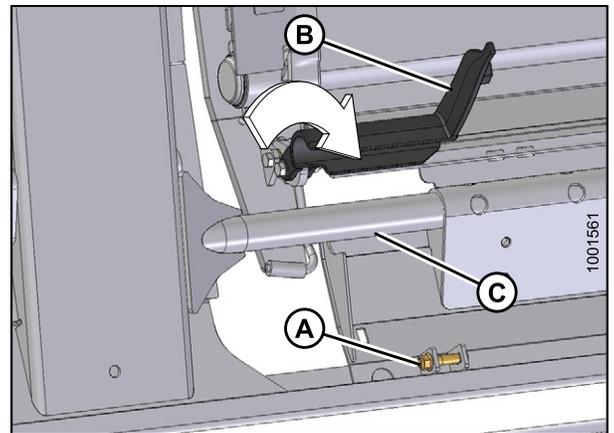


Figure 5.139

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.

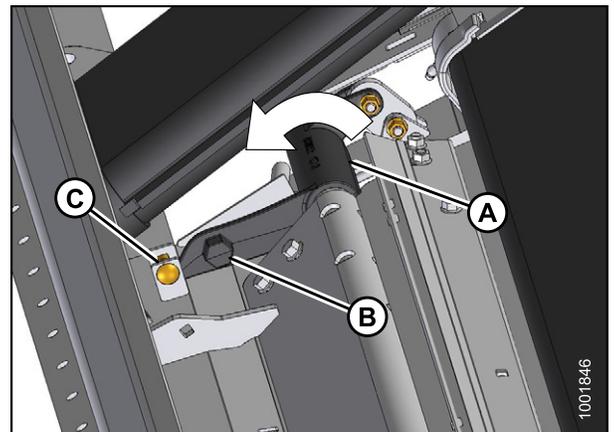


Figure 5.140

HEADER ATTACHMENT/DETACHMENT

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

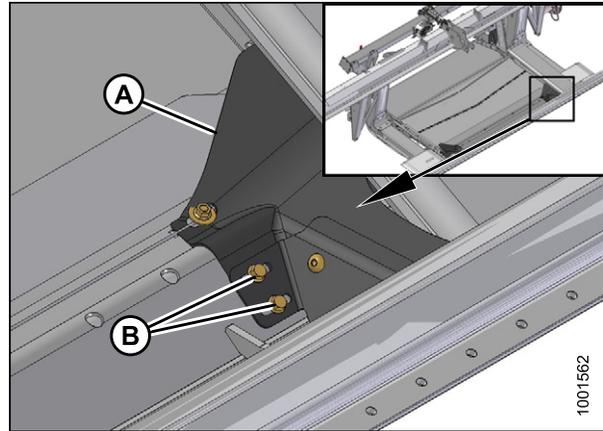


Figure 5.141

25. Connect knife and draper drive hydraulics (A), matching colored plastic cable ties.

26. Attach electrical connector (B):

- Remove cover on receptacle. Ensure it is clean and damage free.
- Align lugs on connector with slots in receptacle, push connector onto receptacle, and turn collar on connector to lock it in place.
- Attach cover to mating cover on combine wiring harness.

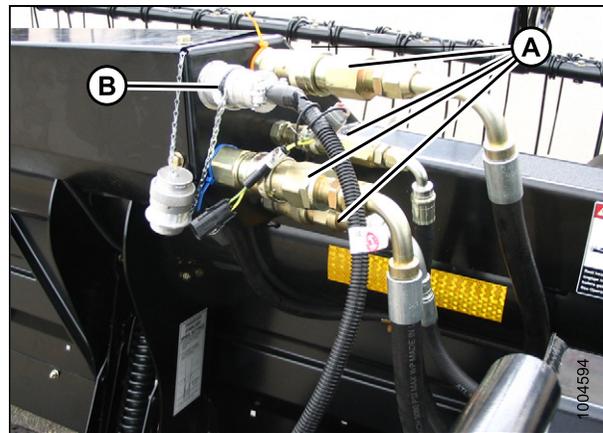


Figure 5.142

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 64](#)
- [Section 4.8 Levelling the Header, page 90](#)



Figure 5.143

6 Automatic Header Height Control

6.1 Sensor Adjustment

6.1.1 Automatic Header Height Control

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

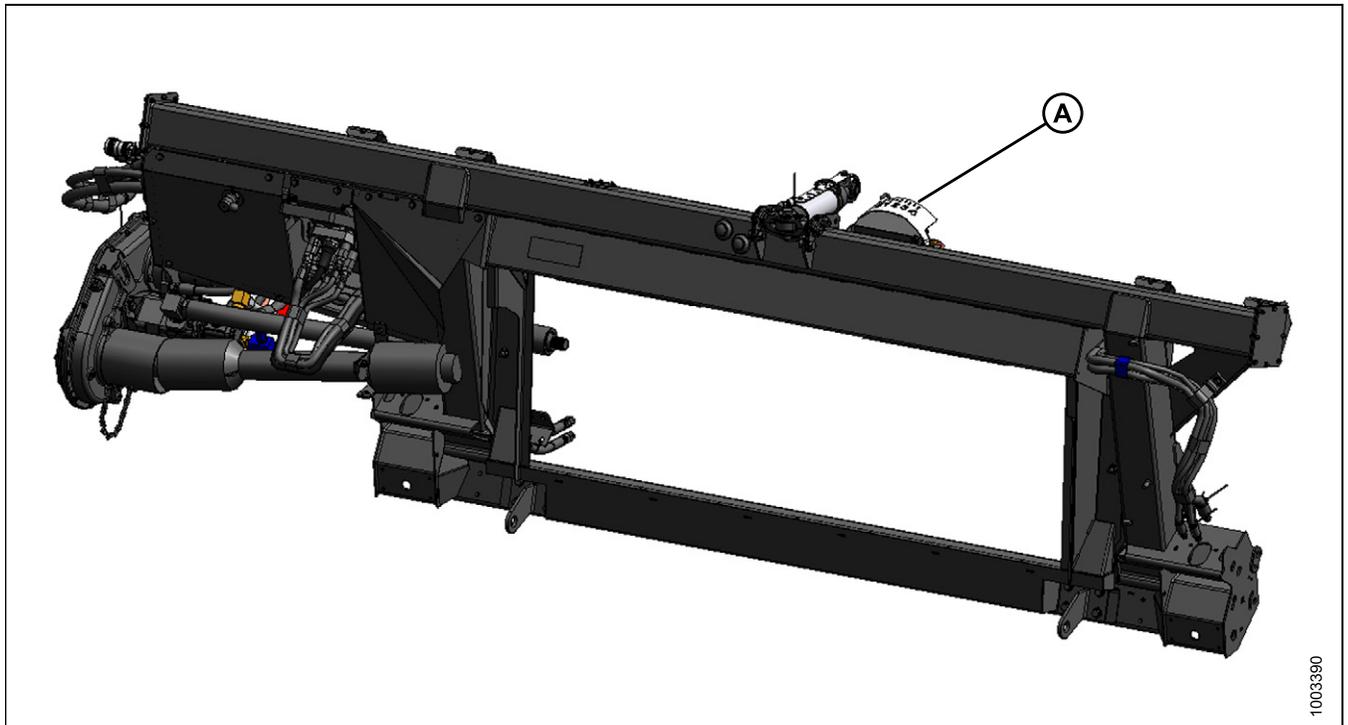


Figure 6.1

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

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

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

AUTOMATIC HEADER HEIGHT CONTROL

6.1.2 Setting the AHHC Sensor's Output Voltage Range

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

| Combine | Low voltage limit | High voltage limit | Range (difference between high and low limits) |
|--|-------------------|--------------------|--|
| Gleaner A, Massey Ferguson, Challenger | 0.5 V | 4.5 V | 3.0 V |
| Case IH 7/8010, 5/6/7088, 7/8/9120, 5/6/7130, 7/8/9230 | 0.5 V | 4.5 V | 2.0 V |
| Case IH 2300/2500 | 2.8 V | 7.2 V | 4.0 V |
| Gleaner R and S Series | 1.0 V | 4.0 V | 2.0 V |
| John Deere 50/60/70/S Series | 0.5 V | 4.5 V | 3.0 V |
| Lexion 500/600/700 Series | 0.5 V | 4.5 V | 2.5 V |
| New Holland CR/CX - 5 V system | 0.7 V | 4.3 V | 2.5 V |
| New Holland CR/CX - 10 V system | 2.8 V | 7.2 V | 4.1–4.4 V |

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 170](#).

Manually Checking Voltage Range

Procedure to manually check the sensor's output voltage range.

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

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

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

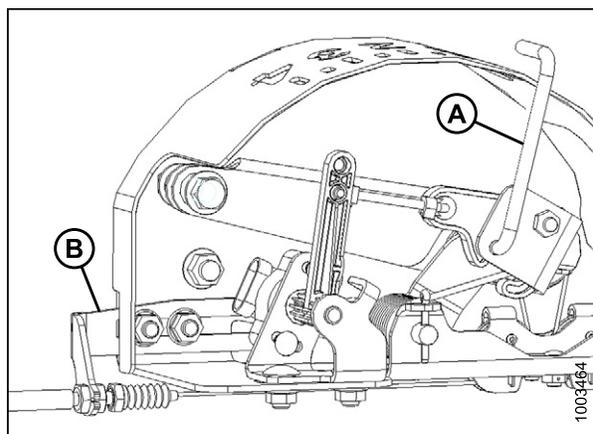


Figure 6.2

AUTOMATIC HEADER HEIGHT CONTROL

- Using a voltmeter (A), measure the voltage between the ground and signal wires at the Auto Header Height sensor in the float indicator box. It should be at the high voltage limit for the combine, See Section [6.1.2 Setting the AHHC Sensor's Output Voltage Range](#), page 170.

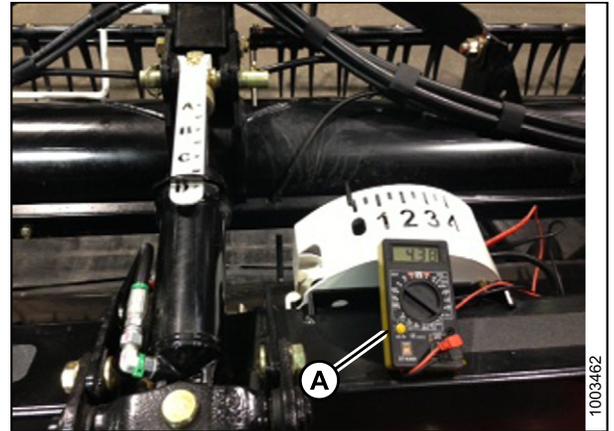


Figure 6.3

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

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

- Using a voltmeter (A), measure the voltage between the ground and signal wires at the Auto Header Height sensor in the float indicator box. It should be at the low voltage limit for the combine, See Section [6.1.2 Setting the AHHC Sensor's Output Voltage Range](#), page 170.
- If the sensor voltage is not within the low and high limits, Refer to Section [6.1.2 Setting the AHHC Sensor's Output Voltage Range](#), page 170, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits](#), page 187 for instructions.

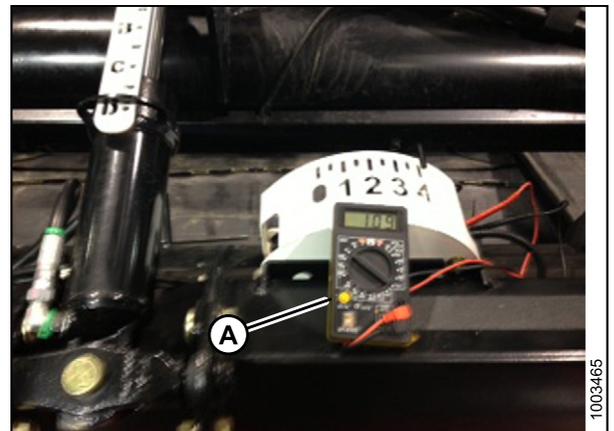


Figure 6.4

AUTOMATIC HEADER HEIGHT CONTROL

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

Procedure to check the sensor's output voltage range from the combine cab.

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

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

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

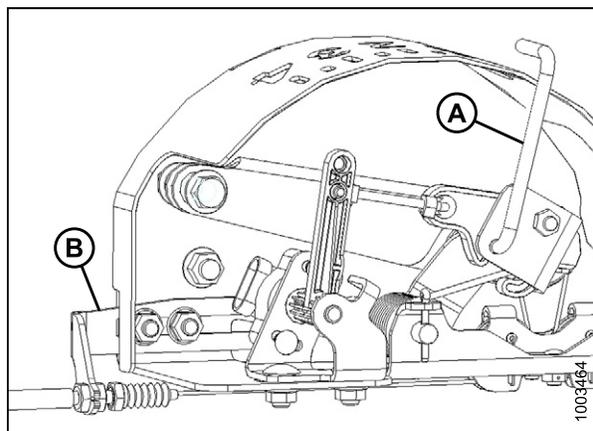


Figure 6.5

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

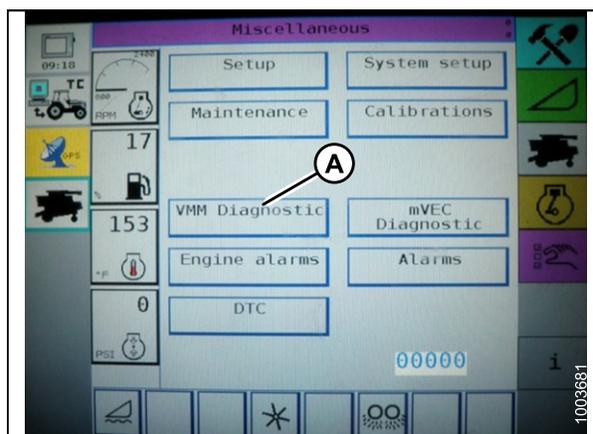


Figure 6.6

5. Go to the Analog IN tab, and then select VMM Module 4 by pressing the text box below the four tabs. The voltage from the Auto Header Height sensor is now displayed in the header height right pot and header height left pot. Both readings should be identical.

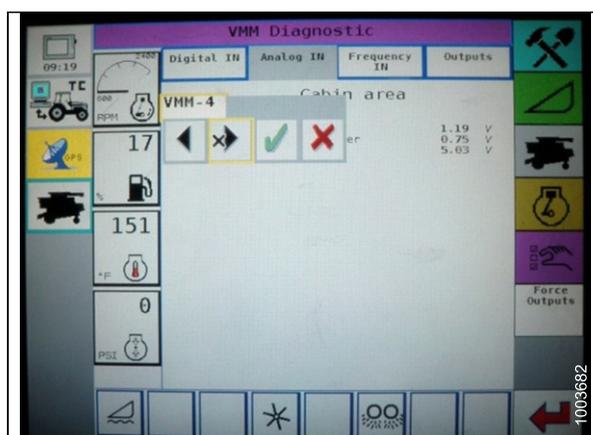


Figure 6.7

AUTOMATIC HEADER HEIGHT CONTROL

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

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

7. Read voltage.
8. Raise header so cutterbar is 6 in. (150 mm) off the ground.
9. Read voltage.
10. If the sensor voltage is not within the low and high limits, Refer to [Section 6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#) for instructions.

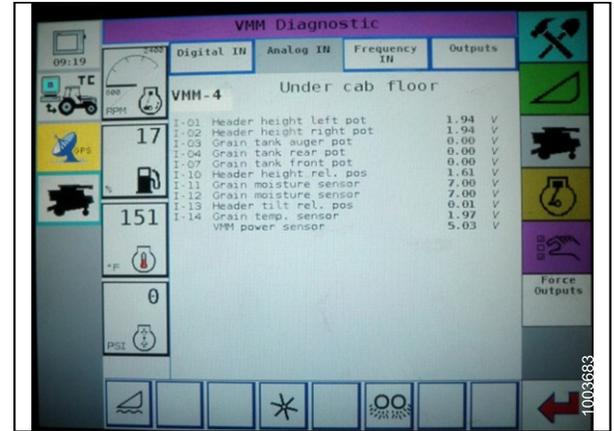


Figure 6.8

Checking Voltage Range from the Combine Cab (Case 8010)

Procedure to check the sensor's output voltage range from the combine cab for Universal Display.

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

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

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

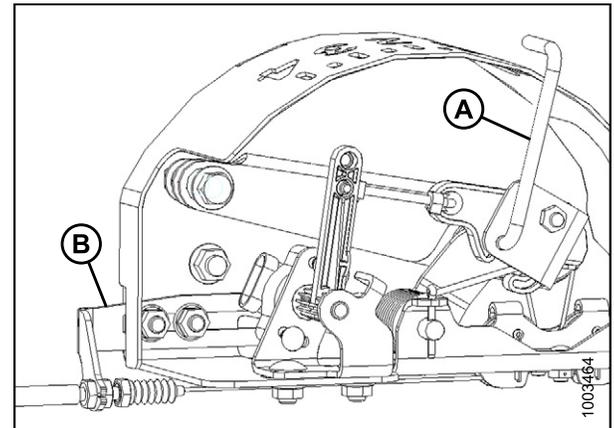


Figure 6.9

AUTOMATIC HEADER HEIGHT CONTROL

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

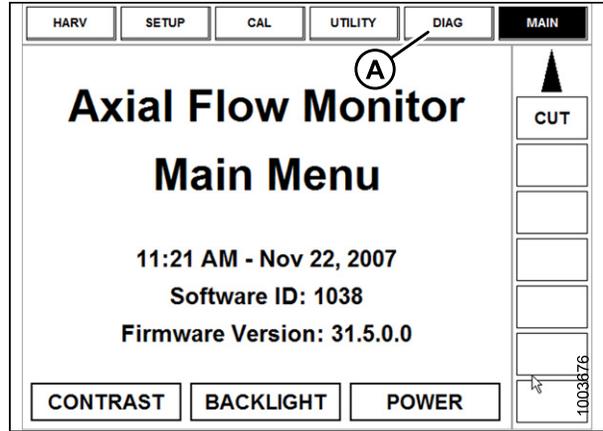


Figure 6.10

5. Select Sub System (A). The Sub System window opens.

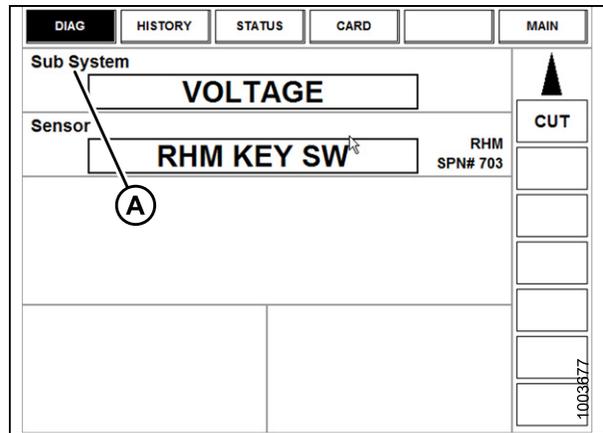


Figure 6.11

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

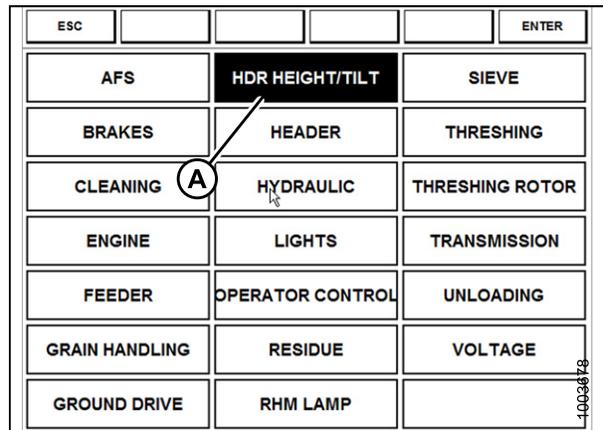


Figure 6.12

AUTOMATIC HEADER HEIGHT CONTROL

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

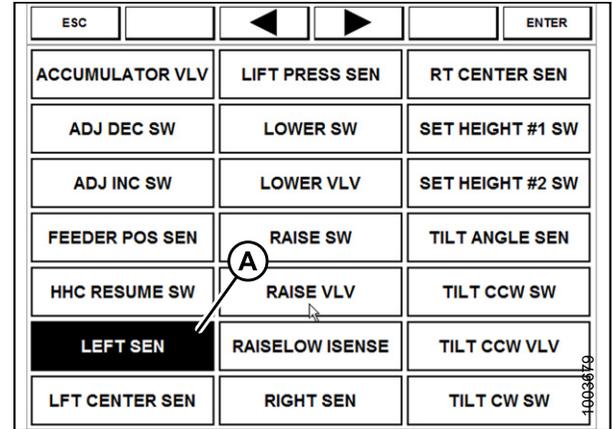


Figure 6.13

8. If the sensor voltage is not within the low and high limits, Refer to [Section 6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#) for instructions.

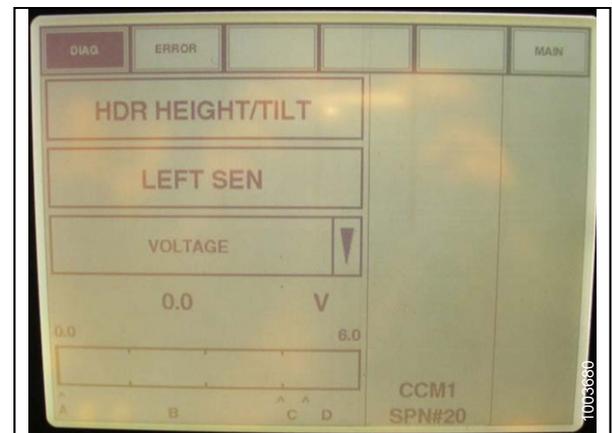


Figure 6.14

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

Procedure to check the sensor's output voltage range from the combine cab for Pro 600 Display.

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

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

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

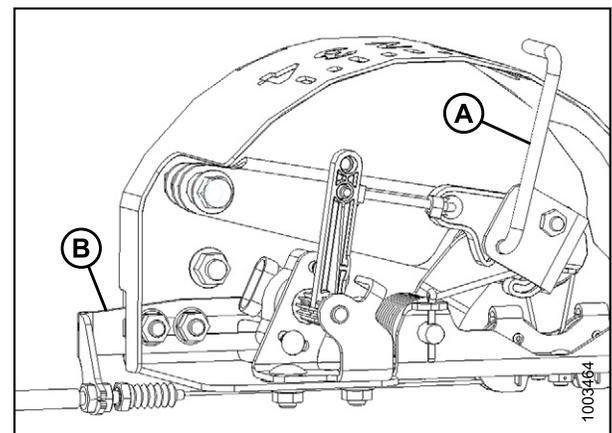


Figure 6.15

AUTOMATIC HEADER HEIGHT CONTROL

3. Ensure header float is unlocked.
4. On the Main screen, select Diagnostics (A). The Diagnostics screen displays.
5. Select Settings. The Settings screen displays.

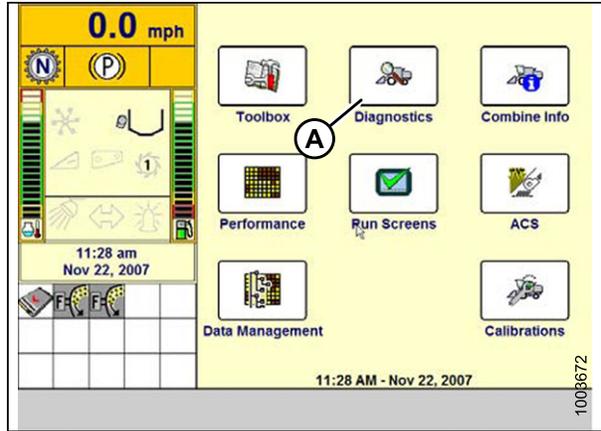


Figure 6.16

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

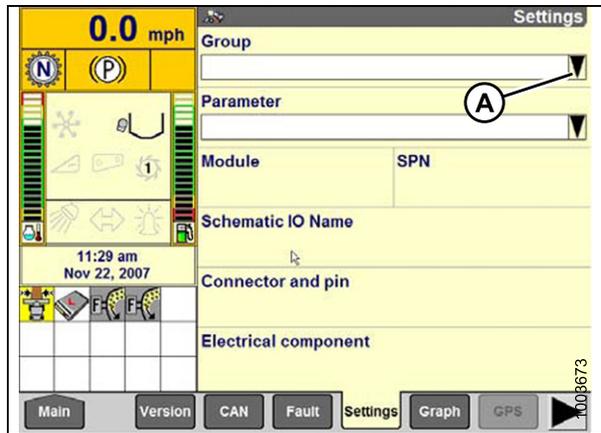


Figure 6.17

7. Select Header Height/Tilt (A). The Parameter window opens.

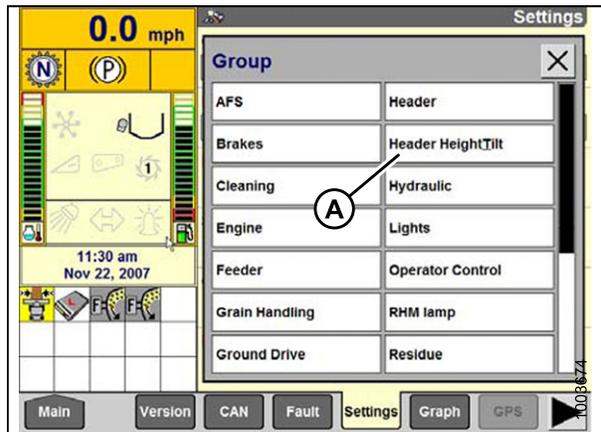


Figure 6.18

AUTOMATIC HEADER HEIGHT CONTROL

8. Select Left header height sen (A), and then select the Graph button at the bottom of the screen. The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
9. If the sensor voltage is not within the low and high limits, Refer to [Section 6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#) for instructions.

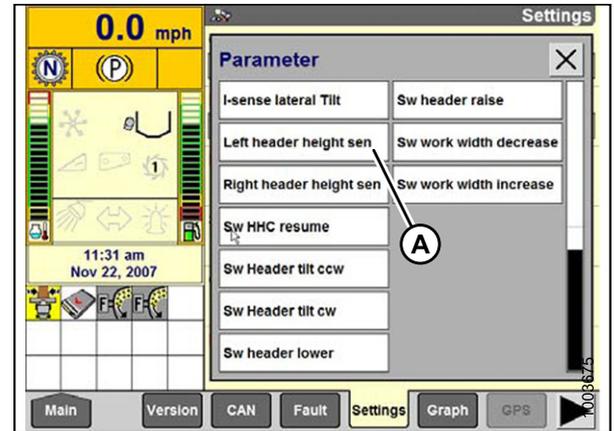


Figure 6.19

10. Push the Graph tab beside the Settings tab to view the voltage.



Figure 6.20

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

Procedure to check the sensor's output voltage range from the combine cab.

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

NOTE: If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.
2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

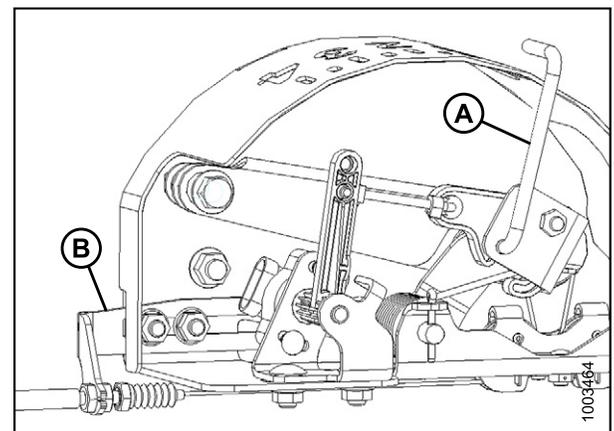


Figure 6.21

AUTOMATIC HEADER HEIGHT CONTROL

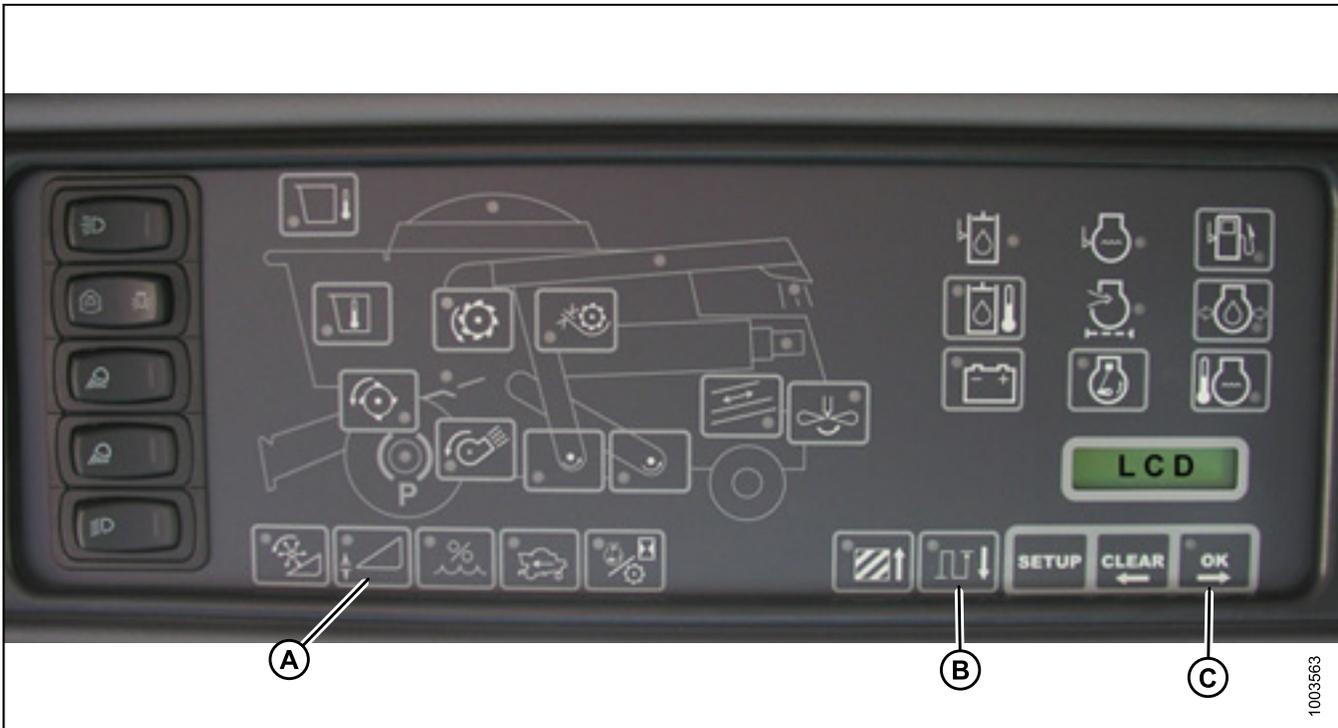


Figure 6.22

3. Ensure header float is unlocked.
4. Press and hold button (A) on the heads up display for three seconds to enter diagnostic mode.
5. Scroll down using button (B) until "LEFT" is displayed on the LCD screen
6. Press the OK button (C). The number indicated on the LCD screen is the voltage reading from the sensor of the Auto Header Height. Raise and lower the header to see the full range of voltage readings.
7. If the sensor voltage is not within the low and high limits, Refer to [Section 6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#) for instructions.

AUTOMATIC HEADER HEIGHT CONTROL

Checking Voltage Range from the Combine Cab (John Deere 50/60 Series)

Procedure to check the sensor's output voltage range from the combine cab.

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

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

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

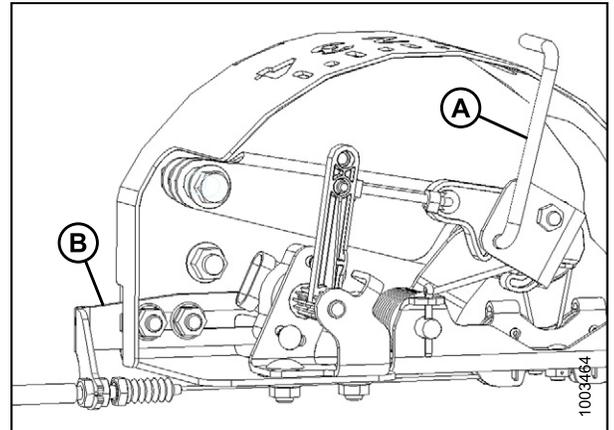


Figure 6.23

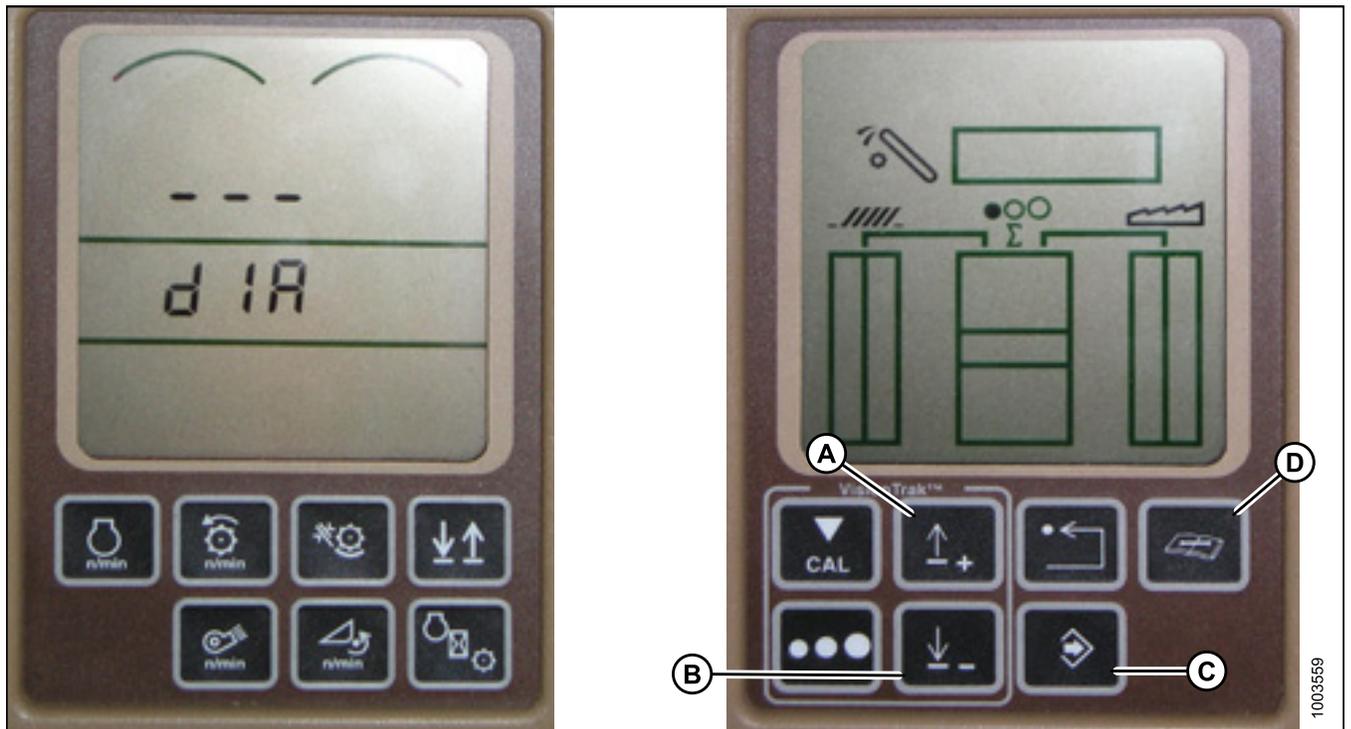


Figure 6.24

3. Press the diagnostic button on the (HHS) monitor – the button with the open book with the wrench on top of it (D) dIA appears on the monitor.
4. Press the up button (A) until EO1 appears on the monitor (these are all your header adjustments).
5. Press the enter button (C).
6. Press the up (A) or down button (B) until 24 is displayed on the top portion of the monitor. This is the voltage reading of the sensor.
7. Ensure header float is unlocked.

AUTOMATIC HEADER HEIGHT CONTROL

8. Start the combine, lower feeder house to the ground until the feeder house stops moving.

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

9. Check the sensor reading on the monitor.

10. Raise the header so it is just off the ground, check the sensor reading again.

11. If the sensor voltage is not within the low and high limits, Refer to Section [6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#) for instructions.

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

Procedure to check the sensor's output voltage range from the combine cab.

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

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

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

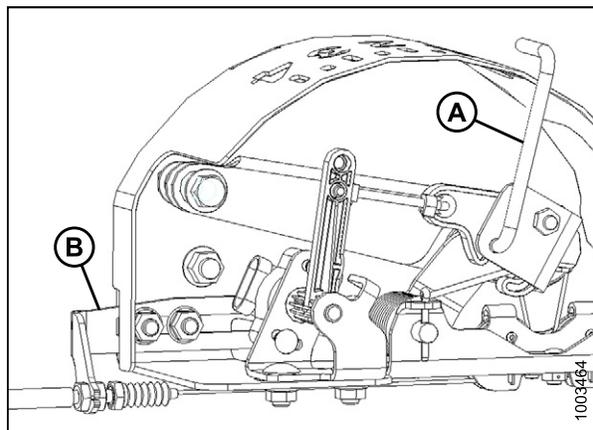


Figure 6.25

3. From the main page of the Command Center, press the Home Page button (A).

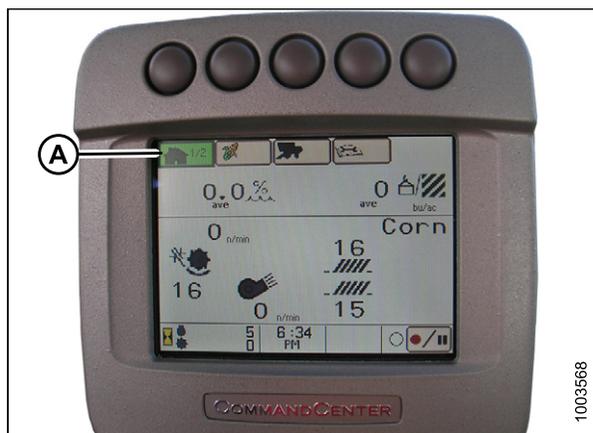


Figure 6.26

AUTOMATIC HEADER HEIGHT CONTROL

- There will be three icons (A) to appear on the screen.



Figure 6.27

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

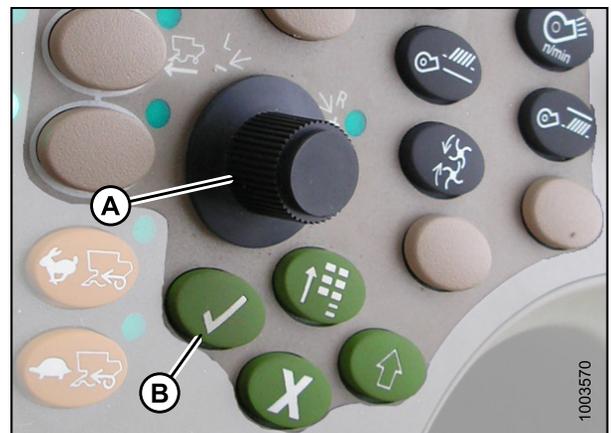


Figure 6.28

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



Figure 6.29

AUTOMATIC HEADER HEIGHT CONTROL

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



Figure 6.30

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

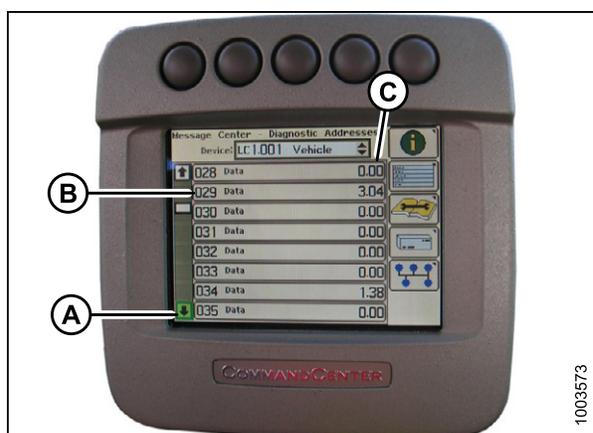


Figure 6.31

10. Ensure header float is unlocked.
11. Start the combine, lower feeder house to the ground until the feeder house stops moving.
NOTE: You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.
12. Check the sensor reading on the monitor.
13. Raise the header so it is just off the ground, and then check the sensor reading on the monitor again.
14. If the sensor voltage is not within the low and high limits, Refer to Section [6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#).

AUTOMATIC HEADER HEIGHT CONTROL

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

Procedure to check the sensor's output voltage range from the combine cab.

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

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

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

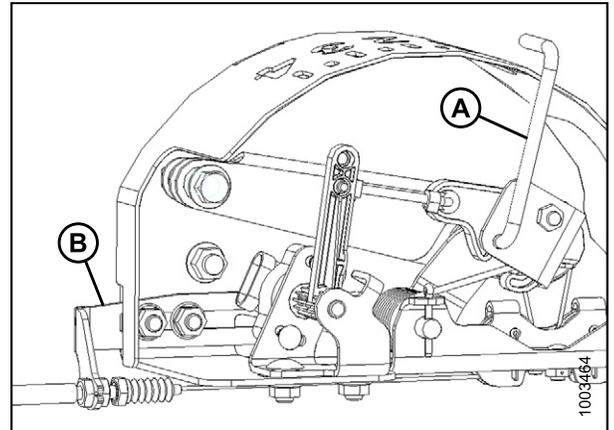


Figure 6.32

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

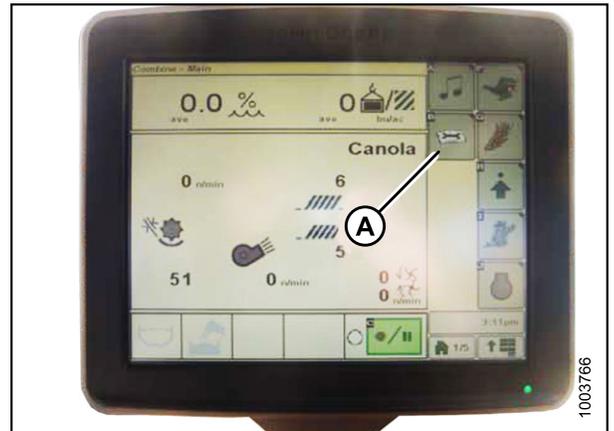


Figure 6.33

4. On the Calibration page, press the icon with wrench on the open book (A). Diagnostic Readings page appear. This page is where you will be able to complete calibrations, modify header option and read diagnostic information.

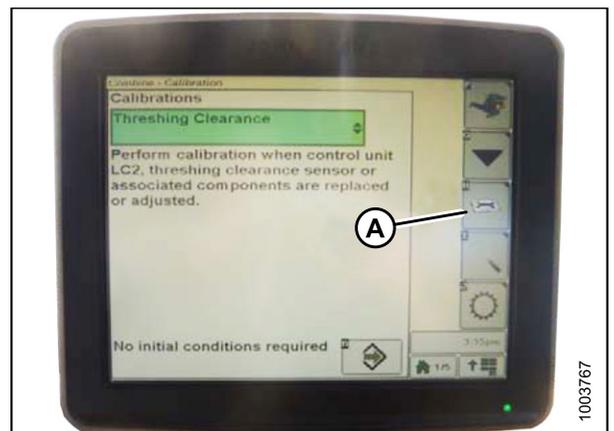


Figure 6.34

AUTOMATIC HEADER HEIGHT CONTROL

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



Figure 6.35

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



Figure 6.36

- Scroll to Page 5 by pressing icon (A) until it reads Page 5 near the top of the page. On Page 5 you will see sensor readings:
 - Left Header Height
 - Center Header Height
 - Right Header Height

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



Figure 6.37

AUTOMATIC HEADER HEIGHT CONTROL

8. Ensure header float is unlocked.
9. Start the combine, lower feeder house to the ground until the feeder house stops moving.
NOTE: You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.
10. Check the sensor reading.
11. If the sensor voltage is not within the low and high limits, Refer to Section [6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#).

Checking Voltage Range from the Combine Cab (New Holland)

Procedure to check the sensor's output voltage range from the combine cab

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

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

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

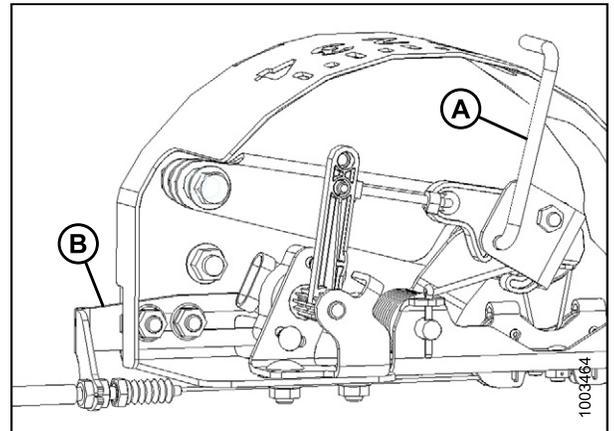


Figure 6.38

3. Ensure header float is unlocked.
4. On the Main screen, select Diagnostics (A). The Diagnostics screen displays.
5. Select Settings. The Settings screen displays.

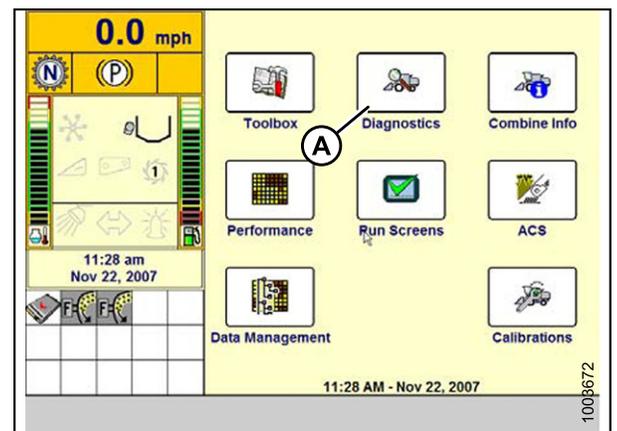


Figure 6.39

AUTOMATIC HEADER HEIGHT CONTROL

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

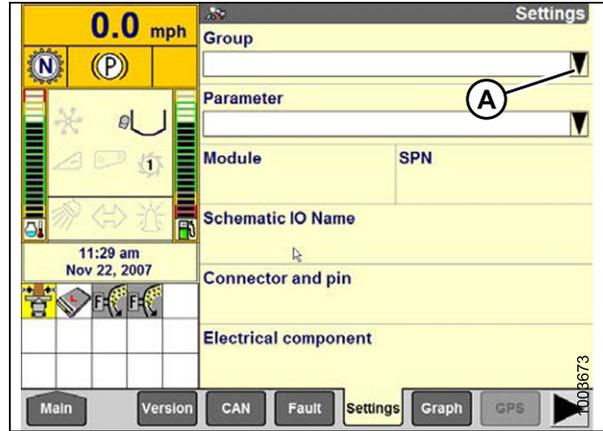


Figure 6.40

7. Select Header Height/Tilt (A). The Parameter window opens.

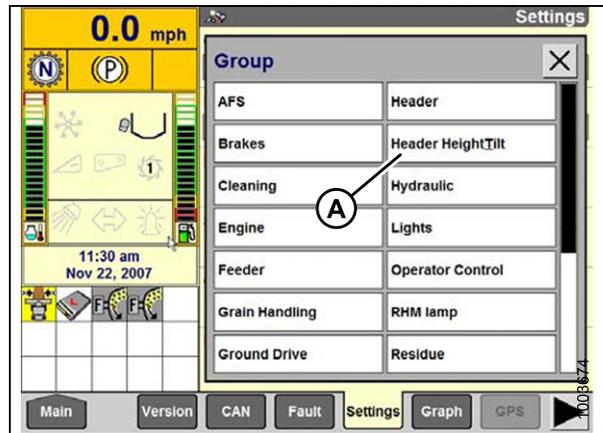


Figure 6.41

8. Select Left header height sen (A), and then select the Graph button at the bottom of the screen. The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
9. If the sensor voltage is not within the low and high limits, Refer to [Section 6.1.2 Setting the AHHC Sensor's Output Voltage Range, page 170](#), or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to [Adjusting Voltage Limits, page 187](#) for instructions.

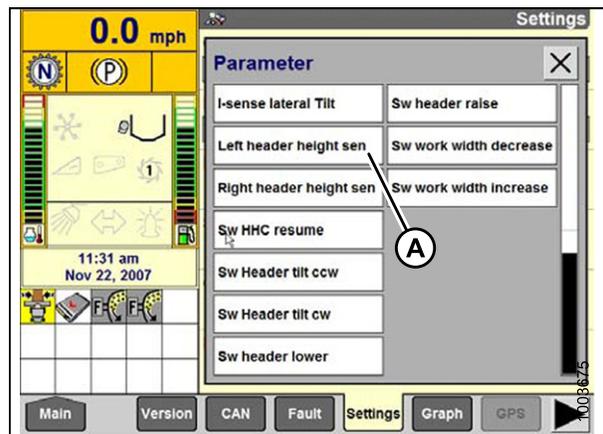


Figure 6.42

AUTOMATIC HEADER HEIGHT CONTROL

10. Push the Graph tab beside the Settings tab to view the voltage.



Figure 6.43

Adjusting Voltage Limits

Procedure for adjusting voltage limits.

NOTE: The sensor assembly used with Lexion combines is slightly different from the sensor assembly used with other combine models. Both assemblies are illustrated here.

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

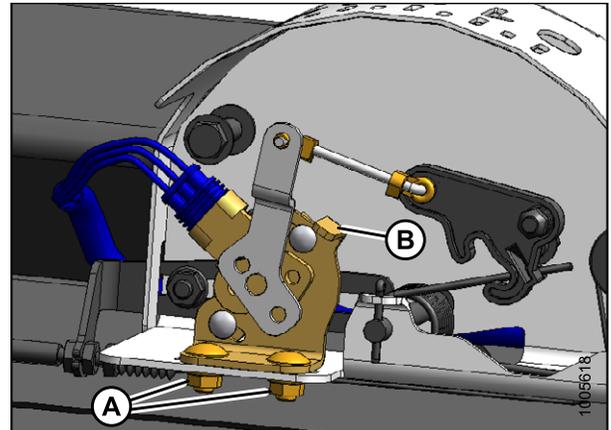


Figure 6.44: Auto Header Height Sensor Assembly for use with Lexion combines

AUTOMATIC HEADER HEIGHT CONTROL

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

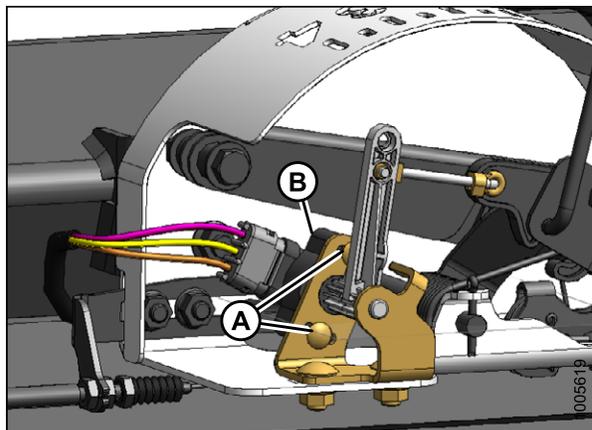


Figure 6.45: Auto Header Height Sensor Assembly for use with non-Lexion combines

6.1.3 Preparing Combine to Use Auto Header Height Control

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

Engaging the Auto Header Height System (AGCO 6 Series)

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

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

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

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

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



Figure 6.46

AUTOMATIC HEADER HEIGHT CONTROL

Engaging the Auto Header Height System (Case IH 2300)

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

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

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

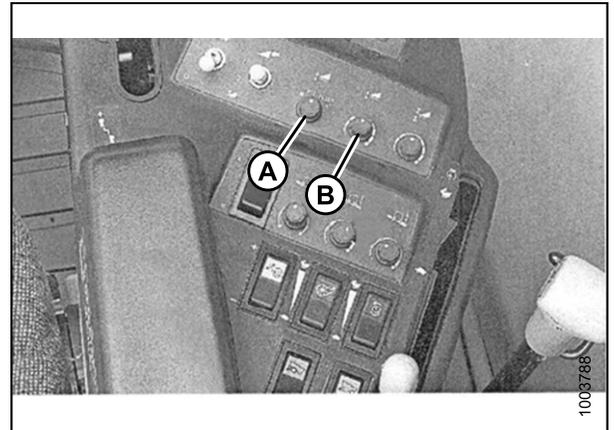


Figure 6.47

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



Figure 6.48

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

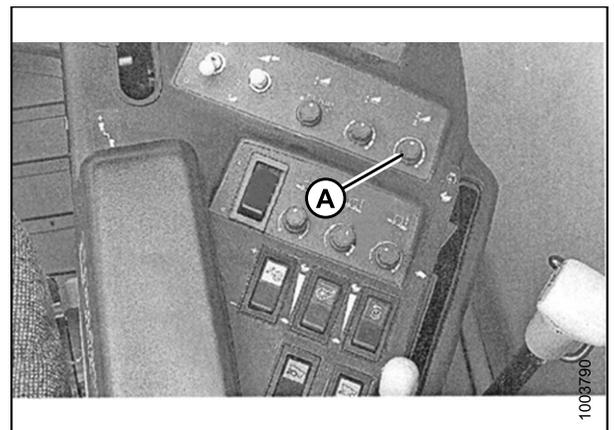


Figure 6.49

AUTOMATIC HEADER HEIGHT CONTROL

System Requirements (Gleaner R62/R75)

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

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

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

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

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

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

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

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



Figure 6.50

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

AUTOMATIC HEADER HEIGHT CONTROL

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

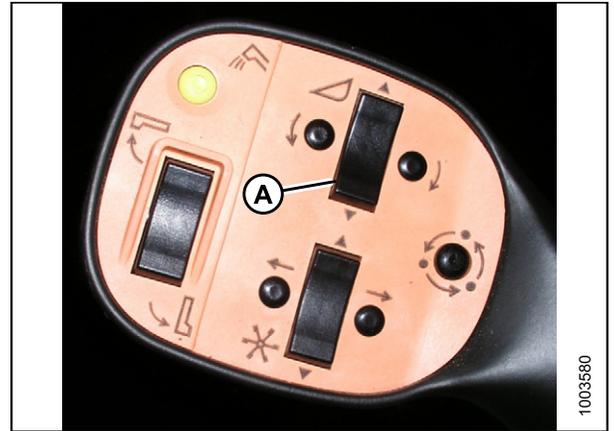


Figure 6.51

Calibrating Feeder House Speed (John Deere 70 Series)

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

Configuring Combine (New Holland CR/CX Series)

To configure the combine, follow these steps:

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

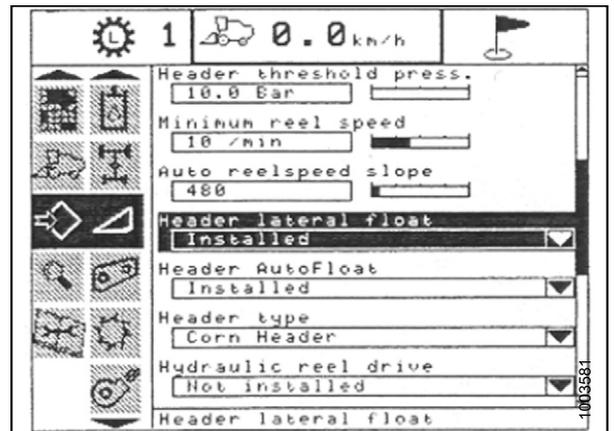


Figure 6.52

AUTOMATIC HEADER HEIGHT CONTROL

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

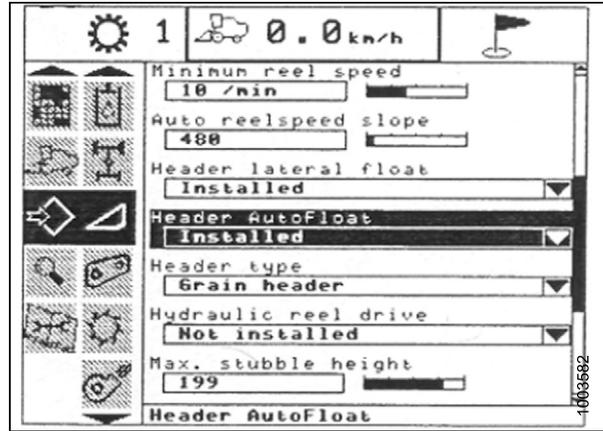


Figure 6.53

6.1.4 Calibrating the Auto Header Height System

The calibration procedure determines the limits of the Auto Header Height sensor. Calibrate the Auto Header Height system after initial header installation and after replacement or adjustment of any component of the Auto Header Height system. If the system does not function, calibrate it again.

Calibrating the Auto Header Height System (AGCO 6 Series)

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

1. On the Field page, press the diagnostics icon. The Miscellaneous page appears.

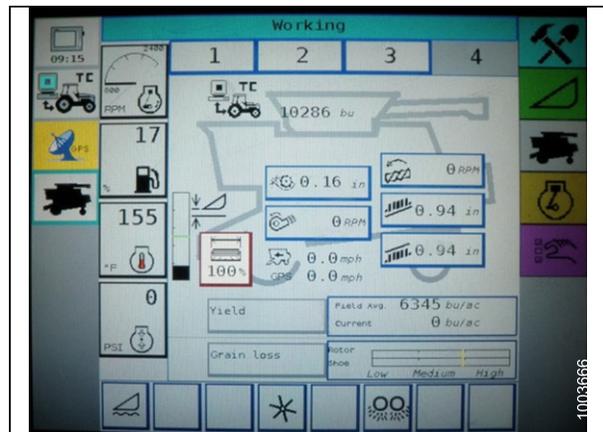


Figure 6.54

AUTOMATIC HEADER HEIGHT CONTROL

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

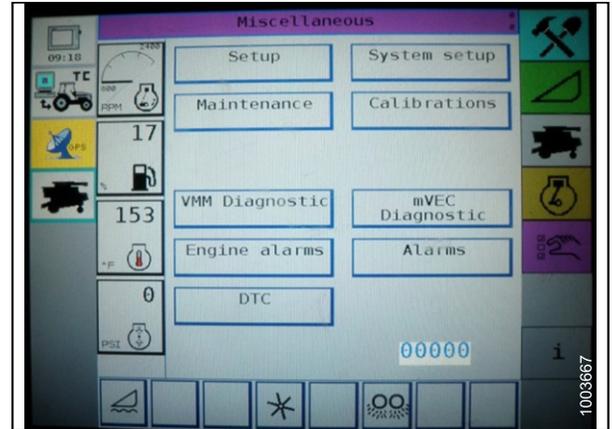


Figure 6.55

3. Press the Header button. The Header Calibration page displays a warning.

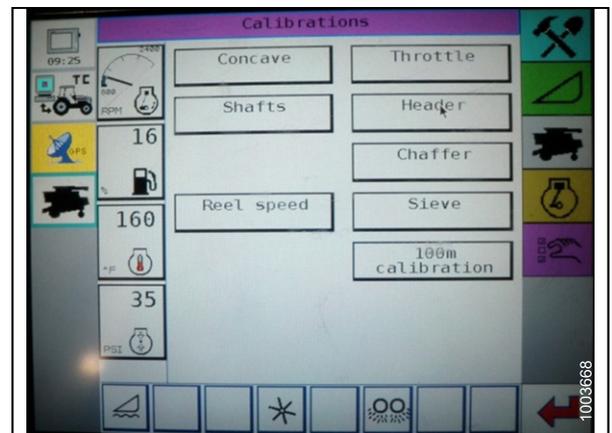


Figure 6.56

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

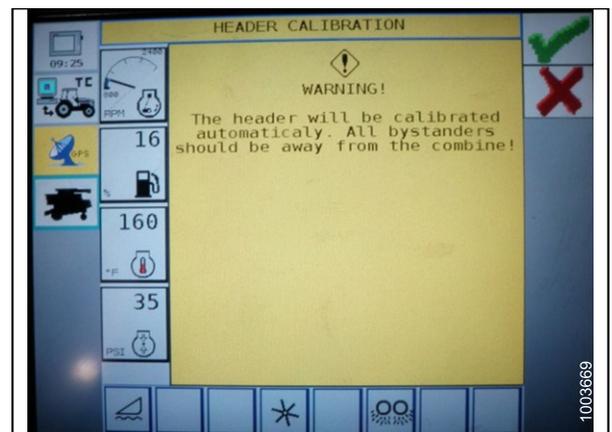


Figure 6.57

AUTOMATIC HEADER HEIGHT CONTROL

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

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

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

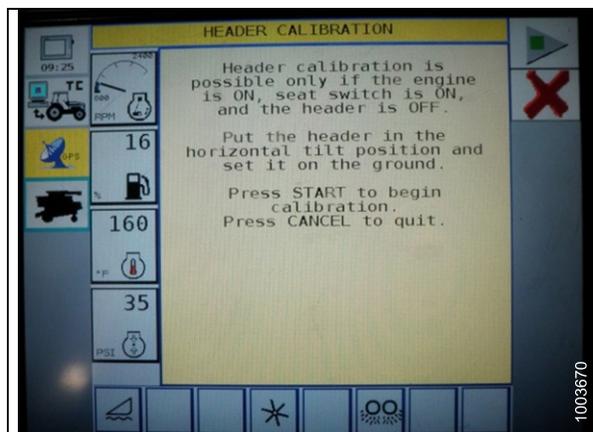


Figure 6.58

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

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle. Refer to [4.7.3 Header Angle, page 68](#)

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

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

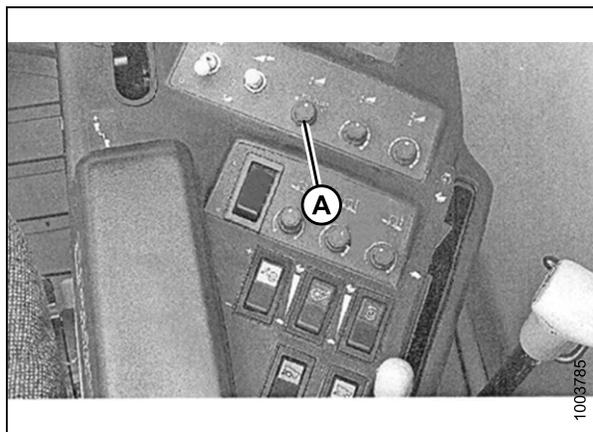


Figure 6.59

AUTOMATIC HEADER HEIGHT CONTROL

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

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

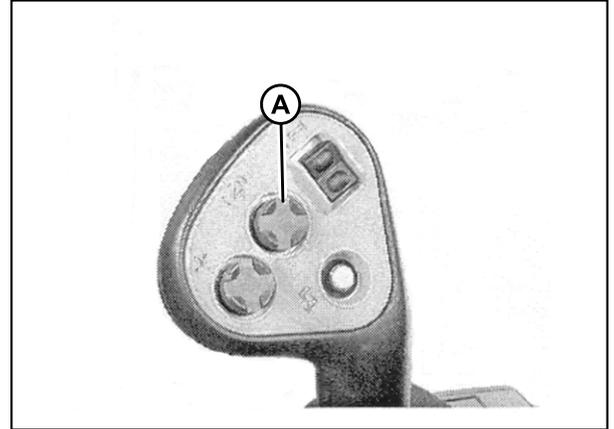


Figure 6.60

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

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

1. Ensure all header and adapter electrical, and hydraulic connections are made.
2. At Main screen, select Toolbox, then select Header.
3. Set appropriate Header Style.

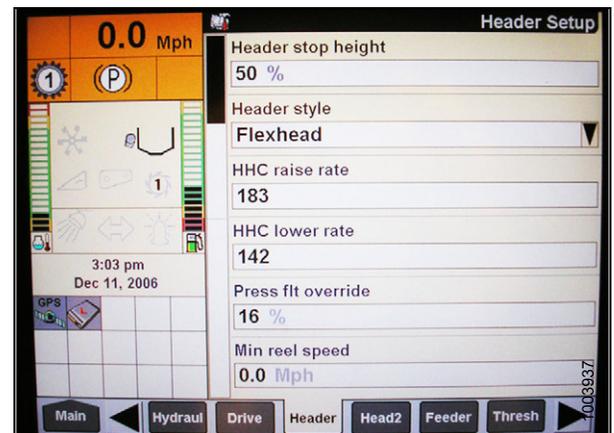


Figure 6.61

AUTOMATIC HEADER HEIGHT CONTROL

4. Set Auto reel speed slope.
5. Set Header pressure float to yes if equipped, and ensure Reel drive is hydraulic.

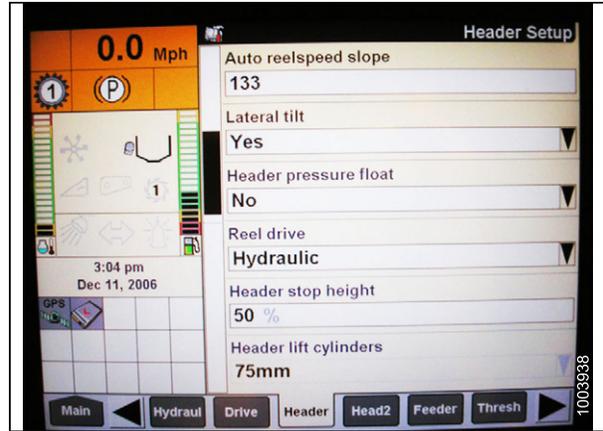


Figure 6.62

6. If applicable, install Reel fore-back.
7. Set Height sensitivity to desired value. Recommend 180 as a starting point.

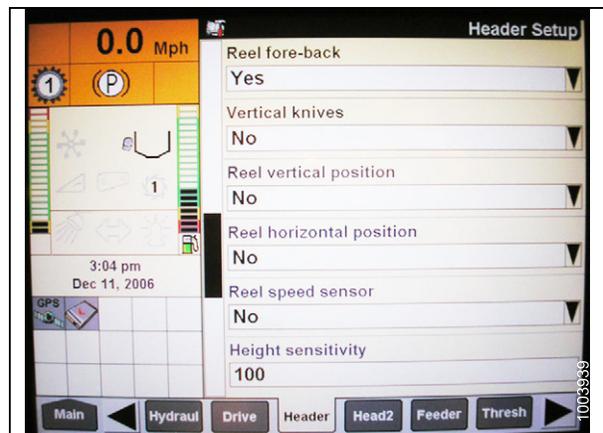


Figure 6.63

8. Install Foreaft control, and Hdr foreaft tilt if applicable.

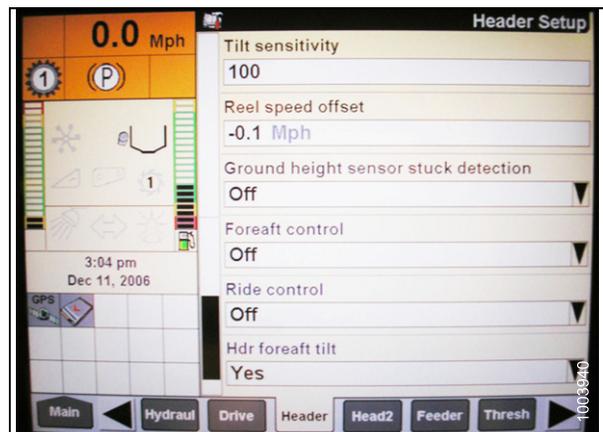


Figure 6.64

AUTOMATIC HEADER HEIGHT CONTROL

9. Once complete press Head2 at bottom of screen.
10. Ensure Header Type is Draper.
 - NOTE:** If recognition resistor is plugged in to header harness, you will not be able to change this.
11. Cutting type should be set to Platform.
12. Set appropriate Header width and Header usage.

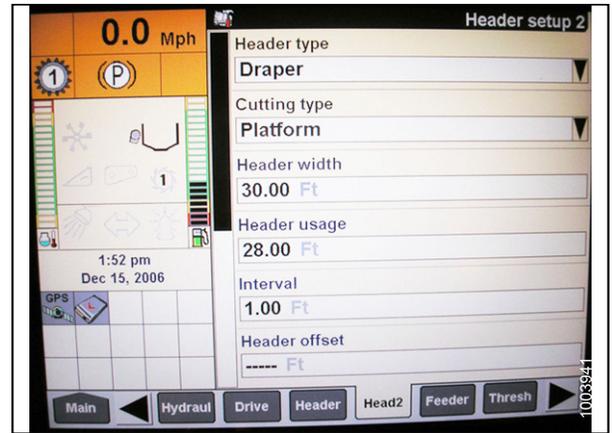


Figure 6.65

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

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

To calibrate the header, follow these steps:

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

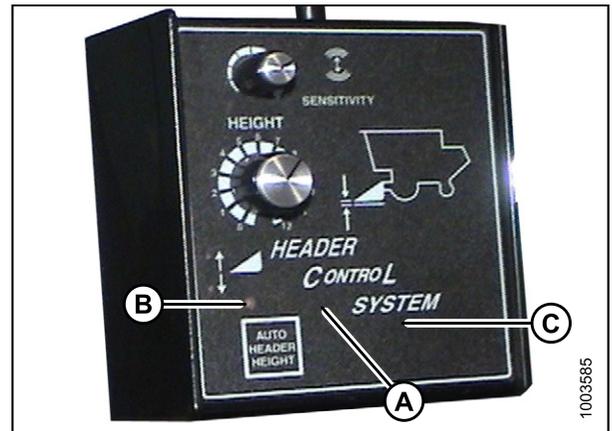


Figure 6.66

AUTOMATIC HEADER HEIGHT CONTROL

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

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



1003586

Figure 6.67

A - AUTO MODE button
D - Raise header

B - AHHC light
E - Lower header

C - CAL1 button
F - Auto Mode

AUTOMATIC HEADER HEIGHT CONTROL

NOTE: For best performance of the Auto Header Height system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration is complete, adjust the center-link back to desired header angle. Refer to [4.7.3 Header Angle, page 68](#).

To calibrate the header, follow these steps:

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

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

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

Calibrating the Auto Header Height System (John Deere 50/60 Series)

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle. Refer to [4.7.3 Header Angle, page 68](#).

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

AUTOMATIC HEADER HEIGHT CONTROL

3. Press the diagnostic button on the monitor (this is the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
4. Press the CAL button (B) DIA - CAL appears on the monitor.

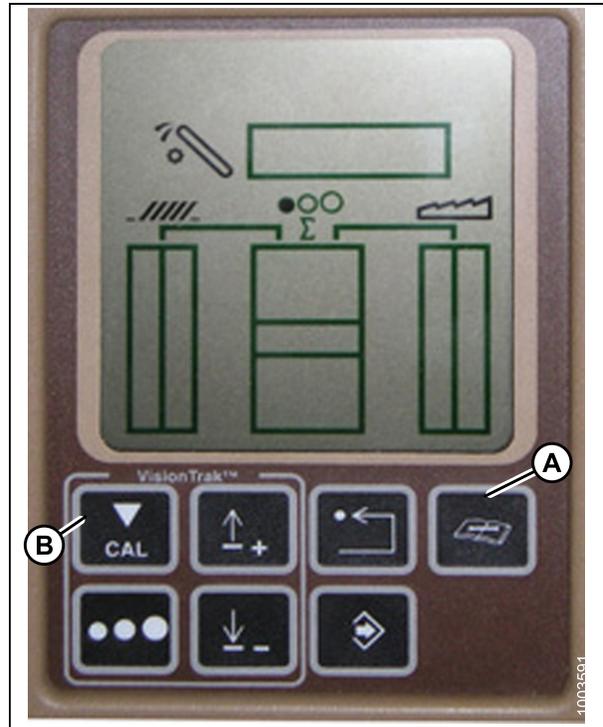


Figure 6.68

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.

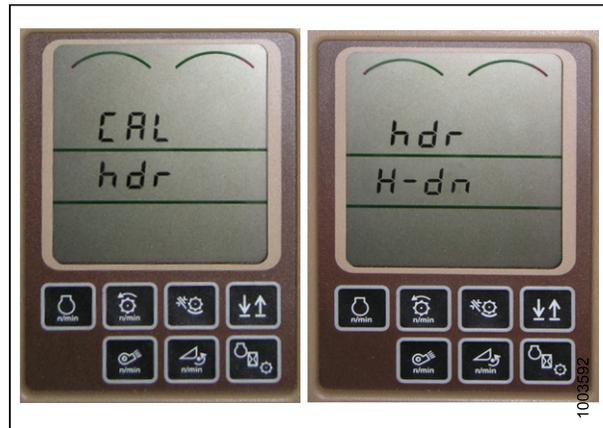


Figure 6.69

7. Lower the feeder house all the way (after the header hits the ground you will have to continue to hold the header lower button for 5–8 seconds in order to accomplish this).

AUTOMATIC HEADER HEIGHT CONTROL

- Once the feeder house is all the way down, press the CAL button (A). This will save the lower calibration in the computer. hdr H-UP appears on the monitor.
- Raise the header 3 feet off the ground, and again press the CAL (A) button. EOC appears on the monitor. Press the enter button (B) to save the calibration of the header. Your Auto Header Height is now calibrated.

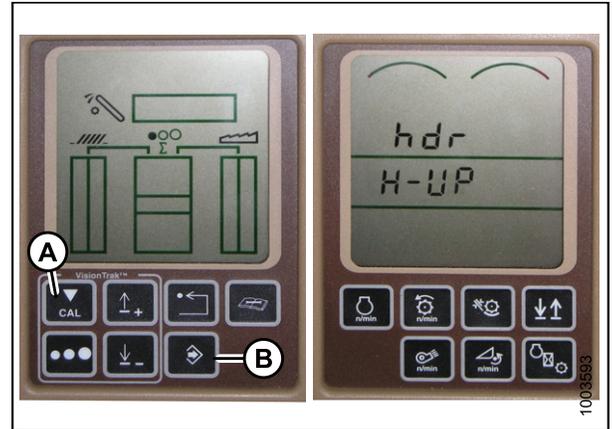


Figure 6.70

NOTE: If an error code comes up on the screen the sensor is not in the correct working range. Refer to [Checking Voltage Range from the Combine Cab \(John Deere 50/60 Series\)](#), page 179 to check and adjust the range.

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

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

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle. Refer to [4.7.3 Header Angle](#), page 68.

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

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

- Rest header on down stops, and unlock adaptor float.
- Start the combine.
- Press the fourth button on the top of the monitor (A) to select the icon showing an open book with a wrench on it (B).
- Press the top button (A) a second time to enter diagnostics and calibration mode.

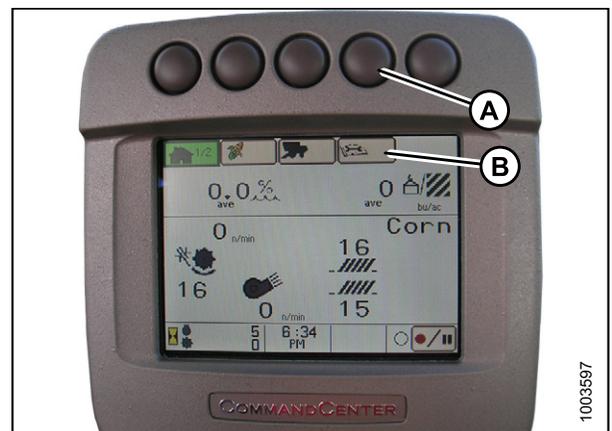


Figure 6.71

AUTOMATIC HEADER HEIGHT CONTROL

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



Figure 6.72

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

NOTE: If an error code comes up on the monitor, the sensor is not in the correct working range. Refer to [Checking Voltage Range from the Combine Cab \(John Deere 70 Series\)](#), page 180 to check and adjust the range.

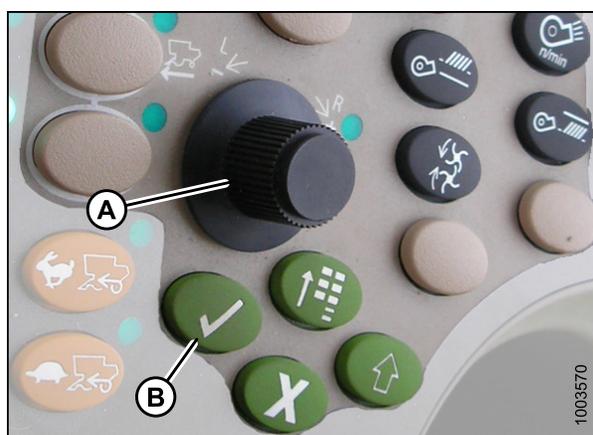


Figure 6.73

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

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle. Refer to [4.7.3 Header Angle](#), page 68.

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

1. Rest header on down stops, and unlock adaptor float.

AUTOMATIC HEADER HEIGHT CONTROL

- From the main page of the Command Center, press the diagnostic button (A). This is the button with the wrench on an open book. A calibration page appears (middle picture) this is the diagnostic page where you will be able to complete calibrations.

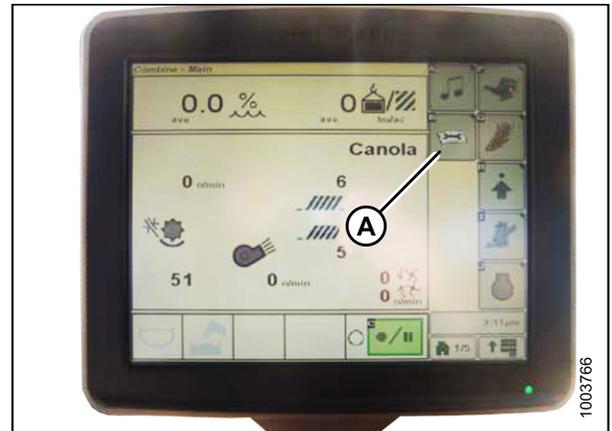


Figure 6.74

- Press the green box near the top of the page (A). The Calibration page appears.

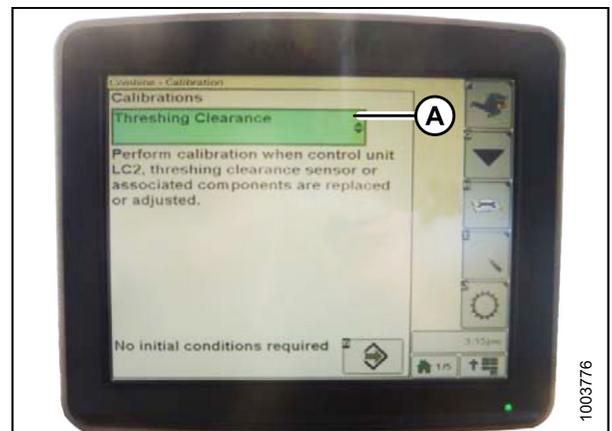


Figure 6.75

- Select Feeder House Speed (A) as your first calibration. Once you calibrate feeder house speed you will then need to calibrate header.

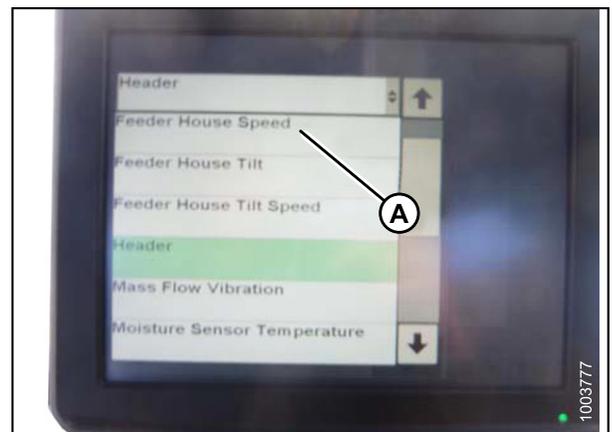


Figure 6.76

AUTOMATIC HEADER HEIGHT CONTROL

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

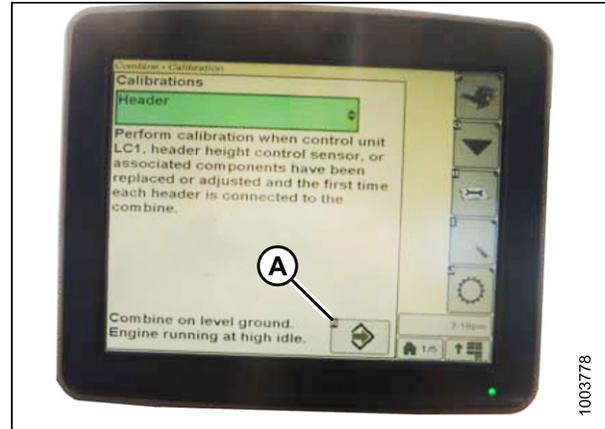


Figure 6.77

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

NOTE: If an error code pops up during the calibration the sensor is out of voltage range and will require adjustment. Refer to [Checking Voltage Range from the Combine Cab \(John Deere S Series\)](#), page 183.

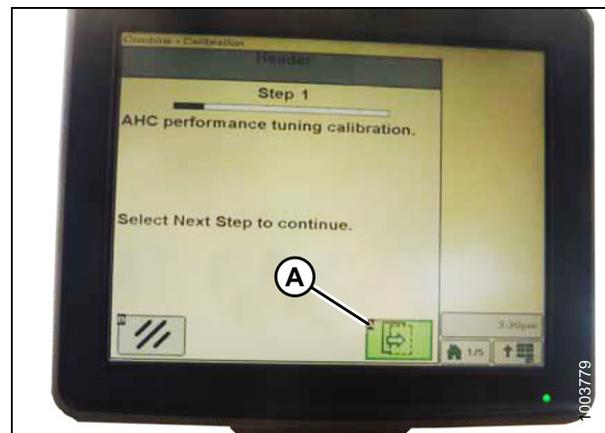


Figure 6.78

Calibrating the Auto Header Height System (Lexion 500 Series)

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle. Refer to [4.7.3 Header Angle, page 68](#).

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

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

AUTOMATIC HEADER HEIGHT CONTROL

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

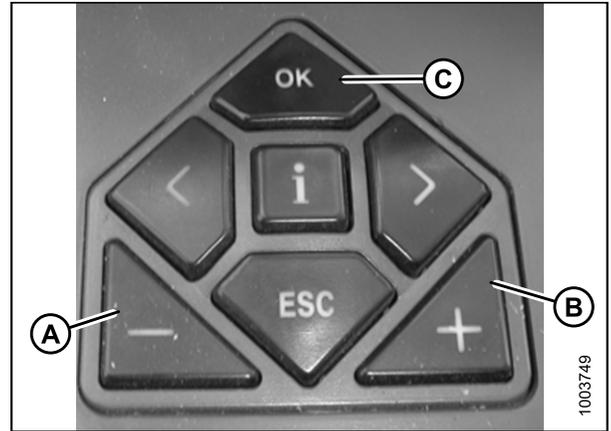


Figure 6.79

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

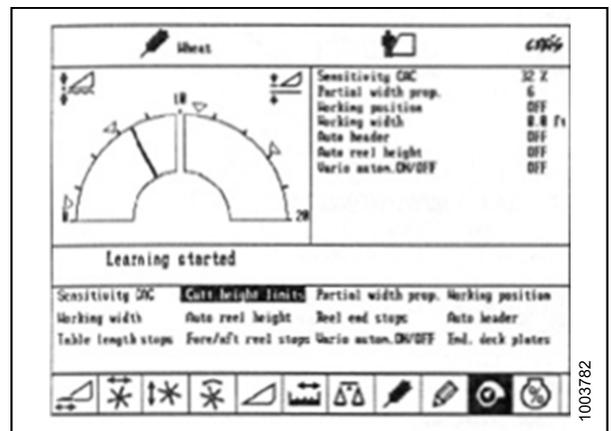


Figure 6.80

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

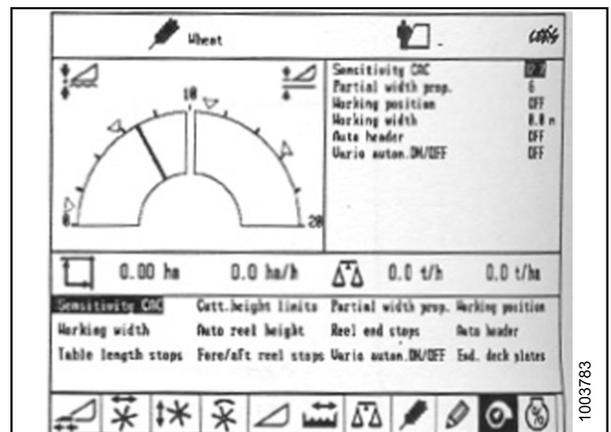


Figure 6.81

AUTOMATIC HEADER HEIGHT CONTROL

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

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

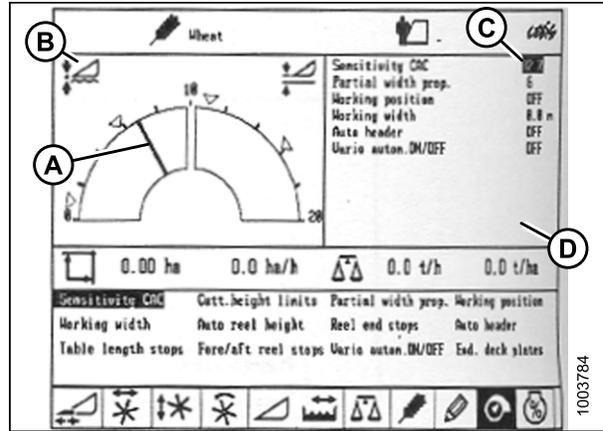


Figure 6.82

Calibrating the Auto Header Height System (Lexion 700 Series)

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle. Refer to [4.7.3 Header Angle, page 68](#).

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

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

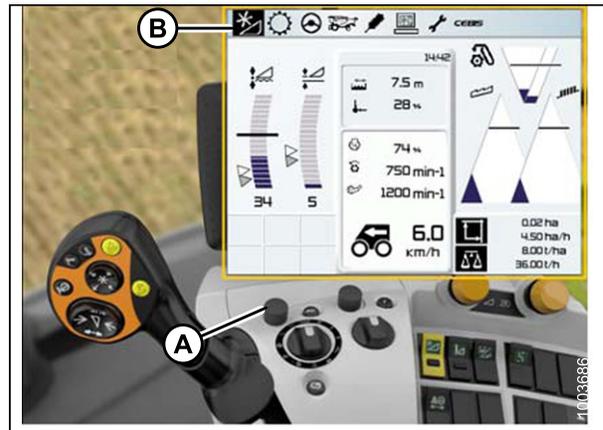


Figure 6.83

AUTOMATIC HEADER HEIGHT CONTROL

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

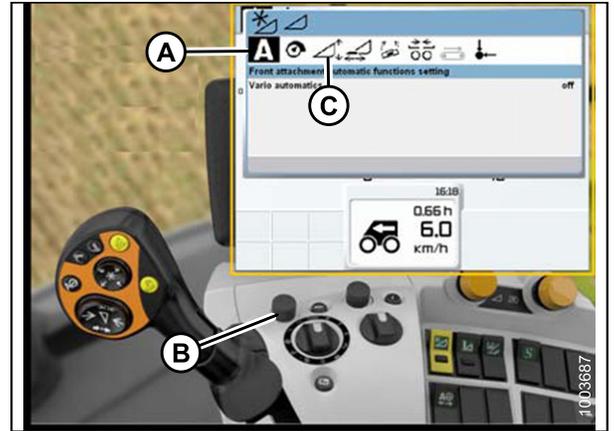


Figure 6.84

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



Figure 6.85

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



Figure 6.86

AUTOMATIC HEADER HEIGHT CONTROL

7. Raise the feeder house all the way up. This will allow the graph to go to 33% (A).
8. Lower the feeder house all the way down until header stops moving. Ensure header float is unlocked. The graph will now be at 64%.
9. Raise the feeder house (a second time) all the way up.
10. Lower the feeder house all the way down until header stops moving.

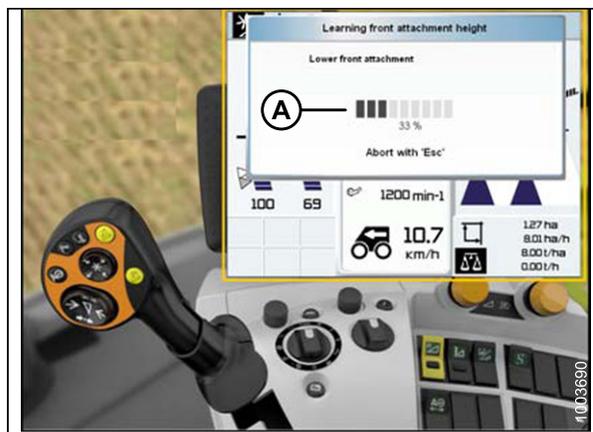


Figure 6.87

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

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

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

12. The calibration procedure is now complete.



Figure 6.88

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

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

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.

AUTOMATIC HEADER HEIGHT CONTROL

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

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

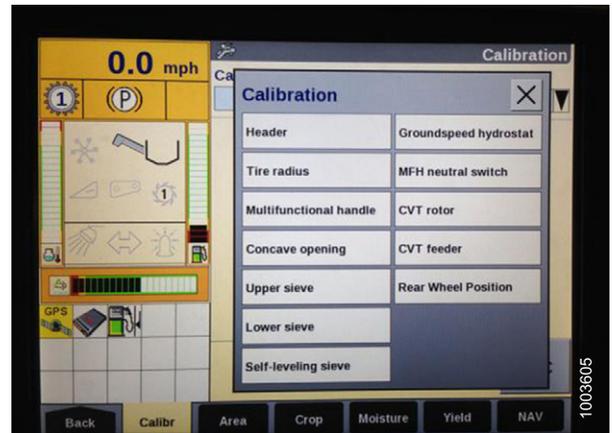


Figure 6.89

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

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

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

NOTE: See combine operator's manual for an explanation of any error codes.

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

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

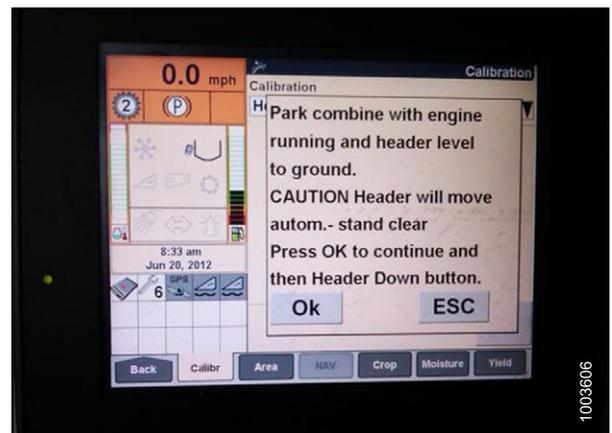


Figure 6.90

AUTOMATIC HEADER HEIGHT CONTROL

Maximum Stubble Height Calibration

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

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

IMPORTANT

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

To calibrate the maximum stubble height, proceed as follows:

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

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

Message: "Then press enter".

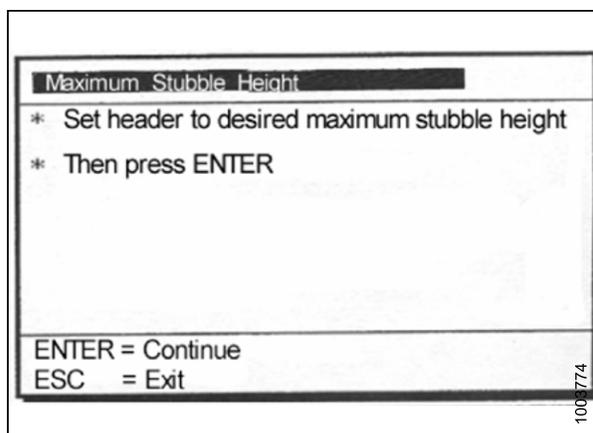


Figure 6.91

2. Put header to the correct position using the header up or down control switch on the multifunction handle.

3. Press "enter" to continue.

Message: "Calibration successful".

4. The calibration is done. Press ENTER or ESC to close the calibration window.

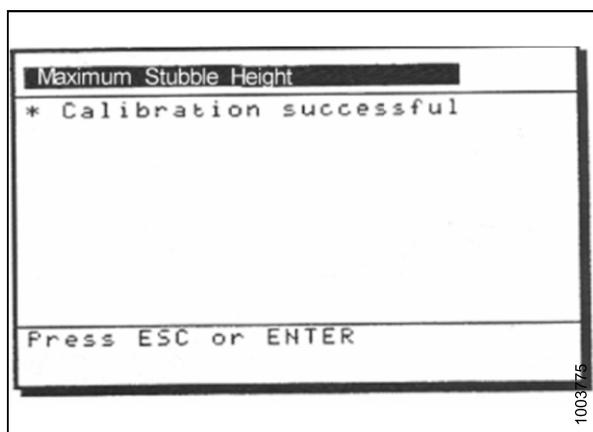


Figure 6.92

AUTOMATIC HEADER HEIGHT CONTROL

6.1.5 Field Operation Settings

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

Performance can be further enhanced by

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

Adjusting the Header Height (AGCO 6 Series)

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

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



Figure 6.93

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

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

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

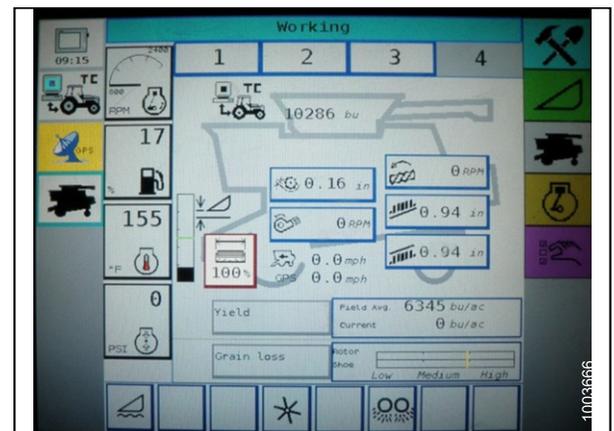


Figure 6.94

AUTOMATIC HEADER HEIGHT CONTROL

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

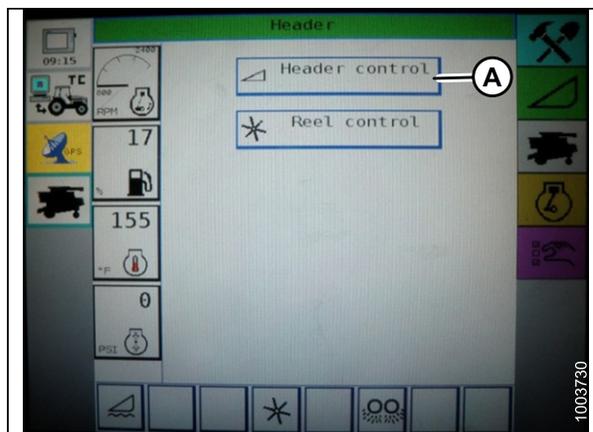


Figure 6.95

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

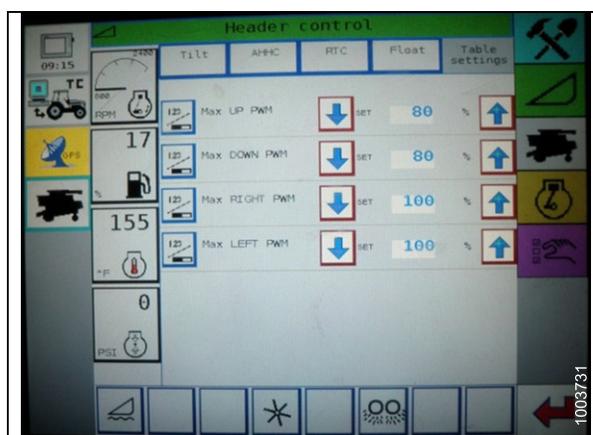


Figure 6.96

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

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

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

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

1. On the field page, press the header icon. The Header page appears.

AUTOMATIC HEADER HEIGHT CONTROL

2. Press the Header control button (A). The Header control page appears. You can adjust sensitivity on this page using the up and down arrows.

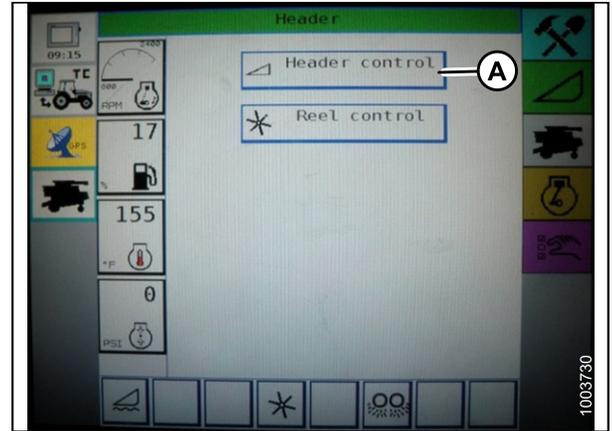


Figure 6.97

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

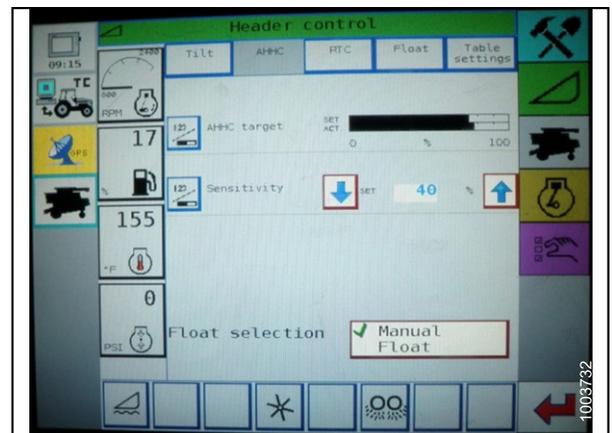


Figure 6.98

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

Operation Settings (Gleaner R62/R72 Series)

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

AUTOMATIC HEADER HEIGHT CONTROL

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

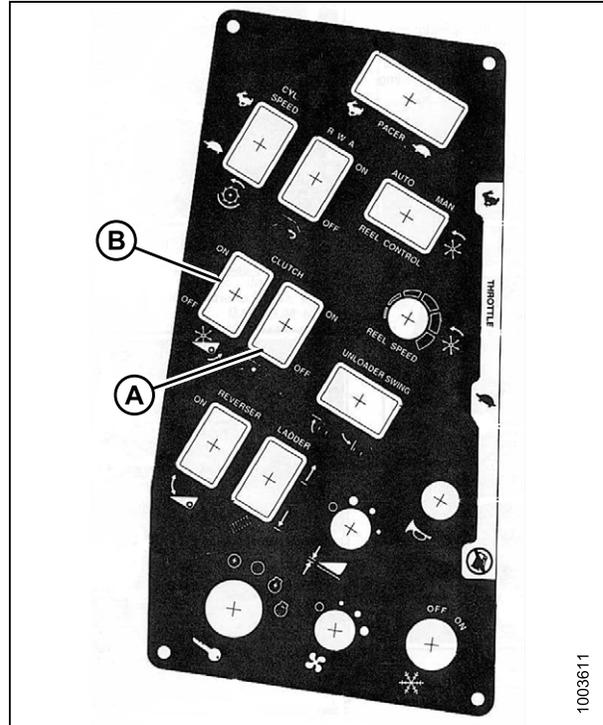


Figure 6.99

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

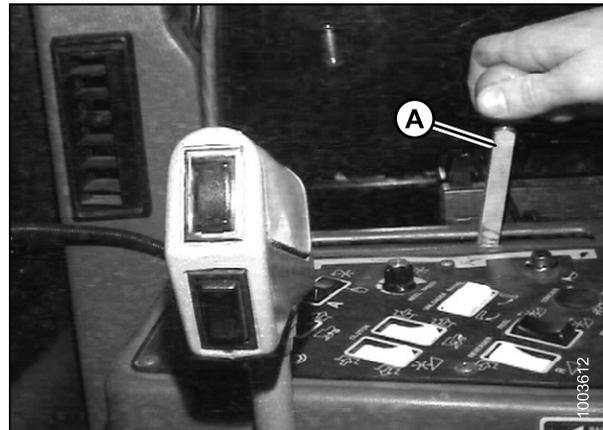


Figure 6.100

AUTOMATIC HEADER HEIGHT CONTROL

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

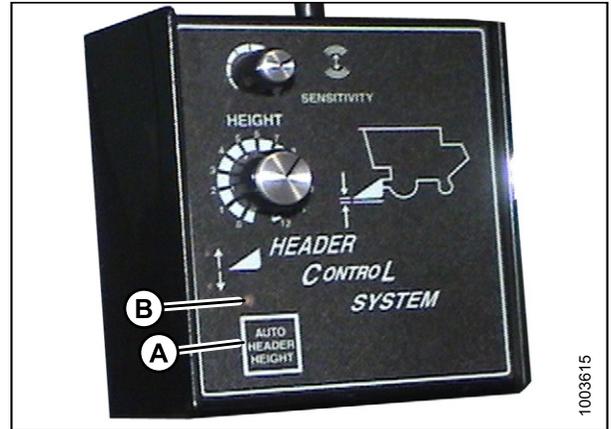


Figure 6.101

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

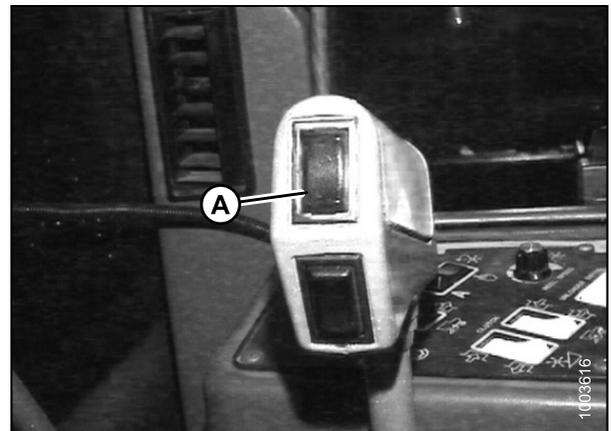


Figure 6.102

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

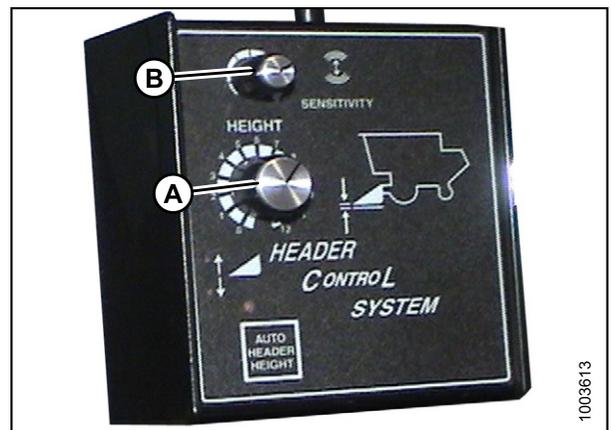


Figure 6.103

AUTOMATIC HEADER HEIGHT CONTROL

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

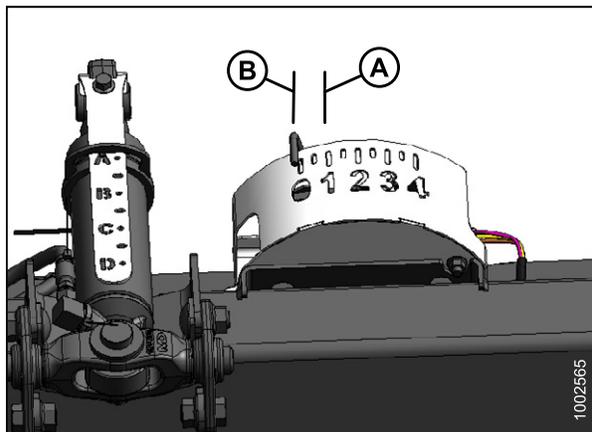


Figure 6.104

Turning the Accumulator Off (Gleaner R65/R75)

The accumulator will affect the combines' reaction time and greatly inhibit the Auto Header Heights' performance.

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

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



Figure 6.105

A - Accumulator Lever (Off Position)

AUTOMATIC HEADER HEIGHT CONTROL

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

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

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

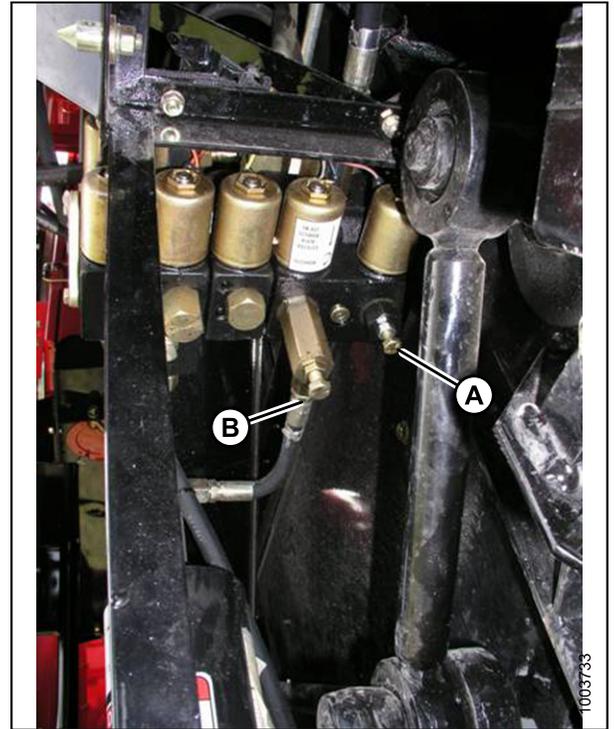


Figure 6.106

Adjusting Ground Pressure (Gleaner R65/R75)

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

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

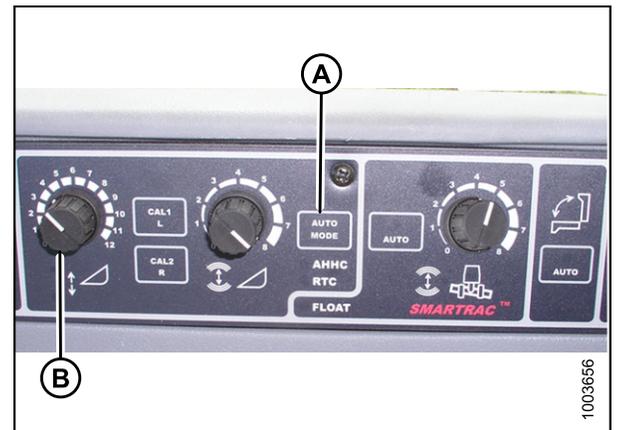


Figure 6.107

AUTOMATIC HEADER HEIGHT CONTROL

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

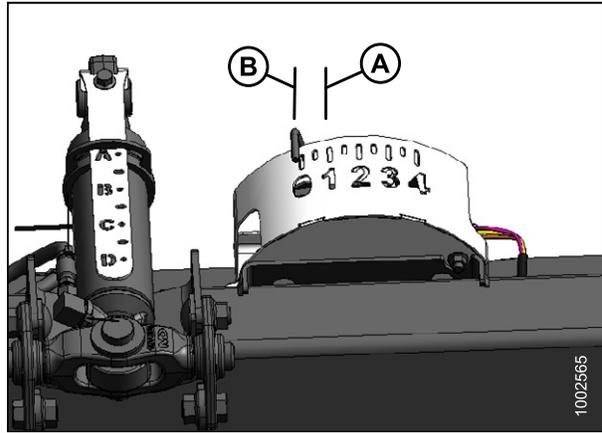


Figure 6.108

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



Figure 6.109

AUTOMATIC HEADER HEIGHT CONTROL

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

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

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

Turning the Accumulator Off (John Deere 60 Series)

To turn the accumulator off, follow these steps:

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

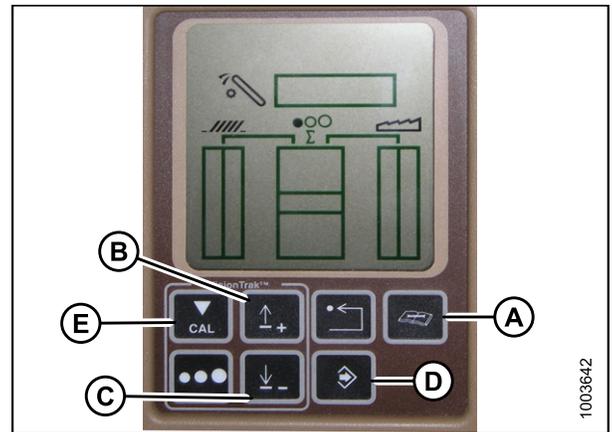


Figure 6.110

AUTOMATIC HEADER HEIGHT CONTROL

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

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

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

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

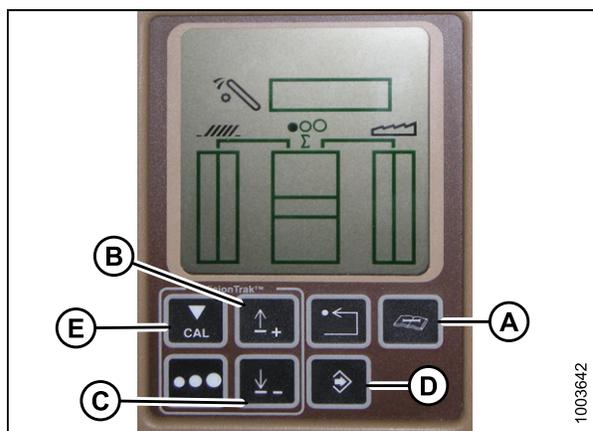


Figure 6.111

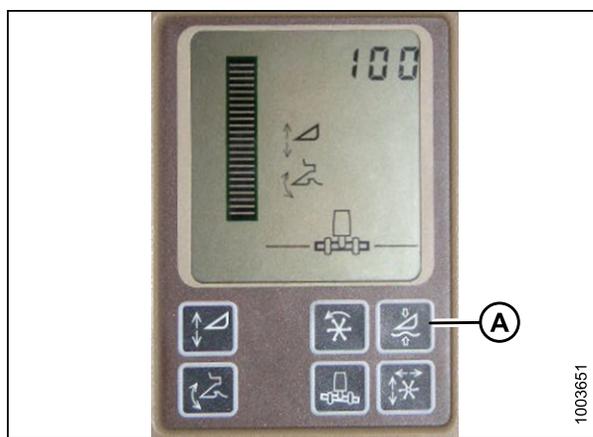


Figure 6.112

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

This is also known as dead band adjustment.

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

AUTOMATIC HEADER HEIGHT CONTROL

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

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

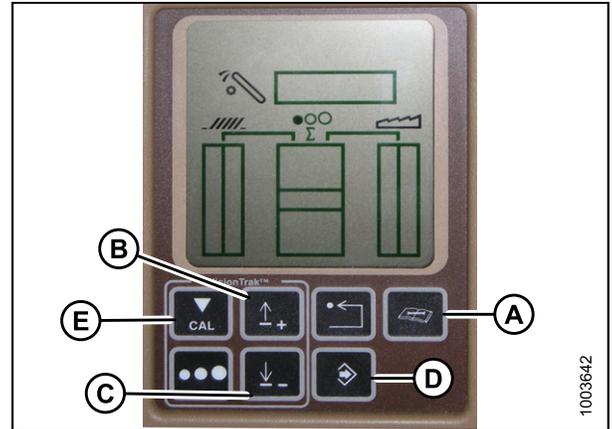


Figure 6.113



Figure 6.114

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

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

To increase the flow rate sooner, follow these steps:

AUTOMATIC HEADER HEIGHT CONTROL

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

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

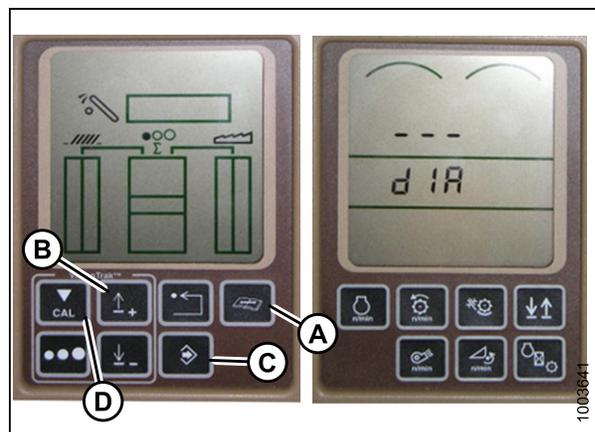


Figure 6.115

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

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

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

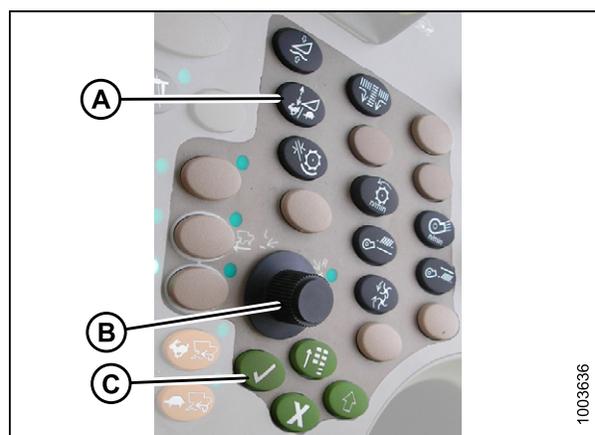


Figure 6.116

AUTOMATIC HEADER HEIGHT CONTROL

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



Figure 6.117

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

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

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

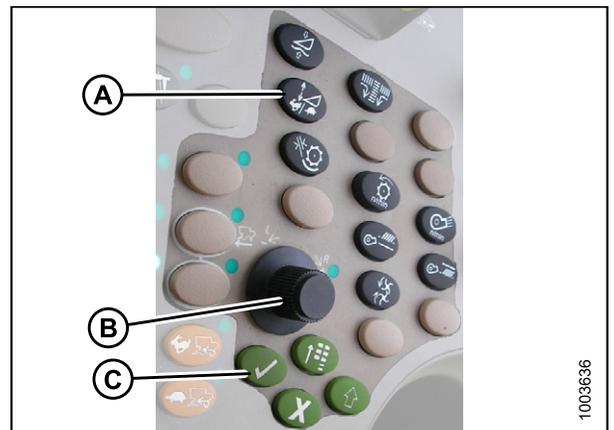


Figure 6.118

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



Figure 6.119

AUTOMATIC HEADER HEIGHT CONTROL

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

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

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



Figure 6.120

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

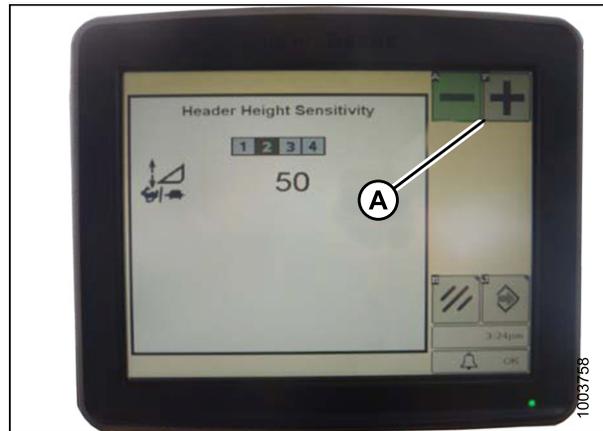


Figure 6.121

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

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

AUTOMATIC HEADER HEIGHT CONTROL

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



Figure 6.122

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

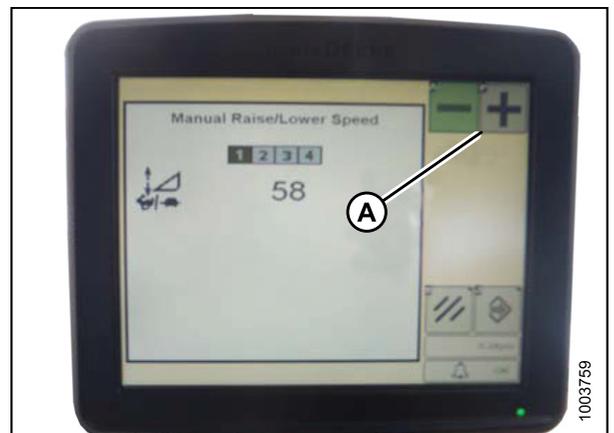


Figure 6.123

Setting Preset Cutting Height (John Deere S Series)

To operate your Auto Header Height, follow these steps:

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



Figure 6.124

AUTOMATIC HEADER HEIGHT CONTROL

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



Figure 6.125

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

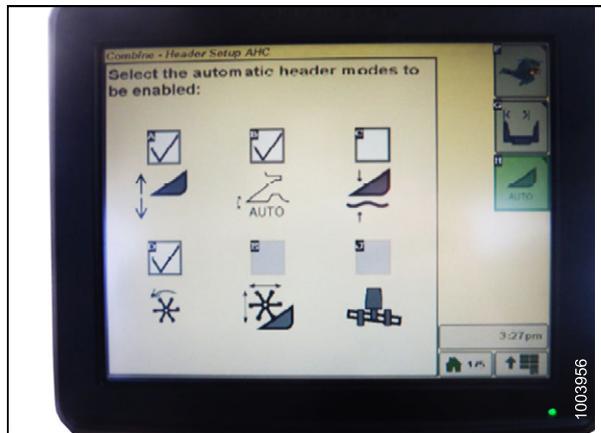


Figure 6.126

- After the two icons are selected, you will be able to set the ground pressure preset on the joy stick by having button #2 as a light ground pressure setting for muddy or soft soil conditions, and button #3 as a heavier setting for harder soil conditions with a faster ground speed so the header does not skip crop. Button #1 is reserved for header lift on the headland, it does not have ground cutting capabilities.



Figure 6.127

AUTOMATIC HEADER HEIGHT CONTROL

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



Figure 6.128

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



Figure 6.129

Setting Cutting Height (Lexion 500 Series)

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

Use the "<" key or use the ">" key in order to select the Cutting height window. Press the "OK" key in order to open the respective sub menu.

An active value is indicated by a solid arrow. An inactive value is indicated by an empty arrow.

Setting Preset Cutting Height (Lexion 500 Series)

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

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

AUTOMATIC HEADER HEIGHT CONTROL

5. Briefly press button (A) in order to activate the auto contour system or briefly press button (B) in order to activate the preset cutting height.

NOTE: Button (A) is used only with AHHC function. Button (B) is used only with the return to cut function.



Figure 6.130

6. Use the “-” key (A) or use the “+” key (B) in order to set the desired cutting height. An arrow indicates the selected cutting height on the scale.

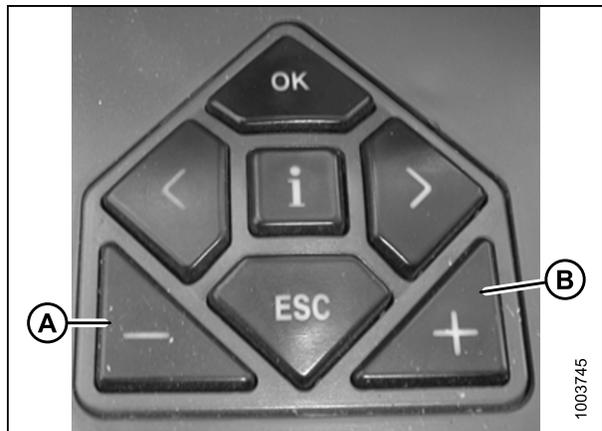


Figure 6.131

7. Briefly press button (A) or button (B) in order to select the set point.
8. Repeat step 6 for the set point.



Figure 6.132

AUTOMATIC HEADER HEIGHT CONTROL

Setting Cut Height Manually (Lexion 500 Series)

To set the cutting height manually, follow these steps:

1. When you enter the crop use button (A) or use button (B) in to raise or lower the header to the desired cutting height. For on the ground cutting press button (C) for three seconds. This stores the cutting height into the CEBIS. The alarm will sound when the new setting is stored.
2. If desired using button (A) or (B) move the header on the ground and briefly press button (C) in order to set a second set point. For above the ground cutting repeat the above steps only this time press button (D) to set points.
3. Repeat step 1 for the second set point.



Figure 6.133

Adjusting the Sensitivity of the Auto Header Height (Lexion 500 Series)

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

NOTE: CEBIS must learn the upper limits and the lower limits of the header before you adjust the sensitivity of the AHHC system. The setting can be adjusted from 0 percent to 100 percent. When sensitivity is adjusted to 0 percent, the signals from the sensing bands have no effect. When set to 100 percent, sensing bands have maximum effect on the automatic cutting height adjustment. 50% is a recommended starting point.

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



Figure 6.134

AUTOMATIC HEADER HEIGHT CONTROL

3. Line (A) indicates the setting of the sensitivity. Window E4 (B) displays the (A). Also value (C) indicates the sensitivity. Window E5 (D) displays value (C).

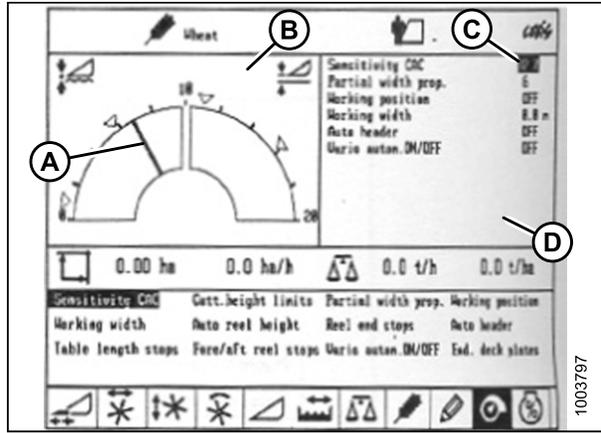
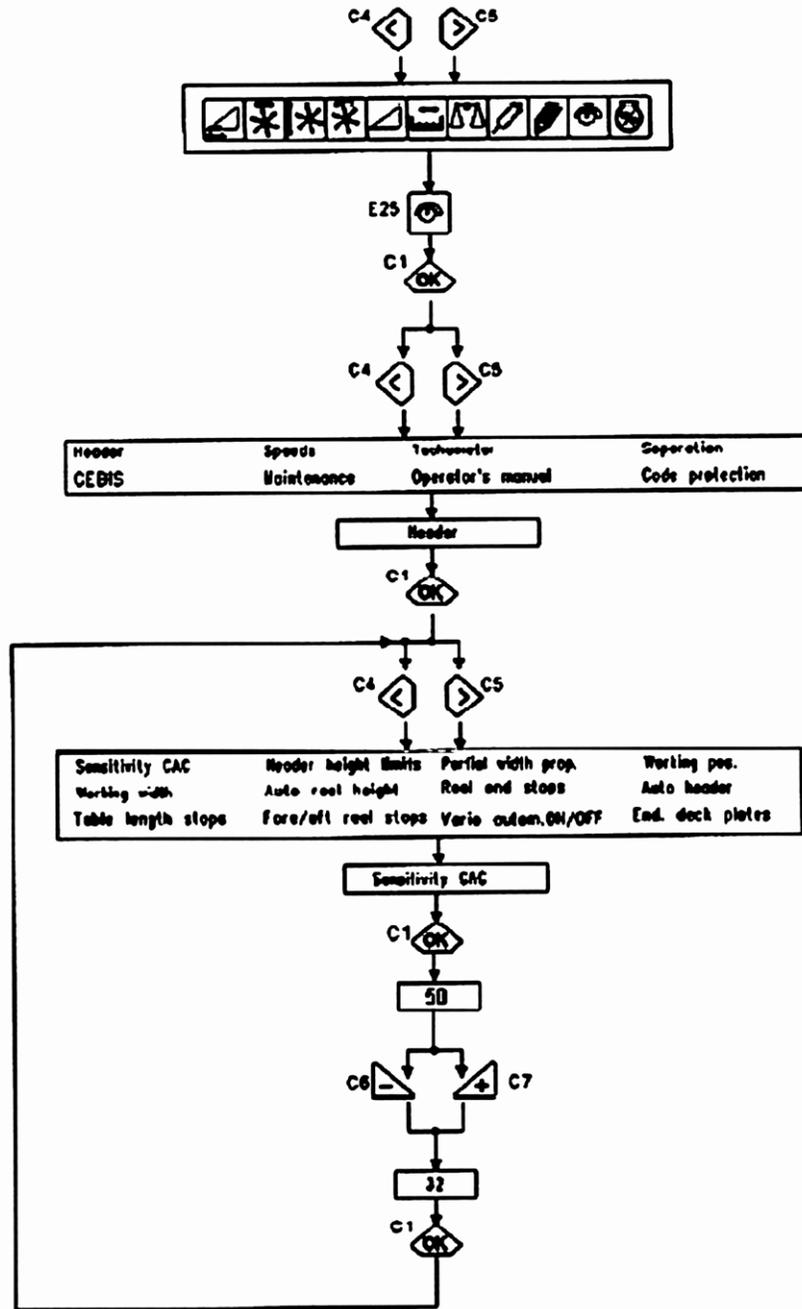


Figure 6.135

AUTOMATIC HEADER HEIGHT CONTROL



1003798

Figure 6.136: Flow chart for setting the sensitivity of the Float Optimizer

AUTOMATIC HEADER HEIGHT CONTROL

Adjusting Auto Reel Speed (Lexion 500 Series)

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

To set the preset reel speed, follow these steps:

1. Use the “<” key or the “>” key to select reel window. When reel window is selected, window (E15) will display the current advance or retard speed of the reel relation to the ground speed.
2. Press the “OK” key (C) in order to select the reel speed window.
3. Use the “-” key (A) or use the “+” key (B) in order to set the reel speed in relation to the current ground speed. Window (E15) will display the selected reel speed.

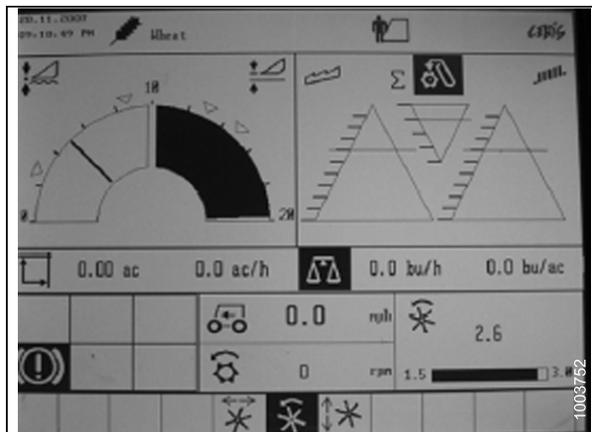


Figure 6.137

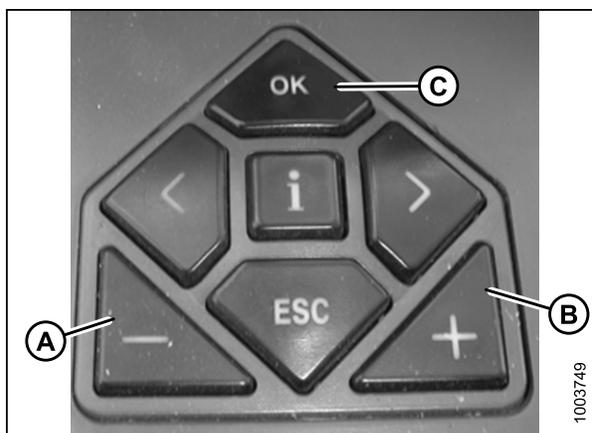


Figure 6.138

You can also manually adjust the reel speed by rotating the rotary switch to the reel position (A), and then using the “-” key or the “+” key to set the reel speed.



Figure 6.139

AUTOMATIC HEADER HEIGHT CONTROL

4. Press button (A) or (B) for three seconds in order to store the setting into CEBIS.

NOTE: The alarm will sound when the new setting is stored.

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



Figure 6.140

5. Use the "<" key or the ">" key to select the reel window. When the reel window is selected, window (E15) will display the current advance or retard speed of the reel in relation to the ground speed.

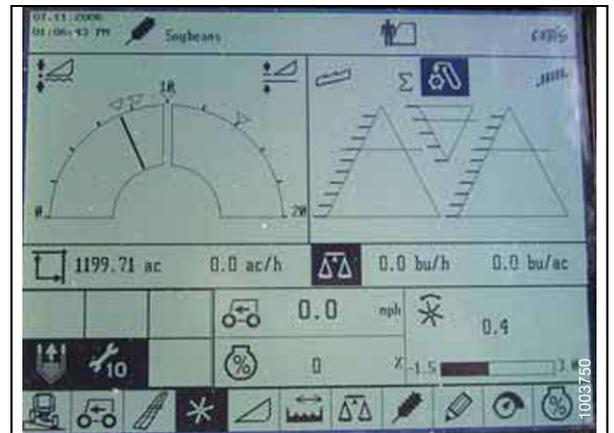


Figure 6.141

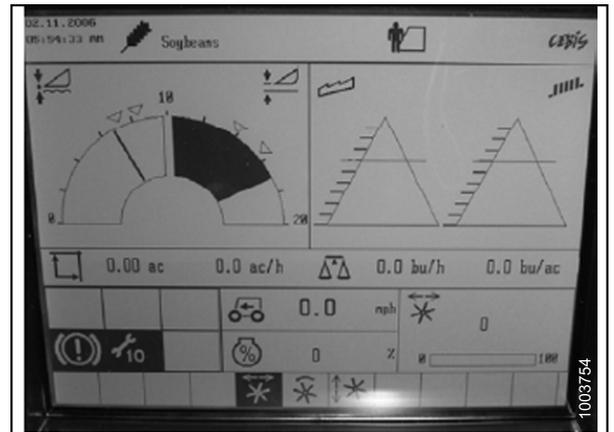


Figure 6.142

AUTOMATIC HEADER HEIGHT CONTROL

6. Press the "OK" button (C). Use the "<" key or the ">" key to select the reel fore and aft window.
7. Use the "-" key (A) or the "+" key (B) to set the fore-aft position of the reel.

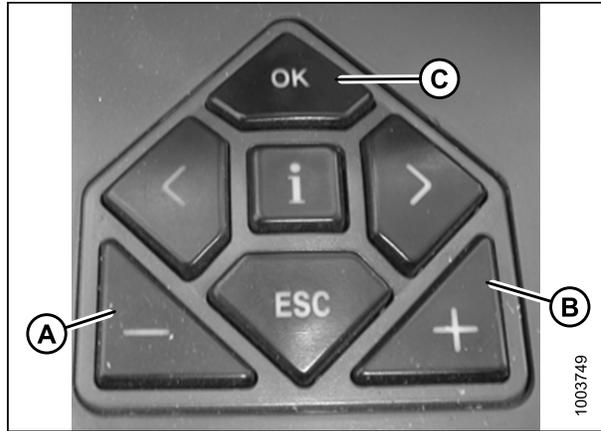


Figure 6.143

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

8. Press button (C) or button (D) for three seconds to store the setting into CEBIS.

NOTE: The alarm will sound when the new setting is stored.

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



Figure 6.144

Setting Cutting Height (Lexion 700 Series)

To set cutting height, follow these steps:

1. Lower the header to desired cutting height or ground pressure setting. The indicator on the float indicator box (white box on top of the CA25 adapter) should be set to 1.5.

AUTOMATIC HEADER HEIGHT CONTROL

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

NOTE: You can set two different cutting heights.



Figure 6.145

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

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

1. Use control knob (A) to navigate to the header and reel icon (B) on the CEBIS screen.
2. Push the knob to select this icon. The header/reel window opens.

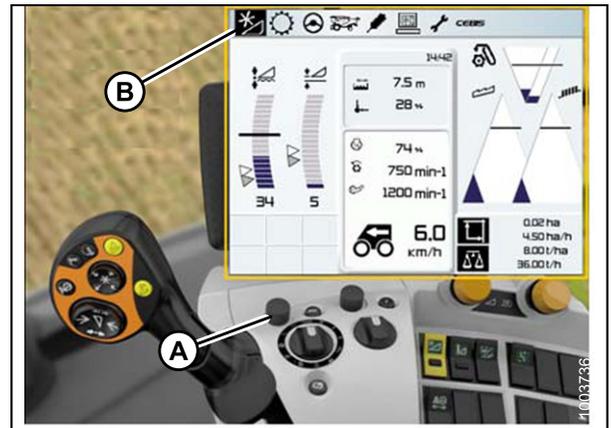


Figure 6.146

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



Figure 6.147

AUTOMATIC HEADER HEIGHT CONTROL

5. Select the Sensitivity CAC icon (A).
6. To set the sensitivity you will have to change the cutting height adjustment from the 0 default. The settings between 1 to 50 provide a faster response. Settings between -1 to -50 provide a slower response. When making adjustments to the above numbers, do it in increments of 5.

There are two settings to change:

- Cutting Height Adjustment (B)
- Auto Drop Rate (C)

between the header and the adapter is too slow increase the Cutting height adjustment.

When the feeder house reacts (hunting) up and down too fast, decrease the cutting height adjustment.

When lowering the header takes too much time, increase the sensitivity.

When the header hits the ground too hard and too quickly, decrease the sensitivity.

Adjusting Auto Reel Speed (Lexion 700 Series)

To adjust the auto reel speed, follow these steps:

1. Use control knob (A) to navigate to the header and reel icon (B) on the CEBIS screen.
2. Push the knob to select this icon. The header/reel window opens.



Figure 6.148

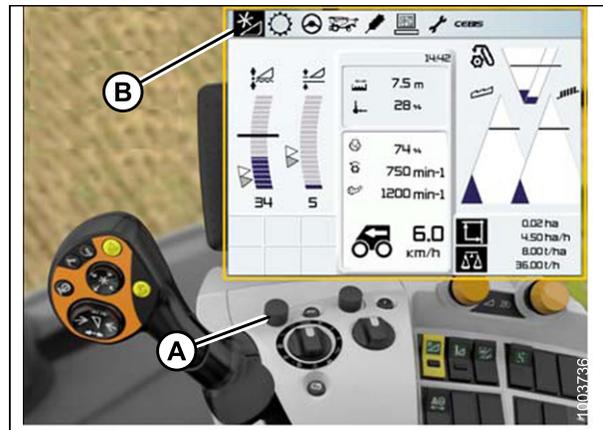


Figure 6.149

AUTOMATIC HEADER HEIGHT CONTROL

3. If you are not using Auto Reel Speed, in the window under Reel, select Reel speed (A). A graph displays. Use control knob (B) to adjust the reel speed.



Figure 6.150

4. If you are using Auto Reel Speed, in the window under Auto reel speed, select Actual value (A). The Actual value window opens and displays the auto reel speed.



Figure 6.151

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



Figure 6.152

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

If the header raise rate (the first speed on the header height rocker switch of the multifunctional handle) is not acceptable, it can be adjusted.

To adjust the header raise rate, follow these steps:

AUTOMATIC HEADER HEIGHT CONTROL

1. On the combine display screen, select Header raise rate.
2. Use the “+” or “-” buttons to change the setting.
3. Press ENTER to save the new setting.

NOTE: The raise rate can be changed between 32 and 236 in steps of 34. The factory setting is 100.

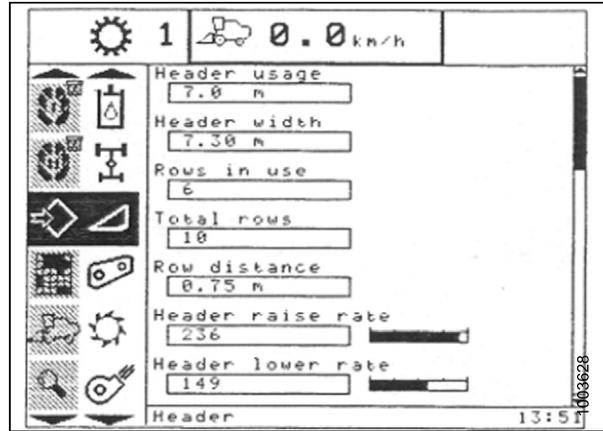


Figure 6.153

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

The fast lower speed (the automatic header height control button or second speed on the header height rocker switch of the multi-function handle) can be changed.

To set the header lower rate, follow these steps:

1. On the combine display screen, select Header lower rate.
2. Use the “+” or “-” buttons to change the setting to 50.
3. Press ENTER to save the setting.

NOTE: The setting can be changed between 2 and 247% in steps of 7. It is factory set to 100%.

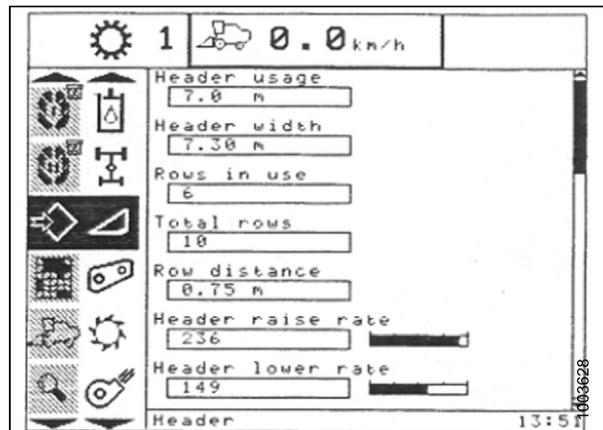


Figure 6.154

AUTOMATIC HEADER HEIGHT CONTROL

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

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

1. Engage threshing, and feeder house.
2. On the combine display screen, select Height Sensitivity.
3. Use the “+” or “-” buttons to change the setting to 200.
4. Press ENTER to save the setting.

NOTE: The setting can be changed between 10 and 250 in steps of 10. It is factory set to 100.

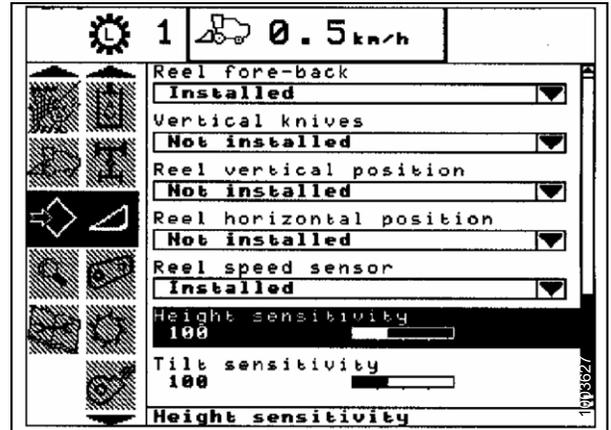


Figure 6.155

6.1.6 Diagnostics (Gleaner R65/R75)

Display type:

Displayed on tachometer (A) as “XX” or “XXX”.



Figure 6.156

AUTOMATIC HEADER HEIGHT CONTROL

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

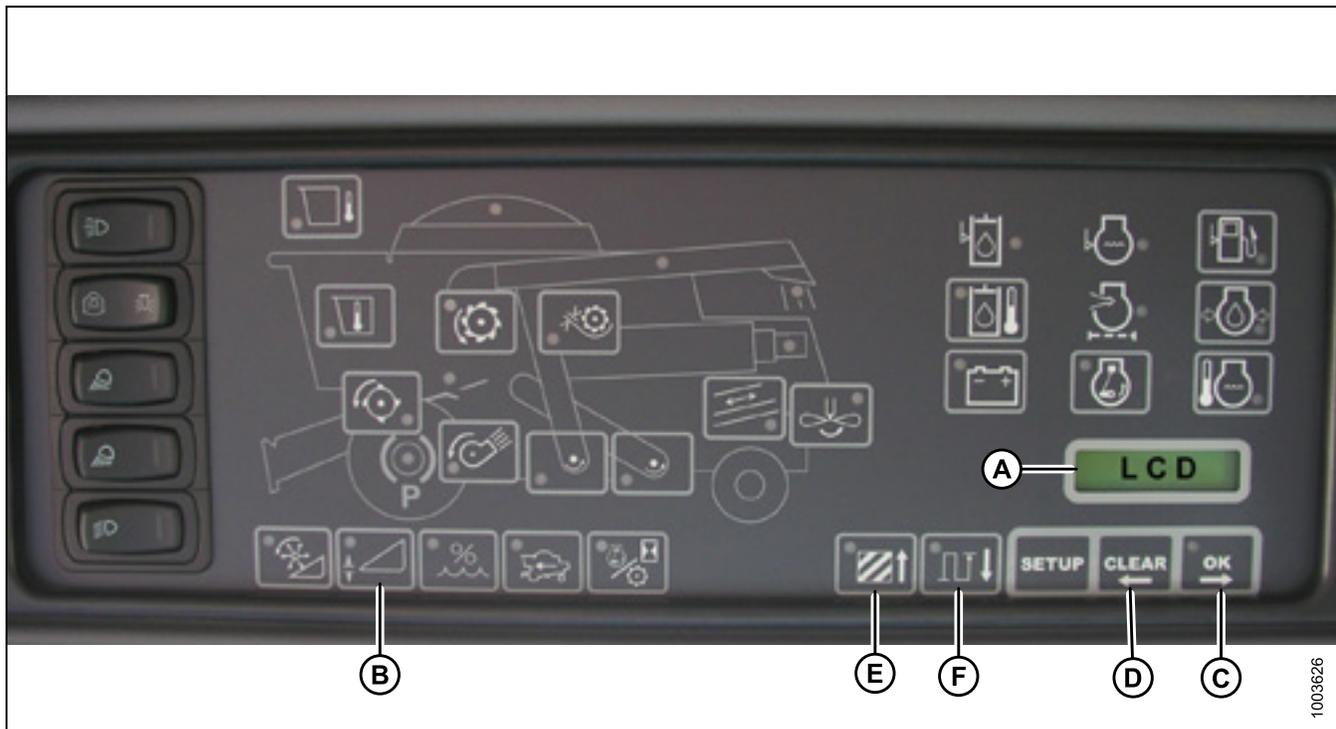


Figure 6.157

Alarm conditions:

If an error is indicated in message received from the fuse panel, an audible alarm is set. The LCD on the EIP indicates the header system in error as HDR CTRL followed by HGT ERR for height, and HDR CTRL followed by TILT ERR from tilt. The header height LED flashes yellow two times every second.

The alarm is also noted by the buzzer sounding five times every 10 seconds.

NOTE: If the header height switch (B) is pressed for 5 seconds or longer, the EIP goes into auto header height/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.

AUTOMATIC HEADER HEIGHT CONTROL

Diagnostic fault failures:

Pressing the header height switch (B) for a minimum of five seconds will put Electronic Instrument Panel (EIP) in header diagnostic mode.

The LCD (shown on previous page) will display the message HDR DIAG when the EIP has entered header diagnostic mode.

In this mode, after three seconds, header fault parameter labels are displayed on the EIP LCD.

NOTE: all the information displayed is read only.

The OK (C) and CLEAR (D) buttons allow the operator to scroll through the list of parameters.

NOTE: If there are no active fault codes, the EIP LCD will display NO CODE.

When a parameter is displayed, its label is displayed for three seconds, after which its value is automatically displayed.

Pressing OK button (C) at this point when the value is displayed will advance to the next parameter and display its label.

When a parameter label is displayed, and the OK button (C) is pressed before three seconds, the parameters value will be displayed.

Pressing AREA (E) will cycle through the options.

NOTE: When LEFT is displayed in LCD, press the OK button (C), and the Auto Header Height voltage will be shown in display.

Press the DIST button (F) to cycle back through the table.

Press the CLEAR button (D) to exit header diagnostics and return to normal mode.

Refer to [Sensor Operation](#), page 241.

Sensor Operation

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

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

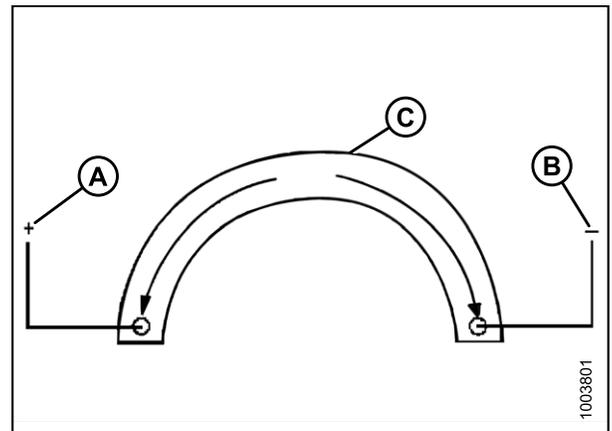


Figure 6.158

AUTOMATIC HEADER HEIGHT CONTROL

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

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

NOTE: Ground and power wires may differ depending on combine.

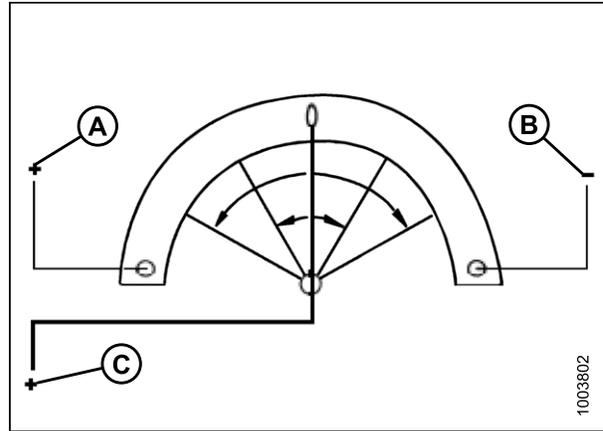


Figure 6.159

7 Maintenance and Servicing

7.1 Preparation for Servicing

The following instructions are provided to assist Operator in the use of header.

Detailed maintenance, service, and parts information are contained in the technical manual and parts catalog which are available from your MacDon Dealer.



CAUTION

To avoid personal injury, before servicing header or opening drive covers:

1. **Fully lower the header. If necessary to service in the raised position, always engage safety props.**
2. **Stop engine and remove key.**
3. **Engage park brake.**
4. **Wait for all moving parts to stop.**

7.2 Maintenance Specifications

MAINTENANCE AND SERVICING

7.2.1 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 |

7.2.2 Recommended Fluids and Lubricants

Your machine can operate at top efficiency only if clean lubricants are used.

- Use clean containers to handle all lubricants.
- Store in an area protected from dust, moisture, and other contaminants.

MAINTENANCE AND SERVICING

| Lubricant | Specification | Description | Use | Capacities |
|----------------|-------------------|---|---|---------------------------|
| Grease | SAE Multi-Purpose | High Temperature Extreme Pressure (EP2) Performance With 1% Max. Molybdenum Disulphide (NLGI Grade 2) Lithium Base | As Required Unless Otherwise Specified. | — |
| | | High Temperature Extreme Pressure (EP) Performance With 10% Max. Molybdenum Disulphide (NLGI Grade 2) Lithium Base | Driveline Slip-Joints | — |
| Gear Lubricant | SAE 85W-140 | API Service Class GL-5 | Knife Drive Box | 2.3 quarts (2.2 liters) |
| | | | Main Drive Gearbox | 5 pints (2.5 liters) |
| Hydraulic Oil | SAE 15W-40 | Compliant With SAE Specs For API Class SJ And CH-4 Engine Oil | Header Drive Systems Reservoir | 16 US gallons (60 liters) |

7.2.3 Torque Specifications

The following tables give correct torque values for various bolts, cap screws, and hydraulic fittings.

- Tighten all bolts to the torques specified in chart (unless otherwise noted throughout this manual).
- Replace hardware with the same strength and grade bolt.
- Check tightness of bolts periodically, using the tables below as a guide.
- Torque categories for bolts and cap screws are identified by their head markings.

MAINTENANCE AND SERVICING

SAE Bolt Torque Specifications

Torque values shown in this table are valid for non-greased, or non-oiled threads and heads. Therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

Table 7.1 SAE Grade 5 Bolt and Grade 5 Free Spinning

| Nominal size (A) | Torque (ft·lbf) (*in·lbf) | | Torque (N·m) | |
|------------------|------------------------------|------|--------------|------|
| | Min. | Max. | Min. | Max. |
| 1/4-20 | *106 | *117 | 11.9 | 13.2 |
| 5/16-18 | *218 | *241 | 24.6 | 27.1 |
| 3/8-16 | 32 | 36 | 44 | 48 |
| 7/16-14 | 52 | 57 | 70 | 77 |
| 1/2-13 | 79 | 87 | 106 | 118 |
| 9/16-12 | 114 | 126 | 153 | 170 |
| 5/8-11 | 157 | 173 | 212 | 234 |
| 3/4-10 | 281 | 311 | 380 | 420 |
| 7/8-9 | 449 | 496 | 606 | 669 |
| 1-8 | 611 | 676 | 825 | 912 |

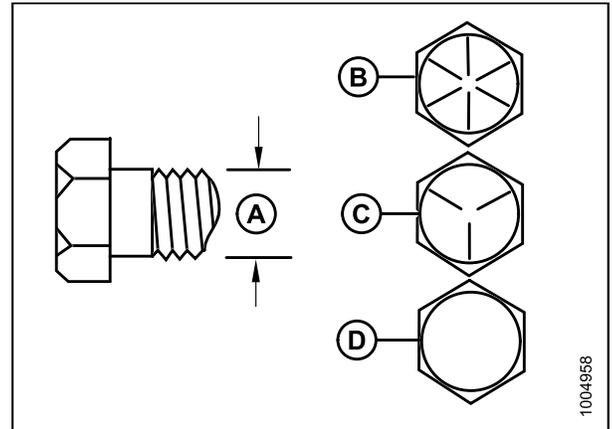


Figure 7.1

A - Nominal size
C - SAE-5

B - SAE-8
D - SAE-2

Table 7.2 SAE Grade 5 Bolt and Grade 5 Distorted Thread Nut

| Nominal size (A) | Torque (ft·lbf) (*in·lbf) | | Torque (N·m) | |
|------------------|------------------------------|------|--------------|------|
| | Min. | Max. | Min. | Max. |
| 1/4-20 | *72 | *80 | 8.1 | 9 |
| 5/16-18 | *149 | *164 | 16.7 | 18.5 |
| 3/8-16 | 22 | 24 | 30 | 33 |
| 7/16-14 | 35 | 39 | 48 | 53 |
| 1/2-13 | 54 | 59 | 73 | 80 |
| 9/16-12 | 77 | 86 | 105 | 116 |
| 5/8-11 | 107 | 118 | 144 | 160 |
| 3/4-10 | 192 | 212 | 259 | 286 |
| 7/8-9 | 306 | 338 | 413 | 456 |
| 1-8 | 459 | 507 | 619 | 684 |

MAINTENANCE AND SERVICING

Table 7.3 SAE Grade 8 Bolt and Grade 8 Distorted Thread Nut

| Nominal size (A) | Torque (ft·lbf) (*in·lbf) | | Torque (N·m) | |
|------------------|------------------------------|------|--------------|------|
| | Min. | Max. | Min. | Max. |
| 1/4-20 | *150 | *165 | 16.8 | 18.6 |
| 5/16-18 | 18 | 19 | 24 | 26 |
| 3/8-16 | 31 | 34 | 42 | 46 |
| 7/16-14 | 50 | 55 | 67 | 74 |
| 1/2-13 | 76 | 84 | 102 | 113 |
| 9/16-12 | 109 | 121 | 148 | 163 |
| 5/8-11 | 151 | 167 | 204 | 225 |
| 3/4-10 | 268 | 296 | 362 | 400 |
| 7/8-9 | 432 | 477 | 583 | 644 |
| 1-8 | 647 | 716 | 874 | 966 |

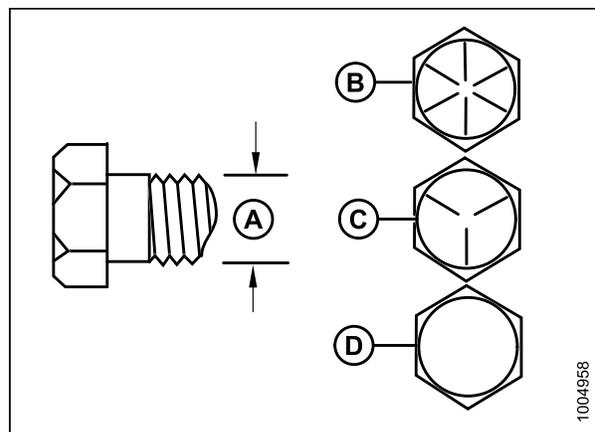


Figure 7.2

A - Nominal size
C - SAE-5

B - SAE-8
D - SAE-2

Table 7.4 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut

| Nominal size (A) | Torque (ft·lbf) (*in·lbf) | | Torque (N·m) | |
|------------------|------------------------------|------|--------------|------|
| | Min. | Max. | Min. | Max. |
| 1/4-20 | *150 | *165 | 16.8 | 18.6 |
| 5/16-18 | 26 | 28 | 35 | 38 |
| 3/8-16 | 46 | 50 | 61 | 68 |
| 7/16-14 | 73 | 81 | 98 | 109 |
| 1/2-13 | 111 | 123 | 150 | 166 |
| 9/16-12 | 160 | 177 | 217 | 239 |
| 5/8-11 | 221 | 345 | 299 | 330 |
| 3/4-10 | 393 | 435 | 531 | 587 |
| 7/8-9 | 633 | 700 | 855 | 945 |
| 1-8 | 863 | 954 | 1165 | 1288 |

MAINTENANCE AND SERVICING

Metric Bolt Specifications

Table 7.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

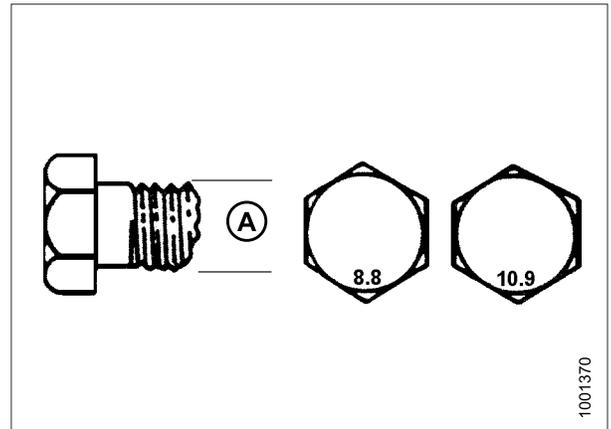


Figure 7.3

A - Nominal size

Table 7.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

MAINTENANCE AND SERVICING

Table 7.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

Table 7.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

MAINTENANCE AND SERVICING

Metric Bolt Specifications Bolting into Cast Aluminum

Table 7.9 Metric Bolt Bolting into Cast Aluminum

| Nominal size | Bolt torque | | | |
|--------------|------------------------|-----|-------------------------|-----|
| | 8.8 (cast aluminum) | | 10.9 (cast aluminum) | |
| | ft·lbf | N·m | ft·lbf | N·m |
| M3 | | | 1 | |
| M4 | | | 2.6 | 4 |
| M5 | | | 5.5 | 8 |
| M6 | 6 | 9 | 9 | 12 |
| M8 | 14 | 20 | 20 | 28 |
| M10 | 28 | 40 | 40 | 55 |
| M12 | 52 | 70 | 73 | 100 |
| M14 | | | | |
| M16 | | | | |

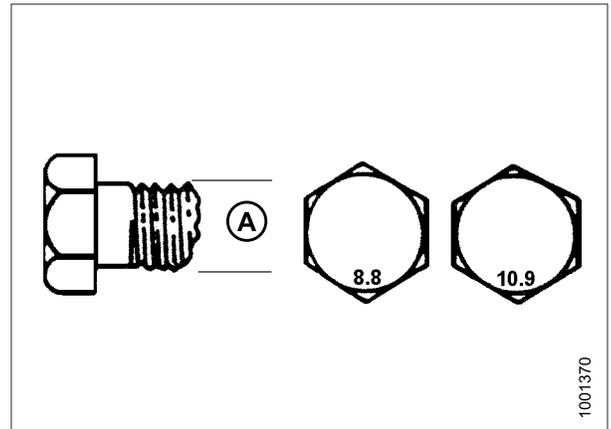


Figure 7.4

A - Nominal size

Flare-Type Hydraulic Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection, and hand-tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body, and with the second, tighten the swivel nut to the torque shown.

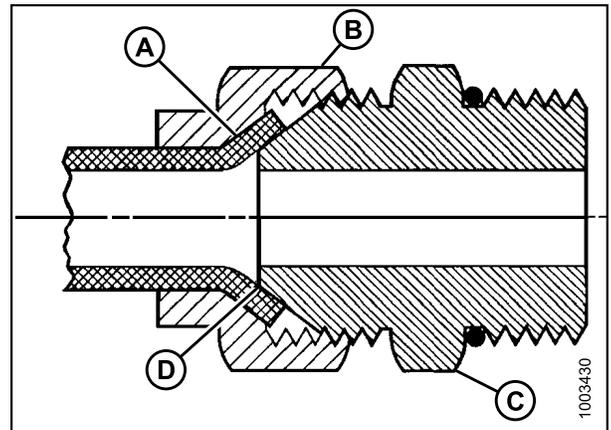


Figure 7.5

A - Flare

B - Nut

C - Flareseat

D - Body

MAINTENANCE AND SERVICING

Table 7.10 Flare-type hydraulic tube fittings

| SAE No. | Tube size O.D. (in.) | Thread size (in.) | Nut size across flats (in.) | Torque value ^s | | 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 |

O-Ring Boss (ORB) Hydraulic Fittings

1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back off the lock nut until washer (A) bottoms out at top of groove (B) in fitting.
3. Hand-tighten fitting until back up washer (A) or washer face (if straight fitting) bottoms on part face (C) and O-ring is seated.
4. Position angle fittings by unscrewing **NO MORE THAN** one turn.
5. Tighten straight fittings to torque shown.
6. Tighten angle fittings to torque shown in [the following table 7.11 O-Ring Boss \(ORB\) Hydraulic Fittings \(Adjustable\)](#), page 253, while holding body of fitting with a wrench.

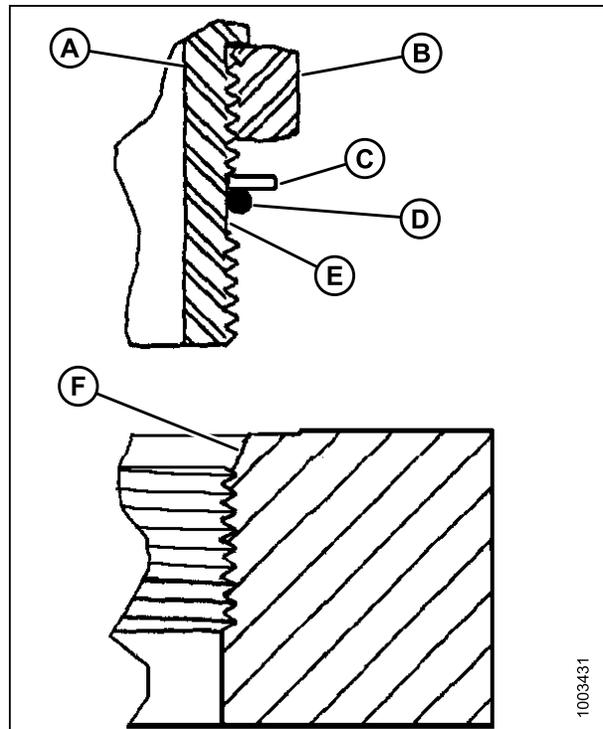


Figure 7.6

- | | | |
|-------------|--------------|------------|
| A - Fitting | B - Lock nut | C - Washer |
| D - O-ring | E - Groove | F - Seat |

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

MAINTENANCE AND SERVICING

Table 7.11 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

| SAE No. | Thread size (in.) | Nut size across flats (in.) | Torque value ⁶ | | Flats from finger tight (FFFT) ⁷ | |
|---------|-------------------|-----------------------------|---------------------------|-----|---|-------|
| | | | ft·lbf | N·m | Flats | Turns |
| 3 | 3/8 | 1/2 | 6 | 8 | 2 | 1/3 |
| 4 | 7/16 | 9/16 | 9 | 12 | 2 | 1/3 |
| 5 | 1/2 | 5/8 | 12 | 16 | 2 | 1/3 |
| 6 | 9/16 | 11/16 | 18 | 24 | 2 | 1/3 |
| 8 | 3/4 | 7/8 | 34 | 46 | 2 | 1/3 |
| 10 | 7/8 | 1 | 46 | 62 | 1-1/2 | 1/4 |
| 12 | 1-1/16 | 1-1/4 | 75 | 102 | 1 | 1/6 |
| 16 | 1-5/16 | 1-1/2 | 105 | 142 | 3/4 | 1/8 |
| 20 | 1-5/8 | 1-7/8 | 140 | 190 | 3/4 | 1/8 |
| 24 | 1-7/8 | 2-1/8 | 160 | 217 | 1/2 | 1/12 |

O-Ring Face Seal (ORFS) Hydraulic Fittings

1. Check components to ensure that the sealing surfaces and fitting threads are free of burrs, nicks, and scratches or any foreign material.



Figure 7.7

6. Torque values shown are based on lubricated connections as in reassembly.
 7. Always default to the torque value for evaluation of adequate torque.

MAINTENANCE AND SERVICING

2. Apply hydraulic system oil to the O-ring.
3. Align the tube or hose assembly. Ensure that flat face of the mating flange comes in full contact with O-ring.
4. Thread tube or hose nut until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fitting further to a given torque value in ~~the table~~ [7.12 O-Ring Face Seal \(ORFS\) Hydraulic Fittings, page 254](#) ~~shown in the opposite column.~~

NOTE: If applicable, always hold the hex on the fitting body to prevent unwanted rotation of fitting body and hose when tightening the fitting nut.

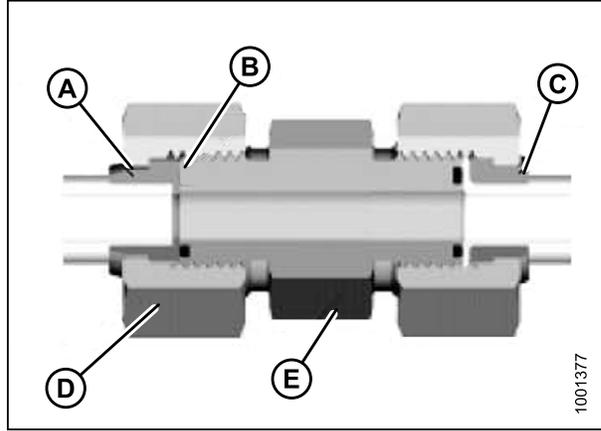


Figure 7.8

- | | |
|----------------------|------------|
| A - Brazed sleeve | B - O-ring |
| C - Two piece sleeve | D - Nut |
| E - Fitting body | |

6. When assembling unions or two hoses together, three wrenches will be required.
7. Check the final condition of the fitting.

Table 7.12 O-Ring Face Seal (ORFS) Hydraulic Fittings

| SAE No. | Thread size (in.) | Tube O.D. (in.) | Torque value ⁸ | | Flats from finger tight (FFFT) ⁹ | |
|---------|-------------------|-----------------|---------------------------|---------|---|---------------|
| | | | ft·lbf | N·m | Tube Nuts | Swivel & Hose |
| 3 | ¹⁰ | 3/16 | – | – | – | – |
| 4 | 9/16 | 1/4 | 11–12 | 14–16 | 1/4–1/2 | 1/2–3/4 |
| 5 | ¹⁰ | 5/16 | – | – | – | – |
| 6 | 11/16 | 3/8 | 18–20 | 24–27 | 1/4–1/2 | 1/2–3/4 |
| 8 | 13/16 | 1/2 | 32–35 | 43–47 | | |
| 10 | 1 | 5/8 | 45–51 | 60–68 | | |
| 12 | 1-3/16 | 3/4 | 67–71 | 90–95 | | 1/3–1/2 |
| 14 | 1-3/16 | 7/8 | 67–71 | 90–95 | | |
| 16 | 1-7/16 | 1 | 93–100 | 125–135 | | |
| 20 | 1-11/16 | 1-1/4 | 126–141 | 170–190 | | |
| 24 | 2 | 1-1/2 | 148–167 | 200–225 | | |
| 32 | 2-1/2 | 2 | – | – | – | – |

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

9. Always default to the torque value for evaluation of adequate torque.

10. O-ring face seal type end not defined for this tube size.

MAINTENANCE AND SERVICING

7.2.4 Installing a Roller Chain

To install a roller chain, follow these steps.



CAUTION

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

1. Locate ends of chain on sprocket.
2. Install pin connector (A) into chain, preferably from the sprocket backside.
3. Install connector (B) onto pins.
4. Install spring clip (C) onto front pin (D) with closed end of clip in direction of sprocket rotation.
5. Locate one leg of clip in groove of aft pin (E).
6. Press other leg of spring clip over face of aft pin (E) until it slips into groove. Do **NOT** press clip lengthwise from closed end.
7. Ensure clip is seated in grooves of pins.

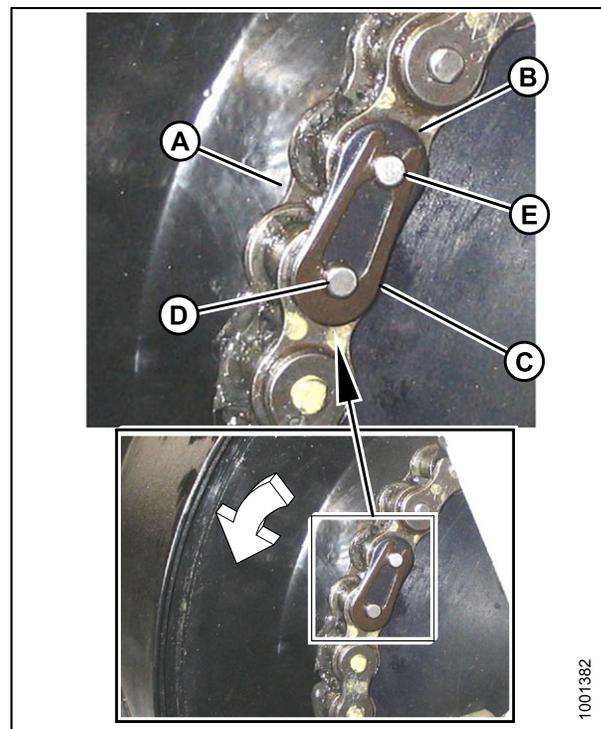


Figure 7.9: Arrow shows direction of rotation

A - Pin connector

B - Connector

C - Spring clip

D - Front pin

E - Aft pin

MAINTENANCE AND SERVICING

7.2.5 Installing a Sealed Bearing

To install a sealed bearing, follow these steps.

1. Clean shaft and coat with rust preventative.
2. Install flangette (A), bearing (B), second flangette (C), and lock collar (D).

NOTE: The locking cam is only on one side of the bearing.

3. Install (but do **NOT** tighten) flangette bolts (E).
4. When the shaft is correctly located, lock the lock collar with a punch. The collar should be locked in the same direction the shaft rotates. Tighten the setscrew in the collar.
5. Tighten flangette bolts.
6. Loosen flangette bolts on mating bearing one turn and retighten. This will allow the bearing to line up.

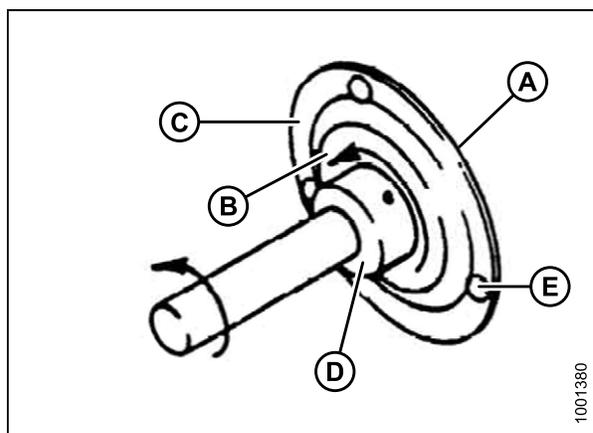


Figure 7.10

A - Flangette
B - Bearing
C - Flangette
D - Lock collar
E - Flangette bolt

MAINTENANCE AND SERVICING

7.3 Maintenance Requirements

The following maintenance schedule is a listing of periodic maintenance procedures, organized by service intervals. Regular maintenance is the best insurance against early wear and untimely breakdowns. Following this schedule will increase machine life.

For detailed instructions, refer to the specific headings in this section. Use the fluids and lubricants specified, See Section [7.2.2 Recommended Fluids and Lubricants, page 245](#).

Log hours of operation and use the Maintenance Record on the next page to keep a record of scheduled maintenance. You will want to make copies of the Maintenance Record page for this purpose.

Service Intervals: The recommended service intervals are in hours of operation. Where a service interval is given in more than one time frame, e.g., “100 hours or Annually”, service the machine at whichever interval is reached first.

IMPORTANT

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



CAUTION

Carefully follow safety messages. See Section [7.1 Preparation for Servicing, page 243](#) and [Recommended Safety Procedures](#).

MAINTENANCE AND SERVICING

7.3.1 Maintenance Schedule/Record

Copy this page to continue record.

| Maintenance Record | Action: | ✓ - Check | ⬇ - Lubricate | ▲ - Change | | | | | | | | | | | | | | | | |
|---|--|-----------|---------------|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Hour Meter Reading | | | | | | | | | | | | | | | | | | | | |
| Date | | | | | | | | | | | | | | | | | | | | |
| Serviced By | | | | | | | | | | | | | | | | | | | | |
| FIRST USE, Refer to Section 7.3.2 Break-In Inspection, page 260 | | | | | | | | | | | | | | | | | | | | |
| END OF SEASON, Refer to Section 7.3.4 End of Season Service, page 261 | | | | | | | | | | | | | | | | | | | | |
| 10 HOURS OR DAILY¹¹ | | | | | | | | | | | | | | | | | | | | |
| ✓ | Hydraulic Hoses and Lines ¹² | | | | | | | | | | | | | | | | | | | |
| ✓ | Knife Sections, Guards, and Hold-Downs ¹² | | | | | | | | | | | | | | | | | | | |
| ✓ | Tire Pressure ¹² | | | | | | | | | | | | | | | | | | | |
| ⬇ | Knife (except in sandy conditions) ¹² | | | | | | | | | | | | | | | | | | | |
| 25 HOURS | | | | | | | | | | | | | | | | | | | | |
| | Hydraulic Oil Level at Reservoir ¹² | | | | | | | | | | | | | | | | | | | |
| | Knifehead(s) ¹² | | | | | | | | | | | | | | | | | | | |
| 50 HOURS | | | | | | | | | | | | | | | | | | | | |
| ✳ | Draper Roller Bearings | | | | | | | | | | | | | | | | | | | |
| ⬇ | Driveline and Driveline Universals | | | | | | | | | | | | | | | | | | | |
| ▲ | Knife Drive Box Oil - First 50 Hours Only | | | | | | | | | | | | | | | | | | | |
| 100 HOURS OR ANNUALLY¹¹ | | | | | | | | | | | | | | | | | | | | |
| ✓ | Auger to Pan and Feed Draper Clearance | | | | | | | | | | | | | | | | | | | |
| ✓ | Draper Seal | | | | | | | | | | | | | | | | | | | |
| ✓ | Gearbox Lubricant Level | | | | | | | | | | | | | | | | | | | |
| ✓ | Reel Drive Chain Tension | | | | | | | | | | | | | | | | | | | |
| ✓ | Reel Tine/Cutterbar Clearance | | | | | | | | | | | | | | | | | | | |
| ✓ | Knife Drive Belt Tension | | | | | | | | | | | | | | | | | | | |

11. Whichever occurs first.

12. A record of daily maintenance is not normally required but is at the Owner's/Operator's discretion.

MAINTENANCE AND SERVICING

| Maintenance Record | Action: | ✓ - Check | | | | | ⬇ - Lubricate | | | | | ▲ - Change | | | | | |
|--|---------|-----------|--|--|--|--|---------------|--|--|--|--|------------|--|--|--|--|--|
| ✓ Wheel Bolt Torque | | | | | | | | | | | | | | | | | |
| ✓ Knife Drive Box Lubricant Level | | | | | | | | | | | | | | | | | |
| ✓ Knife Drive Box Mounting Bolts | | | | | | | | | | | | | | | | | |
| ⬇ Auger Drive Chain | | | | | | | | | | | | | | | | | |
| ⬇ Float Pivots | | | | | | | | | | | | | | | | | |
| ⬇ Float Spring Tensioners | | | | | | | | | | | | | | | | | |
| ⬇ Reel Drive Chain | | | | | | | | | | | | | | | | | |
| ⬇ Upper Cross Auger RH Bearing | | | | | | | | | | | | | | | | | |
| 250 HOURS OR ANNUALLY¹¹ | | | | | | | | | | | | | | | | | |
| ✓ Draper Seal | | | | | | | | | | | | | | | | | |
| ⬇ Adapter Auger Pivots | | | | | | | | | | | | | | | | | |
| ⬇ Upper Cross Auger Center Support | | | | | | | | | | | | | | | | | |
| ⬇ Reel Drive U-joint | | | | | | | | | | | | | | | | | |
| ⬇ Bell crank Linkage | | | | | | | | | | | | | | | | | |
| ⬇ Transport Axle Pivot Bushings | | | | | | | | | | | | | | | | | |
| ▲ Hydraulic Oil Filter | | | | | | | | | | | | | | | | | |
| 500 HOURS OR ANNUALLY¹¹ | | | | | | | | | | | | | | | | | |
| ✓ Draper Seal | | | | | | | | | | | | | | | | | |
| ⬇ Reel Shaft Bearings | | | | | | | | | | | | | | | | | |
| ⬇ Stabilizer/Slow Speed Transport Wheel Bearings | | | | | | | | | | | | | | | | | |
| ✓ Gearbox Chain Tension | | | | | | | | | | | | | | | | | |
| 1000 HOURS OR 3 YEARS¹¹ | | | | | | | | | | | | | | | | | |
| ▲ Knife Drive Box Lubricant | | | | | | | | | | | | | | | | | |
| ▲ Gearbox Lubricant | | | | | | | | | | | | | | | | | |
| 1500 HOURS OR 3 YEARS¹¹ | | | | | | | | | | | | | | | | | |
| ▲ Hydraulic Oil | | | | | | | | | | | | | | | | | |

MAINTENANCE AND SERVICING

7.3.2 Break-In Inspection

A break-in inspection has the operator check over belts, fluids, and a general machine inspection looking for loose hardware or other areas of concern. The break-in inspection ensures that motors, pumps, belts, etc are operated in such a way that gives them the ability to operate for an extended period without requiring service or replacement.

| Timing | Item | Refer to |
|--------------|---|---|
| At 5 minutes | Check reservoir hydraulic oil level. | Checking Hydraulic Oil Level, page 275 |
| At 5 hours | Check for loose hardware. Tighten to required torque. | 7.2.3 Torque Specifications, page 246 |
| | Check knife drive belt tension. Periodically check for first 50 hours. | Tensioning Single and Double Knife Headers with Non-Timed Drive, page 320 |
| At 10 hours | Check knife drive box mounting bolts. | Mounting Bolts, page 338 |
| At 50 hours | Change adapter gearbox oil. | Changing Oil in Main Drive Gearbox, page 274 |
| | Change adapter hydraulic oil filter. | 7.4.2 Changing Hydraulic Oil Filter, page 277 |
| | Change knife drive box lubricant. | Changing Oil in Knife Drive Box, page 348 |
| | Check gearbox chain tension. | 7.6.5 Adjusting Tension on Gearbox Drive Chain, page 292 |

7.3.3 Preseason/Annual Service

Perform the following the beginning of each operating season



CAUTION

- Review this manual to refresh your memory on safety and operating recommendations.
 - Review all safety decals and other decals on the header and note hazard areas.
 - Be sure all shields and guards are properly installed and secured. Never alter or remove safety equipment.
 - Be sure you understand and have practiced safe use of all controls. Know the capacity and operating characteristics of the machine.
 - Check the first aid kit and fire extinguisher. Know where they are and how to use them.
1. Adjust tension on drive belts.
For single knife, Refer to
 - [Tensioning Single and Double Knife Headers with Non-Timed Drive, page 320.](#)For double knife, Refer to .
 - [Tensioning Knife Drive Belt \(Timed\) \(Double Knife\) \(Left Hand\), page 323](#) or
 - [Tensioning Knife Drive Belt \(Timed\) \(Double Knife\) \(Right Hand\), page 331](#)
 2. Perform all annual maintenance. See Section [7.3.1 Maintenance Schedule/Record, page 258.](#)

MAINTENANCE AND SERVICING

7.3.4 End of Season Service

Do the following at the end of each operating season.



CAUTION

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



CAUTION

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

1. Clean the header thoroughly.
2. Store the machine in a dry, protected place if possible. If stored outside, always cover with a waterproof canvas or other protective material.
3. If machine is stored outside, remove drapers and store in a dark, dry place.
NOTE: If drapers are not removed, store header with cutterbar lowered so water/snow will not accumulate on drapers. This accumulation of weight puts excessive stress on drapers and header.
4. Lower header onto blocks to keep cutterbar off the ground.
5. Lower reel completely. If stored outside, tie reel to frame to prevent rotation caused by wind.
6. Repaint all worn or chipped painted surfaces to prevent rust.
7. Loosen drive belts.
8. Lubricate the header thoroughly, leaving excess grease on fittings to keep moisture out of bearings. Apply grease to exposed threads, cylinder rods, and sliding surfaces of components. Oil knife components to prevent rust.
9. Check for worn or broken components and repair or order replacement from your MacDon Dealer. Attention to these items right away will save time and effort at beginning of next season.
10. Replace or tighten any missing or loose hardware. Refer to Section [7.2 Maintenance Specifications, page 244](#).

MAINTENANCE AND SERVICING

7.3.5 Hydraulic Hoses and Lines

Check hydraulic hoses and lines daily for signs of leaks.

WARNING

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

IMPORTANT

Keep hydraulic coupler tips and connectors clean. Dust, dirt, water, and foreign material are the major causes of hydraulic system damage. Do NOT attempt to service hydraulic system in the field. Precision fits require WHITE ROOM CARE during overhaul.



Figure 7.11

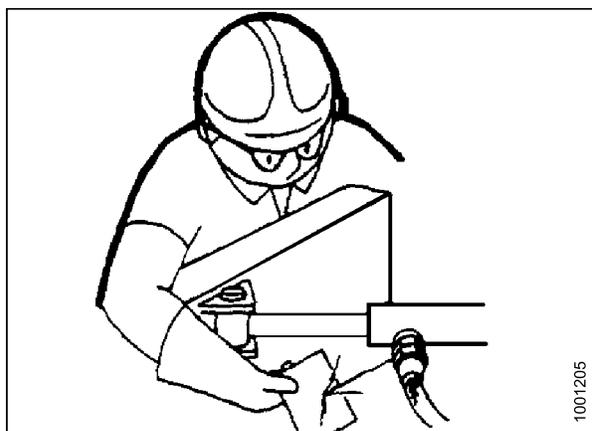


Figure 7.12

7.3.6 Lubrication and Servicing

CAUTION

To avoid personal injury, before servicing header or opening drive covers, follow procedures in [Section 7.1 Preparation for Servicing, page 243](#).

Refer to [Section 7.2.2 Recommended Fluids and Lubricants, page 245](#) for recommended greases.

Log hours of operation and use the Maintenance Record provided to keep a record of scheduled maintenance. Refer to [Section 7.3.1 Maintenance Schedule/Record, page 258](#).

MAINTENANCE AND SERVICING

Service Intervals

Refer to the illustrations on the following pages to identify the various locations that require lubrication and servicing. Illustrations are organized by the frequency of service that is required.

Every 10 Hours or Daily



Figure 7.13: Except in sandy conditions

Every 25 Hours

NOTE: To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** over grease the knifehead (A). Only, one to two pumps with a mechanical grease gun (do **NOT** use an electric grease gun) is required. If more than six to eight pumps of the grease gun are required to fill the cavity, replace the seal in the knifehead.

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

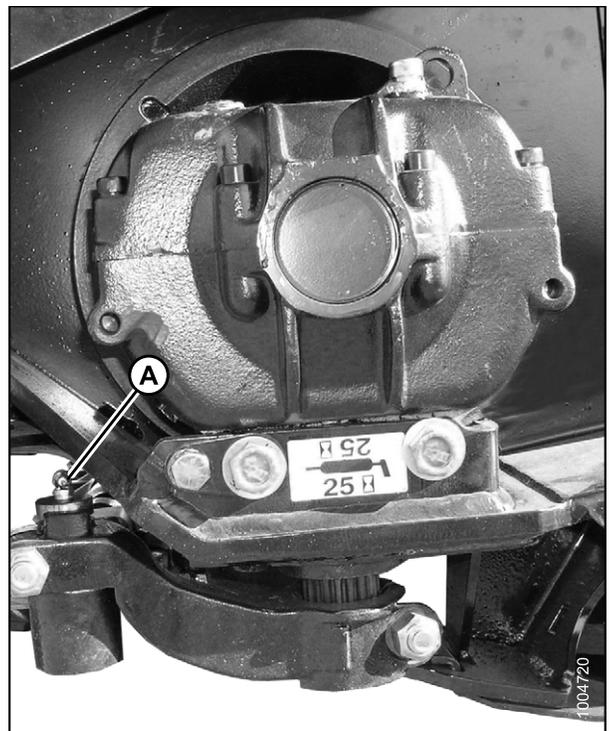


Figure 7.14: Knifehead (Single Knife - 1 PLC)
(Double Knife - 2 PLCS)

MAINTENANCE AND SERVICING

Every 50 Hours (Drive Roller Bearing, Idler Roller, Slip Joint and Driveline Universal)

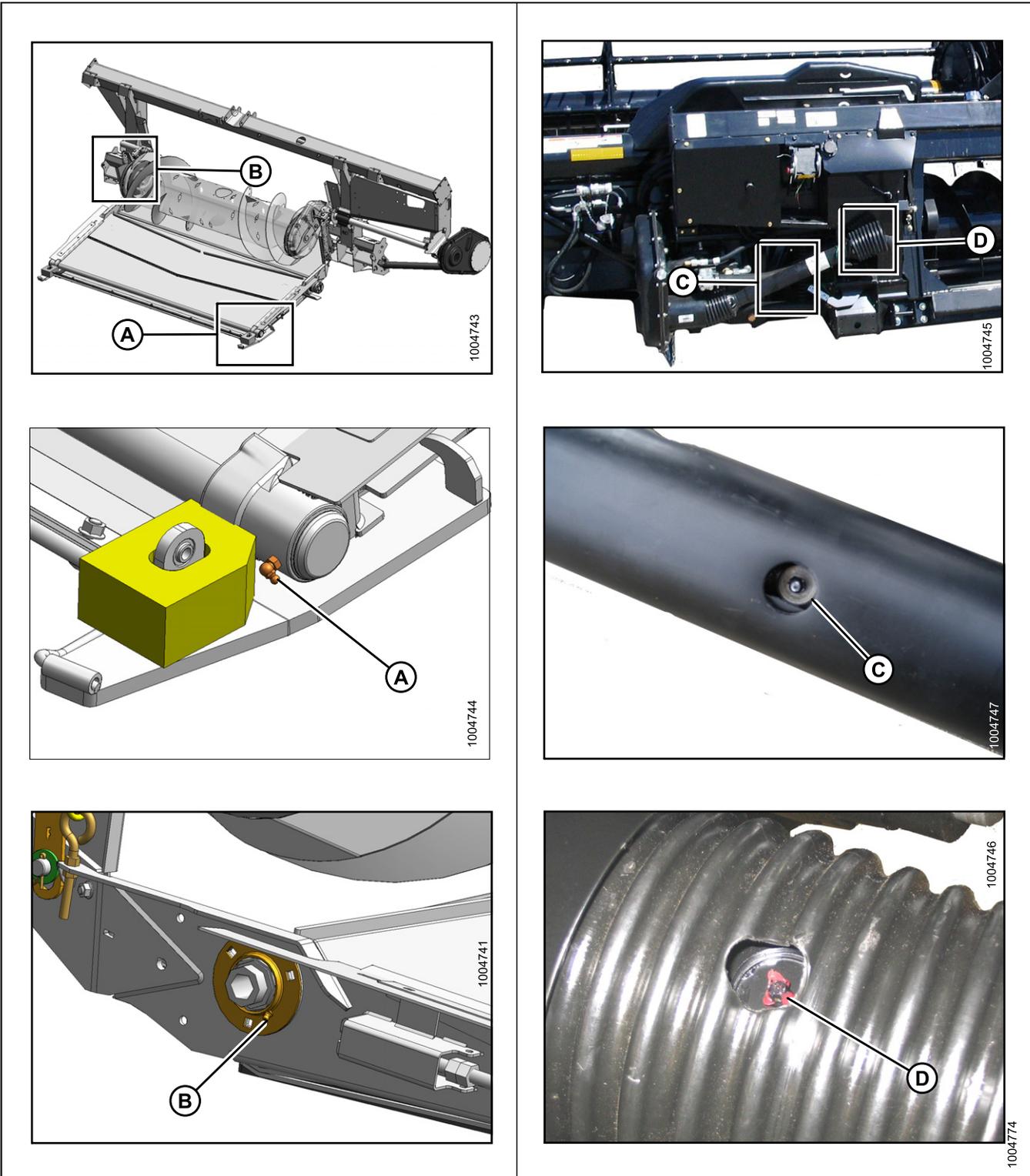


Figure 7.15: Every 50 Hours - Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

A - Drive Roller Bearing B - Idler Roller - both sides C - Driveline Slip Joint D - Driveline Universal (2 PLCS)

MAINTENANCE AND SERVICING

Every 100 Hours (Float Pivot, Auger Drive Chain, Float, Driveline Guard and Upper Cross Auger Bearing)

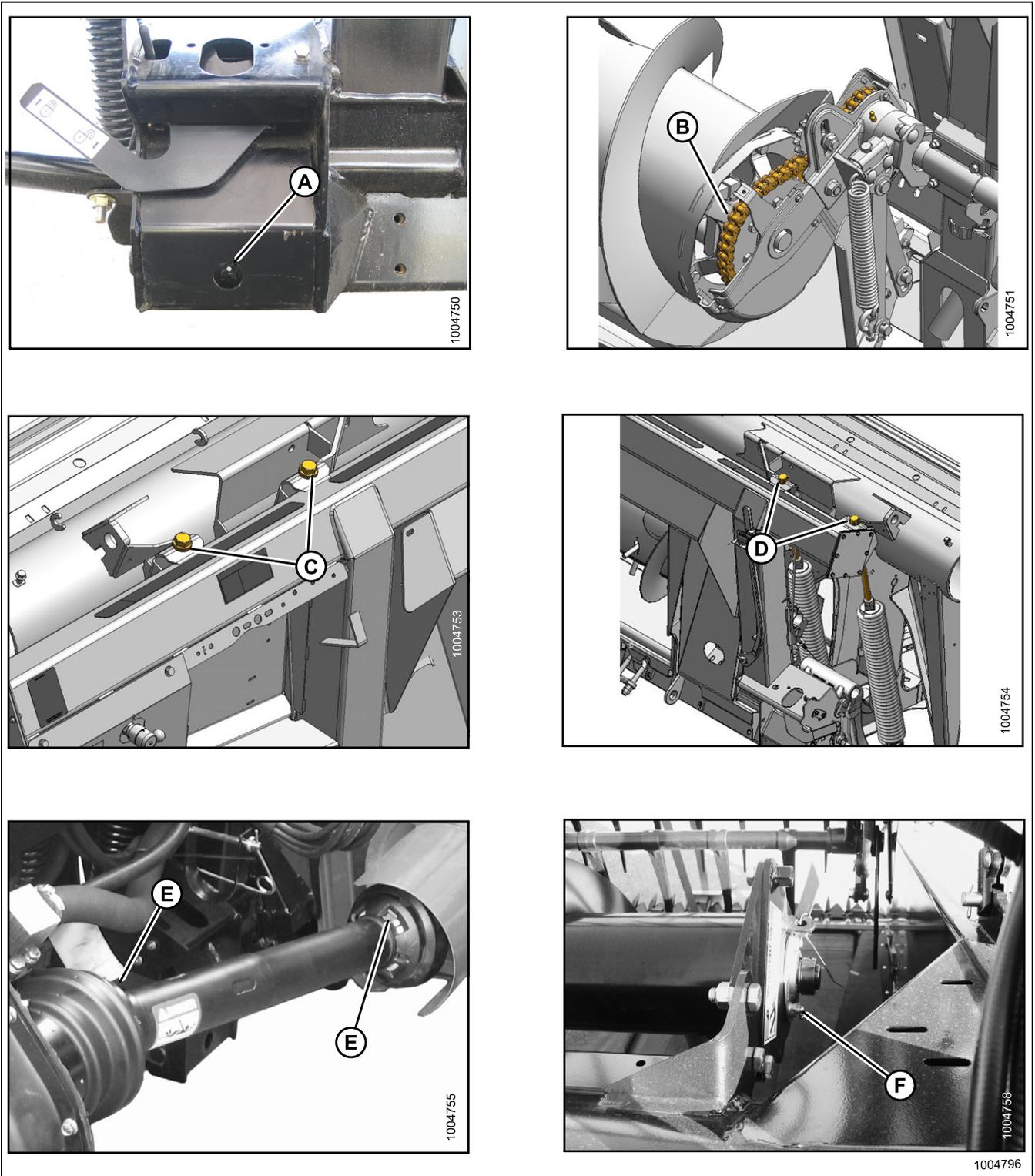


Figure 7.16: Every 100 Hours - Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base

- | | | | |
|--|--|--|---|
| <p>A - Float pivot - RH and LH</p> <p>C - LH Float spring tensioner (lubricate rods)</p> | <p>B - Auger drive chain - See section Lubricating Auger Drive Chain, page 271</p> <p>D - RH Float spring tensioner (lubricate rods)</p> | <p>E - Driveline guard - 2 PLCS</p> | <p>F - Upper cross auger bearing - 1 PLC</p> |
|--|--|--|---|

MAINTENANCE AND SERVICING

Every 100 Hours (Continued)

NOTE: Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

NOTE: Double knife drive – check both knife drive boxes.

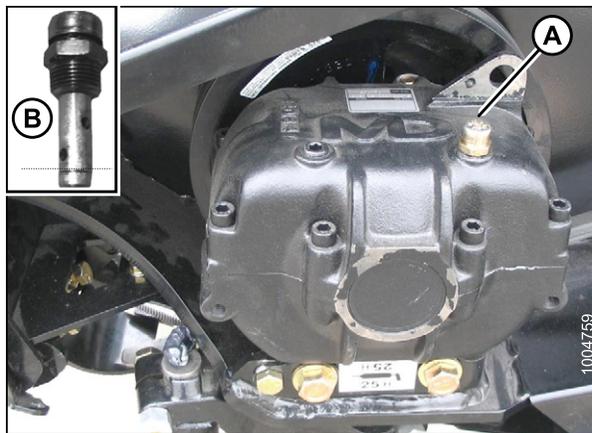


Figure 7.17: Every 100 hours – Knife drive box

A - Knife drive box (check oil level with dipstick at top of knife drive box)
B - Dipstick – Oil level between lower hole and end of dipstick.

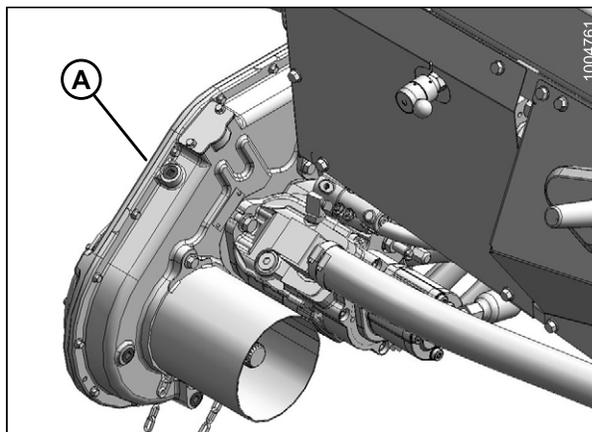


Figure 7.18: Every 100 Hours – Main drive gearbox

A - Main drive gearbox oil level (See section [Lubricating Main Drive Gearbox](#), page 273)

Every 250 Hours (Upper Cross Auger, Flex Linkage, Reel U-joint, Auger Pivots, Wheel Axle, Wheel Pivots)

NOTE: U-JOINT HAS AN EXTENDED LUBRICATION CROSS AND BEARING KIT. STOP GREASING WHEN GREASING BECOMES DIFFICULT OR IF U-JOINT STOPS TAKING GREASE. OVERGREASING WILL DAMAGE U-JOINT. 6–8 PUMPS ARE SUFFICIENT AT FIRST GREASE (FACTORY). DECREASE GREASE INTERVAL AS U-JOINT WEARS AND REQUIRES MORE THAN 6 PUMPS.

NOTE: Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2). Lithium Base.

MAINTENANCE AND SERVICING

Every 250 Hours (Upper Cross Auger, Flex Linkage, Reel U-joint)

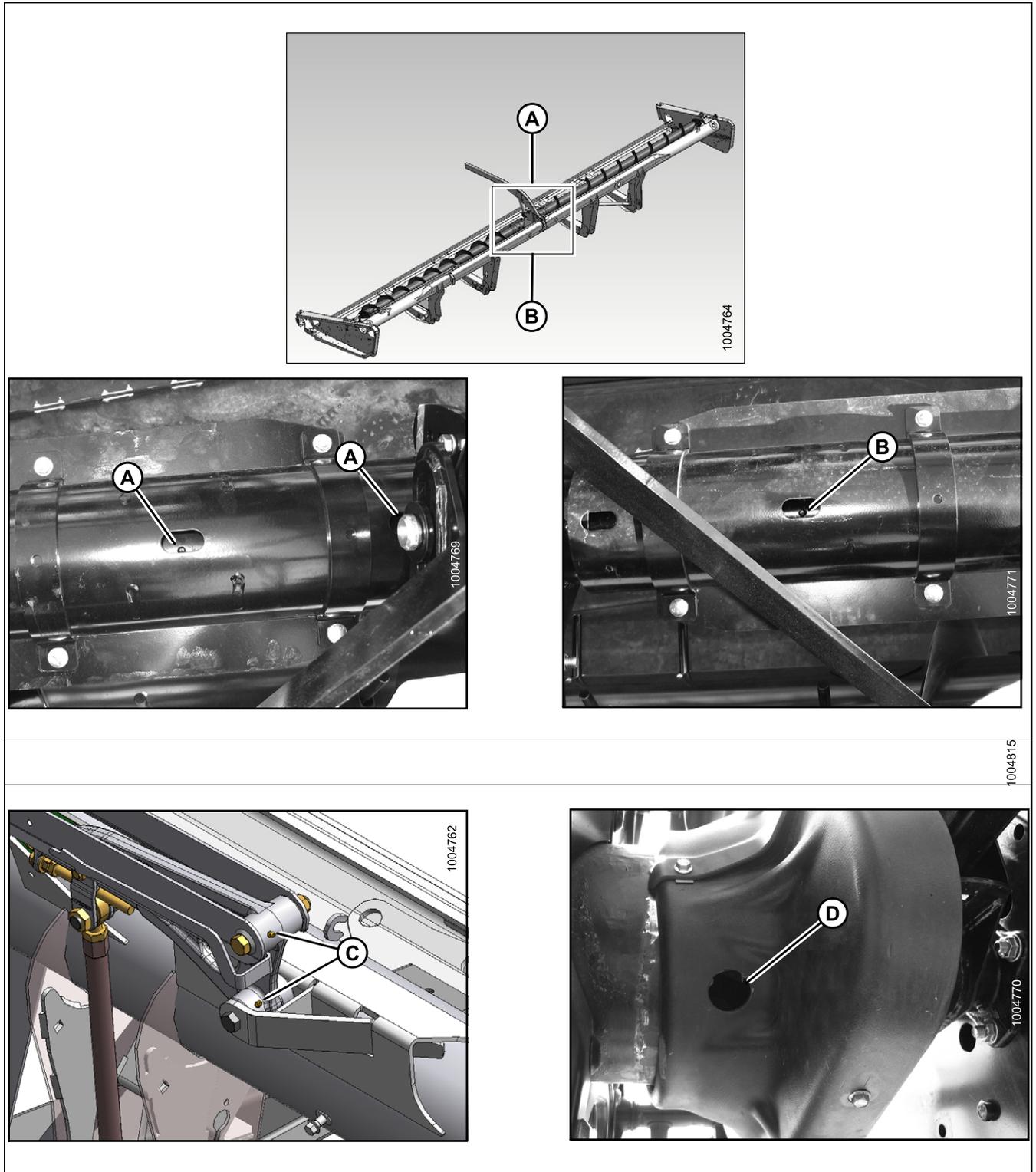


Figure 7.19: Every 250 Hours – Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2). Lithium Base

A - Upper cross auger U-joint and bearing B - Upper cross auger bearing (2 PLC) C - Flex linkage (2 PLCS) - both sides D - Reel U-joint (1 PLC)

MAINTENANCE AND SERVICING

Every 250 Hours Continued (Auger Pivots, Wheel Axle, Wheel Pivots)

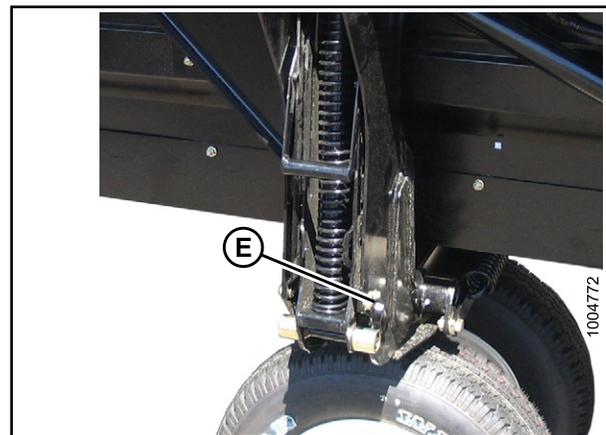
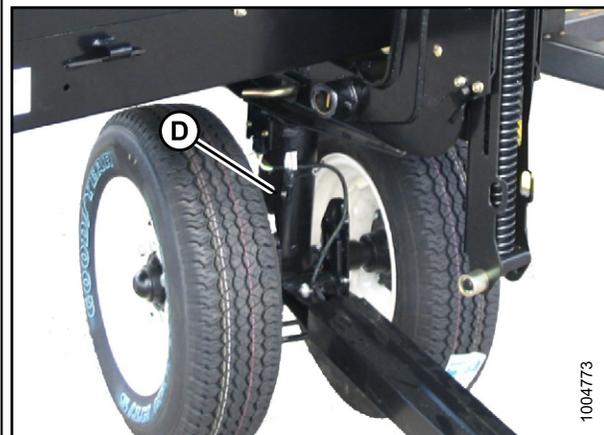
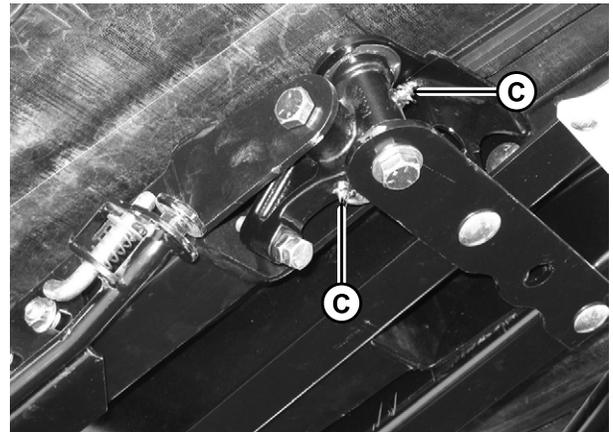
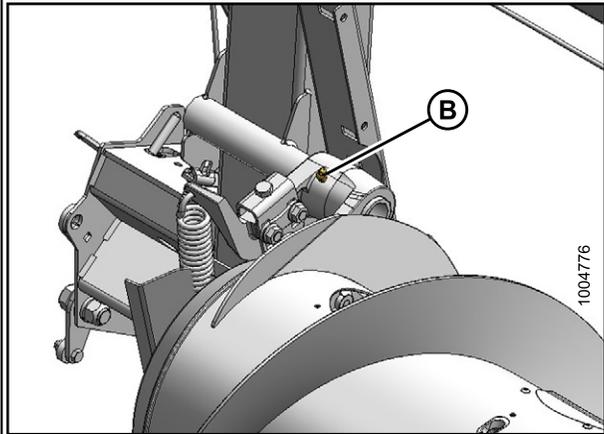
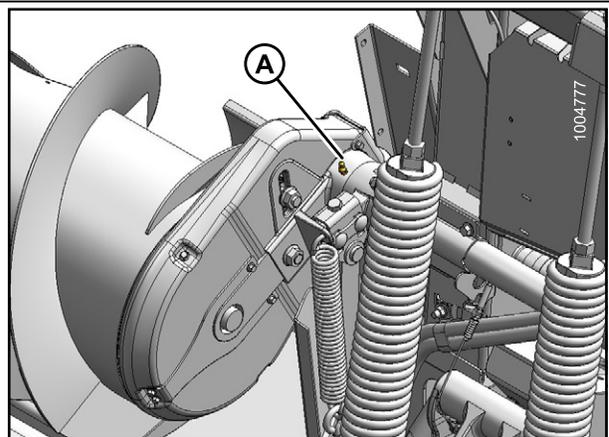
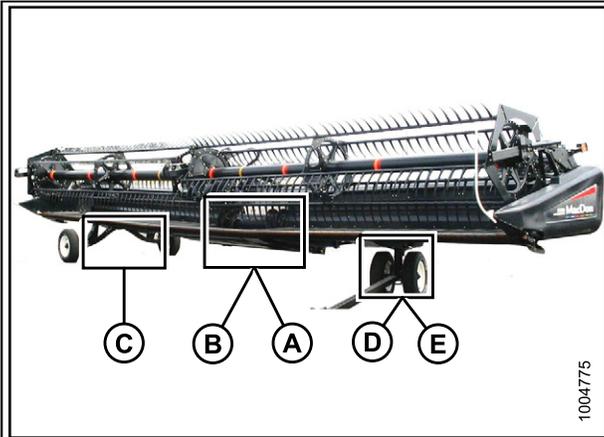


Figure 7.20: Every 250 Hours – Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2). Lithium Base.

A and B - Auger pivots C - Right side - Wheel axle (2 PLCS) D - Left side - Wheel pivot (1 PLC) E - Frame/wheel pivot (1 PLC) - both sides

MAINTENANCE AND SERVICING

Every 500 Hours (Reel Shaft and Wheel Bearings)

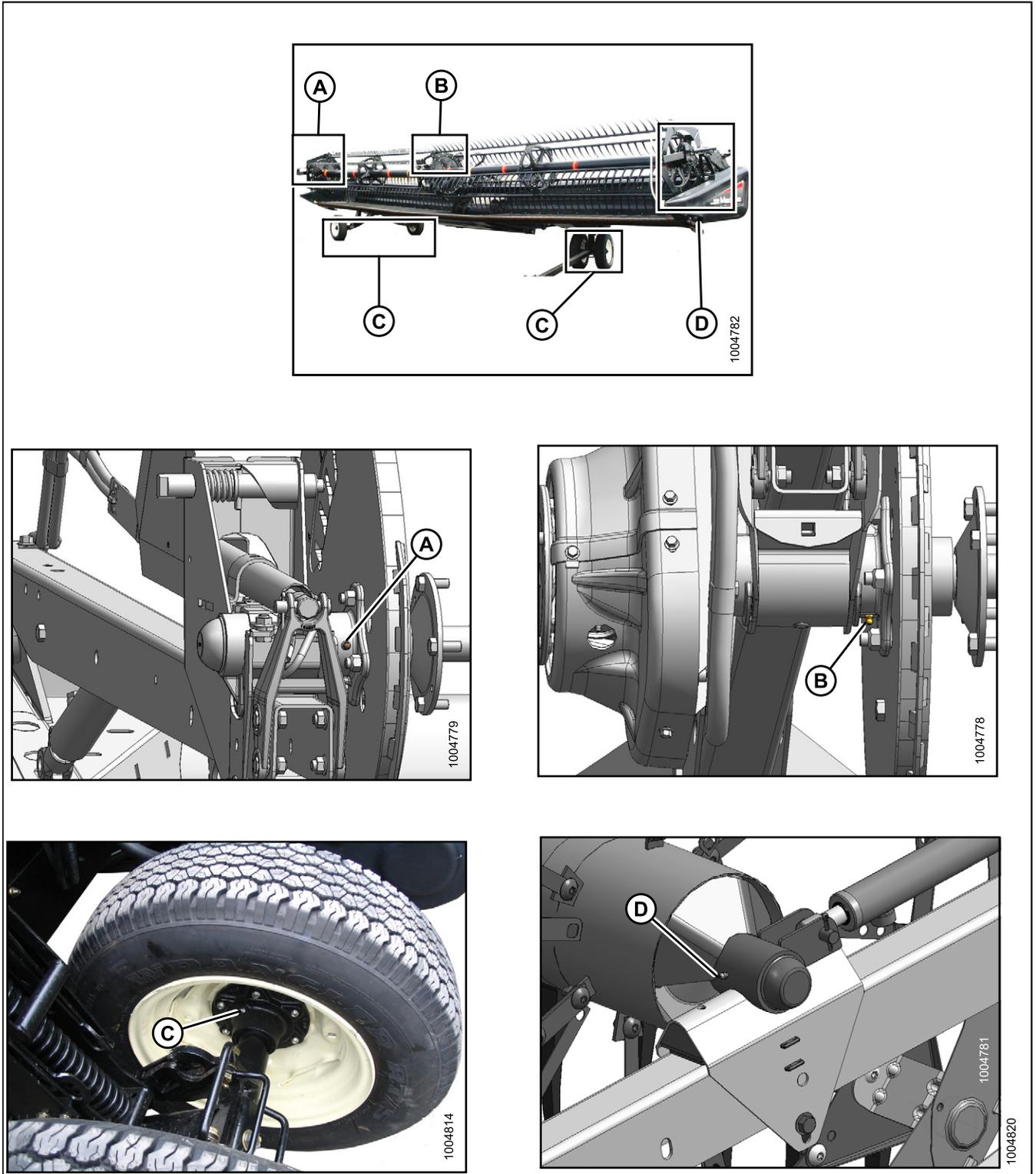


Figure 7.21: Every 500 Hours – Use High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2). Lithium Base.

A - Reel shaft RH bearing (1 PLC) B - Reel center bearing (1 PLC) C - Wheel bearings (4 PLCS) D - Reel shaft LH bearing (1 PLC)

MAINTENANCE AND SERVICING

Greasing Procedure

Greasing points are marked on the machine by decals showing a grease gun and grease interval in hours of operation. Master grease point location decals as shown below are provided on the header and adapter back frame.

Use the recommended lubricants specified in this manual. See Section 7.2.2 Recommended Fluids and Lubricants, page 245.

CAUTION

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

1. To avoid injecting dirt and grit, wipe grease fitting with a clean cloth before greasing.
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted.
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

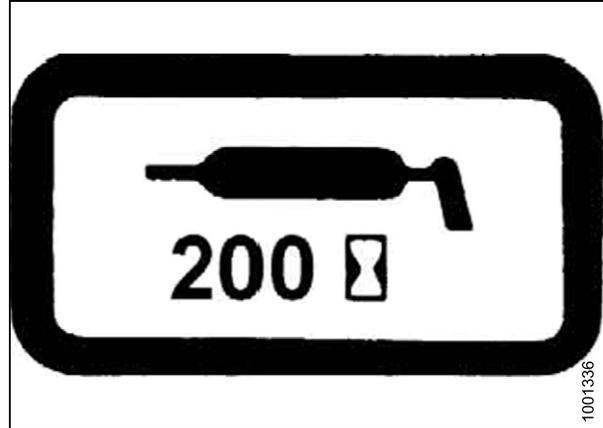


Figure 7.22

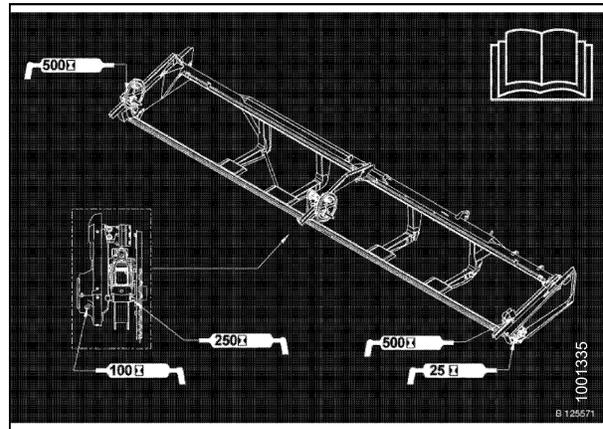


Figure 7.23: Single-knife header

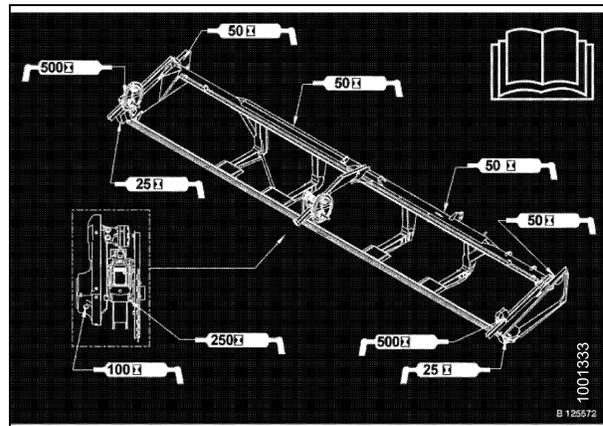


Figure 7.24: Double-knife header

MAINTENANCE AND SERVICING

4. Liberally apply grease to chain (A).

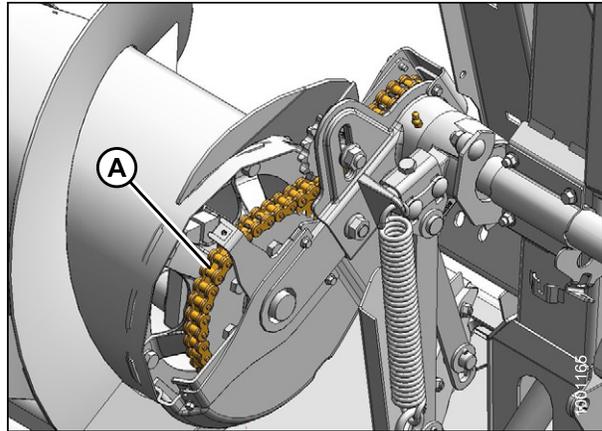


Figure 7.27

5. Reinstall upper half (C), by positioning the inboard lip into the auger tube and rotating back to engage the rear support.
6. Replace and tighten bolts (A) and (B).

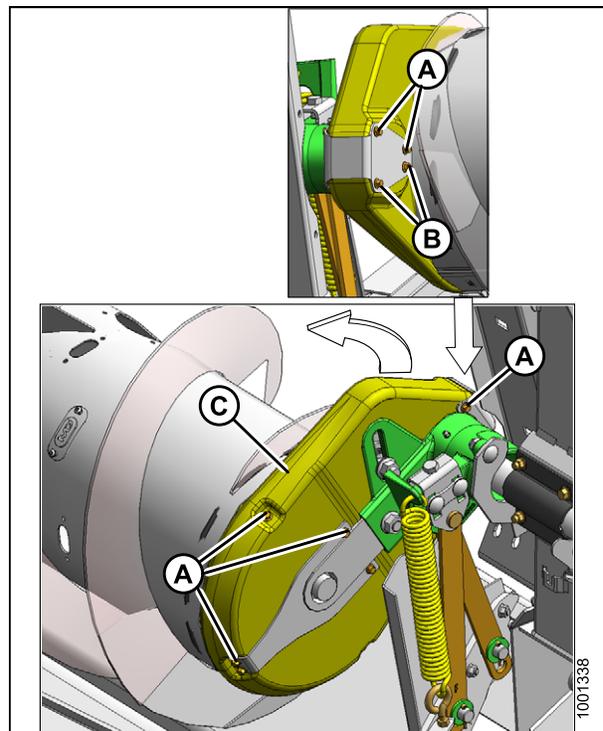


Figure 7.28

A - Bolts

B - Bolts

C - Upper auger drive cover

MAINTENANCE AND SERVICING

Lubricating Main Drive Gearbox

Checking Oil Level in Main 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.
2. Remove oil level plug (A). Level should be to bottom of hole.
3. Reinstall plug (A).
4. Add oil if required. Refer to [Adding Oil to Main Drive Gearbox, page 273](#).

Adding Oil to Main Drive Gearbox

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

1. Lower cutterbar to ground. Gearbox must be in working position.
2. Remove oil level 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 oil level plug (A) and filler plug (B).

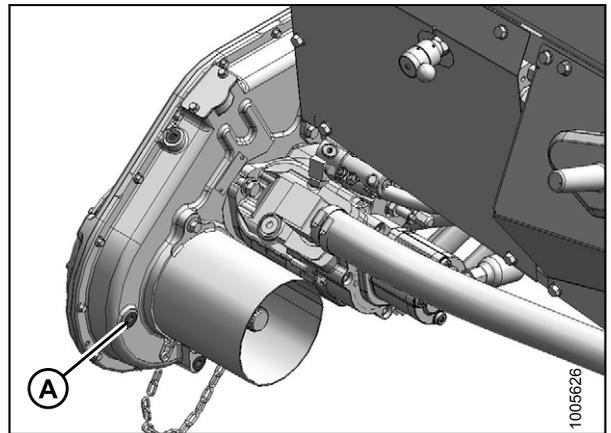


Figure 7.29

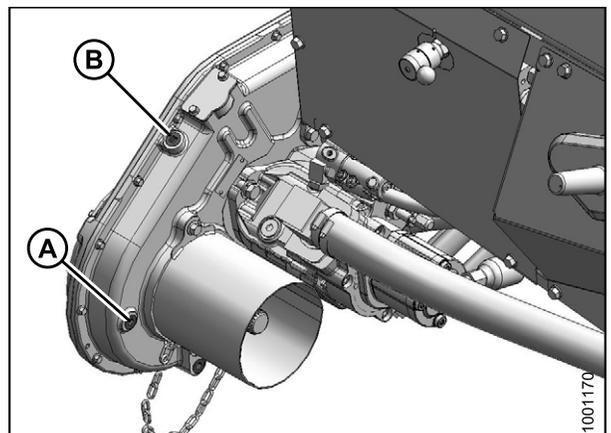


Figure 7.30

MAINTENANCE AND SERVICING

Changing Oil in Main Drive Gearbox

To change the main drive gearbox lubricant, follow these steps:

Change main 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.
2. Place a suitable container (approximately one US gallon [4 liters]) under gearbox drain to collect oil.
3. Remove drain plug (A) and filler plug (B), and allow oil to drain.
4. Replace drain plug (A), and remove oil level plug (C).
5. Add SAE 85W-140 (API Service Class GL-5) oil at (C) until it runs out of hole at (A). Gearbox holds approximately 5 US pints (2.5 liters).
6. Replace oil level plug (B) and filler plug (C).

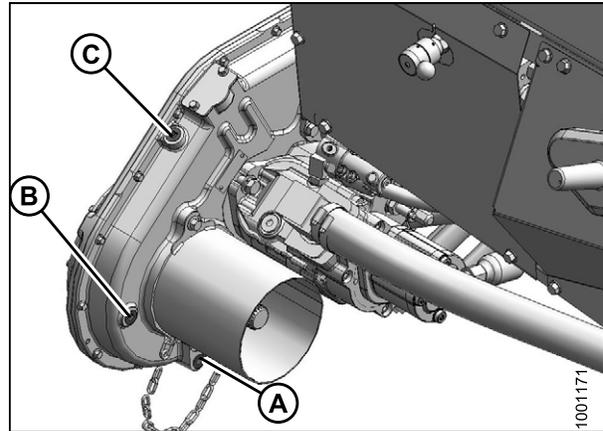


Figure 7.31

MAINTENANCE AND SERVICING

7.4 Hydraulics

The CA25 Combine Adapter's hydraulic system provides oil for the header draper and knife drives as well as the adapter feed draper.

Reel hydraulics are provided by the combine.

7.4.1 Reservoir

The adapter frame is used as a reservoir..

See Section [7.2.2 Recommended Fluids and Lubricants, page 245](#) for oil requirements.

Checking Hydraulic Oil Level

Check oil level every 25 hours at lower (A) and upper sights (B) with cutterbar just touching ground. Check level when oil is cold, and with center-link retracted.

- **Maximum - Hilly Terrain (C):** Maintain level so lower sight (A) is full, and upper sight (B) is up to one-half filled.
- **Nominal - Normal Terrain (D):** Maintain level so lower sight (A) is full, and upper sight (B) is empty.
- **Minimum - Level Ground (E):** For slopes of 6 degrees or less, oil level may be kept slightly lower if desired. Maintain level so lower sight (A) is one-half filled or higher.

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

This image provides more detail, and a closer look at the sight gauge.

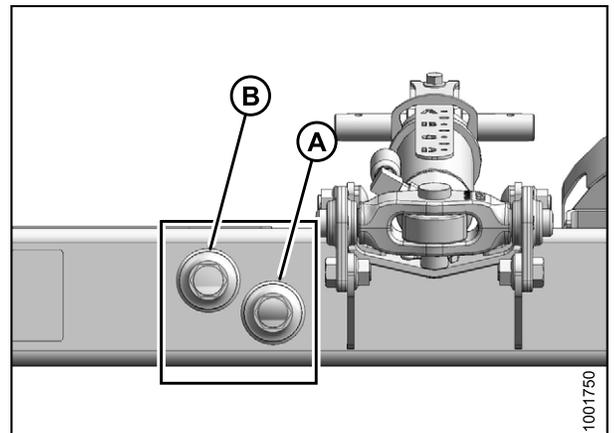


Figure 7.32: Check oil level

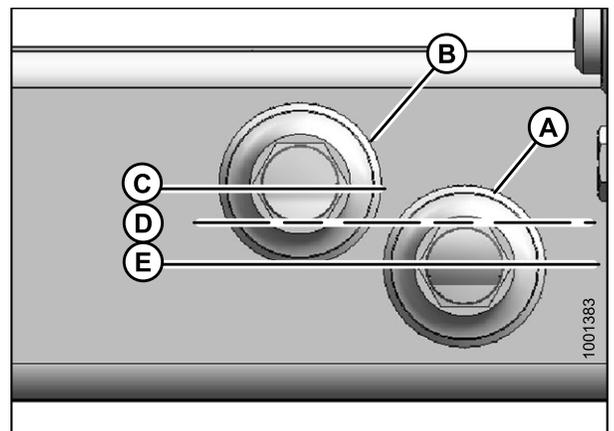


Figure 7.33

- A - Lower sight
- B - Upper sight
- C - shows MAXIMUM setting - side hills
- D - shows NOMINAL setting
- E - shows MINIMUM setting - flat terrain

MAINTENANCE AND SERVICING

Adding Hydraulic Oil

To add oil to the hydraulic reservoir, follow these steps.

CAUTION

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

1. Clean filler cap (A) of any dirt or debris.
2. Turn filler cap (A) counterclockwise until loose, and then remove cap.
3. Add warm (room temperature) oil and fill to required level. Refer to [Section 7.2.2 Recommended Fluids and Lubricants, page 245](#) for specifications.

IMPORTANT

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

4. Reinstall filler cap. Hand-tighten.

Changing Hydraulic Oil

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

Change hydraulic oil every 1000 hours or 3 years.

1. Detach header from adapter. Refer to [Section 5 Header Attachment/Detachment, page 113](#).
2. Raise adapter on feeder house and engage safety prop.



Figure 7.34

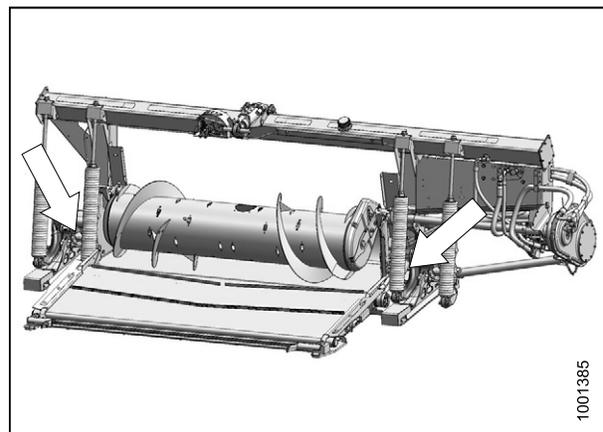


Figure 7.35

MAINTENANCE AND SERVICING

3. There is a drain plug at the bottom of each side frame (legs). Place a suitable container (at least 16 US gallons [60 liters]) under the two drains (A) to collect oil.
4. Using a 1-1/2 in. hex socket with extension, remove drain plugs (A).
5. Replace drain plugs when reservoir is empty.
6. Change filter, if required. See Section [7.4.2 Changing Hydraulic Oil Filter](#), page 277.
7. Fill with oil, Refer to [Adding Hydraulic Oil](#), page 276.

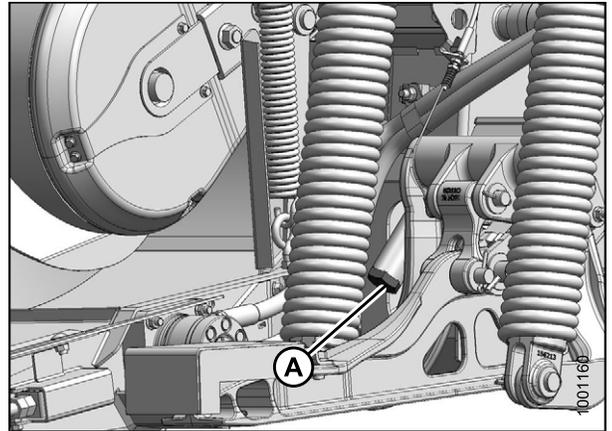


Figure 7.36

7.4.2 Changing Hydraulic Oil Filter

To change the adapter hydraulic oil filter, follow these steps:

Change hydraulic oil filter after the first 50 hours of operation, and every 250 hours thereafter.

Part MD #123989 can be obtained from your MacDon Dealer.



CAUTION

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

1. Remove five bolts (A), and remove panel (B).

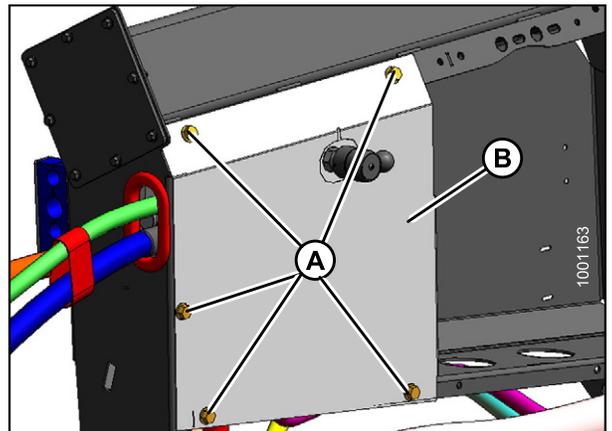


Figure 7.37

MAINTENANCE AND SERVICING

2. Clean around mating surfaces of filter and valve block (A).
3. Remove spin-off filter (B), and clean the exposed filter port in valve block.
4. Apply a thin film of clean oil to the O-ring provided with the new filter.
5. Turn filter into the valve block until O-ring contacts mating surface. Tighten filter an additional 1/2 to 3/4 turn by hand.

IMPORTANT

Do not use a filter wrench to install filter. Over-tightening can damage O-ring and filter.

6. Reinstall panel (B) with screws (A).

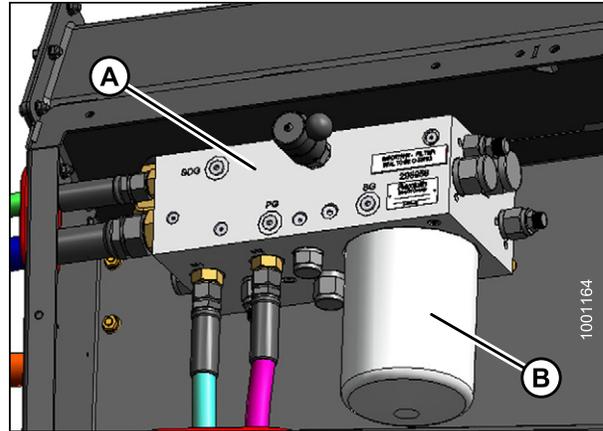


Figure 7.38

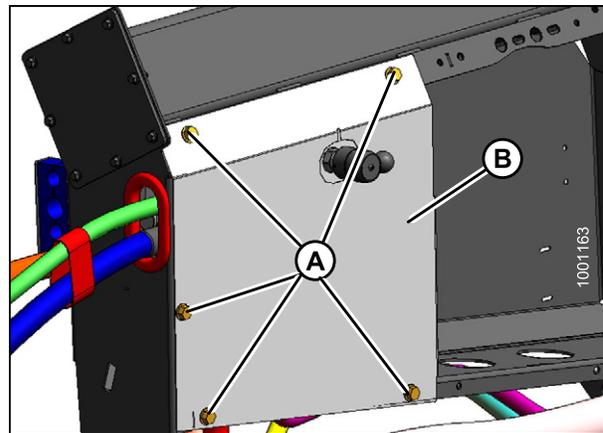


Figure 7.39

7.4.3 Multicoupler

The purpose of multicoupler system is to allow hook up of the combine to the adapter with only one connection. Some multicoupler connectors incorporate both the hydraulic and electrical connections in one simple connection while others have separate connections. This section will explore the orientation and functionality of the various multicoupler systems.

Lexion 500, 700 Series Multicoupler

The Lexion 500, 700 series multicoupler is standard on all 500, 700 series Lexion combines. It incorporates the reel lift, fore-aft, and drive hydraulics as well as all the electrical connections into one coupler. The Lexion multicoupler is unique because it also includes a hydraulic valve block. This valve block is used to control the hydraulic flow to the various reel functions. For further information Refer to [Lexion MultiCoupler Valve Block, page 280](#).

MAINTENANCE AND SERVICING

Use table below in conjunction to identify the hydraulic porting.

NOTE: Ensure that line P1 from the multicoupler connects to port 'P' on the multicoupler block, and that line T1 from the multicoupler connects to port 'T' on the multicoupler block.

| Call out | Function |
|----------|---|
| A | Reel Drive Return (Yellow) |
| B | Reel Lift (port 'A1') (Black) |
| C | Reel Aft (port 'A2') (Green) Connects to Selector valve Port 'P1' |
| D | Reel Fore (port 'B2') (Red) Connects to Selector valve Port 'P2' |
| E | Reel Drive Pressure (White) |
| F | Port 'T' Connects to Port 'T1' on multicoupler |
| G | Port 'P' Connects to Port 'P1' on multicoupler |
| H | Electrical |

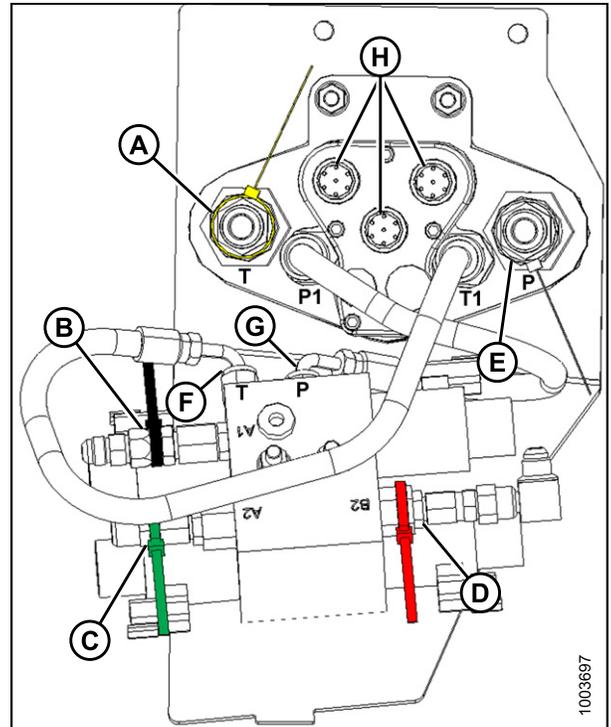


Figure 7.40: MD # 190866 Rear View

Use table below to identify the hydraulic porting.

| Call out | Function |
|----------|---------------------------------|
| A | Reel Drive Return (Yellow) |
| B | Reel Lift and Fore-Aft Pressure |
| C | Reel Lift and Fore-Aft Return |
| E | Reel Drive Pressure |
| H | Electrical |

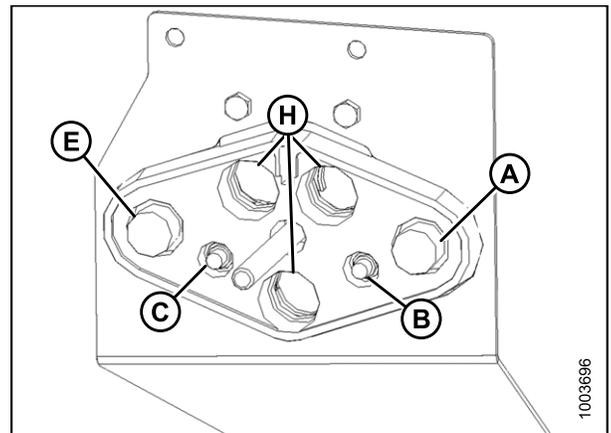


Figure 7.41: MD # 190866 Front View

MAINTENANCE AND SERVICING

Lexion MultiCoupler Valve Block

The Lexion multicoupler valve block is standard on all Lexion configured Draper Headers. Its purpose is to direct oil flow to the appropriate reel function such as reel raise/lower and fore-aft.

When the button on the hydrostatic lever for reel raise or reel fore/aft is depressed it activates the master solenoid on the combine. This then sends oil, down from the combine through the hydraulic lines to the multicoupler and into the valve block at port 'P'. Once inside the valve block, the appropriate solenoid valve is activated electronically and oil is diverted to the appropriate function. When the reel lower button is depressed only valve 'V2' is activated (master solenoid not activated) allowing the reel raise/lower cylinders to drain directly to tank. This is to say that the reel lower function is gravity powered and not pump down by the combine hydraulics.

Table 7.13 MD #129963 Electrical Functions

| Call out | Valve | Function | Electrical connection |
|----------|--------------|------------------------|------------------------|
| A | V1 (Port A1) | Reel Raise (Black Tie) | X2 (marked on harness) |
| B | V2 | Reel Lower | X5 (marked on harness) |
| C | V3 (Port B2) | Reel Fore (Red Tie) | X4 (marked on harness) |
| D | V4 (Port A2) | Reel Aft (Green Tie) | X3 (marked on harness) |

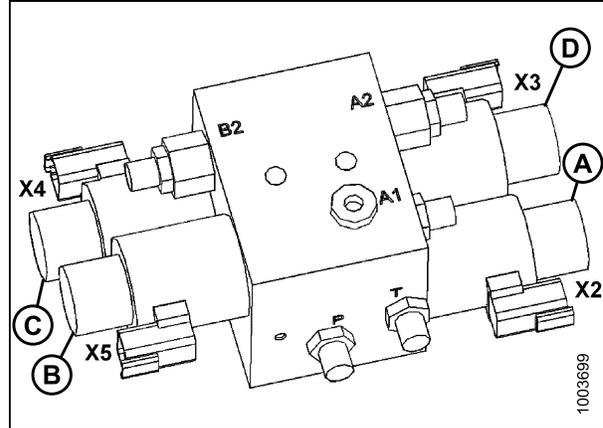


Figure 7.42: MD #129963

A - V1 (Reel Raise) B - V2 (Reel Lower)
 C - V3 (Reel Fore) D - V4 (Reel Aft)

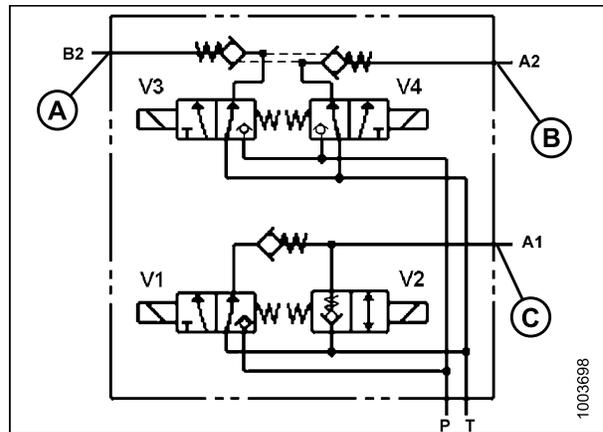


Figure 7.43: MD #129963 Hydraulic Schematic

A - Red Tie B - Green Tie
 C - Black Tie

MAINTENANCE AND SERVICING

MacDon, Case 7/8010 and NH CR/CX Multicoupler

The CIH multicoupler is standard on all Case 7/8010 and New Holland CR/CX combines. This multicoupler system is also an option on all MacDon CA25 combine adapters (located on the right hand side of the adapter) to allow the adapter's reel hydraulics to connect to the header's reel hydraulics.

The multicoupler incorporates the reel lift, fore-aft, and drive hydraulics into one connection. However, the electrical connection remain separate.

Table 7.14 Use table to identify the hydraulic porting.

| Call out | Function |
|----------|---------------------------------|
| A | Reel Drive Return (Yellow Tie) |
| B | Reel Drive Pressure (White Tie) |
| C | Reel Fore (Red Tie) |
| D | Reel Aft (Green Tie) |
| E | Reel Lift (Black Tie) |
| F | Electrical (MD_# 220328) |

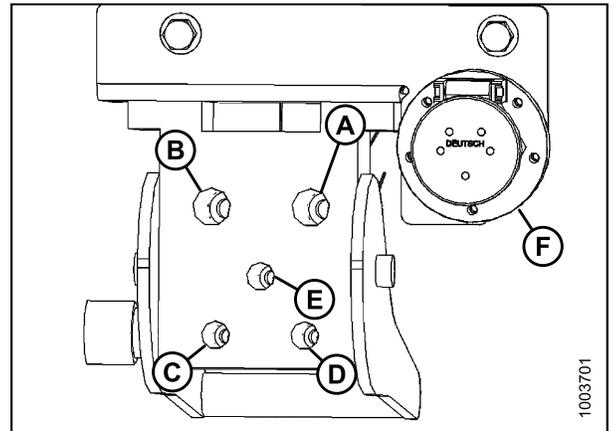


Figure 7.44: MD #153151 Front View

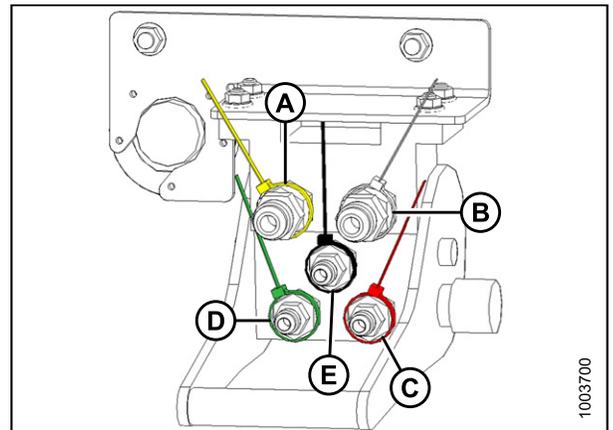


Figure 7.45: MD #153151 Back view

MAINTENANCE AND SERVICING

Table 7.15 Use table to identify the hydraulic porting.

| Call out | Function |
|----------|---------------------------------|
| A | Reel Drive Return (Yellow Tie) |
| B | Reel Drive Pressure (White Tie) |
| C | Reel Fore (Red Tie) |
| D | Reel Aft (Green Tie) |
| E | Reel Lift (Black Tie) |

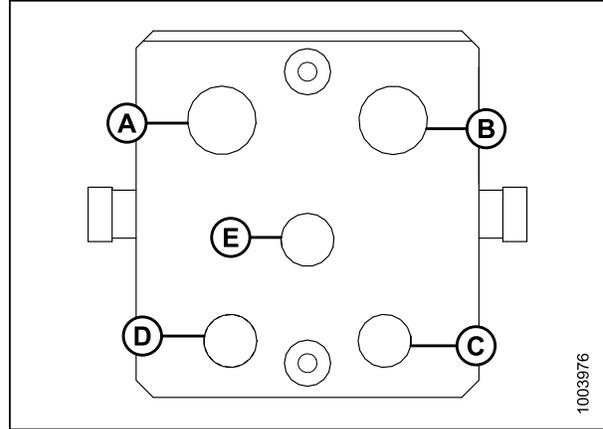


Figure 7.46: MD #135238 Multicoupler (Front View)

John Deere 60/70 Series Multicoupler

The John Deere 60 series multicoupler is standard on all 60/70 series John Deere combines. It incorporates the reel lift, fore-aft, and drive hydraulics as well as all electrical connection into one multicoupler coupler. There are two different versions available to accommodate the functions available on the particular header in use. The higher version includes the electrical, reel lift, and reel fore/aft while the lower version does not include the reel fore-aft connection.

| Call out | Function |
|----------|----------------------------------|
| A | Reel Drive Pressure |
| B | Reel Drive Return (Yellow disk) |
| C | Reel Aft (Dark blue disk) |
| D | Reel Lift (Green disk) |
| E | Reel Fore Reel (Light blue disk) |
| F | Electrical |

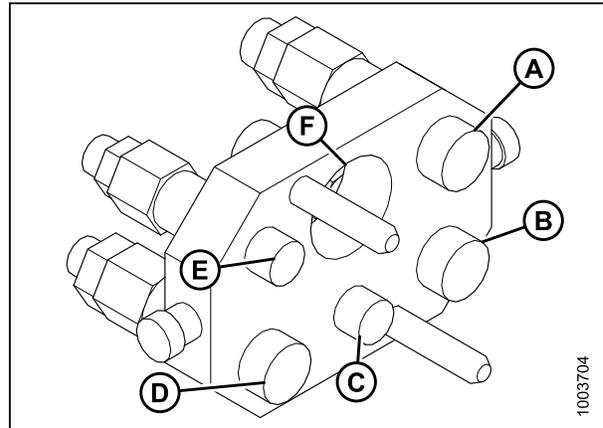


Figure 7.47: MD #129120 Front view

MAINTENANCE AND SERVICING

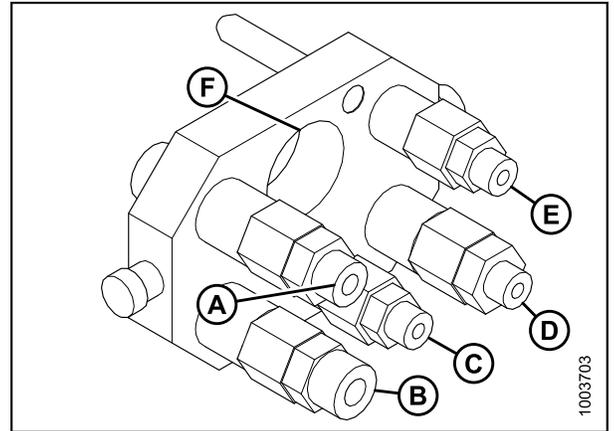


Figure 7.48: MD 129120 Back view

Remove Fittings For Combines or Headers Without Reel Fore-aft Option

On the backside of the multicoupler, locate the reel aft fitting (LT Blue disk) and reel fore fitting (DK Blue). Use a screwdriver (A) to remove retaining ring (B). The fitting (C) can now be removed from multicoupler.

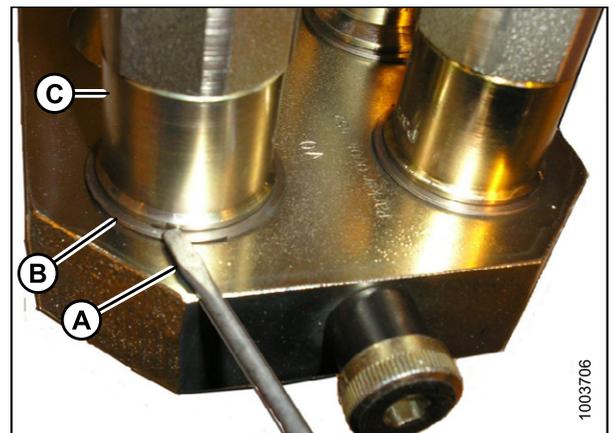


Figure 7.49

AGCO Multicoupler

Use table below to identify the hydraulic porting.

| Call out | Function |
|----------|------------------------------|
| A | Reel Drive Return (Yellow) |
| B | Reel Drive Pressure (No tie) |
| C | Reel Fore (Red) |
| D | Reel Lift (Black) |
| E | Reel Aft (Green) |
| F | Electrical (MD #187019) |

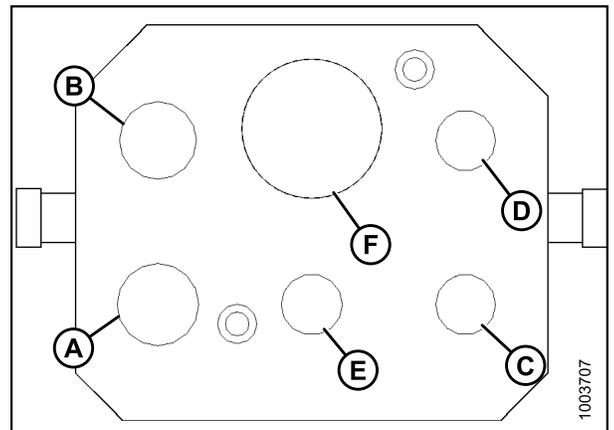


Figure 7.50: MD #187183 Front view

MAINTENANCE AND SERVICING

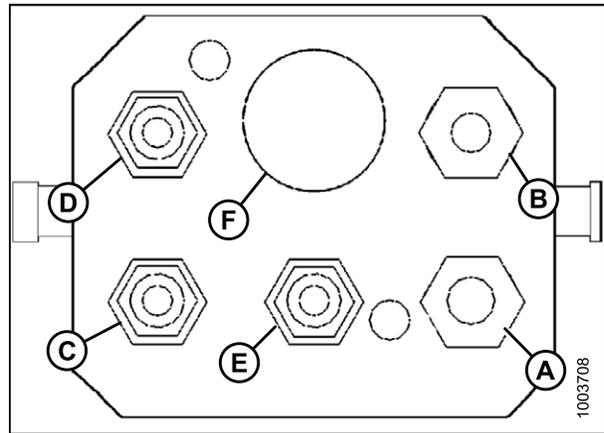


Figure 7.51: MD #187183 Back view

MAINTENANCE AND SERVICING

7.5 Electrical

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

Keep lights clean and replace defective bulbs.

7.5.1 Replacing Light Bulbs

To replace a light bulb, follow these steps:

1. Using a Phillips screwdriver, remove screws (A) from fixture and remove plastic lens.
2. Replace bulb and reinstall plastic lens and screws.

NOTE: Bulb Part Numbers: Use Bulb Trade #1156 for amber clearance lights and #1157 for red tail light (Slow Speed Transport option). #1156 is 21W (12V), and #1157 is 21/5W (12V).

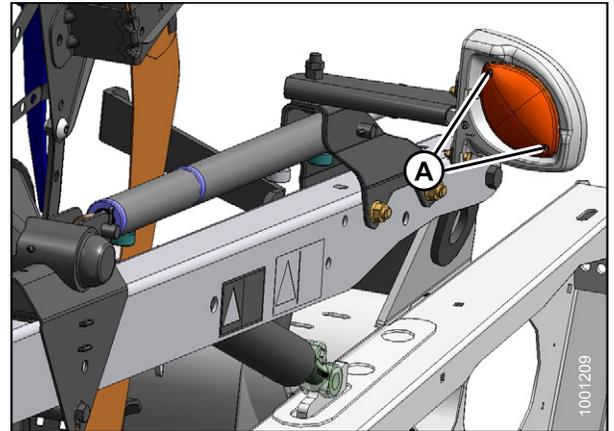


Figure 7.52

MAINTENANCE AND SERVICING

7.6 Main Drive

The main drive provides rotational power from the combine to the Adapter gearbox. The gear on the main drive input shaft drives another gear and shaft. The second shaft connects to the feed auger.

7.6.1 Removing The Main Driveline

To remove the main driveline, follow these steps.

NOTE: The main 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.

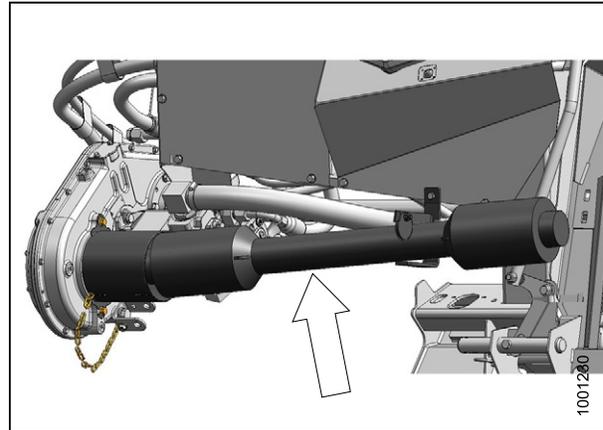


Figure 7.53

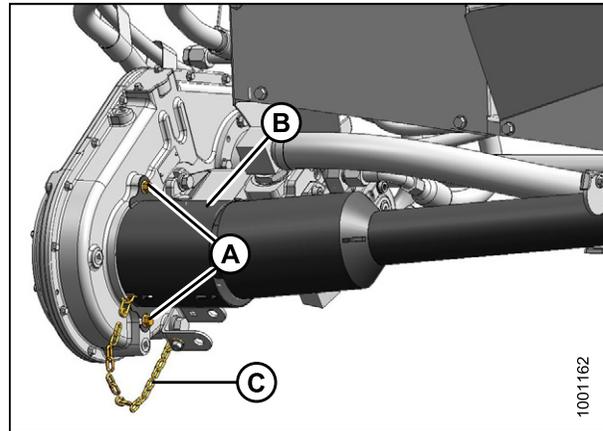


Figure 7.54

MAINTENANCE AND SERVICING

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

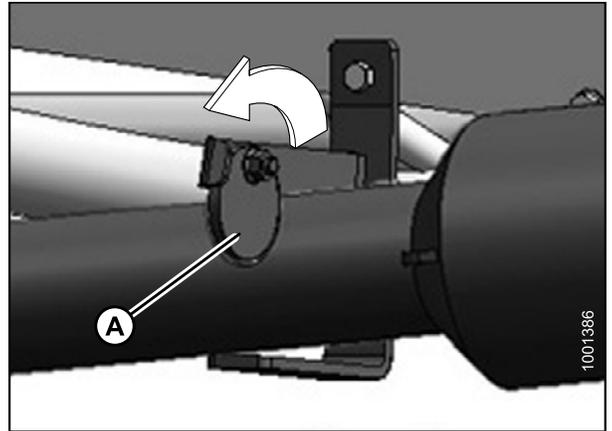


Figure 7.55

7.6.2 Installing Driveline

To install the main driveline, follow these steps:



CAUTION

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

IMPORTANT

If combine output shaft splines match adapter input shaft splines, ensure driveline is installed with longer guard at adapter gearbox end.

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

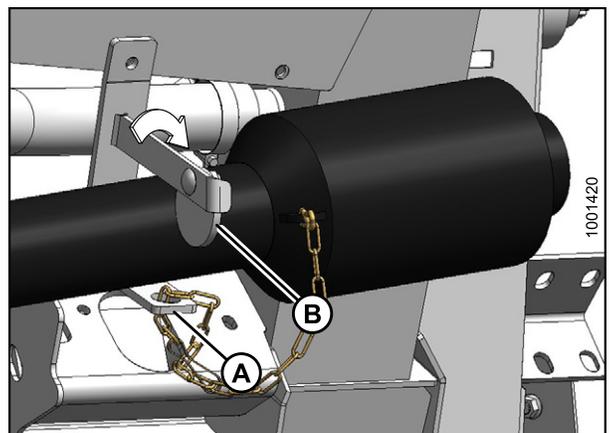


Figure 7.56

MAINTENANCE AND SERVICING

2. Slide shield (B) over driveline.
3. Position driveline quick disconnect onto adapter gearbox shaft, pull back collar, and slide onto shaft until yoke locks onto shaft. Release collar.
4. Position shield (B) on gearbox and secure with nuts (A).
5. Reconnect other end to combine if necessary.

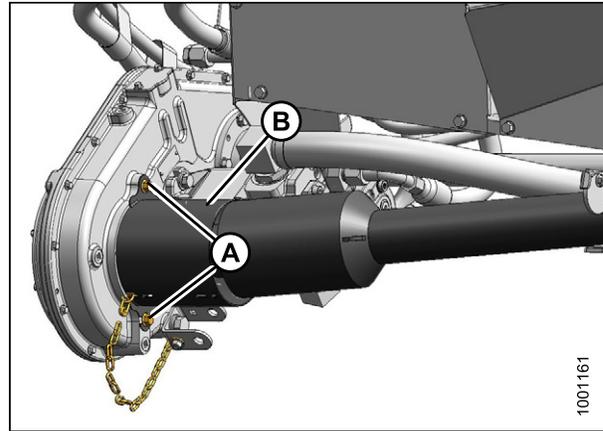


Figure 7.57

7.6.3 Removing Driveline Guard

The main driveline guard normally remains attached to the driveline, but can be removed for maintenance.



CAUTION

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

NOTE: The driveline does not need to be removed from the adapter in order to remove the driveline guard.

To remove a main driveline guard, follow these steps:

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

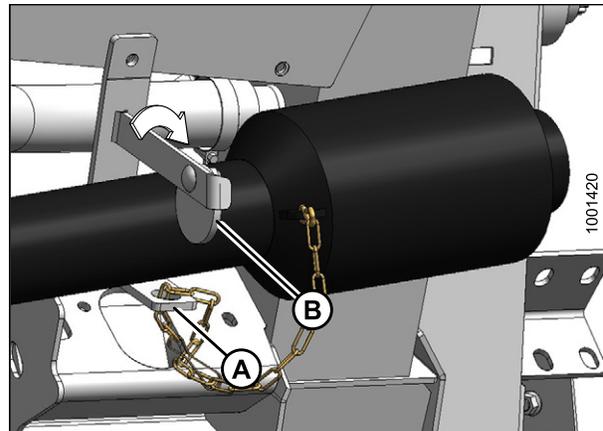


Figure 7.58

MAINTENANCE AND SERVICING

- 2. Lift combine end of driveline (A) from hook, and extend driveline until it separates. Hold adapter end of driveline to prevent it from dropping and hitting the ground.



Figure 7.59

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

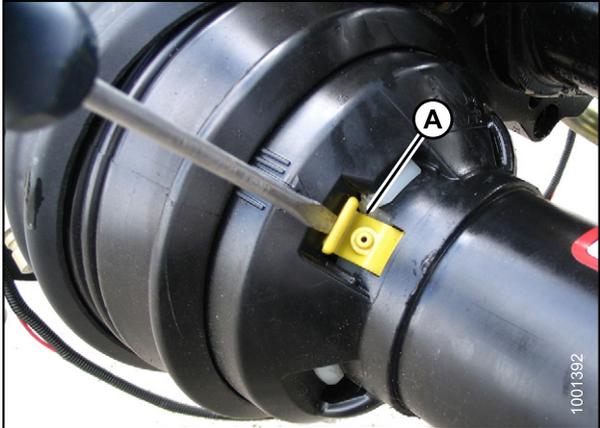


Figure 7.60

MAINTENANCE AND SERVICING

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

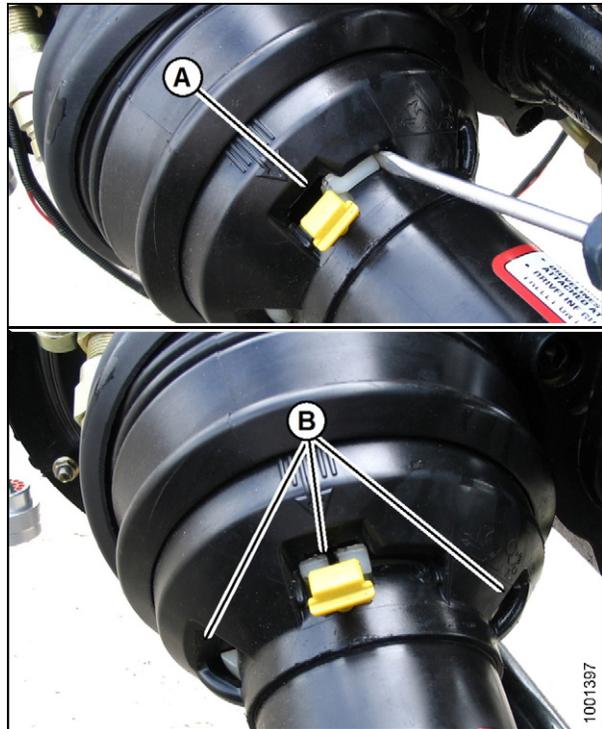


Figure 7.61

A - Guard locking ring

B - Lugs

7.6.4 Installing Driveline Guard

To install the main driveline guards, follow these steps.

1. Slide guard onto driveline, and line up slotted lug on locking ring (A) with arrow (B) on guard.



Figure 7.62

MAINTENANCE AND SERVICING

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

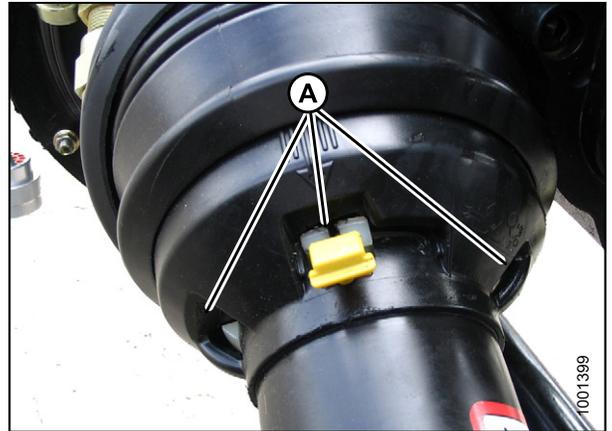


Figure 7.63

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

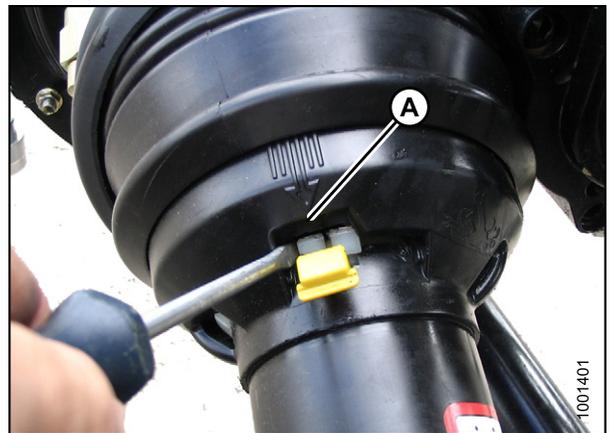


Figure 7.64

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



Figure 7.65

MAINTENANCE AND SERVICING

5. Reassemble driveline.

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

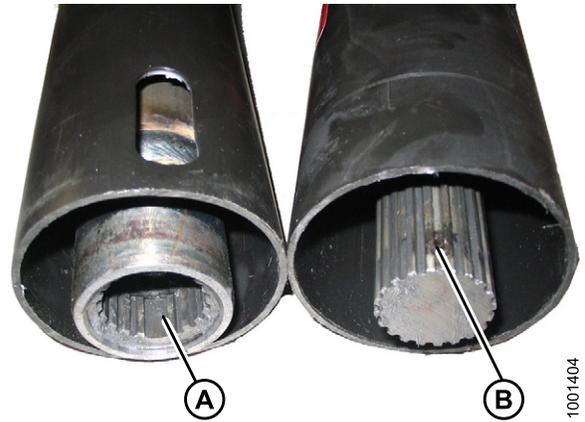


Figure 7.66

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

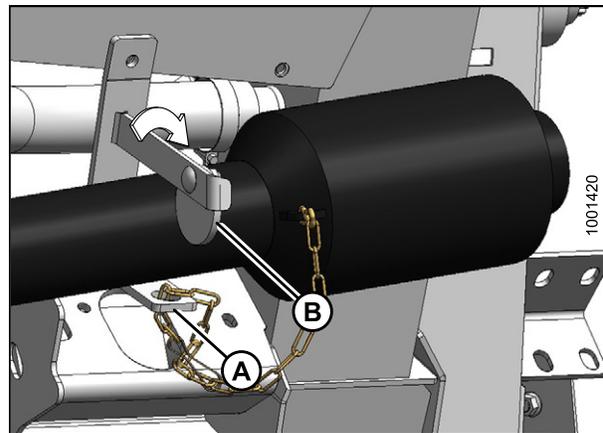


Figure 7.67

7.6.5 Adjusting Tension on Gearbox Drive Chain

To adjust tension on the chain in the main gearbox, follow these steps:

CAUTION

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

MAINTENANCE AND SERVICING

1. Lower header, stop engine, and remove key.
2. Remove chain adjusting cover (A). Be sure gasket (B) is not damaged.
3. Remove retainer plate (C).
4. Tighten bolt (D) to 60 in·lbf (6.8 N·m), Then back off bolt 1-2/3 turns.
5. Reinstall retainer plate (C).
6. Reinstall chain adjusting cover (A) and gasket (B). Torque hardware to 84 in·lbf (9.5 N·m).

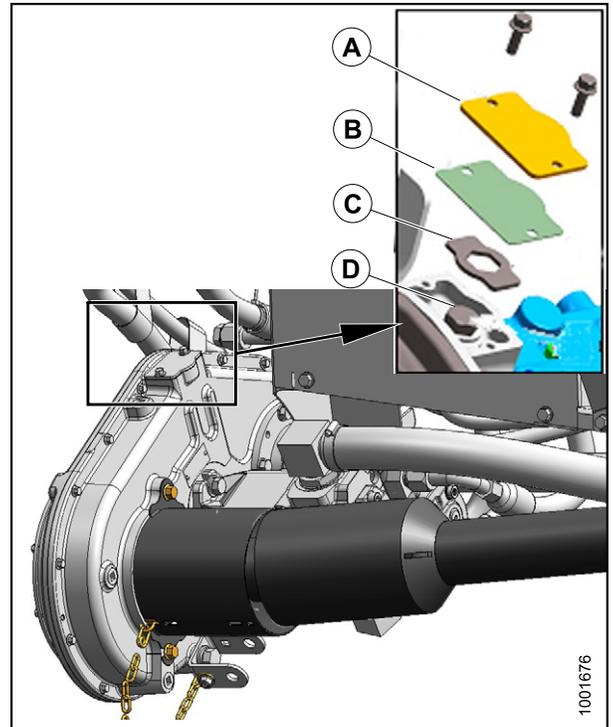


Figure 7.68

A - Cover
C - Retainer plate

B - Gasket
D - Bolt

MAINTENANCE AND SERVICING

7.7 Auger

The auger assists the header by directing the cut crop from on the draper decks into the combine feeder house. It is located on the D65 header.

7.7.1 Adjusting Auger to Pan Clearance

IMPORTANT

It is important that these clearances are maintained. Too little clearance may result in the tines or flights contacting and damaging the draper or feed pan under certain orientations of the header.

IMPORTANT

Look for evidence of contact when greasing the adapter.

To adjust the auger pan clearance, follow these steps:

1. Extend center-link to maximum for steepest header angle, and fully lower the header.
2. Check that adapter float linkage is on downstops (washer (A) and nut (B) cannot be moved).

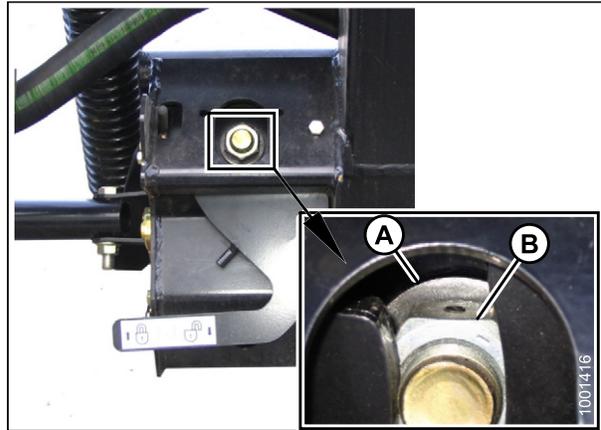


Figure 7.69

3. Loosen two nuts (B).
4. Turn bolt head (A) clockwise to raise auger and increase pan/drafter clearance (C)..
 - Steepest angle: 0.2–0.4 in. (5–10 mm)
 - Flattest angle: 1.0–1.5 in. (25–40 mm)
5. Repeat for other end of auger.
6. Tighten nuts (B) on both ends of auger.

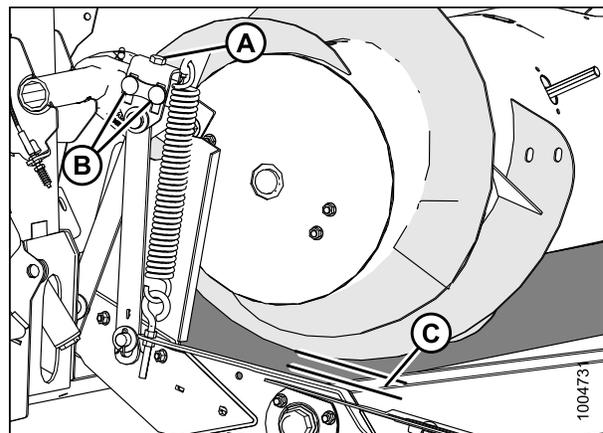


Figure 7.70: Auger Height Adjustment Bolt

MAINTENANCE AND SERVICING

7.7.2 Adjusting Auger Drive Chain

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

To adjust chain tension, follow these steps.

CAUTION

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

1. Detach combine from adapter. For instructions, See Section 5 Header Attachment/Detachment, page 113.
2. Remove the six bolts (A) that secure the top cover on the auger chain case.
3. Remove the three bolts (B) and loosen two bolts (E) that secure the bottom cover.
4. Remove cover retainer (F).
5. Hinge covers (C) and (D) forward, and then remove them to expose drives.

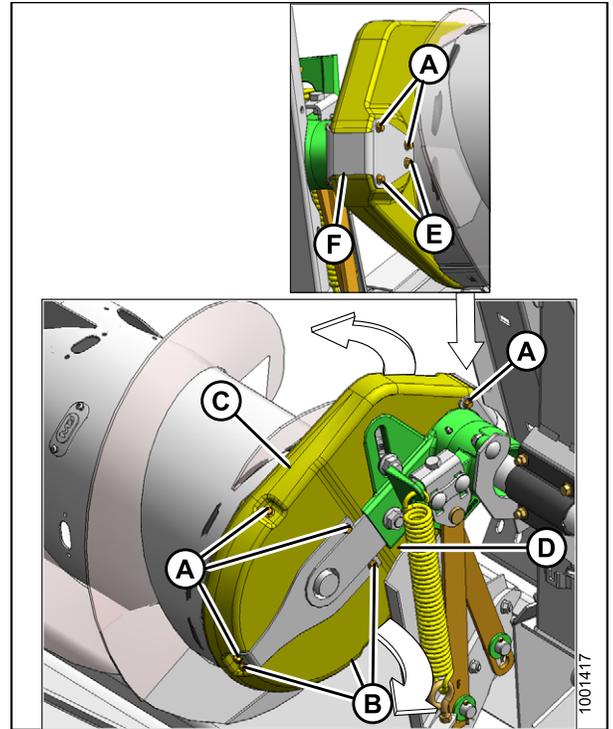


Figure 7.71

6. Loosen the bolt (A) that secures the idler sprocket.
7. Rotate auger in reverse to take up slack in lower strand of chain (B).
8. Push idler sprocket down to eliminate remaining slack in upper strands.
9. Rotate auger back and forth to check slack, and repeat above step if necessary. A slight amount of slack is acceptable.

NOTE: Do **NOT** use excessive force on idler to tighten chain.

10. Tighten idler bolt (A), and torque to 215 ft·lbf (290 N·m).

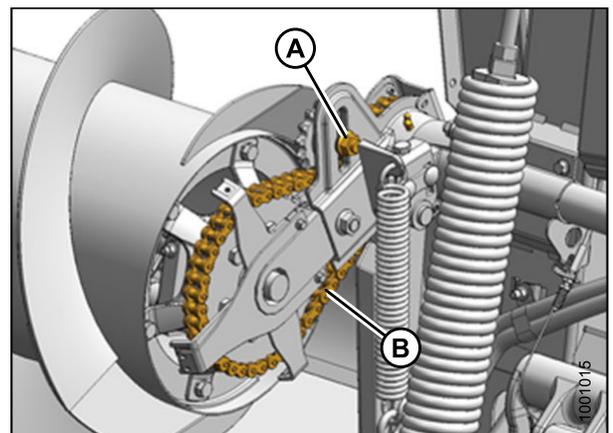


Figure 7.72

MAINTENANCE AND SERVICING

11. Reinstall covers (C) and (D), engage inboard lip of cover into auger tube and rotate cover back to engage rear support.
12. Install cover retainer (F).
13. Replace and tighten bolts (A), (B) and (E).

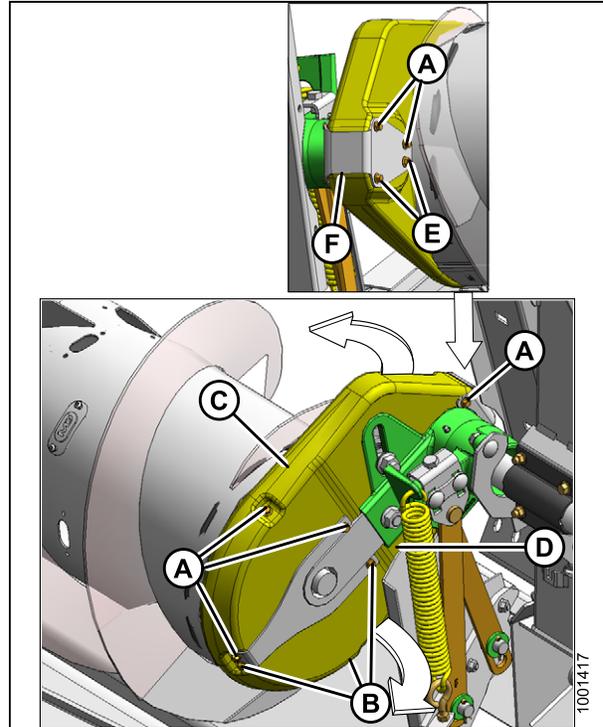


Figure 7.73

7.7.3 Removing Auger Drive Chain

The chain tensioner can only take up slack for a single pitch. When the chain has worn or stretched beyond the limits of the tensioner, the chain should be replaced.

To replace the auger drive chain, follow these steps:



CAUTION

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

MAINTENANCE AND SERVICING

1. Detach combine from adapter. For instructions, See Section 5 Header Attachment/Detachment, page 113.
2. Remove the six bolts (A) that secure the top cover on the auger chain case.
3. Remove the three bolts (B) and loosen two bolts (E) that secure the bottom cover.
4. Remove cover retainer (F).
5. Hinge covers (C) and (D) forward, and then remove them to expose drives.

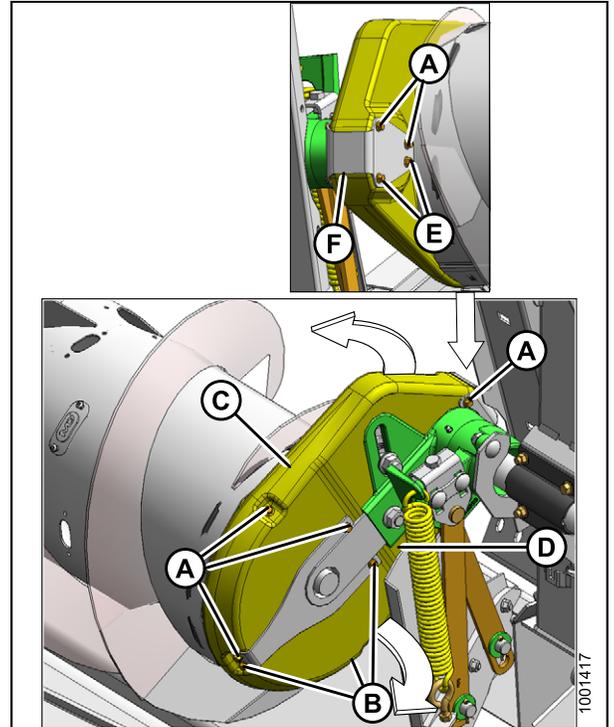


Figure 7.74

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

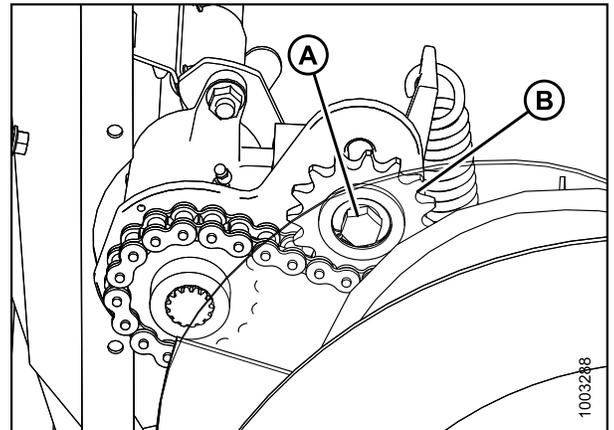


Figure 7.75

MAINTENANCE AND SERVICING

7. Remove lower bolt (A), and loosen top bolt (B). Swing C-clamp (C), and slide drive assembly to the right.

NOTE: This will allow the drive sprocket to fall off shaft.

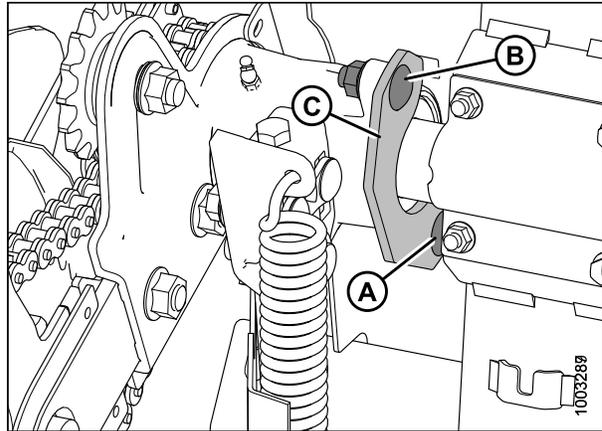


Figure 7.76

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

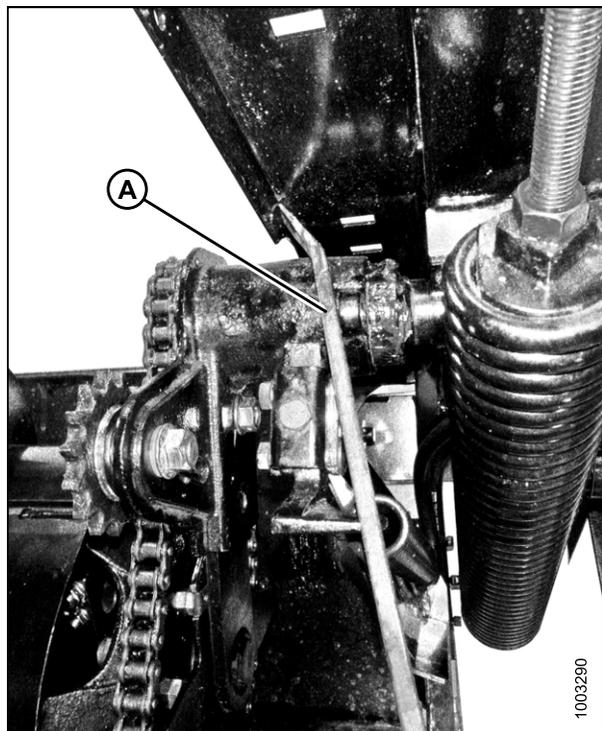


Figure 7.77

MAINTENANCE AND SERVICING

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

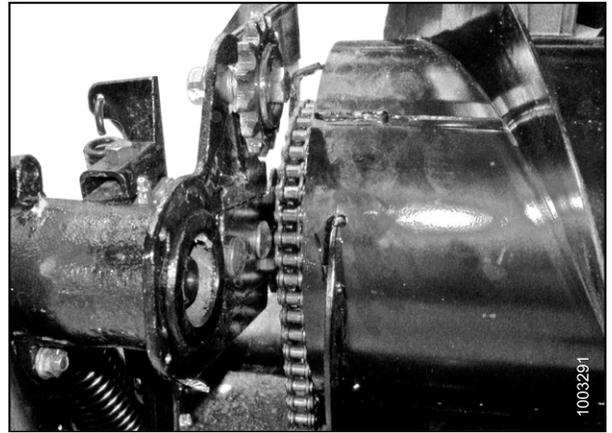


Figure 7.78

9. Block the left hand side of the auger with a 2x4 (A), this will stop the auger from falling on the feed draper and cutting it.

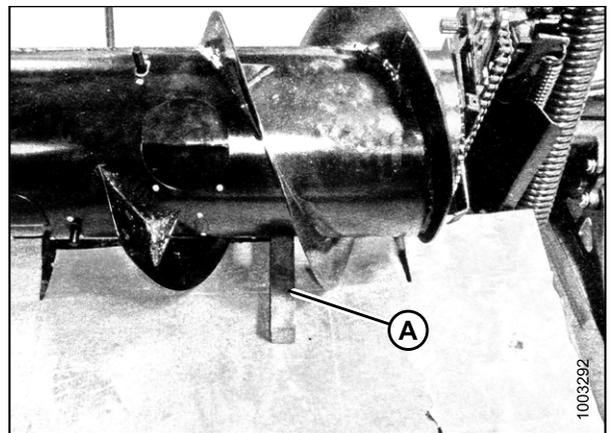


Figure 7.79

10. Remove the two bolts and nuts (A), and separate the drive housing from the auger mount bracket.

NOTE: May need to lift or support drum to remove bolts.

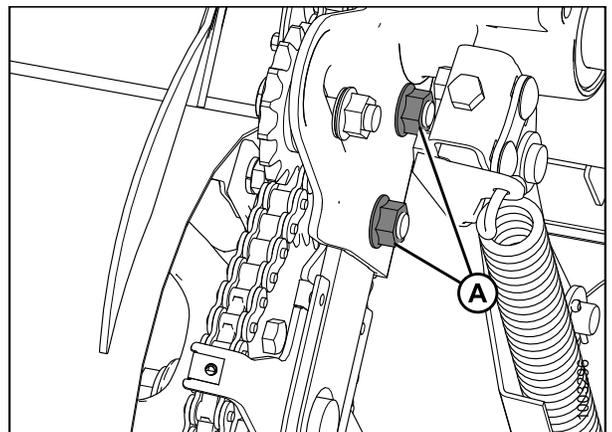


Figure 7.80

MAINTENANCE AND SERVICING

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

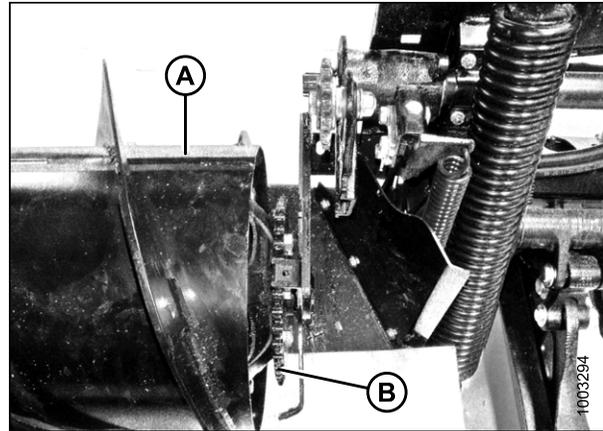


Figure 7.81

7.7.4 Installing Auger Drive Chain

To install the auger drive chain, follow these steps.

NOTE: Blocking the left side of the drum may ease in doing the next step.

- Place the drive chain over the sprocket. Slide the left hand housing toward the drum and mount just enough to still leave the drive shaft 1/2 in. exposed. Bolt the assembly together.

NOTE: Remove block if used. Prior to hooking up the chain to the drive assembly, rotate drum in forward, and reverse a couple of times. This will ensure the drum has been rebuilt correctly.

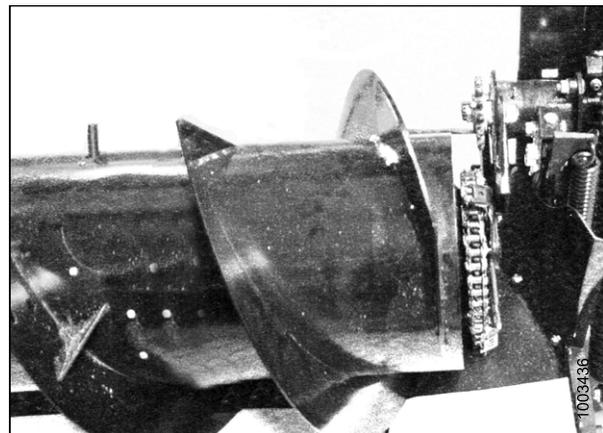


Figure 7.82

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

NOTE: The shoulder of the drive sprocket (A) faces the RTD.

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

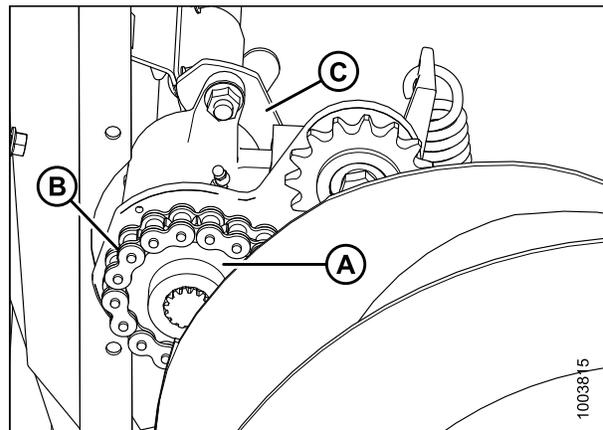


Figure 7.83

MAINTENANCE AND SERVICING

4. Loosen bolt (A) securing idler sprocket (B).
5. Rotate auger in reverse to take up slack in lower strand of chain (C).

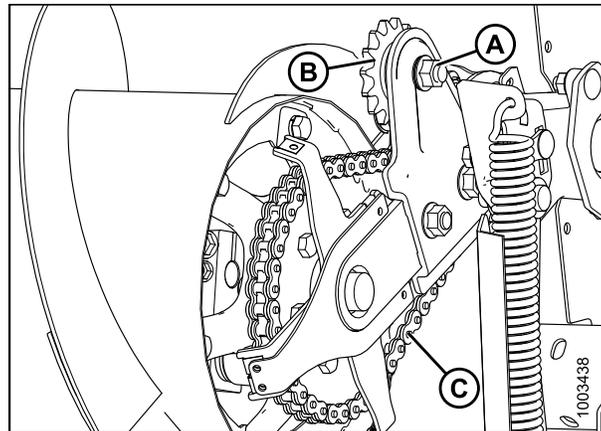


Figure 7.84

6. Push idler sprocket (A) down to eliminate remaining slack in upper strands (B).
7. Rotate auger back and forth to check slack, and repeat above step if necessary. A slight amount of slack is acceptable.

NOTE: Do not use excessive force on idler sprocket (A) to tighten chain (B).

8. Torque idler bolt (C) to 121–134 ft·lbf (163–181 N·m).

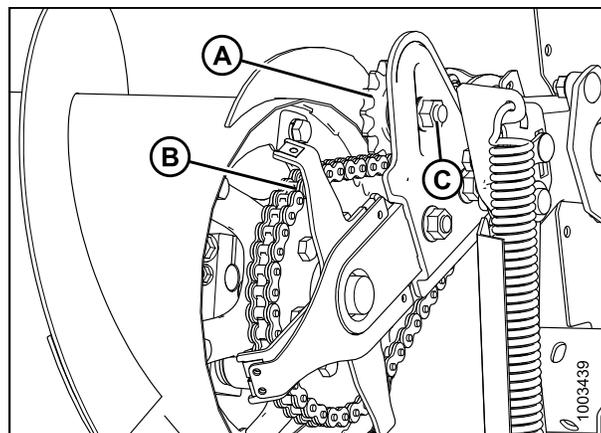


Figure 7.85

MAINTENANCE AND SERVICING

- 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).

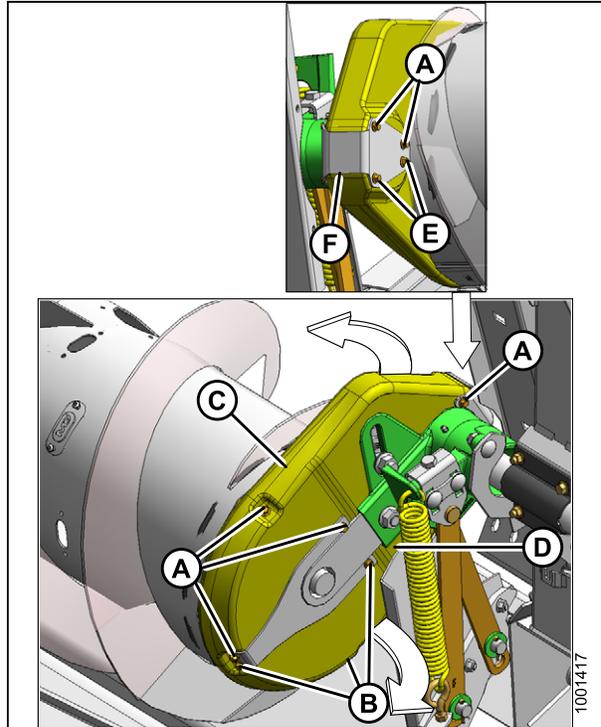


Figure 7.86

7.7.5 Auger Tines

The CA25 Combine Adapter auger has tines installed in it to enhance feeding crop into the combine feeder house. Some conditions may require the removal or addition of tines for optimal feeding of the crop. Tines that become worn or damaged should be replaced.

Removing Feed Auger Tines

- Remove screws (A), and remove access cover (B).

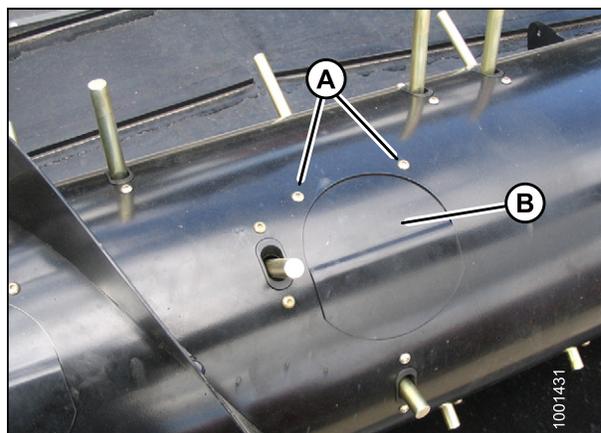


Figure 7.87

A - Screws

B - Access cover

MAINTENANCE AND SERVICING

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

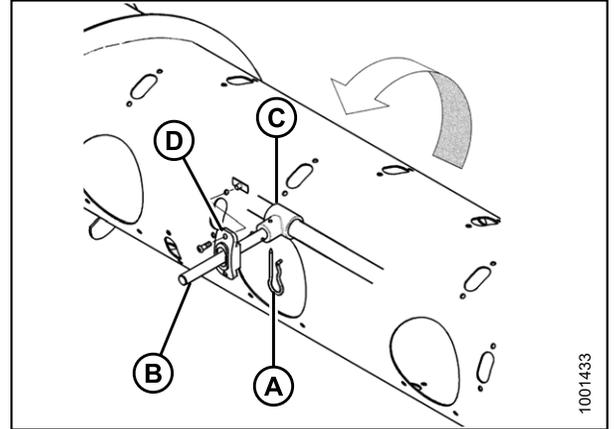


Figure 7.88

A - Hairpin
C - Bushing

B - Tine
D - Plastic guide

NOTE: If the sixth tine (A) opposite drive side is being replaced, it also must be slipped off drive tube (B). This particular tine cannot be removed for normal operation.

4. If tine is not reinstalled, proceed to next step. Otherwise, Refer to [Installing Feed Auger Tines](#), page 304.

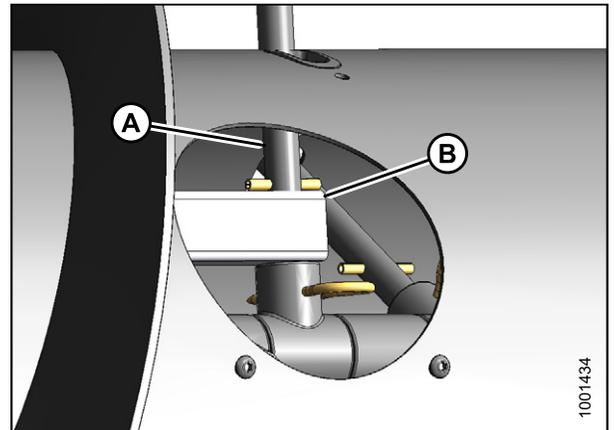


Figure 7.89

A - 6th tine

B - Drive tube

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

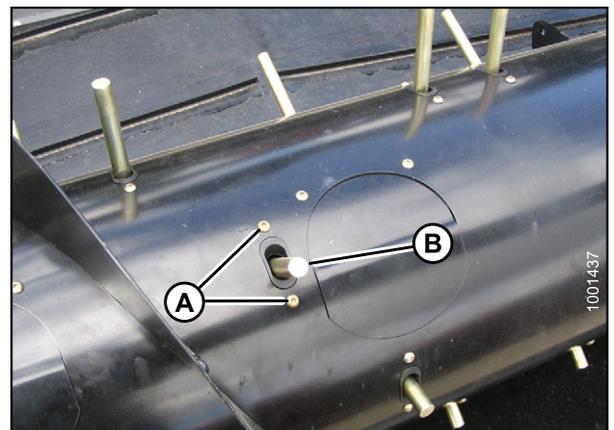


Figure 7.90

A - Screws

B - Plastic guide

MAINTENANCE AND SERVICING

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

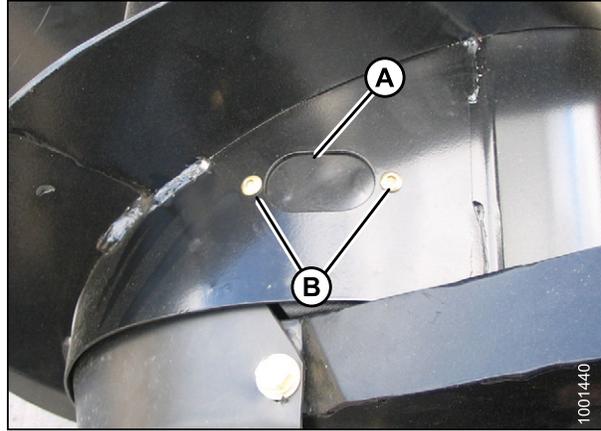


Figure 7.91

A - Cover

B - Screws

Installing Feed Auger Tines

- If replacing a tine, Refer to Section 5., [Installing Feed Auger Tines](#), page 304.
- Remove access cover (if applicable).
- Remove cover at tine location (if applicable).
- Install plastic guide.
- Insert tine (B) through plastic guide (D) from inside the auger.
- Insert tine into bushing (C).

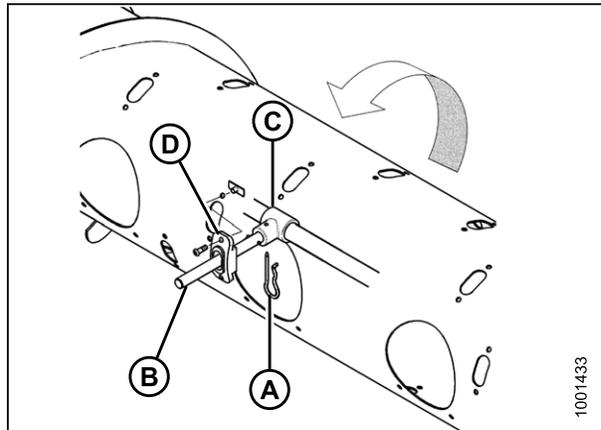


Figure 7.92

A - Hairpin

B - Tine

C - Bushing

D - Plastic guide

NOTE: The #6 tine (A) must also be inserted through the square tube (B).

- Secure tine in bushing with hairpin (hairpin is shown in above image as (A)). Install hairpin with closed end leading with respect to auger forward rotation.

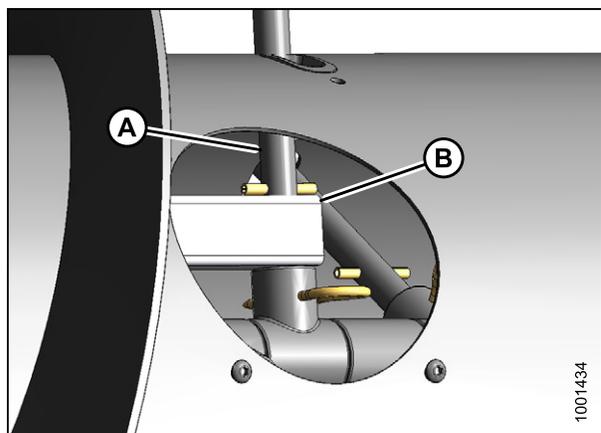


Figure 7.93

A - #6 tine

B - Square tube

MAINTENANCE AND SERVICING

- 8. Replace access cover (B), and secure with screws (A). Coat screws with Loctite® #243 (or equivalent), and torque to 75 in·lbf (8.5 N·m).

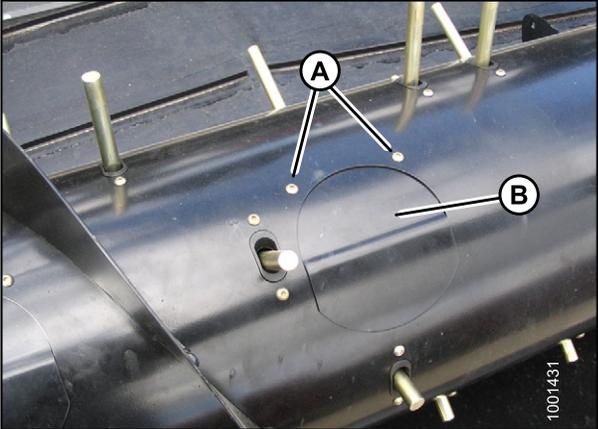


Figure 7.94

A - Screws

B - Access cover

7.8 Knife and Knife Drive

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to Section 7.1 Preparation for Servicing, page 243.

WARNING

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

CAUTION

Wear heavy gloves when working around or handling knives.

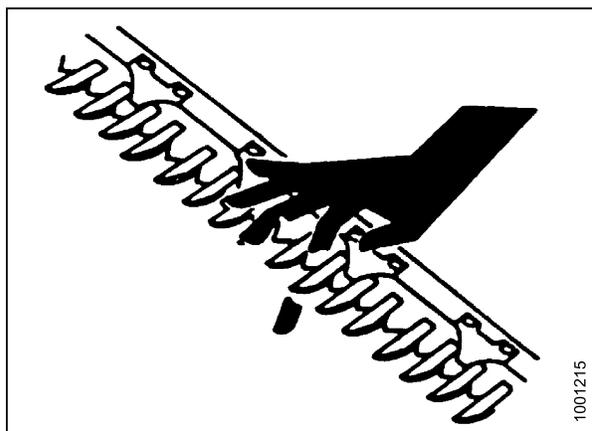


Figure 7.95

7.8.1 Replacing Knife Section

Check daily that sections are firmly bolted to the knife back and are not worn or broken. Damaged or worn sections leave behind uncut plants.

Coarse serrated sections last longer than fine serrated sections in dirty or sandy conditions.

Fine serrated sections perform better in fine stemmed grasses and plants that contain more fibrous stems.

A worn or broken knife section can be replaced without removing knife from cutterbar.

To replace a knife section, follow these steps:

1. Stroke knife as required to center it between guard tangs.
2. Remove lock nuts (A).
3. Remove bars (B) and lift knife section off the knife bar.
4. Clean any dirt off of knife back and position new knife section on knife.

IMPORTANT

Do NOT mix fine or coarse knife sections on same knife.

5. Reposition bars (B) and install lock nuts (A).

NOTE: If replacing a screw, make sure to fully insert it. Do not use the nut to draw the screw into the knife bar.

6. Torque nuts to 7 ft·lbf (9.5 N·m).

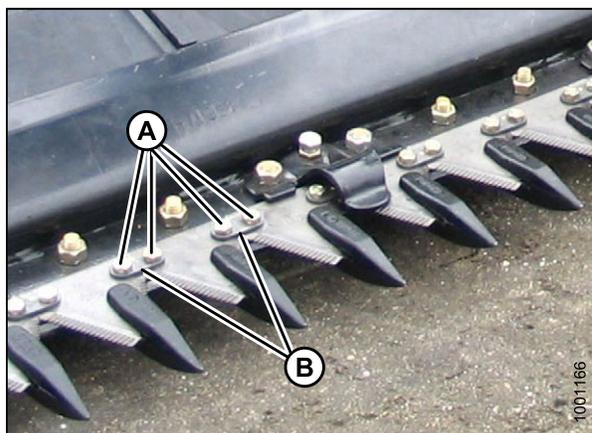


Figure 7.96

MAINTENANCE AND SERVICING

7.8.2 Removing Knife



WARNING

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

1. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
2. Remove the grease zerk (B) from the pin.
3. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

NOTE: Groove in pin may be used to pry up on pin.

4. Push the knife assembly inboard until it is clear of the output arm.
5. Seal bearing in knifehead with plastic or tape.
6. Wrap a chain around knifehead and pull knife out.

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

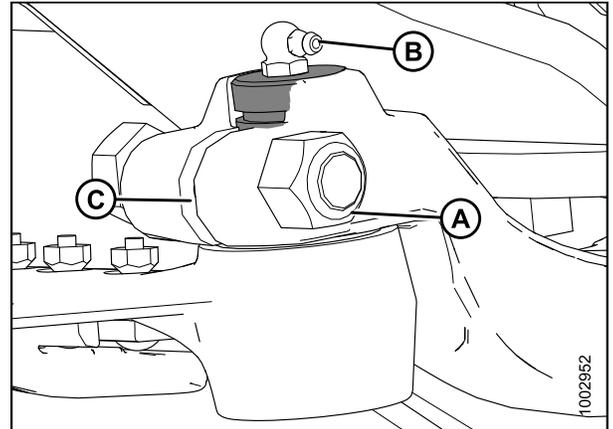


Figure 7.97

7.8.3 Removing Knifehead Bearing

Procedure to remove knifehead bearing.

1. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
2. Remove the grease zerk (B) from the pin.
3. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

NOTE: Groove in pin may be used to pry up on pin.

4. Push the knife assembly inboard until it is clear of the output arm.
5. Seal bearing in knifehead with plastic or tape.

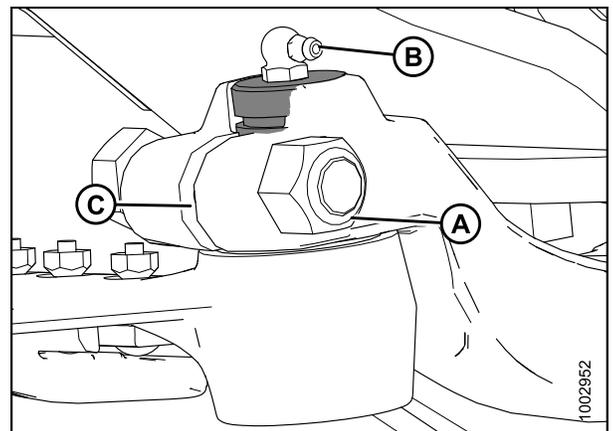


Figure 7.98

MAINTENANCE AND SERVICING

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

NOTE: Seal (B) can be replaced without removing the bearing. When changing seal, check pin and needle bearing for wear. Replace if necessary.

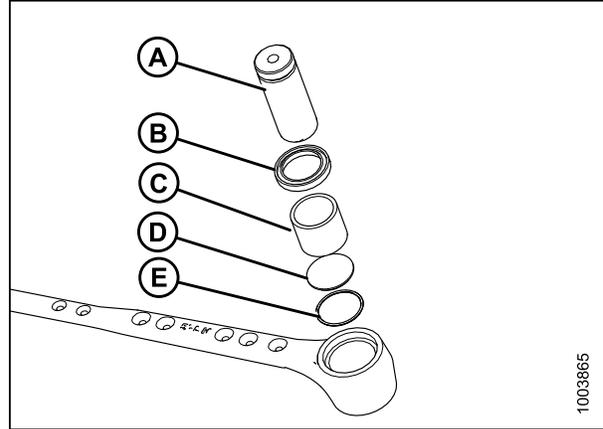


Figure 7.99: Remove seal, bearing, plug, and O-ring

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

7.8.4 Installing Knifehead Bearing

To install the knifehead bearing, follow these steps:

- Place O-ring (E) and plug (D) in knifehead.

IMPORTANT

Install the bearing with the stamped end (the end with identification markings) facing up.

- Using a flat-ended tool (A) with approximately the same diameter as the bearing (C), push the bearing into the knifehead until the top of the bearing is flush with the step in knifehead.
- Install seal (B) into the knifehead with the lip facing outwards.

IMPORTANT

To avoid premature knifehead or knife drive box failure, be sure there is no looseness in the fit of the knifehead pin and the needle bearing, and the fit of the knifehead pin and output arm.

- Install knife. See Section [7.8.5 Installing Knife, page 309](#).

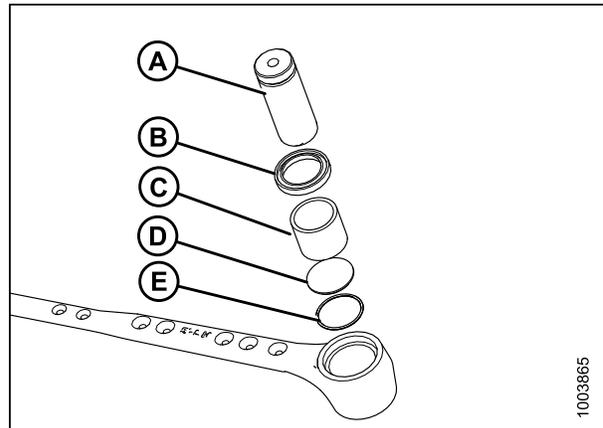


Figure 7.100

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

7.8.5 Installing Knife



WARNING

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

To install a knife, follow these steps:

1. Slide knife into place and align knifehead with the output arm.

NOTE: For ease of removing or installing knifehead pin, remove grease zerk from pin.

2. Install knifehead pin (A) through the output arm and into the knifehead bearing cup.
3. Align groove (B) in knifehead pin 0.06 in. (1.5 mm) above (C). Install 5/8 in. X 3 in. hex head bolt (D) and torque to 160 ft·lbf (217 N·m).
4. Install grease zerk (A) into the knifehead pin, turn the grease zerk for easy access.

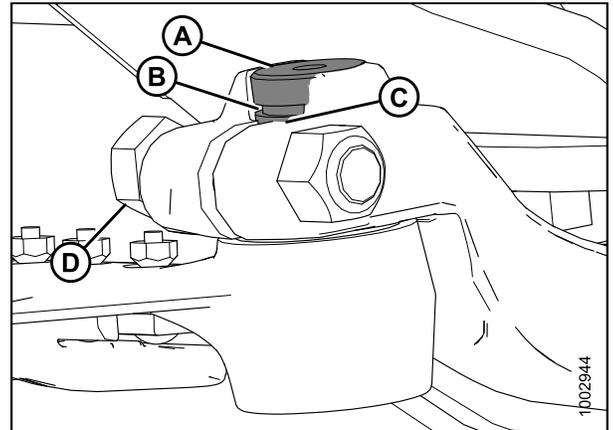


Figure 7.101

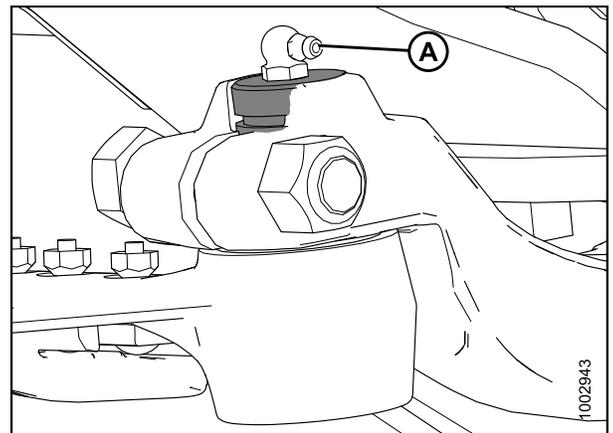


Figure 7.102

MAINTENANCE AND SERVICING

7.8.6 Spare Knife

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



Figure 7.103

7.8.7 Knife Guards

Check **DAILY** that guards are aligned to obtain proper shear cut between knife section and guard. Knife sections should contact shear surface of each guard.

Adjusting Knife Guards

To adjust knife guards, follow these steps. The guard straightening tool (MD #140135) is available from your MacDon Dealer.

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



Figure 7.104: Upward adjustment

MAINTENANCE AND SERVICING

2. To adjust tips downward, position tool as shown and push down.

TIP: If trouble is encountered cutting tangled or fine-stemmed material, install a knife hold-down on every guard and then replace lower guards with stub guards.

3. If material is tough to cut, install stub guards with top guard and adjuster plate. A kit is available from your MacDon Dealer. Refer to [Section 9.1.19 Stub Guard Conversion Kit, page 459](#).



Figure 7.105: Downward adjustment

MAINTENANCE AND SERVICING

Replacing Pointed Guards on a Single-Knife Header

To replace pointed knife guards on a single-knife header, follow these steps:

WARNING

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

1. Stroke knife so that knife sections are spaced midway between the guards.
2. Remove two nuts (A) and bolts that attach guard (B) and hold-down (C) (if applicable) to cutterbar.
3. Remove guard, hold-down, and poly wear plate (if installed).
4. Position new guard and poly wear plate (if applicable) on cutterbar, and install carriage bolts.

IMPORTANT

The first four outboard guards on drive side(s) of header do not have a ledger plate. Ensure that proper replacement is installed.

5. Install hold-down and secure with nuts. Tighten nuts to 50 ft·lbf (68 N·m).
6. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs, page 316](#).

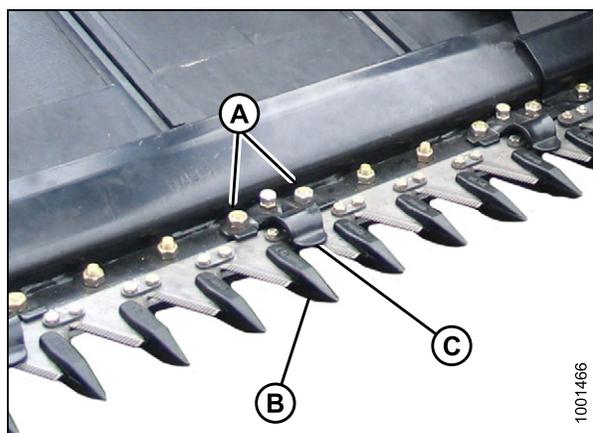


Figure 7.106

A - Nuts
C - Hold-down

B - Knife guard

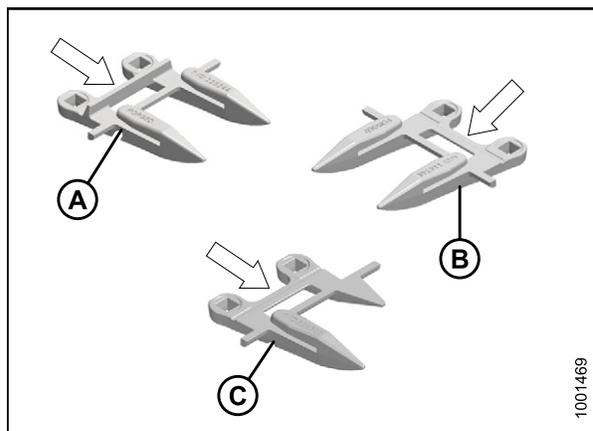


Figure 7.107: Check and adjust clearance

A - Normal
C - Half Guard (End)

B - Drive side

MAINTENANCE AND SERVICING

Replacing Pointed Guards on a Double-Knife Header



WARNING

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

Refer to [Replacing Pointed Guards on a Single-Knife Header](#), page 312 for typical guard replacement.

The guard near the center of the double-knife header (where the two knives overlap) requires a slightly different replacement procedure.

To replace the pointed center guard or center top guide on a double-knife header, follow these steps:

1. Remove two nuts (B) and bolts that attach guard (A) and top guide (C) to cutterbar.
2. Remove guard, poly wear plate (if installed), top guide (C), and adjuster bar (D).
3. Position poly wear plate (if applicable), replacement guard (A), adjuster bar, and top guide (B). Install bolts, but do **NOT** tighten.

IMPORTANT

Ensure center guard (B) (right of cutterbar split) has offset cutting surfaces.

NOTE: Top guide (C) must accommodate the two overlapping knives at center guard location on double-knife header. Ensure replacement is correct part.

4. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs](#), page 316.

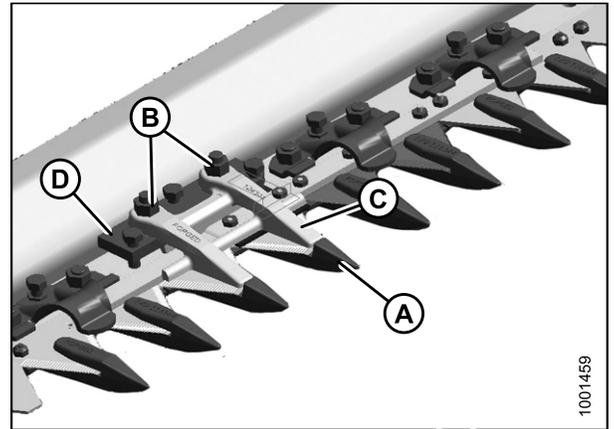


Figure 7.108

A - Knife guard
C - Top guide

B - Nuts
D - Adjuster bar

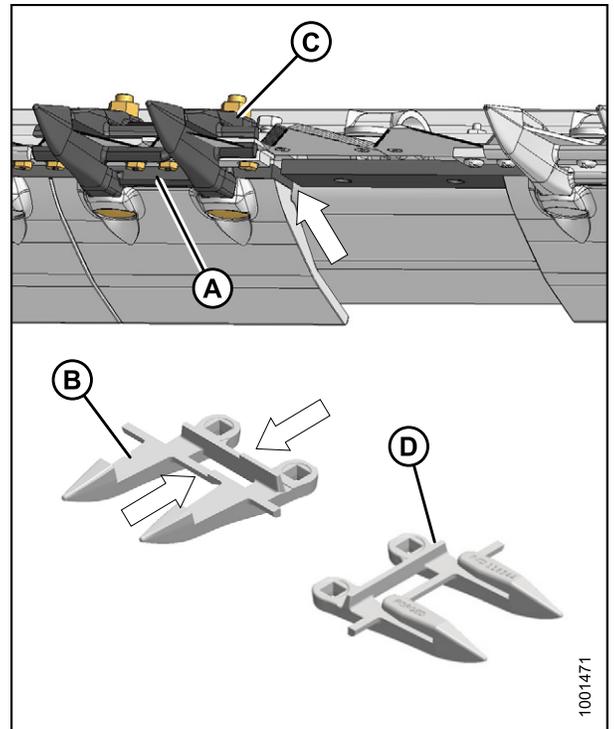


Figure 7.109

A - Knife guard
C - Top guide

B - Center guard
D - Normal guard

MAINTENANCE AND SERVICING

Replacing Stub Guards on a Single-Knife Header

WARNING

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

Stub guards, complete with top guides and adjuster plates, are designed to cut tough crops. Some configurations of the header come equipped with stub guards at the outer ends.

To replace stub guards, follow these steps:

1. Remove the two nuts (A) and bolts that attach guard (B) and top guide (C) to cutterbar.
2. Remove guard, poly wear plate (if installed), top guide, and adjuster bar (D).
3. Position poly wear plate (if applicable), replacement guard (B), adjuster bar (D), top guide (C), and install bolts. Do **NOT** tighten.

IMPORTANT

Note position of mitre on adjuster bar (D). Bar should be reinstalled in same position. Mitres should not be adjacent to each other.

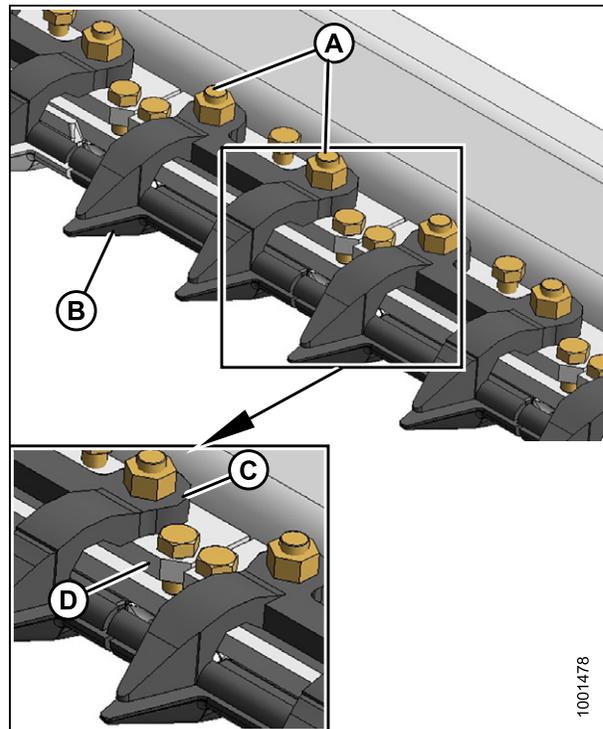


Figure 7.110

A - Nuts

C - Top guide

B - Stub guard

D - Adjuster bar

1001478

IMPORTANT

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

4. Check and adjust clearance between top guide and knife. Refer to [Knife Hold-Downs, page 316](#).

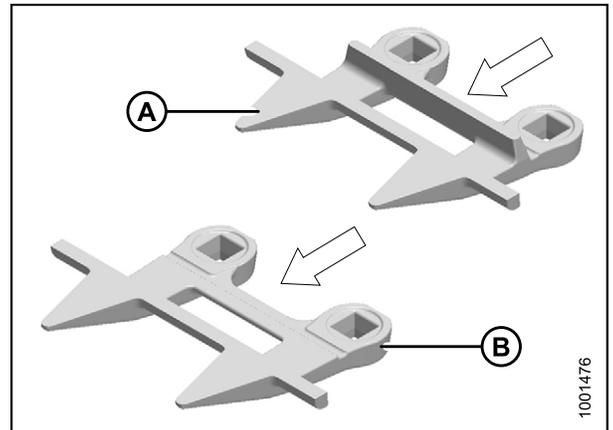


Figure 7.111: Check clearance

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 314](#) 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.

NOTE: Top guide (C), which is an inverted normal stub guard, must accommodate the two overlapping knives at center guard location on double-knife header. Ensure replacement is correct part.

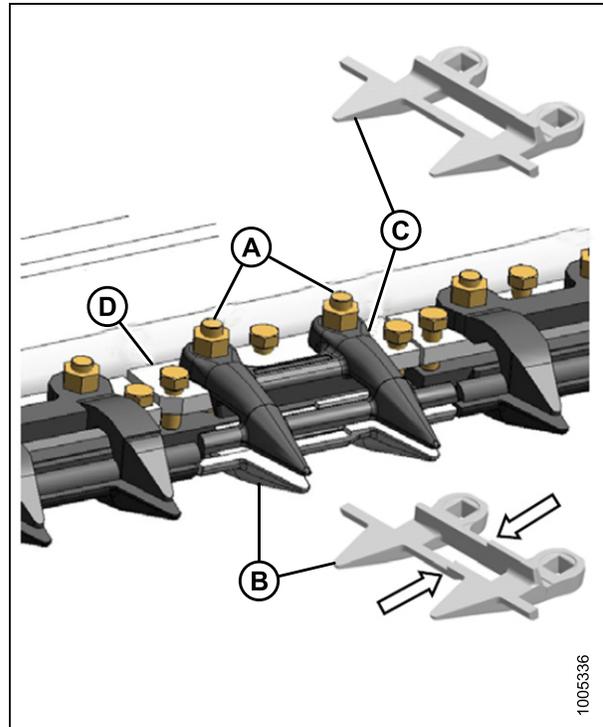


Figure 7.112

A - Nuts

C - Normal top guide

B - Center guard

D - Adjuster bar

4. Check and adjust clearance between hold-down and knife. Refer to [Knife Hold-Downs, page 316](#).

Knife Hold-Downs

Check daily that knife hold-downs are set to prevent knife sections from lifting off guards, but still permit knife to slide without binding.

If you have pointed guards, ~~Refer to~~ [See Section Adjusting Hold-Downs on Headers with Pointed Guards, page 317](#).

If you have stub guards, ~~Refer to~~ [See Section Adjusting Hold-Downs on Headers with Stub Guards, page 318](#).

NOTE: Guards should be aligned prior to adjusting hold-downs. ~~Refer to~~ [See Section Adjusting Knife Guards, page 310](#).

MAINTENANCE AND SERVICING

Adjusting Hold-Downs on Headers with Pointed Guards

To adjust hold-downs on header with pointed guards, follow these steps:

1. To adjust the clearance between hold-down and knife for typical pointed guards, turn the adjuster bolts (A). Using a feeler gauge, clearance from hold-down to knife section (C) should be 0.004–0.024 in. (0.1–0.6 mm).

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

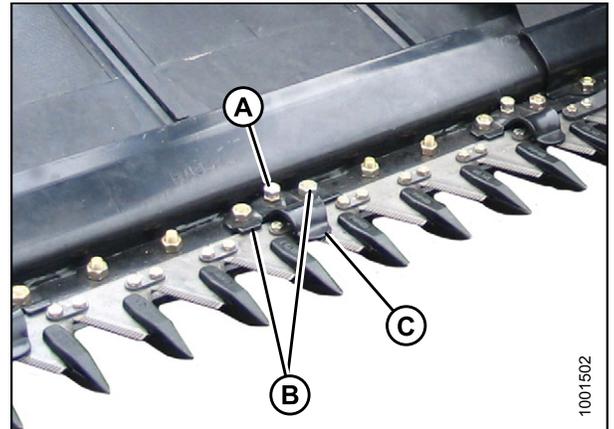


Figure 7.113

A - Adjuster bolts
B - Nuts
C - Clearance: 0.004–0.024 in. (0.1–0.6 mm)

2. To adjust clearance between hold-down and knife for center guards, torque nuts (A) to 35 ft·lbf (46 N·m).
3. Turn the adjuster bolts (B) as required. Using a feeler gauge, clearance from hold-down to knife section should be:
 - 0.004–0.016 in. (0.1–0.4 mm) at guide tip (C)
 - 0.004–0.040 in. (0.1–1.0 mm) at rear of guide (D)
4. Torque nuts (A) to 53 ft·lbf (72 N·m).
5. After adjusting all hold-downs, run header at a low engine speed and listen for noise due to insufficient clearance. Insufficient clearance will also result in overheating of the knife and guards. Readjust as necessary.

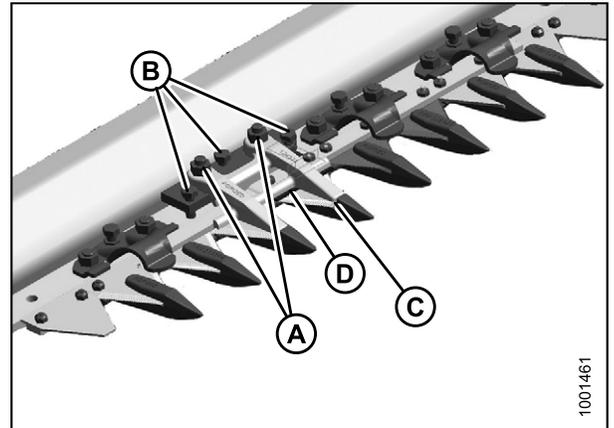


Figure 7.114

A - Nuts
B - Adjuster bolts
C - Guide tip
D - Rear of guide

MAINTENANCE AND SERVICING

Adjusting Hold-Downs on Headers with Stub Guards

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

1. Torque nuts (A) to 35 ft-lbf (46 N·m).
2. Turn the adjuster bolts (B) as required. Using a feeler gauge, clearance from hold-down to knife section should be:
 - 0.004–0.016 in. (0.1–0.4 mm) at guide tip (C)
 - 0.004–0.040 in. (0.1–1.0 mm) at rear of guide (D)
3. Torque nuts (A) to 53 ft-lbf (72 N·m).
4. After adjusting all hold-downs, run header at a low engine speed and listen for noise due to insufficient clearance. Insufficient clearance will also result in overheating of knife and guards. Re-adjust as necessary.

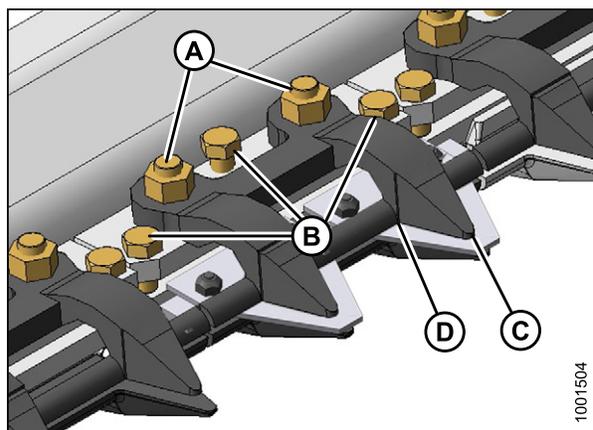


Figure 7.115

A - Nuts
B - Adjuster bolts
C - Clearance at guide tip
D - Clearance at rear of guide

7.8.8 Knife Drive Belt

Single Knife and Double Knife Untimed

Removing Knife Drive Belt on Single Knife Headers and Double Knife Headers with Non-Timed Drives

This procedure covers how to remove the knife drive belt on single knife headers and double knife headers with non-timed drives.

NOTE: Procedure is the same for right-hand side of the non-timed double knife header.

1. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
2. Loosen the two bolts (A) that secure the motor assembly to header endsheet.
3. Loosen the tension on the belt by turning the tensioning bolt (B) counterclockwise. This will loosen the belt attached to the knife drive box.

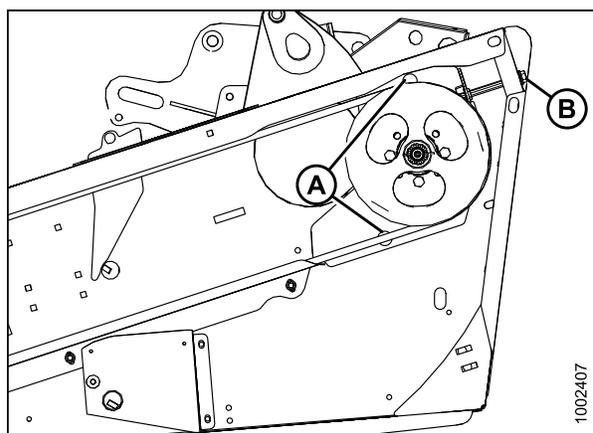


Figure 7.116

MAINTENANCE AND SERVICING

4. Once the belt is loose, open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

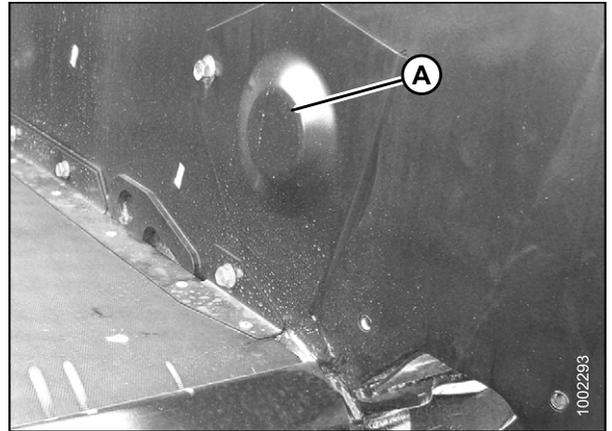


Figure 7.117

Installing Knife Drive Belt on Single Knife Headers and Double Knife Headers with Non-Timed Drives

This procedure explains how to install the knife drive belt on single knife headers and double knife headers with non-timed drives.

NOTE: Procedure is the same for right-hand side of the untimed double knife header.

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

NOTE: When installing new belt, never pry belt over pulley. Be sure drive motor is fully forward, then tension belt.

2. Tension knife drive belt, [Refer to See Section Tensioning Single and Double Knife Headers with Non-Timed Drive, page 320.](#)

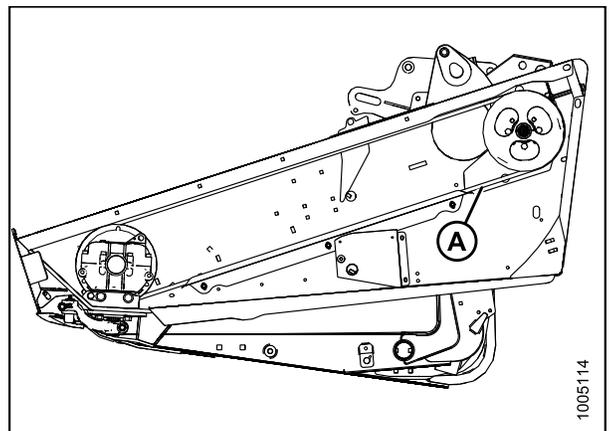


Figure 7.118

3. Once the belt is installed, reinstall the access panel (A) and secure it with a bolt.
4. Close endshield. [Refer to See Section Closing Endshields, page 45.](#)

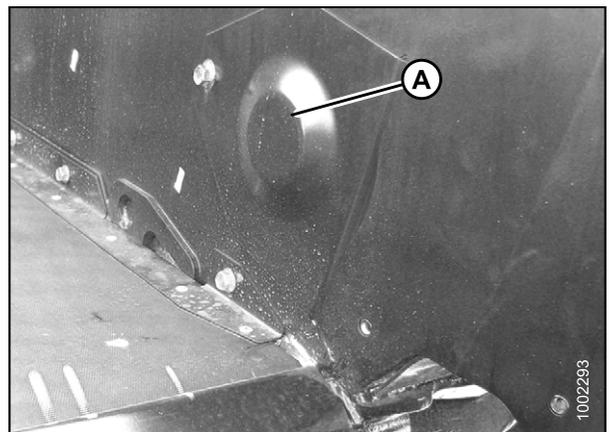


Figure 7.119

MAINTENANCE AND SERVICING

Tensioning Single and Double Knife Headers with Non-Timed Drive

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

IMPORTANT

To prolong belt and drive life, do not overtighten belt.

1. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
2. Loosen the two bolts (A) that secure the motor assembly to header endsheet.
3. Turn adjuster bolt (B) clockwise to move the drive motor until a force of 20 ft·lbf (80 N·m) deflects belt (C) 3/4 in. (18 mm) at mid-span.

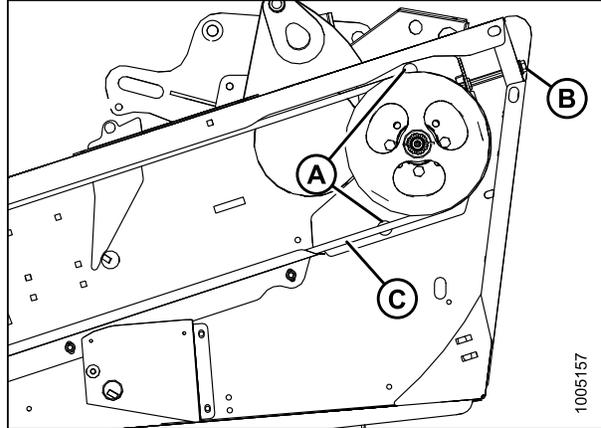


Figure 7.120

4. Check clearance between belt (A) and belt guide (B). It should be 0.04 in. (1 mm).
5. Loosen three bolts (C) and adjust position of guide (B) as required.
6. Tighten bolts (C).
7. Close endshield. ~~Refer to~~ [See Section Closing Endshields, page 45.](#)
8. Re-adjust tension of a new belt after a short run-in period (about 5 hours).

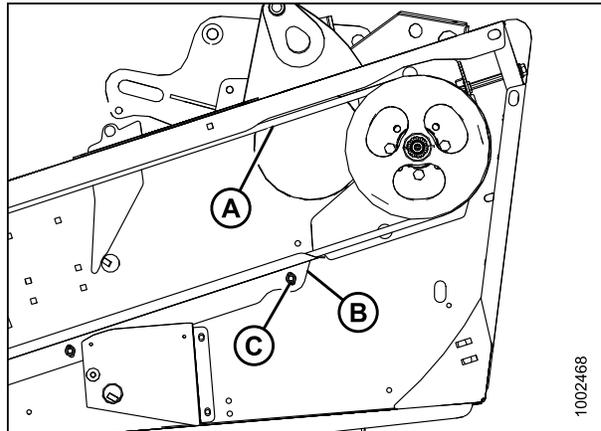


Figure 7.121

Double Knife Timed

See Section [7.8.8 Knife Drive Belt, page 318](#) for removal and installation procedures.

MAINTENANCE AND SERVICING

Removing Knife Drive Belt (Timed) (Double Knife) (Left Hand)

1. Open LH endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

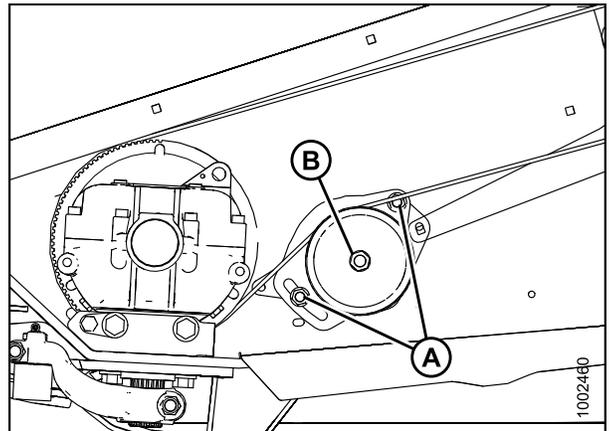


Figure 7.122

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

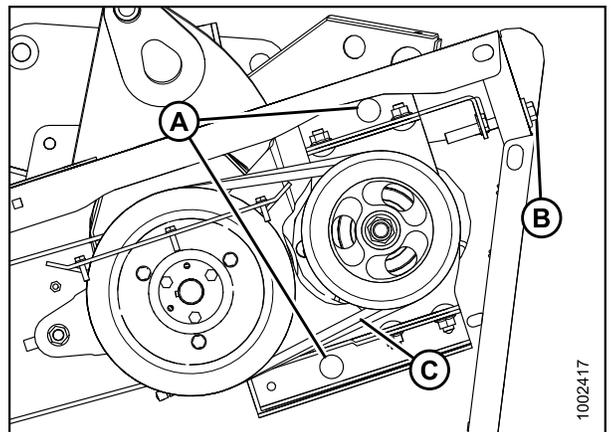


Figure 7.123

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

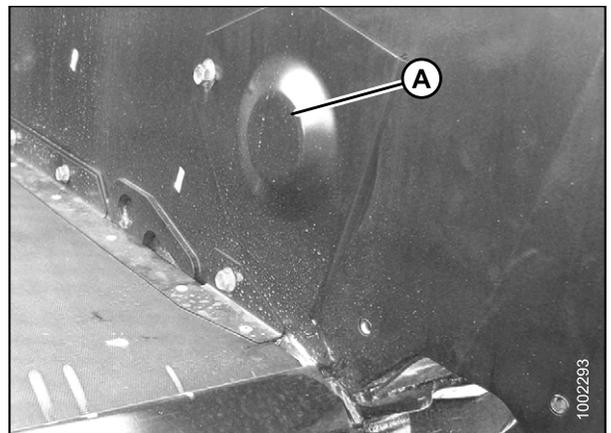


Figure 7.124

MAINTENANCE AND SERVICING

Installing Knife Drive Belt (Timed) (Double Knife) (Left Hand)

If there are problems with belt alignment. ~~Refer to~~ [See Section Aligning Knife Drive Belt Pulley \(Double Knife\) \(Left Hand\)](#), page 324.

1. Route knife drive belt around knife drive box pulley and knife drive pulley.

NOTE: When installing new belt, never pry belt over pulley. Be sure drive motor is fully forward, then tension belt.

2. Once the belt is installed, reinstall the access panel (A) and secure it with a bolt.

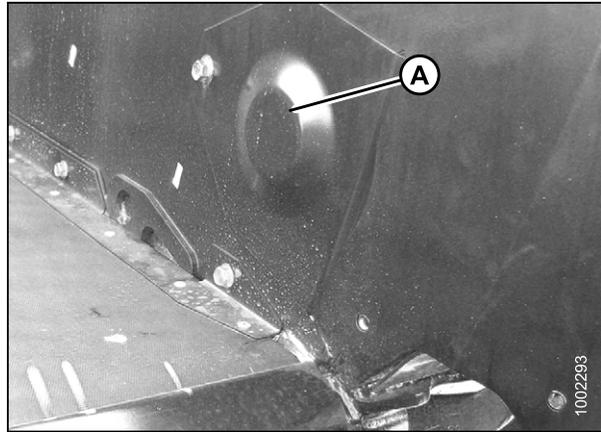


Figure 7.125

3. Install the two V-belts (C) and turn adjuster bolt (B) to tension them. Tension is checked at mid span of the belts. The belts should deflect 0.12 in. (3 mm) with 12 ft·lbf (53 N·m) of force.
4. Tighten the two bolts (A) on endsheet.

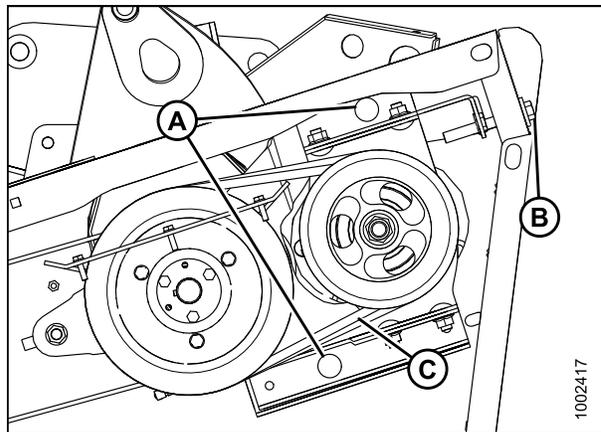


Figure 7.126

MAINTENANCE AND SERVICING

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

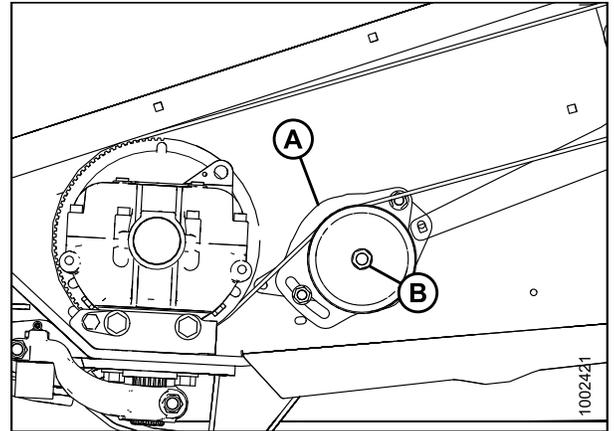


Figure 7.127

6. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
7. Tighten bolts (A) that secure the idler bracket to the end frame.

NOTE: Re-adjust tension of a new belt after a short run-in period, (about 5 hours).

8. Close endshield. ~~Refer to~~ [See Section Closing Endshields, page 45.](#)

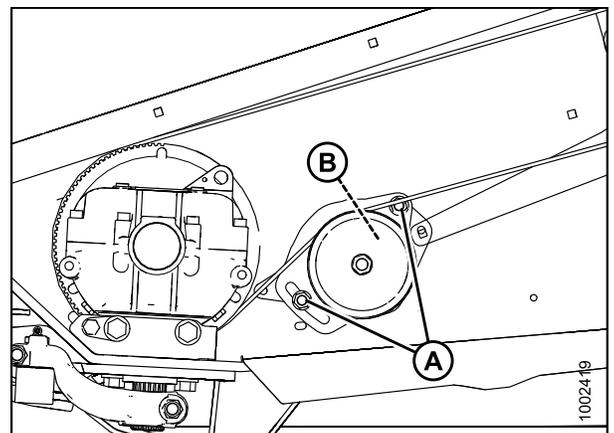


Figure 7.128

Tensioning Knife Drive Belt (Timed) (Double Knife) (Left Hand)

IMPORTANT

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

1. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
2. Loosen two nuts (A) on knife drive belt idler bracket.

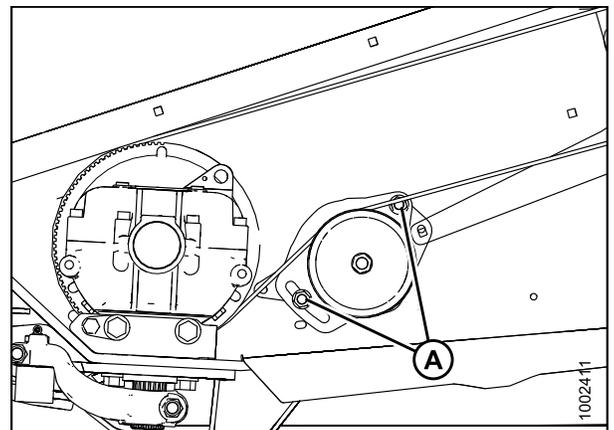


Figure 7.129

MAINTENANCE AND SERVICING

3. Insert a long punch (or equivalent) into hole (B) in idler bracket and pry downward until a force of 6- ft·lbf (27- N·m) deflects timing belt 1/2 in. (13 mm) at mid-span.
4. Tighten nuts (A) on idler mounting bracket.

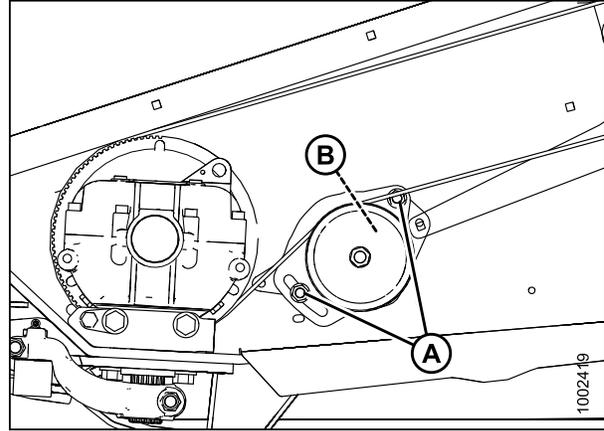


Figure 7.130

5. Loosen bolts (B) and adjust guide (A). The measurement should be 0.02–0.04 in. (0.5–1.0 mm).
6. Readjust tension of a new belt after a short run-in period (about 5 hours).

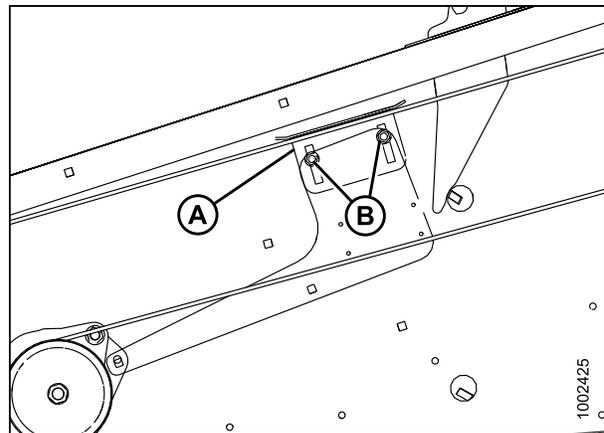


Figure 7.131

Aligning Knife Drive Belt Pulley (Double Knife) (Left Hand)

1. Locate the grease zerk (A) on the bottom of the backtube that greases the cross shaft tube. There is one per side. Check the location of the bolt in slot. The LH bolt should be near the center of the slot and the RH bolt should be near the front of the slot. If not, loosen the nut and adjust them accordingly. Torque the nuts to 230–250 ft·lbf (312–339 N·m). If they are not in the correct place, adjust accordingly.

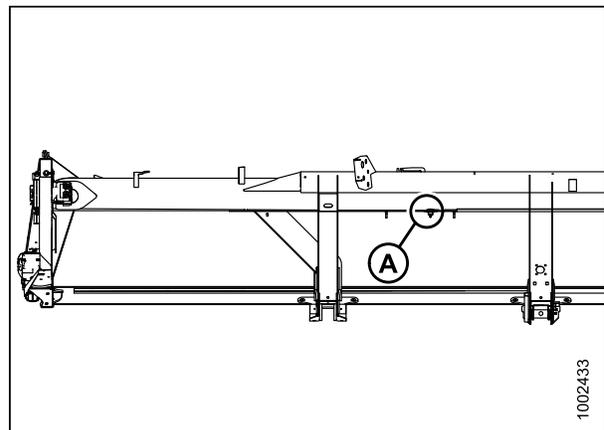


Figure 7.132: View from behind header

MAINTENANCE AND SERVICING

2. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
3. Release tension on the cogged drive belt by loosening nuts (A) to loosen the idler pulley.

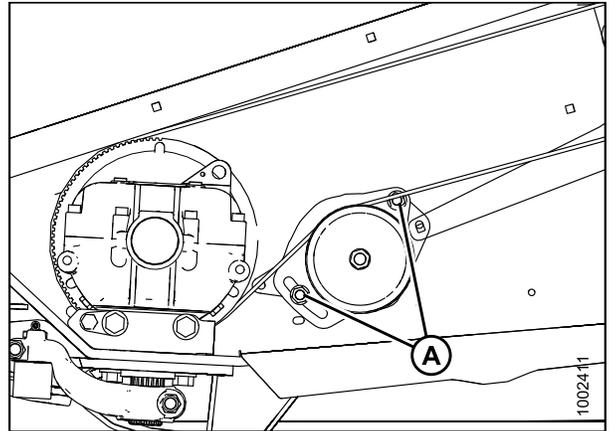


Figure 7.133

4. Check the 'toe in' the knife drive pulley. Use a straight edge (A) across the face of the double pulley bolted to the knife drive pulley. Measure from the straight edge to the end panel in two places (B, C). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D). Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, then you will need to adjust the pulley.

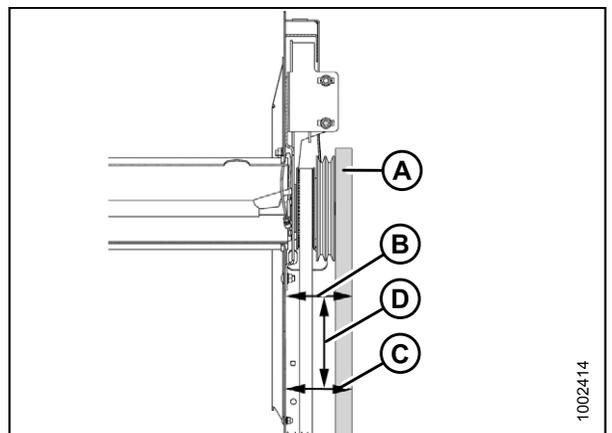


Figure 7.134

5. Loosen bolts (A) and adjust bolt (B) to move the knife drive pulley.

NOTE: Adjusting bolt (B) affects the fore-aft position of the drive pulley. Moving it forward will change the toe in, rearward will change the toe-out dimension of the pulley.

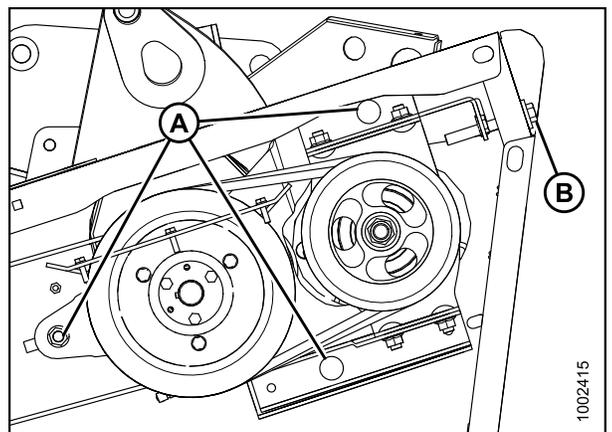


Figure 7.135

MAINTENANCE AND SERVICING

NOTE: The following is important to belt alignment. Follow instructions carefully.

- This adjustment will toe in the knife drive pulley. This will allow the pulley to be aligned after the belts are tensioned. Use a straight edge (A) across the face of the double pulley bolted to the knife drive pulley. Measure from the straight edge to the end panel in two places (B, C). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D). Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'.

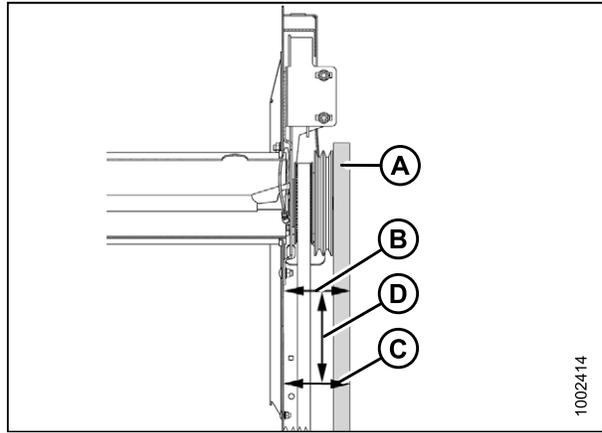


Figure 7.136

- If more adjustment is required, adjust bolt (A). Check pulley alignment again.

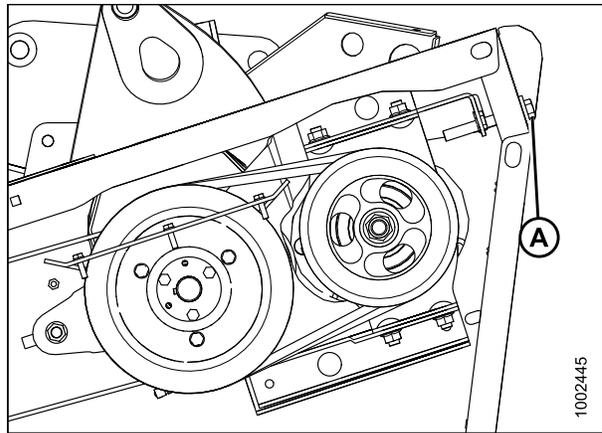


Figure 7.137

- Tighten nut (A) to retain the pulley setting.

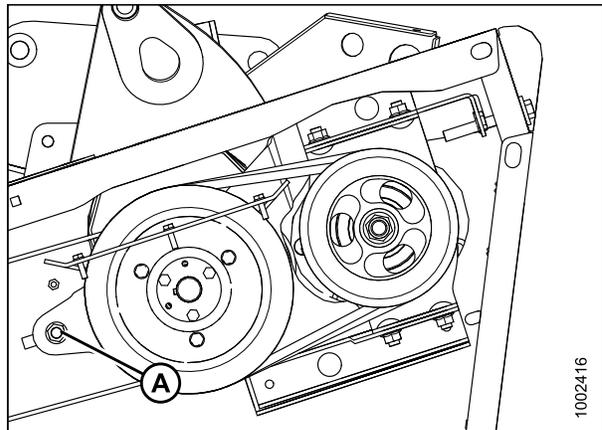


Figure 7.138

MAINTENANCE AND SERVICING

9. Tighten bolt (B) to tension double V-belts (C). Tension is checked at mid span of the belts. The belts should deflect 0.12 in. (3 mm) with 12 ft·lbf (53 N·m) of force.
10. Tighten bolts (A) to lock in the double V-belt setting.

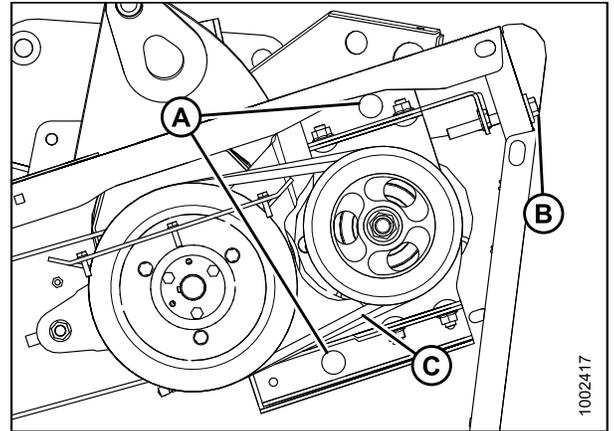


Figure 7.139

11. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
12. Tighten bolts (A), that secure the idler bracket to the end frame.

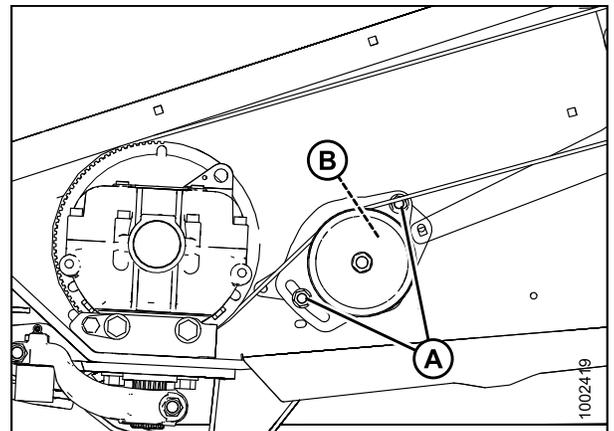


Figure 7.140

13. Check idler pulley alignment. Place a 12 in. (300-mm) straight edge on the idler pulley horizontally and vertically (B). Measure from the straight edge to the frame. Pulley should be parallel to the frame in both directions within 0.08 in. (2 mm). If pulley adjustment is required, use a deep socket and extension on nut (A) and adjust accordingly.

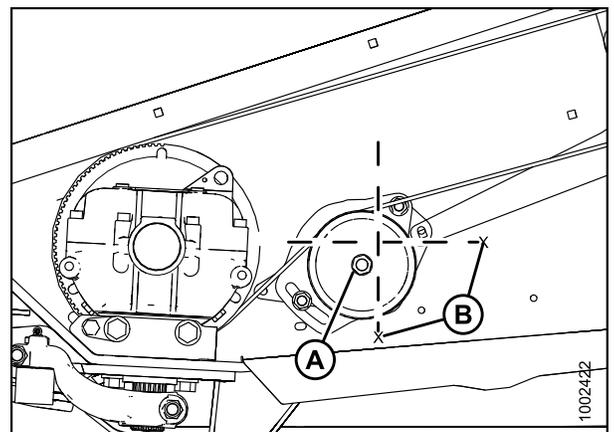


Figure 7.141

MAINTENANCE AND SERVICING

14. After the double V-belts and timing belts are tensioned, recheck drive pulley alignment with a straight edge. Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, ~~see Step~~ Refer to step 6 (this section) 6., [Aligning Knife Drive Belt Pulley \(Double Knife\) \(Left Hand\)](#), page 326 and readjust the fore-aft position of the drive pulley.

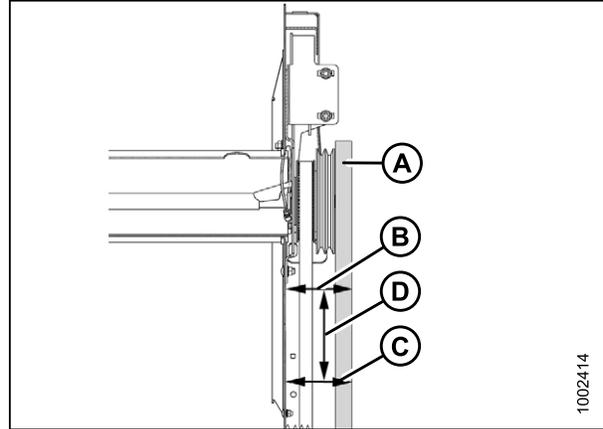


Figure 7.142

15. Loosen bolts (B) and adjust belt guide bracket (A). It should be set so there is 0.02–0.06 in. (0.5–1.5 mm) between the belt and the guide.

NOTE: If you have removed the belt, ensure the knives are timed. Refer to [Double Knife Timed](#), page 320.

16. Close endshield. Refer to [Closing Endshields](#), page 45.
17. Run up the header and ensure belt is tracking correctly.

NOTE: Belt should run completely on knife drive box sprocket and should not tend to ride up on flanges of driving sprocket or idler pulley. If it does not, then more adjustment on the idler pulley or the driving pulley may be needed.

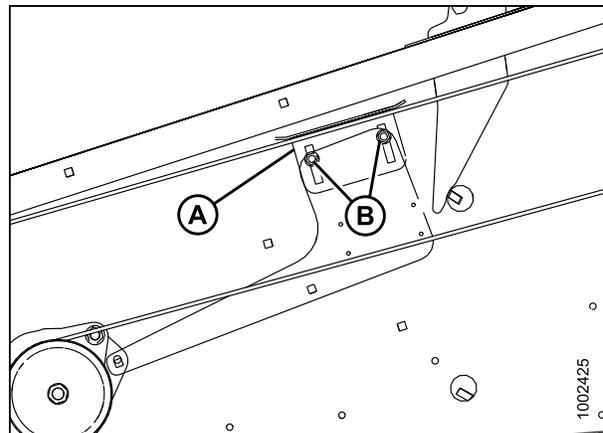


Figure 7.143

Removing Knife Drive Belt (Timed) (Double Knife) (Right Hand)

1. Remove RH endshield, See Section [4.2.3 Endshields](#), page 44 for instructions.
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

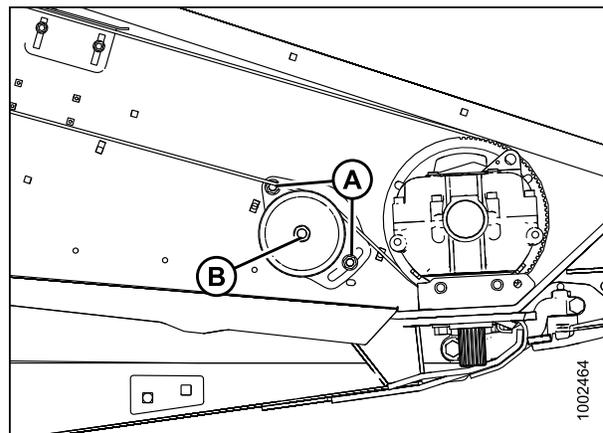


Figure 7.144

MAINTENANCE AND SERVICING

- 4. Open the access panel (A) inside the draper opening, just behind cutterbar. This will give you access to the knife drive pulley.

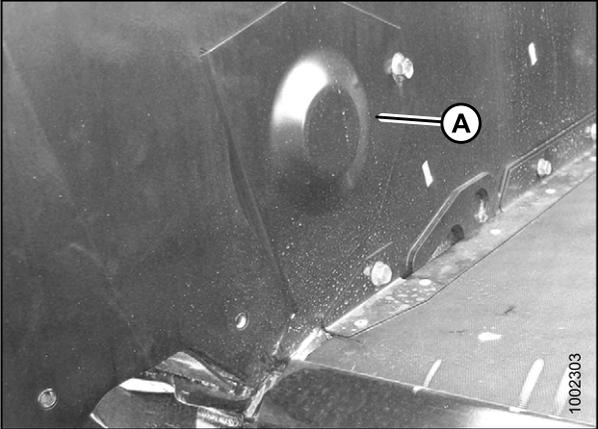


Figure 7.145

- 5. Remove the knife drive belt (A).

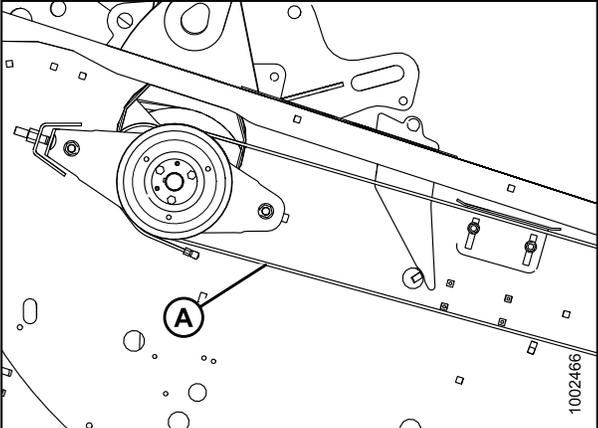


Figure 7.146

MAINTENANCE AND SERVICING

Installing Knife Drive Belt (Timed) (Double Knife) (Right Hand)

If there are problems with belt alignment. ~~Refer to~~ [See Section Aligning Knife Drive Belt Pulley \(Double Knife\) \(Right Hand\)](#), page 332.

1. Route knife drive belt around knife drive box pulley and knife drive pulley.

NOTE: When installing new belt, never pry belt over pulley. Be sure drive motor is fully forward, then tension belt.

2. Once the belt is installed, reinstall the access panel (A) and secure it with a bolt.

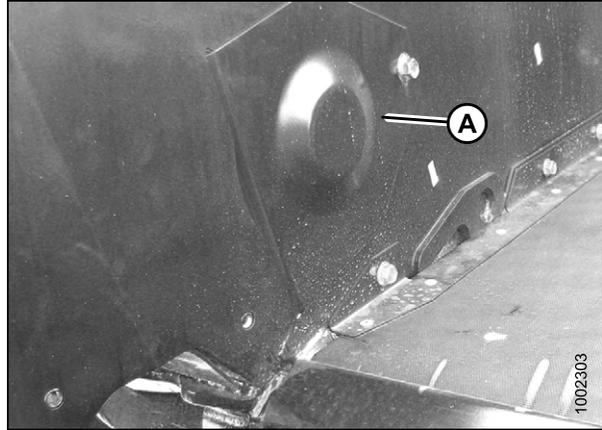


Figure 7.147

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

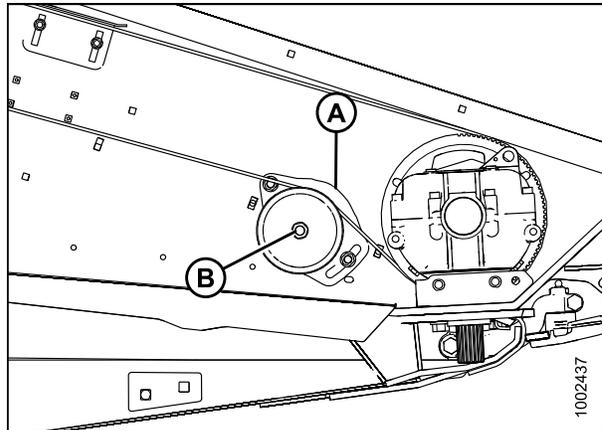


Figure 7.148

MAINTENANCE AND SERVICING

4. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
5. Tighten bolts (A) that secure the idler bracket to the end frame.
6. Close endshield. ~~Refer to~~ [See Section Closing Endshields, page 45.](#)

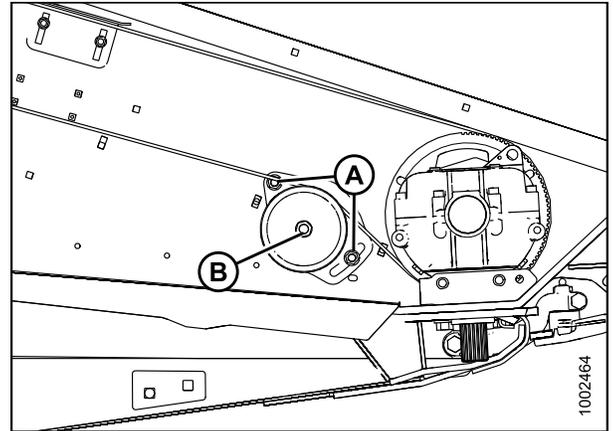


Figure 7.149

Tensioning Knife Drive Belt (Timed) (Double Knife) (Right Hand)

IMPORTANT

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

~~To adjust the tension of the RH timing belt, follow these steps.~~

1. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
2. Loosen two nuts (A) on knife drive belt idler bracket.

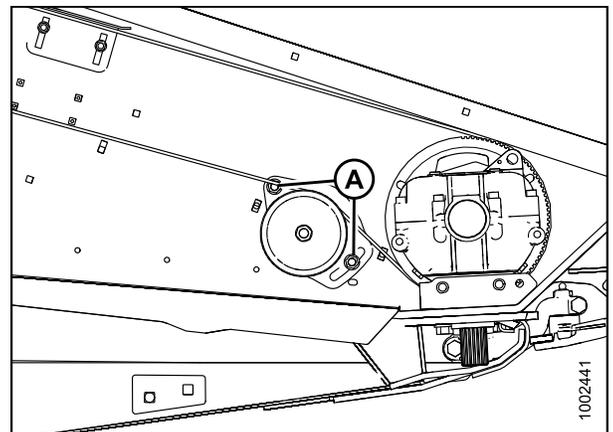


Figure 7.150

3. Insert a long punch (or equivalent) into hole (B), behind the pulley in idler bracket and pry downward until a force of 6 ft·lbf (27 N·m) deflects timing belt 1/2 in. (13 mm) at mid-span.
4. Tighten nuts (A) on idler mounting bracket.

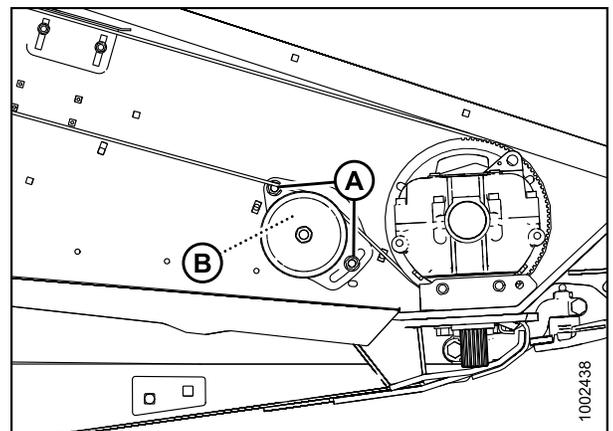


Figure 7.151

MAINTENANCE AND SERVICING

- Loosen bolts (B) and adjust guide (A). The measurement should be 0.02–0.04 in. (0.5–1.0 mm).
- Re-adjust tension of a new belt after a short run-in period (about 5 hours).

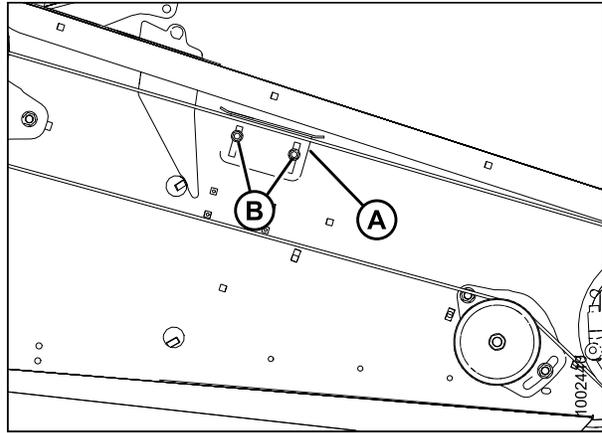


Figure 7.152

Aligning Knife Drive Belt Pulley (Double Knife) (Right Hand)

- Locate the grease zerk (A) on the bottom of the backtube, that greases the cross shaft tube. There is one per side. Check the location of the bolt in the slot. The RH bolt should be near the front of the slot and the LH bolt should be near the center of the slot. Torque the nuts to 230–250 ft·lbf (312–339 N·m). If they are not in the correct place, adjust accordingly.

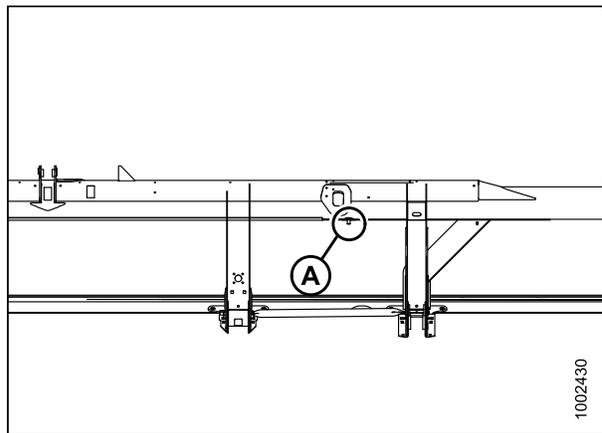


Figure 7.153: View from behind header

- Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
- Release tension on the cogged drive belt by loosening nuts (A) to loosen the idler pulley.

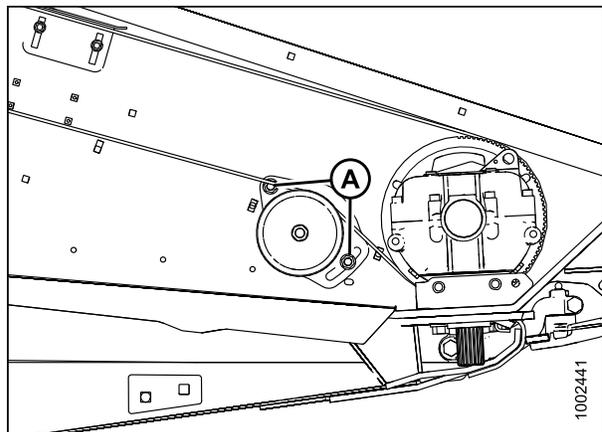


Figure 7.154

MAINTENANCE AND SERVICING

4. Check the 'toe in' the knife drive pulley. Use a straight edge (A) across the face of the double pulley bolted to the knife drive pulley. Measure from the straight edge to the end panel in two places (B, C). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D). Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, then you will need to adjust the pulley.

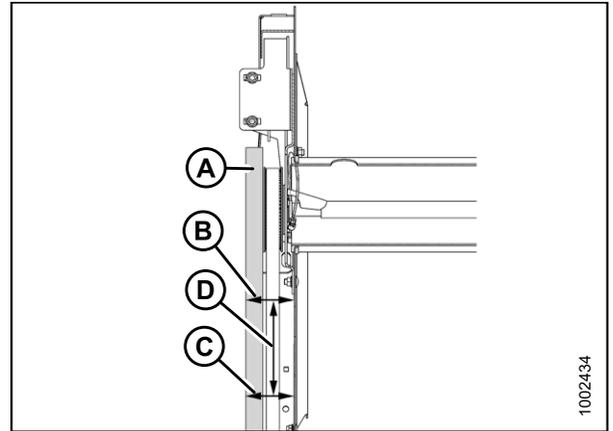


Figure 7.155

5. Loosen bolts (A) and adjust bolt (B) to move the knife drive pulley.

NOTE: Adjusting bolt (B) affects the fore-aft position of the drive pulley. Moving it forward will change the 'toe in', rearward will change the 'toe-out' dimension of the pulley.

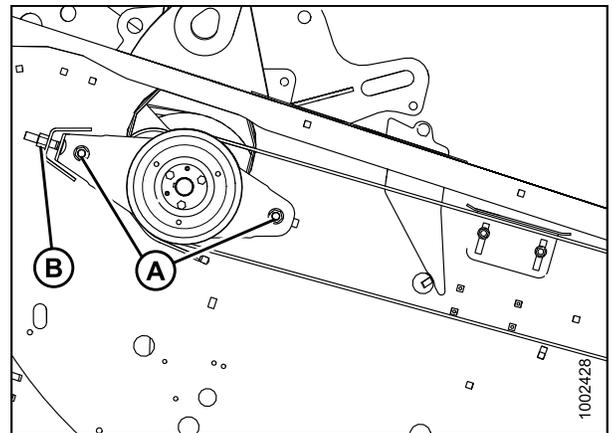


Figure 7.156

NOTE: The following is important to belt alignment. Follow instructions carefully.

6. This adjustment will 'toe in' the knife drive pulley. This will allow the pulley to be aligned after the belts are tensioned. Use a straight edge (A) across the face of the knife drive pulley.

Measure the difference between point 'B' and 'C'. Point 'C' should be 0.12 in. (3 mm) greater than point 'B'. (Dimension is measured from straight edge to end panel). Measurements 'B' and 'C' should be taken 39.4 in. (1000 mm) apart (D).

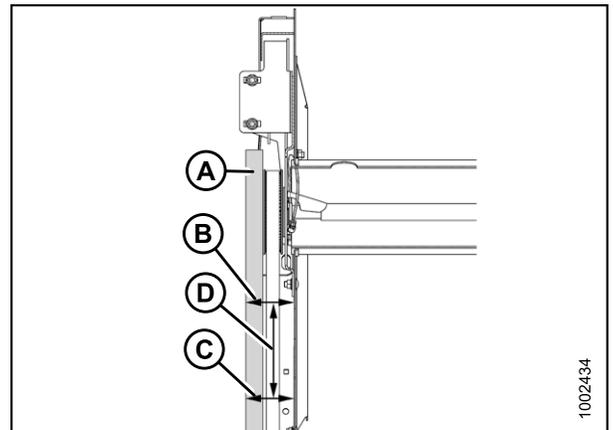


Figure 7.157

MAINTENANCE AND SERVICING

7. If more adjustment is required, adjust bolt (A). Check pulley alignment again.

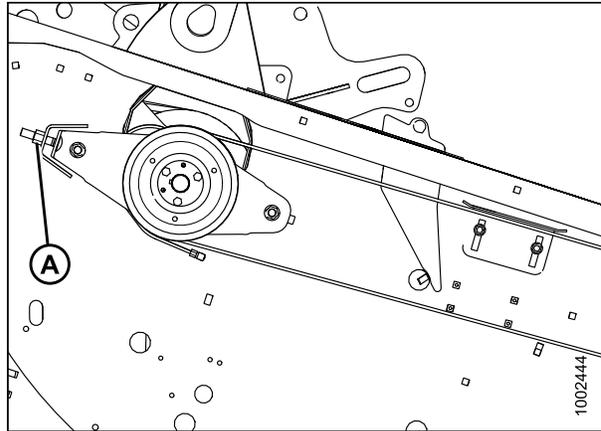


Figure 7.158

8. Tighten nuts (A) to retain the pulley setting.

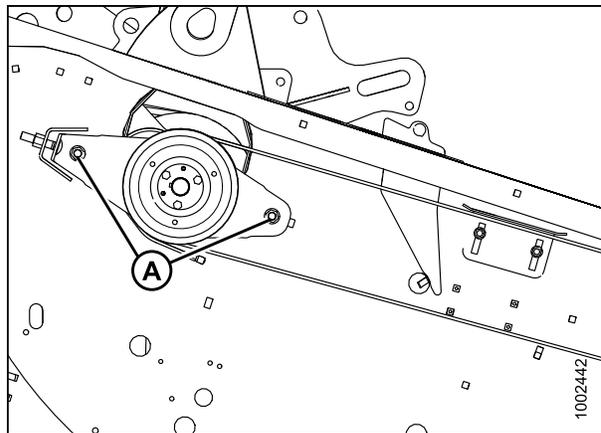


Figure 7.159

9. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
10. Tighten bolts (A) that secure the idler bracket to the end frame.

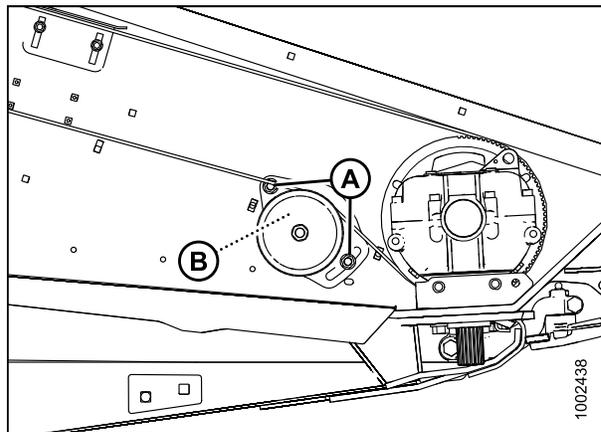


Figure 7.160

MAINTENANCE AND SERVICING

11. Check idler pulley alignment. Place a 12 in. (300-mm) straight edge on the idler pulley horizontally and vertically (B). Measure from the straight edge to the frame. Pulley should be parallel to the frame in both directions within 0.08 in. (2 mm). If pulley adjustment is required, use a deep socket and extension on nut (A) and adjust accordingly.

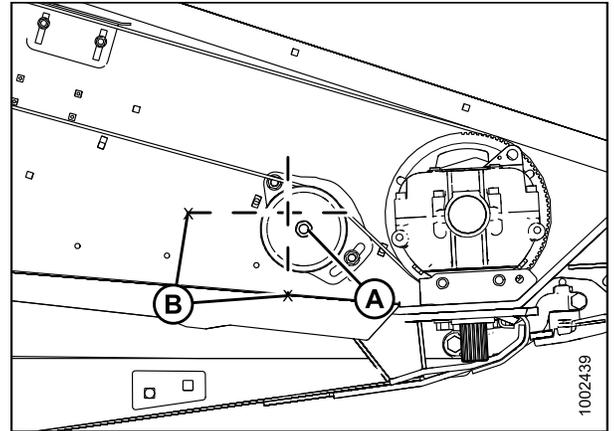


Figure 7.161

12. Recheck pulley alignment with a straight edge. Dimension at point 'C' should be 0.16 in. (4 mm) less than point 'B'. If not, [see Step 5., Aligning Knife Drive Belt Pulley \(Double Knife\) \(Right Hand\), page 333](#) ~~Refer to Step 5 (this section)~~ and readjust the fore-aft position of the drive pulley.

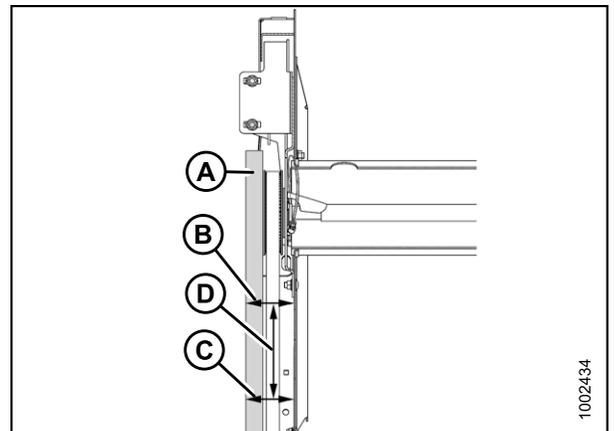


Figure 7.162

13. Loosen bolts (B) and adjust belt guide bracket (A). It should be set so there is 0.02–0.06 in. (0.5–1.5 mm) between the belt and the guide.

NOTE: If you have removed the belt, ensure the knives are timed. Refer to [Double Knife Timed, page 320](#).

14. Close endshield. Refer to [Closing Endshields, page 45](#).
15. Run up the header and ensure belt is tracking correctly.
NOTE: Belt should run completely on knife drive box sprocket and should not tend to ride up on flanges of driving sprocket or idler pulley. If it does not, then adjusting the idler pulley or the driving pulley may be needed.
16. Readjust tension of a new belt after a short run-in period (about 5 hours).

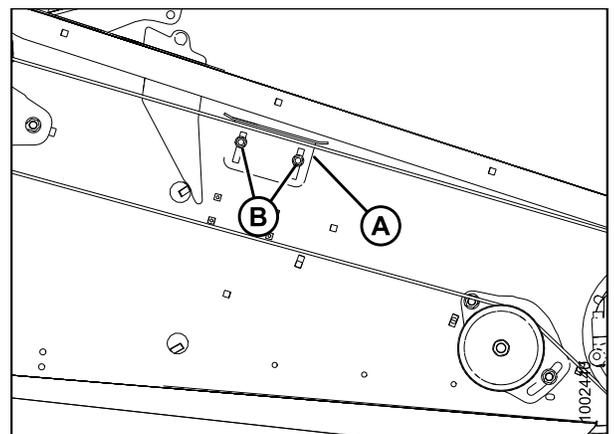


Figure 7.163

MAINTENANCE AND SERVICING

Adjusting Double Knife Timing

Double knife D65 Draper Headers, 40 ft. and smaller, require that knives are properly timed to move in opposite directions.

1. Open both endshields. Refer to [Opening Endshields](#), page 44.
2. Remove the belt on the right hand side. Refer to [Removing Knife Drive Belt \(Timed\) \(Double Knife\) \(Right Hand\)](#), page 328.
3. Rotate the left knife drive box driven pulley clockwise until the left knife (A) is at the center of the inboard stroke (moving towards center of header).

NOTE: Center stroke is when the knife sections are centered between guard points (B).

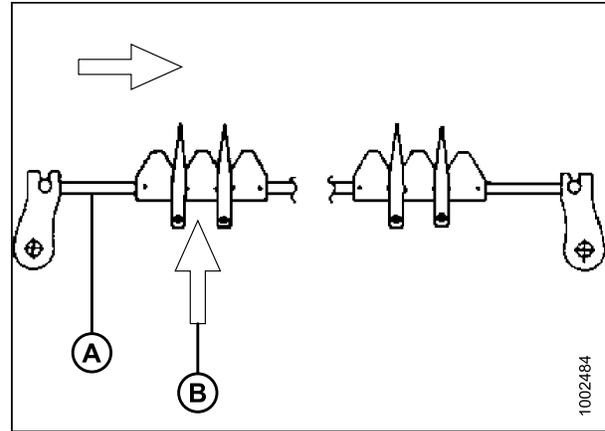


Figure 7.164

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

NOTE: Center stroke is when the knife sections are centered between guard points (B).

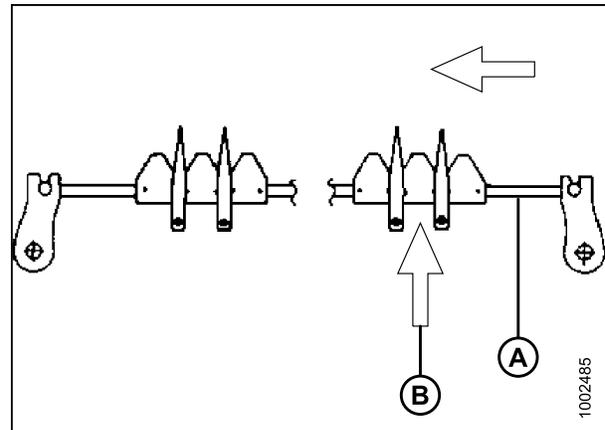


Figure 7.165

MAINTENANCE AND SERVICING

5. Install right-hand belt (A).

IMPORTANT

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

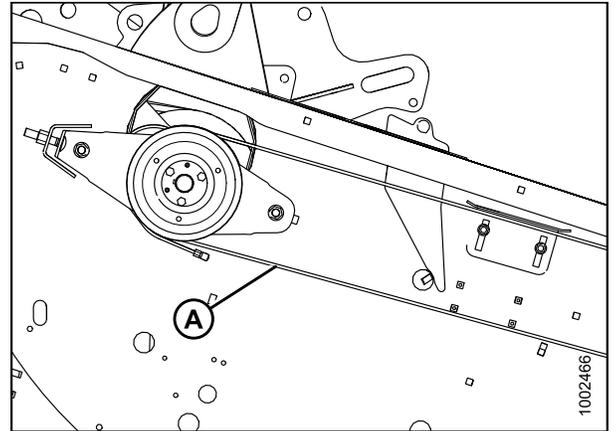


Figure 7.166

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

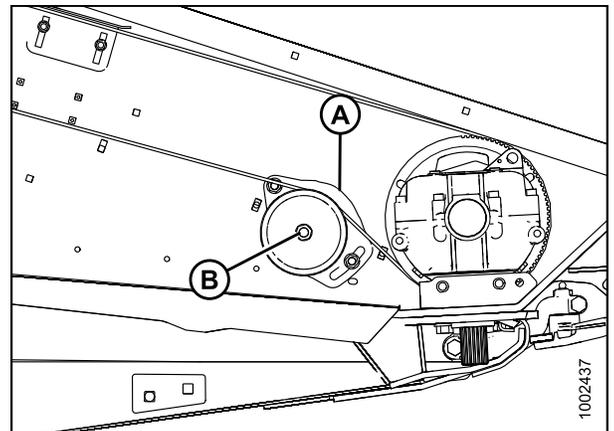


Figure 7.167

7. Rotate the bracket up using a long punch in slot (B) behind the pulley to obtain the proper belt tension. Tension is checked at mid span of the belt and should deflect 0.51 in. (13 mm) at 6 ft·lbf (24 N·m).
8. Tighten bolts (A) that secure the idler bracket to the end frame.
9. Check that the timing belts are properly seated in the grooves on both driver and driven pulleys.
10. Check for correct knife timing by rotating the drive slowly by hand and observe knives where they overlap at the centre of the header.

NOTE: If right knife 'leads' left knife, loosen right hand knife drive belt and rotate RIGHT SIDE driven pulley clockwise. If right knife 'lags' left knife, loosen right-hand knife drive belt and rotate RIGHT SIDE driven pulley counterclockwise.

11. Close both endshields. Refer to [Closing Endshields](#), page 45.

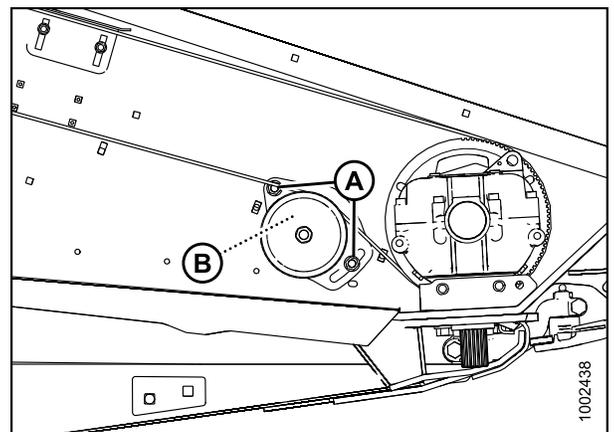


Figure 7.168

MAINTENANCE AND SERVICING

7.8.9 Knife Drive Box

The knife drive box drives the knife. It is belt driven. The knife drive box converts rotational motion into oscillating motion to drive the knife.



CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to [Section 7.1 Preparation for Servicing, page 243](#).

Mounting Bolts

Check the four knife drive box mounting bolts (A1, A2) torque after the first 10 hours operation and every 100 hours thereafter.

1. Tighten knife drive box side bolts (A1) first, then the bottom bolts (A2). Torque to 200 ft·lbf (271 N m).

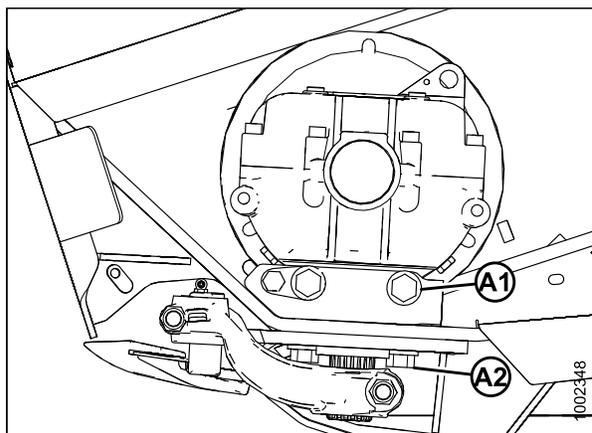


Figure 7.169: Check mounting bolts

Removing Knife Drive Box

Single and Untimed Double Knife

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

NOTE: Procedure is the same for right-hand side of the untimed double knife header.

1. Open endshield. ~~Refer to~~ [See Section Opening Endshields, page 44](#).
2. Loosen the two bolts (A) that secure the motor assembly to header endsheet.
3. Loosen the tension on the belt by turning the tensioning bolt (B) counterclockwise.

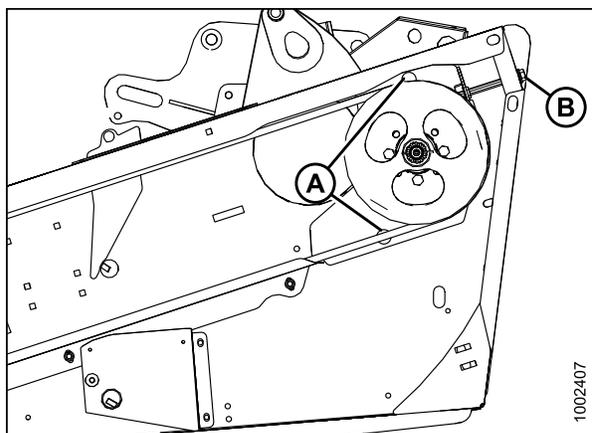


Figure 7.170

MAINTENANCE AND SERVICING

4. Open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

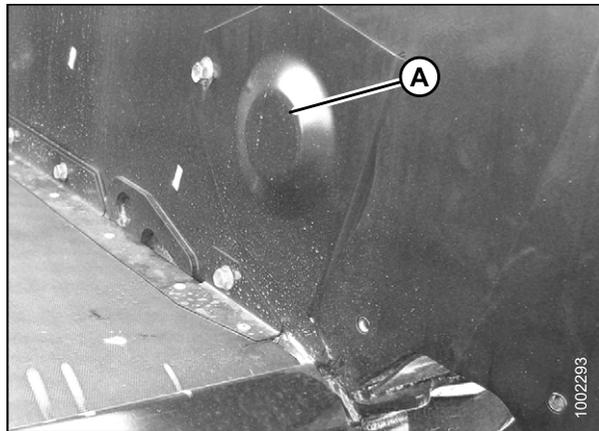


Figure 7.171

6. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
7. Remove the grease zerk (B) from the pin.
8. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

NOTE: Groove in pin may be used to pry up on pin.

9. Push the knife assembly inboard until it is clear of the output arm.
10. Seal bearing in knifehead with plastic or tape.

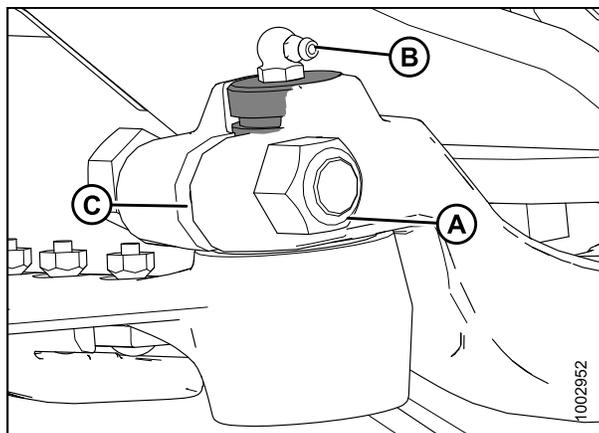


Figure 7.172

MAINTENANCE AND SERVICING

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

NOTE: Do **NOT** remove bolt (C), this is factory set. It is used to position the knife drive box in the proper fore-aft position.

14. Remove knife drive box with pulley and place on a bench for disassembly.

CAUTION

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

15. For double knife headers, repeat procedure on RH side.

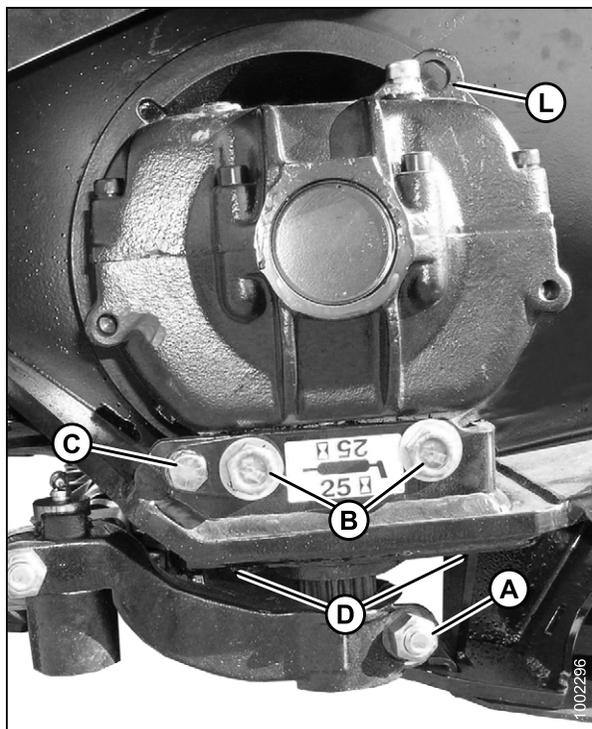


Figure 7.173

Double Knife Timed

Removing (LH) Knife Drive Box

1. Open LH endshield. ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

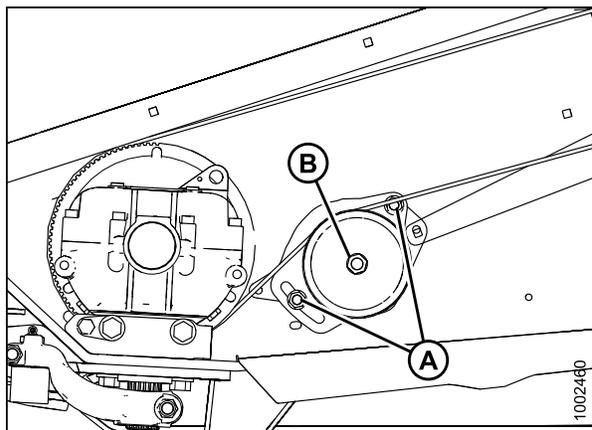


Figure 7.174

MAINTENANCE AND SERVICING

4. Open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

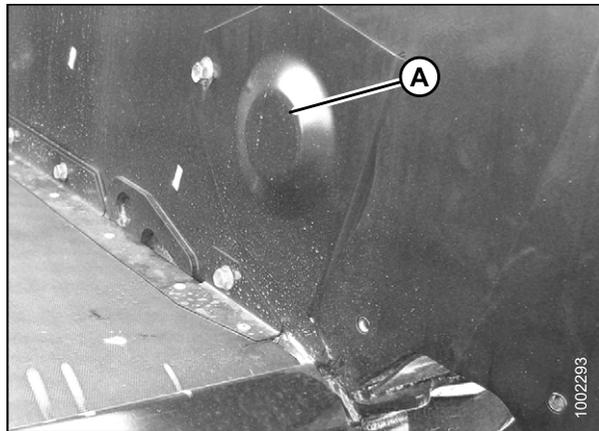


Figure 7.175

6. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
7. Remove the grease zerk (B) from the pin.
8. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

NOTE: Groove in pin may be used to pry up on pin.

9. Push the knife assembly inboard until it is clear of the output arm.
10. Seal bearing in knifehead with plastic or tape.

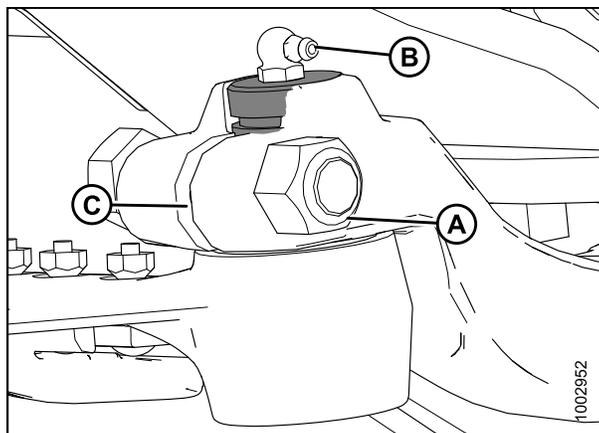


Figure 7.176

MAINTENANCE AND SERVICING

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

NOTE: Do **NOT** remove bolt (C), this is factory set. It is used to position the knife drive box in the proper fore-aft position.

14. Remove knife drive box with pulley and place on a bench for disassembly.



CAUTION

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

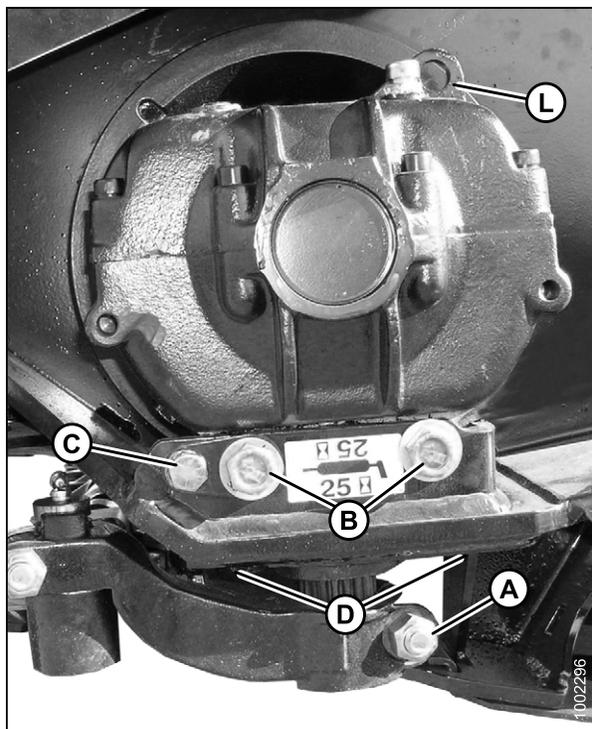


Figure 7.177

Removing (RH) Knife Drive Box

1. Open RH endshield. ~~Refer to~~ See Section Opening Endshields, page 44.
2. Loosen two nuts (A) on belt idler bracket to relieve tension on belt.
3. Loosen nut (B) on idler pulley and slide idler down to loosen belt.

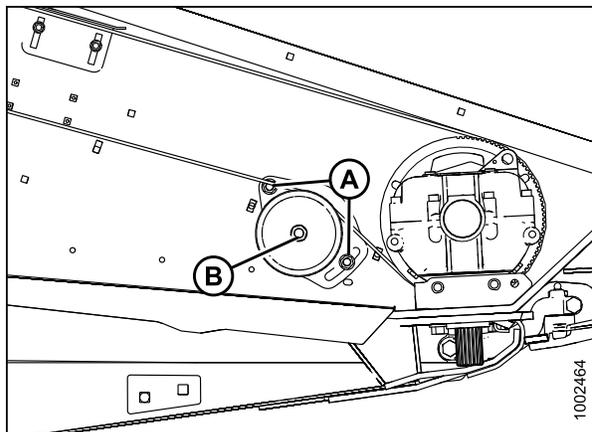


Figure 7.178

MAINTENANCE AND SERVICING

4. Open the access panel (A) inside the draper opening, just behind cutterbar.
5. Remove the knife drive belt.

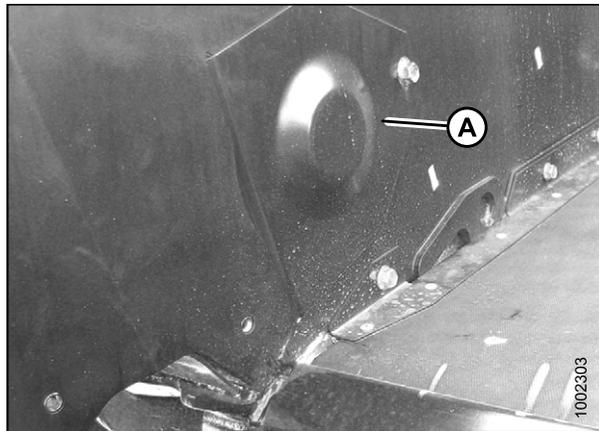


Figure 7.179

6. Clean area around the knifehead. Stroke knife to its outer limit and remove bolt (A).
7. Remove the grease zerk (B) from the pin.
8. Use a screwdriver or a chisel in slot (C) to spread clamp apart to remove knifehead pin.

NOTE: Groove in pin may be used to pry up on pin.

9. Push the knife assembly inboard until it is clear of the output arm.
10. Seal bearing in knifehead with plastic or tape.

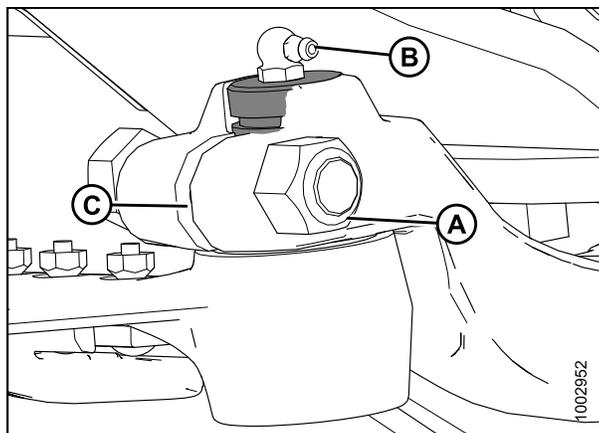


Figure 7.180

MAINTENANCE AND SERVICING

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

NOTE: Do **NOT** remove bolt (C), this is factory set. It is used to position the knife drive box in the proper fore-aft position.

14. Remove knife drive box with pulley and place on a bench for disassembly.



CAUTION

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

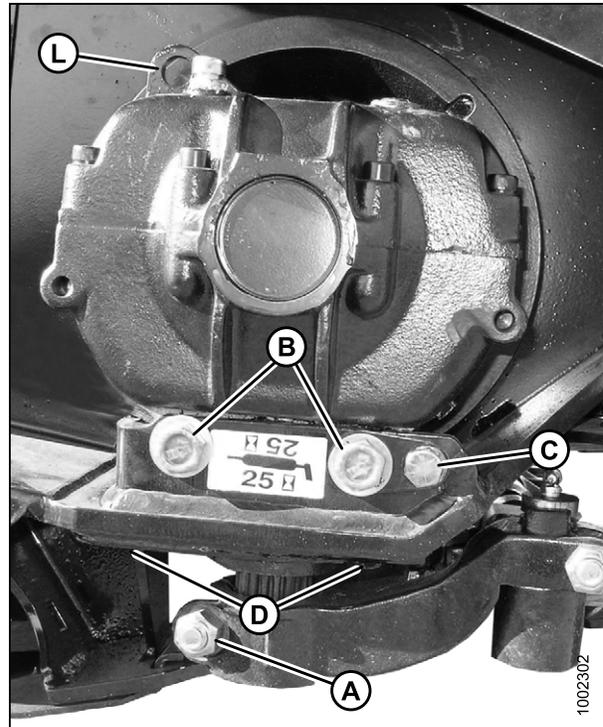


Figure 7.181

Removing Knife Drive Box Pulley

To remove knife drive box pulley, follow these steps:

1. Loosen and remove the knife drive box pulley clamping bolt (A) and nut (B) and remove knife drive box pulley (C).
2. Remove pulley using a three-jaw puller.

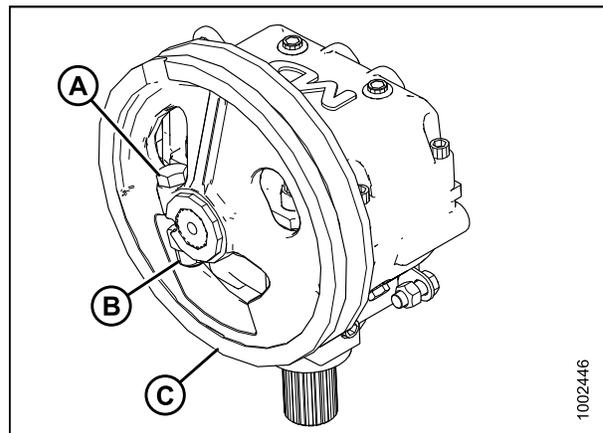


Figure 7.182

MAINTENANCE AND SERVICING

Installing Knife Drive Box Pulley

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

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

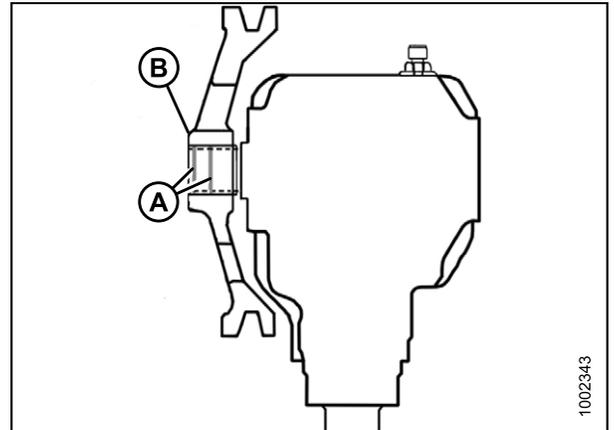


Figure 7.183: Pulley shown is for single knife

Installing Knife Drive Box

This procedure can be used for single and double knife headers.

NOTE: Before installing the knife drive box onto the header, install the pulley onto the knife drive box.

CAUTION

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

1. Place knife drive box into position on header mount, placing belt around pulley.
2. Install two 5/8 in. X 1.75 in. grade 8 hex head bolts (A) on the side and two 5/8 in. X 2.25 in. (B) on the bottom to mount knife drive box to frame.
3. Tighten knife drive box side bolts (A) first, then the bottom bolts (B), to ensure proper contact with vertical and horizontal mounting surfaces. Do **NOT** torque bolts at this time.

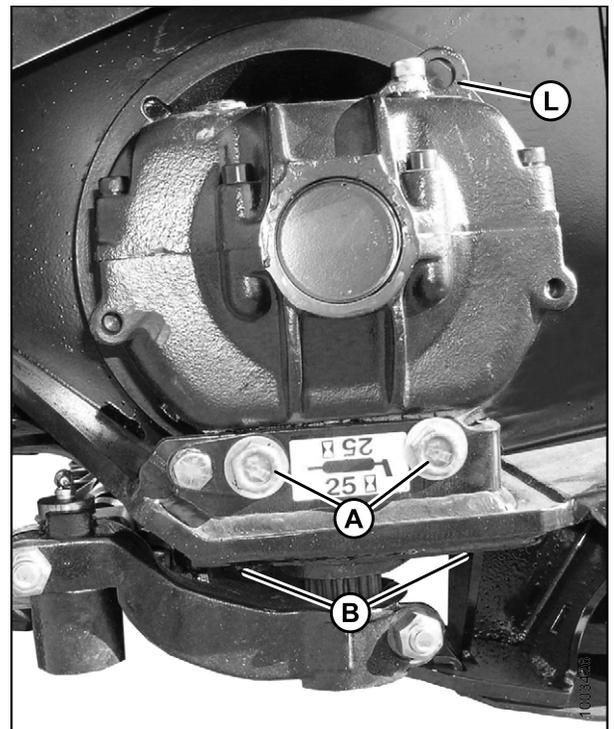


Figure 7.184

MAINTENANCE AND SERVICING

4. Apply Loctite® #243 to the output shaft in two bands as shown at (A).
5. Slide output arm (B) onto output shaft. Rotate pulley to ensure drive arm just clears frame on inboard stroke to ensure proper placement on splines.

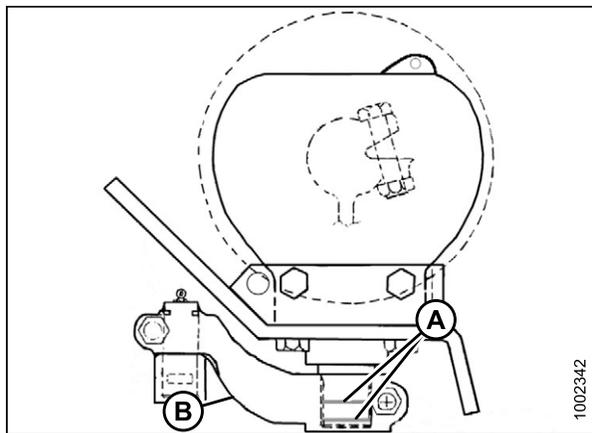


Figure 7.185

6. Position output arm (A) to farthest outboard position. Move output arm (A) up or down on splined shaft until it almost contacts knifehead (B). Spacing at (C) should be 0.010 in. (0.254 mm).

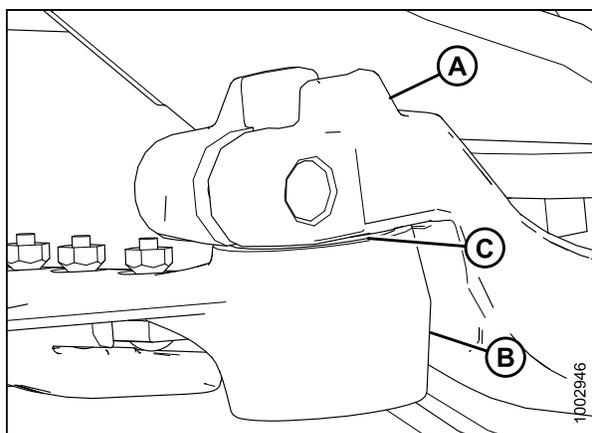


Figure 7.186

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

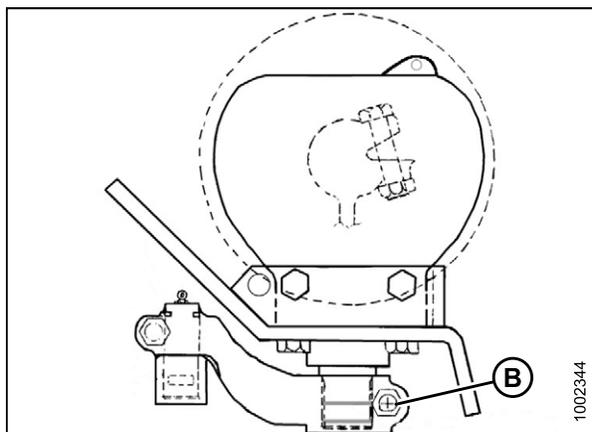


Figure 7.187

MAINTENANCE AND SERVICING

NOTE: For ease of removing or installing knifehead pin, remove grease zerk from pin.

8. Install knifehead pin (A) through the output arm and into the knifehead bearing cup.
9. Align groove (B) in knifehead pin 0.06 in. (1.5 mm) above (C). Install 5/8 in. X 3 in. hex head bolt (D) and torque to 160 ft·lbf (217 N·m).

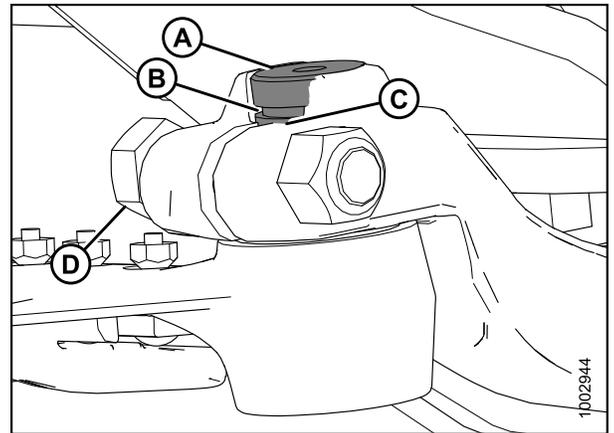


Figure 7.188

10. Install grease zerk (A) into the knifehead pin, turn the grease zerk for easy access.

IMPORTANT

Grease knifehead just enough to start a slight downward movement of knifehead. Over greasing will cause knife to heat at guards and cause undue loading.

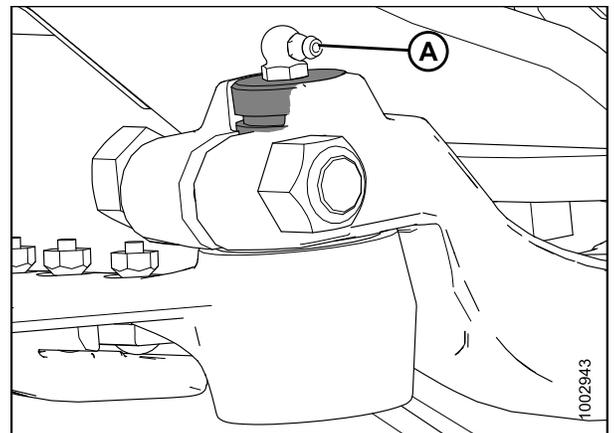


Figure 7.189

11. Align the knife drive box pulley with drive pulley. If adjustment is required, contact your MacDon Dealer.
12. Tighten knife drive box side bolts (A1) first, then the bottom bolts (A2). Torque to 200 ft·lbf (271 N·m).
13. Stroke the output arm to mid stroke, check and ensure there is no contact between the front of the guard and the knife back. If adjustment is required, contact your MacDon Dealer.
14. Install the knife drive belts onto the pulleys. For single and double knife headers, [Refer to see Section Tensioning Single and Double Knife Headers with Non-Timed Drive, page 320](#) for tensioning instructions. For double knife headers that are timed, you will also be required to check the knife timing, [Refer to see Section Double Knife Timed, page 320](#) for timing instructions.
15. Close endshield. See [Section Closing Endshields, page 45](#).

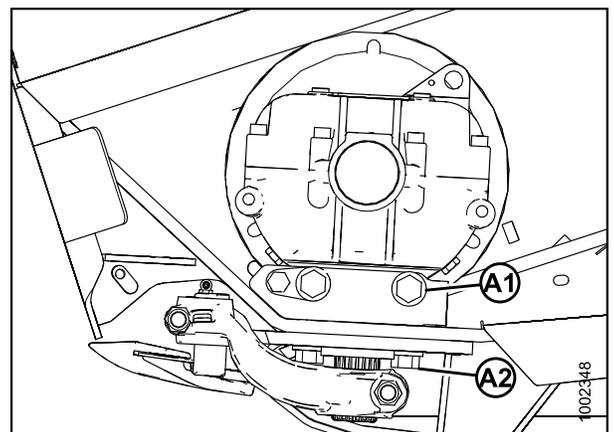


Figure 7.190

MAINTENANCE AND SERVICING

Changing Oil in Knife Drive Box

Change knife drive box lubricant after the first 50 hours of operation and every 1,000 hours (or 3 years) thereafter.

To change the oil in the knife drive box, follow these steps:

1. Raise header to allow a suitable container to be placed under the knife box drain to collect oil.
2. Open endshield(s). ~~Refer to~~ [See Section Opening Endshields, page 44.](#)
3. Remove breather/dipstick (A) and drain plug (B).
4. Allow oil to drain.
5. Reinstall drain plug (B).
6. Add oil to knife drive box. See [Section 7.2.2 Recommended Fluids and Lubricants, page 245](#) for quantity.
7. Close endshield(s). ~~Refer to~~ [See Section Closing Endshields, page 45.](#)

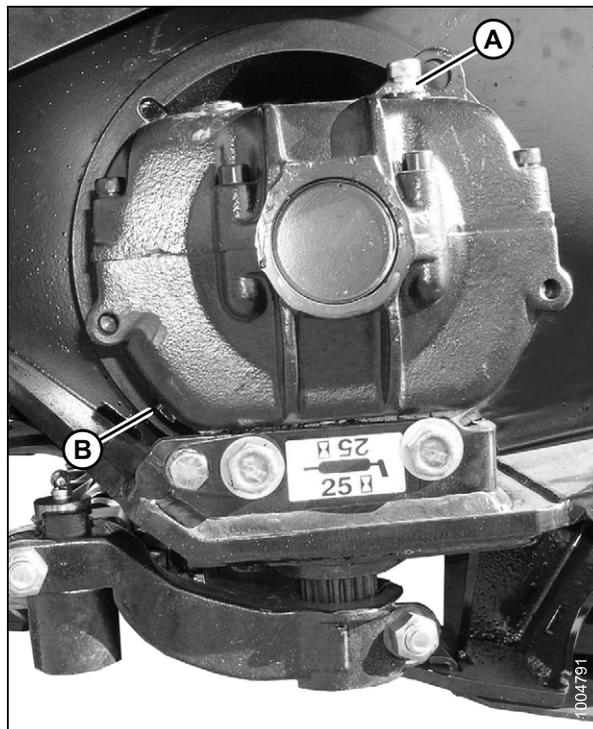


Figure 7.191

7.8.10 Knifehead Shield

The shield attaches to the endsheet and reduces the knifehead opening to prevent cut crop from accumulating in the knifehead cut-out creating plugging.

It is recommended that the shield(s) be installed when harvesting severely lodged crop or any crop condition where plugging occurs at the knifehead cutout.

The shield(s) and mounting hardware are available from your MacDon Dealer.

IMPORTANT

Shields should be removed when cutting with the cutterbar on the ground in muddy conditions. Mud may pack into the cavity behind the shield and cause knife drive box failures.

MAINTENANCE AND SERVICING

Installing Knifehead Shield

The knifehead shield is supplied in flattened form and can be bent to suit installation on pointed or stub guard cutterbars and on double-knife headers. Shields are slightly different depending on header size and guard configuration. Ensure proper shield is used. See header parts catalog for proper replacement parts.

DANGER

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

1. Raise reel fully, lower header to ground, shut down combine, and remove key.

WARNING

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

2. Engage reel arm locks.

CAUTION

Wear heavy gloves when working around or handling knives.

3. Place knifehead shield (A) against endsheet as shown. Orient the shield so that cutout matches profile of knifehead and/or hold-downs.
4. Bend shield along slit to conform to endsheet.
5. Align mounting holes and then install two 3/8 in. x 1/2 Torx® head bolts (B).
6. Snug up bolts just enough so that shield can be adjusted as close as possible to the knifehead.
7. Manually rotate knife drive box pulley to move knife and check for areas of contact between the knifehead and shield.
8. If required, adjust shield to avoid interference with the knife.
9. Tighten bolts.

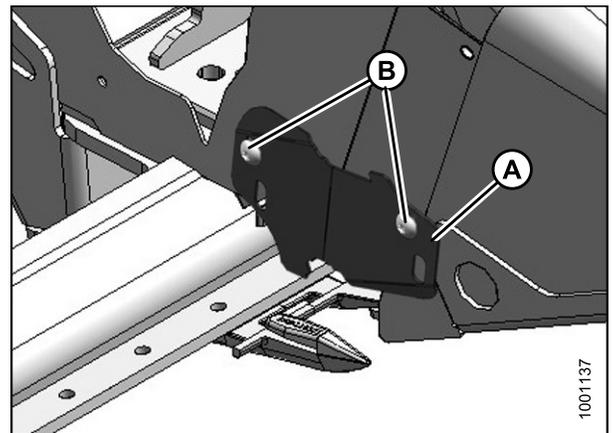


Figure 7.192

MAINTENANCE AND SERVICING

7.9 Adapter Feed Draper

CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to Section 7.1 [Preparation for Servicing, page 243](#).

7.9.1 Replacing Adapter Feed Draper

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

1. If adapter is attached to combine and header, disconnect header. See Section 5 [Header Attachment/Detachment, page 113](#).
2. Raise header fully, stop engine and remove key. Engage header safety props.
3. To loosen draper tension, loosen jam nut (A) and then hold nut (B) with a wrench and turn bolt (C) counterclockwise to release tension. Do this to both sides.
4. Disengage header safety props and lower feeder house and adapter onto blocks to keep adapter slightly off the ground.
5. Remove the draper connector straps (A) along draper joint.
6. Pull draper from deck.

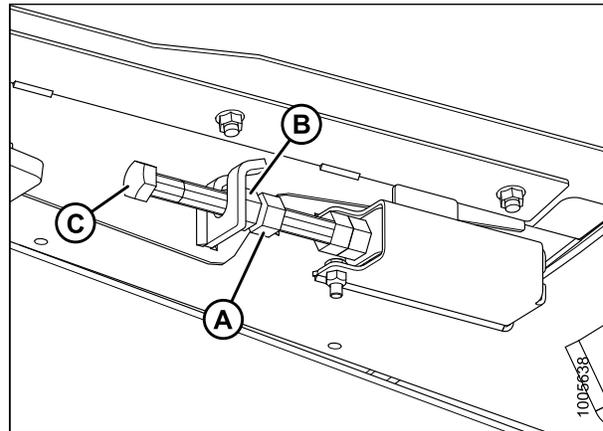


Figure 7.193

A - Jam nut

B - Nut

C - Bolt

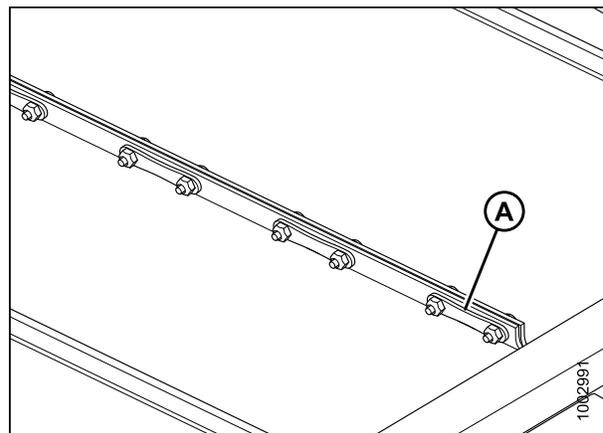


Figure 7.194

MAINTENANCE AND SERVICING

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

NOTE: Check chevron pattern when installing, should look like a V going to the back towards the motor.

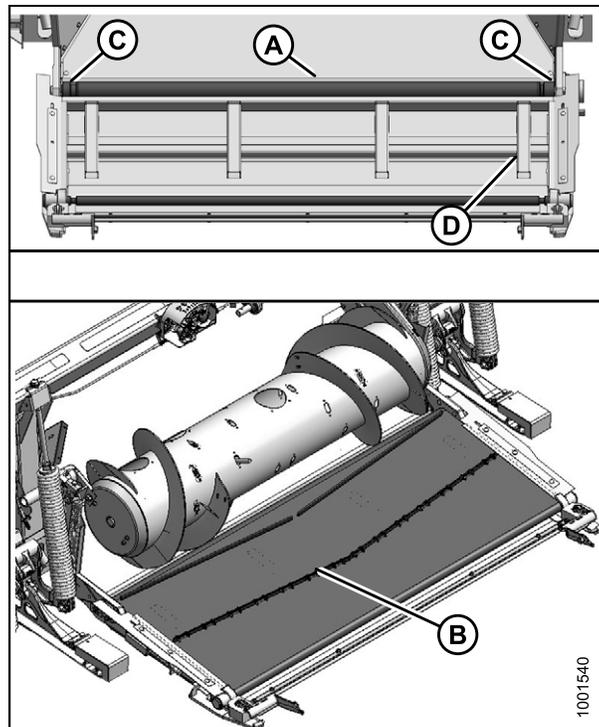


Figure 7.195

A - Drive roller

C - Drive roller grooves

B - Chevron cleat

D - Draper Supports

9. Connect draper joint with straps (A). Secure with nuts and screws. Screw heads should face toward rear of the deck. Tighten nuts so that end of screw is approximately flush with nut.
10. Adjust draper tension. See Section [7.9.2 Adjusting Feed Draper Tension](#), page 352.

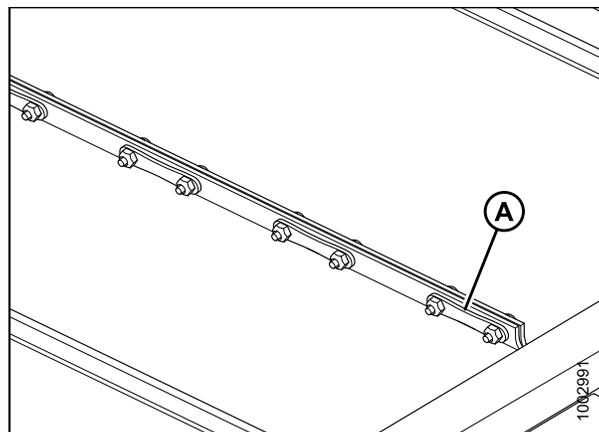


Figure 7.196

MAINTENANCE AND SERVICING

7.9.2 Adjusting Feed Draper Tension

DANGER

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

CAUTION

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

1. Raise header fully, stop engine, and remove key. Engage header safety props.
2. Check that draper guide (rubber track on underside of draper) is properly engaged in groove of drive roller and that idler roller is between the guides.
3. Loosen jam nut (A).
4. Hold nut (B) with a wrench and turn bolt (C) clockwise to increase tension and counterclockwise to decrease tension.

IMPORTANT

Adjust both sides equal amounts.

5. Correct tension is when retainer (D) is flush with spring holder, and bolt (E) is free.

NOTE: Draper tension should be just enough to prevent slipping, and keep draper from sagging below cutterbar.

6. Tighten jam nut (A).

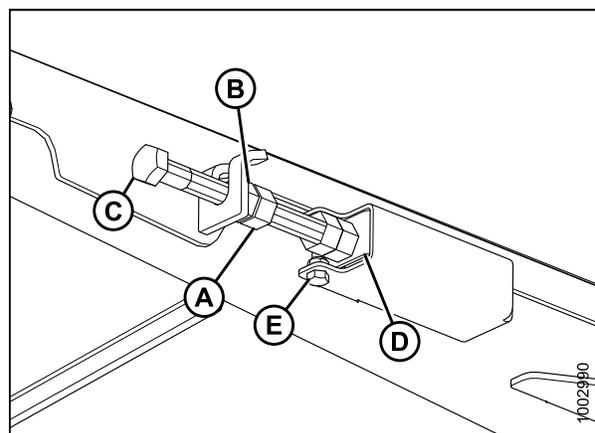


Figure 7.197

A - Jam nut B - Nut
D - Retainer E - Bolt C - Bolt

7.9.3 Adapter Drive Roller

Removing Adapter Feed Deck Drive Roller

1. If adapter is attached to combine and header, disconnect header. See [Section 5 Header Attachment/Detachment, page 113](#).
2. Raise header fully, stop engine, and remove key. Engage header safety props.

MAINTENANCE AND SERVICING

3. Loosen draper tension.
4. Loosen jam nut (A).
5. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Do this to both sides.

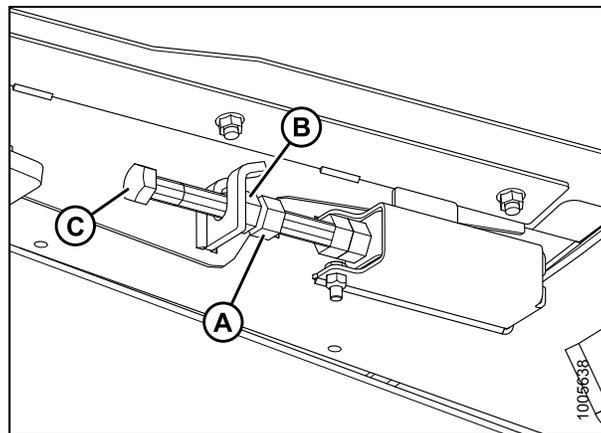


Figure 7.198

A - Jam nut

B - Nut

C - Bolt

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

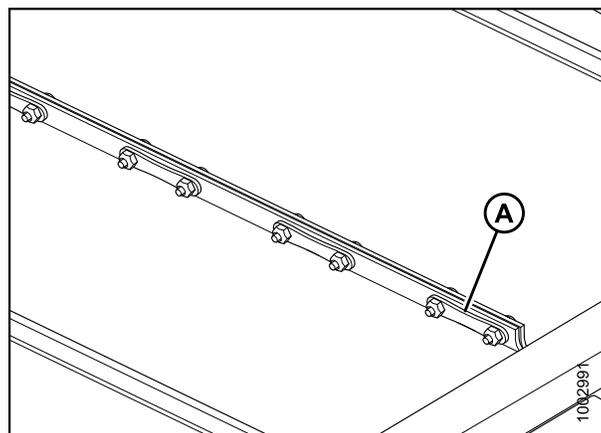


Figure 7.199

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

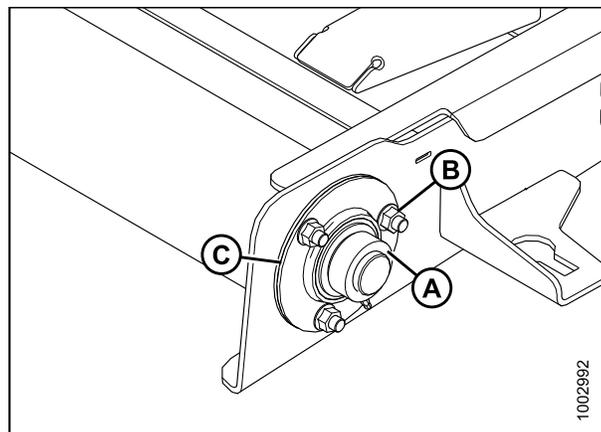


Figure 7.200: Rear RH View

MAINTENANCE AND SERVICING

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

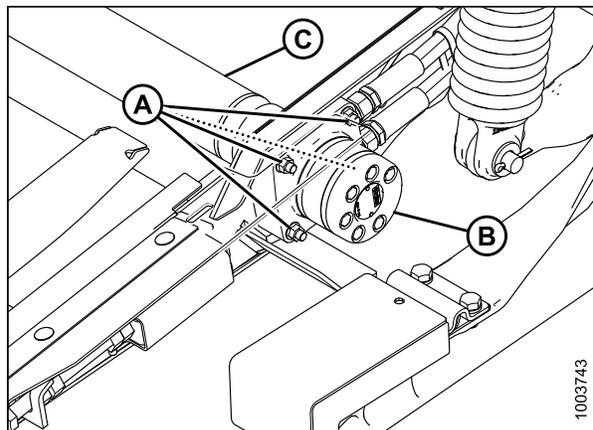


Figure 7.201: Rear LH View

Installing Adapter Feed Deck Drive Roller

1. Install roller (C).
2. Slide motor (B) into the drive roller. Secure the motor to the feed deck with four bolts (A).

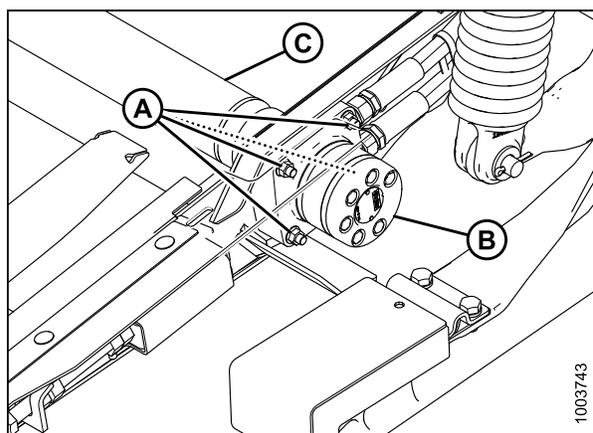


Figure 7.202: Rear LH View

3. Install bearing flangettes (C) and new bearing.
4. Install three bolts (B), to secure bearing and flangettes to the feed deck.
5. Lock bearing collar (A) and tighten setscrew.
6. Install the feed deck draper. See Section [7.9.1 Replacing Adapter Feed Draper](#), page 350.
7. Tension the feed draper, see Section [7.9.2 Adjusting Feed Draper Tension](#), page 352.
8. Attach the header to the adapter. See Section [5 Header Attachment/Detachment](#), page 113 for procedure.

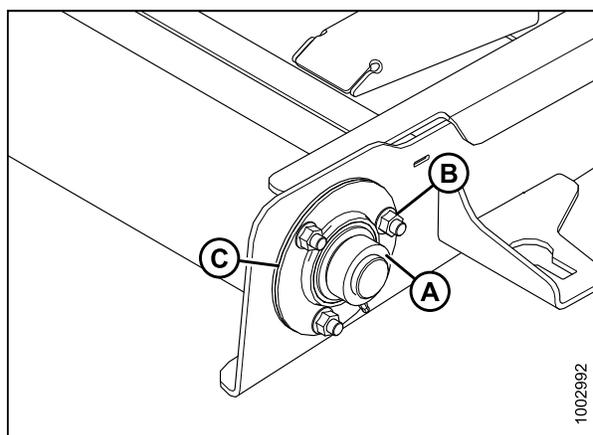


Figure 7.203: Rear RH View

MAINTENANCE AND SERVICING

Replacing Adapter Drive Roller Bearing

Removing Adapter Feed Deck Drive Roller Bearing

1. Remove the header from the adapter. See Section [5 Header Attachment/Detachment](#), page 113 for procedure.
2. Leave adapter attached to combine. Engage the feeder house safety props.
3. Loosen belt tension.
4. Loosen jam nut (A).
5. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Do this to both sides.

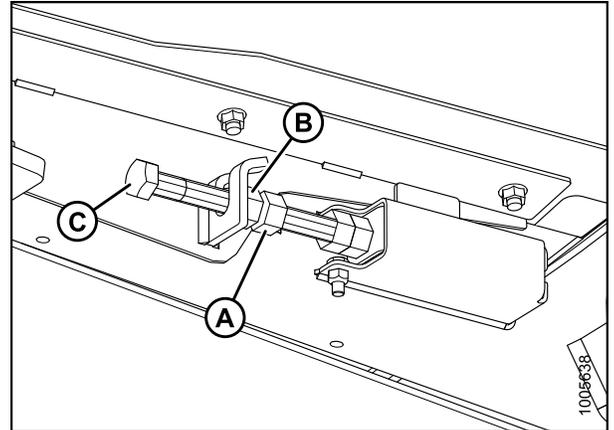


Figure 7.204

A - Jam nut

B - Nut

C - Bolt

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

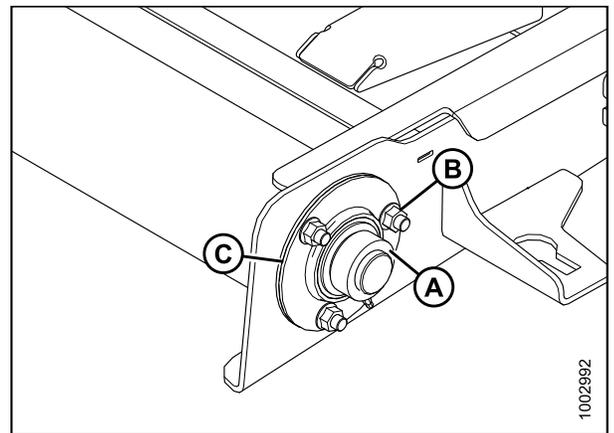


Figure 7.205: Rear RH View

MAINTENANCE AND SERVICING

Installing Adapter Feed Deck Drive Roller Bearing

1. Install bearing flangettes (C) and new bearing.
2. Install three bolts (B), to secure bearing and flangettes to the feed deck.
3. Lock bearing collar (A) and tighten setscrew.
4. Tension the feed draper, See Section [7.9.2 Adjusting Feed Draper Tension](#), page 352
5. Attach the header to the adapter. See Section [5 Header Attachment/Detachment](#), page 113 for procedure.

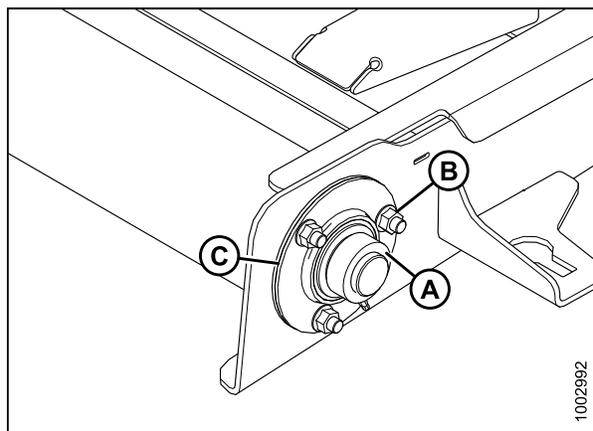


Figure 7.206: Rear RH View

7.9.4 Adapter Idler Roller

Removing Adapter Feed Deck Idler Roller

LH side shown:

1. Remove the header from the adapter. See Section [5 Header Attachment/Detachment](#), page 113.
2. Leave adapter attached to combine. Engage the feeder house safety props.
3. Loosen belt tension
4. Loosen jam nut (A).
5. Hold nut (B) with a wrench and turn bolt (C) counterclockwise to decrease tension. Do this to both sides.

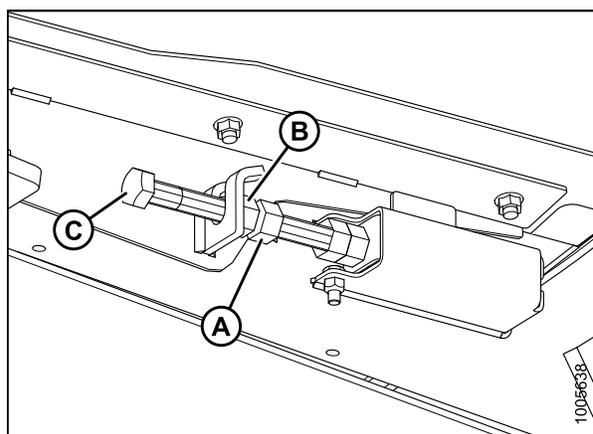


Figure 7.207

A - Jam nut

B - Nut

C - Bolt

MAINTENANCE AND SERVICING

6. Remove all of the draper connector straps (A).
7. Open the feed draper.

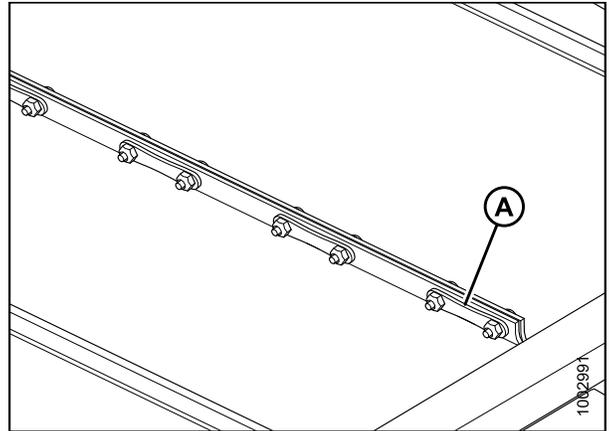


Figure 7.208

8. Remove two bolts (A). Do this to both ends of the idler roller.
9. Remove the idler roller assembly (B).

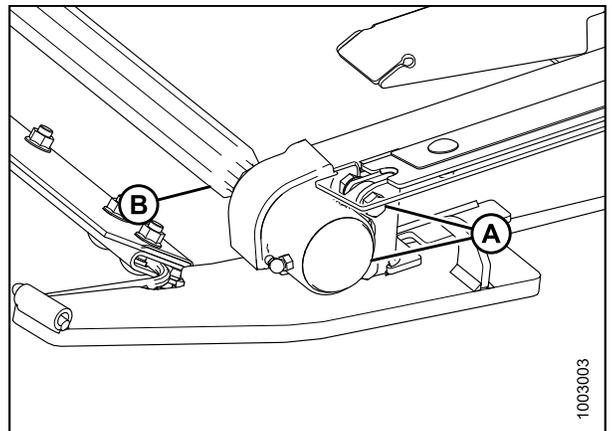


Figure 7.209

Replacing Adapter Feed Deck Idler Roller Bearing

1. Remove dust cap (A).

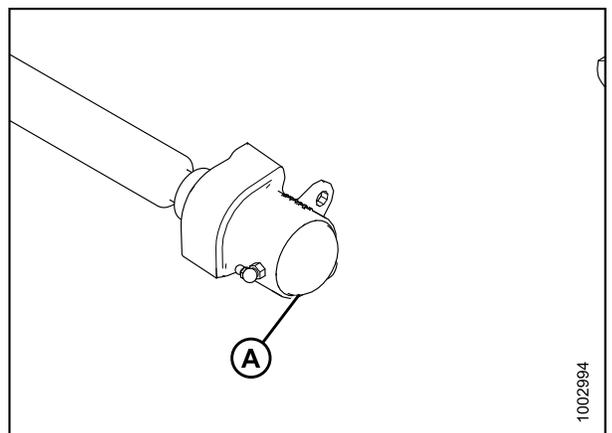


Figure 7.210

MAINTENANCE AND SERVICING

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

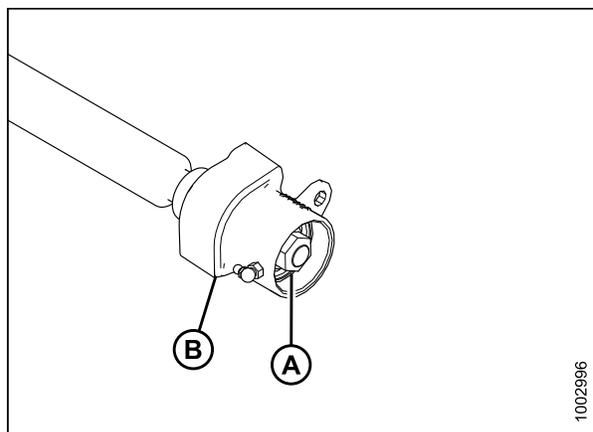


Figure 7.211

4. Secure the housing (D) and remove the internal retaining ring (A), bearing (B) and two seals (C).

5. Install seals into casting (D).

NOTE: Flat side of seal should be facing inboard.

6. Brush shaft with oil. Carefully rotate the housing (D) with seals (C) onto the shaft by hand to prevent seal damage.

7. Install bearing (B).

8. Install retaining ring (A).

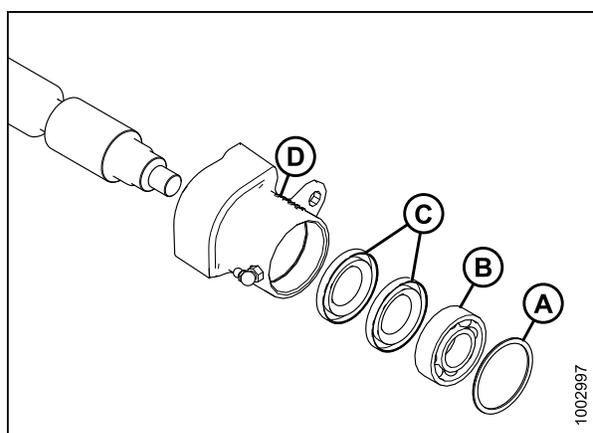


Figure 7.212

9. Install nut (A) to secure the bearing assembly to the shaft.

10. Install the dust cap (B).

11. Pump grease into bearing assembly.

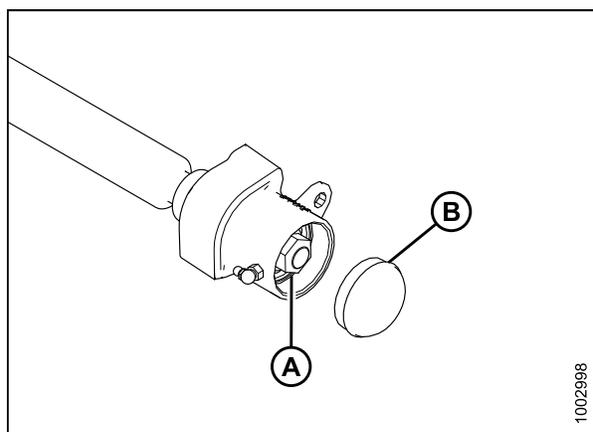


Figure 7.213

MAINTENANCE AND SERVICING

Installing Adapter Feed Deck Idler Roller

1. Install the idler roller assembly (B).
2. Install two bolts (A). Do this to both ends of the idler-roller.

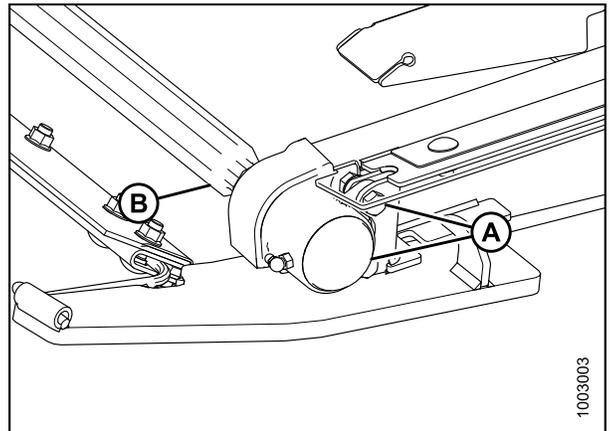


Figure 7.214

3. Close the feed draper
4. Install all of the draper connector straps (A).
5. Tension the feed draper. See Section [7.9.2 Adjusting Feed Draper Tension](#), page 352
6. Attach the header to the adapter. See Section [5 Header Attachment/Detachment](#), page 113.

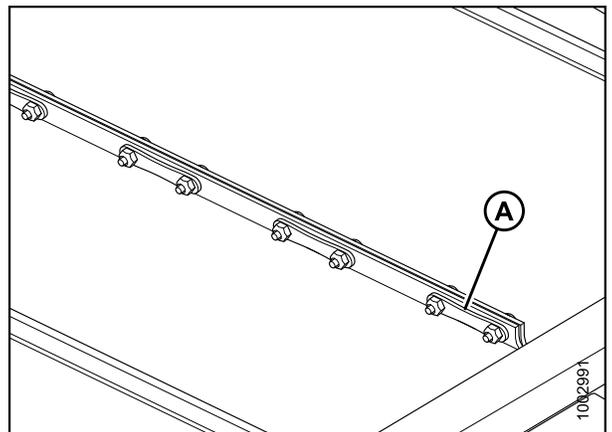


Figure 7.215

MAINTENANCE AND SERVICING

7.10 Header Drapers

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

7.10.1 Removing Side Draper

To remove a side draper, follow these steps.

WARNING

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

1. Raise reel and engage reel safety props.
2. Raise header and engage safety props.
3. Stand in draper opening or on combine feed draper and move draper until draper joint is in work area.

NOTE: Deck can also be shifted towards center to provide opening at endsheet.

4. Release tension on the draper. Refer to Section [7.10.3 Adjusting Side Draper Tension](#), page 362.
5. Remove nuts (A) and tube connectors (B) at the draper joint.
6. Pull draper from deck.

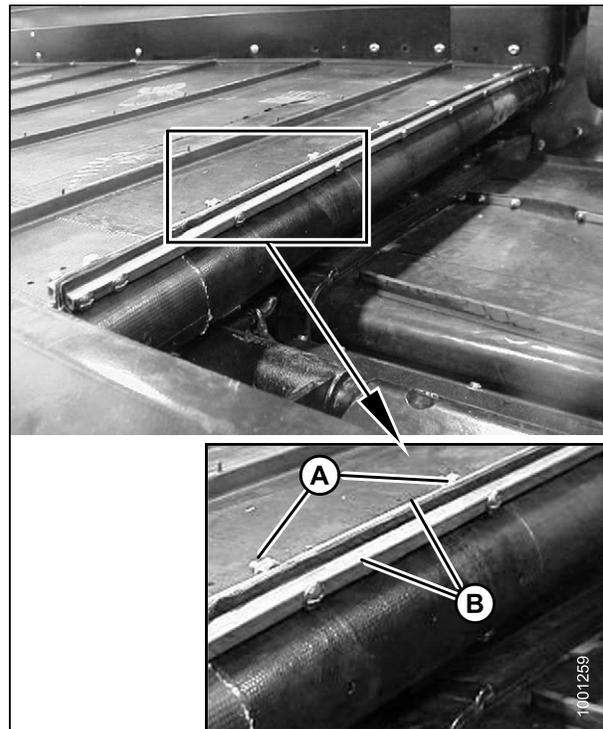


Figure 7.216

MAINTENANCE AND SERVICING

7.10.2 Installing Side Draper

To install a header draper, follow these steps:



WARNING

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

1. Insert draper into deck at outboard end, under the rollers. Pull draper into deck while feeding it at the end.
2. Feed in the draper until it can be wrapped around the drive roller.
3. Similarly, insert the other end into the deck over the rollers. Pull draper fully into the deck.
4. D65 only: If the header is SP configured, you may want to loosen the rear deck deflector (A) by loosening mounting bolts (B). This may help with draper installation.



Figure 7.217

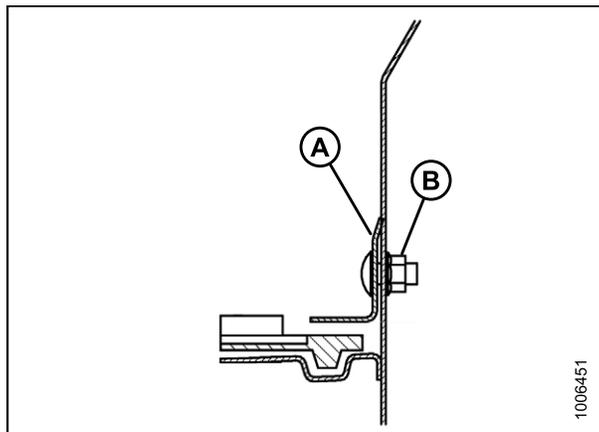


Figure 7.218

MAINTENANCE AND SERVICING

5. Attach ends of draper with tube connectors (B).
6. Install screws (A) with heads facing the center opening.
7. Adjust tension. Refer to Section [7.10.3 Adjusting Side Draper Tension](#), page 362.

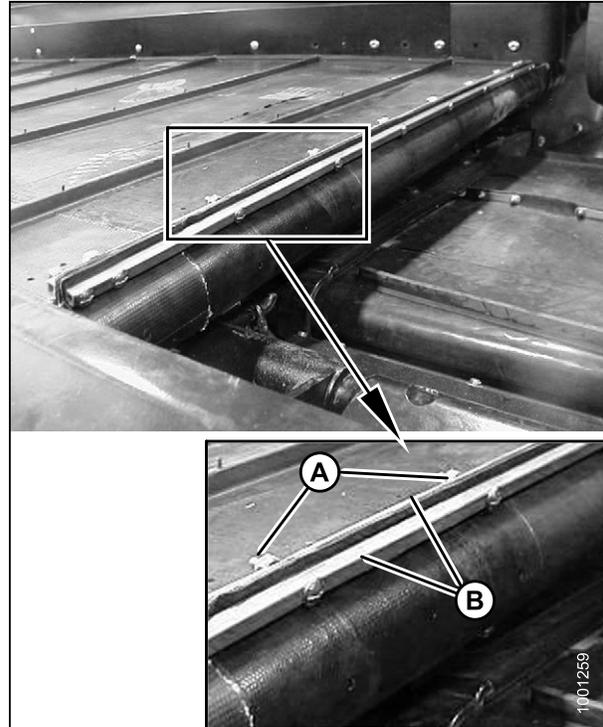


Figure 7.219

8. D65 only: If you loosened the backsheet deflector (A), you will need to adjust it. Loosen nut (D) and adjust deflector (A) until there is a 0.4-0.3 in (1-7 mm) gap (C) between the draper (B) and the deflector (A).

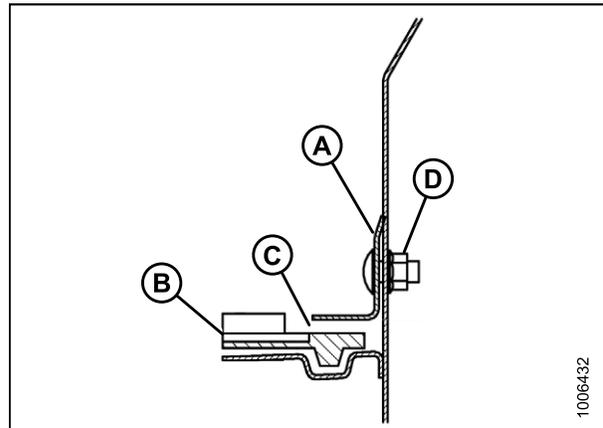


Figure 7.220: **Backsheet deflector**

A - Deflector **B - Draper**
C - 0.4-0.3 in (1-7 mm) **D - Nut**

7.10.3 Adjusting Side Draper Tension

To adjust the header draper tension, follow these steps:

1. 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.

MAINTENANCE AND SERVICING

2. To tighten, turn bolt (A) clockwise. The white indicator bar (B) will move inboard, indicating that draper is tightening. Tighten until bar is about halfway in window.
3. To loosen, turn bolt (A) counterclockwise. The white indicator bar (B) will move outboard, indicating that draper is loosening. Loosen until bar is about halfway in window.

IMPORTANT

To avoid premature failure of draper, draper rollers and/or tightener components, do NOT operate with tension set so that white bar is not visible. Also, to prevent draper from scooping dirt, ensure draper is tight enough that it does not sag below point where cutterbar contacts the ground.

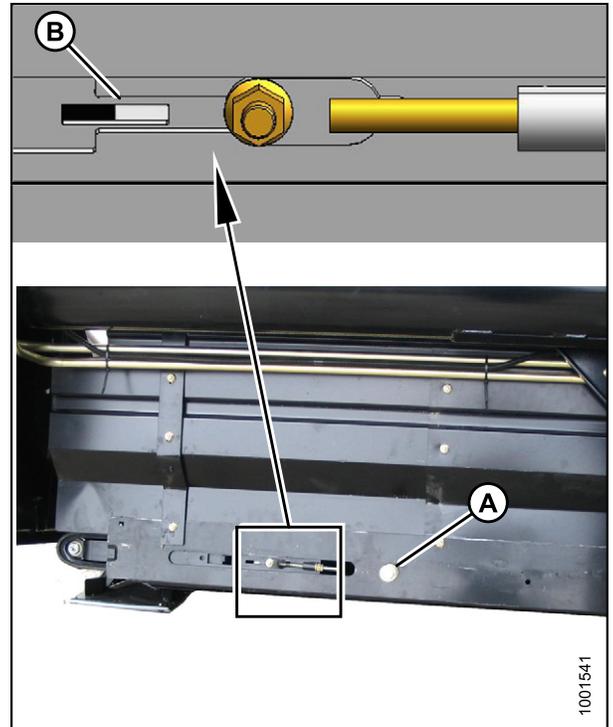


Figure 7.221

7.10.4 Adjusting Header Draper Tracking

Each draper deck has one fixed roller and one spring-loaded roller. The spring-loaded roller is located at the same end of the deck as the draper tensioner. Both rollers can be aligned by adjuster rods so that the draper tracks properly on the rollers.



CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to [Section 7.1 Preparation for Servicing, page 243](#).

If the draper is tracking incorrectly, make the following adjustments to the rollers:

MAINTENANCE AND SERVICING

Table 7.16 Header Draper Tracking

| Tracking | At location | Adjustment | Method |
|----------|--------------|--------------|-----------------|
| Backward | Drive Roller | Increase 'X' | Tighten nut (C) |
| Forward | | Decrease 'X' | Loosen nut (C) |
| Backward | Idler Roller | Increase 'Y' | Tighten nut (C) |
| Forward | | Decrease 'Y' | Loosen nut (C) |

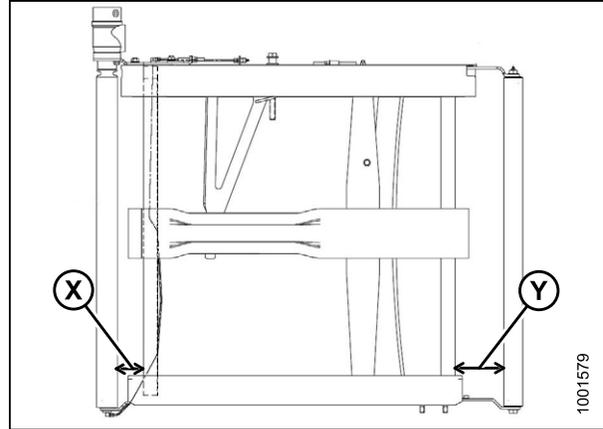


Figure 7.222: Adjustment location

1. Adjust the **drive** roller 'X' (shown in Figure 7.222: [Adjustment location, page 364](#)) by loosening nuts (A), jam nut (B) on adjuster rod and turning the adjusting nut (C).

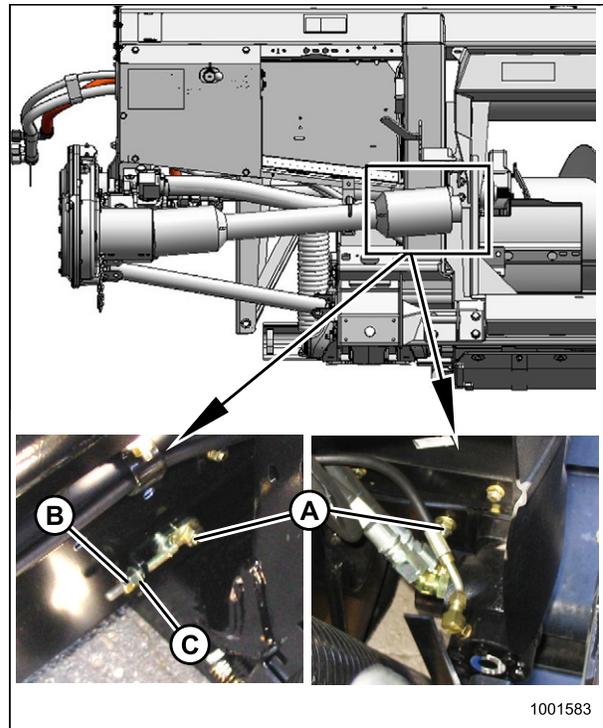


Figure 7.223: Adjust LH drive roller 'X'

A - Nuts B - Jam nut C - Adjusting nut

MAINTENANCE AND SERVICING

2. Adjust the **idler** roller 'Y' (shown in Figure 7.222: [Adjustment location, page 364](#)) by loosening nut (A), jam nut (B) on adjuster rod and turning adjusting nut (C).
3. If the draper will **NOT** track at the idler roller end, the drive roller is likely not square to the deck. Adjust the drive roller and then readjust the idler.

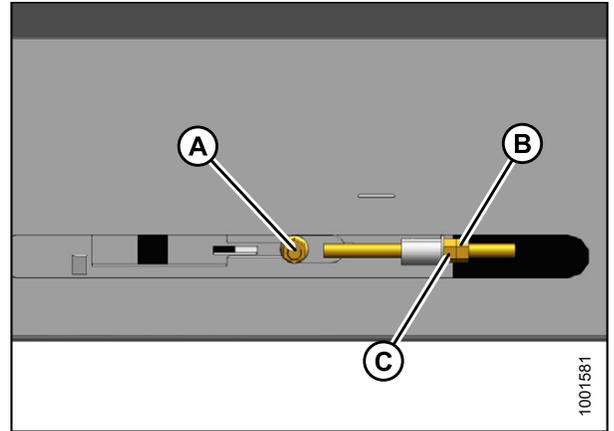


Figure 7.224: Adjust LH idler roller 'Y'

A - Nut

B - Jam nut

C - Adjusting nut

MAINTENANCE AND SERVICING

7.10.5 Adjusting Deck Height

To prevent material from entering drapers and cutterbar, maintain deck height so that draper runs just below cutterbar with maximum 1/32 in. (1 mm) gap, or with draper deflected down slightly (up to 1/16 in. [1.5 mm]) to create a seal.

NOTE: Measurement is at supports with header in working position and decks slid fully ahead.



WARNING

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



DANGER

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

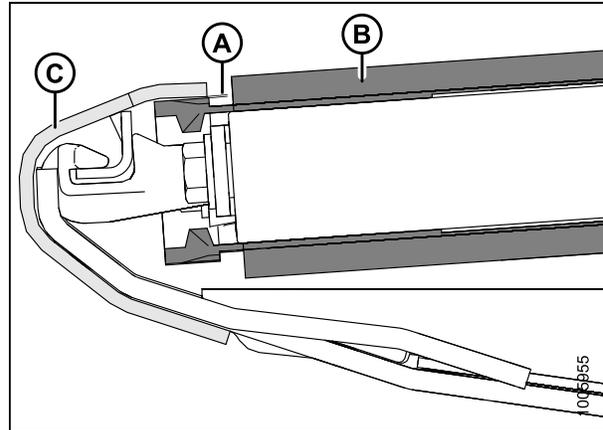


Figure 7.225: Draper removed for clarity

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

To adjust deck height, follow these steps:

1. Loosen tension on draper. See Section [7.10.3 Adjusting Side Draper Tension, page 362](#).
2. Lift draper up at front edge past cutterbar.
3. Loosen two lock nuts (A). **ONE HALF TURN ONLY** on deck support (B).

NOTE: Size of header will determine how many supports there are. single reel: 15–30ft. = 4, double reel: 30–45 ft. = 8

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

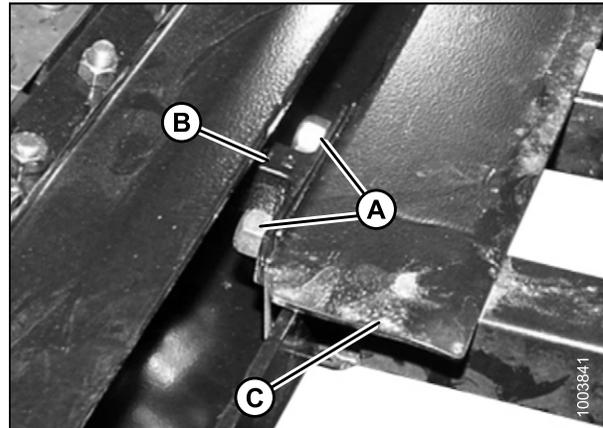


Figure 7.226: Draper removed for clarity

A - Lock nuts B - Deck support C - Deck

MAINTENANCE AND SERVICING

5. Tighten deck support hardware (B).
6. Check dimension (A) again it should be set to 5/16–3/8 in. (8–9 mm).
7. Tension draper. See Section [7.10.3 Adjusting Side Draper Tension](#), page 362.

NOTE: If your header is swather configured you should also adjust the deflector on the backsheet. See Step 8., Adjusting Deck Height, page 367.

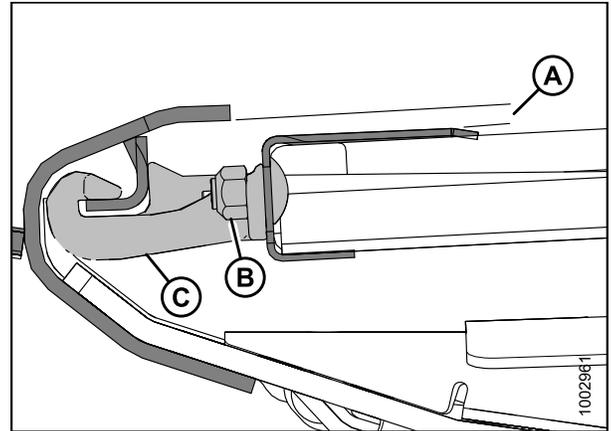


Figure 7.227: Draper removed for clarity

A - 5/16-3/8 in. (8-9 mm)

B - Lock nut

C - Deck support

~~Dimension: A - 5/16-3/8 in. (8-9 mm)~~

~~B - Lock nut~~

~~C - Deck support~~

8. Adjust the backsheet deflector (A). Loosen nut (D) and adjust deflector (A) until there is a 0.4-0.3 in (1-7 mm) gap (C) between the draper (B) and the deflector (A).

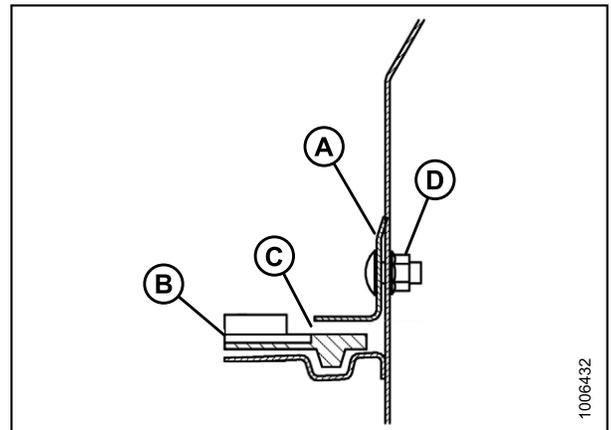


Figure 7.228: Backsheet deflector

A - Deflector

B - Draper

C - 0.4-0.3 in (1-7 mm)

D - Nut

7.10.6 Draper Roller Maintenance

The draper rollers have non-greaseable bearings. The external seal should be checked every 200 hours (and more frequently in sandy conditions) to obtain the maximum bearing life.

Inspecting Draper Roller Bearing

Procedure to inspect draper roller bearings.

1. If you suspect that you have a bad bearing in one of the draper rollers, a quick way to check is using an infrared thermometer.
2. Engage header and run for approximately 3 minutes.
3. Check each of the roller arms, they should not exceed 80°F (27°C) above ambient temperature.

MAINTENANCE AND SERVICING

Side Draper Deck Idler Roller

Removing Side Draper Deck Idler Roller

1. Shut OFF header. Raise the reel until the safety props can be engaged, then raise the header until the combine safety prop can be engaged

NOTE: If draper connector is not visible on the header, engage the header until the connector on the side you are working is visible.

2. On the back of the draper deck on both end of the header, there is a bolt for tensioning the draper. Locate bolt (A) on the side you will be changing, turn bolt counterclockwise to loosen draper. Once bolt is loose, push the roller assembly inboard, this will ensure the draper is loose.
3. Uncouple the connector slat that joins the draper together.

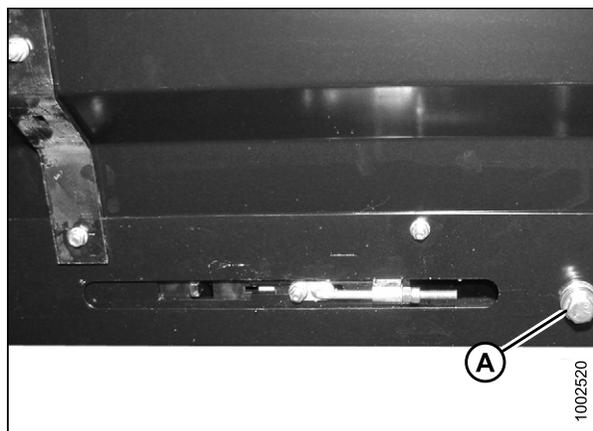


Figure 7.229

4. Slide idler roller assembly (A) out of the draper deck (B) channels.

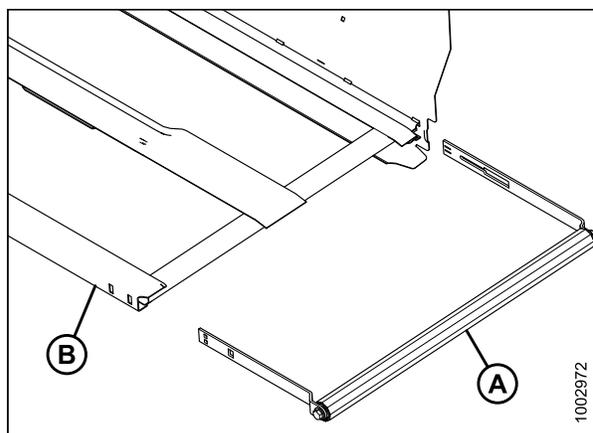


Figure 7.230

MAINTENANCE AND SERVICING

5. Remove the two end bolts (A) that hold the roller to the idler arms.
6. Remove the seal (B).
7. Use a slide hammer to remove bearing (C) from the roller.

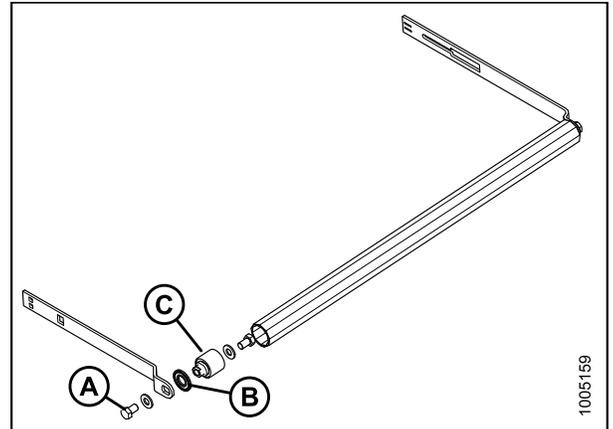


Figure 7.231

Replacing Side Draper Deck Idler Roller Bearing

1. Remove the two end bolts (A) that hold the roller to the idler arms.
2. Remove seal (B).
3. Use a slide hammer to remove the bearing (C) from the roller.

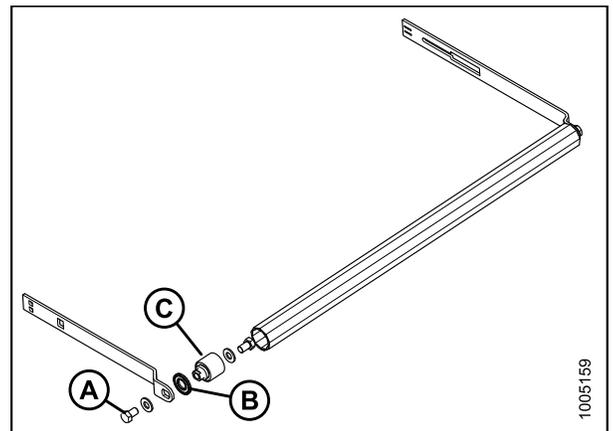


Figure 7.232

4. Install new bearing (C) by pressing on the outer race of the bearing into the tube. From the outside edge of the tube, bearing must be pressed in (B) 0.55–0.59 in. (14–15 mm).

NOTE: Before installing new seal, fill area (A) with 8 cc of grease.

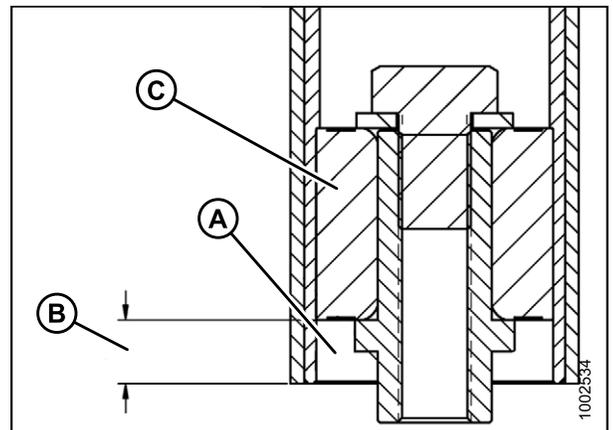


Figure 7.233

B- 0.51–0.55 in.. (14–15 mm)

MAINTENANCE AND SERVICING

5. Install new seal (A) by pressing on the inner and outer race of the seal. From the outside edge of the tube, the seal must be pressed in (B) 0.12–0.16 in. (3–4 mm).

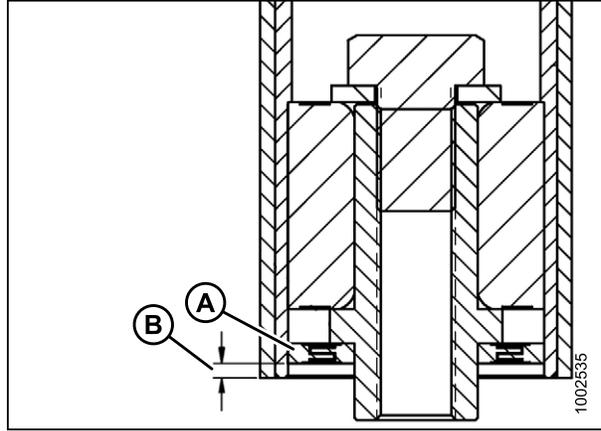


Figure 7.234

B- 0.12–0.16 in.. (3-4 mm)

6. Install the idler roller (A) between the idler arms. Install the two bolts (B) that hold roller to the arms. Torque bolts to 70 ft·lbf (95 N·m).

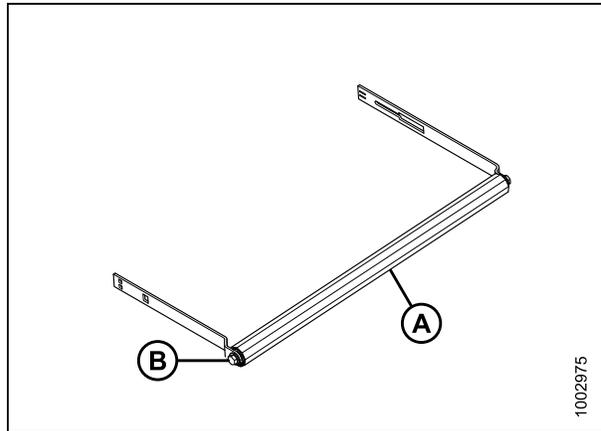


Figure 7.235

Installing Side Draper Deck Idler Roller

1. Install the idler roller (A) into the channels on the feed deck (B).
2. Connect the ends of the draper together with the connector slat.

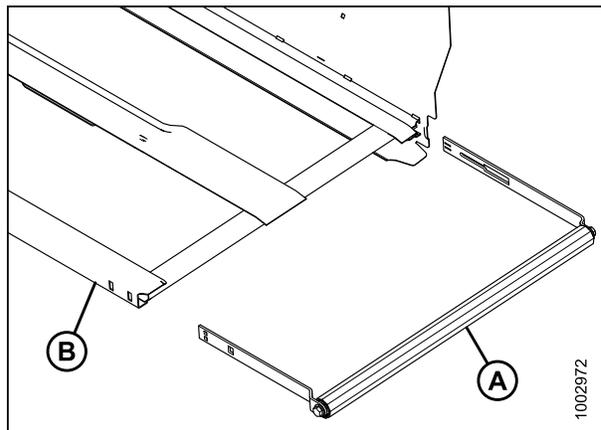


Figure 7.236

MAINTENANCE AND SERVICING

3. Tension the draper, locate bolt (A) and follow the directions on the decal for proper draper tensioning.
4. Disengage the reel safety props and header safety props. Lower header to the ground and verify that the draper tracks correctly.

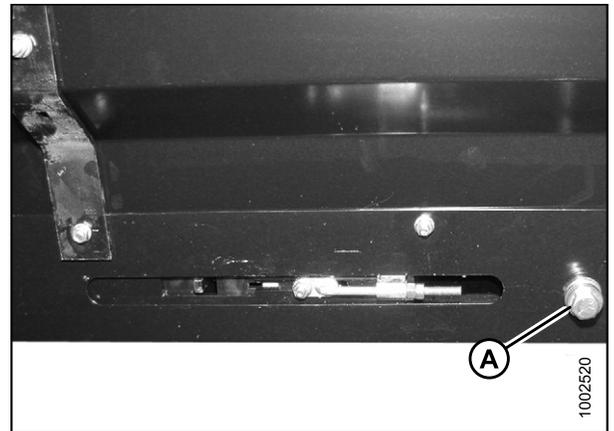


Figure 7.237

Side Draper Deck Drive Roller

Removing Side Draper Deck Drive Roller



DANGER

Engage header safety props and reel props before working under header or reel.

1. Shut OFF header. Raise the reel until the safety props can be engaged, then raise the header until the combine safety props can be engaged.

NOTE: If draper connector is not visible on the header, engage the header until the connector on the side you are working is visible.

2. On the back of the deck assembly outboard end, there is a bolt for tensioning the draper, locate the bolt (A) on the side you will be changing and loosen the draper.
3. Uncouple the connector slat that joins the draper together.

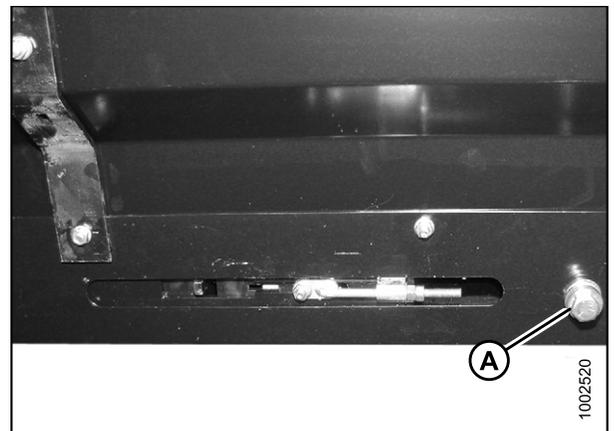


Figure 7.238

MAINTENANCE AND SERVICING

4. Line up the setscrews with the hole (A) in the guard. Remove the two setscrews that hold the motor onto the drive roller.

NOTE: The setscrews are a 1/4 turn apart.

5. Remove the four bolts (B) that hold motor to the drive roller arm.

NOTE: You may need to remove the plastic shield to gain access to the top bolt.

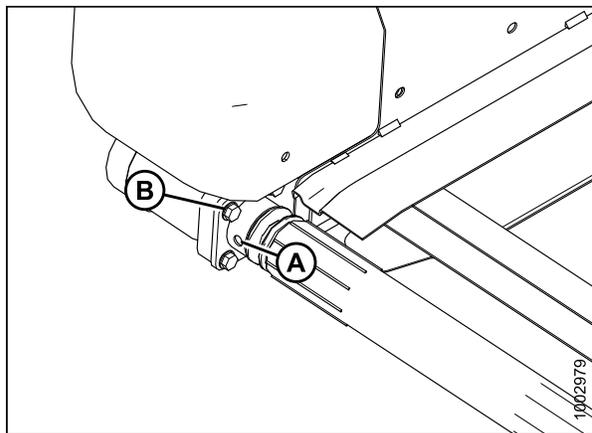


Figure 7.239

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

7. Remove the drive roller (B).

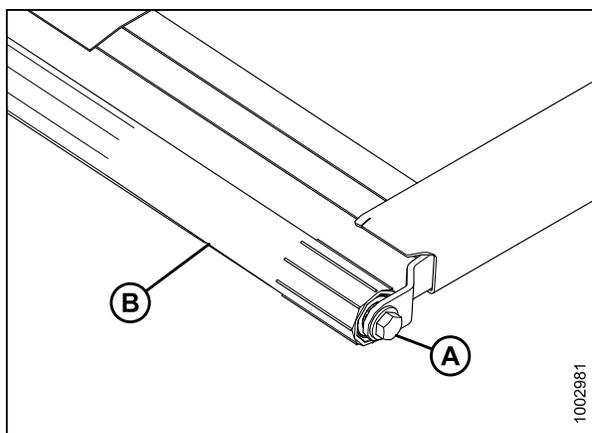


Figure 7.240

Replacing Side Draper Deck Drive Roller Bearing

1. Remove seal (A).
2. Use a slide hammer to remove bearing (B) from the drive roller (C).

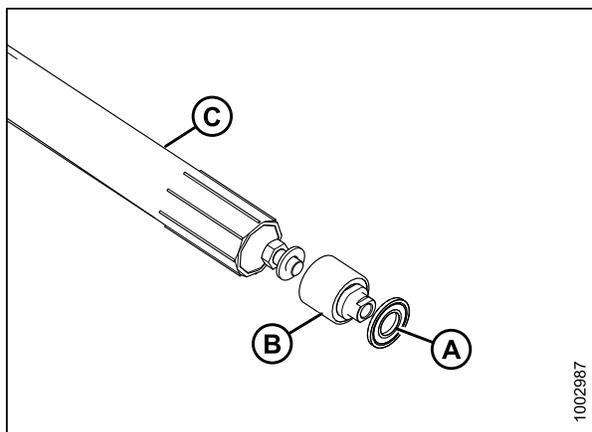


Figure 7.241

MAINTENANCE AND SERVICING

3. Install new bearing (C) by pressing on the outer race of the bearing into the tube. From the outside edge of the tube, bearing must be pressed in (B) 0.55–0.59 in. (14–15 mm).

NOTE: Fill area (A) with 8 cc of grease before installing new seal.

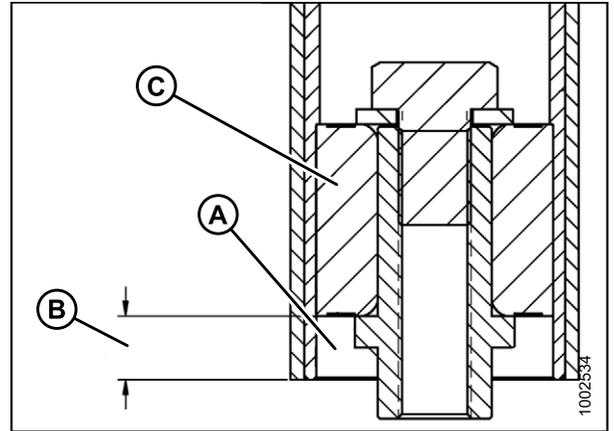


Figure 7.242

B - 0.51–0.55 in. (14–15 mm)

4. Install the new seal (A) by pressing on the inner and outer race of the seal. From the outside edge of the tube, the seal must be pressed in (B) 0.12–0.16 in. (3–4 mm).

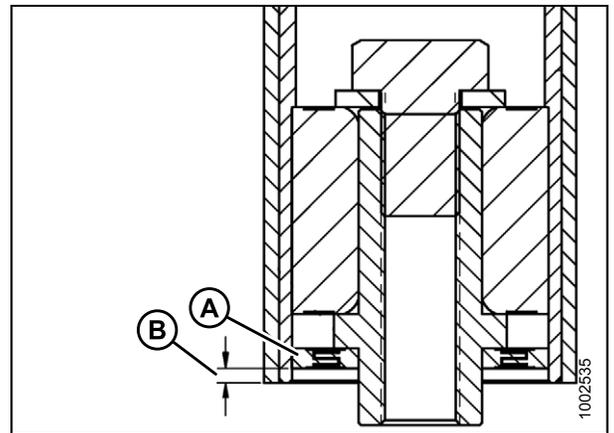


Figure 7.243

A - Seal

B - 0.12–0.16 in. (3–4 mm)

Installing Side Draper Deck Drive Roller

NOTE: Motor with two bolts shown during installation, may have four bolts.

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

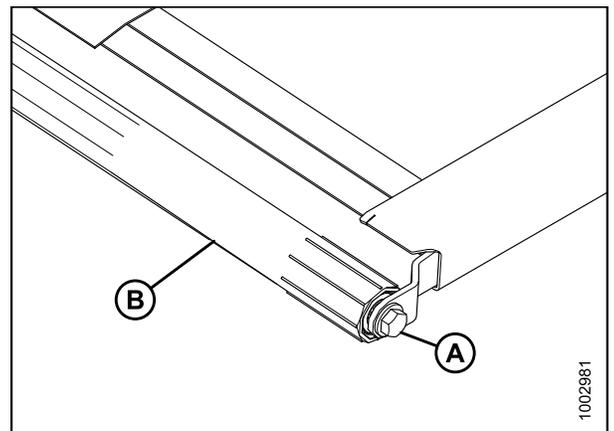


Figure 7.244

MAINTENANCE AND SERVICING

- Secure motor to the roller support using four bolts (A). Torque to 20 ft·lbf (27 N·m).

NOTE: Tighten any loosened bolt and reinstall plastic shield, if removed.

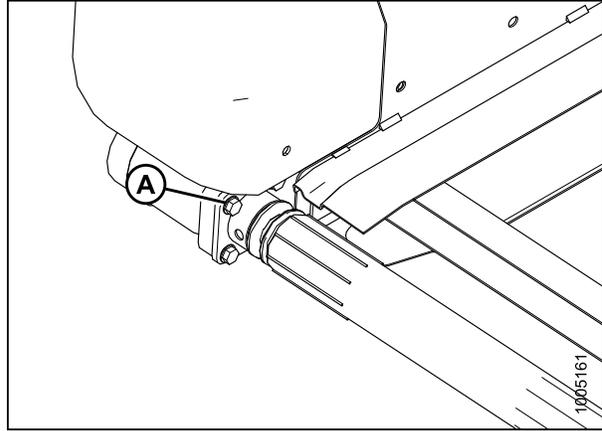


Figure 7.245

- Connect the ends of the draper together with the connector slat.
- Tension the draper, locate bolt (A), and follow the directions on the decal for proper draper tensioning.
- Disengage the reel and header safety props. Lower header to the ground and verify that the draper tracks correctly. If adjustment is required, See Section [7.10.4 Adjusting Header Draper Tracking](#), page 363.

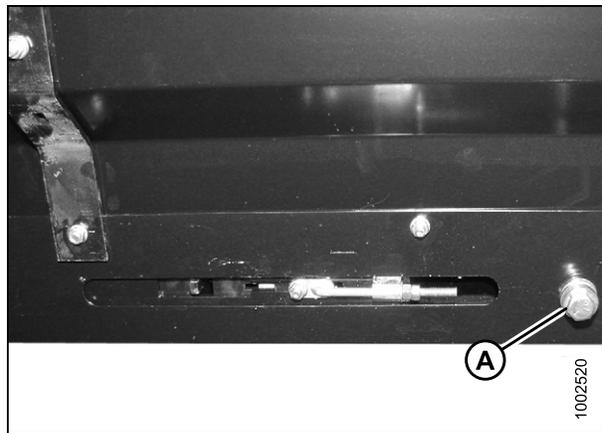


Figure 7.246

MAINTENANCE AND SERVICING

7.11 Reel and Reel Drive



CAUTION

To avoid personal injury, before servicing machine or opening drive covers, Refer to Section 7.1 Preparation for Servicing, page 243.

7.11.1 Reel Clearance to Cutterbar

The finger to guard/cutterbar clearances with reel fully lowered varies with header width and are as follows:

| Header width (ft.) | 'X' +/- 0.12 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. | - - - | |

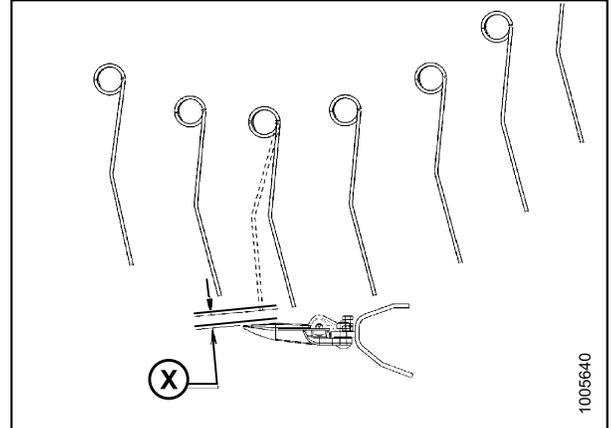


Figure 7.247

Measuring Reel Clearance

To measure the finger-to-guard/cutterbar clearance, follow these steps:



DANGER

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

1. Park header on level ground.

MAINTENANCE AND SERVICING

2. Raise header and place a 6 in. (150 mm) block (A) under each inboard header leg. Locations are different depending on if the header has a single reel or double reels.
3. Lower header onto the blocks. Fully lower the reel.
4. Lower the reel fully.

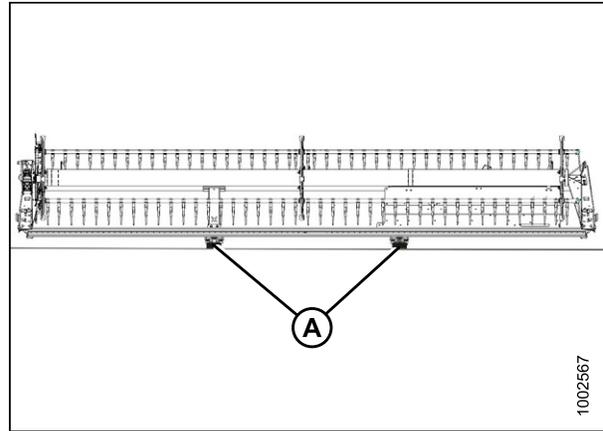


Figure 7.248: Block locations for single reel header

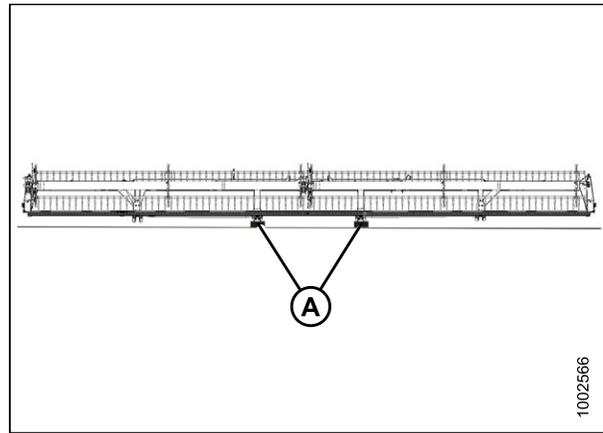


Figure 7.249: Block locations for double reel header

5. Adjust fore-aft reel position so that back end of cam disc is at mid-position (5' on the reel arm indicator)
6. Fully lower the reel.
7. Shut down engine. Remove key from ignition.

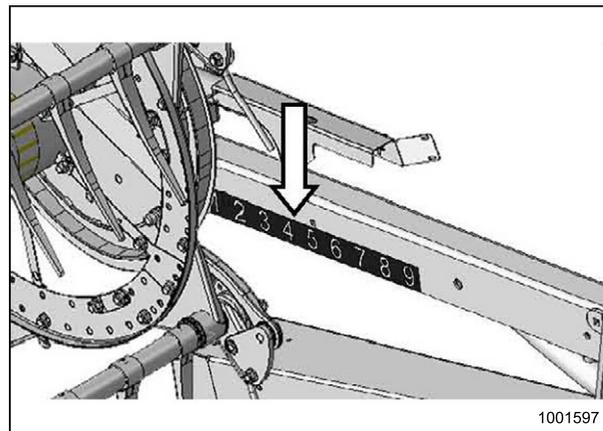


Figure 7.250: Arm decal

MAINTENANCE AND SERVICING

- On **SINGLE REEL** header, measure clearance in two places (A), at the end of each reel.

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.

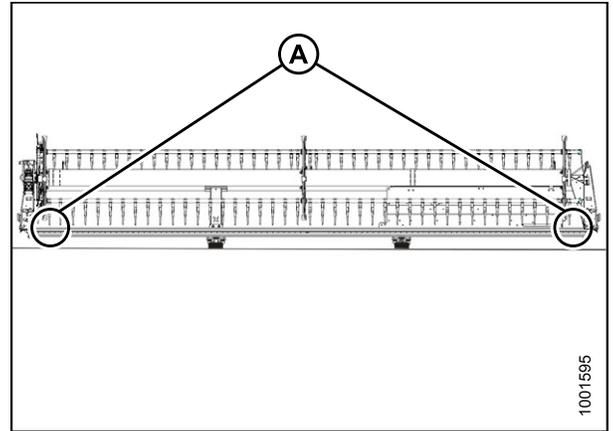


Figure 7.251: Single reel measurement locations

- On **DOUBLE REEL** header, measure clearance in four places (A), at the end of each reel.

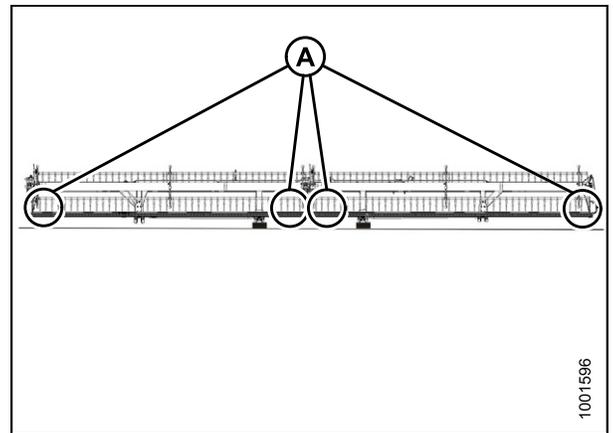


Figure 7.252: Double reel measurement locations

- 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.
- Refer to [Adjusting Reel Clearance, page 378](#) for adjustment procedure.

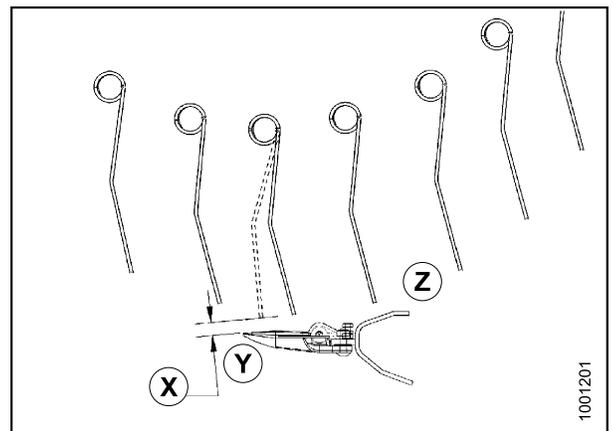


Figure 7.253

MAINTENANCE AND SERVICING

Adjusting Reel Clearance

To adjust reel clearance, follow these steps.

DANGER

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

1. Raise header, engage header safety props, and lower header onto stops.
2. Lower reel fully.
3. Adjust outside arms to change clearance at ends of cutterbar as follows:
 - a. Loosen bolt (A).
 - b. Turn cylinder rod (B) counterclockwise to raise reel and increase clearance to cutterbar, or clockwise to decrease clearance/lower reel.
 - c. Tighten bolt (A).
 - d. Repeat at opposite side.
4. **DOUBLE REEL ONLY:** Adjust center arm to change clearance at center of cutterbar as follows:
 - a. Loosen nut (A).
 - b. Turn nut (B) counterclockwise to raise reel and increase clearance to cutterbar, or clockwise to decrease clearance/lower reel.
 - c. Tighten nut (A).

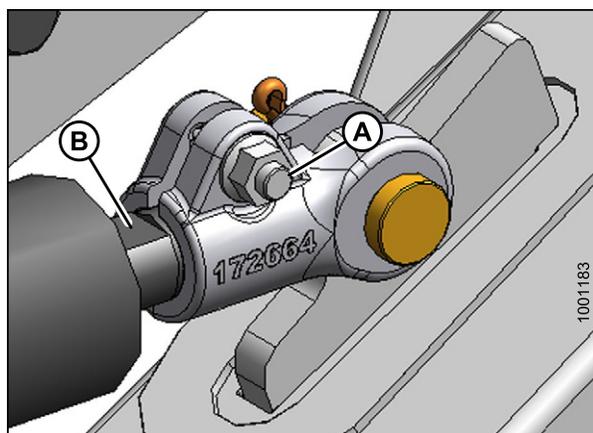


Figure 7.254

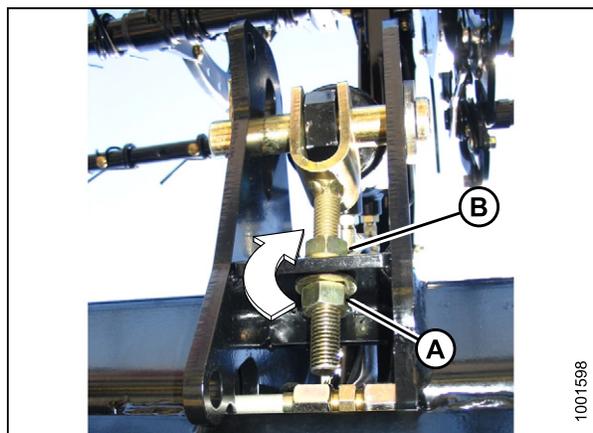


Figure 7.255: For double reel only - looking up at arm underside

7.11.2 Reel Frown

The reel has been adjusted at the factory to provide more clearance at the center of the reel than at the ends ('frown') to compensate for reel flexing.

The frown is adjusted by repositioning the hardware connecting reel finger tube arms to reel discs. The frown adjustment compensates for reel flexing.

MAINTENANCE AND SERVICING

Adjusting Reel Frown

To adjust the reel frown, follow these steps:

IMPORTANT

The frown profile should be measured prior to reel disassembly for servicing so that the profile can be maintained after reassembly.

1. Position the reel over the cutterbar (between '4' and '5' on the gauge). This position provides adequate clearance at all reel fore-aft positions.
2. Record a measurement at each reel disc location for each reel tube.

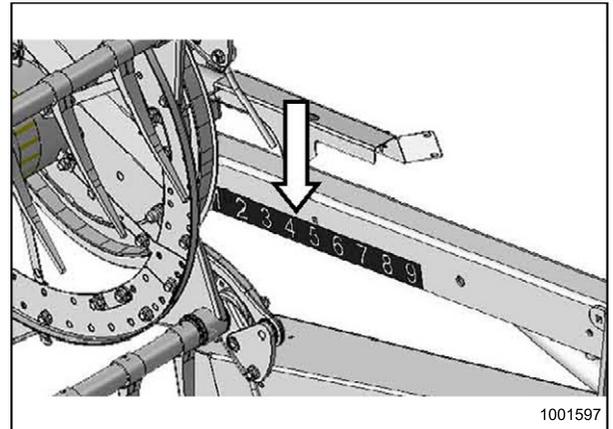


Figure 7.256: Arm decal

3. Adjust the profile as follows: Start with the reel disc set closest to center of header and proceed to the ends.
 - a. Remove bolts (A).
 - b. Loosen bolt (B) and adjust arm (C) until desired measurement is obtained between reel tube and cutterbar.

NOTE: Allow the reel tubes to find a natural curve and position the hardware appropriately.

- c. Reinstall bolts (A) in aligned holes and tighten.

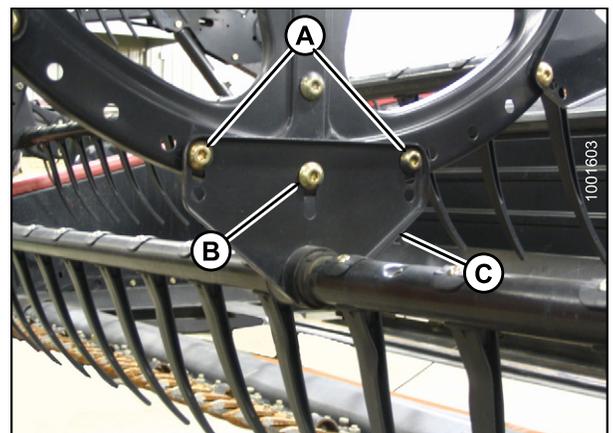


Figure 7.257

MAINTENANCE AND SERVICING

7.11.3 Reel Centering

The reel(s) should be centered between the endsheets.

Centering Double Reels

To center the reels, follow these steps:

1. 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).

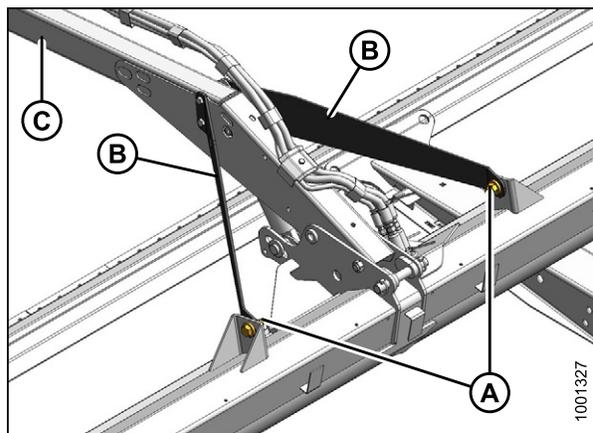


Figure 7.258: Double reel header

A - Bolts
B - Brace
C - Reel center support arm

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).

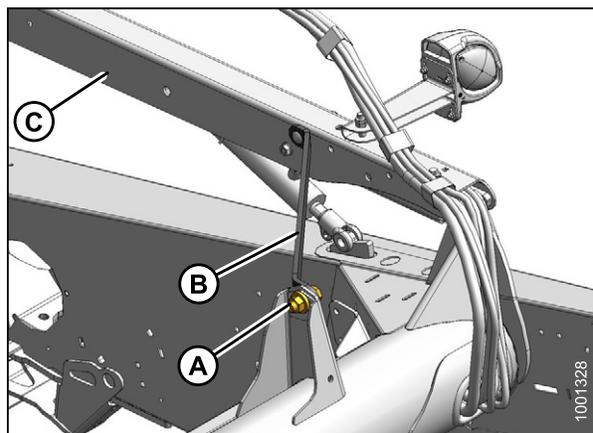


Figure 7.259: Single reel header

A - Bolt
B - Brace
C - Reel support arm

MAINTENANCE AND SERVICING

7.11.4 Reel Drive Chain

Adjusting Chain Tension on Single and Double Reel Drive – High Torque

To adjust the chain tension on a high torque single and double reel header follow these steps:

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove the reel drive cover (A). For SINGLE REEL DRIVE, remove the four bolts (B) that secure the cover (A) to the reel drive, as follows:
 - ~~a. For SINGLE REEL DRIVE, remove the four bolts (B) that secure the cover (A) to the reel drive.~~
 - b. ~~For DOUBLE REEL DRIVE, remove the six bolts (B) that secure the upper cover (A) and the three bolts (D) that secure the lower cover (C) to the reel drive.~~
3. Remove the reel drive cover (A). For DOUBLE REEL DRIVE, remove the six bolts (B) that secure the upper cover (A) and the three bolts (D) that secure the lower cover (C) to the reel drive.

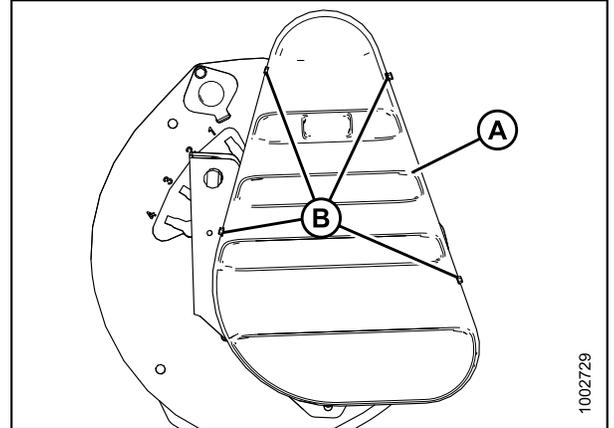


Figure 7.260: Single reel drive cover

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Figure 7.261

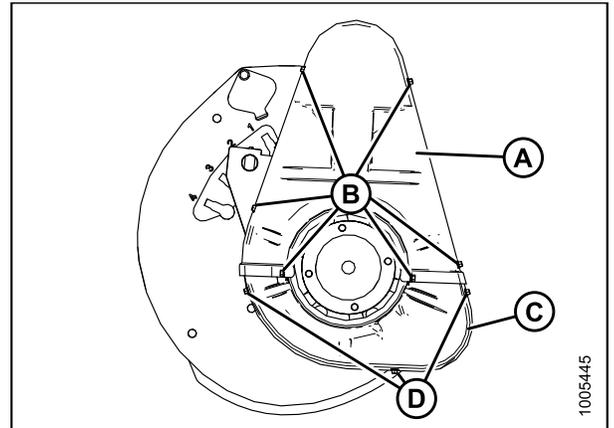


Figure 7.262: Double reel drive cover

MAINTENANCE AND SERVICING

4. Check tension on chain (A). It should be such that hand-force deflects the chain 1/8 in. (3 mm) at mid-span.

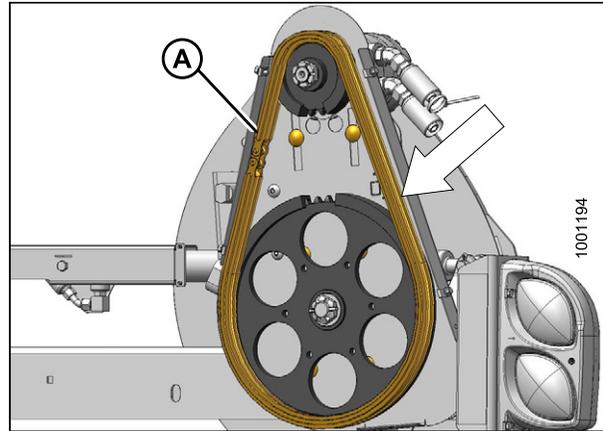


Figure 7.263

5. To adjust tension, loosen six nuts (A). Slide motor (B) and motor mount (C) down towards reel shaft.

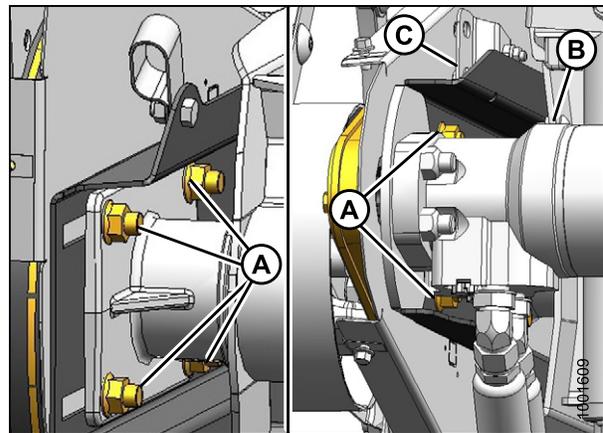


Figure 7.264

6. When right tension is achieved, tighten nuts (A) to 75 ft·lbf (102 N·m) on motor mount.

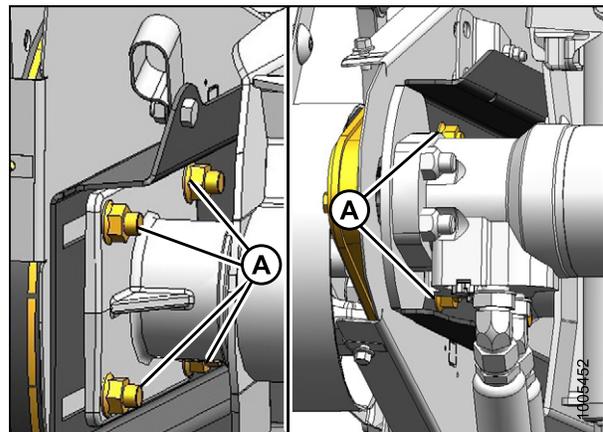


Figure 7.265

MAINTENANCE AND SERVICING

7. Install reel drive cover (A) as follows:
 - a. For **SINGLE REEL DRIVE**, position reel drive cover (A) to the reel drive and secure with four bolts (B).

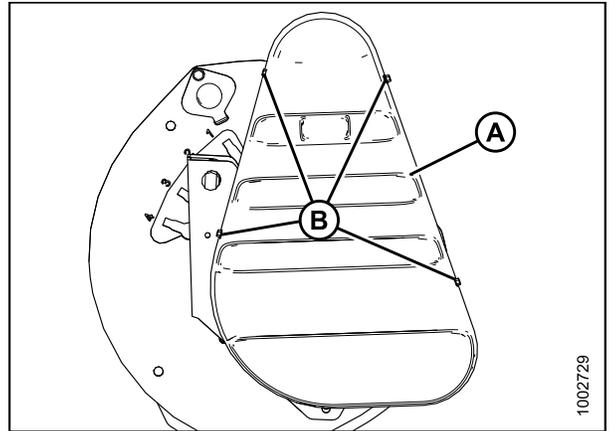


Figure 7.266: Single reel drive cover

- 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).

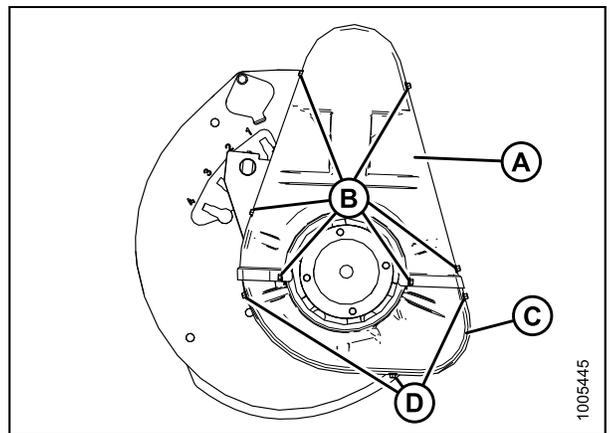


Figure 7.267: Double reel drive cover

Removing Chain from Single Reel Drive – High Torque

To remove a chain from a high torque single reel drive, follow these steps:

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove reel drive cover (B).

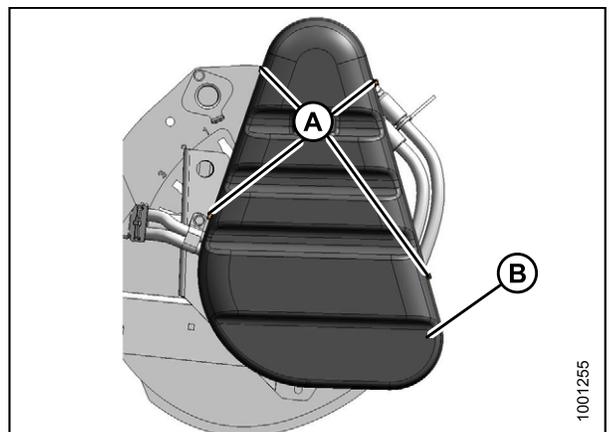


Figure 7.268

MAINTENANCE AND SERVICING

3. Loosen nuts (A). Slide motor (B) and motor mount (C) down towards reel shaft.

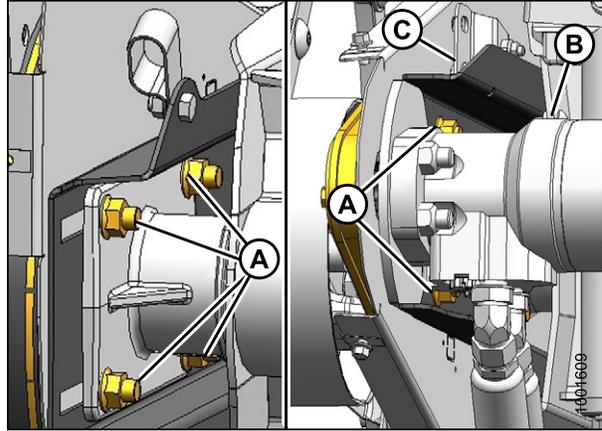


Figure 7.269

A - Nuts B - Reel drive motor C - Motor mount

4. Remove chain (A).

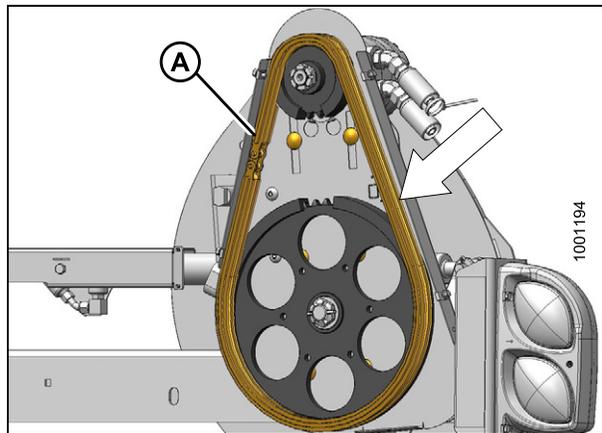


Figure 7.270

Installing Chain on a Single Reel Drive

To install a chain on a high torque single reel drive follow these steps:

1. Position new chain (A) around sprockets.

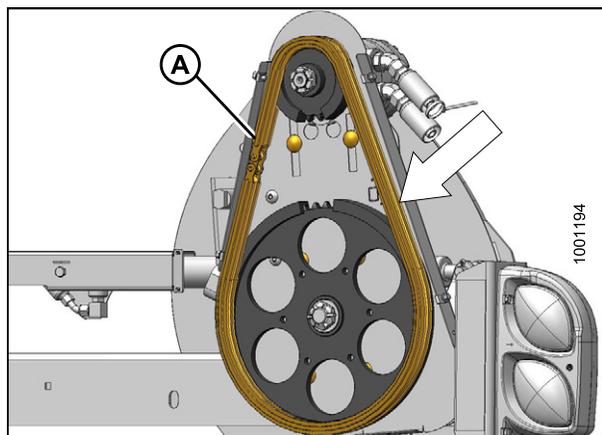


Figure 7.271

MAINTENANCE AND SERVICING

2. Slide motor (B) and motor mount (C) upward until tension on chain is such that hand-force deflects the chain 1/8 in. (3 mm) at mid-span.
3. Tighten nuts (A) and recheck tension.

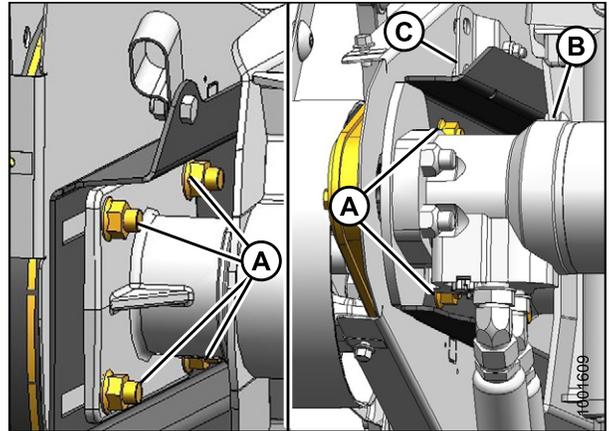


Figure 7.272

A - Nuts
C - Motor mount

B - Reel drive motor

4. Install reel drive cover (B) and secure with four screws (A).

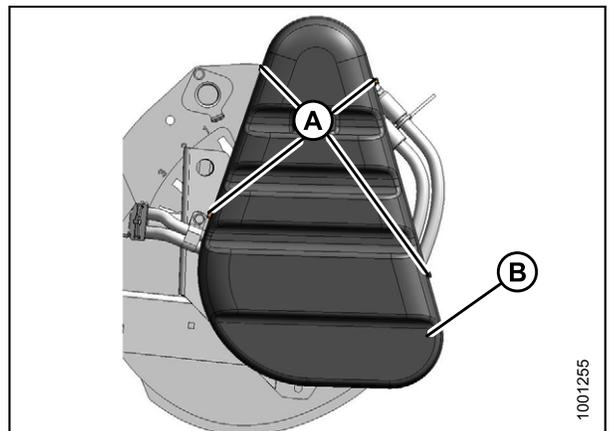


Figure 7.273

Replacing Chain on Double Reel Drive

The drive chain on a high torque double reel drive can be replaced using two methods, Refer to

- [Disconnecting the Reel Drive Method, page 386](#)
- [Breaking the Chain Method, page 389](#)

Both procedures are acceptable, but disconnecting the reel drive method is preferred because the chain integrity is not affected.

MAINTENANCE AND SERVICING

Disconnecting the Reel Drive Method

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and then remove upper reel drive cover (B).

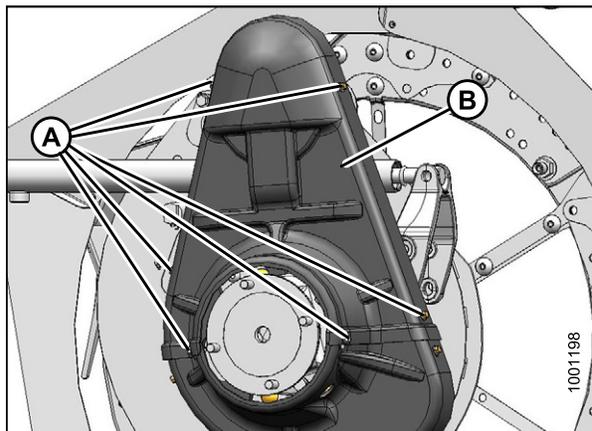


Figure 7.274

3. Remove three screws (A) and remove lower cover (B).
4. Release tension on chain (C). ~~Refer to~~ See Section [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#), page 381 for double reel drive.

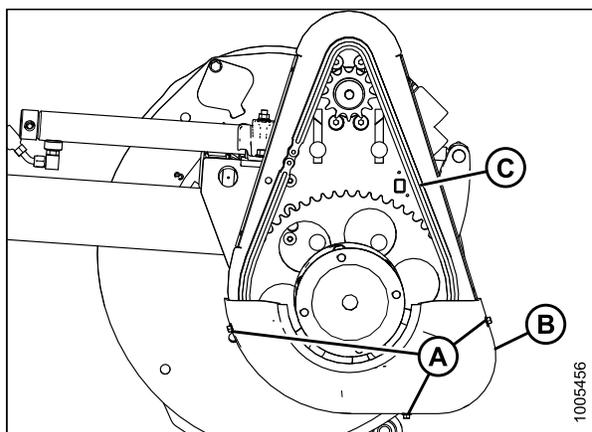


Figure 7.275

5. Support inboard end of right reel with a front end loader and nylon slings (or equivalent setup).

NOTE: To avoid damaging or denting center tube, support reel as close as possible to the end disc.



Figure 7.276

MAINTENANCE AND SERVICING

6. Remove four bolts (A) attaching reel tube to U-joint (B).

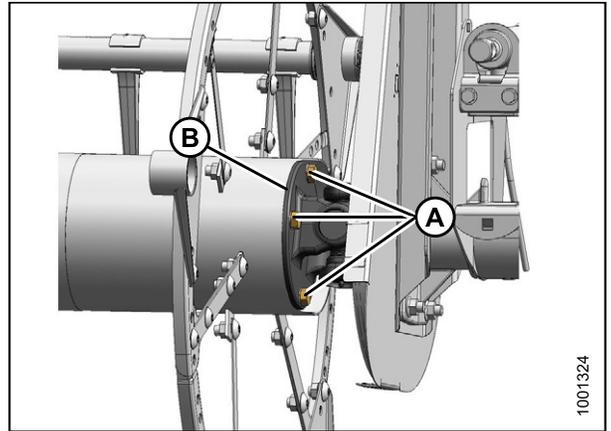


Figure 7.277

7. Move right-hand reel sideways to separate the reel tube (A) and U-joint (B).
8. Remove the chain (C).
9. Route new chain (C) over U-joint (B) and locate on sprockets.

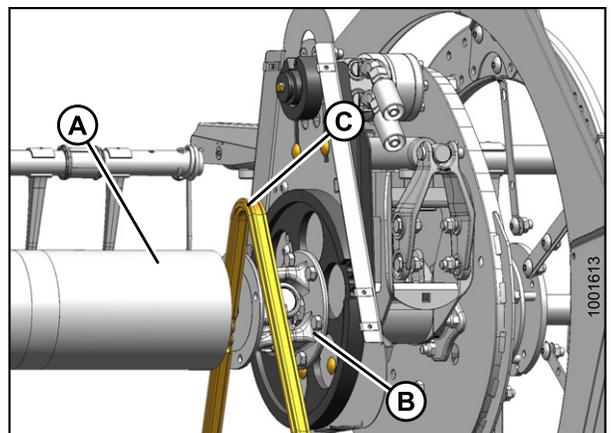


Figure 7.278

A - Reel tube

B - U-joint

C - Drive chain

10. Position right-hand reel tube (A) against reel drive and engage stub shaft into U-joint (B) pilot hole.
11. Rotate reel until holes in end of reel tube and U-joint line up.
12. Apply Loctite® #243 (or equivalent) to four 1/2 in. bolts (A) and install with lock washers.
13. Torque to 75–85 ft·lbf (102–115 N·m).

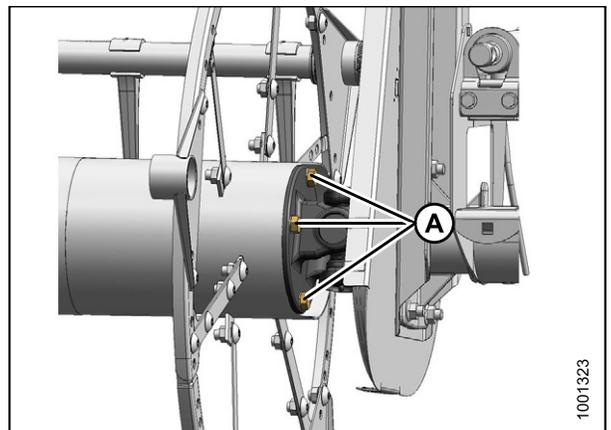


Figure 7.279

MAINTENANCE AND SERVICING

14. Remove temporary reel support.



Figure 7.280

15. Adjust the chain tension (C). Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.

16. Install lower cover (B) and secure with three screws (A).

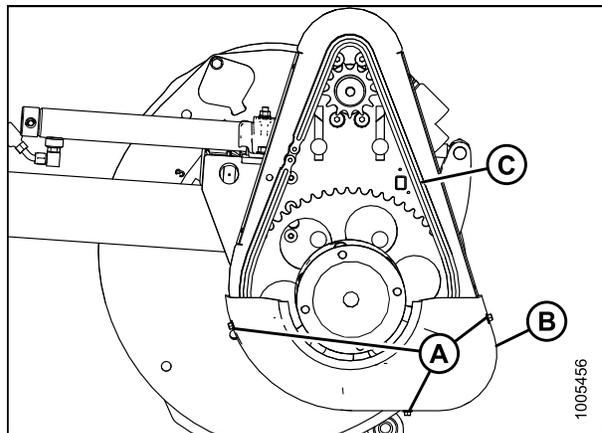


Figure 7.281

17. Install upper reel drive cover (B) and secure with six screws (A).

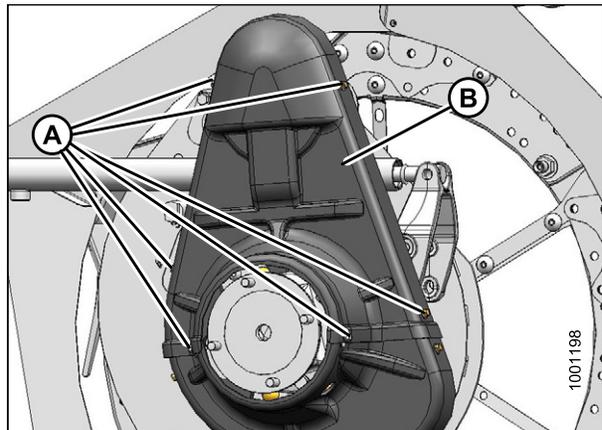


Figure 7.282

MAINTENANCE AND SERVICING

Breaking the Chain Method

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and then remove upper reel drive cover (B).

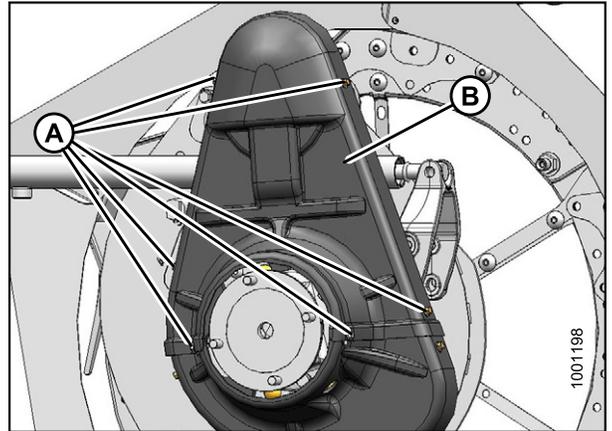


Figure 7.283

3. Remove three screws (A) and remove lower cover (B).
4. Release tension on chain (C). Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#), page 381 for double reel drive..
5. Grind off head of a link rivet on chain (C), punch out the rivet, and remove chain.
6. Grind off the head from one of the link rivets on the new chain and punch out rivet to separate the chain.
7. Locate ends of chain on sprocket.

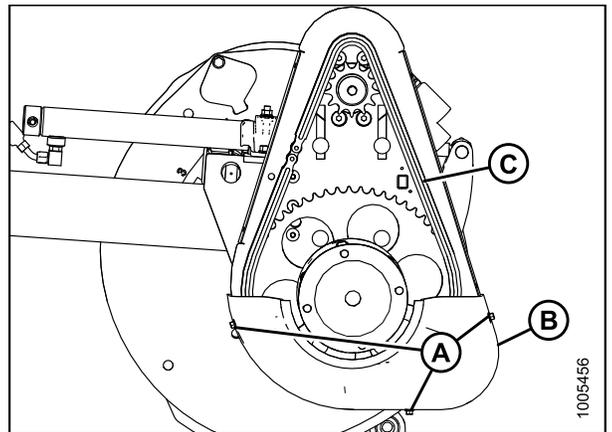


Figure 7.284

8. Install pin connector (A) (not available as a MacDon part) into chain, preferably from sprocket backside.
9. Install connector (B) onto pins.
10. Install spring clip (C) onto front pin (D) with closed end of clip in direction of sprocket rotation.
11. Locate one leg of clip in groove of apt pin (E).
12. Press other leg of spring clip over face of aft pin (E) until it slips into groove. Do **NOT** press clip lengthwise from closed end.
13. Ensure clip is seated in grooves of pins.

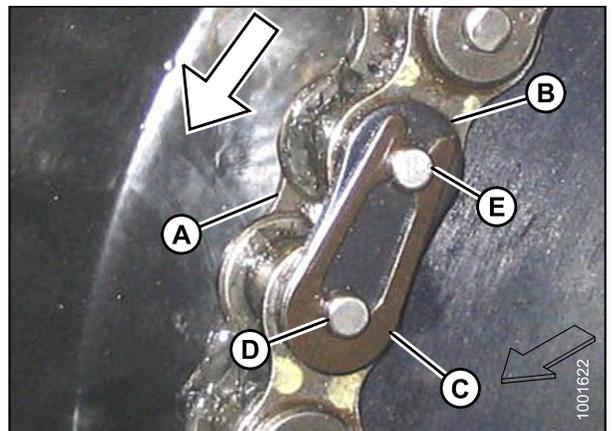


Figure 7.285

MAINTENANCE AND SERVICING

14. Adjust the chain tension. Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
15. Install lower cover (B) and secure with three screws (A).

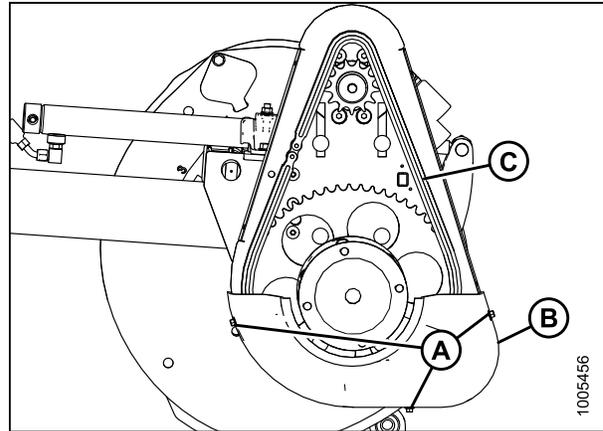


Figure 7.286

16. Install upper reel drive cover (B) and secure with six screws (A).

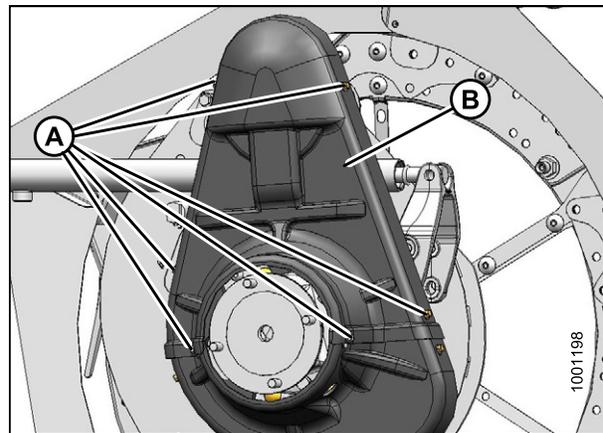


Figure 7.287

7.11.5 Reel Drive Sprocket

For CaseIH and New Holland combine models, the combine needs to be configured for reel sprocket size to optimize the auto reel to ground speed control.

MAINTENANCE AND SERVICING

Replacing Reel Drive Sprocket ~~High Torque Reel Drive Sprocket~~ on Single Reel, – High Torque

To replace the high torque reel drive sprocket on a single reel header, follow these steps:

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and then remove reel drive cover (B).

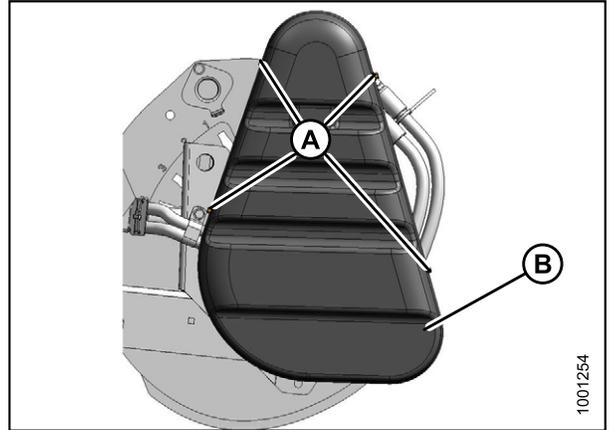


Figure 7.288: Remove reel drive cover

3. Loosen bolts (A).

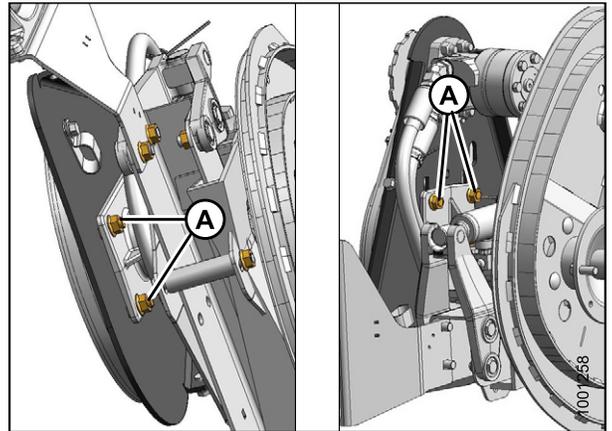


Figure 7.289

4. Slide motor and motor mount down towards reel shaft.
5. Remove cotter pin (A) and slotted nut (B).
6. Remove speed sensor disc (C) (if installed).

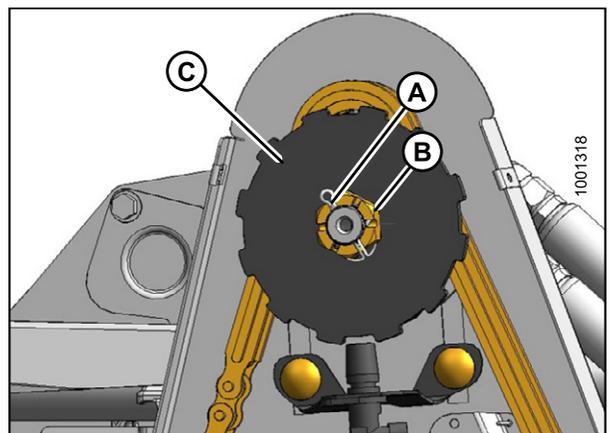


Figure 7.290

MAINTENANCE AND SERVICING

- Slip chain (A) off drive sprocket (B).
- Remove sprocket (B) from shaft.

IMPORTANT

~~Do not use pry bar and/or hammer to remove sprocket; this will damage the motor. If sprocket does not come off by hand, use a puller.~~

IMPORTANT

Do not use pry bar and/or hammer to remove sprocket; this will damage the motor. If sprocket does not come off by hand, use a puller.

- Align keyway (A) in new sprocket with key (B) in shaft and slide new sprocket onto shaft.
- Slip chain over drive sprocket.

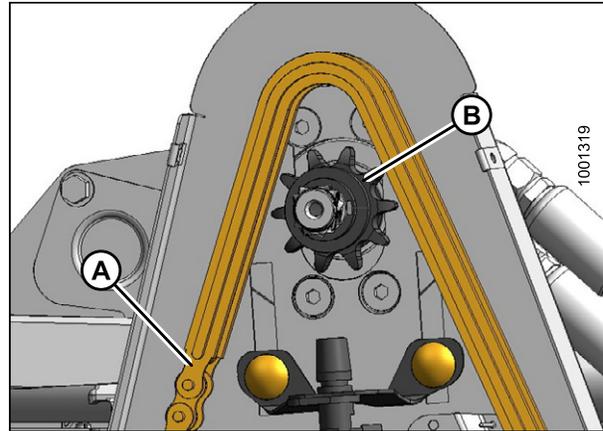


Figure 7.291

- Install speed sensor disc (C) (if applicable) onto shaft.
- Install slotted nut (B) and torque to 10–20 in·lbf (1.1–2.2_N·m).
- Install cotter pin (A). Tighten nut to next slot if required.
- Position chain around sprockets.
- Slide motor and motor mount upward until tension on chain is such that hand-force deflects the chain 1/8 in. (3 mm) at mid-span.

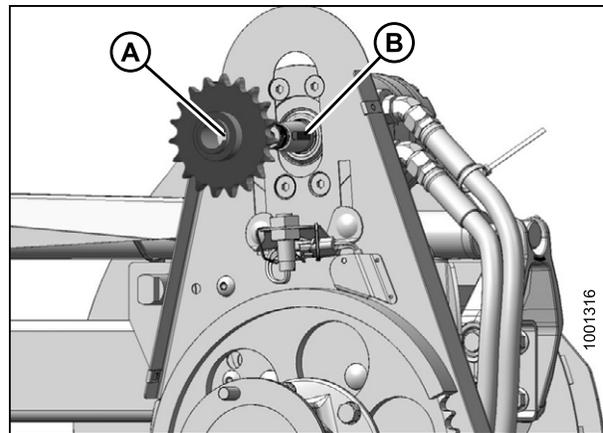


Figure 7.292

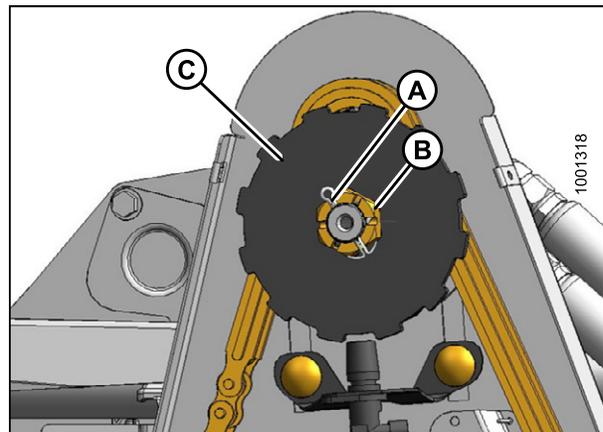


Figure 7.293

A - Cotter pin B - Slotted nut C - Speed sensor disk

MAINTENANCE AND SERVICING

16. Reinstall reel drive cover by positioning cover (B) onto drive and securing with four screws (A).

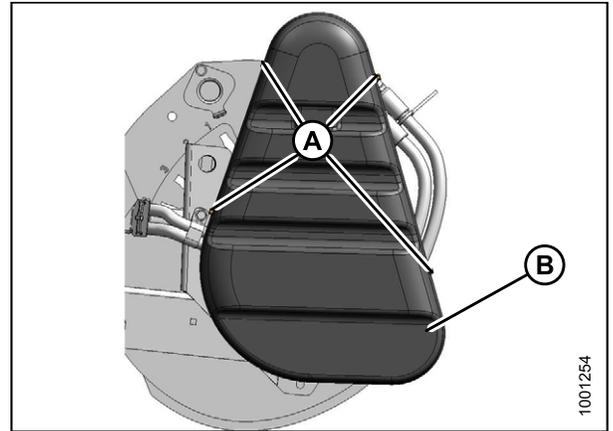


Figure 7.294: Reinstall reel drive cover

Replacing Reel Drive Sprocket on Double Reel

To replace the reel drive sprocket on a double reel header, follow these steps:

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and then remove upper reel drive cover (B).

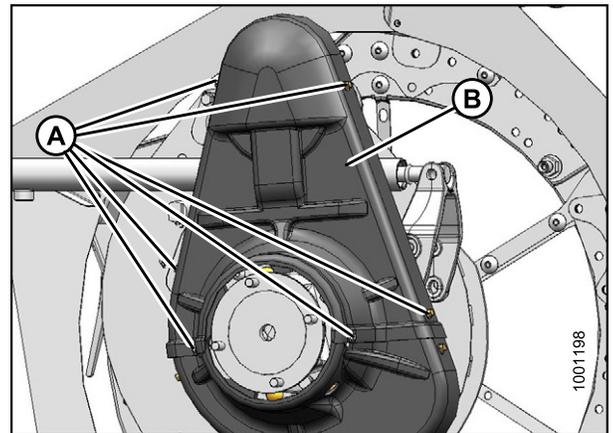


Figure 7.295: Remove upper reel drive cover

3. Release tension on chain. Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#), page 381. for double reel drive.
4. Remove bolt (B), lock washer, and flat washer (C).
5. Remove speed sensor disc (D) (if installed).

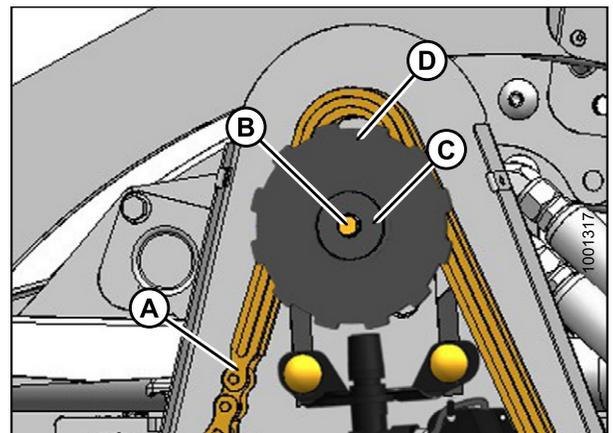


Figure 7.296

MAINTENANCE AND SERVICING

- Slip chain (A) off drive sprocket (B).
- Remove sprocket (B) from shaft.

IMPORTANT

~~Do not use pry bar and/or hammer to remove sprocket; this will damage the motor. If sprocket does not come off by hand, use a puller.~~

IMPORTANT

Do not use pry bar and/or hammer to remove sprocket; this will damage the motor. If sprocket does not come off by hand, use a puller.

- Align keyway (A) in new sprocket with key (B) in shaft and slide new sprocket onto shaft.
- Slip chain over drive sprocket.

- Install speed sensor disc (D) (if applicable) onto shaft.
- Install flat washer (C), lock washer, and bolt (B).
- Torque bolt to 18 lbf·ft (24 N·m).
- Tighten chain (A). See section. Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#), page 381, for double reel drive.

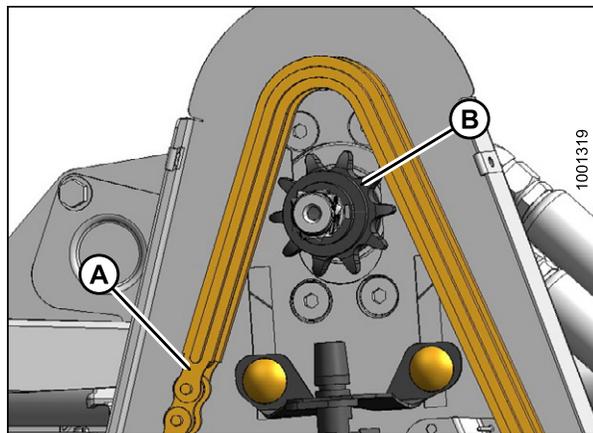


Figure 7.297

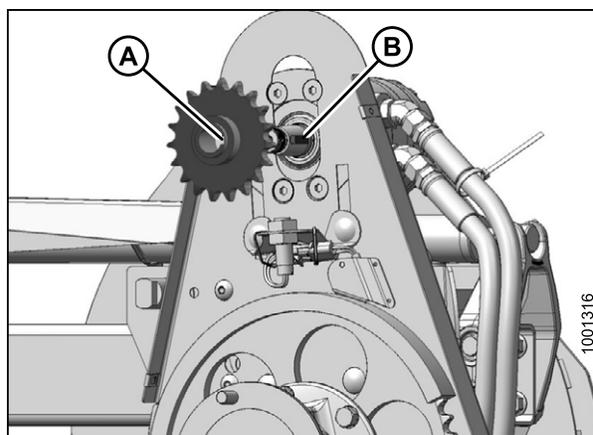


Figure 7.298

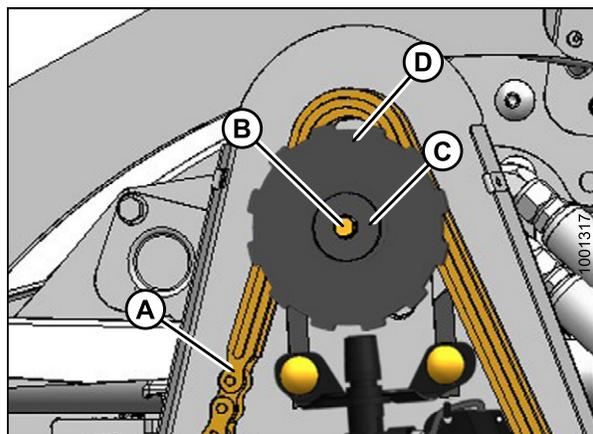


Figure 7.299

MAINTENANCE AND SERVICING

14. Reinstall drive cover(s) by positioning upper cover (B) onto drive and securing with six screws (A).

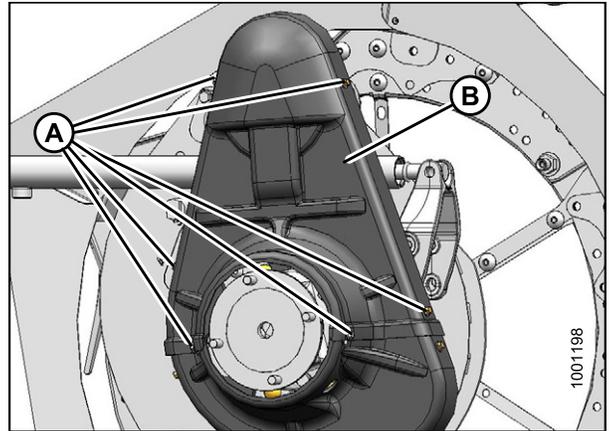


Figure 7.300: Reinstall upper reel drive cover

7.11.6 Reel Drive U-Joint

The reel drive U-joint allows movement between the two reels. This allows either reel to move independently.

Lubricate the U-joint in accordance with the requirements. Refer to [Section 7.3.6 Lubrication and Servicing, page 262](#). U-joint should be replaced if severely worn or damaged. Refer to [Removing U-Joint, page 395](#).

Removing U-Joint

To remove the U-joint, follow these steps.

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and then remove upper reel drive cover (B).

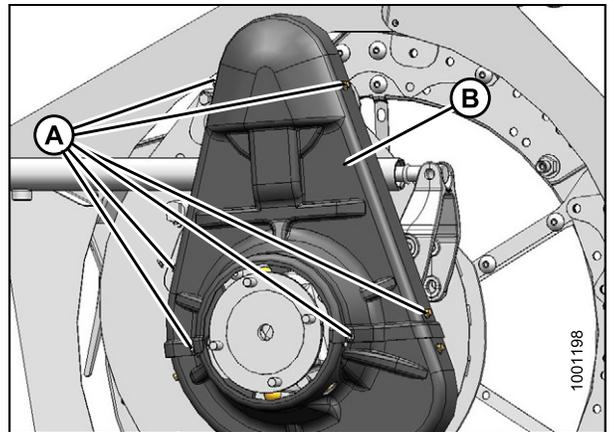


Figure 7.301: Remove upper reel drive cover

MAINTENANCE AND SERVICING

3. Remove three screws (A) and then remove lower cover (B).

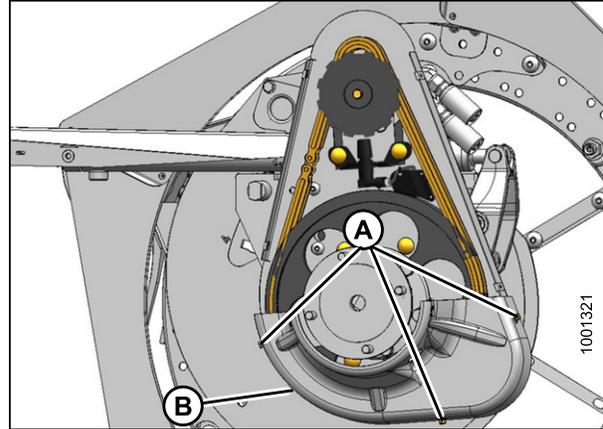


Figure 7.302: Remove lower reel drive cover

4. Support inboard end of right reel with a front end loader and nylon slings (or equivalent setup).

IMPORTANT

To avoid damaging or denting center tube, support reel as close as possible to the end disc.

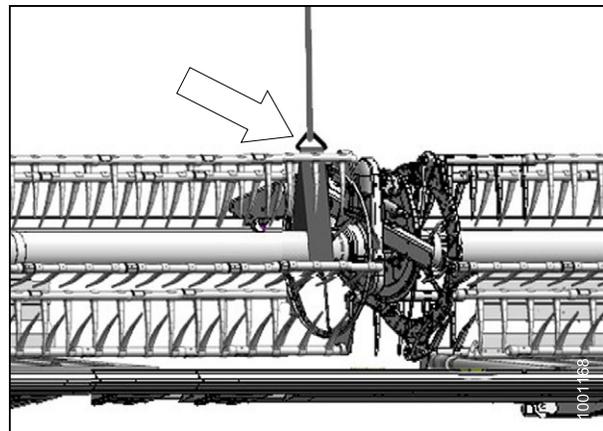


Figure 7.303

5. Remove four bolts (A) attaching reel tube to U-joint flange (B) and move reel sideways to disengage stub shaft from U-joint.

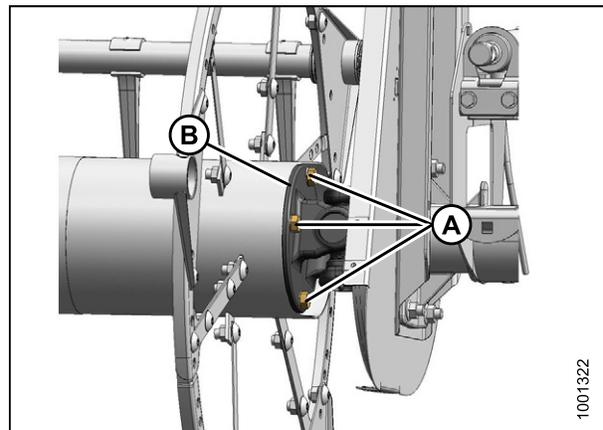


Figure 7.304

MAINTENANCE AND SERVICING

6. Remove six bolts (A) attaching U-joint flange (B) to driven sprocket (C).
7. Remove U-joint.

NOTE: Right hand reel may need to be moved sideways for U-joint to clear reel tube.

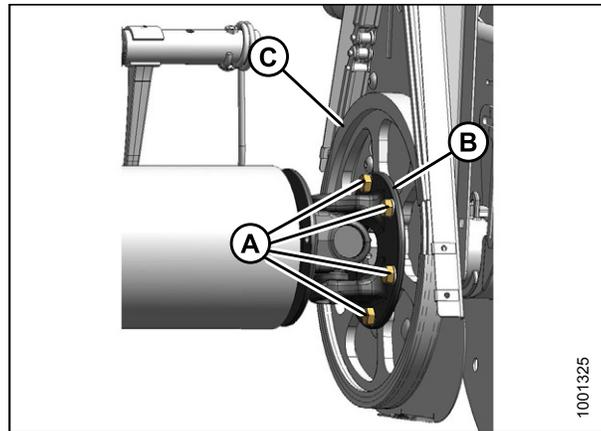


Figure 7.305

Installing U-Joint

To install the U-joint, follow these steps.

NOTE: Right hand reel may need to be moved sideways for U-joint to clear reel tube.

1. Position U-joint flange (B) onto driven sprocket (C) as shown. Install six bolts (A) and hand-tighten. Do **NOT** torque at this time.
2. Position right-hand reel tube against reel drive and engage stub shaft into U-joint pilot hole.
3. Rotate reel until holes in end of reel tube and U-joint flange (B) line up.
4. Install four bolts (A) and torque to 70–80 ft·lbf (95–108 N·m).

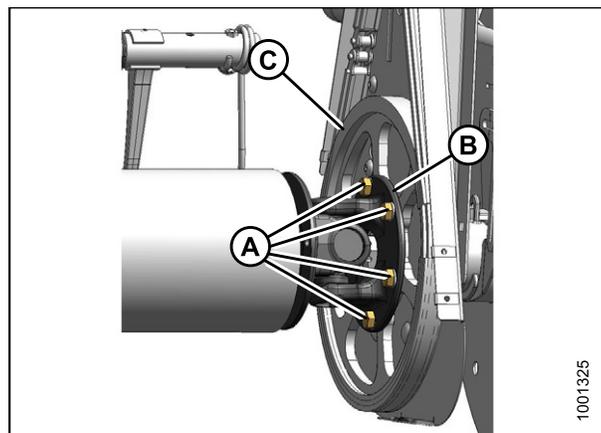


Figure 7.306

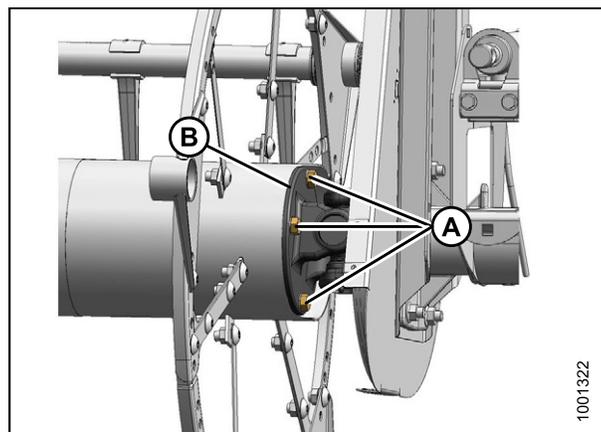


Figure 7.307

MAINTENANCE AND SERVICING

5. Remove temporary reel support.

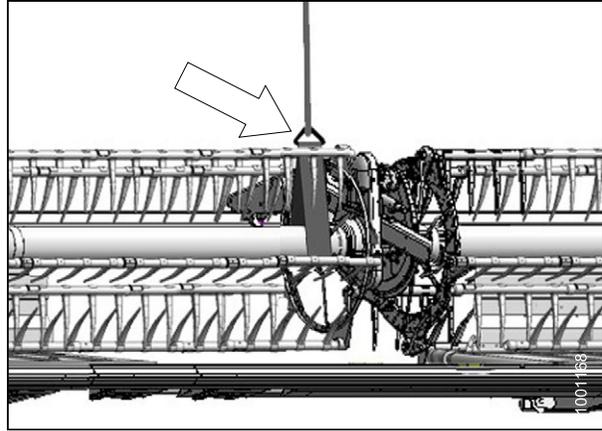


Figure 7.308

6. Install lower cover (B) and secure it with three screws (A).

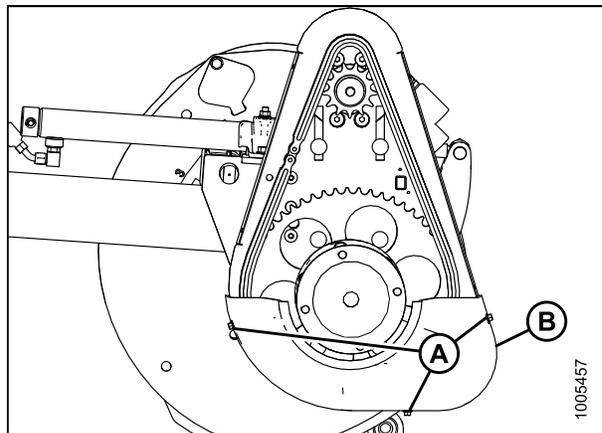


Figure 7.309: Remove lower reel drive cover

7. Install upper reel drive cover (B) and secure it with six screws (A).

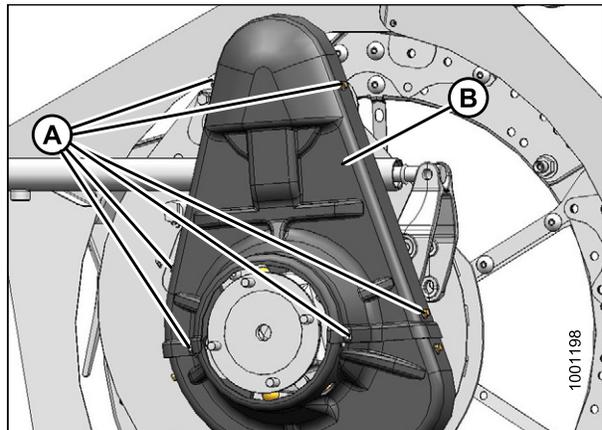


Figure 7.310: Remove upper reel drive cover

MAINTENANCE AND SERVICING

7.11.7 Reel Drive Motor

The reel drive motor does not require regular maintenance or servicing. If problems develop with the motor, it should be removed and serviced at your MacDon Dealer.

Removing Single Reel Drive - High Torque Motor

To replace a single reel drive motor - high torque, follow these steps:

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove cover (B).

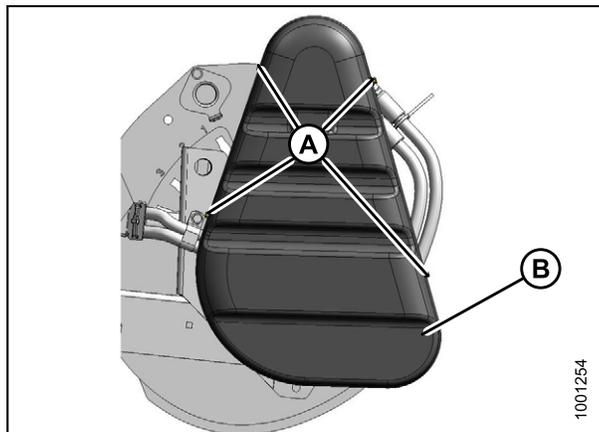


Figure 7.311: Remove cover

3. Loosen chain. Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#), page 381.
4. Remove cotter pin (A) and slotted nut (B).
5. Remove speed sensor disc (C) (if installed).

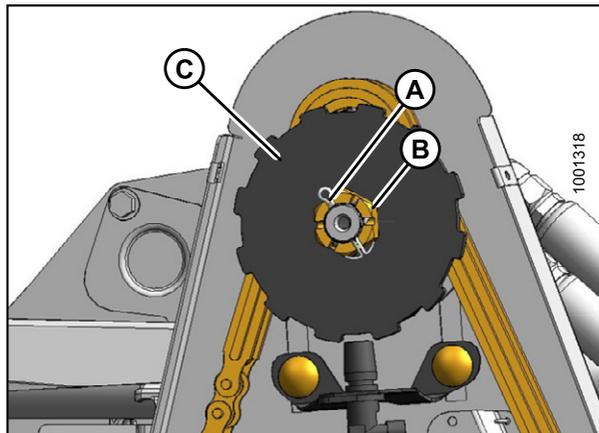


Figure 7.312

A - Cotter pin
C - Speed sensor disc

B - Slotted nut

MAINTENANCE AND SERVICING

- Slip chain (A) off drive sprocket (B).
- Remove sprocket (B) from shaft.

IMPORTANT

Do not use pry bar and/or hammer to remove sprocket; this will damage the motor. If sprocket does not come off by hand, use a puller.

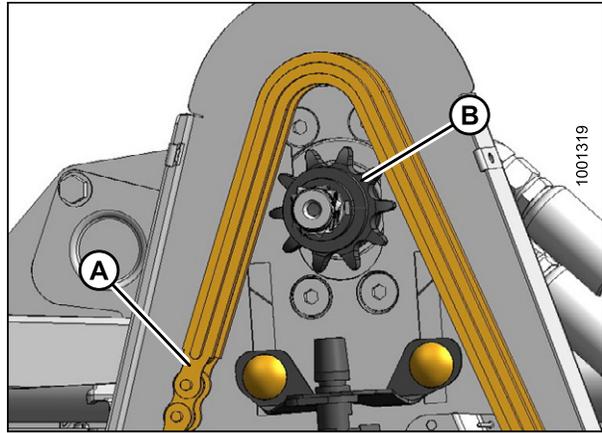


Figure 7.313

- Disconnect hydraulic lines (A) at motor (B). Cap or plug open ports and lines.
- Slide motor (B) and motor mount (C) up or down so that attachment bolts (D) are exposed in holes and slots in back plate.

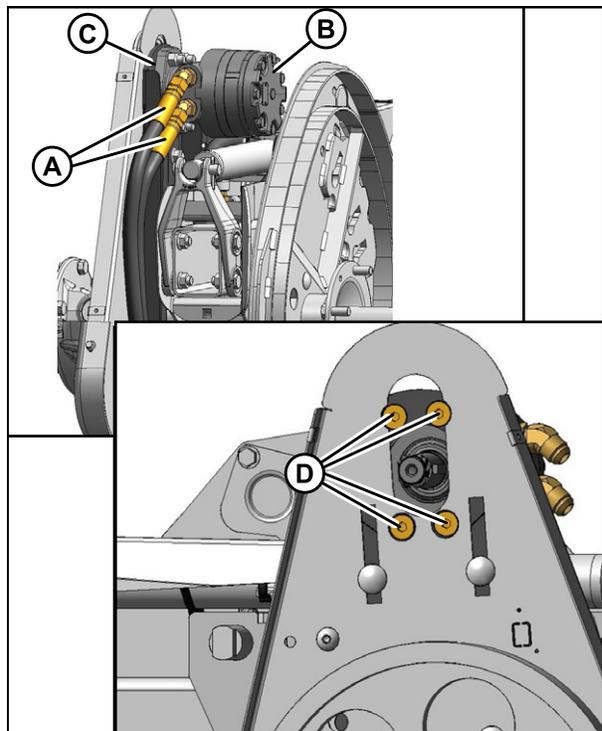


Figure 7.314

A - Hydraulic lines
C - Motor mount

B - Reel drive motor
D - Attachment bolts

MAINTENANCE AND SERVICING

10. Remove four nuts (A) and attachment bolts and remove motor (B) from motor mount (C).

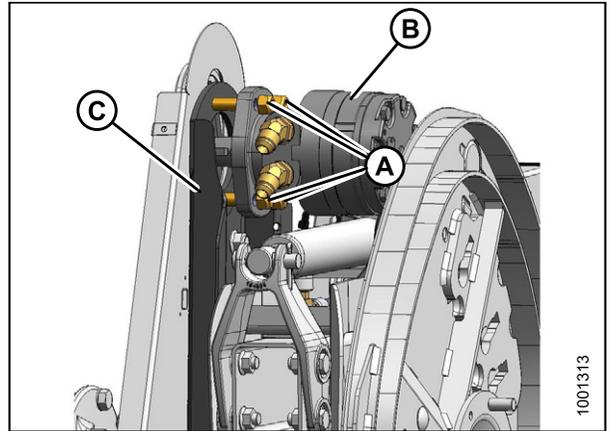


Figure 7.315

A - Nuts
C - Motor mount

B - Reel drive motor

Installing Single Reel Drive - High Torque Motor

To replace a single reel drive - high torque motor, follow these steps:

1. Position new hydraulic motor (B) on motor mount (C) and install four countersunk attachment bolts (D) through holes and slots in chain case to secure motor to motor mount. Install nuts, but leave them loose.
2. Connect hydraulic lines (A) at motor.

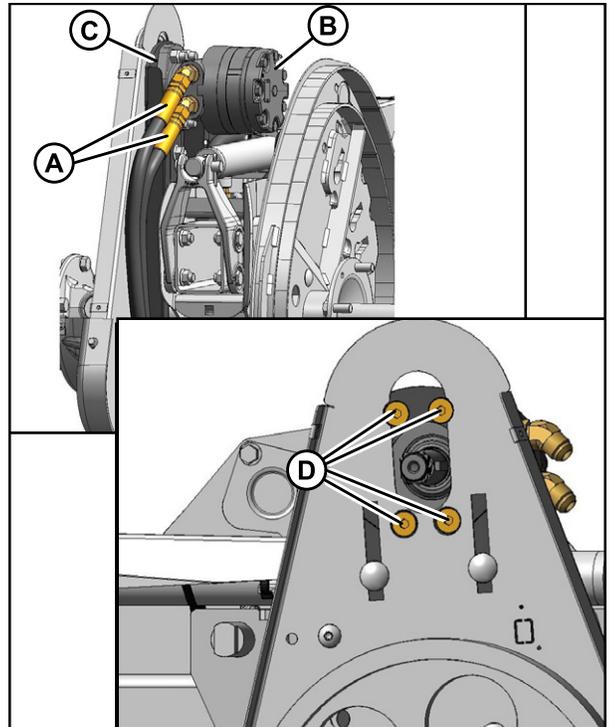


Figure 7.316

MAINTENANCE AND SERVICING

3. Align keyway in sprocket (A) with key (B) in shaft and slide new sprocket onto shaft.
4. Slip chain over drive sprocket.

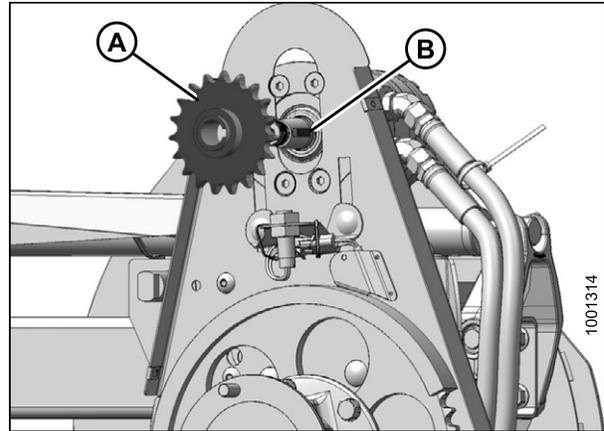


Figure 7.317

5. Reinstall speed sensor disc (C) (if applicable) onto shaft.
6. Install slotted nut (B) and torque to 10–20 in·lbf (1.1–2.2 N·m).
7. Install cotter pin (A). Tighten nut to next slot if required.
8. Tighten chain (A). Refer to [Adjusting Chain Tension on Single and Double Reel Drive – High Torque](#), page 381.
9. Tighten chain (A). See [Adjusting Chain Tension – High Torque Drive](#) in your header's operator's manual.

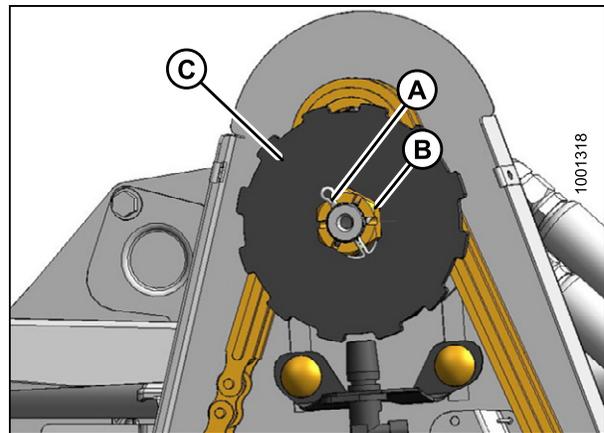


Figure 7.318

10. Reattach hydraulic lines (A) to motor (B).

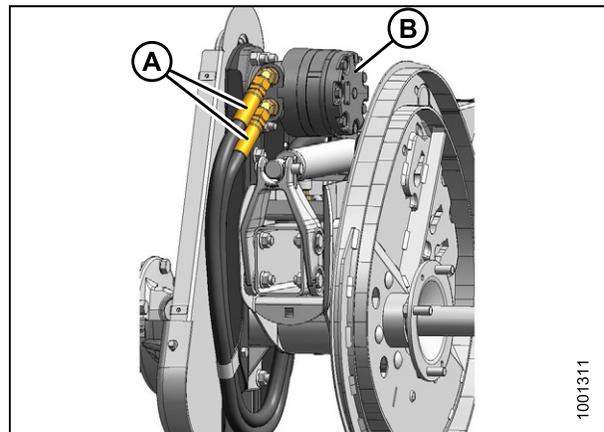


Figure 7.319

MAINTENANCE AND SERVICING

11. Position cover (B) onto drive and secure with four screws (A).

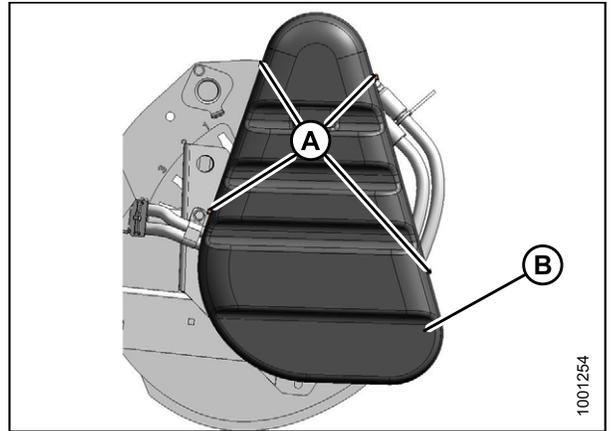


Figure 7.320: Replace drive cover

Removing Double Reel Drive Motor

1. Remove the reel drive covers (A) by removing the nine bolts (B) that secures it to the reel drive.

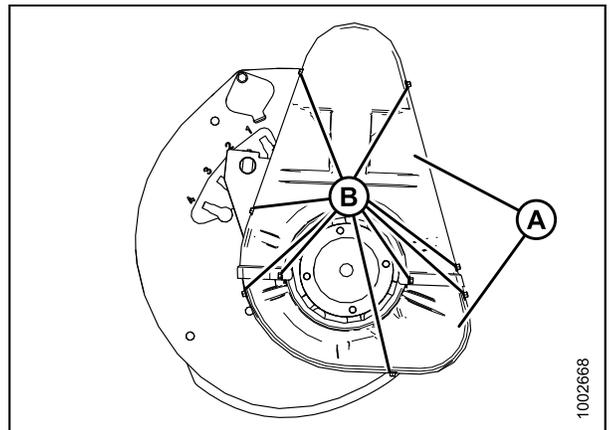


Figure 7.321

2. Loosen the drive chain (A) by loosening the six bolts (B) and sliding down the hydraulic motor assembly.
3. Remove the drive chain (A).

NOTE: There is no connecting link in the chain.

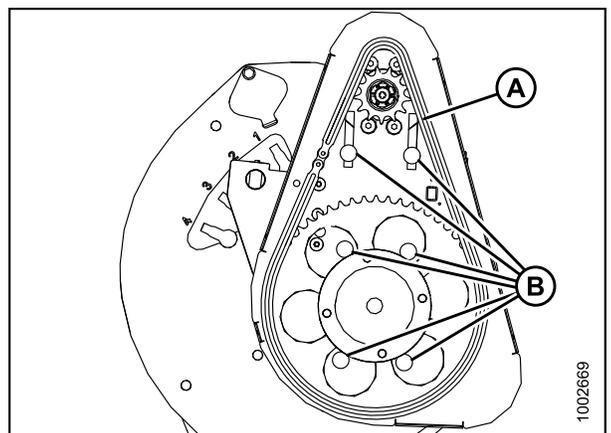


Figure 7.322

MAINTENANCE AND SERVICING

IMPORTANT

Do not use pry bar and/or hammer to remove sprocket. This will damage the motor. Use a puller if sprocket does not come off by hand.

4. Remove sprocket (C). Make sure not to lose the key in the shaft.
5. For high Torque, remove the cotter pin (A), slotted nut, and flat washer (B) from the motor shaft.

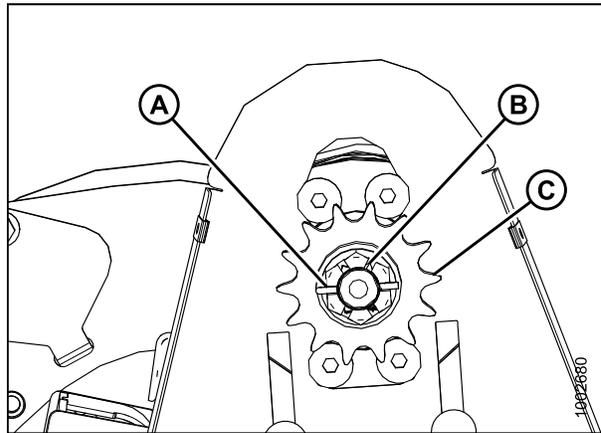


Figure 7.323: High Torque

6. Remove the bolts (A) and the hydraulic motor from the reel drive plate (B).

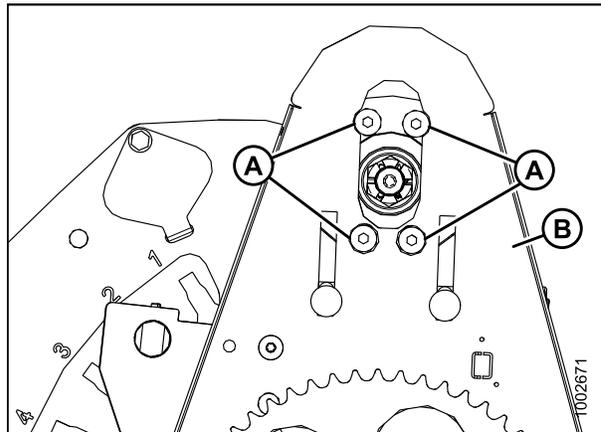


Figure 7.324

MAINTENANCE AND SERVICING

Installing Double Reel Drive

1. Line up the motor mounting holes with the four holes that hold the motor in place on the adjustment plate (B). Once lined up, secure with bolts (A). Make sure to use a thread locking compound (Loctite® 243) on the thread of the bolts.

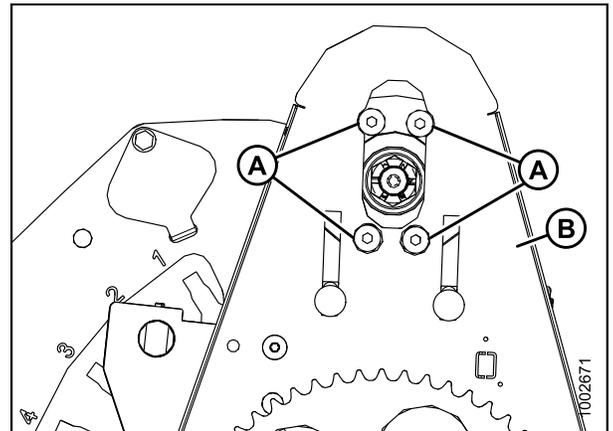


Figure 7.325

2. For high torque sprocket, align keyway in sprocket (C) with key in shaft and slide new sprocket onto shaft.
3. Install speed sensor disc (if applicable) onto the shaft.
4. Install flat washer and slotted nut (B) Torque to 40 ft·lbf (54 N·m), while turning the reel assembly to seat the bearings. Loosen the slotted nut, then re-tighten to 10–20 in·lbf (1.1–2.2 N·m). Install the cotter pin (A). If required, tighten nut to next cotter pin hole.

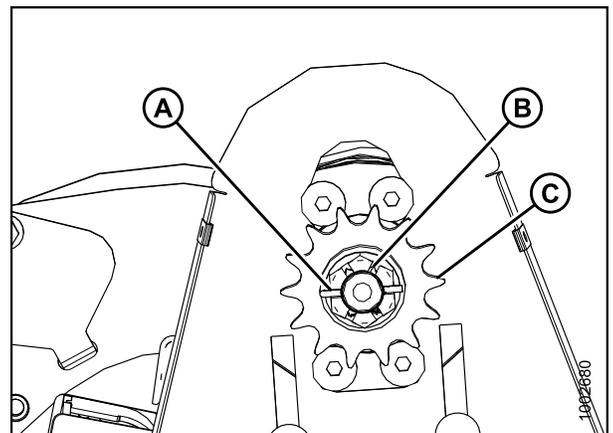


Figure 7.326: High Torque

5. Route chain (A) over sprockets.

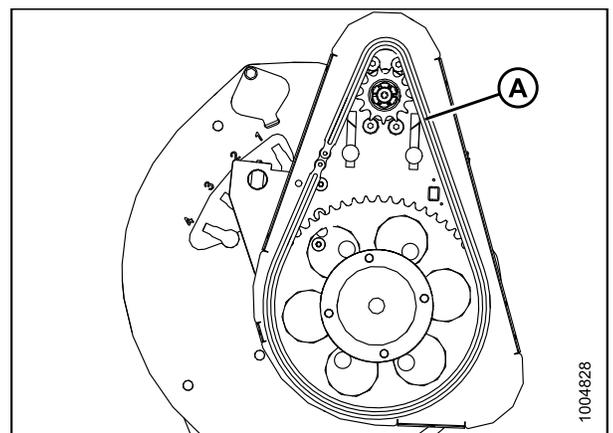


Figure 7.327

MAINTENANCE AND SERVICING

6. If Installed, install the speed sensor (A) and its bracket (B) by installing the two bolts (C) that secure it to the reel drive plate.

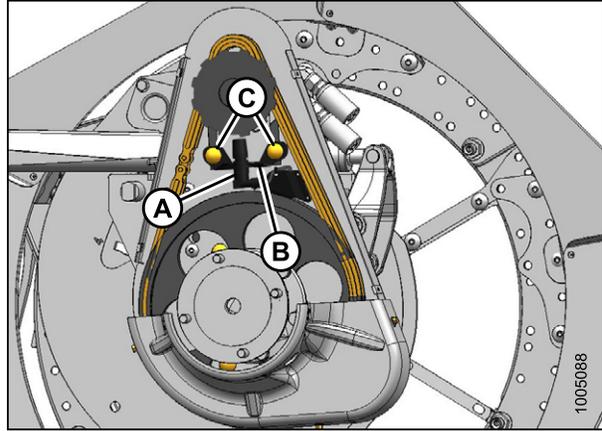


Figure 7.328

7. Adjust the chain tension (C). Tension on chain should be such that hand-force deflects the chain 1/8 in. (3 mm) at midspan.
8. Install lower cover (B) and secure with three screws (A).

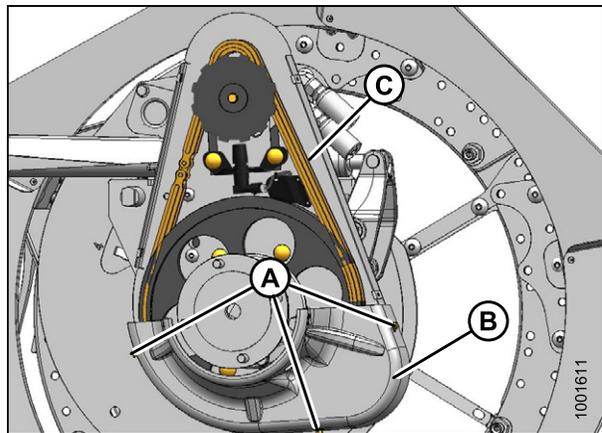


Figure 7.329

9. Install upper reel drive cover (B) and secure with six screws (A).

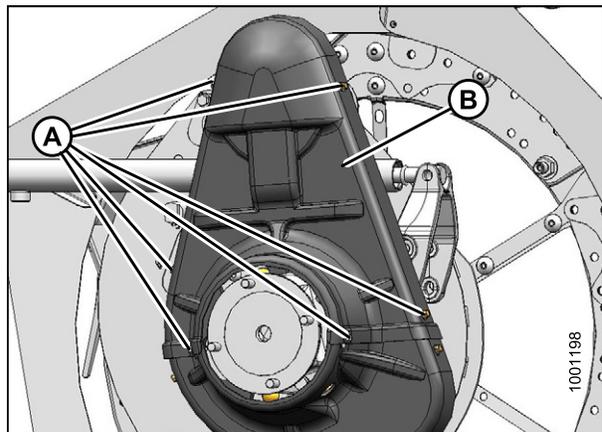


Figure 7.330

MAINTENANCE AND SERVICING

7.11.8 Reel Speed Sensor

The reel speed sensor is located on the reel under the reel drive plastic cover.

Replacing John Deere Reel Speed Sensor - Single Reel

To replace the reel speed sensor for a John Deere combine on a single reel header, follow these steps.



WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove cover (B).

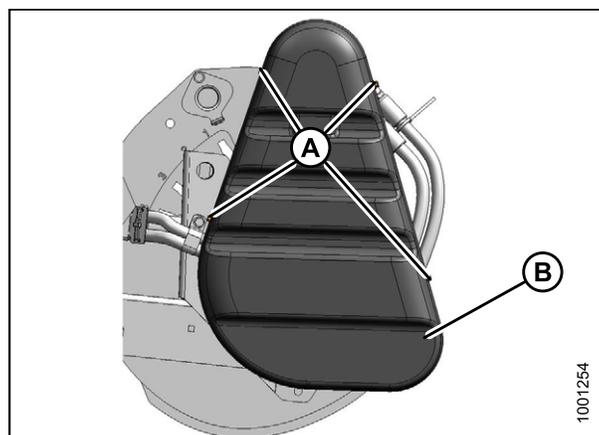


Figure 7.331: Remove drive cover

1001254

MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (C) as required.
4. Replace sensor as follows:
 - a. Disconnect connector (D).
 - b. Remove top nut (C) and remove sensor (B).
 - c. Remove top nut from new sensor (C) and position sensor in support.
 - d. Secure with top nut (C).
 - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm).with nuts (C).
 - f. Connect to harness at (D).

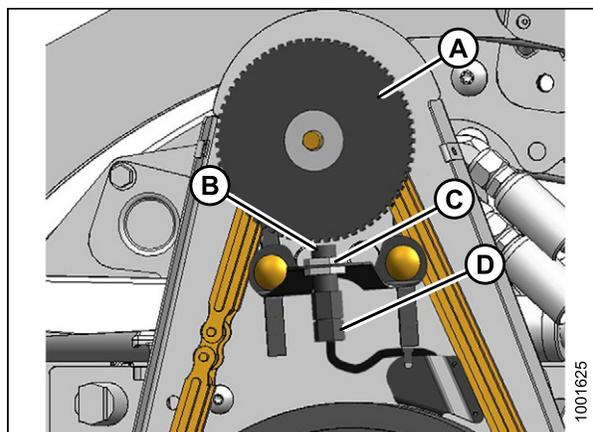


Figure 7.332

A - Sensor disc
B - Speed sensor
C - Nuts
D - Connector

IMPORTANT

Ensure sensor electrical harness does NOT contact chain or sprocket.

Replacing John Deere Reel Speed Sensor - Double Reel

To replace the reel speed sensor for a John Deere combine on a double reel header, follow these steps.

WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and remove upper cover (B).

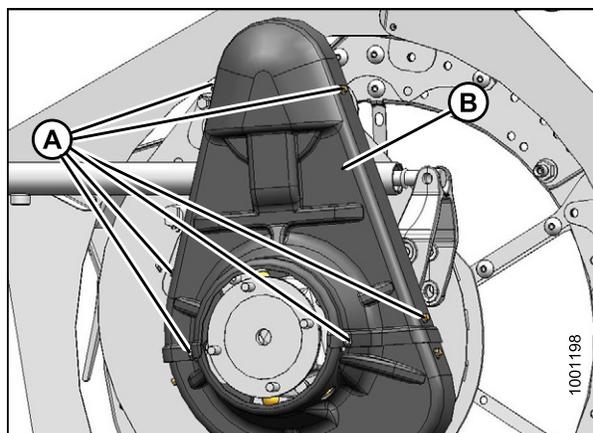


Figure 7.333: Remove upper drive cover

MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (C) as required.
4. Replace sensor as follows:
 - a. Disconnect connector (D).
 - b. Remove top nut (C) and remove sensor (B).
 - c. Remove top nut from new sensor (C) and position sensor in support.
 - d. Secure with top nut (C).
 - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) with nuts (C).
 - f. Connect to harness at (D).

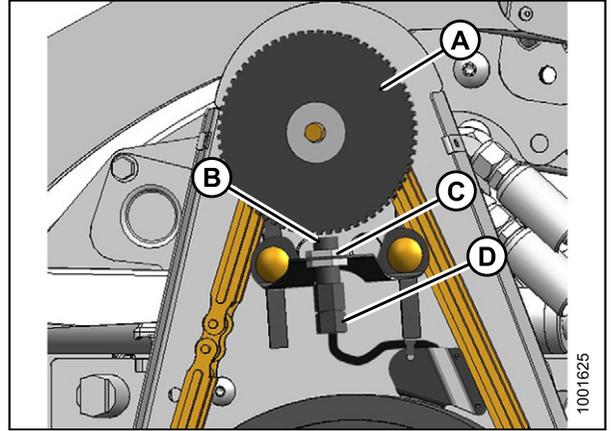


Figure 7.334

A - Sensor disc
C - Nuts

B - Speed sensor
D - Connector

IMPORTANT

Ensure sensor electrical harness does NOT contact chain or sprocket.

Replacing Lexion 500 Series Reel Speed Sensor - Single Reel

To replace the reel speed sensor for a Lexion 500 series combine on a single reel header, follow these steps:



WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove cover (B).

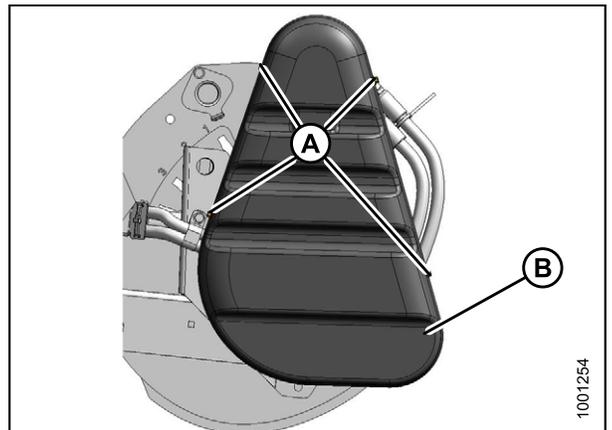


Figure 7.335: Remove drive cover

MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (E).
4. Replace sensor as follows:
 - a. Disconnect connector (C).
 - b. Remove screw (D) attaching sensor and remove sensor (B).
 - c. Locate new sensor in support and secure with screw (D).
 - d. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) by bending support (E).
 - e. Connect to harness at (C).

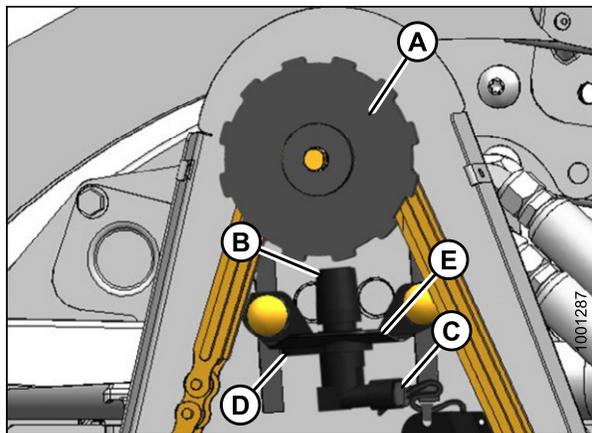


Figure 7.336

A - Sensor disc
B - Sensor
C - Connector
D - Screw
E - Support

IMPORTANT

Ensure sensor electrical harness does NOT contact chain or sprocket.

Replacing Lexion 500/700 Series Reel Speed Sensor - Double Reel

To replace the reel speed sensor for a Lexion 500 or 700 series combine on a double reel header, follow these steps:

WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and remove upper cover (B).

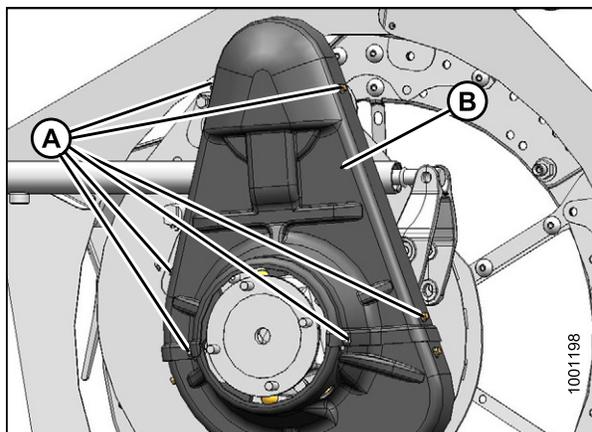


Figure 7.337: Remove upper drive cover

MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (E).
4. Replace sensor as follows:
 - a. Disconnect connector (C).
 - b. Remove screw (D) attaching sensor and remove sensor (B).
 - c. Locate new sensor in support and secure with screw (D).
 - d. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) by bending support (E).
 - e. Connect to harness at (C).

IMPORTANT

Ensure sensor electrical harness does NOT contact chain or sprocket.

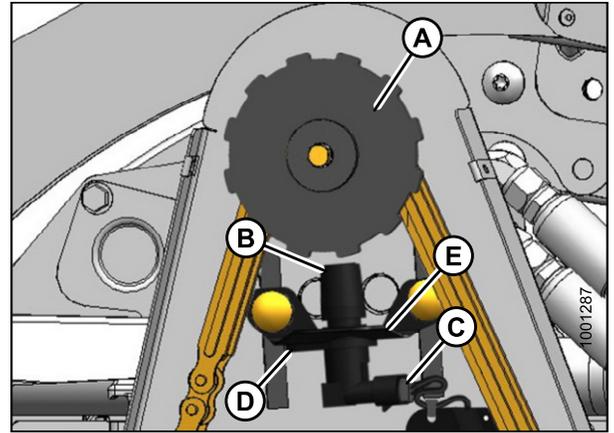


Figure 7.338

A - Sensor disc
C - Connector
E - Support

B - Sensor
D - Screw

Replacing Lexion 400 Series Reel Speed Sensor Replacement - Single Reel

To replace the reel speed sensor for a Lexion 400 series combine on a single reel header, follow these steps:



WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove four screws (A) and remove cover (B).

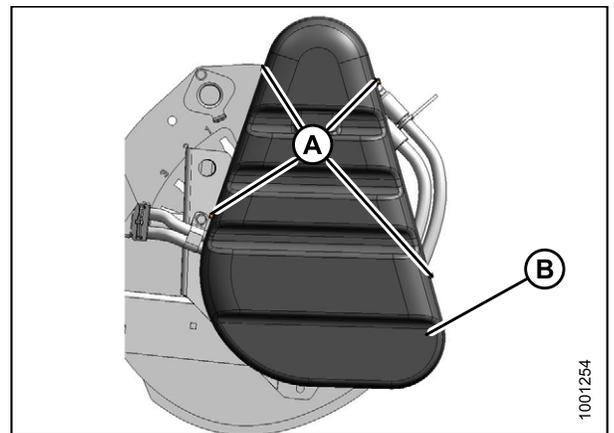


Figure 7.339: Remove drive cover

MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (D) as required.
4. Replace sensor as follows:
 - a. Disconnect connector (C).
 - b. Remove top nut (D) and remove sensor (B).
 - c. Remove top nut from new sensor and locate in support.
 - d. Secure with top nut (D).
 - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) with nuts (D).
 - f. Connect to harness at (C).

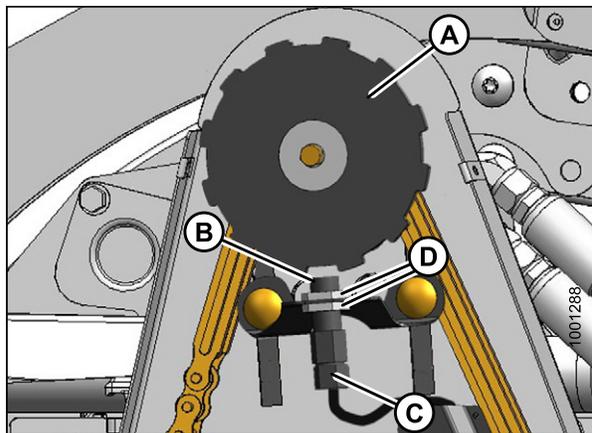


Figure 7.340

A - Sensor disc
C - Connector

B - Sensor
D - Nuts

IMPORTANT

Ensure sensor electrical harness does not contact chain or sprocket.

Replacing Lexion 400 Series Reel Speed Sensor - Double Reel

To replace the reel speed sensor for a Lexion 400 series combine on a double reel header, follow these steps:

WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove six screws (A) and remove upper cover (B).

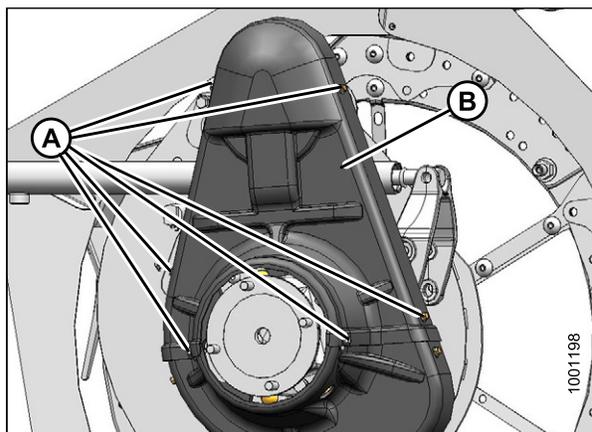


Figure 7.341: Remove upper drive cover

MAINTENANCE AND SERVICING

3. Maintain a 0.12 in. (3 mm) gap between sensor disc (A) and sensor (B). Adjust with nuts (D) as required.
4. Replace sensor as follows:
 - a. Disconnect connector (C).
 - b. Remove top nut (D) and remove sensor (B).
 - c. Remove top nut from new sensor and locate in support.
 - d. Secure with top nut (D).
 - e. Adjust gap between sensor disc (A) and sensor (B) to 0.12 in. (3 mm) with nuts (D).
 - f. Connect to harness at (C).

IMPORTANT

Ensure sensor electrical harness does not contact chain or sprocket.

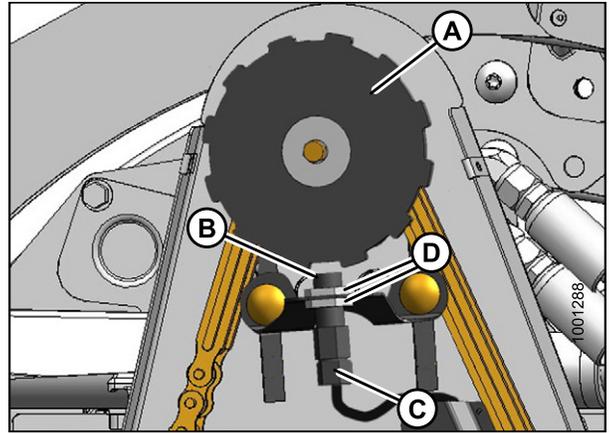


Figure 7.342

A - Sensor disc
C - Connector

B - Sensor
D - Nuts

Replacing AGCO Reel Speed Sensor - Single Reel

To replace the reel speed sensor for an AGCO combine on a single reel header, follow these steps.



WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
1. Remove reel drive cover by removing four screws (A) and remove cover (B).

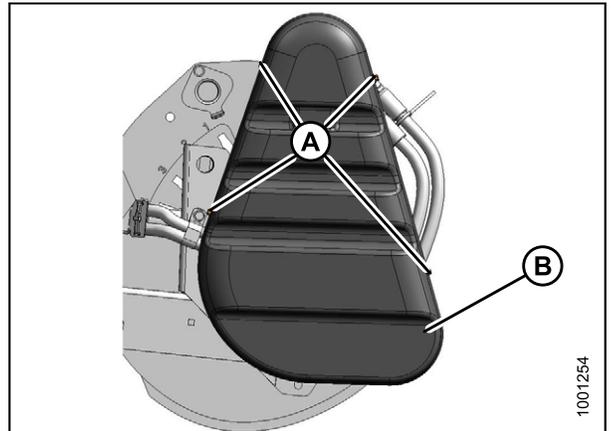


Figure 7.343: Remove reel drive cover

MAINTENANCE AND SERVICING

2. Maintain a 0.02 in. (0.5 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (C).

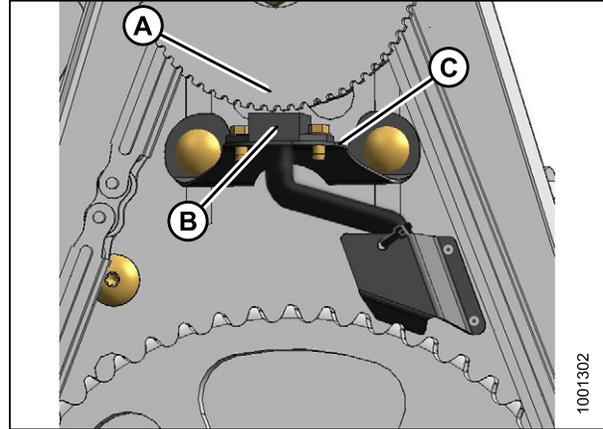


Figure 7.344: Bend support to adjust gap

3. Disconnect connector (A)

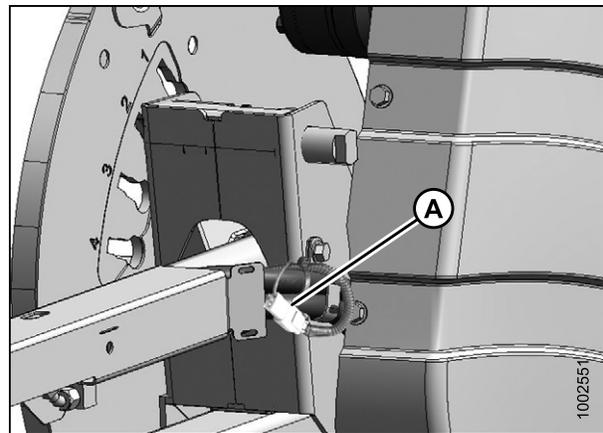


Figure 7.345: Disconnect connector

4. Cut cable tie (A) securing harness to cover.
5. Remove screws (B) and remove sensor (C) and harness. Bend cover (D) (if necessary) to remove harness.
6. Feed wire of new sensor behind cover (D) through chain case.
7. Locate new sensor in support (E) and attach with two screws (B).
8. Adjust gap between sensor disc (F) and sensor (C) to 0.02 in. (0.5 mm).

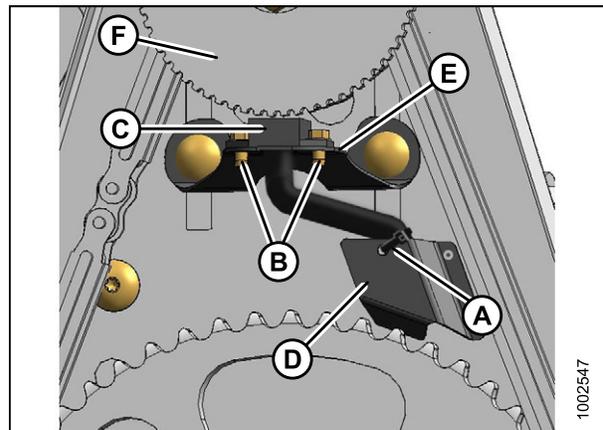


Figure 7.346

MAINTENANCE AND SERVICING

9. Connect to harness at (A)

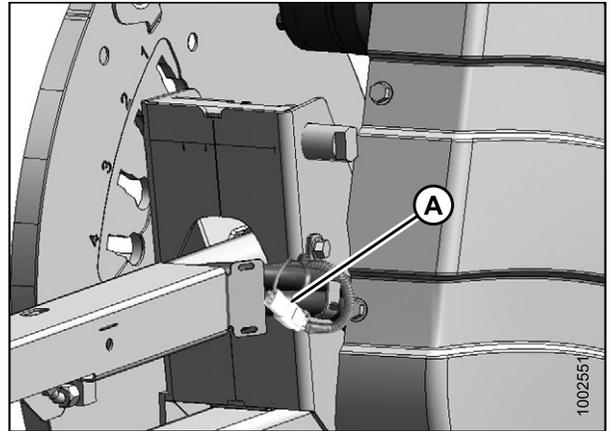


Figure 7.347: Connect to harness

Replacing AGCO Reel Speed Sensor - Double Reel

To replace the reel speed sensor for an AGCO combine on a double reel header, follow these steps.



WARNING

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

1. Lower header and reel, shut down combine, and remove key from ignition.
2. Remove reel drive cover by removing six screws (A) and remove upper cover (B).

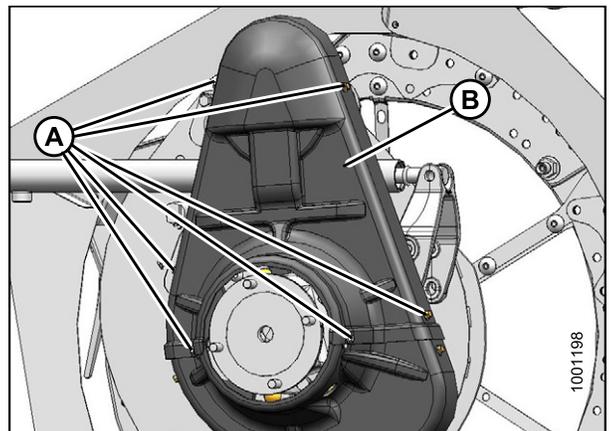


Figure 7.348: Remove reel drive cover

MAINTENANCE AND SERVICING

3. Maintain a 0.02 in. (0.5 mm) gap between sensor disc (A) and sensor (B). Adjust by bending support (C).

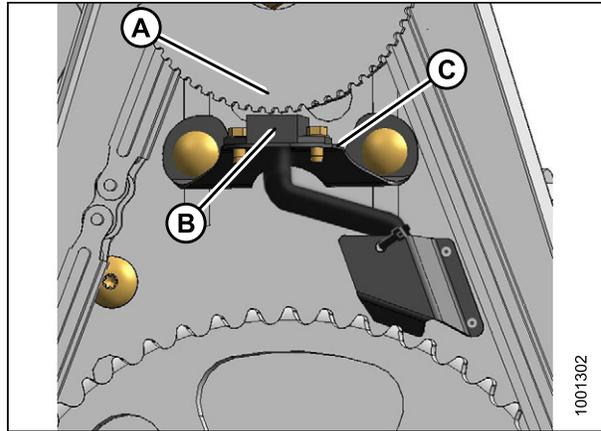


Figure 7.349: Bend support to adjust gap

4. Disconnect connector (A).

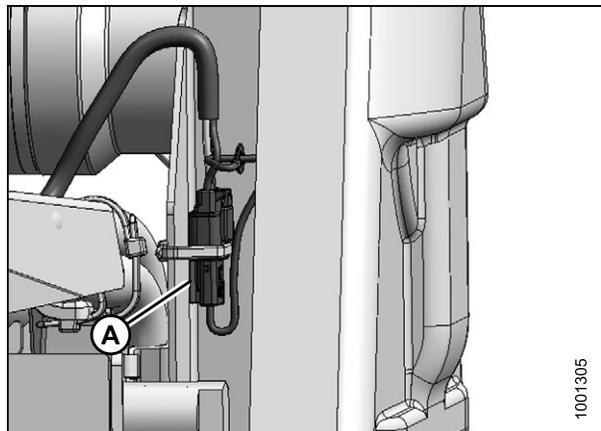


Figure 7.350: Disconnect connector

5. Cut cable tie (A) securing harness to cover.
6. Remove screws (B), sensor (C), and harness. Bend cover (D) (if necessary) to remove harness.
7. Feed wire of new sensor behind cover (D) through chain case.
8. Locate new sensor in support (E) and attach with two screws (B).
9. Adjust gap between sensor disc (F) and sensor (C) to 0.02 in. (0.5 mm).

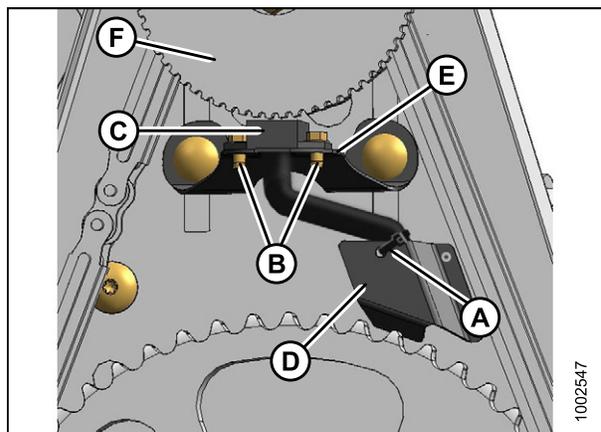


Figure 7.351

A - Cable tie B - Screws C - Sensor
D - Cover E - Support F - Sensor disc

MAINTENANCE AND SERVICING

10. Connect to harness at (A).

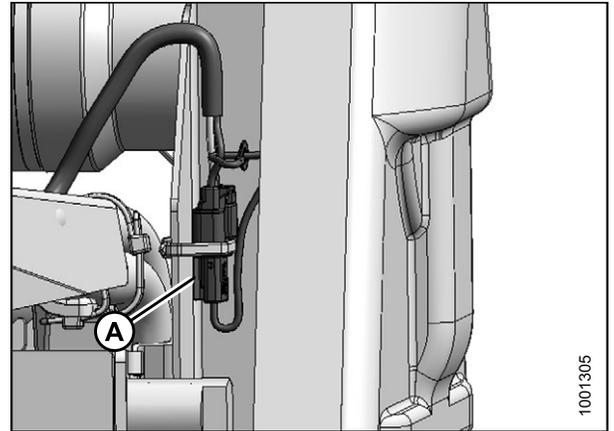


Figure 7.352: Connect to harness

7.11.9 Reel Tines

IMPORTANT

Keep reel tines in good condition. Straighten or replace as required.

Removing Steel Tines



WARNING

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

1. Lower header and raise reel. Engage reel safety props.
2. Shut down engine and remove key from ignition.
3. Remove tine tube bushings from the applicable tine tube at center and left discs. Refer to [Removing Bushings from 5, 6 or 9 Bat Reels](#), page 420.
4. Temporarily attach reel arms (B) to reel disc, using original attachment locations (A).
5. Cut damaged tine(s) so that it can be removed from tube.
6. Remove bolts on existing tines and slide tines over to replace tine that was cut off in previous step. Remove reel arms (B) from tube as required.

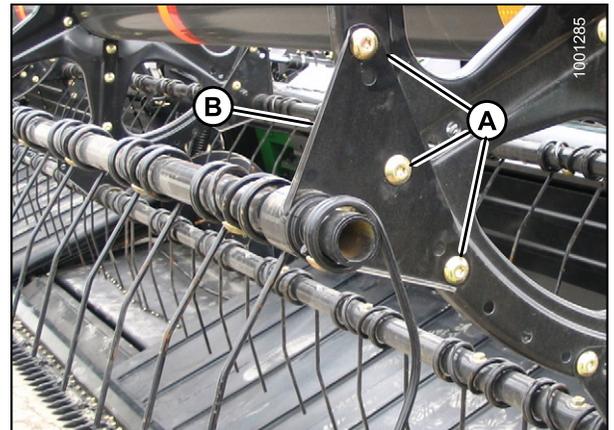


Figure 7.353

Installing Steel Tines



WARNING

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

IMPORTANT

Ensure tine tube is supported at all times to prevent damage to the tube or other components

1. Slide new tines and reel arm (A) onto end of tube.
2. Install tine tube bushings. Refer to Section [7.11.10 Tine Tube Bushings](#), page 420.
3. Attach tines to tine bar with bolts and nuts (B).

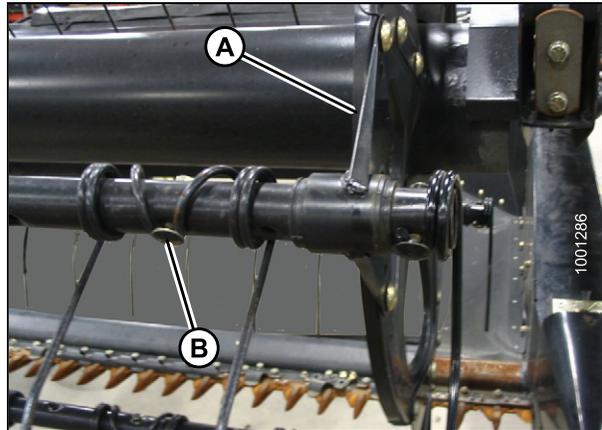


Figure 7.354

Removing Plastic Fingers



WARNING

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

1. Remove screw (A) with a Torx® Plus 27 IP socket wrench.
2. Push finger top clip back toward reel tube and remove from finger tube.

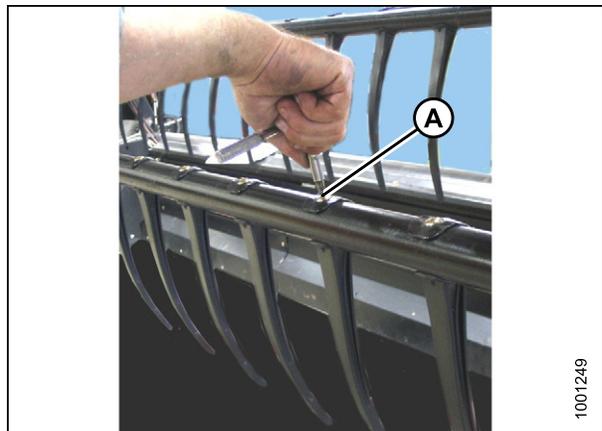


Figure 7.355

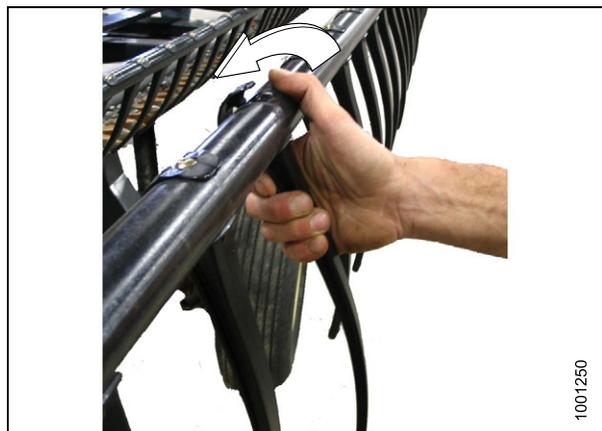


Figure 7.356

MAINTENANCE AND SERVICING

Installing Plastic Fingers



WARNING

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

1. Position finger on rear of finger tube and engage lug at bottom of finger in lower hole in finger tube.
2. Gently lift top flange and rotate finger until lug in top flange engages upper hole in finger tube.



Figure 7.357

IMPORTANT

Do NOT apply force to finger prior to tightening mounting screw. Applying force to finger without screw tightened will break finger or shear off locating pins.

3. Install screw (A) and torque to 75–80 in·lbf (8.5–9.0 N·m) with a Torx®-Plus 27 IP socket wrench.

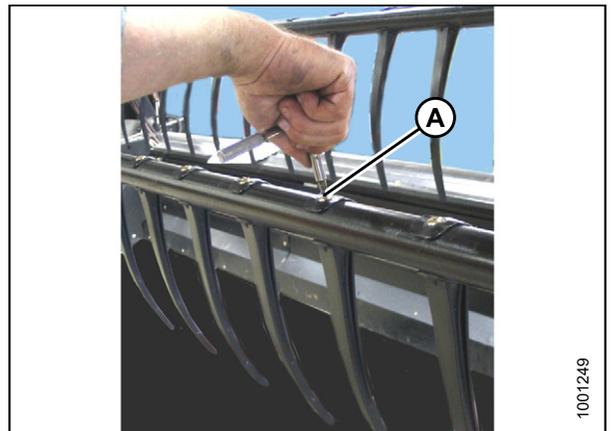


Figure 7.358

7.11.10 Tine Tube Bushings

Removing Bushings from 5, 6 or 9 Bat Reels

NOTE: If only replacing the cam end bushing, Refer to Section 6., [Removing Bushings from 5, 6 or 9 Bat Reels](#), page 421

Center disc and tail end bushings

WARNING

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

1. Lower header, raise reel fully, and engage reel safety props.

IMPORTANT

Ensure tine tube is supported at all times to prevent damage to the tube or other components.

2. Remove reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

NOTE: There are no endshields on the center-disks.

3. Remove bolts (A) securing arm (B) to disc.

IMPORTANT

Note the hole locations in arm and disc and ensure bolts are reinstalled at original locations.

4. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.

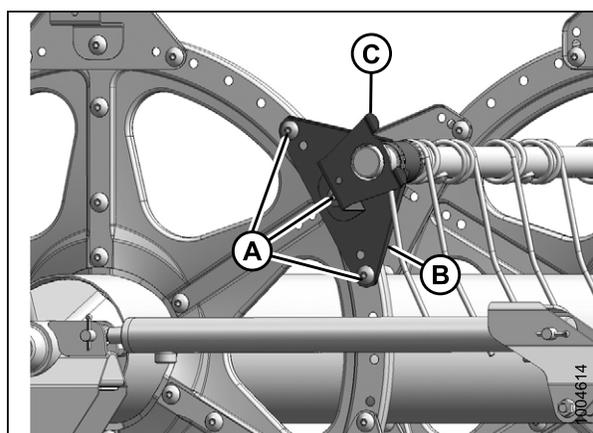


Figure 7.359

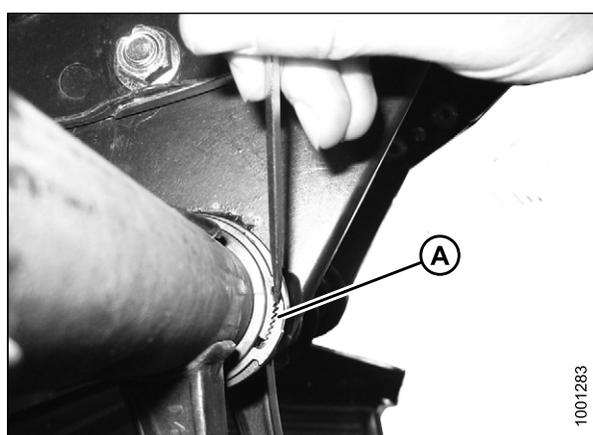


Figure 7.360

MAINTENANCE AND SERVICING

5. Rotate arm (A) clear of disc and slide arm inboard off bushing and remove bushing halves (B). If required remove the next tine or plastic finger, so that the arm can slide off the bushing. [Refer to See Section](#)

- [Removing Plastic Fingers, page 418](#)
- [Removing Steel Tines, page 417](#)

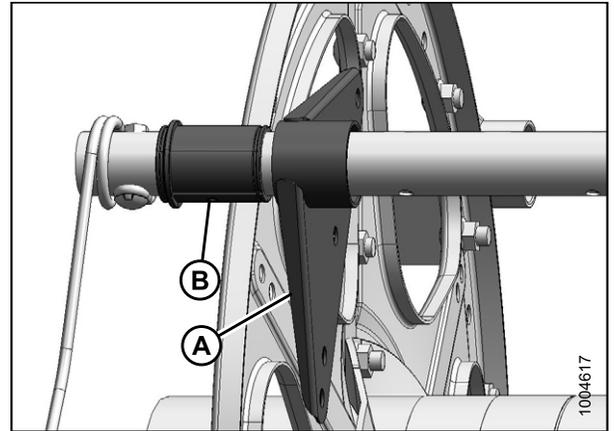


Figure 7.361

Cam end bushings

6. On the cam end, remove endshields and endshield support (A) at applicable tine tube location on the cam end.
7. On the tail end, remove reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

NOTE: There are no endshields on the center-discs.

8. On the tail and center discs, remove bolts (A) securing arm (B) to disc.

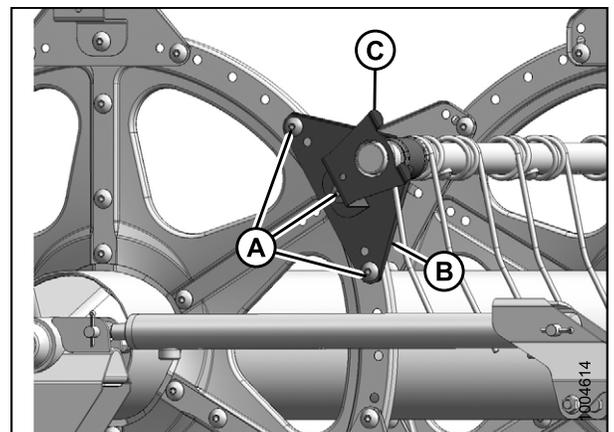


Figure 7.362

9. Remove bolt (A) at on cam linkage so that tine tube (B) is free to rotate.

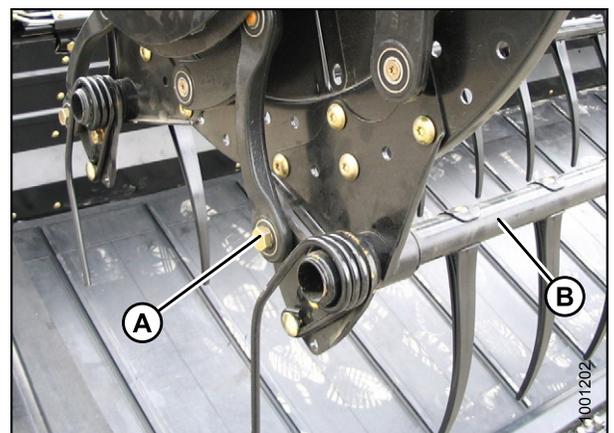


Figure 7.363

MAINTENANCE AND SERVICING

10. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.

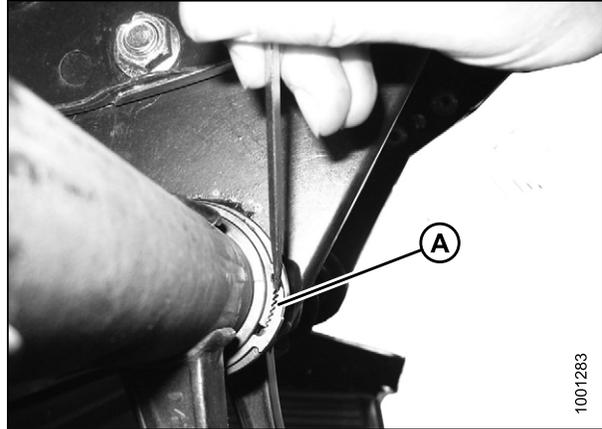


Figure 7.364

11. Slide tine tube (A) outboard to expose the bushing. Remove the bushing halves (B). If required remove the next tine or plastic finger, so that the arm can slide off the bushing. Refer to

- [Removing Plastic Fingers, page 418](#)
- [Removing Steel Tines, page 417](#)

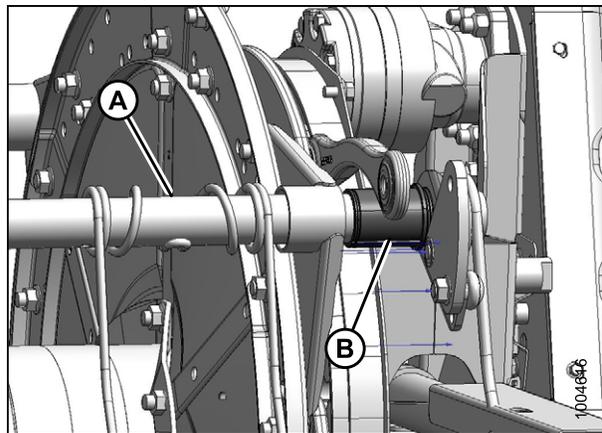


Figure 7.365

If the tine tube reinforcing kit is installed:

12. Locate the support (B) that requires a bushing replacement
13. Remove both tie bar channels (B) that attach to the support (A) by removing the two bolts (C) from both ends of the channel.

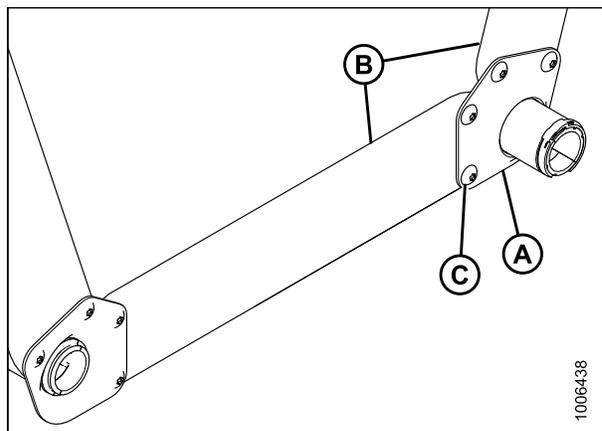


Figure 7.366

MAINTENANCE AND SERVICING

14. Release bushing clamps (A) using a small screwdriver to separate the serrations. Pull clamp off tine tube.
15. Slide support (B) off of the bushing. Remove the bushing halves (C). If required remove the next tine or plastic finger, so that the arm can slide off the bushing. Refer to
 - [Removing Plastic Fingers, page 418](#)
 - [Removing Steel Tines, page 417](#)

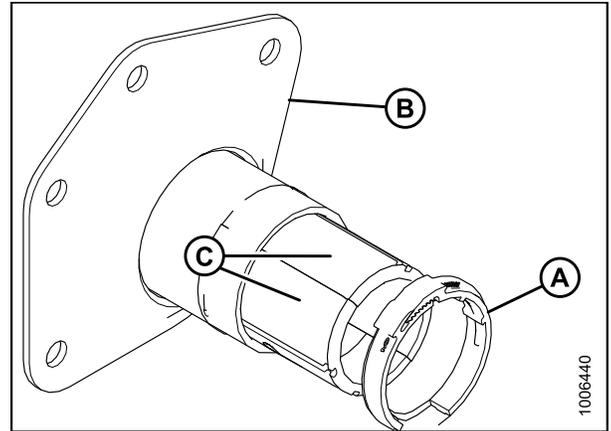


Figure 7.367

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: ~~If you are installing all new bushings, Refer to Section 1., Installing Bushings on 5, 6, or 9 Bat Reels, page 423~~

Cam end bushings

1. Position bushing halves (B) on tine tube so that lug in each bushing half is positioned in hole in tine tube.
2. Slide tine tube (A) inboard to cover the bushing (B). If any fingers where removed reinstall them at this time. [Refer to See Section](#)
 - [Installing Steel Tines, page 417](#)
 - [Installing Plastic Fingers, page 419](#)

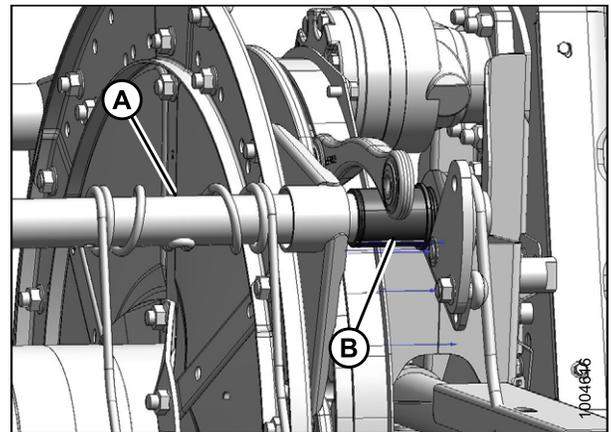


Figure 7.368

MAINTENANCE AND SERVICING

3. Install bushing clamps (A) by spreading clamp (A) and slip over tine tube adjacent to flangeless end of bushing.
4. Position clamp on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.

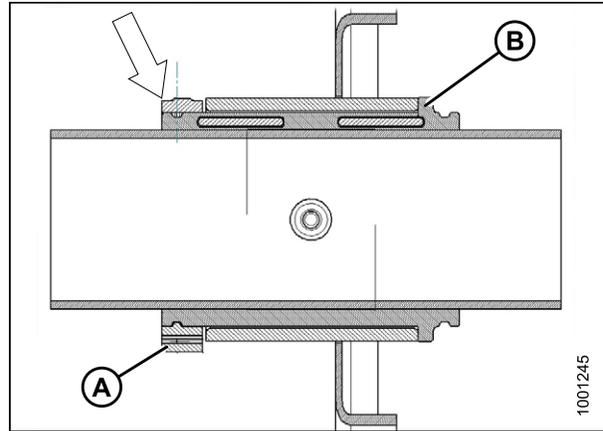


Figure 7.369

A - Bushing clamp

B - Bushing

5. Tighten clamp (A) with modified channel lock pliers (B) so that finger pressure will **NOT** move clamp.

NOTE: To modify channel lock pliers – secure in a vice and grind out centre of arms to accommodate clamps (as shown in image).

IMPORTANT

Over-tightening clamp may result in breakage.

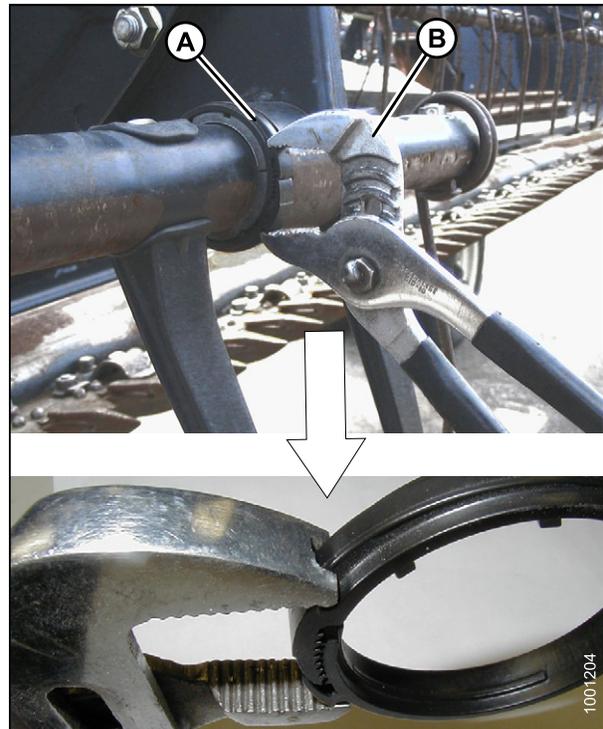


Figure 7.370

A - Bushing clamp

B - Channel lock pliers

MAINTENANCE AND SERVICING

- Line up tine bar (B) with cam arm and install bolt (A). Torque bolt to 120 ft-lbf (165 N·m).

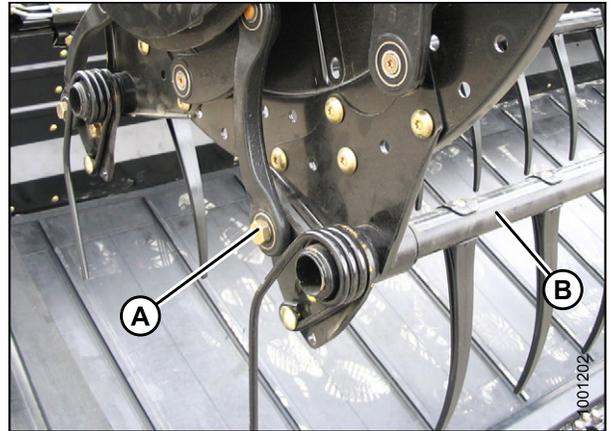


Figure 7.371

- On the tail and center discs, install the bolts (A) securing arm (B) to disc.
- On the tail end, install reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

NOTE: There are no endshields on the center disks.

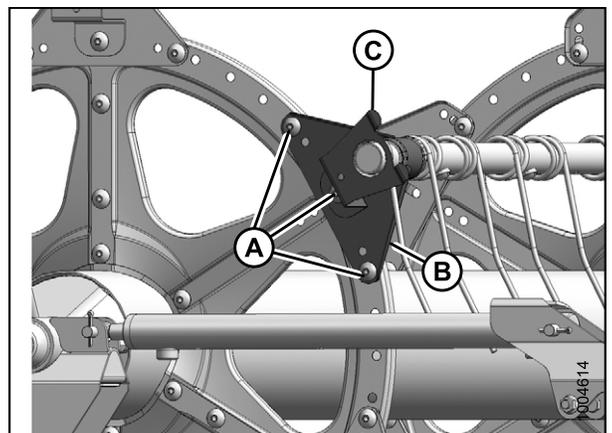


Figure 7.372

- On the cam end, install endshields and endshield support (A) at applicable tine tube location on the cam end.

Center disc and tail end bushings

- Position bushing halves (B) on tine tube so that lug in each bushing half is positioned in hole in tine tube.
- Slide reel arm (A) onto bushing (B) and position against disc at original location.
- Install bolts (A) in original holes and tighten.
- Reinstall any fingers or tines that were removed. Refer to
 - [Installing Steel Tines, page 417](#)
 - [Installing Plastic Fingers, page 419](#)

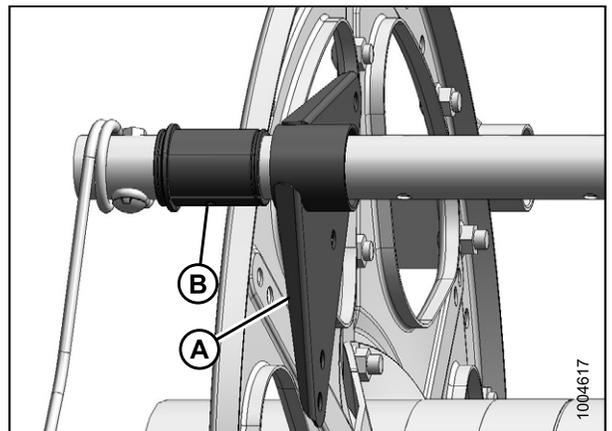


Figure 7.373

MAINTENANCE AND SERVICING

14. Install bushing clamps (A) by spreading clamp (A) and slip over the tube adjacent to flangeless end of bushing.
15. Position clamp on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.

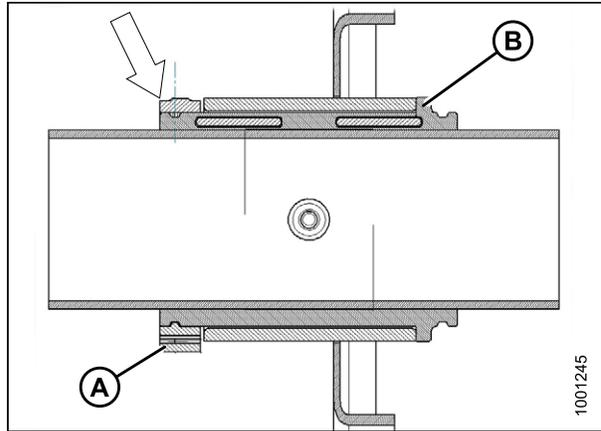


Figure 7.374

A - Bushing clamp

B - Bushing

16. Tighten clamp (A) with modified channel lock pliers (B) so that finger pressure will **NOT** move clamp.

IMPORTANT

Over-tightening clamp may result in breakage.

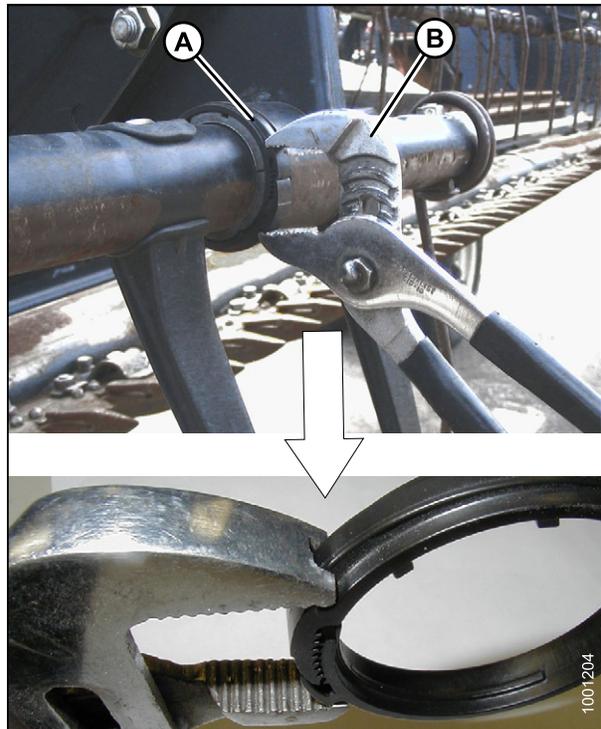


Figure 7.375

A - Bushing clamp

B - Channel lock pliers

MAINTENANCE AND SERVICING

17. On the tail and center discs, install the bolts (A) securing arm (B) to disc.
18. On the tail end, install reel endshields and endshield support (C) from the tail end of the reel at applicable tine tube location.

NOTE: There are no endshields on the center-disks.

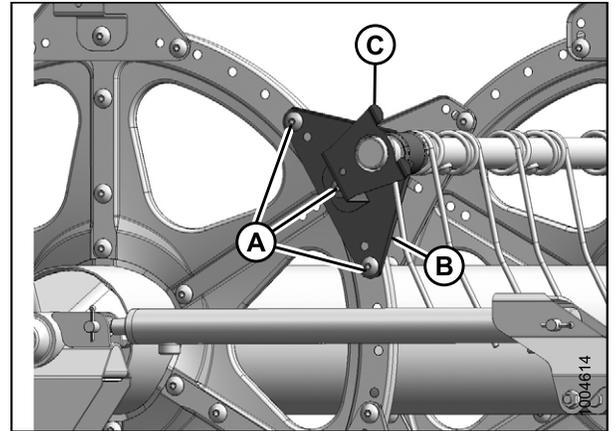


Figure 7.376

If the tine tube reinforcing kit is installed:

19. Position bushing halves (C) on tine tube so that lug in each bushing half is positioned in hole in tine tube.
20. Slide support (B) onto bushing (C).
21. Reinstall any fingers or tines that were removed. Refer to
 - [Installing Steel Tines, page 417](#)
 - [Installing Plastic Fingers, page 419](#)
22. Install bushing clamps (A) by spreading clamp (A) and slip over tine tube adjacent to flangeless end of bushing.
23. Position clamp on bushings (B) so that edges of clamp and bushing are flush when clamp fits into groove on bushing and lock tabs are engaged.

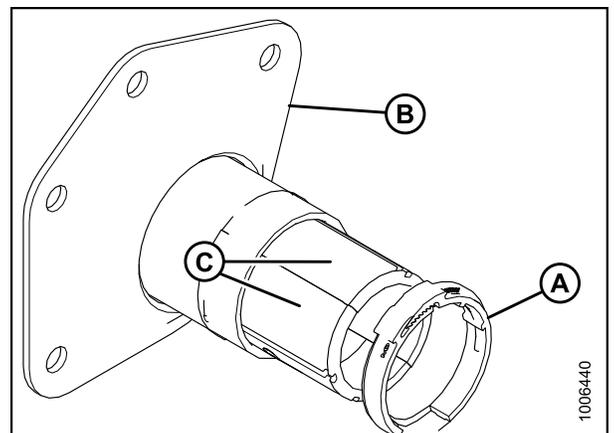


Figure 7.377

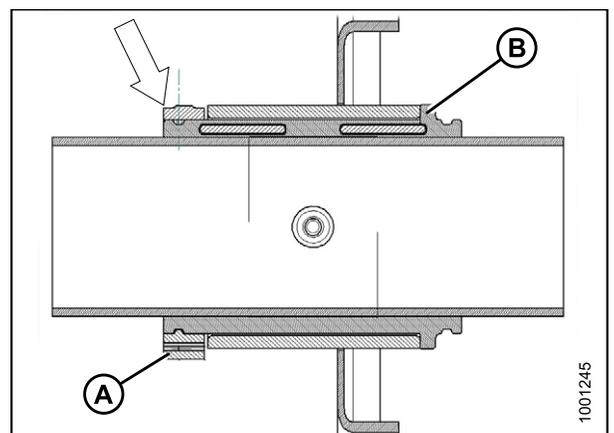


Figure 7.378

A - Bushing clamp

B - Bushing

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.

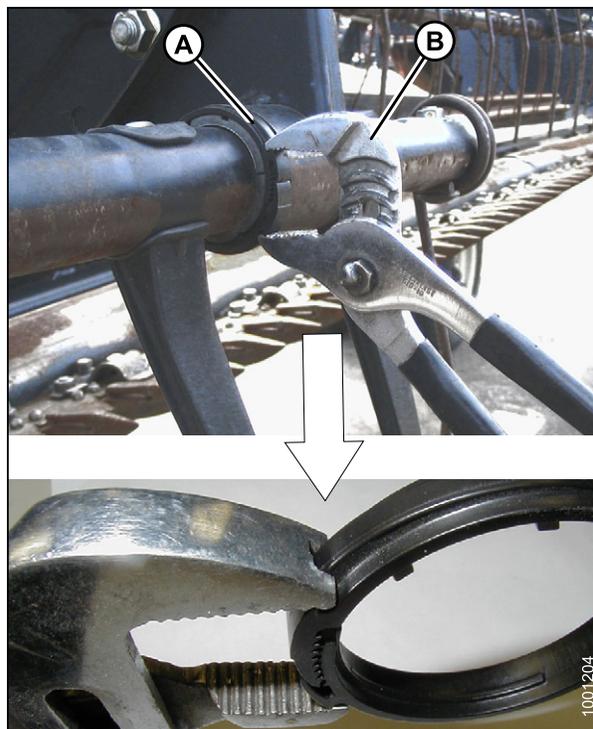


Figure 7.379

A - Bushing clamp

B - Channel lock pliers

25. Install the tie bar channels (B). Secure them using two bolts per end to the supports (A).

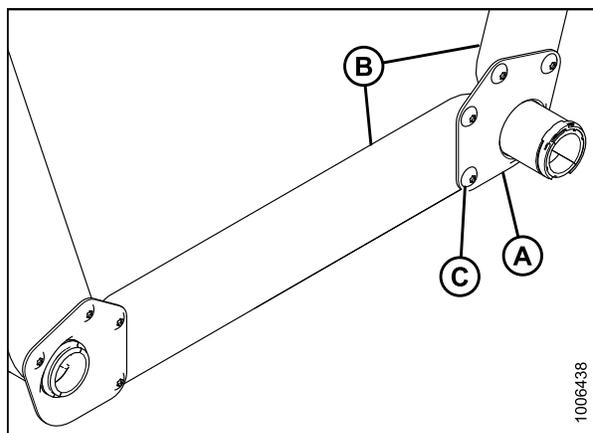


Figure 7.380

7.11.11 Reel Endshields

The reel endshields and supports do not require regular maintenance but should periodically be checked for damage and loose or missing fasteners. Endshields or supports that are slightly dented or deformed may be repaired. Severely damaged components should be replaced.

Replacing Endshield

1. Lower header and reel, and shutdown engine.
Remove key from ignition.

MAINTENANCE AND SERVICING

2. Manually rotate reel for access to endshield (A) to be replaced.
3. Remove three bolts (B).

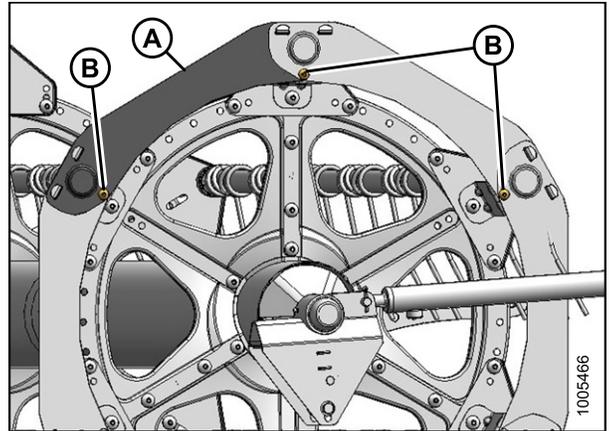


Figure 7.381

4. Lift end of endshield (A) off support (B).

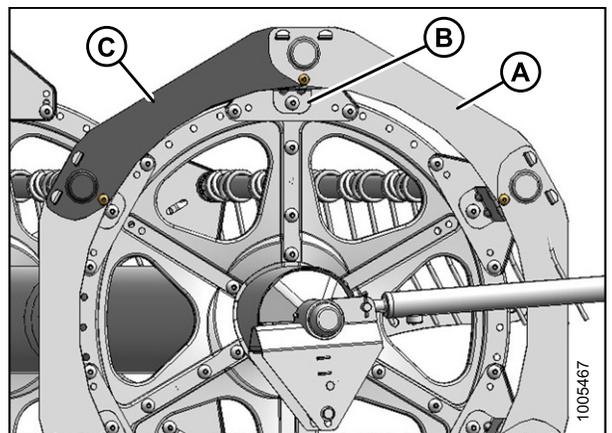


Figure 7.382

5. Lift endshield off supports.

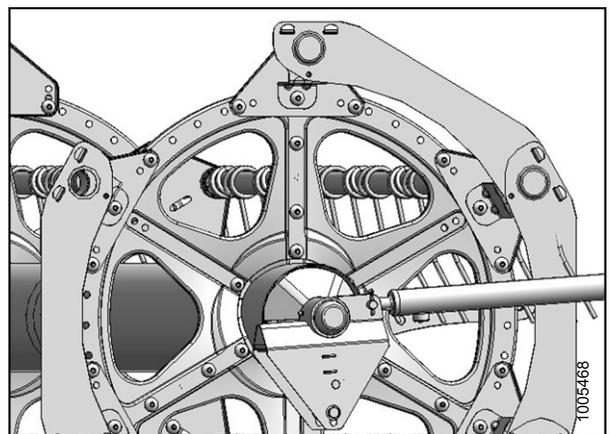


Figure 7.383

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.

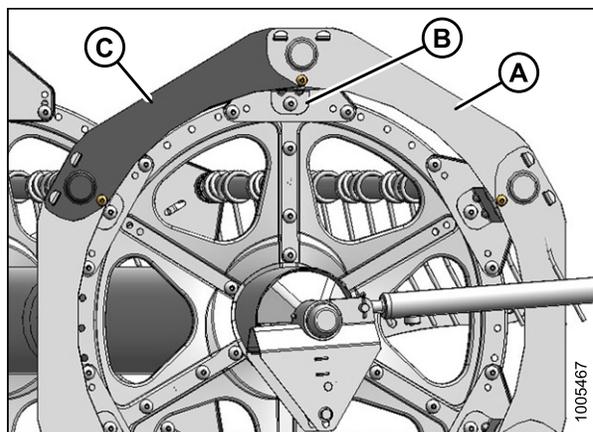


Figure 7.384

Replacing Support

1. Lower header and reel, and shutdown engine. Remove key from ignition.
2. Manually rotate reel for access to endshield support (A) to be replaced.
3. Remove bolt (B) from support (A).
4. Remove bolts (C) from support (A) and two adjacent supports.

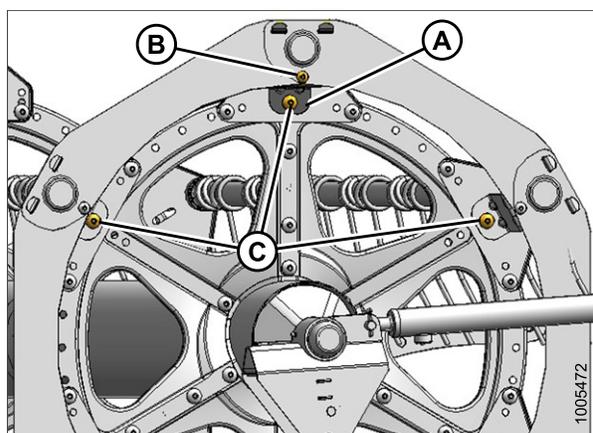


Figure 7.385

5. Move endshields (A) away from tine tube and rotate support (B) towards reel to remove it.
6. Insert tabs of new support (B) into slots in endshields and rotate into endshields. Ensure tabs engage both endshields.
7. Secure support (B) to disc with bolt (C) and nut. Do not tighten.
8. Secure endshields (A) to support (B) with bolt (C) and nut. Do not tighten.
9. Reattach supports with bolts (C) and nuts.
10. Check clearance between tine tube and endshield support, and adjust if necessary.
11. Torque nuts to 20 ft·lbf (27 N·m).

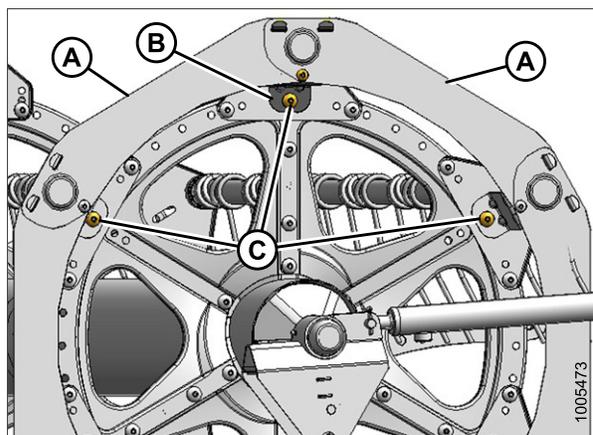


Figure 7.386

MAINTENANCE AND SERVICING

7.11.12 Transport System (Optional)

See Section [9.1.17 Stabilizer/Slow Speed Transport Wheels](#), page 458 for more information.

Torquing Transport System Wheel Bolts

If a Transport System is installed, follow procedure for torquing the wheel bolts.

IMPORTANT

Whenever a wheel is removed and reinstalled, check torque after one hour of operation. Maintain 80–90 ft·lbf (110–120 N·m) torque.

IMPORTANT

Follow proper bolt tightening sequence shown below.

Check and tighten wheel bolts after the first hour of operation and every 100 hours thereafter. Maintain 80–90 ft·lbf (110–120 N·m) torque.

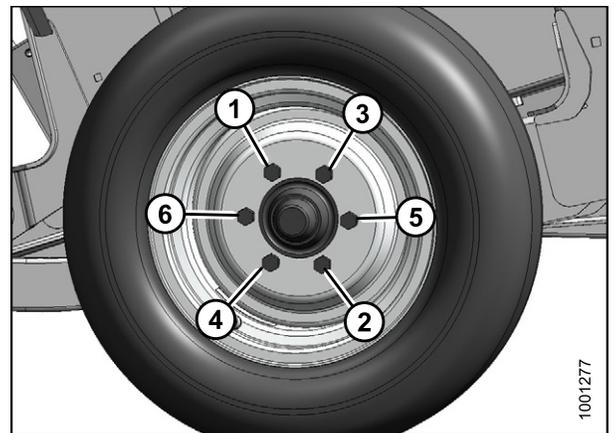


Figure 7.387: Bolt tightening sequence

Axle Bolts

If a Transport System is installed, follow procedure for torquing the axle bolts.

MAINTENANCE AND SERVICING

Check and tighten axle bolts **DAILY** until torque is maintained as follows:

- (A): 180 ft·lbf (244 N·m)
- (B): 150 ft·lbf (203 N·m)
- (C): 180 ft·lbf (244 N·m)

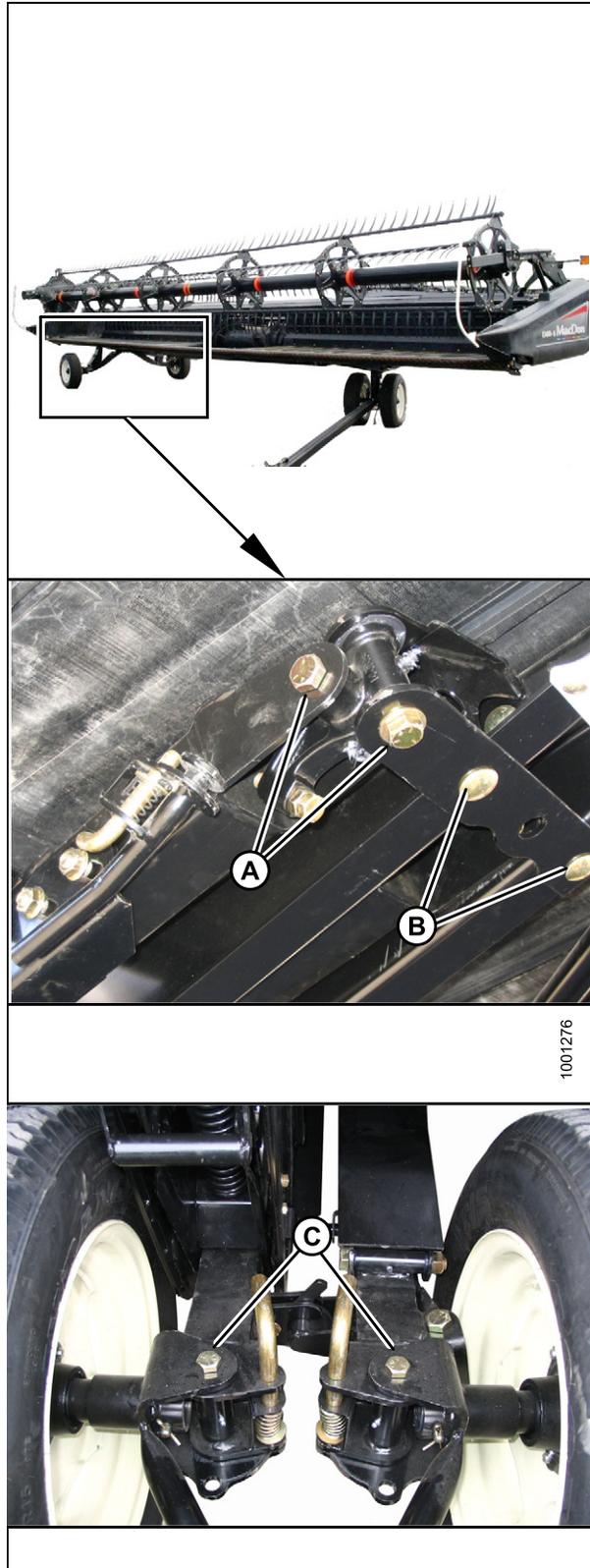


Figure 7.388

MAINTENANCE AND SERVICING

Tire Inflation

Check tire pressure daily. Maintain pressures recommended in following table:

| Size | Load range | Pressure |
|--------------|------------|------------------|
| ST205/75 R15 | D | 65 psi (448 kPa) |
| | E | 80 psi (552 kPa) |



WARNING

- Service tires safely.
- A tire can explode during inflation and cause serious injury or death.
- Do NOT stand over tire. Use a clip-on chuck and extension hose.
- Never increase air pressure beyond pressure specified on tire sidewall to seat the bead on the rim.
- Replace the tire if it has a defect.
- Replace a wheel rim, which has cracks, wear or severe rust.
- Never weld a wheel rim.
- Never use force on an inflated or partially inflated tire.
- Make sure the tire is correctly seated before inflating to operating pressure.
- If the tire is not in correct position on the rim, or is too full of air, the tire bead can loosen on one side, causing air to leak at high speed and with great force. An air leak of this nature can thrust the tire in any direction, endangering anyone in the area.
- Make sure all the air is removed from a tire before removing the tire from a rim.
- Do NOT remove, install or make repairs to a tire on a rim unless you have the proper equipment and experience to perform the job. Take the tire and rim to a qualified tire repair shop.

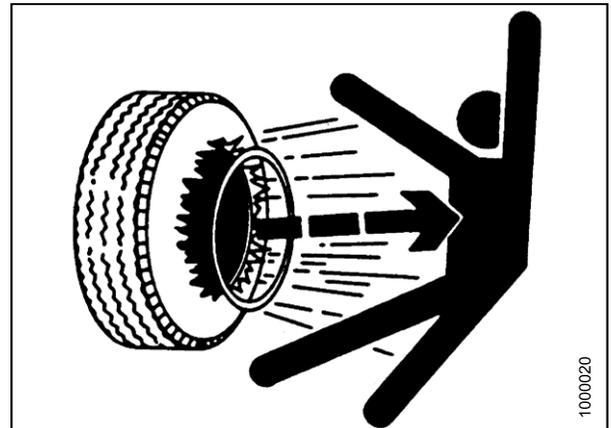


Figure 7.389

8 Troubleshooting

8.1 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 56 |
| | Header angle too flat | Steepen header height | 4.7.3 Header Angle, page 68 |
| | Reel too high | Lower reel | 4.7.8 Reel Height, page 74 |
| | Reel too far back | Move reel forward | 4.7.9 Reel Fore-Aft Position, page 75 |
| | Ground speed too fast for reel speed | Reduce ground speed or increase reel speed | 4.7.4 Reel Speed, page 70 and 4.7.5 Ground Speed, page 71 |
| | Reel fingers not lifting crop sufficiently | Increase finger pitch aggressiveness | 4.7.10 Reel Tine Pitch, page 81 |
| Install lifter guards | | See your MacDon Dealer | |
| Heads shattering or breaking off | Reel speed too fast | Reduce reel speed | 4.7.4 Reel Speed, page 70 |
| | Reel too low | Raise reel | 4.7.8 Reel Height, page 74 |
| | Ground speed too fast | Reduce ground speed | 4.7.5 Ground Speed, page 71 |
| | Crop too ripe | Operate at night when humidity is higher | — |
| Cut grain falling ahead of cutterbar | Ground speed too slow | Increase ground speed | 4.7.5 Ground Speed, page 71 |
| | Reel speed too slow | Increase reel speed | 4.7.4 Reel Speed, page 70 |
| | Reel too high | Lower reel | 4.7.8 Reel Height, page 74 |
| | Cutterbar too high | Lower cutterbar | 4.7.1 Cutting Height, page 56 |
| | Reel too far forward | Move reel back on arms | 4.7.9 Reel Fore-Aft Position, page 75 |
| | 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 | 7.11.5 Reel Drive Sprocket, page 390 |
| | Worn or broken knife components | Replace components | 7.8 Knife and Knife Drive, page 306 |
| Strips of uncut material | Crowding uncut crop | Allow enough room for crop to be fed to cutterbar | — |
| | Broken knife sections | Replace broken sections | 7.8.1 Replacing Knife Section, page 306 |
| Excessive bouncing at normal field speed | Float set too light | Adjust header float | 4.7.2 Header Float, page 63 |

TROUBLESHOOTING

| Symptom | Problem | Solution | Section |
|---|--|--|--|
| Divider rod running down standing crop | Divider rods too long | Remove divider rod | 4.7.12 Crop Divider Rods, page 88 |
| Bushy or tangled crop flows over divider rod, builds up on endsheets | Divider rods providing insufficient separation | Install long divider rods | 4.7.12 Crop Divider Rods, page 88 |
| Crop not being cut at ends | Reel not frowning or not centered in header | Adjust reel frown or reel horizontal position | 4.7.9 Reel Fore-Aft Position, page 75 and 7.11.2 Reel Frown, page 378 |
| | Knife hold-downs not adjusted properly | Adjust hold-downs so knife works freely, but still keep sections from lifting off guards | Knife Hold-Downs, page 316 |
| | Knife sections or guards are worn or broken | Replace all worn and broken cutting parts | 7.8 Knife and Knife Drive, page 306 |
| | Header is not level | Level header | 4.8 Levelling the Header, page 90 |
| | Reel fingers not lifting crop properly ahead of knife | Adjust reel position/finger pitch | 4.7.9 Reel Fore-Aft Position, page 75 and 4.7.10 Reel Tine Pitch, page 81 |
| | 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, 7.8.7 Knife Guards, page 310 , Knife Hold-Downs, page 316 , and 9.1.19 Stub Guard Conversion Kit, page 459 |
| Crop Getting Stuffed In Gap Between Cut-out in Endsheets and Knifehead | Crop heads leaning away from knifehead hole in endsheet | Add knifehead shield(s), except in damp/sticky soils | 9.1.8 Knifehead Shield, page 454 |

TROUBLESHOOTING

8.2 Cutting Action and Knife Components

| Symptom | Problem | Solution | Section |
|---|--|--|--|
| Ragged or uneven cutting of crop | Knife hold-downs not adjusted properly | Adjust hold-downs | Knife Hold-Downs, page 316 |
| | Knife sections or guards are worn or broken | Replace all worn and broken cutting parts | 7.8 Knife and Knife Drive, page 306 |
| | Knife is not operating at recommended speed | Check engine speed of combine | Refer to your combine's operator's manual |
| | Ground speed too fast for reel speed | Reduce ground speed or increase reel speed | 4.7.4 Reel Speed, page 70 and 4.7.5 Ground Speed, page 71 |
| | Reel fingers not lifting crop properly ahead of knife | Adjust reel position/finger pitch | 4.7.9 Reel Fore-Aft Position, page 75 and 4.7.10 Reel Tine Pitch, page 81 |
| | Cutterbar too high | Lower cutting height | 4.7.1 Cutting Height, page 56 |
| | Header angle too flat | Steeepen header angle | 4.7.3 Header Angle, page 68 |
| | Bent knife, causing binding of cutting parts | Straighten bent knife and align guards | 7.8.7 Knife Guards, page 310 |
| | 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, 7.8.7 Knife Guards, page 310 , Knife Hold-Downs, page 316 , and 9.1.19 Stub Guard Conversion Kit, page 459 |
| | Reel too far back | Move reel forward | 4.7.9 Reel Fore-Aft Position, page 75 |
| | Loose knife drive belt | Adjust drive belt tension | 7.8.8 Knife Drive Belt, page 318 |

TROUBLESHOOTING

| Symptom | Problem | Solution | Section |
|---|---|--|--|
| Knife plugging | Reel too high or too far forward | Lower reel or move reel rearward | 4.7.8 Reel Height, page 74 and 4.7.9 Reel Fore-Aft Position, page 75 |
| | Ground speed too slow | Increase ground speed | 4.7.5 Ground Speed, page 71 |
| | Loose knife drive belt | Adjust drive belt tension | 7.8.8 Knife Drive Belt, page 318 |
| | Improper knife hold-down adjustment | Adjust hold-down | Knife Hold-Downs, page 316 |
| | Dull or broken knife section | Replace knife section | 7.8.1 Replacing Knife Section, page 306 |
| | Bent or broken guards | Align or replace guards | 7.8.7 Knife Guards, page 310 |
| | Reel fingers not lifting crop properly ahead of knife | Adjust reel position/finger pitch | 4.7.9 Reel Fore-Aft Position, page 75 and 4.7.10 Reel Tine Pitch, page 81 |
| | Steel pick-up fingers contacting knife | Increase reel clearance to cutterbar or adjust "frown" | 7.11.1 Reel Clearance to Cutterbar, page 375 and 7.11.2 Reel Frown, page 378 |
| | Float too heavy | Adjust springs for lighter float | 4.7.2 Header Float, page 63 |
| | Mud or dirt build-up on cutterbar | Raise cutterbar by lowering skid shoes | Cutting On the Ground, page 60 |
| | | Install cut-out sections | See your MacDon Dealer |
| Flatten header angle | | 4.7.3 Header Angle, page 68 | |
| Knife is not operating at recommended speed | Check engine speed of combine | See your MacDon Dealer | |
| Excessive header vibration | Knife hold-downs not adjusted properly | Adjust hold-downs | Knife Hold-Downs, page 316 |
| | Knife on double knife drive not timed | Adjust knife timing | Adjusting Double Knife Timing, page 336 |
| | Knife not operating at recommended speed | Check engine speed of combine | See your MacDon Dealer |
| | Excessive knife wear | Replace knife | 7.8.2 Removing Knife, page 307 and 7.8.5 Installing Knife, page 309 |
| | Loose or worn knifehead pin or drive arm | Tighten or replace parts | 7.8.1 Replacing Knife Section, page 306 |

TROUBLESHOOTING

| Symptom | Problem | Solution | Section |
|---|---|--|---|
| Excessive vibration of adapter and header | Incorrect knife speed | Adjust knife speed | 4.7.7 Knife Speed, page 73 |
| | Driveline U-joints worn | Replace U-joints | — |
| | Bent cutterbar | Straighten cutterbar | See your MacDon Dealer |
| Excessive breakage of knife sections or guards | Knife hold-downs not adjusted properly | Adjust hold-downs | Knife Hold-Downs, page 316 |
| | Cutterbar operating too low in stony conditions | Raise cutterbar, using skid shoes | Cutting On the Ground, page 60 |
| | Float is set too heavy | Adjust float springs for lighter float | 4.7.2 Header Float, page 63 |
| | Bent or broken guard | Straighten or replace guard | 7.8.7 Knife Guards, page 310 |
| | Header angle too steep | Flatten header angle | 4.7.3 Header Angle, page 68 |
| Knife back breakage | Bent or broken guard | Straighten or replace guard | 7.8.7 Knife Guards, page 310 |
| | Worn knifehead pin | Replace knifehead pin | 7.8.3 Removing Knifehead Bearing, page 307 |
| | Dull knife | Replace knife | 7.8.2 Removing Knife, page 307 and 7.8.5 Installing Knife, page 309 |

TROUBLESHOOTING

8.3 Reel Delivery

| Symptom | Problem | Solution | Section |
|---|--|-----------------------------|---|
| Reel not releasing material in normal standing crop | Reel speed too fast | Reduce reel speed | 4.7.4 Reel Speed, page 70 |
| | Reel too low | Raise reel | 4.7.8 Reel Height, page 74 |
| | Reel tines too aggressive | Reduce cam setting | 4.7.10 Reel Tine Pitch, page 81 |
| | Reel too far back | Move reel forward | 4.7.9 Reel Fore-Aft Position, page 75 |
| 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) | 4.7.10 Reel Tine Pitch, page 81 |
| Wrapping on reel end | Reel tines too aggressive | Reduce cam setting | 4.7.10 Reel Tine Pitch, page 81 |
| | Reel too low | Raise reel | 4.7.8 Reel Height, page 74 |
| | Reel speed too fast | Reduce reel speed | 4.7.4 Reel Speed, page 70 |
| | Crop conditions | Install optional endshields | See your MacDon Dealer |
| | Reel not centered in header | Center reel in header | 7.11.3 Reel Centering, page 380 |
| Reel releases crop too quickly | Reel tines not aggressive enough | Increase cam setting | 4.7.10 Reel Tine Pitch, page 81 |
| | Reel too far forward | Move reel back | 4.7.9 Reel Fore-Aft Position, page 75 |
| 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's operator's manual |
| | Reel drive chain disconnected | Connect chain | 7.11.4 Reel Drive Chain, page 381 |
| Reel motion uneven under no load | Excessive slack in reel drive chain | Tighten chain | 7.11.4 Reel Drive Chain, page 381 |

TROUBLESHOOTING

| Symptom | Problem | Solution | Section |
|--|---|---|--|
| Reel motion is uneven or stalls in heavy crops | Reel speed too fast | Reduce reel speed | 4.7.4 Reel Speed, page 70 |
| | Reel fingers not aggressive enough | Move to a more aggressive finger pitch notch | 4.7.10 Reel Tine Pitch, page 81 |
| | Reel too low | Raise reel | 4.7.8 Reel Height, page 74 |
| | Relief valve on combine (not on combine adapter) has low relief pressure setting | Increase relief pressure to manufacturer's recommendations | Refer to your combine's operator's manual |
| | Low oil reservoir level on combine 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 | 7.11.5 Reel Drive Sprocket, page 390 |
| Plastic fingers cut at tip | Insufficient reel to cutterbar clearance | Increase clearance on D65 | 7.11.1 Reel Clearance to Cutterbar, page 375 |
| 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 56 |
| | | Decrease header tilt | 4.7.3 Header Angle, page 68 |
| | | Move reel aft | 4.7.9 Reel Fore-Aft Position, page 75 |
| 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 56 |
| | | Decrease header tilt | 4.7.3 Header Angle, page 68 |
| | | Move reel aft | 4.7.9 Reel Fore-Aft Position, page 75 |
| 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 92 |
| | | Stop reel before plugging becomes excessive. | |

TROUBLESHOOTING

8.4 Header and Drapers

| Symptom | Problem | Solution | Section |
|---------------------------------------|---|---|---|
| Header lift insufficient | Low relief pressure | Increase relief pressure | Refer to your combine's operator's manual |
| Insufficient side draper speed | Speed control set too low | Increase control setting | 4.7.6 Draper Speed, page 72 |
| | Relief pressure too low | Increase relief pressure to recommended setting | — |
| | Worn out gear pump | Replace pump | — |
| | Combine header drive too slow | Adjust to correct speed for combine model | Refer to your combine's operator's manual |
| | Pressure compensator (V7) set too low | Adjust to increase setting | |
| Draper will not drive | Drapers are loose | Tighten drapers | 7.10.3 Adjusting Side Draper Tension, page 362 |
| | 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 | 7.10.6 Draper Roller Maintenance, page 367 |
| | Low hydraulic oil | Fill reservoir to full level | Adding Hydraulic Oil, page 276 |
| | Incorrect relief setting at flow control valve | Adjust relief setting | — |
| Draper stalling | Material not feeding evenly off knife | Lower reel | 4.7.8 Reel Height, page 74 |
| | | Install stub guards | 7.8.7 Knife Guards, page 310, Knife Hold-Downs, page 316, 9.1.19 Stub Guard Conversion Kit, page 459 and See your MacDon Dealer |
| | Material accumulates inside or under front edge of draper | Adjust deck height | 7.10.5 Adjusting Deck Height, page 366 |

TROUBLESHOOTING

| Symptom | Problem | Solution | Section |
|---|--|--|--|
| Adapter auger back-feeds | Auger set too high | Check reversing mechanism inside auger | Refer to your combine's operator's manual |
| | | Lower auger | 7.7.1 Adjusting Auger to Pan Clearance, page 294 |
| | John Deere: Feeder chain running too slow | Run feeder chain at high speed | Refer to your combine's 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 | 4.7.3 Header Angle, page 68 |
| | Material overload on drapers | Increase side draper speed | 4.7.6 Draper Speed, page 72 |
| | | Install upper cross auger | See your MacDon Dealer |
| | | Add flighting extensions | 5.1.1 Flighting Extensions, page 113 |
| | Material accumulation at auger ends | Install stripper bars | 5.1.2 Stripper Bars, page 116 |
| | Case: Stone retarder blocks interfering with crop flow | Adjust blocks to minimum height | Refer to your combine's operator's manual |
| | Side drapers running too fast, piling material in center of feeder draper | Reduce header side draper speed | 4.7.6 Draper Speed, page 72 |
| | Feed chain drum too low | Move drum to corn position | Refer to your combine's operator's manual |
| Adapter auger wraps crop | Crop susceptible to wrapping (flax) | Add flighting extensions or stripper bars | 5.1.1 Flighting Extensions, page 113 and 5.1.2 Stripper Bars, page 116 |
| | 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 Stripper Bars, page 116 |

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 | 7.10.4 Adjusting Header Draper Tracking, page 363 |
| | | Replace roller bearing(s) | Replacing Adapter Drive Roller Bearing, page 355 |
| | | Check feed draper motor | — |
| | Heavy crop plugging between adapter auger and feed draper | Check auger clearance | 7.7.1 Adjusting Auger to Pan Clearance, page 294 |
| | | See also “Adapter auger back-feeds” earlier in this table | — |
| Auger speed too low | Install auger speed up kit | See your MacDon Dealer | |
| Crop back feeds on center feed draper | Excessive clearance from auger to drive roller | Lower auger | 7.7.1 Adjusting Auger to Pan Clearance, page 294 |
| | 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 | 4.7.6 Draper Speed, page 72 |
| Crop is thrown across opening and under opposite side draper | Side drapers running too fast in light crop | Reduce side draper speed | 4.7.6 Draper Speed, page 72 |
| | Excessive overlap of feeder draper | Center side draper drive rollers over feed draper side deflectors | — |
| Crop feeding into feeder house at sides more than at center | Auger not delivering crop properly | Add fighting extensions | 5.1.1 Fighting Extensions, page 113 |
| | | Add stripper bars | 5.1.2 Stripper Bars, page 116 |
| | | Remove auger outer tines | Removing Feed Auger Tines, page 302 |
| | | 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 302 |
| | | Remove fighting extensions | 5.1.1 Fighting Extensions, page 113 |
| | | Remove auger stripper bars | 5.1.2 Stripper Bars, page 116 |
| 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 | 7.8.10 Knifehead Shield, page 348 |
| Material accumulates inside or under front edge of draper | Deck height improperly adjusted | Adjust deck height | 7.10.5 Adjusting Deck Height, page 366 |

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 94 |
| Material accumulating on end deflectors and releasing in bunches | End deflectors too wide | Trim deflector or replace with narrow deflector (MacDon part #172381) | — |
| Cutterbar pushes dirt across entire length | Header height too low | Raise header height with float optimizer control | Refer to your combine's operator's manual |
| | Float locked | Unlock float | 4.7.2 Header Float, page 63 |
| | Float set too heavy | Adjust float | |
| | Header angle too steep | Adjust header to optimum angle | 4.7.3 Header Angle, page 68 |
| Pushing dirt at combine adapter lower beam | Combine face plate incorrectly installed | Remove adapter and check combine faceplate | Refer to your combine's operator's manual |
| | Header angle too flat | Increase header angle | 4.7.3 Header Angle, page 68 |
| | Float too light, header legs do not rest on stops | Adjust to heavier float | 4.7.2 Header Float, page 63 |
| wing float assembly binding | Float locked out | Disengage adapter float lockout | 4.7.2 Header Float, page 63 |
| | 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 | 7.11.3 Reel Centering, page 380 |
| | Loose reel arm brace | Center reel in header and tighten brace | |

TROUBLESHOOTING

8.5 Cutting Edible Beans

| Symptom | Problem | Solution | Section |
|---|--|--|--|
| Excessive losses at dividers | Divider rod running down crop and shattering pods | Remove divider rod | 4.7.12 Crop Divider Rods, page 88 |
| | 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 44 |
| Reel wraps up with crop | Reel too low | Raise reel | 4.7.8 Reel Height, page 74 |
| 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 60 |
| | Float set too light—rides on high spots and does not get back down soon enough | Set float for: <ul style="list-style-type: none"> • Dry ground: 100–150 lbf • Wet ground: 50–100 lbf | 4.7.2 Header Float, page 63 |
| | Reel being operated too high | Fully retract reel cylinders | 4.7.8 Reel Height, page 74 |
| | Reel too high with cylinders fully retracted | Adjust reel height | 7.11.1 Reel Clearance to Cutterbar, page 375 |
| | Finger pitch not aggressive enough | Adjust finger pitch | 4.7.10 Reel Tine Pitch, page 81 |
| | 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 | 4.7.9 Reel Fore-Aft Position, page 75 |
| | Header angle too shallow | Lengthen center-link; if cutting on ground, header angle can be increased by fully retracting lift cylinders | 4.7.3 Header Angle, page 68 |
| | Reel too slow | Adjust reel speed to be marginally faster than ground speed | 4.7.4 Reel Speed, page 70 |
| | Ground speed too high | Lower ground speed | 4.7.5 Ground Speed, page 71 |
| | Header skid shoes adjusted too low | Raise skid shoes to maximum up position | Cutting On the Ground, page 60 |

TROUBLESHOOTING

| Symptom | Problem | Solution | Section | |
|--|--|---|--|---|
| Plants being stripped and complete or partial plants 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 | 7.8.1 Replacing Knife Section, page 306 , 7.8.2 Removing Knife, page 307 , and 7.8.5 Installing Knife, page 309 | |
| | 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 Levelling the Header, page 90 | |
| | 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, 7.8.7 Knife Guards, page 310 , Knife Hold-Downs, page 316 , and 9.1.19 Stub Guard Conversion Kit, page 459 | |
| | Plant Vines Pinched Between Top Of Draper And Cutterbar | Cutterbar has filled up with trash with draper to cutterbar gap properly adjusted | Raise header fully at each end of field or as required and shift decks back and forth to help clean out cutterbar | — |
| Shifting of decks with header raised does not clean out cutterbar debris | | Manually remove debris from cutterbar cavity to prevent damage to drapers | | |
| Crop Accumulating At Guards And Not Moving Rearward Onto Drapers | Reel finger pitch not aggressive enough | Increase finger aggressiveness (cam position) | 4.7.10 Reel Tine Pitch, page 81 | |
| | Reel too high relative to knife | Readjust reel minimum height with cylinders fully retracted | 7.11.1 Reel Clearance to Cutterbar, page 375 | |
| | Reel too far forward of cutterbar C-section | Reposition reel | 4.7.9 Reel Fore-Aft Position, page 75 | |

TROUBLESHOOTING

| Symptom | Problem | Solution | Section |
|---|--|---|--|
| Cutterbar Guards Breaking | Float insufficient | Increase float | 4.7.2 Header Float, page 63 |
| | 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 | 9.1.19 Stub Guard Conversion Kit, page 459 , and See your MacDon Dealer |
| Reel Shattering Pods | Reel running too fast | Reduce reel speed | 4.7.4 Reel Speed, page 70 , |
| | 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) | 4.7.10 Reel Tine Pitch, page 81 |
| | 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 | 4.7.2 Header Float, page 63 |
| | Header angle too steep | Decrease header angle with lift cylinders | 4.7.3 Header Angle, page 68 |
| | | 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, 7.8.7 Knife Guards, page 310 , Knife Hold-Downs, page 316 , and 9.1.19 Stub Guard Conversion Kit, page 459 |
| | 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 | 7.10.5 Adjusting Deck Height, page 366 |
| | | 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 | 4.7.8 Reel Height, page 74 |
| | | Adjust reel fore and aft location to move fingers out of the ground | 4.7.9 Reel Fore-Aft Position, page 75 |
| 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 | 4.7.6 Draper Speed, page 72 |
| | Finger pitch too retarded | Increase finger pitch | 4.7.10 Reel Tine Pitch, page 81 |

9 Options and Attachments

9.1 Options and Attachments

The following options and attachments are available for use with your header. Most come with installation instructions. See your MacDon Dealer for availability and ordering information.

9.1.1 Cutterbar Plastic Wear Strips

Available as an attachment, they are recommended for cutting on the ground where soil adheres to steel.

Bundles by header size:

- 15 ft. – MD #B4864
- 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 9.1: Bundle number depends on size of header

9.1.2 Divider Latches

The latches attach to the endsheets. They allow for quick removal of endsheet divider cones to accommodate storage and if required, to reduce the transport width of the header. Installation instructions are included with the kit.

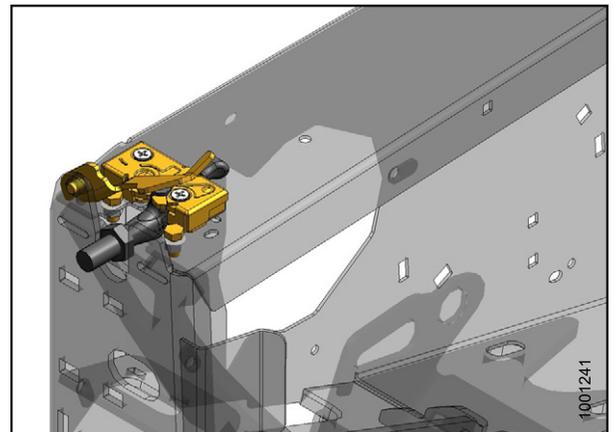


Figure 9.2: MD #B5607

OPTIONS AND ATTACHMENTS

9.1.3 Draper Deflector (Narrow)

Narrow metal deflectors attach to the inboard side of the endsheets, prevent material from falling through the gap between the endsheet and draper.

Not used for double swathing—Refer to Draper Deflector (Wide)

Narrow deflector will aid in bushy crops where rear panel of deflector cradles crop against reel and creates reel carryover.

Narrow deflector will aid in wet/damp crops that are thin (thin grass seed or rice), where crop wants to come off front of panel in bunches.

See D65 Draper Header Parts Catalog for required parts.

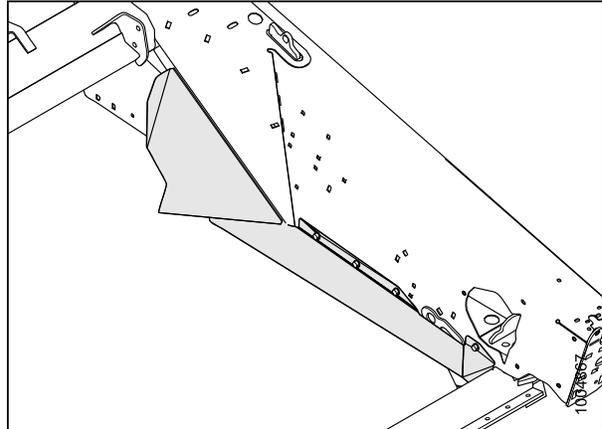


Figure 9.3: Parts are ordered individually.

9.1.4 Draper Deflector (Wide)

Wide metal deflectors attach to the inboard side of the endsheets, to prevent material from falling through the gap between the endsheet and draper.

Only required for double swathing – leaves distance between standing crop and swath for divider to run through.

Wide deflector can be installed over top of narrow deflector. Narrow deflector **does not** have to be removed.

See D65 Draper Header Parts Catalog for required parts.

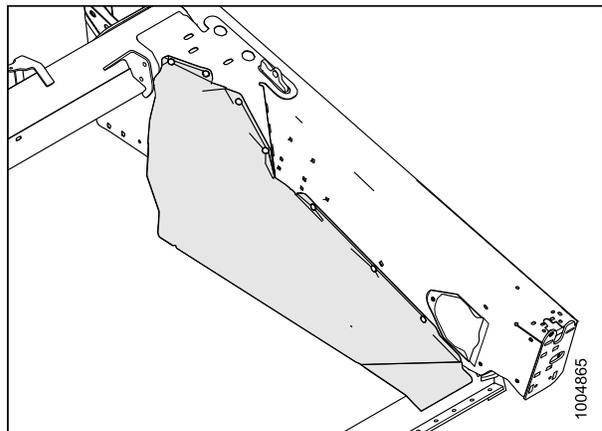


Figure 9.4: Parts are ordered individually.

OPTIONS AND ATTACHMENTS

9.1.5 End Swath Deflector Rods (End Delivery)

Available as an attachment, the rods are used for double swathing – end delivery only, but can be kept on for center delivery.

Rods prevent crop coming off drapers from getting thrown up to standing crop under wide deflector (See Section 9.1.4 [Draper Deflector \(Wide\)](#), page 452). The divider would not have any room to run back between end delivered swath and standing crop when shifting drapers – draper slides between rods and wide draper deflector.

Installation and adjustment instructions are included with the kit.

Order bundles:

- LH - MD #B5088
- RH - MD #B5089

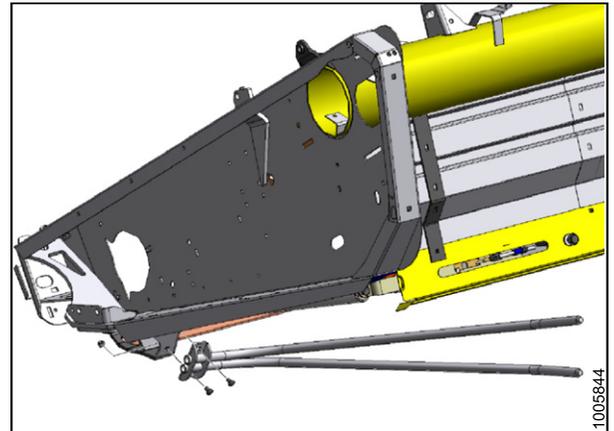


Figure 9.5: Order bundles accordingly

9.1.6 European Adapter Seal Kit

The European Adapter Seal kit encloses the transition area of the feed draper and side draper area near the front of the header and also includes side rubber flaps to close off areas in between the adapter and header.

This kit is **NOT RECOMMENDED** for use if there are rocks present.

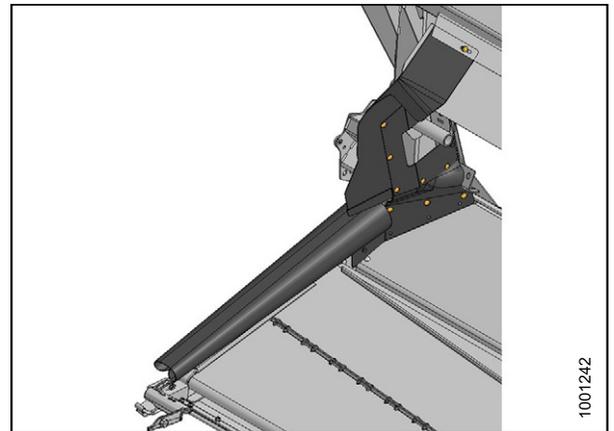


Figure 9.6: MD #B5612

OPTIONS AND ATTACHMENTS

9.1.7 CA25 Feed Auger Flighting

Flighting extensions are available as an option for the CA25 feed auger.

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

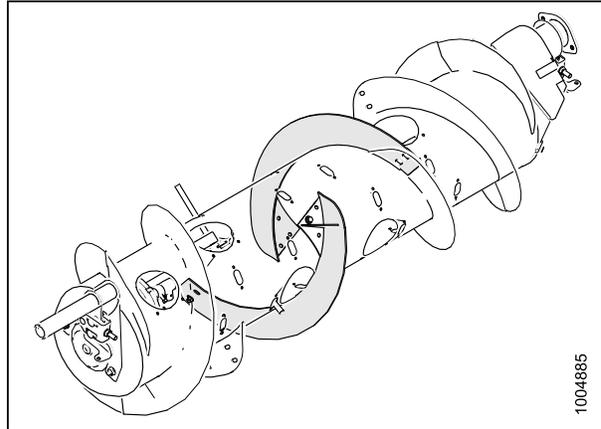


Figure 9.7: MD #B4829

9.1.8 Knifehead Shield

The shields attach to the endsheets and reduce the knifehead opening to prevent cut crop, particularly severely lodged crop, from accumulating over the knifehead, which could damage the knife drive box and the endsheet.

Order kit according to header size and guard type.

Regular Guards :

- 25 ft. and smaller – MD #220100
- 30 ft. and larger – MD #220101

Stub Guards :

- 25 ft. and smaller – MD #220102
- 30 ft. and larger – MD #220103

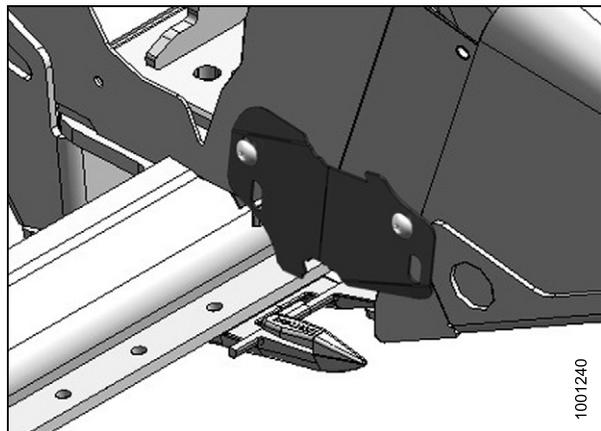


Figure 9.8: Order kit according to header size and guard type.

9.1.9 Lodged Crop Reel Finger Kit

The steel fingers attach to ends of every other tine bar and help in clearing material in heavy, hard-to-cut crops such as lodged rice.

Two kits are required for modifying each bar of a 6-bat reel. Installation and adjustment instructions are included with the kit.

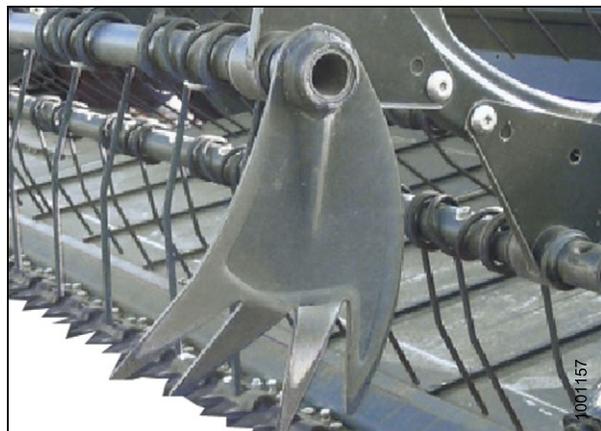


Figure 9.9: MD #B4831

OPTIONS AND ATTACHMENTS

9.1.10 Outboard Skid Shoes with Poly

This kit is useful when cutting low to the ground. It acts as a touch-down point when operating on rough or undulating ground. The skid shoes are adjustable without the use of tools.

NOTE: 30 ft. headers require only one set of outboard skid shoes while 35 ft. and larger headers require two sets.

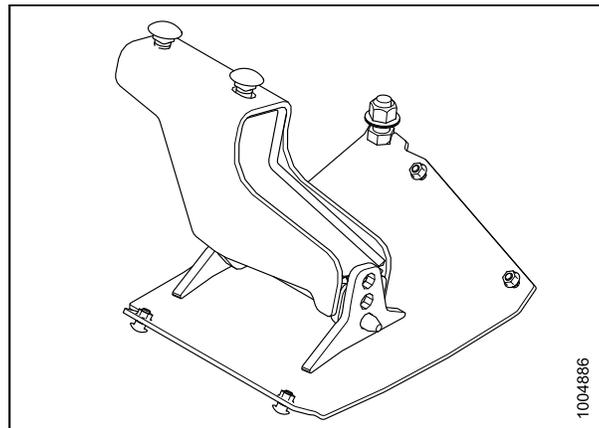


Figure 9.10: MD #B4963

9.1.11 Compression Molded Skid Shoes

Inner skid shoes are recommended for cutting on the ground.

Reduces wear on the cutterbar and may enhance the in-field performance of the header in some harvesting conditions. Inner skid shoes are standard on D Series draper headers.

NOTE: The skid shoes are adjustable without the use of tools.

NOTE: 35 ft. and larger headers require two sets.

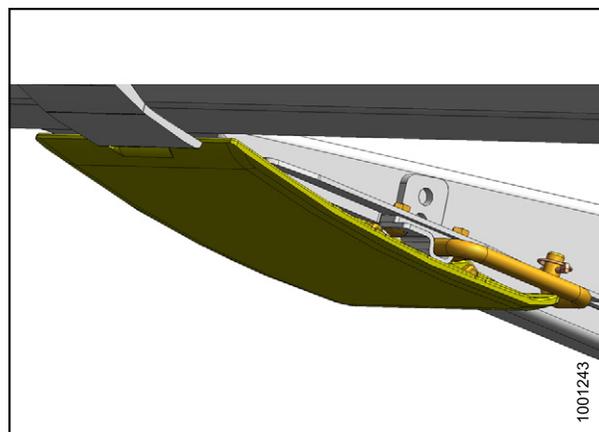


Figure 9.11: B #5615

OPTIONS AND ATTACHMENTS

9.1.12 PR15 Tine Tube Reel Conversion Kit

This kit allows conversion of a 6-bat reel to a 9-bat reel.

Bundles by header size

- 25 ft. – Plastic Fingers MD #B5277
- 25 ft. – Steel Fingers MD #B5656
- 30 ft. – Plastic Fingers MD #B5278¹³
- 30 ft. – Steel Fingers MD #B5657¹³
- 35 ft. – Plastic Fingers MD #B5674

NOTE: Must order additional endshields when converting reel.

9.1.13 Rice Divider Rods

The rice divider rods attach to the left hand and right hand endsheet cones and perform the same function in tall and tangled rice crops as standard equipment crop dividers. Installation instructions are included with the kit.

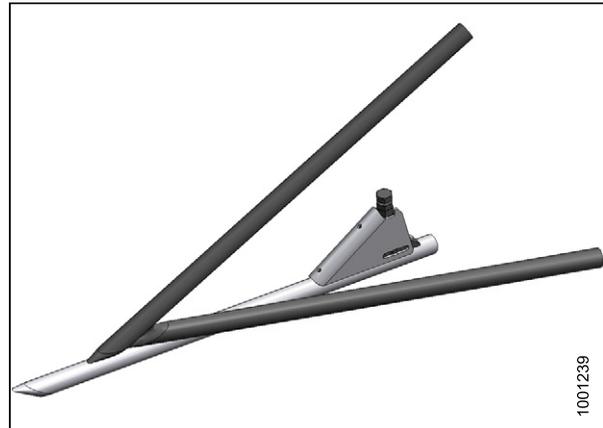


Figure 9.12: MD #B5609

13. Double reel units only

OPTIONS AND ATTACHMENTS

9.1.14 Rock Retarder

The rock retarder kit keeps rocks from rolling past the cutterbar and onto the drapers. Installation instructions are included with the kit.

Bundles by header size

- 30 and 35 ft. – MD #B5084
- 40 and 45 ft. – MD #B5085



Figure 9.13: Bundle number depends on header size

9.1.15 Short Brace Kit For Center Reel Arm

The short brace kit attaches to the center arm allowing the reel to be brought further rearward. Installation and adjustment instructions are included with the kit.

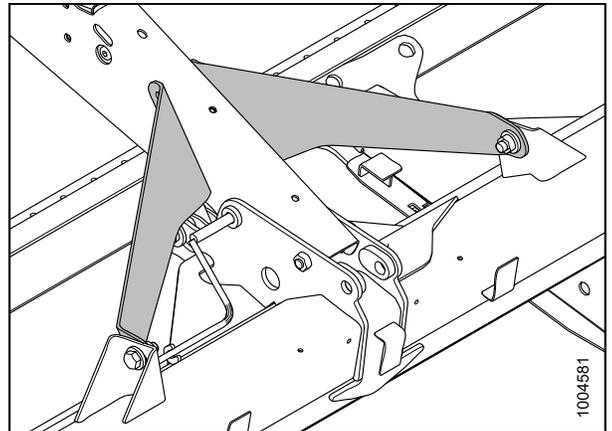


Figure 9.14: MD #B5605

9.1.16 Stabilizer Wheels

The stabilizer wheels help stabilize the header in field conditions that would otherwise cause the header to bounce and result in uneven cutting height. Installation and adjustment instructions are included with the kit.

Available as an attachment for use with 30, 35, 40, and 45 ft. headers.

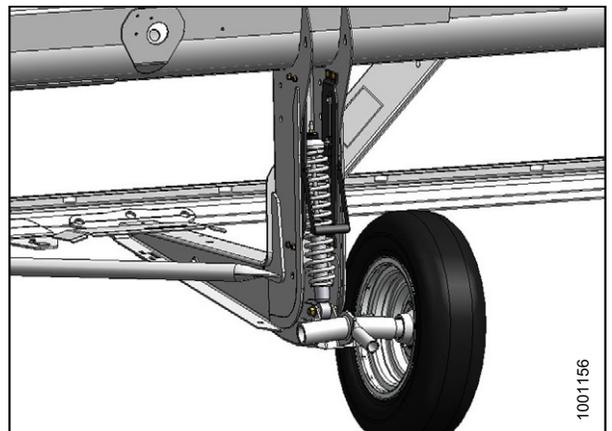


Figure 9.15: MD #C1986

OPTIONS AND ATTACHMENTS

9.1.17 Stabilizer/Slow Speed Transport Wheels

Spring loaded wheels help cushion and guide the ends of larger draper headers, plus enables transportation at road speed less than 25 mph (40 km/h) for 30 ft. (9.1 m) and larger headers.

The stabilizer/transport kit will allow you to transport your draper header from farm-to-field and then quickly switch to field stabilizer wheel position by one person. The transport package is a simple self-supporting unit with very little hitch weight for simpler hitching. The transport tow pole is a two piece unit that requires no tools to assemble/disassemble and stores on the backtube of the header during harvesting operation. The stabilizer wheel application is ideal for cutting off the ground, by stabilizing the header in undulating ground conditions.

For use on 30, 35, 40, and 45 ft. headers.



Figure 9.16: MD #C1997

9.1.18 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.

Depending on model of combine will depend on which Stripper Bar Kit is required. Order the correct bundle listed below:

- 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

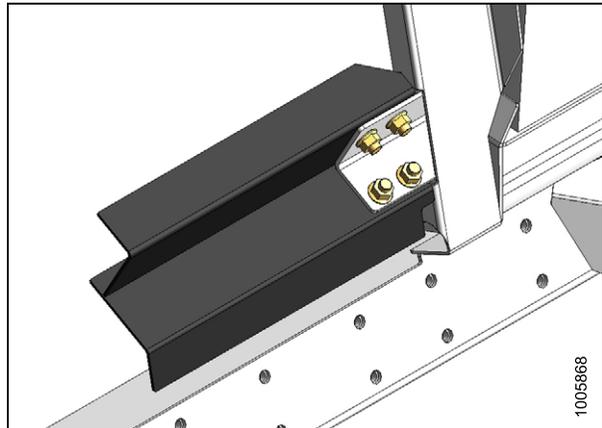


Figure 9.17: Order bundle accordingly

OPTIONS AND ATTACHMENTS

9.1.19 Stub Guard Conversion Kit

Stub guards, complete with top guides and adjuster shoes, are designed to cut tough crops.

Installation and adjustment instructions are included in the kit.

Order bundle according to header length.

- 25 ft. – MD #B5011
- 30 ft. – MD #B5012
- 35 ft. – MD #B5013

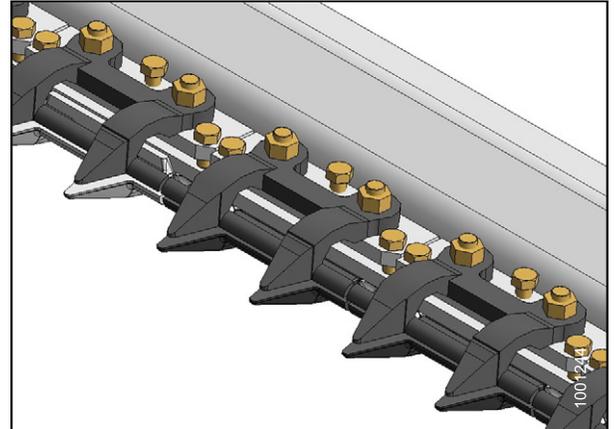


Figure 9.18: Order according to header length

9.1.20 Upper Cross Auger (UCA)

Attaches in front of the backtube, the UCA improves feeding of crop to the center of the header in heavy crop conditions. Ideal for high volume harvesting of forages, oats, canola, mustard and other tall, bushy, hard to feed crops.

Order bundle according to header length.

- 25 ft. – MD #B4846
- 30 ft. – MD #B4847
- 35 ft. – MD #B4848
- 40 ft. – MD #B4849

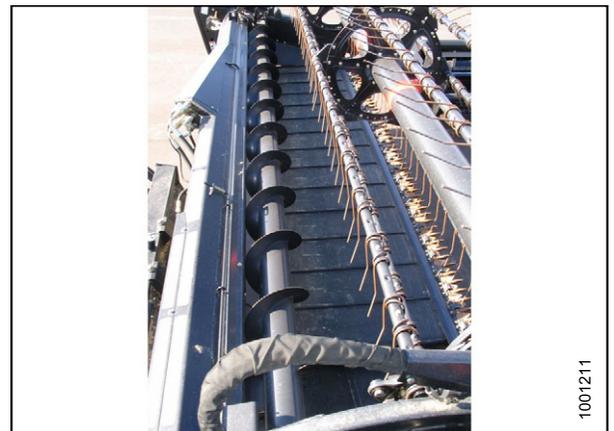


Figure 9.19: Order according to header length

OPTIONS AND ATTACHMENTS

9.1.21 Vertical Knife Mounts

The vertical knife¹⁴ mounts allow installation of vertically oriented knives onto both ends of the header.

Installation and adjustment instructions are included with the bundle.

Order bundles

- LH – MD #B5757
- RH – MD #B5758

NOTE: If mounting on multiple headers, you will also require the auxiliary vertical knife plumbing kit MD #B5406.

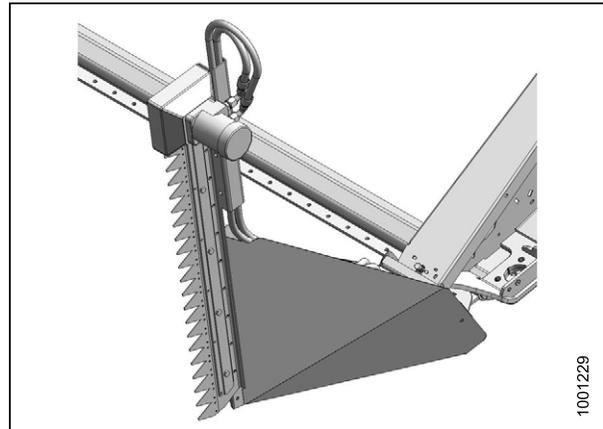


Figure 9.20: Order bundle accordingly

14. Must be purchased from a separate supplier.

10 Unloading and Assembly

Refer to the header specific instructions for unloading, assembly, and setup procedures that are included with your shipment. The instruction part numbers are shown in the table below:

| Shipping destination | Header description | MacDon instruction part number |
|---|--|---------------------------------------|
| North America | D65 Draper Header and CA25 Combine Adapter | MD #169602 |
| Export (that is, anywhere except North America) | D65 Draper Header and CA25 Combine Adapter | MD #169604 |

Index

A

- adapter
 - adapter setup 113
 - auger 294
 - auger drive 117
 - components 33
 - detaching from
 - AGCO combine 155
 - Case IH combine 121
 - Challenger combine 155
 - Gleaner combine 155
 - John Deere combine 129
 - Lexion combine 137
 - Massey combine 155
 - New Holland CR/CX combine 144
 - feed deck
 - adapter drive roller
 - installing drive roller bearing 356
 - adjusting draper tension 352
 - draper
 - replacing 350
 - drive roller
 - bearing 355
 - installing 354
 - removing 352
 - replacing drive roller bearing 355
 - idler roller
 - installing 359
 - removing 356
 - replacing idler roller bearing 357
 - feed draper 350
 - feeder deflectors 148
 - flighting extensions
 - installing 114
 - removing 116
 - stripper bars
 - installing 117
 - kits 116
 - removing 117
 - unplugging 93
- adapter setup
 - auger drive 117
 - feed deflectors 148
 - adjustable compression molded skid shoe 455
 - AGCO combine
 - attaching to 150
 - detaching from adapter 155
 - replacing reel speed sensor on double reel header 415
 - replacing reel speed sensor on single reel header 413
 - AHHC
 - definition 29
 - API
 - definition 29
 - ASTM
 - definition 29
 - auger 294
 - adjusting auger to pan clearance 294
 - drive 117
 - drive chain
 - adjusting 295
 - installing 300
 - lubricating 271
 - removing 296
 - flighting extensions 113
 - installing 114
 - removing 116
 - tines 302
 - auto header height control 169
 - adjusting auto reel speed
 - Lexion 500 Series 232
 - Lexion 700 Series 236
 - adjusting drop rate threshold
 - John Deere 60 Series 221
 - adjusting ground pressure
 - Gleaner R65/R75 217
 - adjusting header height
 - AGCO 6 Series 211
 - adjusting raise/lower rate
 - AGCO 6 Series 211
 - Gleaner R65/R75 217
 - John Deere 70 Series - manual 223
 - John Deere S Series 224
 - New Holland CR/CX Series 237–238
 - adjusting sensitivity
 - AGCO 6 Series 212
 - Gleaner R65/R75 218
 - John Deere 60 Series 220
 - John Deere 70 Series 222
 - John Deere S Series 224
 - Lexion 500 Series 229
 - Lexion 700 Series 235
 - adjusting voltage limits 187
 - calibrating feeder house speed
 - John Deere 70 Series 191
 - calibrating maximum stubble height 210
 - calibrating the system 192
 - AGCO 6 Series 192
 - Case
 - 7010/8010/7120/8120/9120/7230/8230/9230 universal display 195

INDEX

| | |
|---|-----|
| Case IH 2300/2500 | 194 |
| Gleaner R62/R72 | 197 |
| Gleaner R65/R75 | 198 |
| John Deere 50/60 Series | 199 |
| John Deere 70 Series | 201 |
| John Deere S Series | 202 |
| Lexion 500 Series | 204 |
| Lexion 700 Series | 206 |
| New Holland CR/CX Series | 208 |
| checking voltage range from the combine cab | |
| AGCO 6, 7 Series | 172 |
| Case 23/2588 | 173 |
| Case IH 7/8010; 7/8/9120; 7/8/9230 | 175 |
| Gleaner R65/R75 | 177 |
| John Deere 50/60 Series | 179 |
| John Deere 70 Series | 180 |
| John Deere S Series | 183 |
| New Holland CR/CX Series | 185 |
| configuring combine | |
| New Holland CR/CX Series | 191 |
| diagnostics | |
| Gleaner R65/R75 | 239 |
| engaging the system | |
| AGCO 6 Series | 188 |
| Case IH 2300 | 189 |
| Gleaner R65/R75 | 190 |
| manually checking the sensor's output voltage range | 170 |
| operation settings | |
| Gleaner R62/R72 Series | 213 |
| preparing combine | 188 |
| sensor operation | 241 |
| setting cutting height | |
| Lexion 500 Series | 227 |
| Lexion 500 Series - manually | 229 |
| Lexion 500 Series - preset | 227 |
| Lexion 700 Series | 234 |
| setting preset cutting height | |
| John Deere S Series | 225 |
| setting sensitivity | |
| New Holland CR/CX Series | 239 |
| setting the sensing grain header height | |
| John Deere 60 Series | 220 |
| setting the sensor's output voltage range | 170 |
| settings | |
| field operation | 211 |
| system requirements | |
| Gleaner R65/R75 | 190 |
| turning the accumulator off | |
| Gleaner R65/R75 | 216 |
| John Deere 60 Series | 219 |
| axle bolt | 431 |

B

| | |
|--|-----|
| beater bar | |
| installing | 96 |
| removing | 94 |
| belt | |
| knife drive | |
| adjusting (40 ft. and smaller) double-knife timing | 336 |
| adjusting on DK headers – RH (timed) | 331 |
| aligning belt pulley on DK headers – LH (timed) | 324 |
| aligning belt pulley on DK headers – RH (timed) | 332 |
| installing on DK headers – LH (timed) | 322 |
| installing on DK headers – RH (timed) | 330 |
| installing on SK and DK headers (non-timed) | 319 |
| removing from DK headers – LH (timed) | 321 |
| removing from DK headers – RH (timed) | 328 |
| removing from SK and DK headers (non-timed) | 318 |
| tensioning on DK headers – LH (timed) | 323 |
| tensioning on SK and DK headers (non-timed) | 320 |
| knife timing | |
| adjusting | 336 |
| break-in inspection | 260 |
| break-in period | 50 |

C

| | |
|---------------------------------|-----|
| cam | |
| adjusting | 83 |
| Case IH combine | |
| attaching | 118 |
| detaching from adapter | 121 |
| center-link | |
| definition | 29 |
| Challenger combine | |
| attaching to | 150 |
| detaching from adapter | 155 |
| combine | |
| attaching to | |
| AGCO | 150 |
| Case IH | 118 |
| Challenger | 150 |
| Gleaner | 150 |
| John Deere | 125 |
| Lexion 500 and 700 Series | 132 |
| Massey | 150 |
| New Holland CR/CX | 141 |
| detaching from | |
| AGCO | 155 |

INDEX

| | | | |
|--|-----|--------------------------------|-----|
| Case IH..... | 121 | draper | |
| Challenger..... | 155 | adapter..... | 350 |
| Gleaner..... | 155 | adjusting tension..... | 362 |
| John Deere..... | 129 | installing..... | 361 |
| Lexion..... | 137 | removing..... | 360 |
| Massey..... | 155 | speed..... | 72 |
| New Holland CR/CX..... | 144 | troubleshooting..... | 442 |
| header attachment/detachment..... | 113 | draper deflector | |
| transporting header..... | 97 | wide..... | 452 |
| component identification..... | 32 | draper deflectors | |
| D65 Combine Header..... | 32 | narrow..... | 452 |
| component repair | | drive | |
| multicoupler..... | 278 | main..... | 286 |
| AGCO..... | 283 | drive chain | |
| John Deere | | lubricating..... | 271 |
| remove reel fore-aft fittings..... | 283 | driveline | |
| John Deere 60/70 series..... | 282 | installing..... | 287 |
| Lexion 500, 700..... | 278 | installing guard..... | 290 |
| valve block..... | 280 | removing..... | 286 |
| MacDon, Case 7/8010, NH CR, CX..... | 281 | removing guard..... | 288 |
| conversion chart..... | 245 | E | |
| CR feeder deflector..... | 148 | electrical | |
| crop divider..... | 84 | maintenance..... | 285 |
| installing on header with latch option..... | 85 | replacing light bulbs..... | 285 |
| installing on header without latch option..... | 87 | end of season service..... | 261 |
| removing from header with latch option..... | 84 | endshield..... | 44 |
| removing from header without latch option..... | 85 | adjusting..... | 47 |
| crop divider rod..... | 88 | closing..... | 45 |
| removing..... | 89 | installing..... | 46 |
| cutterbar | | opening..... | 44 |
| unplugging..... | 92 | removing..... | 46 |
| cutterbar plastic wear strip..... | 451 | European adapter seal kit..... | 453 |
| cutting | | F | |
| edible beans..... | 446 | feed auger | |
| height..... | 56 | tine installing..... | 304 |
| off the ground..... | 56 | feed draper..... | 350 |
| adjusting stabilizer wheels..... | 58 | feeder deflector | |
| adjusting stabilizer/slow speed transport | | replacing..... | 149 |
| wheels..... | 57 | feeder deflectors..... | 148 |
| on the ground..... | 60 | feeder house | |
| cutting action troubleshooting..... | 437 | setting height..... | 62 |
| D | | flighting extension..... | 113 |
| daily start-up check..... | 49 | installing..... | 114 |
| decals location..... | 9 | removing..... | 116 |
| definition of terms..... | 29 | float | |
| divider latch kit..... | 451 | header | |
| divider rod..... | 88 | checking and adjusting..... | 64 |
| removing..... | 89 | wing float linkage adjustments | |
| DK | | header angle..... | 68 |
| definition..... | 29 | wing float locks..... | 63 |
| DR | | | |
| definition..... | 29 | | |

INDEX

G

| | |
|---|-----|
| gearbox drive chain | |
| adjusting | 292 |
| Gleaner combine | |
| attaching to | 150 |
| detaching from adapter | 155 |
| glossary | 29 |
| greasing procedure | 270 |
| ground speed | 71 |
| GSL | |
| definition | 29 |
| guard | 310 |
| adjusting knife guards | 310 |
| installing on driveline | 290 |
| removing from driveline | 288 |
| replacing | |
| pointed guards on a single-knife header | 312 |
| pointed guards on double-knife header | 313 |
| stub guards on a double-knife header | 315 |
| stub guards on a single-knife header | 314 |

H

| | |
|--|-----|
| HC10 feed deck | |
| idler roller | |
| replacing bearing | 357 |
| header | |
| adjusting header angle | 69 |
| assembly | 461 |
| attaching to combine and adapter | 163 |
| controls | 52 |
| definition | 29 |
| detaching from combine and adapter | 159 |
| float | 63 |
| float locks | 63 |
| levelling | 90 |
| operating variables | 56 |
| recommended settings | 53 |
| setup | 53 |
| transporting | 97 |
| transporting on combine | 97 |
| troubleshooting | 442 |
| header angle | |
| adjustment range | 68 |
| setting | 62 |
| header draper | 360 |
| adjusting deck height | 366 |
| adjusting draper tension | 362 |
| adjusting tracking | 363 |
| deck height | |
| adjusting | 366 |
| installing side draper | 361 |
| removing side draper | 360 |
| header safety prop | 40 |

| | |
|--|-----|
| hold-down | |
| adjusting on headers with pointed guards | 317 |
| adjusting on headers with stub guards | 318 |
| hoses and lines | |
| hydraulic | 262 |
| hydraulic fitting | |
| flare-type | 251 |
| O-ring boss (ORB) | 252 |
| O-ring face seal (ORFS) | 253 |
| hydraulics | 275 |
| adding oil | 276 |
| checking oil level | 275 |
| hoses and lines | 262 |
| oil change | 276 |
| oil filter | 277 |
| reservoir | 275 |
| safety | 6 |

I

| | |
|----------------|-----|
| inspection | |
| break-in | 260 |

J

| | |
|--|-----|
| John Deere combine | |
| attaching | 125 |
| detaching from adapter | 129 |
| replacing reel speed sensor on double reel | |
| header | 408 |
| replacing reel speed sensor on single reel | |
| header | 407 |

K

| | |
|---|---------|
| knife | 306 |
| adjusting speed | 74 |
| guards | 313–315 |
| adjusting | 310 |
| checking | 310 |
| removing | |
| knifehead bearing | 307 |
| replacing | |
| knife section | 306 |
| pointed guards on a single-knife header | 312 |
| pointed guards on double-knife header | 313 |
| stub guards on a double-knife header | 315 |
| stub guards on single-knife header | 314 |
| spare knife location | 310 |
| speed | 73 |
| troubleshooting | 437 |
| knife components troubleshooting | 437 |
| knife drive | 306 |

INDEX

- adjusting hold-downs on headers with pointed guards 317
 - adjusting hold-downs on headers with stub guards 318
 - adjusting timing of double knives 336
 - double knife timed 320
 - installing knife 309
 - removing knife 307
 - knife drive belt, *See* belt
 - knife drive box 338
 - changing oil 348
 - installing pulley 345
 - installing single and double knife untimed 345
 - mounting bolts 338
 - removing left-hand and double knife timed 340
 - removing pulley 344
 - removing right-hand and double knife timed 342
 - removing single and double knife untimed 338
 - knife head bearing
 - installing 308
 - knife hold-down, *See* hold-downs
 - knifehead shield 348, 454
 - installing 349
- ### L
- Lexion combine, *See* Lexion combines
 - attaching to 132
 - detaching from adapter 137
 - replacing
 - reel speed sensor on double reel header 410
 - reel speed sensor on single reel header 409, 411
 - Lexion combines
 - replacing
 - reel speed sensor on double reel header 412
 - light bulbs
 - replacing 285
 - lodged crop reel finger kit 454
 - lubrication
 - auger drive chain 271
 - greasing procedure 270
 - lubricating main drive gearbox 273
 - lubrication and servicing 262
- ### M
- main drive 286
 - main drive gearbox
 - adding oil 273
 - changing oil 274
 - checking oil level 273
 - lubricating 273
 - main driveline
 - adjusting tension on gearbox drive chain 292
 - installing 287
 - installing guard 290
 - removing 286
 - removing guard 288
 - maintenance
 - annual 260
 - electrical 285
 - end of season 261
 - pre-season 260
 - preparing for servicing 243
 - requirements 257
 - schedule/record 258
 - service intervals 263
 - specifications 244
 - storage 111
 - maintenance and servicing
 - safety 5
 - Massey combine
 - attaching to 150
 - detaching from adapter 155
 - metric bolt
 - torque 249
 - torque when bolting onto cast aluminum 251
 - model number
 - record iii
 - motor
 - reel drive 399
 - mounting bolt
 - knife drive box 338
- ### N
- New Holland CR/CX combine
 - attaching 141
 - detaching from adapter 144
 - New Holland feeder deflector 148
- ### O
- oil
 - adding oil to hydraulic system 276
 - adding oil to main drive gearbox 273
 - changing hydraulic oil filter 277
 - changing oil in hydraulic system 276
 - changing oil in main drive gearbox 274
 - checking oil level in hydraulic system 275
 - checking oil level in main drive gearbox 273
 - operating variable 56
 - operator responsibility 39
 - option 451

INDEX

| | |
|---|----------|
| adjustable compression molded skid shoes..... | 455 |
| auger drive sprockets | 117 |
| divider latch kit | 451 |
| draper deflector | |
| narrow..... | 452 |
| wide..... | 452 |
| European adapter seal kit | 453 |
| knifehead shield | 348, 454 |
| lodged crop reel finger kit..... | 454 |
| outboard skid shoes with poly | 455 |
| PR15 tine tube reel conversion kit | 456 |
| reel drive sprockets | 70 |
| rice divider rods..... | 456 |
| rice dividers | 89 |
| rock retarder kit | 457 |
| short brace kit | 457 |
| stabilizer wheels..... | 457 |
| stabilizer/slow speed transport wheels | 458 |
| stub guard conversion kit | 459 |
| swath forming rods - end delivery | 453 |
| transport system..... | 431 |
| upper cross auger | 94, 459 |
| vertical knife mount kit | 460 |
| options | |
| cutterbar plastic wear strips..... | 451 |
| owner responsibility | 39 |

P

| | |
|---|-----|
| pickup reel | |
| settings..... | 81 |
| PR15 | |
| drive chain | |
| installing on single reel drive | 384 |
| replacing chain on double reel drive | 385 |
| reel drive | |
| replacing sprocket | |
| double reel | 393 |
| single reel - high torque..... | 391 |
| PR15 reel | |
| drive | |
| installing U-joint | 397 |
| removing U-joint..... | 395 |
| drive chain | 381 |
| adjusting chain tension | |
| on single and double reel drive - high torque | 381 |
| removing from single reel drive – high torque..... | 383 |
| drive system | |
| reel speed sprocket..... | 390 |
| tine tube bushing..... | 420 |
| PR15 reeltine tube bushing | |

| | |
|--|-----|
| tine tube bushingremoving from 5, 6 or 9 bat reels | |
| removing from 5, 6 or 9 bat reels..... | 420 |
| pre-season/annual service | 260 |
| preparation for servicing..... | 243 |
| pulley | |
| installing | 345 |

R

| | |
|--|---------|
| recommended fluids and lubricant | 245 |
| recommended settings..... | 53 |
| reel..... | 375 |
| adjusting | |
| cam..... | 83 |
| fore-aft position..... | 75 |
| frown..... | 379 |
| reel clearance..... | 378 |
| clearance to cutterbar | 375 |
| frown | 378 |
| height..... | 74 |
| measuring reel clearance..... | 375 |
| recommended settings | 54 |
| replacing reel speed sensor | 407 |
| AGCO - double reel..... | 415 |
| AGCO - single reel..... | 413 |
| John Deere - double reel | 408 |
| John Deere - single reel | 407 |
| Lexion 400 - double reel | 412 |
| Lexion 400 - single reel | 411 |
| Lexion 500 - single reel | 409 |
| Lexion 500/700 - double reel..... | 410 |
| reel centering | 380 |
| double reelreel | 380 |
| single reel | 380 |
| reel drive..... | 375 |
| double reel | |
| sprockets | |
| replacing | 393 |
| high torque motor | |
| installing double reel drive | 405 |
| installing single reel drive..... | 401 |
| removing double reel drive..... | 403 |
| removing single reel drive..... | 399 |
| installing U-joint..... | 397 |
| removing U-joint..... | 395 |
| single reel | |
| high torque | |
| replacing sprockets..... | 391 |
| sprockets..... | 70, 390 |
| standard torque motor | |
| installing double reel drive | 405 |
| removing double reel drive..... | 403 |
| U-joint..... | 395 |

INDEX

| | | | |
|---|-----|---------------------------------------|-----|
| reel drive chain | 381 | decals locations | 9 |
| adjusting chain tension | 381 | general safety | 3 |
| installing on single reel drive | 384 | header props | 40 |
| removing from single reel drive | 383 | hydraulic safety | 6 |
| replacing chain on double reel drive | 385 | maintenance and servicing | 5 |
| breaking the chain method | 389 | operational | 40 |
| disconnecting the reel method | 386 | reel props | 41 |
| reel drive motor | 399 | safety sign decals | 8 |
| reel endshield | 428 | installing | 8 |
| replacing | 428 | interpreting | 20 |
| replacing support | 430 | signal words | 2 |
| reel fore-aft position | 75 | tire safety | 7 |
| adjusting | 75 | sealed bearing | |
| repositioning cylinder on double reel | 78 | installing | 256 |
| repositioning cylinder on single reel | 76 | serial number | |
| reel safety prop | 41 | location | iii |
| disengaging | 42 | record | iii |
| engaging | 41 | service interval | 263 |
| reel speed | 70 | servicing preparation | 243 |
| reel tine | 417 | setup | 461 |
| installing plastic fingers | 419 | short brace kit | 457 |
| installing steel tines | 417 | shutdown procedure | 51 |
| removing plastic fingers | 418 | sickle drive box, See knife drive box | |
| reel tine pitch | 81 | side draper deck | |
| reel tines | | drive roller | 371 |
| removing steel tines | 417 | inspecting roller bearing | 367 |
| rice divider | 89 | installing drive roller | 373 |
| rice divider rod | 456 | installing idler roller | 370 |
| rock retarder kit | 457 | removing drive roller | 371 |
| roller chain | | removing idler roller | 368 |
| installing | 255 | replacing drive roller bearing | 372 |
| rpm | | replacing idler roller bearing | 369 |
| definition | 29 | side draper deck idler roller | 368 |
| S | | SK | |
| SAE | | definition | 29 |
| bolt torque | 247 | skid shoe, See cutting on the ground | |
| definition | 29 | adjusting inner skid shoe | 61 |
| safety | 1 | adjusting outer skid shoe | 62 |
| alert symbols | 1 | outboard skid shoes with poly | 455 |
| daily start-up check | 49 | spare knife | 310 |
| decals location | | specification | 35 |
| all headers | 12 | torque specification | 246 |
| D65 15 ft. | 13 | speed | |
| D65 20 ft. | 14 | draper | 72 |
| D65 25 ft. | 15 | ground | 71 |
| D65 30 ft. | 16 | knife | 73 |
| D65 35 ft. | 17 | reel | 70 |
| D65 40 ft. | 18 | speed sensor | |
| D65 45 ft. | 19 | reel | 407 |
| slow speed transport | 10 | replacing speed sensor | |
| upper cross auger | 9 | AGCO - double reel | 415 |
| vertical knife | 11 | AGCO - single reel | 413 |
| | | John Deere - double reel | 408 |
| | | John Deere - single reel | 407 |

INDEX

| | |
|---|-----|
| Lexion 400 - double reel | 412 |
| Lexion 400 - single reel | 411 |
| Lexion 500- single reel | 409 |
| Lexion 500/700 - double reel..... | 410 |
| spm | |
| definition | 29 |
| sprocket | 390 |
| sprockets | |
| optional reel drive sprockets..... | 70 |
| SR | |
| definition | 29 |
| stabilizer wheel..... | 457 |
| adjusting | 58 |
| stabilizer/slow speed transport wheel | 458 |
| adjusting | 57 |
| start-up | |
| daily check..... | 49 |
| steel tine | |
| installing | 417 |
| steel tines | |
| removing | 417 |
| stripper bar..... | 116 |
| installing | 117 |
| removing | 117 |
| stub guard conversion kit | 459 |
| swath forming rods - end delivery | 453 |

T

| | |
|---|-----|
| tine | 302 |
| feed auger | |
| removing | 302 |
| tine tube | |
| reel conversion kit | 456 |
| tine tube bushingPR15 reel | |
| tine tube bushinginstalling on 5, 6, or 9 bat reels | 423 |
| tire inflation | 433 |
| torque specification..... | 246 |
| axle bolts | 431 |
| flare-type hydraulic fittings | 251 |
| metric bolt..... | 249 |
| metric bolt bolting into cast aluminum | 251 |
| O-ring boss (ORB) hydraulic fittings..... | 252 |
| O-ring face seal (ORFS) hydraulic fittings..... | 253 |
| SAE bolt | 247 |
| tow-bar | |
| removing | 99 |
| storing | 100 |
| towing..... | 97 |
| attaching header to towing vehicle..... | 98 |
| attaching tow-bar..... | 99 |
| converting from field to transport position | 105 |
| converting from transport to field position | 99 |

| | |
|--|-----|
| header..... | 98 |
| moving front (left) wheels to field position..... | 101 |
| moving left (front) wheels into transport position | 105 |
| moving rear (right) wheels to field position..... | 103 |
| moving right (rear) wheels to transport position | 107 |
| tractor | |
| definition | 29 |
| transport system..... | 431 |
| axle bolt torque | 431 |
| converting from field to transport | 105 |
| converting from field to transport position | |
| moving left (front) wheels to transport position..... | 105 |
| moving right (rear) wheels to transport position..... | 107 |
| converting from transport to field | 99 |
| converting from transport to field position | |
| moving front wheels to field position | 101 |
| moving rear (right) wheels to field position..... | 103 |
| storing tow-bar | 100 |
| tire inflation | 433 |
| tow-bar | |
| removing | 99 |
| wheel bolt torque..... | 431 |
| troubleshooting..... | 435 |
| crop loss at cutterbar | 435 |
| cutting action and knife components | 437 |
| cutting edible beans..... | 446 |
| headers and drapers | 442 |
| reel delivery | 440 |
| truck | |
| definition..... | 29 |

U

| | |
|------------------------------|---------|
| unloading | 461 |
| upper cross auger..... | 94, 459 |
| installing beater bars | 96 |
| removing beater bars..... | 94 |

V

| | |
|-------------------------------|-----|
| vertical knife mount kit..... | 460 |
|-------------------------------|-----|

W

| | |
|------------------------|-----|
| wheel and tire | |
| safety | 7 |
| tire inflation | 433 |
| wheel bolt torque..... | 431 |

INDEX

wheel bolt torque 431 wobble box, See knife drive box

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