



MacDon

FD75

FlexDraper[®] Combine Header with CA25 Combine Adapter

Unload and Assembly Instructions (North America)

214325 Revision A

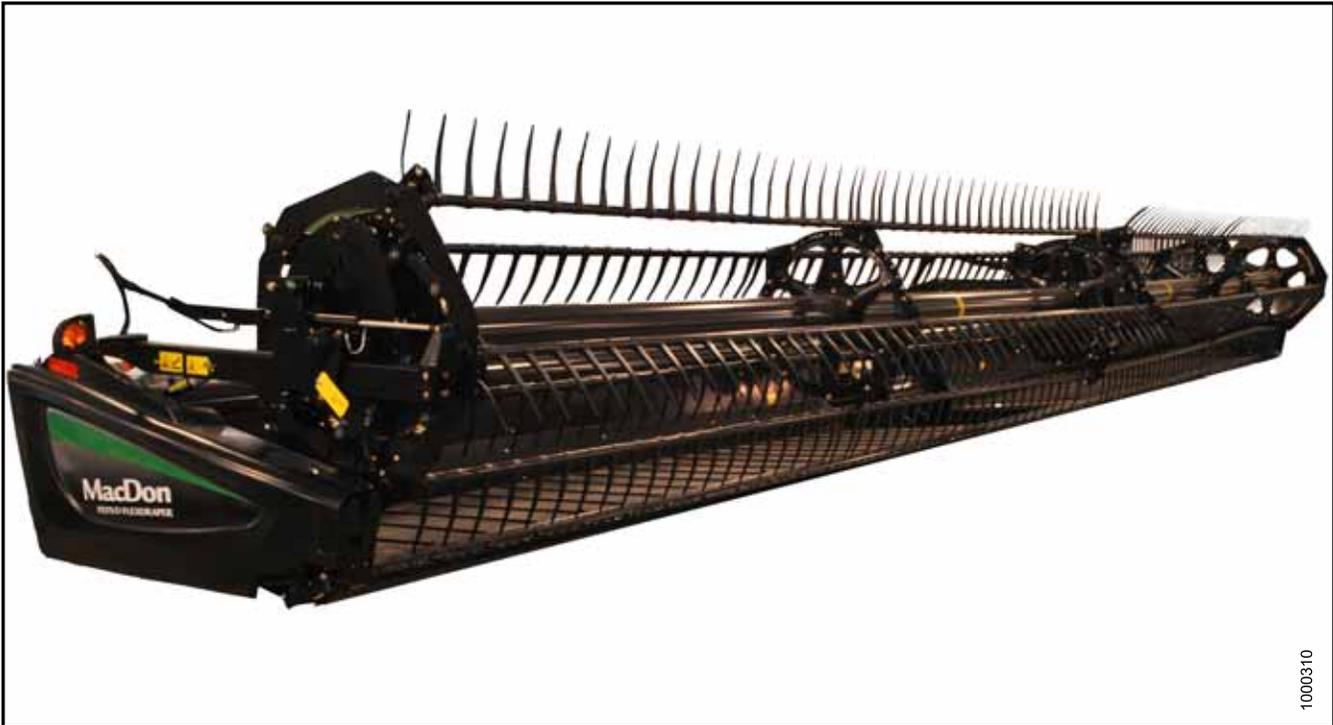
2018 Model Year

Original Instruction

Featuring MacDon FLEX-FLOAT Technology™

The harvesting specialists.

FD75 FlexDraper® Combine Header



1000310

Published: June 2017

Introduction

This instruction manual describes the unloading, setup, and predelivery requirements for the MacDon FD75 FlexDraper® Header with CA25 Combine Adapter.

To ensure your customers receive the best performance and safety from this product, carefully follow the unload and assembly procedure from the beginning through to completion.

Carefully read all the material provided before attempting to unload, assemble, or use the machine.

Retain this instruction for future reference.

NOTE:

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

A French language version of this manual can be downloaded from our MacDon International website (www.macdon.com) and the Dealer portal (<https://portal.macdon.com>) (login required).

List of Revisions

The following list provides an account of major changes from the previous version of this document.

Summary of Change	Location
The name Lexion changed to CLAAS—representing a wider product range.	Throughout
Filler cap now includes flange head screws for better fit.	<i>3.2.1 Installing Filler Cap, page 21</i>
Added topic for removing filler plates from transition frame when attaching to AGCO Class 7 or 8 combines.	<i>Preparing Transition Frame: AGCO Combines, page 29</i>
Harness MD #220337 superseded by MD #279753.	<ul style="list-style-type: none"> • <i>Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness: CLAAS 500 Series, page 52</i> • <i>Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness: CLAAS 700 Series, page 61</i>
Deleted step as per product support feedback.	<i>4.7.1 Checking Pointed Guard Hold-Downs, page 95</i>
Modified instruction and image; header must be in full smile mode.	<i>4.8 Centering Reel, page 97</i>
Moved procedure to keep reel topics together.	<i>4.9 Measuring and Adjusting Reel Clearance to Cutterbar, page 98</i>
Added reel cam checking topic.	<i>4.9.3 Checking and Adjusting Reel Cam, page 101</i>
Added topic for adjusting header level.	<i>4.10 Checking and Adjusting Header Levelness, page 103</i>
Removed Wing Balance chart.	<i>4.12.2 Adjusting Wing Balance, page 115</i>
Added topic for checking and adjusting the draper tension.	<i>4.14 Checking and Adjusting Feed Draper Tension, page 121</i>
Added header controls topic for Case 8010 combines.	<i>Setting Header Controls (Case 8010), page 150</i>
<ul style="list-style-type: none"> • Added checking feed draper tension. • Added note to install options before checking float. • Moved Check header float ahead of Check wing balance. • Added remove all shipping wires. 	<i>8 Predelivery Checklist, page 295</i>

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1 Safety

1.1 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.

1.2 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 protective clothing and personal safety devices that could be necessary for job at hand. Do **NOT** take chances. You may need the following:
 - Hard hat
 - Protective footwear with slip resistant soles
 - Protective glasses or goggles
 - Heavy gloves
 - Wet weather gear
 - Respirator or filter mask
- Be aware that exposure to loud noises can cause hearing impairment or loss. Wear suitable hearing protection devices such as ear muffs or ear plugs to help protect against loud noises.



Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

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

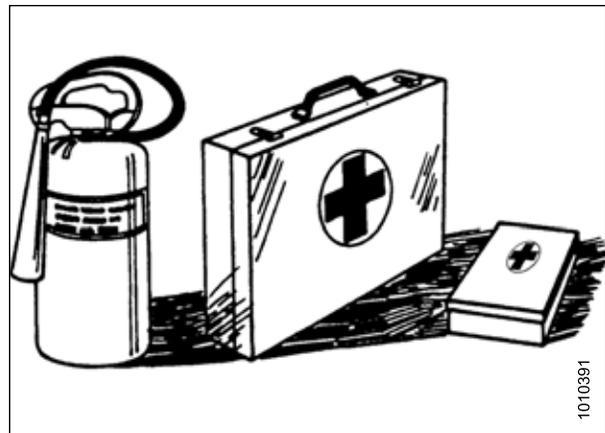


Figure 1.3: Safety Equipment

SAFETY

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



Figure 1.4: Safety around Equipment

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

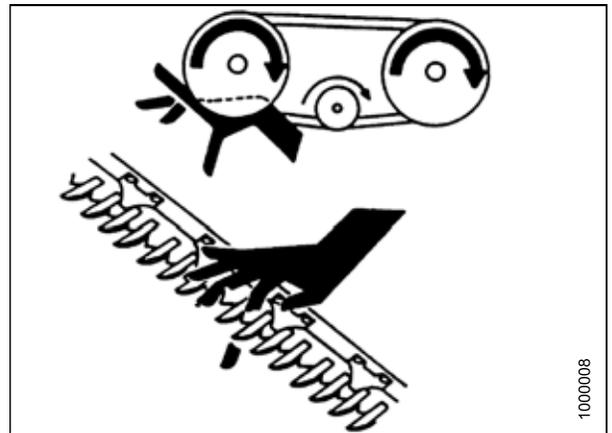


Figure 1.5: Safety around Equipment

- Keep service area 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 is 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 1.6: Safety around Equipment

1.3 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 repair part also bears current safety sign.
- Safety signs are available from your MacDon Dealer.

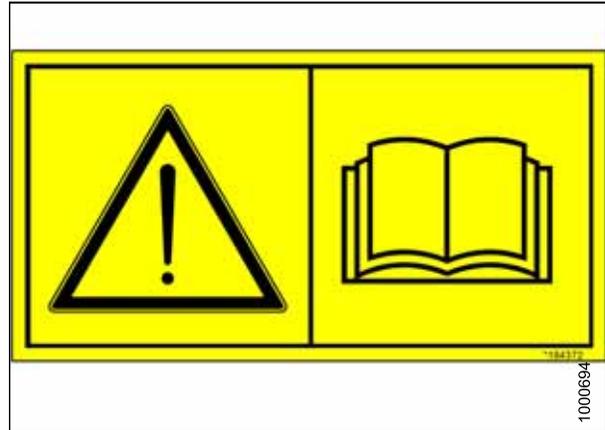


Figure 1.7: Operator's Manual Decal

2 Unloading Header and Adapter

Perform all procedures in order in which they are listed.

2.1 Unloading Header and Adapter from Trailer

The following procedure applies when two headers are shipped on a trailer.

CAUTION

To avoid injury to bystanders from being struck by machinery, do NOT allow people to stand in unloading area.

CAUTION

Equipment used for unloading must meet or exceed requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, or machine damage.

IMPORTANT:

Forklifts are normally rated with load centered 610 mm (24 in.) from back end of forks. To obtain forklift capacity for a load centered at 1220 mm (48 in.), check with your forklift distributor.

Table 2.1 Lifting Vehicle

Minimum Lifting Capacity	4082 kg (9000 lb.) load center (A) at 1220 mm (48 in.) (B) from back of forks
Minimum Fork Length (C)	1981 mm (78 in.)

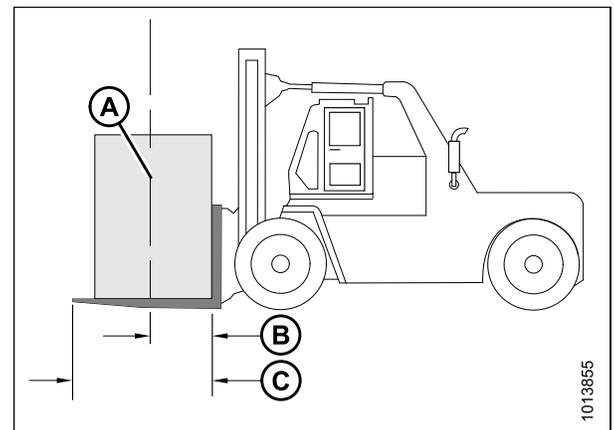


Figure 2.1: Minimum Lifting Capacity

A - Center of Gravity of Load
B - Load Center 1220 mm (48 in.) from Back of Forks
C - Minimum Fork Length 1981 mm (78 in.)

To unload headers and adapters from a trailer, follow these steps:

1. Move trailer into position and block trailer wheels.
2. Lower trailer storage stands.

IMPORTANT:

Avoid lifting second header and ensure forks do not interfere with shipping frame. If forks contact second header, damage to headers may occur.

UNLOADING HEADER AND ADAPTER

3. Approach header and line up forks (A) with fork slider channels (B) under adapter frame.
4. Slide forks (A) underneath fork slider channels (B) as far as possible without contacting shipping support of opposite header.
5. Remove hauler's tie-down straps, chains, and wooden blocks.



WARNING

Be sure forks are secure before moving away from load. Stand clear when lifting.

6. Slowly raise header off trailer deck.
7. Back up until unit clears trailer and slowly lower to 150 mm (6 in.) from ground.

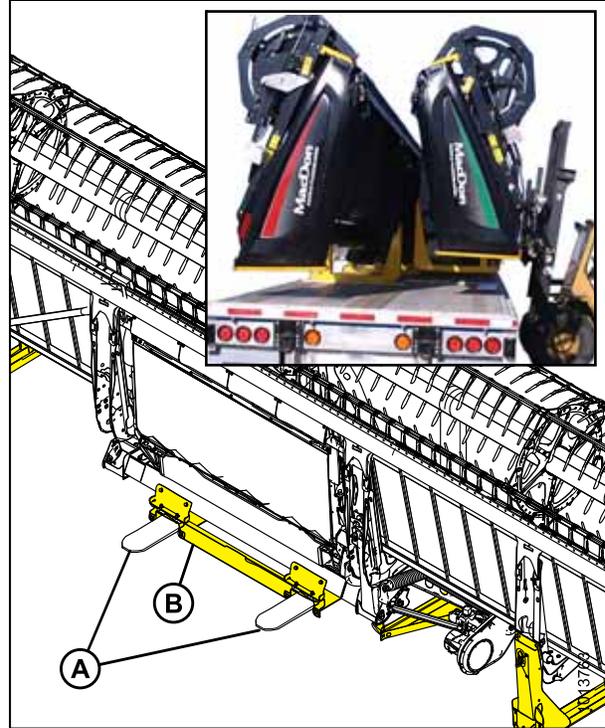


Figure 2.2: Header Shipping Supports

8. Take header to storage or setup area. Ensure ground is flat and free of rocks or debris that could damage header.
9. Repeat Steps 3, page 6 to 8, page 6 for second header.
10. Check for shipping damage and missing parts.

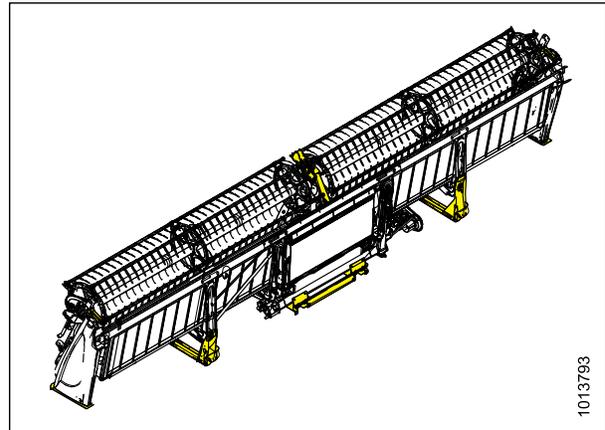


Figure 2.3: Header after Unloading

2.2 Lowering Header

1. Approach underside of header with lifting vehicle.

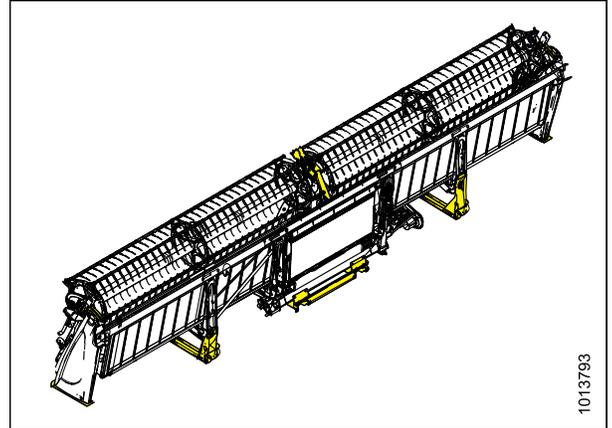


Figure 2.4: Underside of Header

2. Attach chain to shipping support (A) at center reel arm.

IMPORTANT:

Do **NOT** attempt to lift at cutterbar when unloading from trailer. This procedure is **ONLY** for laying machine over into working position.



CAUTION

Stand clear of header when lowering. Machine may swing.

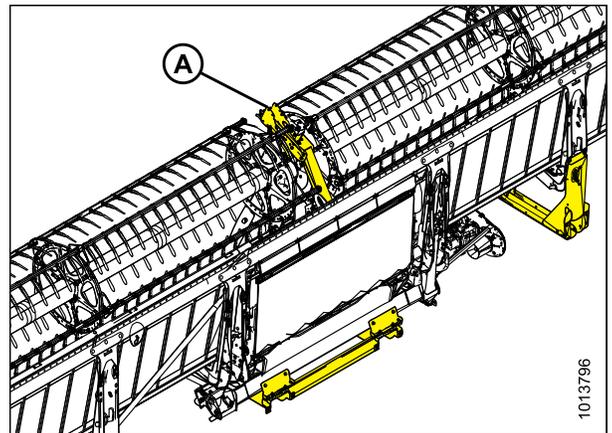


Figure 2.5: Header before Lowering

UNLOADING HEADER AND ADAPTER

3. Back up SLOWLY while lowering forks until header rests on ground.



Figure 2.6: Lowering Header

UNLOADING HEADER AND ADAPTER

4. Place 150 mm (6 inch) blocks (A) under each end and at center of cutterbar.
5. Lower header onto blocks, and remove chain.

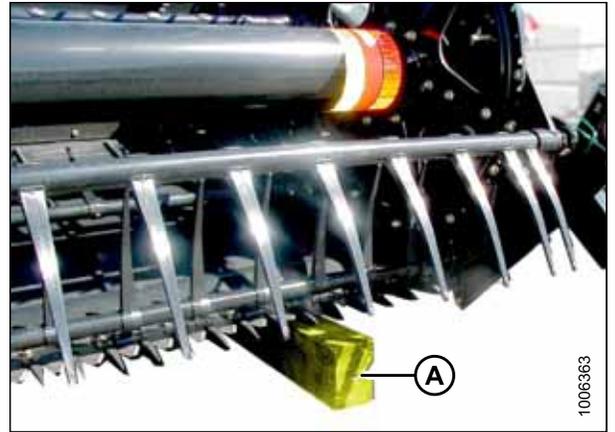


Figure 2.7: Blocks at Each End of Cutterbar

2.3 Removing Shipping Stands

NOTE:

Unless otherwise specified, discard stands, shipping material, and hardware. The removable stands are painted yellow.

1. Remove two bolts (A) securing right fork slider channel to brace (C).

NOTE:

To access bolts at lower fork slider brace, header must be supported on 150 mm (6 in.) blocks. Refer to Step 4, [page 9](#).

2. Remove two bolts (B) securing right fork slider channel to lower brace (D).
3. Repeat steps above for left side.

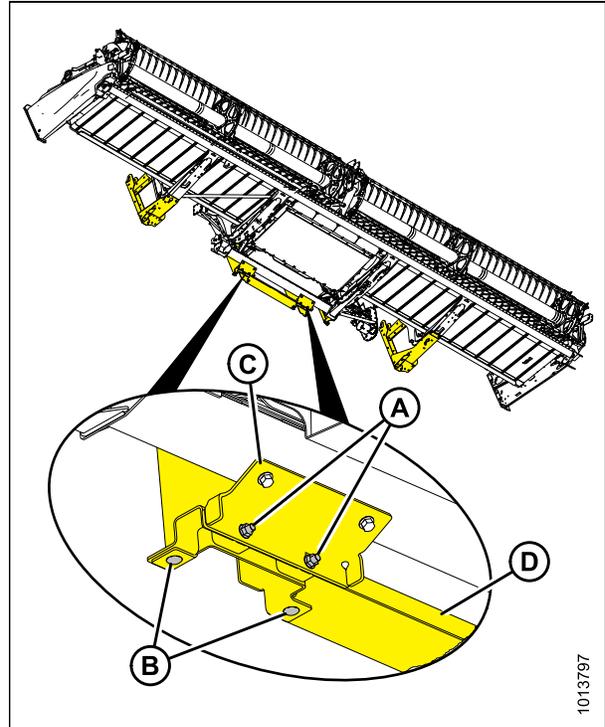


Figure 2.8: Fork Slider Channels

4. Remove bottom brace (A).

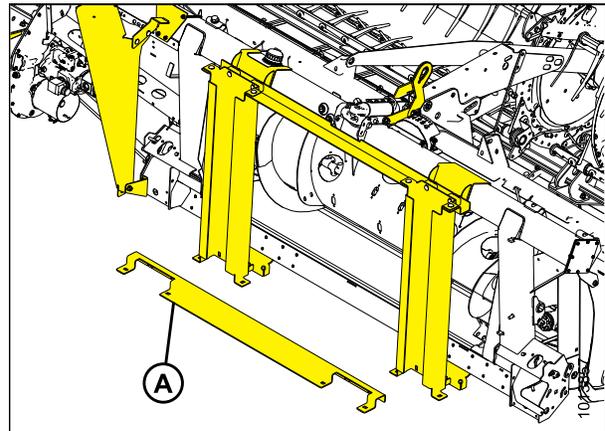


Figure 2.9: Lower Brace Removal

UNLOADING HEADER AND ADAPTER

5. Remove two bolts (A) and then two bolts (B) from upper brace. Repeat for opposite side.
6. Remove right and left fork slider channels.

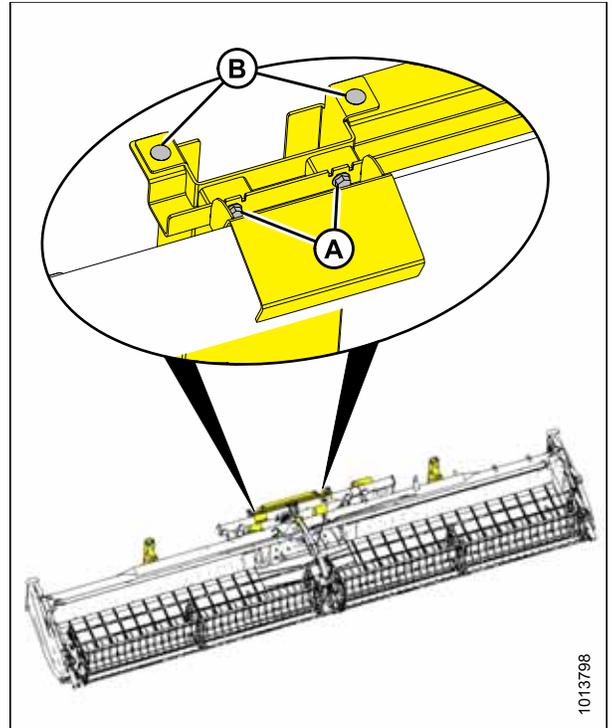


Figure 2.10: Fork Slider Channels

7. Remove upper brace (A).

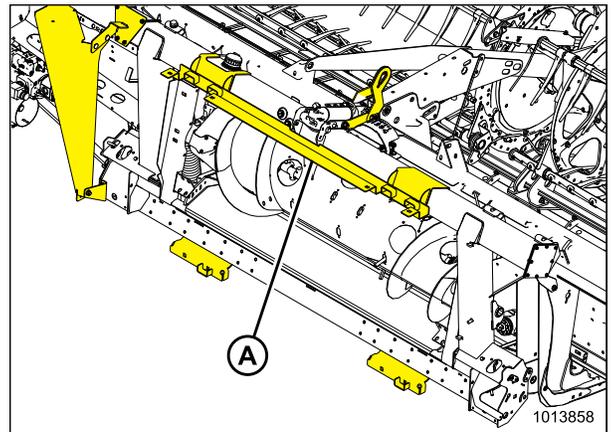


Figure 2.11: Upper Brace

UNLOADING HEADER AND ADAPTER

- Remove four bolts (A), and remove braces (B) from bottom of adapter.

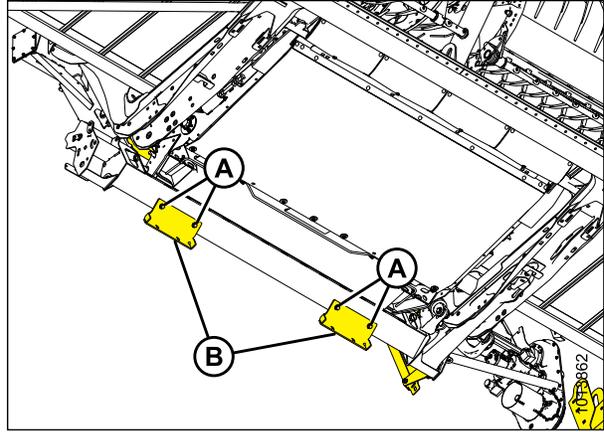


Figure 2.12: View from below Header

- Remove two bolts from bottom multicoupler guard bracket (A).
- Remove four bolts securing clamps at top bracket (B).
- Remove multicoupler guard (C).

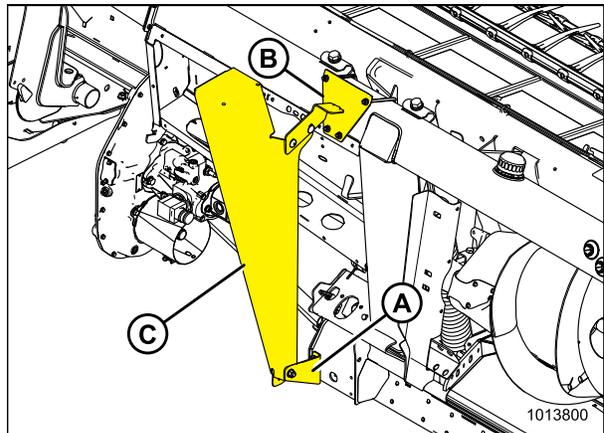


Figure 2.13: Multicoupler Guard

- Remove four bolts (A) and two bolts (B) from shipping stands at both outboard header legs. Remove stands.

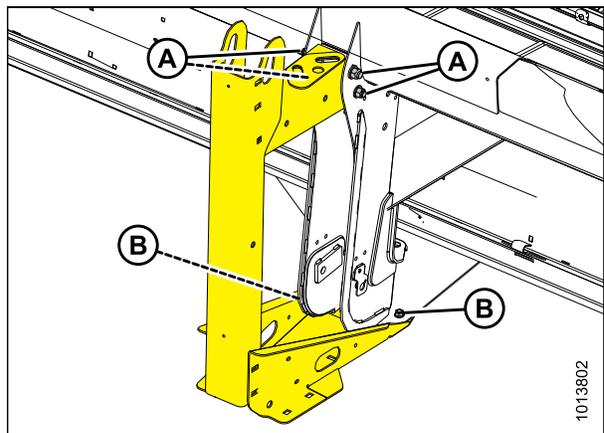


Figure 2.14: Shipping Stands at Outboard Header Legs (Right Side Shown)

UNLOADING HEADER AND ADAPTER

13. Loosen three bolts (A) in each endshield guard and remove guards. Hardware can be removed when header endshields are opened.

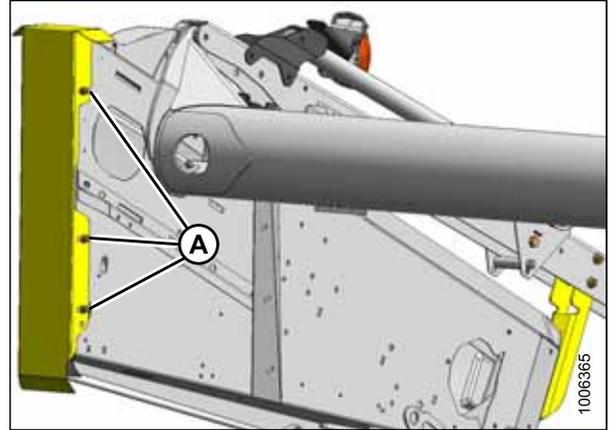


Figure 2.15: Endshield Guards

14. Remove reel anti-rotation strap (A) between reel and endsheet.

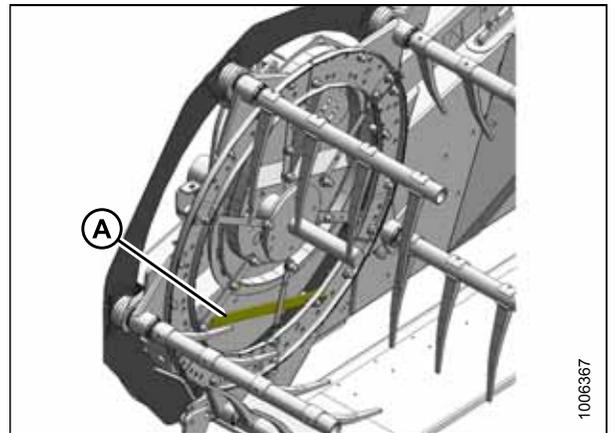


Figure 2.16: Reel Anti-Rotation Strap

3 Assembling Header and Adapter

Perform all procedures in order in which they are listed.

3.1 Attaching Reel Lift Cylinders

1. Remove two top bolts (A) on outboard reel arm supports. Repeat for opposite side.

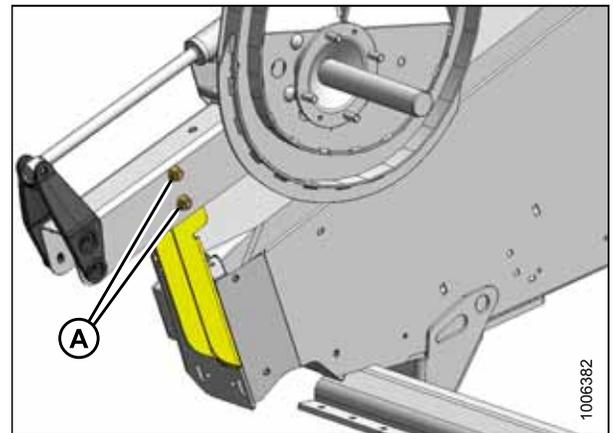


Figure 3.1: Reel Outboard Support Arm

2. Position sling (A) around reel tube (B) close to outboard end of reel, and attach sling to a forklift (or equivalent).
3. Remove shipping wire/banding from reel lift cylinder.

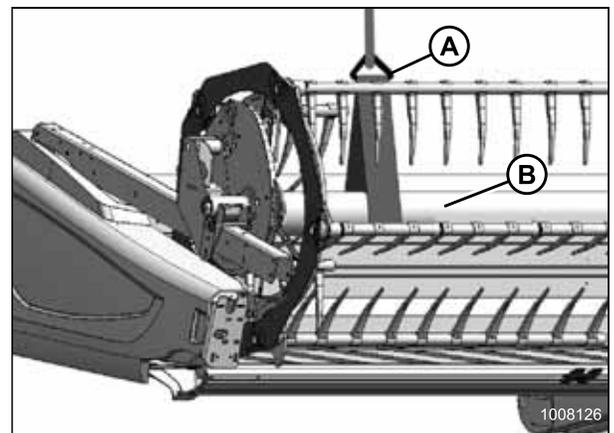


Figure 3.2: Right End Reel Lift

ASSEMBLING HEADER AND ADAPTER

4. Lift reel, and remove pins from endsheet and reel arm.
5. Align reel lift cylinder mounting holes with lug on endsheet and hole in reel arm.
6. Secure cylinder to endsheet and reel arm with clevis pins (A) and (B) as shown.
 - Insert cotter pin into clevis pin (A) on **OUTBOARD** side of reel arm
 - Insert cotter pin into clevis pin (B) on **INBOARD** side of endsheet

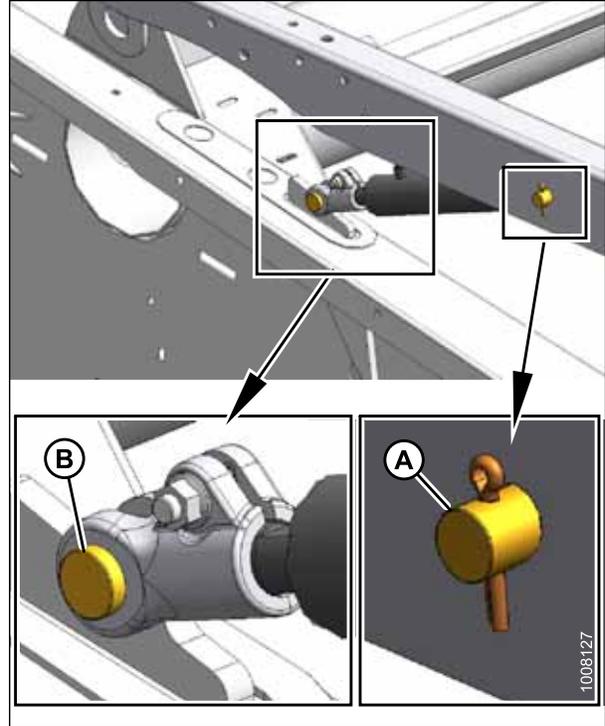


Figure 3.3: Reel Right Arm

7. Remove two top bolts (A) on center reel arm to allow center reel arm to move.

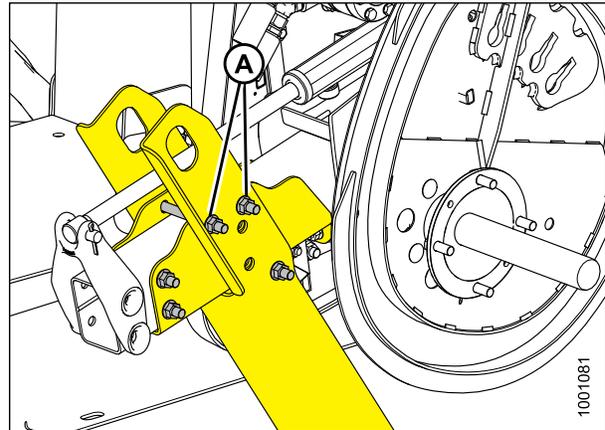


Figure 3.4: Reel Center Arm

ASSEMBLING HEADER AND ADAPTER

8. Lift reel to gain access to center lift cylinder.
9. Remove shipping wire and banding from reel center lift cylinder. Remove socket head bolt and nut from cylinder rod.
10. Lift reel so that hole in lift cylinder rod lines up with mounting hole (A) in reel arm.
11. Attach rod end of cylinder to reel arm with socket head bolt and nut (A). Access hardware through holes in reel arm braces (C).
12. Torque bolt and nut (A) to 54–61 Nm (40–45 lbf-ft).
13. Remove pin at barrel end of cylinder.
14. Adjust reel height so pin (B) can be installed at barrel end of cylinder and mounting structure.
15. Reposition sling (A) around reel tube near opposite outboard reel arm.
16. Remove shipping wire and banding from reel lift cylinder.

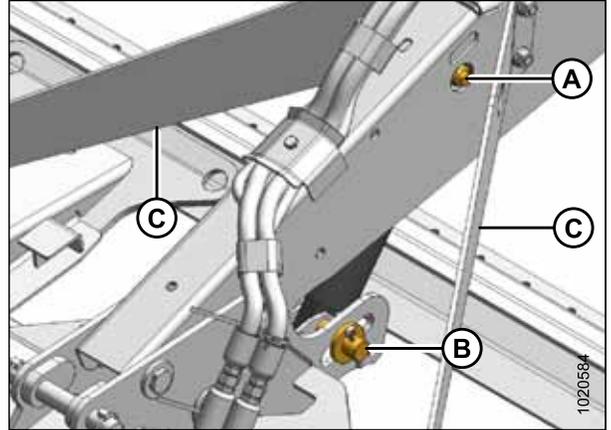


Figure 3.5: Reel Arm Braces

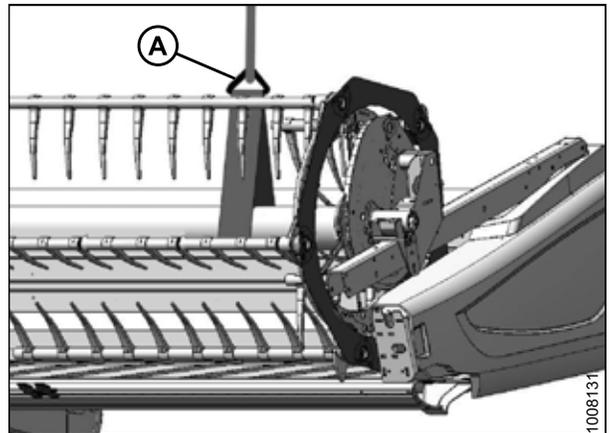


Figure 3.6: Left End Reel Lift

ASSEMBLING HEADER AND ADAPTER

17. Lift reel and remove pins from endsheet and reel arm.
18. Align reel lift cylinder mounting holes until they line up with lug on endsheet and hole in reel arm.
19. Secure cylinder to endsheet and reel arm with clevis pins (A) and (B) as shown.
 - Insert cotter pin into clevis pin (A) at **OUTBOARD** side of reel arm
 - Insert cotter pin into clevis pin (B) at **INBOARD** side of endsheet

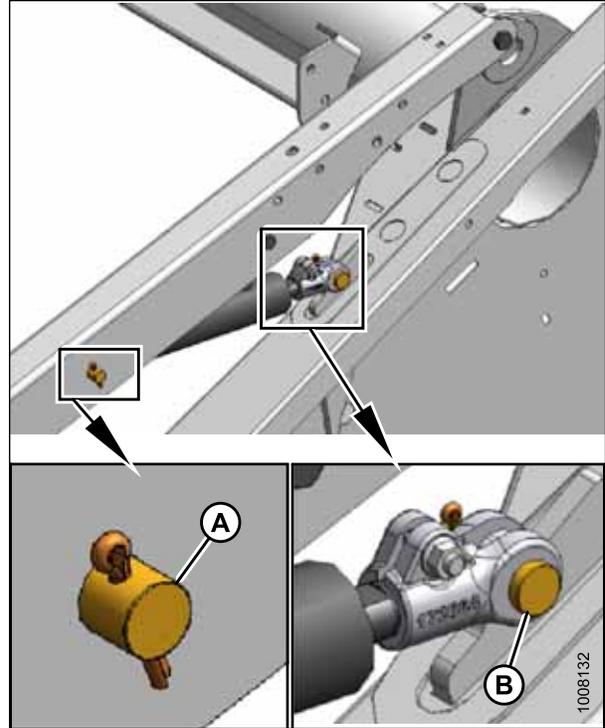


Figure 3.7: Reel Left Arm

20. Remove remaining bolt (A), disengage center reel arm shipping support (B) from cutterbar, and remove shipping support.

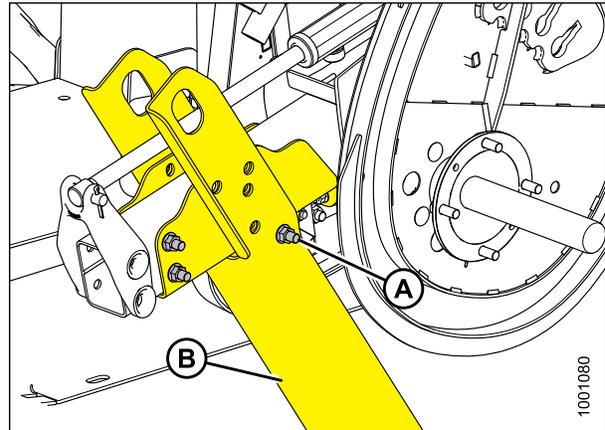


Figure 3.8: Reel Center Arm Shipping Support

ASSEMBLING HEADER AND ADAPTER

21. Remove bolts (A) from reel arm support at endsheet, and remove support. Repeat at other side.

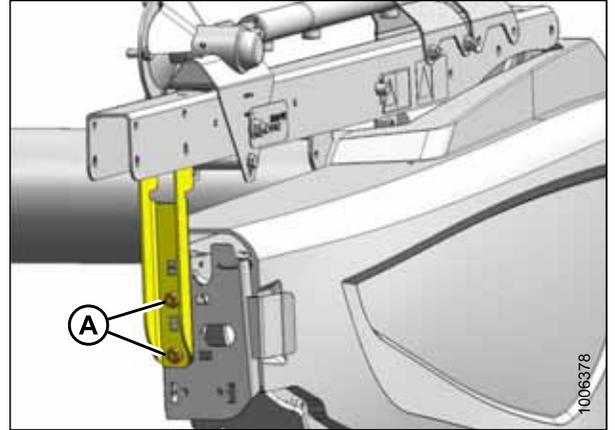


Figure 3.9: Reel Outboard Arm Support

22. Remove brace bolts (A) and tags locking reel fore-aft position at outer reel arms.

IMPORTANT:

To prevent damaging fore-aft cylinders or structure, do **NOT** use fore-aft cylinders to assist with removing bolts.

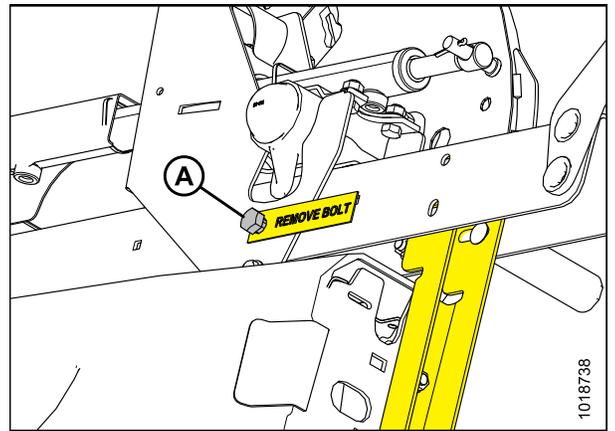


Figure 3.10: Reel Right Arm (Parts Removed for Clarity)

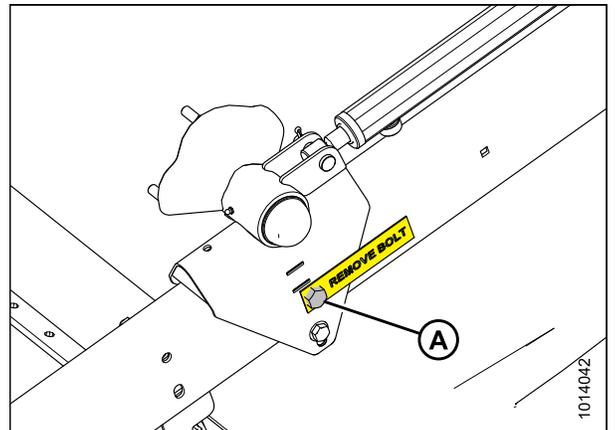


Figure 3.11: Reel Left Arm

ASSEMBLING HEADER AND ADAPTER

23. Remove remaining three bolts (A) locking reel fore-aft position at center reel arm, and remove shipping channel (B).
24. Proceed to [3.2 Setting up Combine Adapter, page 21](#).

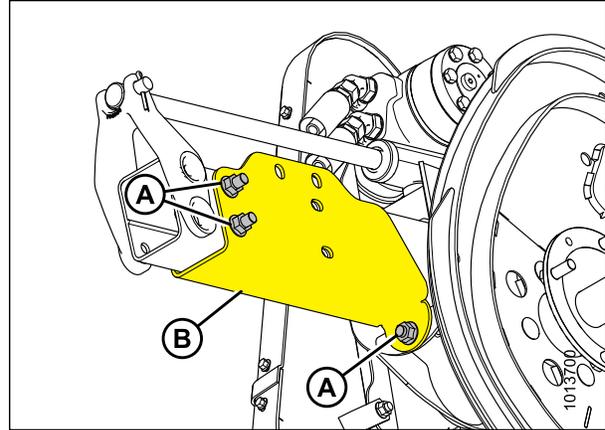


Figure 3.12: Reel Center Arm Shipping Channel

3.2 Setting up Combine Adapter

Complete the following procedures in order in which they are listed:

- 3.2.1 *Installing Filler Cap, page 21*
- 3.2.2 *Removing Auger Flighting Extensions, page 23*
- 3.2.3 *Removing Stripper Bars, page 23*
- 3.2.4 *Replacing Feeder Deflectors: New Holland CR Combines, page 24*

3.2.1 Installing Filler Cap

1. Remove filler cap and bag with six flange head screws from bag (A).

CAUTION

Fluid may be under pressure. Allow pressure to equalize by loosening screws and lifting shipping cover slightly.

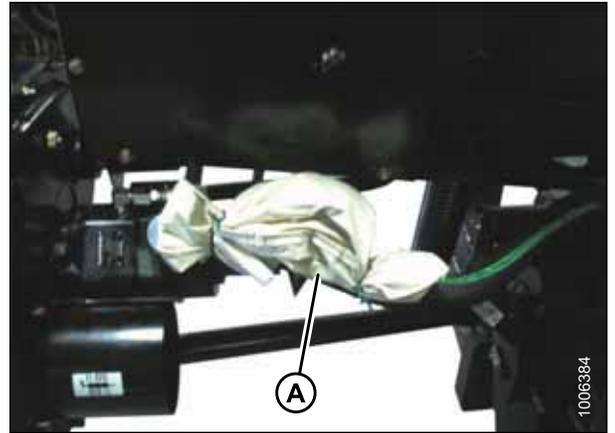


Figure 3.13: Hardware Bag

2. Remove yellow shipping cover (A) from adapter frame. Discard cover and screws.



Figure 3.14: Yellow Shipping Cover

ASSEMBLING HEADER AND ADAPTER

3. Remove top gasket (A) for use in next step.

NOTE:

There are two gaskets—one on either side of filler strainer flange.



Figure 3.15: Top Gasket

4. Place gasket (A) (removed from top of filler strainer) onto filler cap neck (B), and align holes.
5. Install flange head screws supplied in bag (refer to Step 1, page 21) onto filler cap neck (B), pressing screws through gasket (A).
6. Apply Loctite® #565 (or equivalent) to screws.

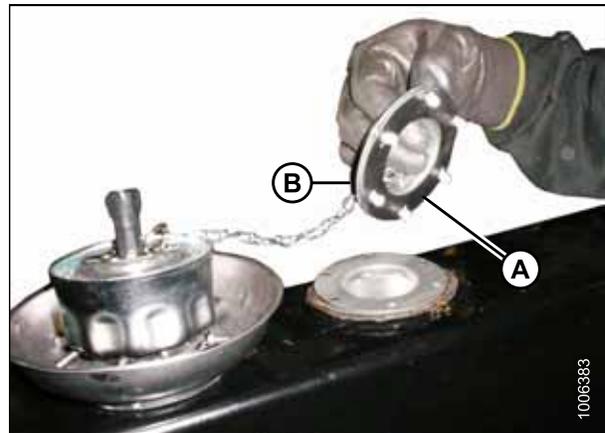


Figure 3.16: Filler Cap Neck

7. Place filler cap neck (A) (complete with screws) over opening. Ensure machine screws are aligned with threaded holes.
8. Carefully thread in machine screws according to numbered sequence as shown to prevent cross threading.
9. Torque screws to 3.5 Nm (31 lbf-in) according to numbered sequence.



Figure 3.17: Screw Hole Locations

ASSEMBLING HEADER AND ADAPTER

10. Install filler cap (A).



Figure 3.18: Filler Cap

3.2.2 Removing Auger Flighting Extensions

Flighting extension kits may have been supplied with your header to improve feeding in certain crops such as rice. They are **NOT** recommended for cereal crops. If necessary, remove auger flighting extensions as follows:

NOTE:

Do **NOT** use flighting extensions on New Holland CR960, 9060, 970, 9070, and 9080 combines.

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

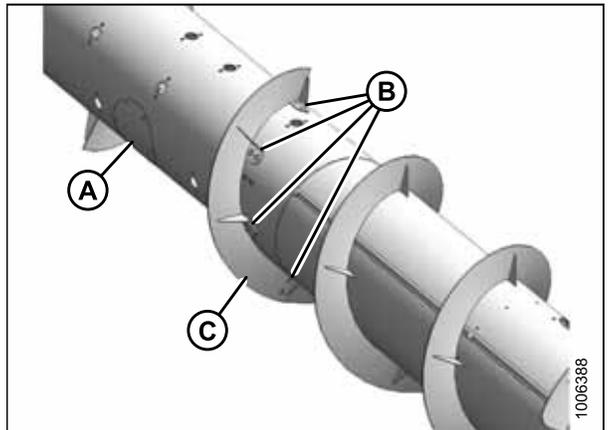


Figure 3.19: Auger Flighting Extension

3.2.3 Removing 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 for cereal crops.

NOTE:

The following procedure does **NOT** apply to New Holland CR960, 9060, 970, 9070, and 9080 combines. For these combines, proceed to [3.2.4 Replacing Feeder Deflectors: New Holland CR Combines, page 24](#).

If necessary, remove auger stripper bars as follows:

ASSEMBLING HEADER AND ADAPTER

1. Remove four bolts (A) and nuts securing bars (B) to adapter frame, and remove bars.
2. Repeat for opposite set of stripper bars.
3. Proceed to [3.3 Attaching Header to Combine, page 26](#).

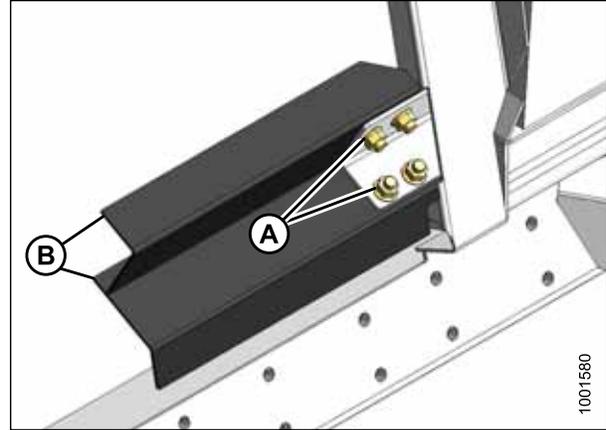


Figure 3.20: Auger Stripper Bar

3.2.4 Replacing Feeder Deflectors: New Holland CR Combines

If header is configured for a New Holland CR960, 9070, or 9080 combine, adapter has a factory-installed feeder deflector kit to improve feeding into feeder house. The kit can be replaced if necessary.

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 machine for any reason.

The FD75/CA25 combine completion package for New Holland models includes both a short feeder kit (installed at factory) and a long feeder kit for narrow feeder house combines. Refer to [Table 3.1, page 24](#).

Table 3.1 CA25 Feeder Kits for CR Model Combines

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

If required, replace feeder deflectors as follows:

1. Determine position of existing deflector (A) by measuring gap (X) between deflector's forward edge and pan. Record this measurement.

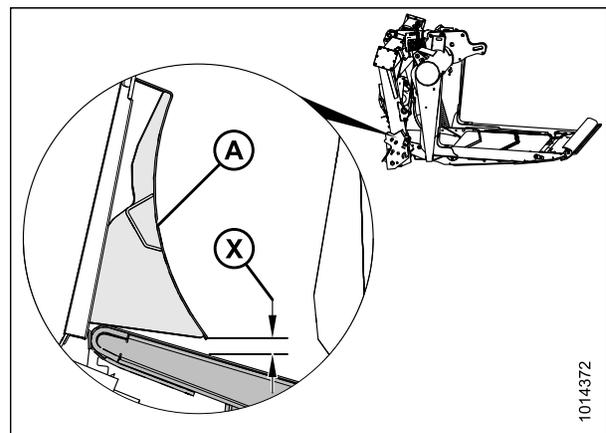


Figure 3.21: Side View of Deflector

ASSEMBLING HEADER AND ADAPTER

2. Remove two bolts and nuts (B) securing deflector (A) to adapter frame and remove deflector.
3. Position replacement deflector and reinstall bolts and nuts (B). Do **NOT** tighten bolts.

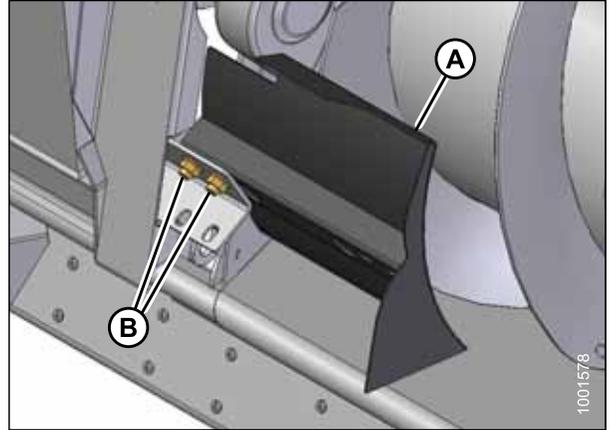


Figure 3.22: Replacement Deflector: Left Shown – Right Opposite

4. Set gap (X) to dimension recorded in Step 1, page 24 and tighten bolts.
5. Repeat for opposite deflector.

CAUTION

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

6. Attach header to a combine and fully extend center-link.
7. Turn off combine and remove key from ignition.
8. Recheck gap (X) between deflector (A) and the pan.

NOTE:

The minimum gap when attached to combine should be 22 +/- 3 mm (7/8 +/- 1/8 in.).

9. If necessary, detach header from combine and adjust deflector to achieve minimum gap.

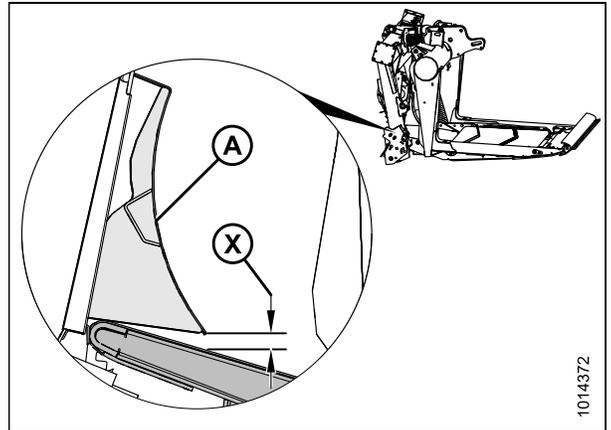


Figure 3.23: Side View of Deflector

3.3 Attaching Header to Combine

The procedures for attaching header to a combine vary depending on combine model. Refer to the following table for appropriate procedure:

Table 3.2 Combine Model Header Attachment Procedures

Combine	Refer to
AGCO Gleaner R and S Series; Challenger 660, 670, 680B, 540C, and 560C; Massey 9690, 9790, 9895, 9520, 9540, and 9560	<i>Attaching Header to Challenger, Gleaner, or Massey Ferguson Combine, page 30</i>
Case IH 7010, 8010, 7120, 8120, 9120, 5088, 6088, 7088, 5130, 6130, 7130, 7230, 8230, and 9230	<i>Attaching Header to Case IH Combine, page 34</i>
John Deere 60, 70, and S and T Series	<i>Attaching Header to John Deere Combine, page 49</i>
CLAAS 500, 600, and 700 (R Series)	<i>Attaching Header to CLAAS Combine, page 69</i>
New Holland CR and CX	<i>Attaching Header to New Holland CR/CX Combine, page 73</i>

NOTE:

Kits are available to allow attachment to Case 23 and 25 Series combines, as well as to John Deere 50 Series combines.

IMPORTANT:

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

3.3.1 Challenger, Gleaner, and Massey Ferguson Combines

Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness

Gleaner combines prior to 2014 are not equipped to have hydraulic reel fore-aft and header tilt options.

The following additional items are required and not supplied by MacDon:

- Valve (A) (AGCO #71389745)
- Hoses
- Electrical components
- Couplers

NOTE:

Model year 2014 and later Gleaner combines will have the above parts factory-installed.

IMPORTANT:

To prevent possible damage to electronic components, disconnect the positive cable from the combine battery before connecting harness to combine connectors.

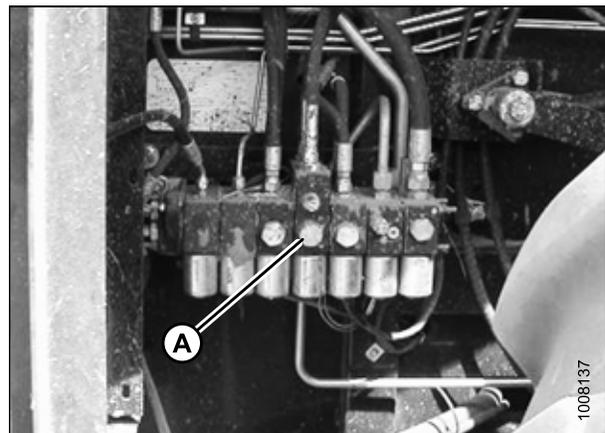


Figure 3.24: Converted Gleaner R72

ASSEMBLING HEADER AND ADAPTER

To enable the reel fore-aft and header tilt options, install the switch and harness as follows:

1. Before attaching any cable ties, route switch harness (A) from the front of the feeder house to the power connection point in the cab. Ensure the harness is long enough to reach the wiring at the selector valve with the header tilted forward, and that the feeder house can be fully lowered with adequate slack in the harness.

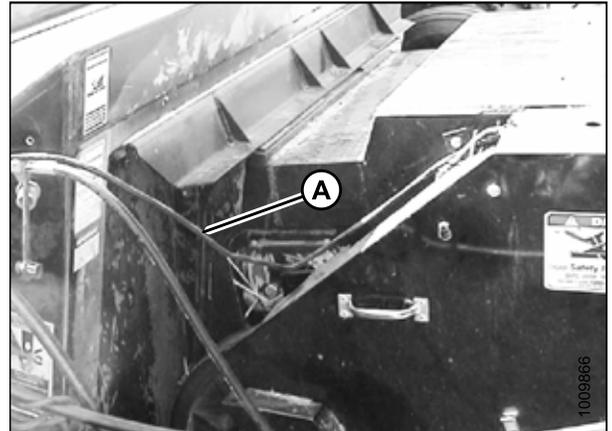


Figure 3.25: Switch Harness Routing

2. Use the cable ties provided to fasten the switch harness (A) to the main harness on the left side of the feeder house and under the cab floor at (B).

IMPORTANT:

To prevent damage to harness, fully lower feeder house and ensure there is adequate slack before attaching cable ties (B) to the harness.

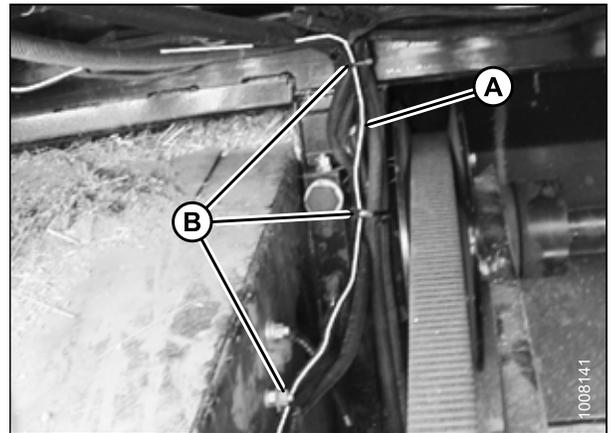


Figure 3.26: Left Side of Feeder House

3. Route the switch harness (A) at the rear of the feeder house up to the underside of the cab floor at (B).
4. Use the cable ties provided to fasten the switch harness (A) to the main harness under cab floor at (B).

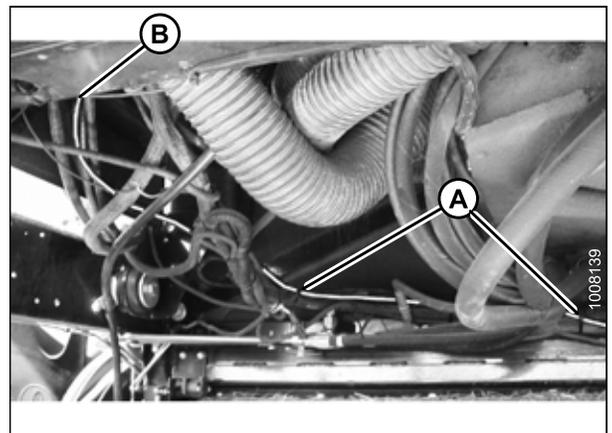


Figure 3.27: Harness under Right Side of Cab Floor

ASSEMBLING HEADER AND ADAPTER

5. Route the switch harness (A) under the cab, through cab floor, and into console (B) at the foam seal (C).

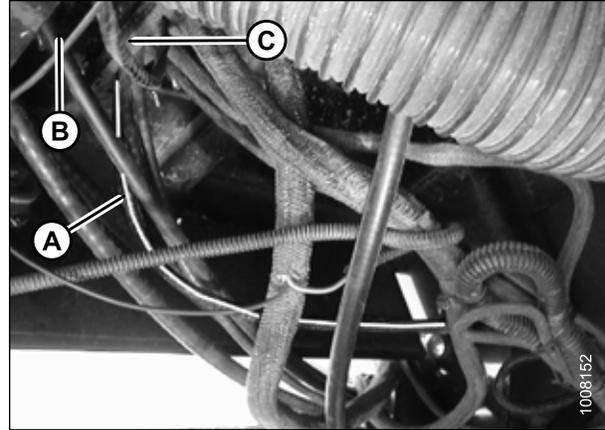


Figure 3.28: Harness through Cab Floor

6. Remove the console cover (A) as shown.
7. Connect the switch harness to the power supply inside the console at (B).
 - The red wire from the in-line fuse goes to the switched power supply (B).
 - The double black wire goes to ground.

IMPORTANT:

Connecting the switch harness to an unswitched power supply or cigarette lighter will supply constant power to the header tilt side of the solenoid valve and drain the combine battery during extended shutdown periods.

8. Route switch harness through grommet (C), and replace cover (A).

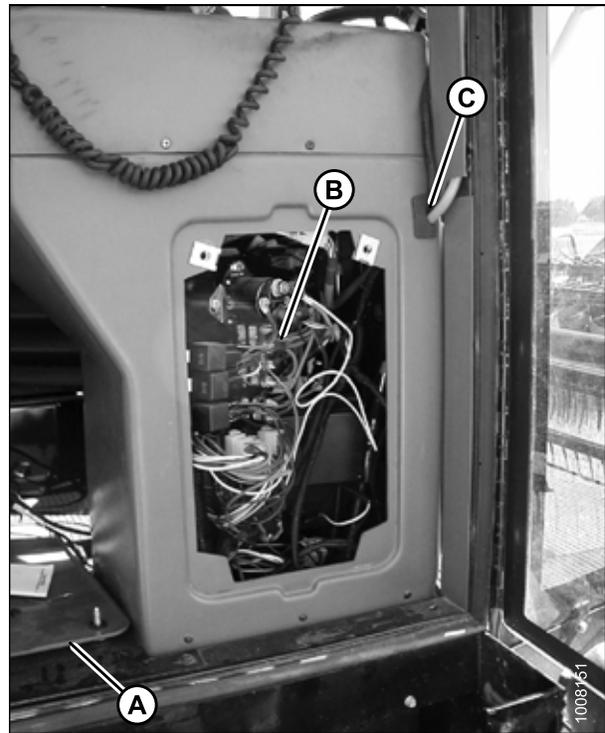


Figure 3.29: Switch Compartment

ASSEMBLING HEADER AND ADAPTER

9. Mount switch plate onto console (A) in a suitable location.
10. Connect harness to switch with red wire to center terminal (B), and white wire to either outer terminal (C).
11. Reconnect the battery cable.
12. Operate the switch to select either REEL FORE-AFT or HEADER TILT function.

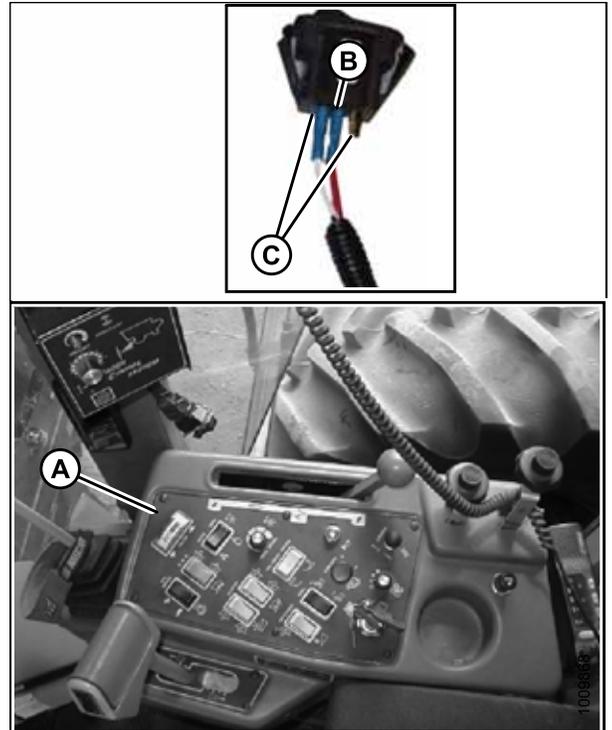


Figure 3.30: Switch and Console

Preparing Transition Frame: AGCO Combines

AGCO configured CA25 combine adapters ship with filler plates for Class 6 combines installed. For AGCO Class 7 or Class 8 combines, remove filler plates as follows:

ASSEMBLING HEADER AND ADAPTER

1. For AGCO Class 7 and Class 8 combines, remove three carriage bolts and nuts (A) securing filler plate (B) to transition frame (C), and remove filler plate. Discard bolts, nuts, and filler plates.
2. Repeat on the opposite side.

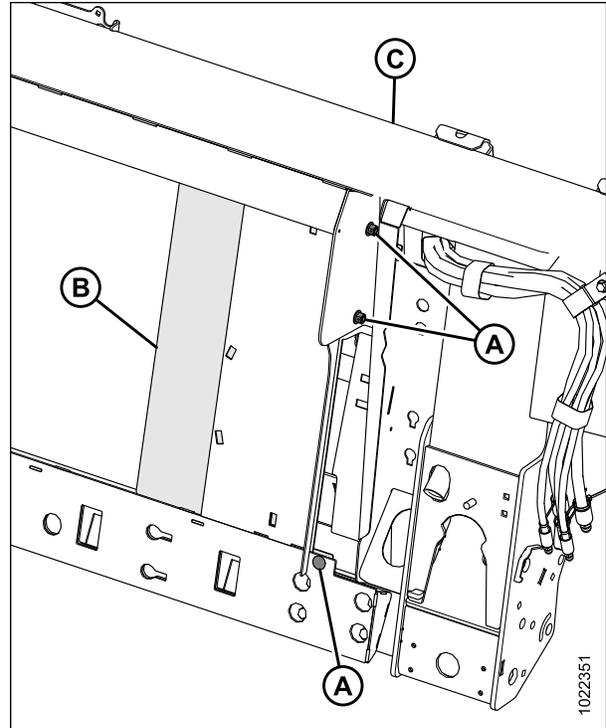


Figure 3.31: Filler Plate on Right Side of Transition Frame

Attaching Header to Challenger, Gleaner, or Massey Ferguson Combine

DANGER

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

1. Use lock handle (B) to retract lugs (A) at base of feeder house.

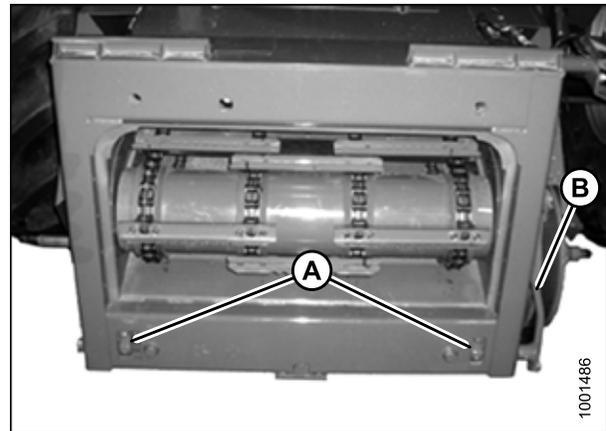


Figure 3.32: AGCO Group Feeder House

CAUTION

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

ASSEMBLING HEADER AND ADAPTER

2. Start engine and slowly approach header until feeder house is directly under adapter top cross member (A) and alignment pins (C) on feeder house (shown in Figure 3.34, page 31) are aligned with holes (B) in adapter frame.

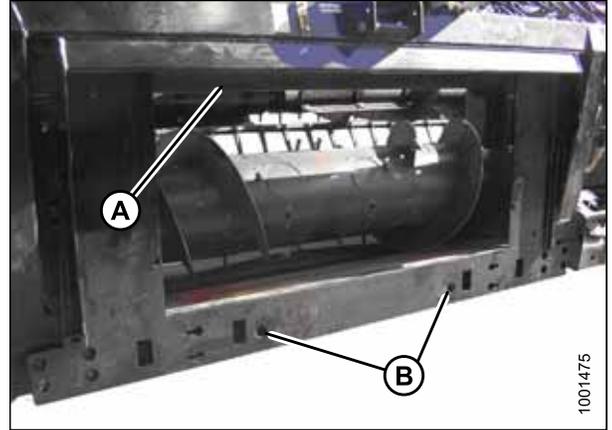


Figure 3.33: Adapter

NOTE:

Feeder house may not be exactly as shown.

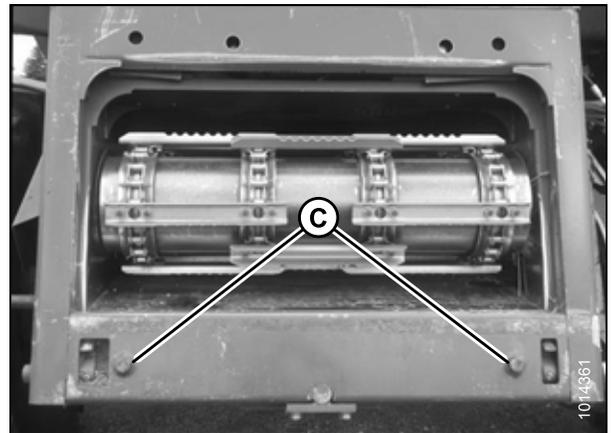


Figure 3.34: AGCO Group Alignment Pins

3. Raise feeder house slightly to lift header, ensuring feeder house saddle (A) is properly engaged in adapter frame.
4. Stop engine and remove key from ignition.



Figure 3.35: Feeder House and Adapter

ASSEMBLING HEADER AND ADAPTER

- Use lock handle (B) to engage lugs (A) with adapter.

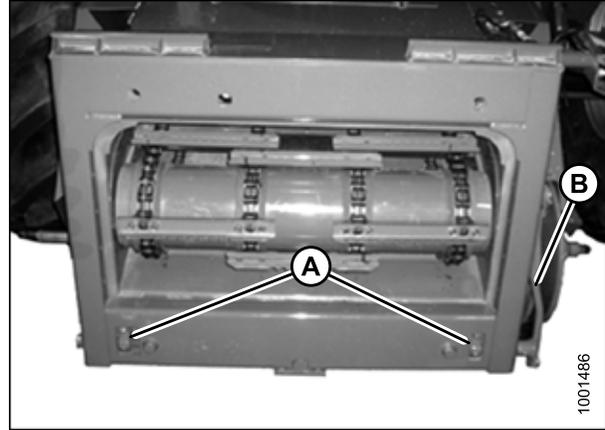


Figure 3.36: AGCO Group Feeder House

CAUTION

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

- Start engine and lower header.
- Stop engine and remove key from ignition.

NOTE:

The CA25 Combine Adapter is equipped with a multicoupler that connects to the combine. If combine is equipped with individual connectors, a multicoupler kit (single-point connector) must be installed. Refer to Table 3.3, page 32 for a list of kits and installation instructions that are available through your combine Dealer.

Table 3.3 Multicoupler Kits

Combine	Kit Number
Challenger	71530662
Gleaner R/S Series	71414706
Massey Ferguson	71411594

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

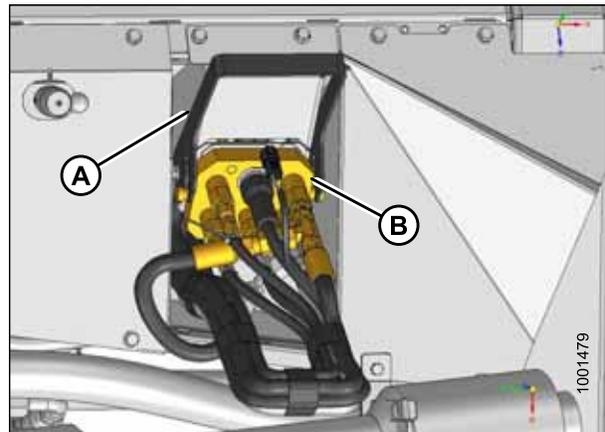


Figure 3.37: Adapter Multicoupler

ASSEMBLING HEADER AND ADAPTER

9. Push handle (A) on combine to fully open position.
10. Clean mating surfaces of multicoupler (B) and receptacle if necessary.

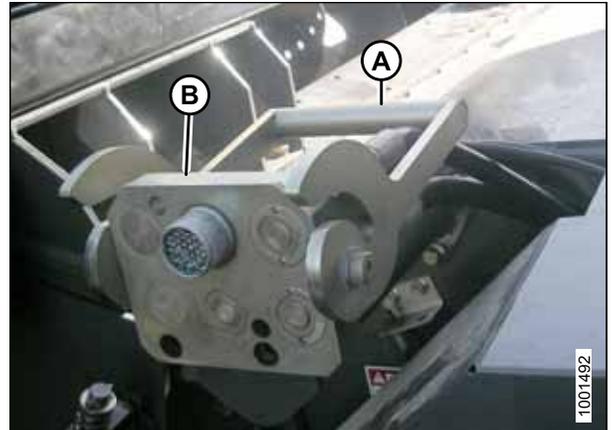


Figure 3.38: Combine Receptacle

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

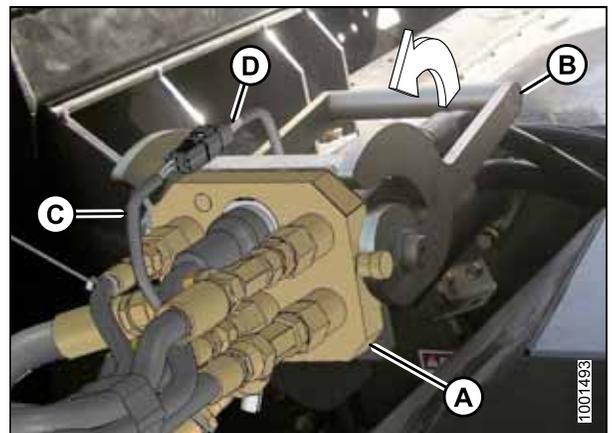


Figure 3.39: Multicoupler

13. Remove shipping wire from driveline (A) and float lock lever (B).

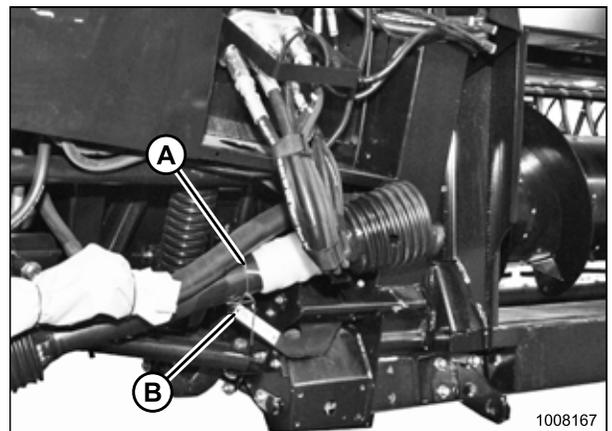


Figure 3.40: Adapter Shipping Configuration

ASSEMBLING HEADER AND ADAPTER

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

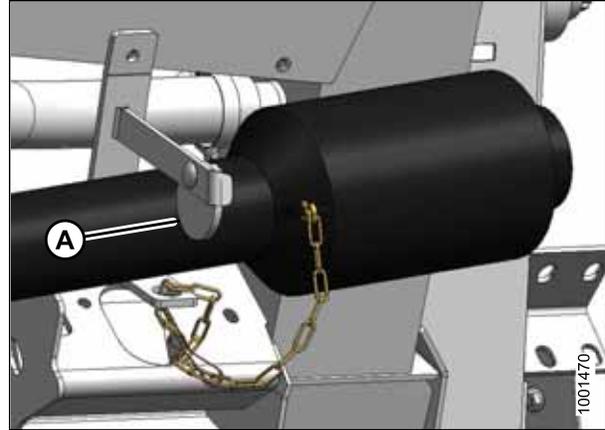


Figure 3.41: Driveline

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

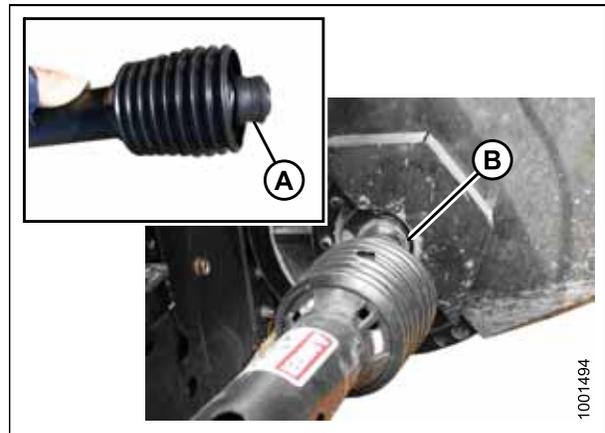


Figure 3.42: Driveline

16. Proceed to [3.4 Completing Header Assembly, page 79](#).

3.3.2 Case IH Combines

Attaching Header to Case IH Combine

DANGER

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

ASSEMBLING HEADER AND ADAPTER

1. On upper left of combine adapter, remove nut (A) and flip lever (B) horizontally.

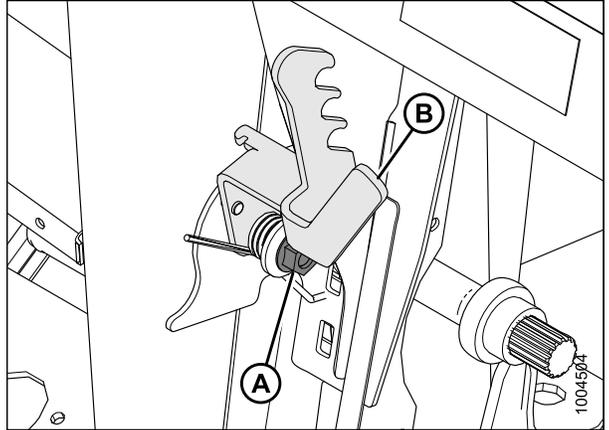


Figure 3.43: Feeder House Lever Lock on Adapter

2. Position lever (A) onto stud (B).

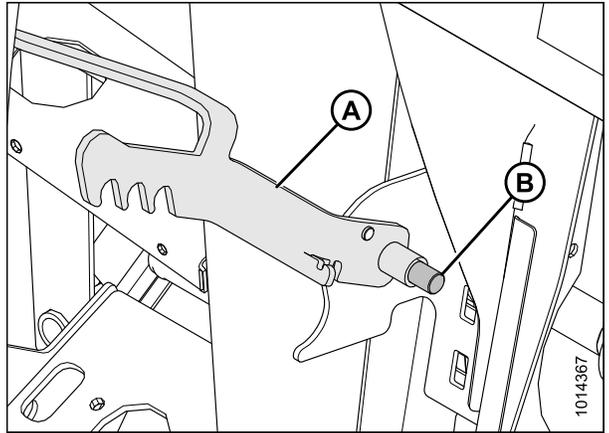


Figure 3.44: Feeder House Lever Lock on Adapter

3. Place spring arm (C) into hook on lever (B) to preload it, and tighten nut (A) with washer onto combine adapter.

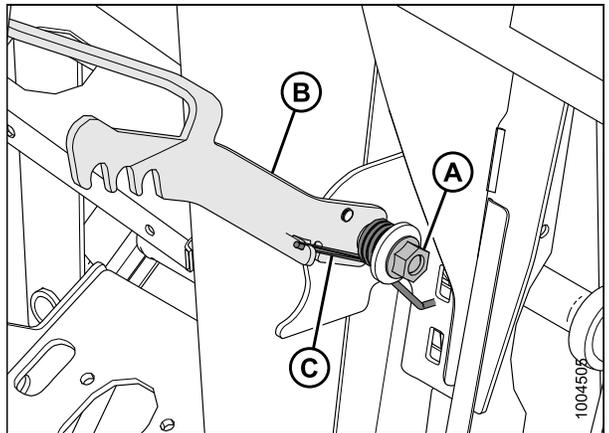


Figure 3.45: Feeder House Lever Lock on Adapter

ASSEMBLING HEADER AND ADAPTER

4. On combine, ensure lock handle (A) is positioned so hooks (B) can engage adapter.

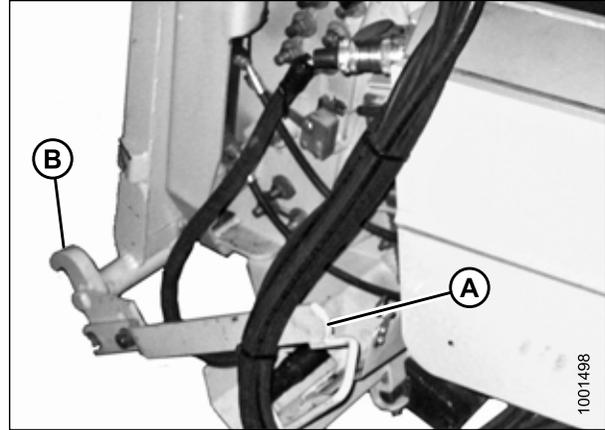


Figure 3.46: Feeder House Lock

CAUTION

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

5. Start engine and slowly drive combine up to header until feeder house saddle (A) is directly under adapter top cross member (B).
6. Raise feeder house slightly to lift header, ensuring feeder saddle is properly engaged in adapter frame.
7. Stop engine and remove key from ignition.

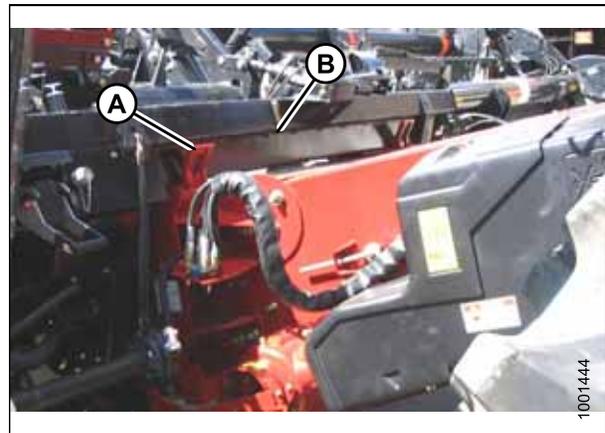


Figure 3.47: Combine and Adapter

8. On left of feeder house, lift lever (A) on adapter and push handle (B) on combine to engage locks (C) on both sides of feeder house.
9. Push down on lever (A) so slot in lever engages handle and locks handle in place.
10. If lock (C) does not fully engage pin on adapter, loosen bolts (D) and adjust lock. Retighten bolts.

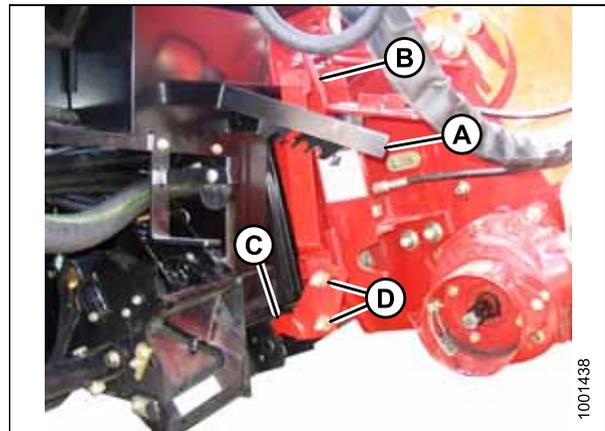


Figure 3.48: Combine and Adapter

ASSEMBLING HEADER AND ADAPTER

11. Open receptacle cover (A) on adapter.
12. Press lock button (B) and pull handle (C) to fully open position.
13. Clean receptacle mating surfaces.

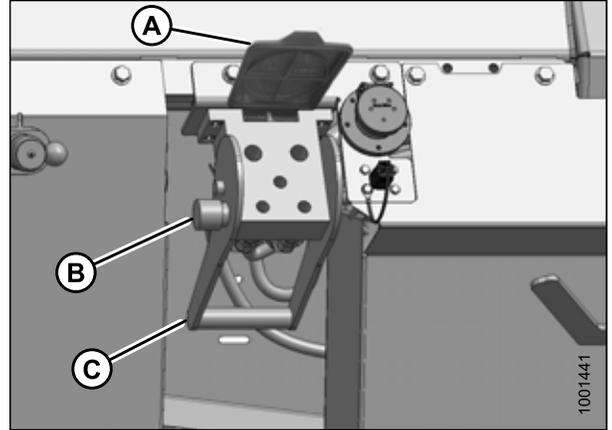


Figure 3.49: Adapter Receptacle

14. Remove hydraulic quick coupler (A) from combine and clean mating surfaces.



Figure 3.50: Combine Connectors

15. Position coupler onto adapter receptacle (A) and push handle (B) (not shown) to engage multicoupler pins into receptacle.
16. Push handle (B) to closed position until lock button (C) snaps out.

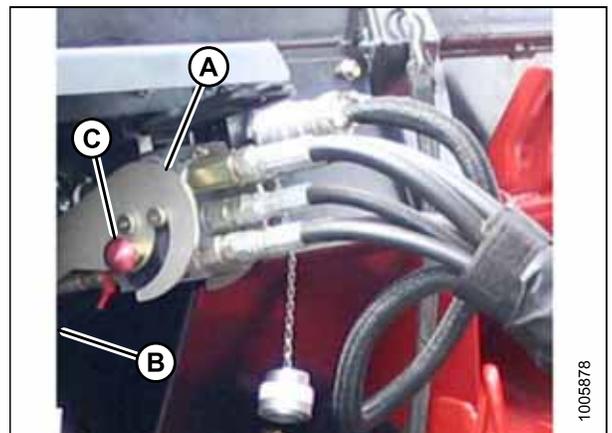


Figure 3.51: Hydraulic Connection

ASSEMBLING HEADER AND ADAPTER

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

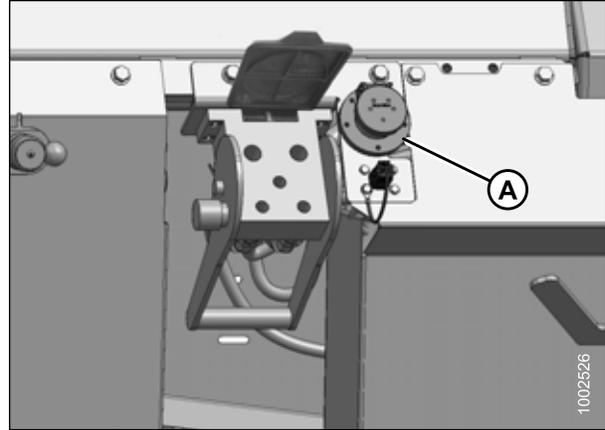


Figure 3.52: Electrical Receptacle

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



Figure 3.53: Combine Connectors

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

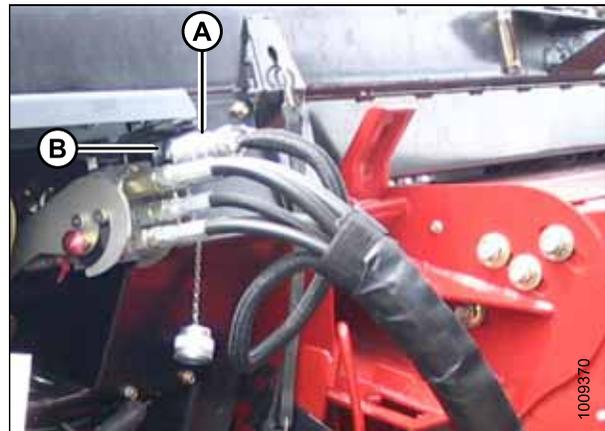


Figure 3.54: Electrical Connection

ASSEMBLING HEADER AND ADAPTER

20. Remove shipping wire (A) from driveline and float lock lever (B).

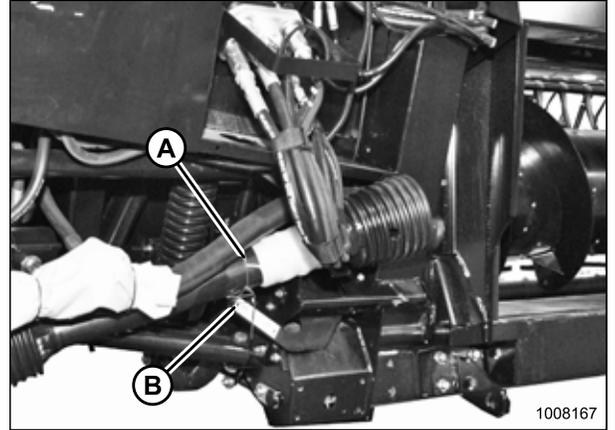


Figure 3.55: Shipping Wire on Driveline and Float Lock Lever

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

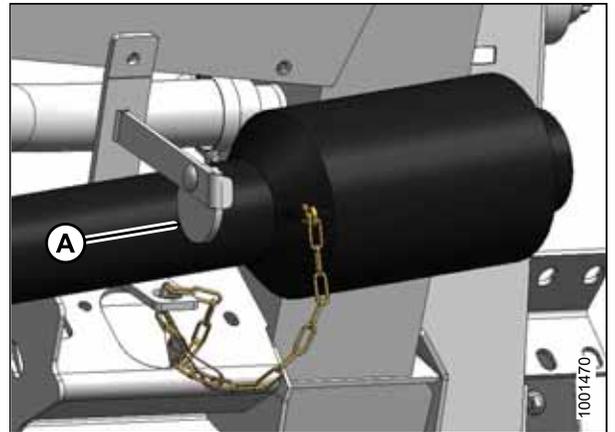


Figure 3.56: Driveline Storage Hook

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

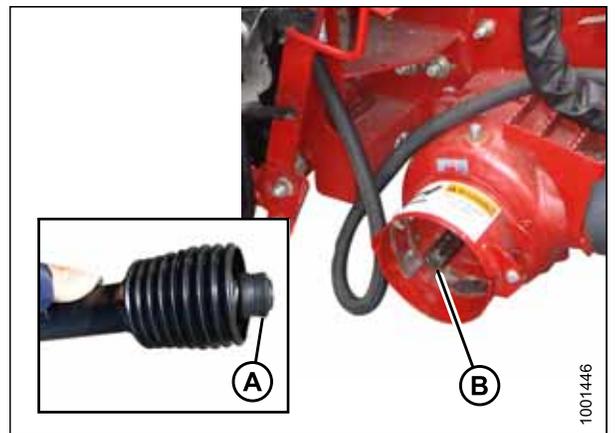


Figure 3.57: Combine Output Shaft

ASSEMBLING HEADER AND ADAPTER

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

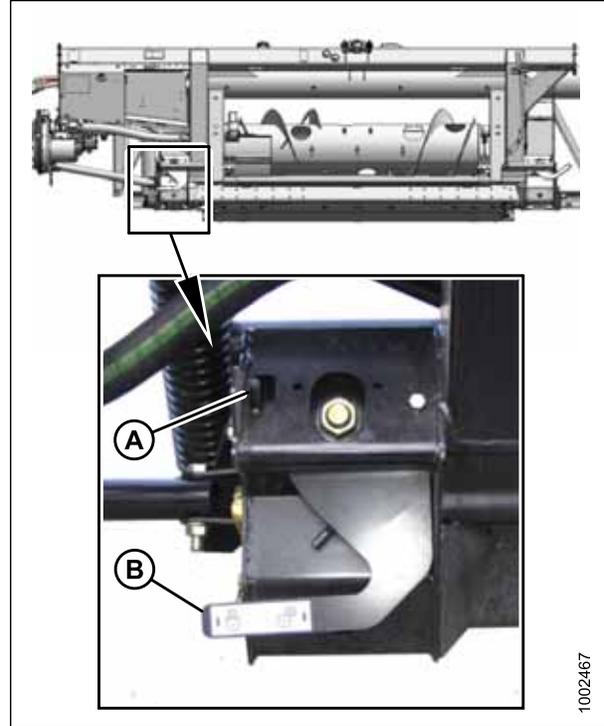


Figure 3.58: Float Lock in UNLOCK Position

24. Proceed to [3.4 Completing Header Assembly, page 79](#).

3.3.3 John Deere Combines

Installing Reel Fore-Aft/Header Tilt Switch: S and T Series Combines

The reel fore-aft/header tilt switch allows the combine Operator to select either REEL FORE-AFT or HEADER TILT mode.

WARNING

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 machine for any reason.

This procedure is applicable to John Deere S and T Series combines only. For John Deere 60 or 70 Series combines, refer to [Installing Reel Fore-Aft/Header Tilt Switch: 50, 60, and 70 Series Combines, page 45](#).

IMPORTANT:

To prevent damage to electronic components, disconnect the positive cable from the combine battery and turn the battery disconnect switch to the OFF position before connecting the reel fore-aft/header tilt harness to the combine's auxiliary power connectors.

Prepare the combine cab for switch and harness installation as follows:

ASSEMBLING HEADER AND ADAPTER

1. Open storage compartment on console.
2. Remove two screws (A) attaching compartment cover (B) to console and remove cover.

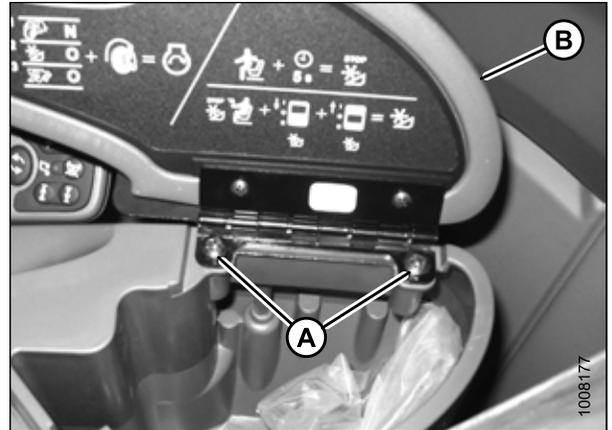


Figure 3.59: Storage Compartment and Cover

3. Lift floor mat (A) at forward right corner to access knockout (B).
4. Remove knockout (B).

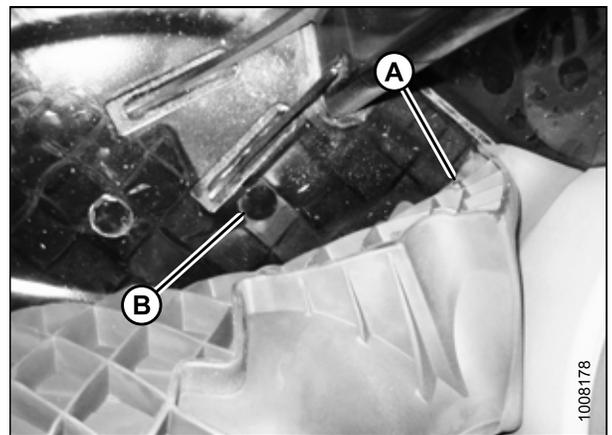


Figure 3.60: Cab Floor

ASSEMBLING HEADER AND ADAPTER

5. Retrieve reel fore-aft/header tilt switch kit (MD #B6206) from shipment.
6. Install switch (A) into support (B) from top. Ensure switch is secured in support.
7. Connect switch end (C) of harness to switch (A) with one wire to center terminal and other wire to either outer terminal. The color of the wires does not matter.

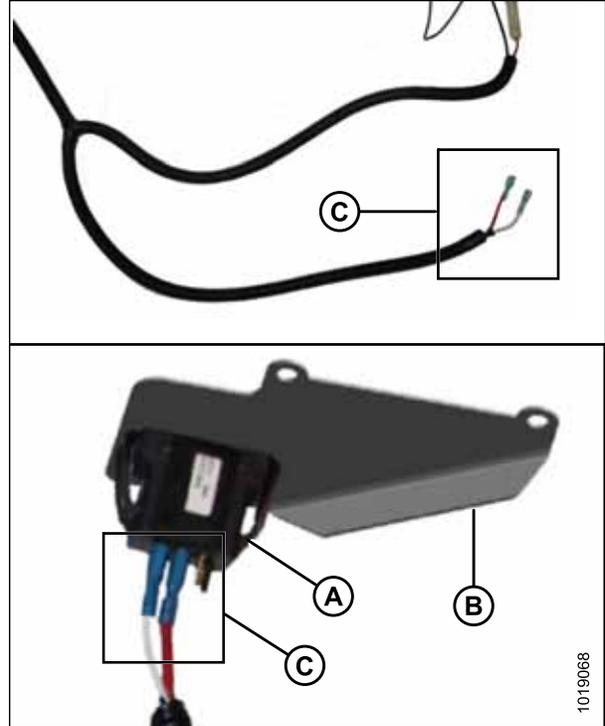


Figure 3.61: Switch and Harness

8. Position support (C) onto console and align holes in support with holes in console.
9. Reinstall cover (B) with existing screws (A).

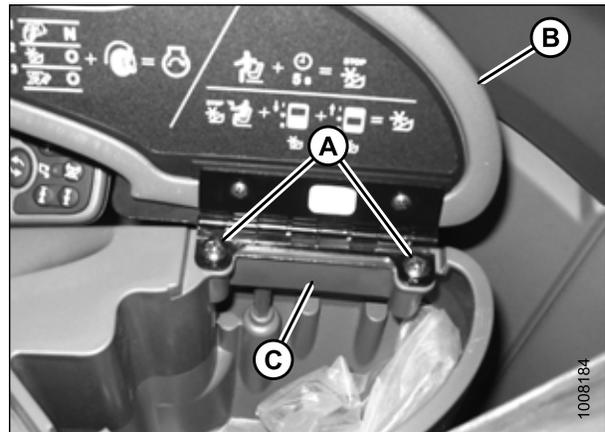


Figure 3.62: Support Position on Console

ASSEMBLING HEADER AND ADAPTER

10. Close cover and ensure that switch (A) and support (B) are secure.

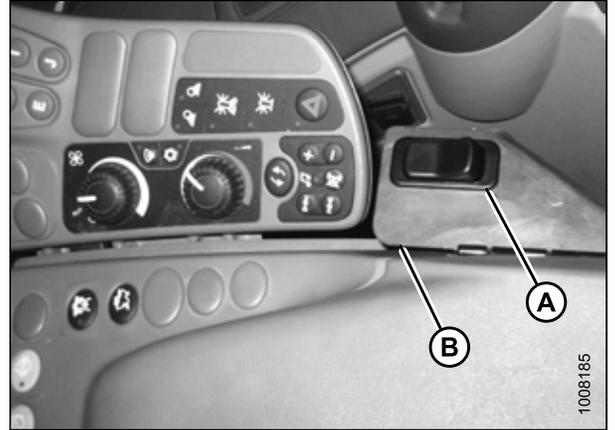


Figure 3.63: Secured Switch

11. Route feed end (A) of harness to auxiliary power outlet strip at right of cab floor.

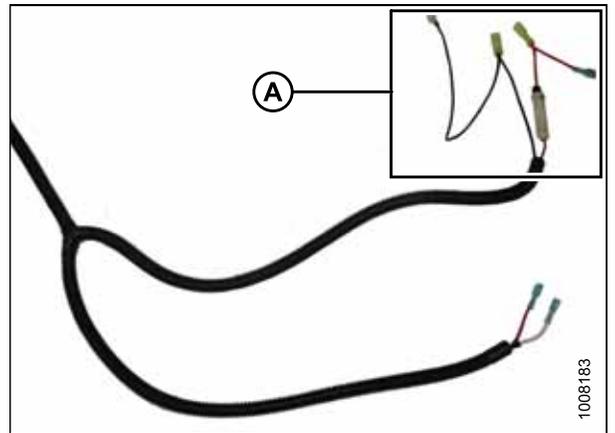


Figure 3.64: Feed End of Harness

ASSEMBLING HEADER AND ADAPTER

12. Connect feed end to one of the auxiliary power supply points (D) as follows:
 - a. Connect wire (from the in-line fuse) to switched power supply (C).
 - b. Connect other wire to ground (B).
13. Tape unused wire jumpers to harness.

IMPORTANT:

Connecting switch harness to unswitched power supply or cigarette lighter will supply constant power to header tilt side of solenoid valve and drain combine battery during extended shutdown periods.

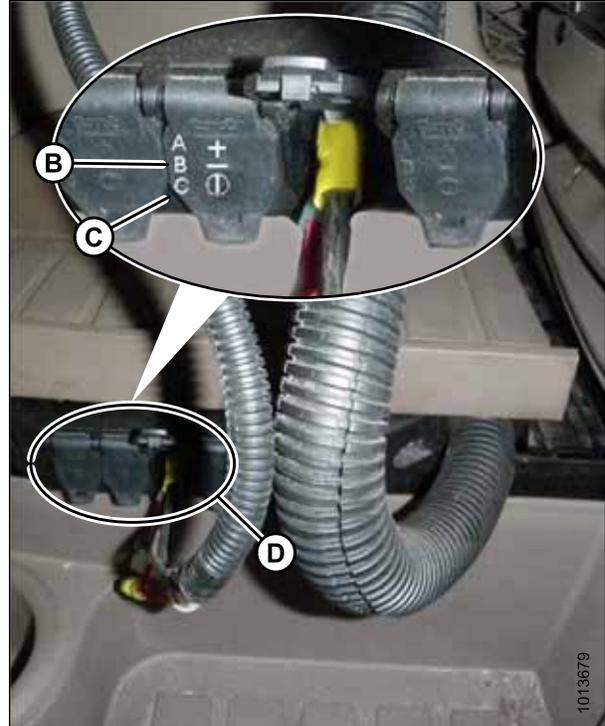


Figure 3.65: Combine Auxiliary Power Supply

14. Route plug end (A) of harness through hole (B) in cab floor, and feed entire length outside cab. Leave some slack in cab to allow for console adjustment.
15. Replace floor mat.

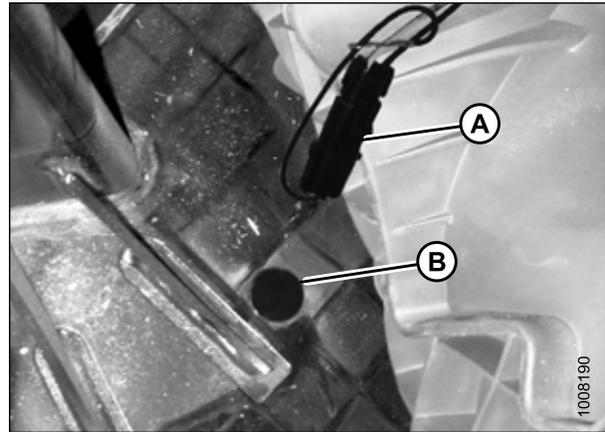


Figure 3.66: Plug End of Harness

ASSEMBLING HEADER AND ADAPTER

16. Route harness (A) under cab (along existing hoses) to left of feeder house, under hose shield (C), and to multicoupler (B).
17. Secure harness to hoses with cable ties as required.

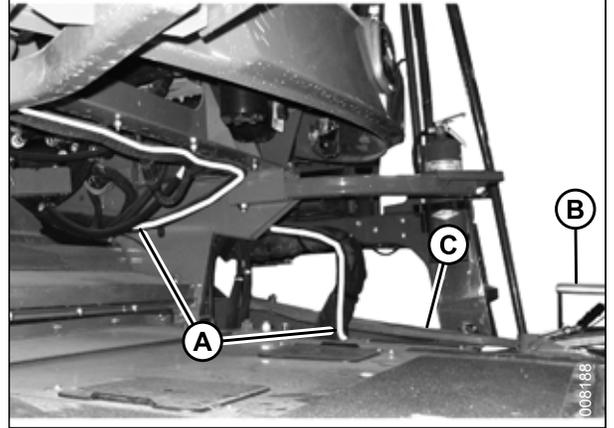


Figure 3.67: Harness Routing

Installing Reel Fore-Aft/Header Tilt Switch: 50, 60, and 70 Series Combines

The switch allows the combine Operator to select either REEL FORE-AFT or HEADER TILT mode.

! WARNING

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 machine for any reason.

This procedure is applicable **ONLY** to John Deere 50, 60, and 70 Series combines.

IMPORTANT:

To prevent damage to electronic components, disconnect the positive cable from the combine battery before connecting harness to combine connectors.

1. Lay the switch harness along the route from front of the feeder house to the auxiliary power supply in the cab as per these instructions. Ensure the switch harness will attach to selector valve wiring (with header tilted forward) and that the feeder house can be fully lowered with adequate slack in the harness.

50 series harness routing

2. Tie the switch harness (A) to the main harness on the left side of the feeder house with cable ties provided. Leave 250 mm (10 in.) extending past the end of main harness (B).

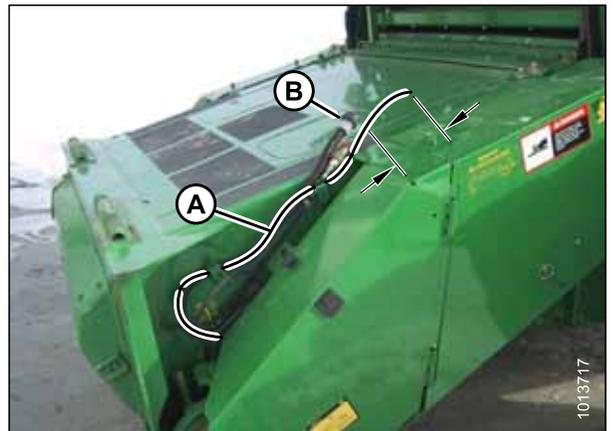


Figure 3.68: 50 Series Harness Routing

60/70 series harness routing

ASSEMBLING HEADER AND ADAPTER

3. Route the switch harness (A) through the welded hose guide on feeder house.



Figure 3.69: 60/70 Series Harness Routing

4. Secure the switch harness (A) at multicoupler with a cable tie. Leave 100 cm (40 in.) extending past location (B).

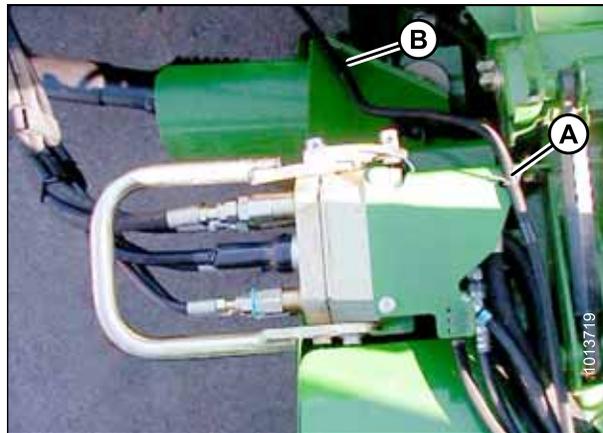


Figure 3.70: Switch Harness Routing

5. Route the switch harness (A) up to the underside of the cab floor.

IMPORTANT:

To prevent damage to harness, ensure adequate slack by lowering the feeder house fully before securing harness with cable tie.

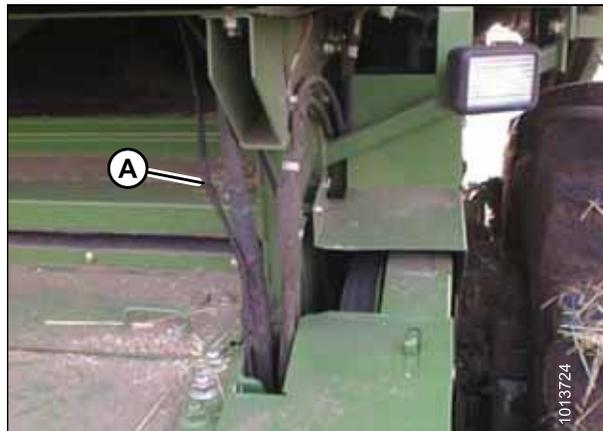


Figure 3.71: Switch Harness Routing

ASSEMBLING HEADER AND ADAPTER

- Secure the switch harness (A) at the rear of the feeder house with cable tie.
- Route harness (A) under cab and across to the right side.

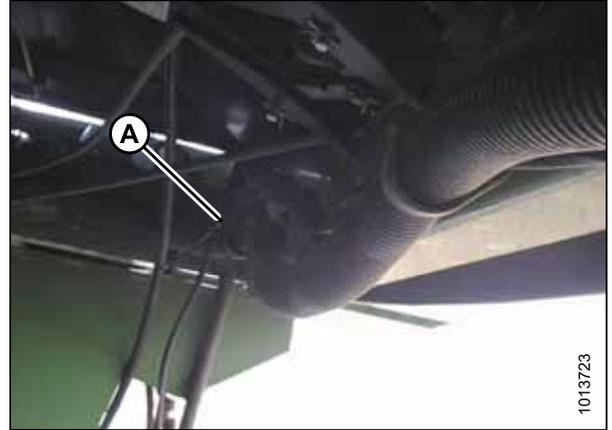


Figure 3.72: Switch Harness Routing

- Route the switch harness (A) through the existing grommet (B) on the electrical plate located at the rear of the right side window.

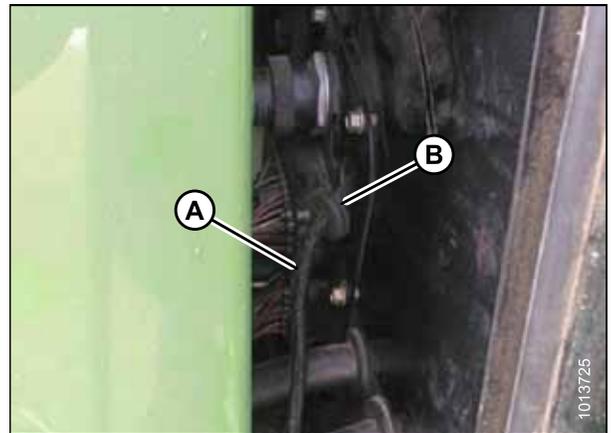


Figure 3.73: Switch Harness Routing

- Retrieve switch (A) and support (C) provided with kit.
- Install switch (A) into support (C) from the top. Ensure lugs on underside of support have secured the switch.

NOTE:

Image at right shows switch harness (B) connected to switch (A).

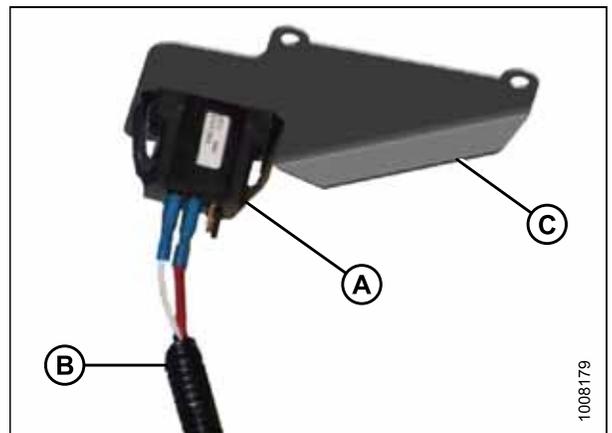


Figure 3.74: Switch and Harness

ASSEMBLING HEADER AND ADAPTER

11. Connect the switch end of harness (A) to switch (B) with one of the wires to center terminal and the other wire to either outer terminal. The color of the wires does not matter; ensure one wire terminates at the center terminal.

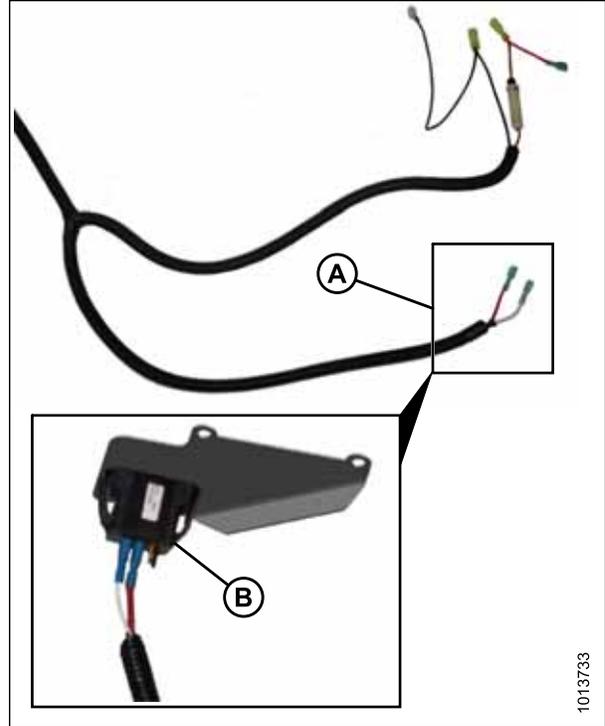


Figure 3.75: Switch End of Harness and Switch

12. Mount switch plate (A) between the armrest cover hinge (C) and the armrest using existing screws (B).

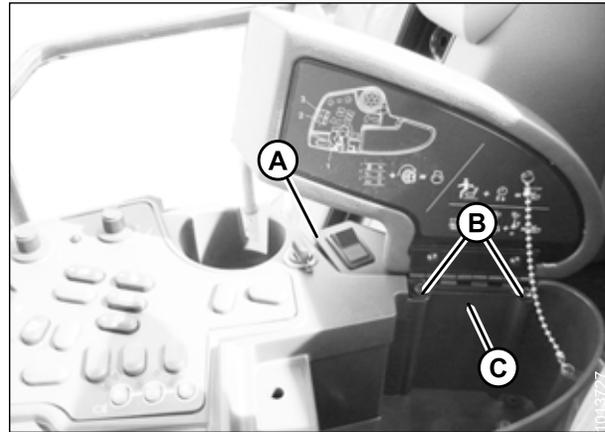


Figure 3.76: Switch Plate Mounting

ASSEMBLING HEADER AND ADAPTER

13. Connect the switch harness to the auxiliary power supply (D). Connect the wire with the in-line fuse to the switched power supply (C) and the second wire to the ground (B).

IMPORTANT:

Connecting the switch harness to an unswitched power supply or cigarette lighter will supply constant power to the header tilt side of the solenoid valve and drain the combine battery during extended shutdown periods.

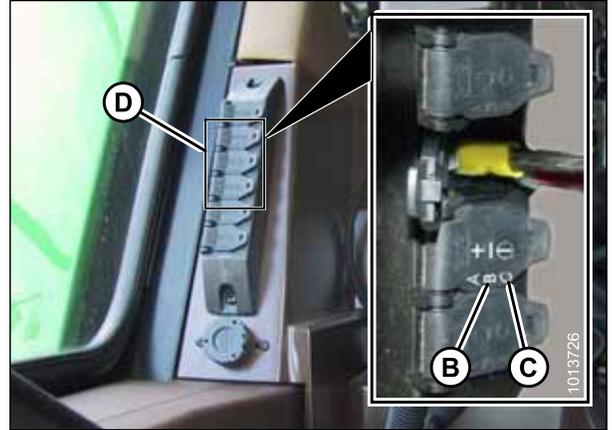


Figure 3.77: Auxiliary Power Supply

Attaching Header to John Deere Combine

DANGER

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

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

CAUTION

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

2. Start engine and slowly drive combine up to header until feeder house saddle (C) is directly under adapter top cross member (D).
3. Raise feeder house slightly to lift header, ensuring feeder house saddle is properly engaged in adapter frame.
4. Stop engine and remove key from ignition.

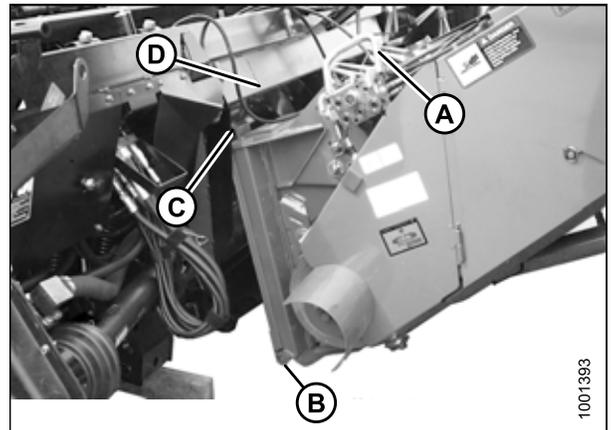


Figure 3.78: Combine and Adapter

ASSEMBLING HEADER AND ADAPTER

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

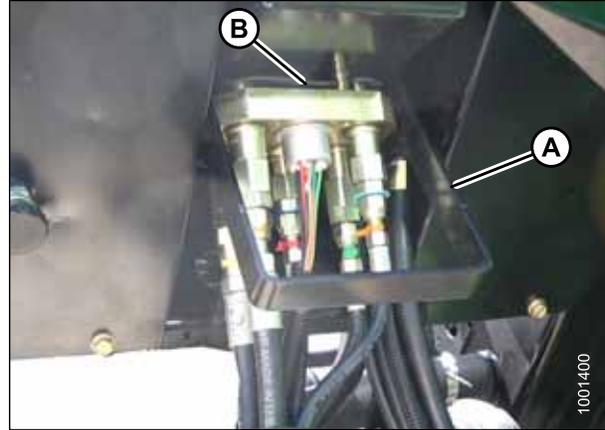


Figure 3.79: Multicoupler Storage

6. Position multicoupler (A) onto receptacle, and pull handle (B) to engage lugs on multicoupler into the handle.
7. Pull handle (B) to a horizontal position and ensure multicoupler (A) is fully engaged into receptacle.

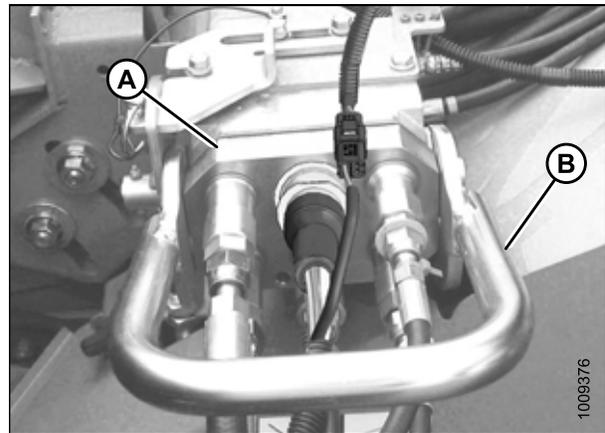


Figure 3.80: Multicoupler

8. Ensure that both feeder house pins (C) are fully engaged into adapter brackets.

NOTE:

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

9. Tighten bolts (D).

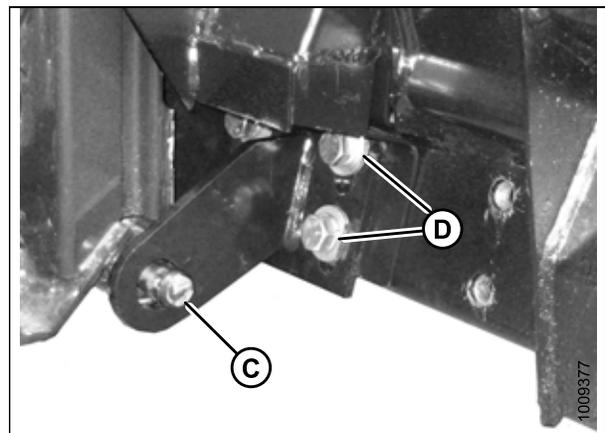


Figure 3.81: Feeder House Pin

ASSEMBLING HEADER AND ADAPTER

- Slide latch (A) to lock handle (B) in position and secure with lynch pin (C).
- Connect harness (D) to combine connector (E).

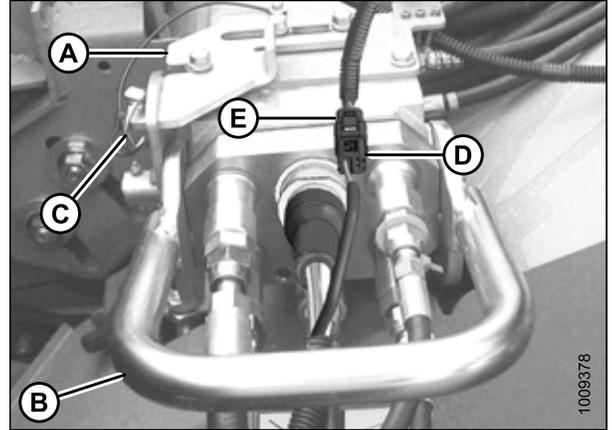


Figure 3.82: Multicoupler

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

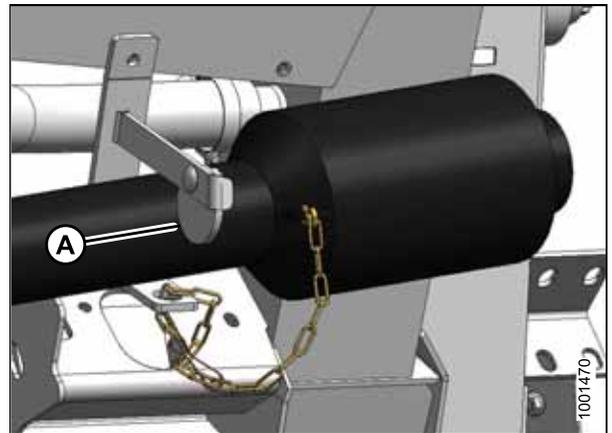


Figure 3.83: Driveline

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

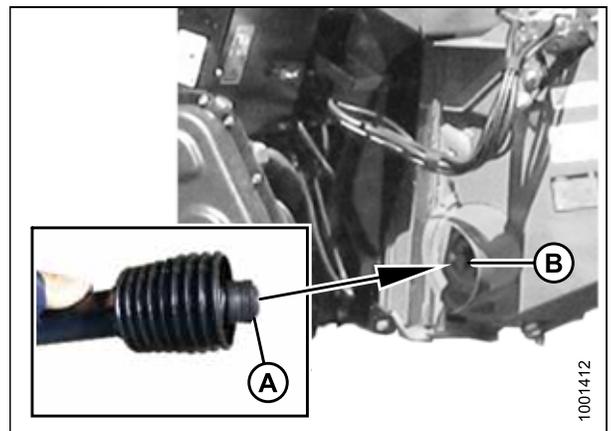


Figure 3.84: Driveline

ASSEMBLING HEADER AND ADAPTER

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

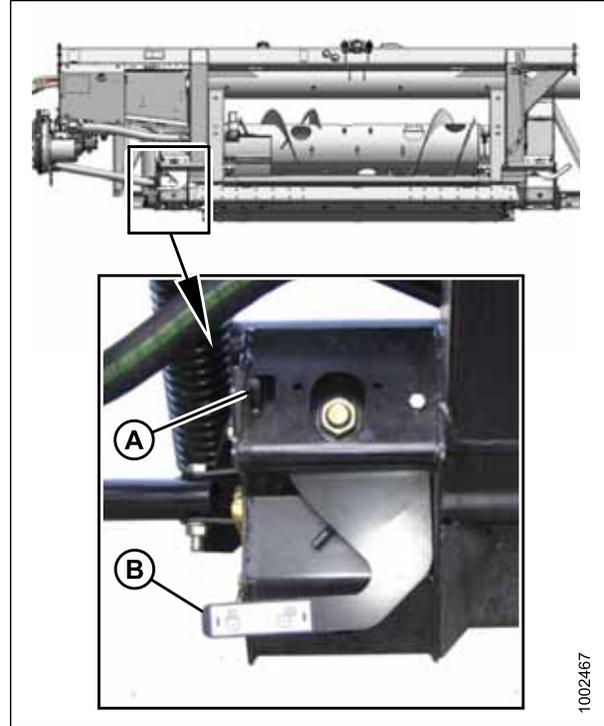


Figure 3.85: Float Lock in UNLOCK Position

15. Proceed to [3.4 Completing Header Assembly, page 79](#).

3.3.4 CLAAS Combines

Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness: CLAAS 500 Series

IMPORTANT:

To prevent possible damage to electronic components, disconnect the positive cable from the combine battery and turn BATTERY DISCONNECT switch OFF before connecting harness to combine connectors.

1. Prepare to install the REEL FORE-AFT/HEADER TILT switch:
 - a. Fully lower combine feeder house.
 - b. Shut down the combine. Disconnect the battery cable.
 - c. Obtain the long reel fore-aft/header tilt switch wire harness (MD #279753) from the completion package kit.

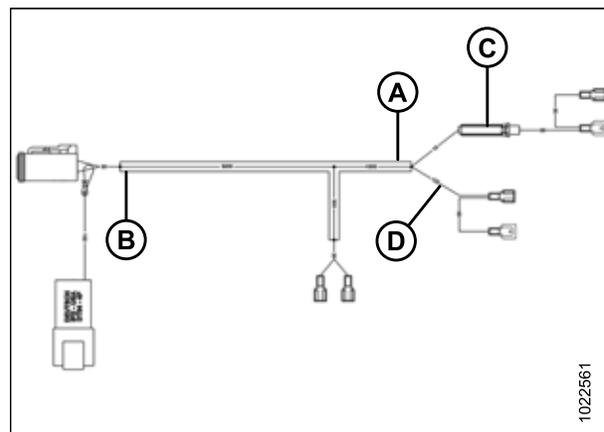


Figure 3.86: MD #279753 Wiring Harness

- A - Cab End
- B - Multicoupler End
- C - Power Supply Connectors
- D - Switch Connectors

ASSEMBLING HEADER AND ADAPTER

2. Remove storage tray (A) from console in combine cab.



Figure 3.87: Console Tray

3. Remove 13 mm hex nut (A) and washer from under combine monitor at front of console as shown.

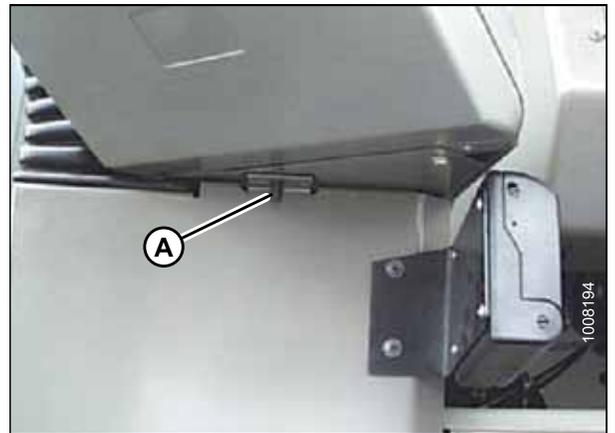


Figure 3.88: Combine Monitor

ASSEMBLING HEADER AND ADAPTER

4. Rotate console (A) to access wiring.

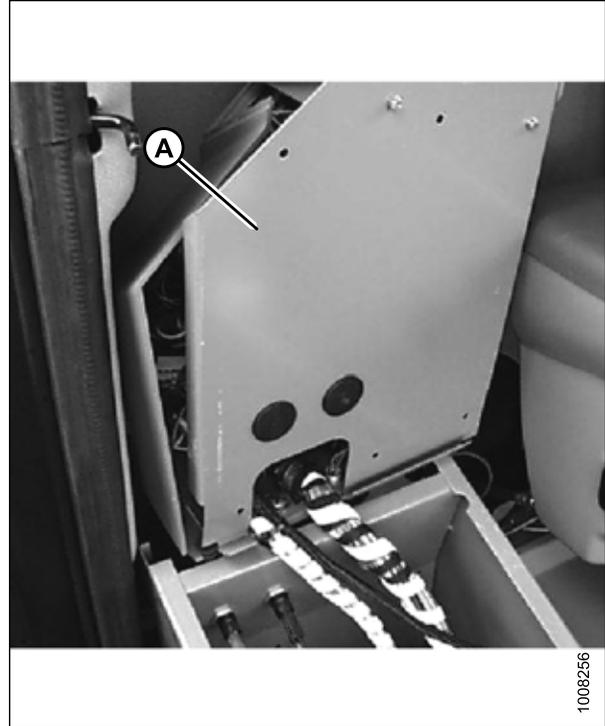


Figure 3.89: Opened Console

5. Remove plug (A) from cab floor under the console. Push the MacDon wire harness adapter end connector through the hole, and route most of the harness through hole.
6. Make a slit on the rubber floor plug (A) from the center and slide plug over wiring harness.

NOTE:

Maintain slack in the harness to prevent damage to harness.

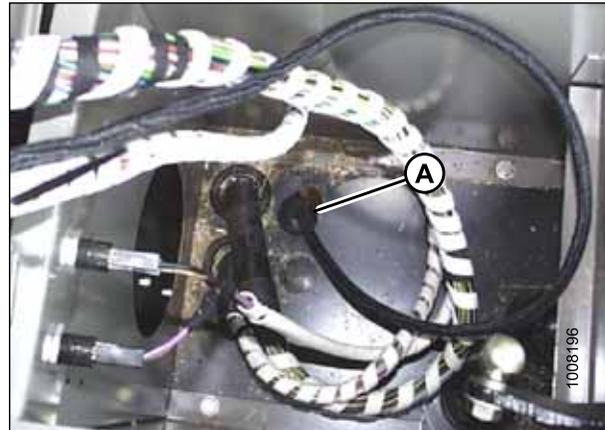


Figure 3.90: Harness Routing

ASSEMBLING HEADER AND ADAPTER

7. Remove five screws (A) and cover to access wiring connections inside console.

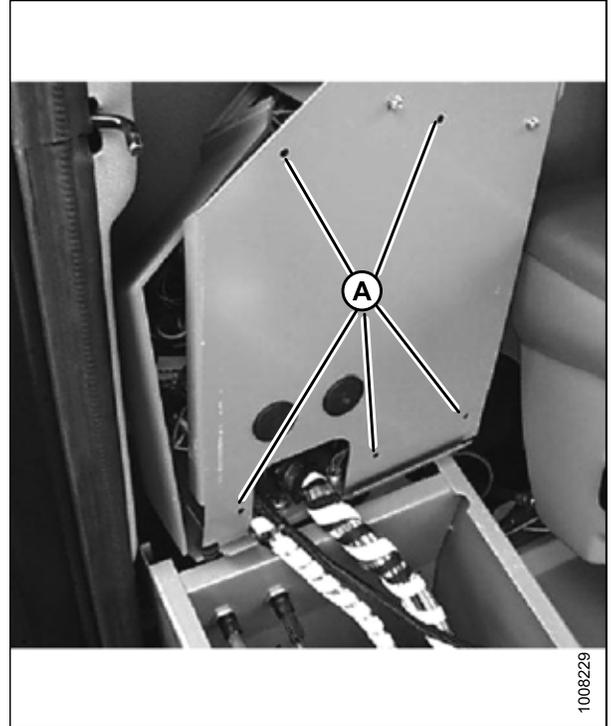


Figure 3.91: Console Underside

8. Remove the blank switch plug (A) from top side of console as shown. Route switch harness from under the console through the hole in console.



Figure 3.92: Switch Plug in Console

ASSEMBLING HEADER AND ADAPTER

9. Connect rocker switch (B) to the switch end (A) of the MacDon wiring harness (E) as follows:

- red wire (C) to center terminal
- white wire (D) to either outer terminal

NOTE:

Some MacDon wiring harnesses have two red wires instead of one white and one red. In that case, connect one red wire to the center terminal, and the second red wire to either outer terminal. It does not matter which outer terminal is used.

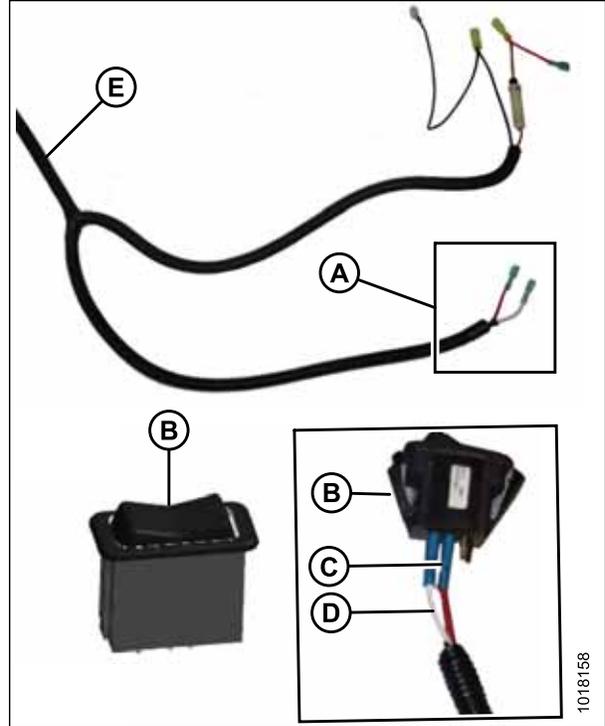


Figure 3.93: Switch End of MacDon Wiring Harness

10. Snap the rocker switch (A) into place.



Figure 3.94: Rocker Switch

ASSEMBLING HEADER AND ADAPTER

11. Secure the MacDon harness (A) to existing wires (B) with cable tie (C).

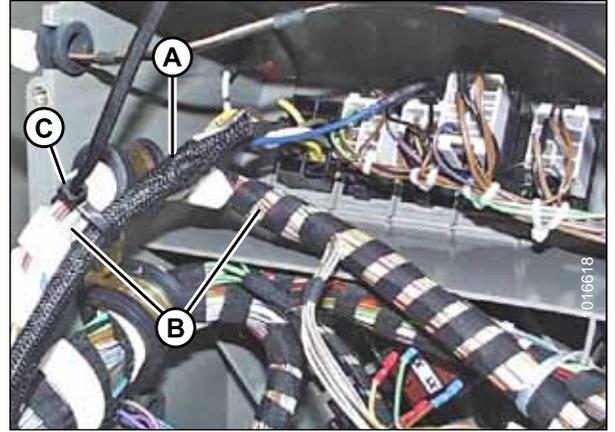


Figure 3.95: Console Interior

12. Reinstall floor plug (A) with MacDon harness (C) in floor (B).

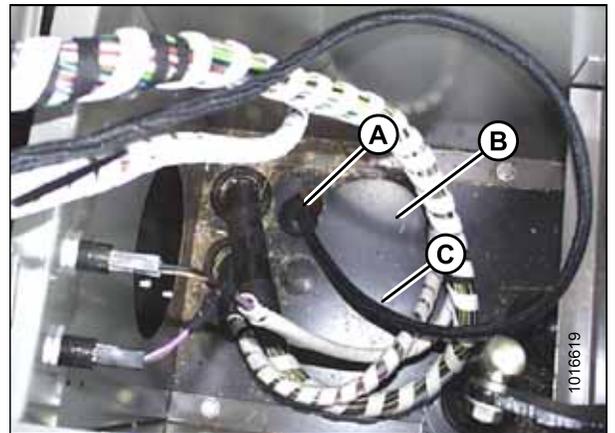


Figure 3.96: Console Interior

ASSEMBLING HEADER AND ADAPTER

13. Reinstall console cover and secure with five screws that were removed in Step 7, page 55.

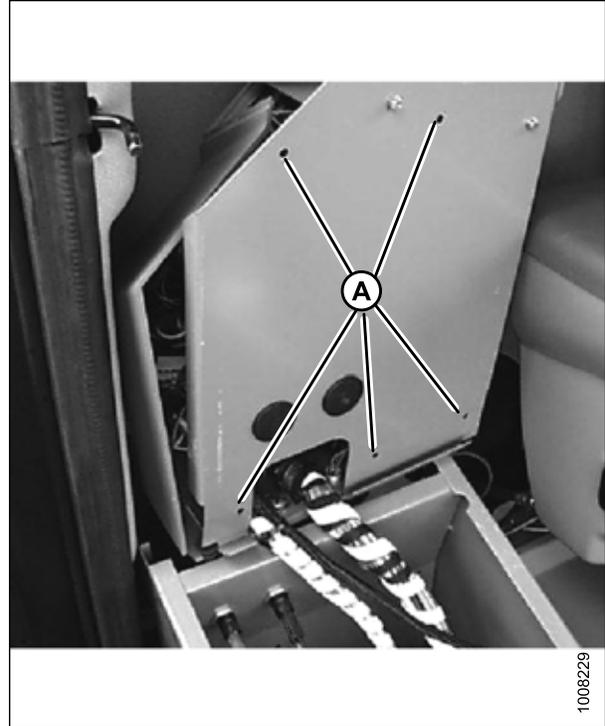


Figure 3.97: Console Underside

14. Depending on the type of connection required—two connectors or single connector—connect the power source end (A) of the MacDon wire harness to the in-cab power source (under the console) as follows:

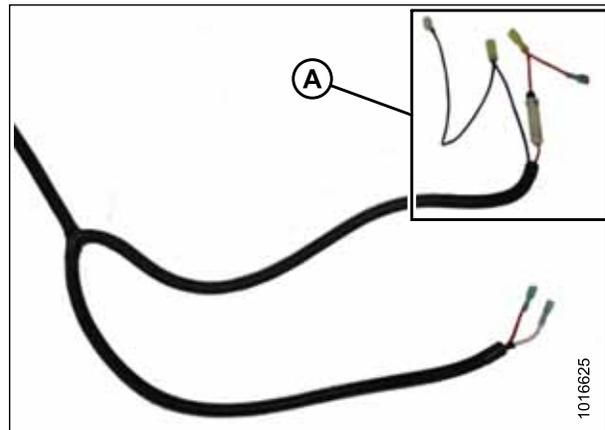


Figure 3.98: MacDon Harness

ASSEMBLING HEADER AND ADAPTER

15. *Two-connector hookups:*

- a. Remove the brown wire (A) from the power source under the console, and replace it with the black wire (B) from the MacDon harness.
- b. Remove the black wire from the power source, and replace it with the red wire (C) from the MacDon harness.
- c. Attach the brown wire (removed from the power source) to the other red wire coming from the MacDon harness.
- d. Attach the black wire (removed from the power source) to the other black wire coming from the MacDon harness.

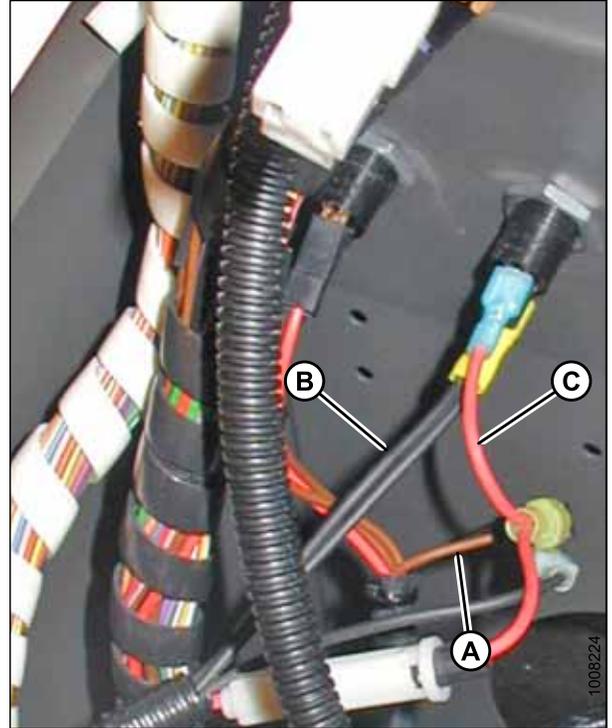


Figure 3.99: Two Connector Hookup: Switch Harness Installed

16. *Single-connector hookups:*

- a. Remove existing white plug (A) with brown and black wires from power source.
- b. Remove insulation from male blades (B) and (C) on MacDon wire harness.
- c. Attach black male connector (B) to existing connector (A) at black wire location.
- d. Attach red male connector (C) to existing connector (A) at brown wire location.
- e. Attach connector (D) with two black wires to upper terminal on power source.
- f. Attach connector (E) with red wire to lower terminal on power source.

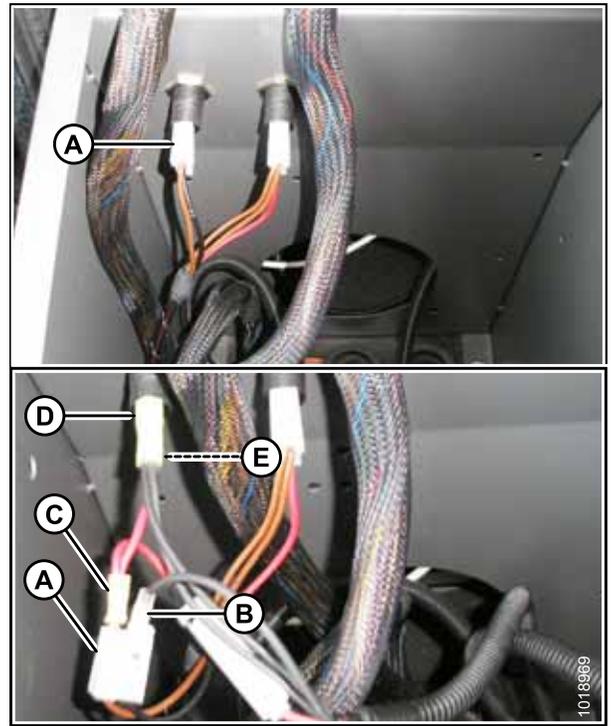


Figure 3.100: Single Connector Hookup

Top - Before Connecting the Switch Harness
Bottom - After Connecting the Switch Harness

ASSEMBLING HEADER AND ADAPTER

17. Return the console to its original position, and install the washer and 13 mm hex nut (A) removed in Step 3, [page 53](#).

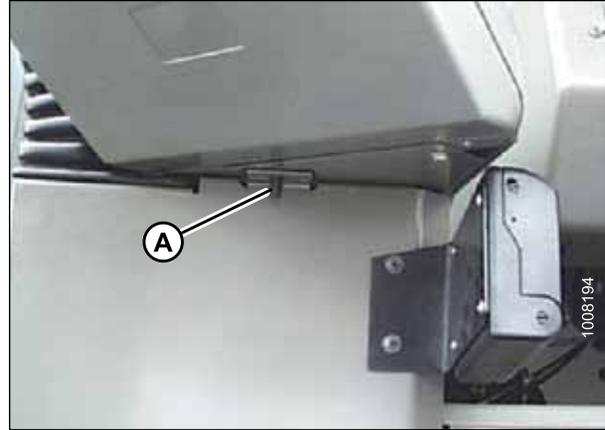


Figure 3.101: Combine Monitor

18. Route MacDon wiring harness (A) underneath the cab floor. Place the harness in the steel tray (B) along underside of cab floor to prevent it from being damaged.

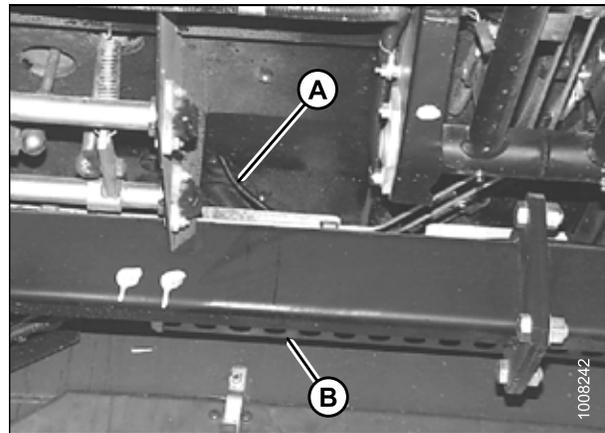


Figure 3.102: Cab Underside

19. Route wiring harness from the left corner of steel tray to conduit (A), between cab floor and frame as shown at location (B), and along conduit (A) down to the combine multicoupler.

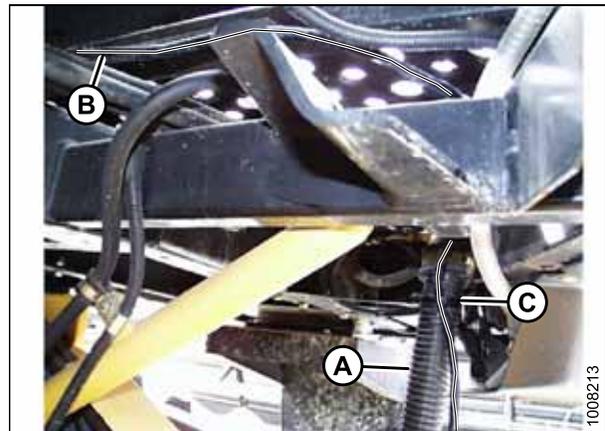


Figure 3.103: Cab Underside

ASSEMBLING HEADER AND ADAPTER

20. Secure the MacDon wiring harness (A) to conduit (B) (starting from the multicoupler end) with cable ties (C).

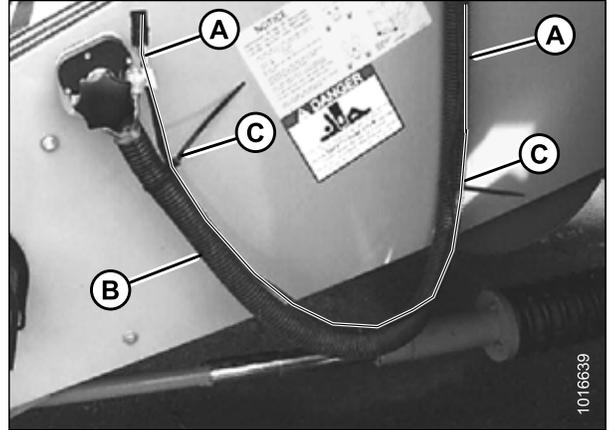


Figure 3.104: Combine Multicoupler

Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness: CLAAS 700 Series

IMPORTANT:

To prevent possible damage to electronic components, disconnect the positive cable from the combine battery and turn BATTERY DISCONNECT switch OFF before connecting harness to combine connectors.

1. Prepare to install the REEL FORE-AFT/HEADER TILT switch:
 - a. Fully lower combine feeder house.
 - b. Shut down the combine. Disconnect the battery cable.
 - c. Obtain the long reel fore-aft/header tilt switch wire harness (MD #279753) from the completion package kit.

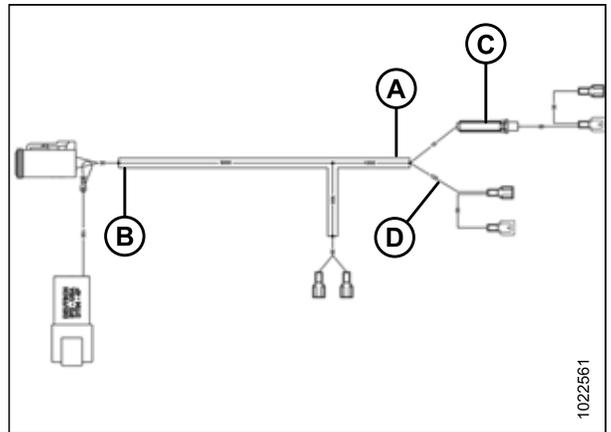


Figure 3.105: MD #279753 Wiring Harness

- A - Cab End
- B - Multicoupler End
- C - Power Supply Connectors
- D - Switch Connectors

ASSEMBLING HEADER AND ADAPTER

2. Open the panel beside the seat as follows:
 - a. Remove two screws (A) from panel on operator's console.
 - b. Pull up on tab (B) and rotate cover upward to expose underside of cover.

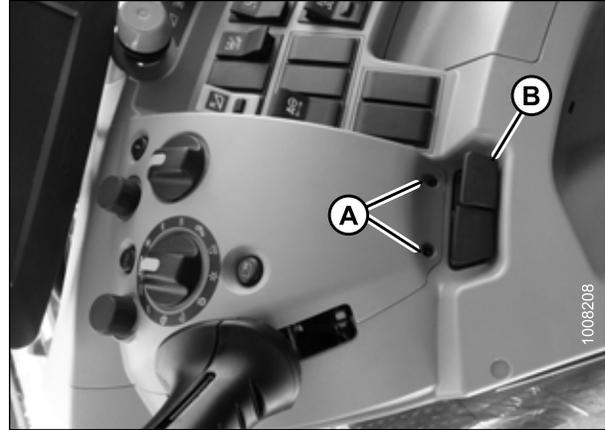


Figure 3.106: Operator's Console

3. Insert switch end (A) of MacDon wiring harness (B) through bottom of console (C) beside existing wire (D).

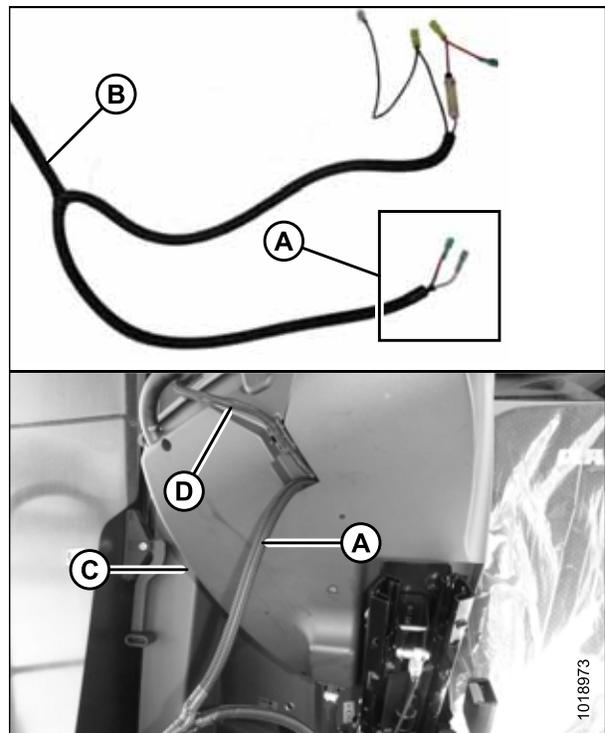


Figure 3.107: Switch Harness Connection

ASSEMBLING HEADER AND ADAPTER

4. Remove a blank cap from operator's panel at location (A). If LASER PILOT autosteer switch is installed, select the blank plug next to it for location of rocker switch.
5. Route switch end (B) of MacDon harness through opening (A).

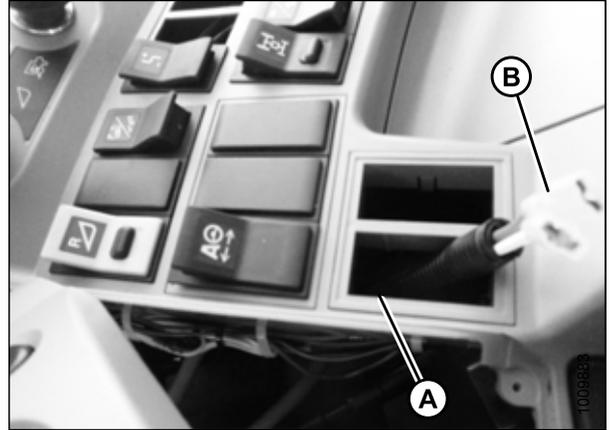


Figure 3.108: Switch and Console

6. Retrieve rocker switch (A) from shipping package.
7. Connect red wire (B) at switch end of harness to center terminal of rocker switch (A).
8. Connect white wire (C) at switch end of harness to either outer terminal of rocker switch (A). It does not matter which outer terminal is used.

NOTE:

Some MacDon wiring harnesses have two red wires instead of one white and one red. In that case, connect one red wire to the center terminal and the second red wire to either outer terminal. It does not matter which outer terminal is used.

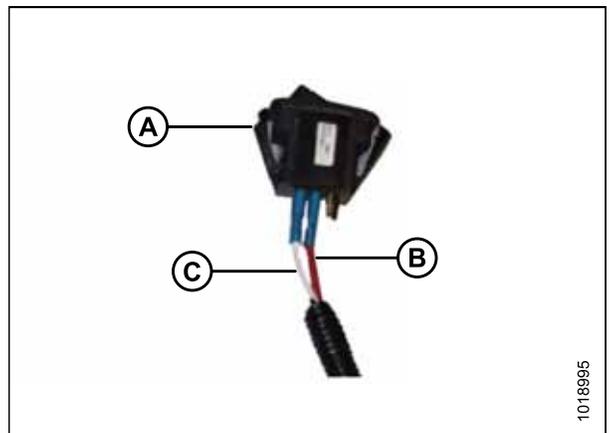


Figure 3.109: Switch Connection

9. Snap rocker switch (A) into the panel from the top.
10. Replace cover onto console and secure with the two previously removed screws (B).
11. Locate power source for the switch. Refer to the following procedures as necessary:

IMPORTANT:

Location depends on combine model. A switched power source is either inside the terminal compartment on the cab floor, or behind a removable panel beside the ignition switch. If there is no switched power available, unswitched power or a cigarette lighter adapter may be used.



Figure 3.110: Console

If on-floor power source:

ASSEMBLING HEADER AND ADAPTER

12. Locate terminal compartment (A) on floor at right of cab, and remove the terminal compartment cover for access to 12-volt switched power.

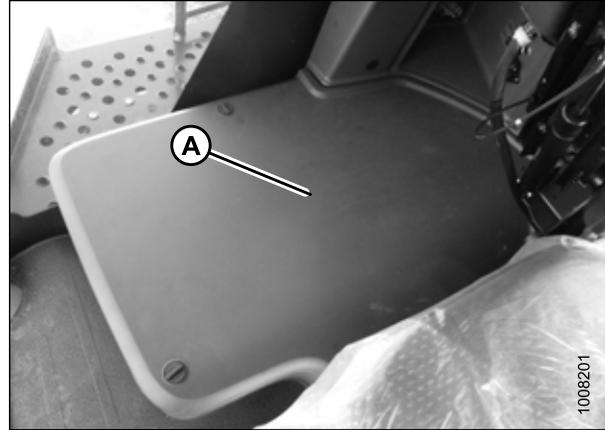


Figure 3.111: Terminal Compartment

13. Locate the CLAAS single-wire harness (A) and white connector (B) with one brown wire and one black wire.

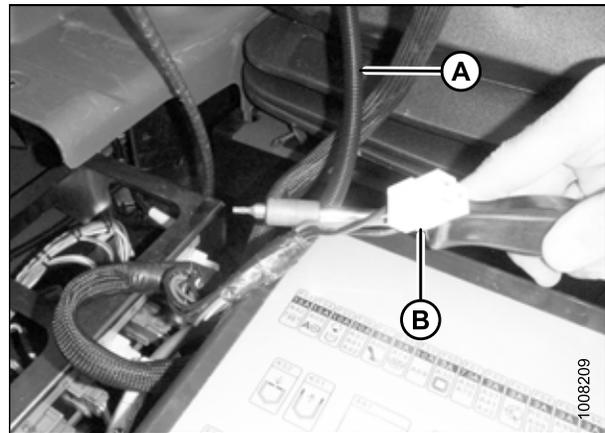


Figure 3.112: Terminal Compartment

NOTE:

The power source end (A) of the MacDon wire harness has four blade-type connectors.

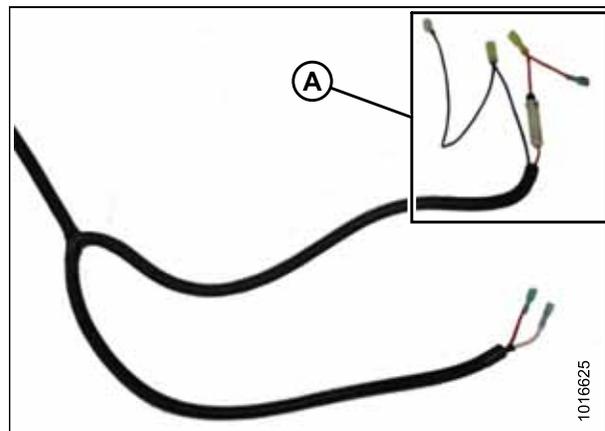


Figure 3.113: MacDon Wire Harness

ASSEMBLING HEADER AND ADAPTER

14. Connect wires from the MacDon wiring harness (A) to the CLAAS harness (B) as follows:
 - a. Remove insulation from red (C) and black (D) connectors.
 - b. Attach red wire (C) in MacDon harness to brown wire in CLAAS white plug (E).
 - c. Attach black wire (D) in MacDon harness to black wire in CLAAS white plug (E).
15. Proceed to Step 24, page 67 to connect to the combine multicoupler.

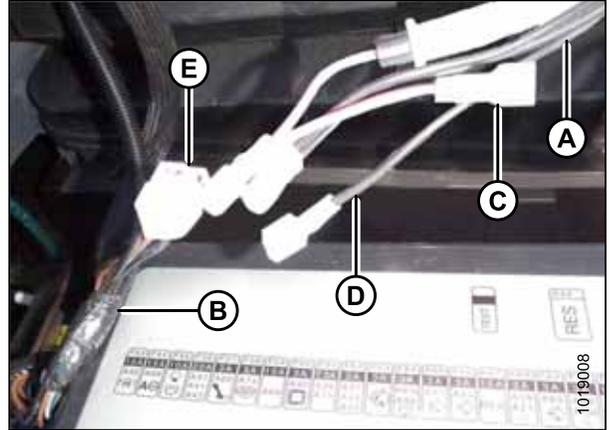


Figure 3.114: Power Source Connection

If beside-ignition power source:

16. Remove access panel (A) beside ignition to gain access to rear of cigarette lighter (B). If a white plug with two wires is available, it can be used to connect the MacDon wiring harness.



Figure 3.115: Panel

17. Retrieve white plug (A) on cigarette lighter wiring harness from behind cigarette lighter.
18. Route MacDon wiring harness from previously installed switch to rear right corner of cab and into panel opening. If necessary, add an extension or additional length to the MacDon wiring harness so that there is sufficient length to connect to the white plug on the CLAAS harness.



Figure 3.116: Switched Power Harness Plug

ASSEMBLING HEADER AND ADAPTER

19. Install MacDon wiring harness between cigarette lighter and lighter harness as follows:
 - a. Remove insulation from red (A) and black (B) male connectors.
 - b. Remove CLAAS harness from cigarette lighter.
 - c. Attach red wire female connector (C) on MacDon harness to power terminal on cigarette lighter.
 - d. Attach black wire female connector (D) on MacDon harness to negative terminal on cigarette lighter.
 - e. Attach red wire male connector (A) and black wire male connector (B) to same colored wires in the CLAAS harness connector (E) (red to red; black to black).

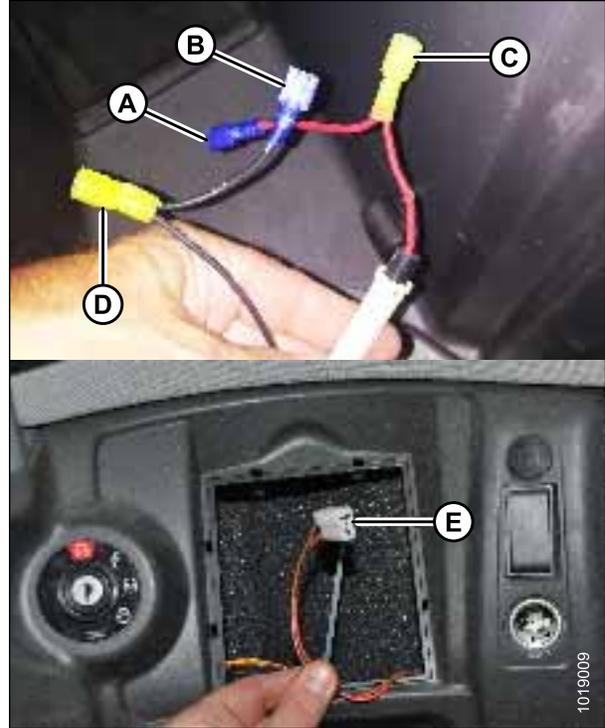


Figure 3.117: Wiring Harnesses

20. Secure MacDon harness as required with cable ties.
21. Reinstall access panel (A).
22. Proceed to Step 24, page 67 to connect to the combine multicoupler.



Figure 3.118: Plastic Cover

ASSEMBLING HEADER AND ADAPTER

If using an unswitched 12 V power source:

If there are no available plugs in the switched power supply, unswitched power or a cigarette lighter adapter harness can be used.

CAUTION

Constant power is supplied to the header tilt side of the solenoid valve. If the circuit is left powered during extended shutdown periods, the combine battery will be drained.

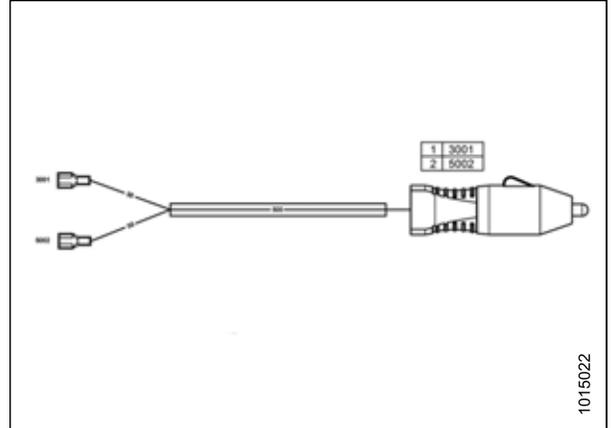


Figure 3.119: Optional Cigarette Lighter Adapter (MD #220570)

23. Connect optional cigarette lighter adapter to MacDon wiring harness as follows:
 - a. Retrieve power supply end of MacDon harness.
 - b. Attach male connectors (A) on MacDon harness to female connectors (B) on adapter (C) wires, matching wire colors.
 - c. Plug lighter adapter (C) into lighter receptacle to activate fore-aft/tilt switch.

IMPORTANT:

Unplug lighter adapter (C) when reel fore-aft/tilt function is not needed to avoid draining combine battery.

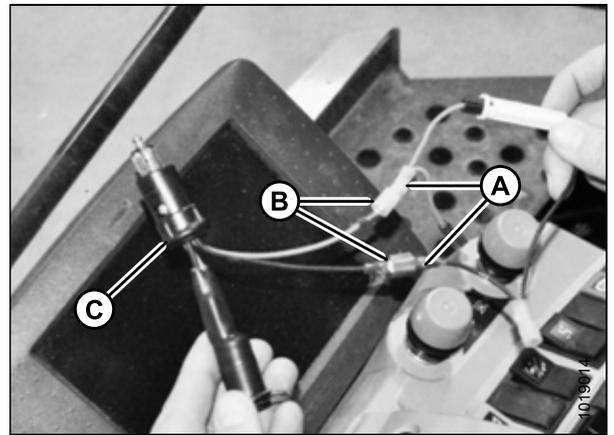


Figure 3.120: Cigarette Lighter Adapter Connections

24. Make a hole in one of the blank covers at left of the compartment at location (A) for the MacDon switch harness.
25. Route dual-pin connector end of switch harness through hole.

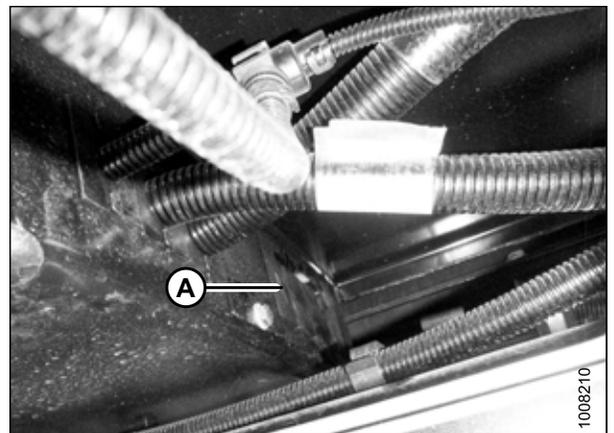


Figure 3.121: Switch Harness

ASSEMBLING HEADER AND ADAPTER

26. Route switch harness (A) under the cab floor alongside the existing harnesses. Do **NOT** secure harness with cable ties until routing is complete.

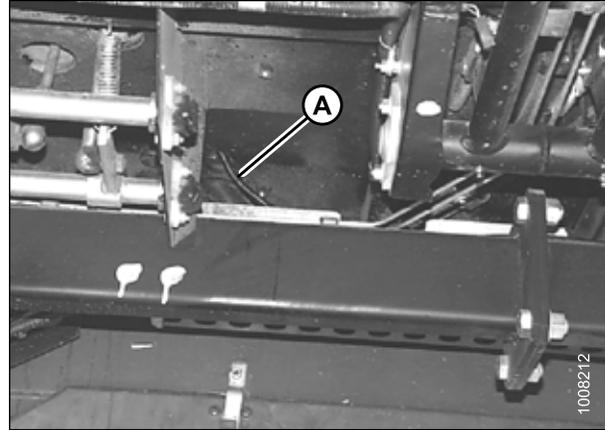


Figure 3.122: Cab Underside of CLAAS 500 Series

27. Route switch harness (A) between cab floor and frame, from bottom left corner of cab to conduit (B), and along conduit (B) to multicoupler.

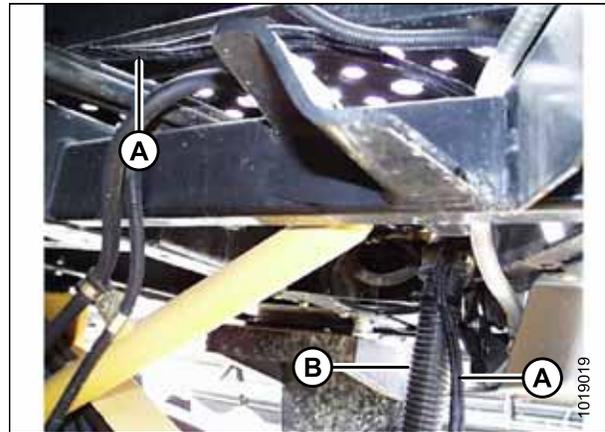


Figure 3.123: CLAAS 500 Series Shown

28. Secure wiring harness (A) to conduit (B) (starting from the multicoupler end) with cable ties (C) at locations shown.

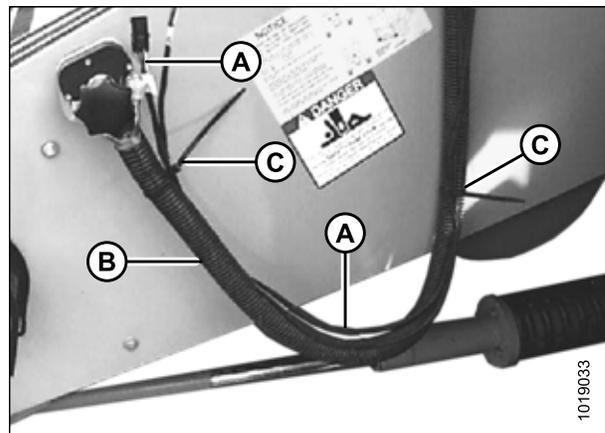


Figure 3.124: Combine Multicoupler

ASSEMBLING HEADER AND ADAPTER

29. Route excess MacDon harness length back into the terminal compartment.
30. Secure MacDon harness (A) to existing CLAAS harness (B) with cable ties.

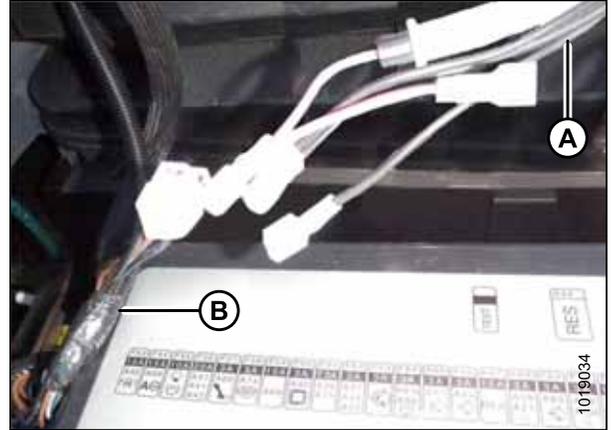


Figure 3.125: Existing Harness and MacDon Harness

Attaching Header to CLAAS Combine

DANGER

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

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

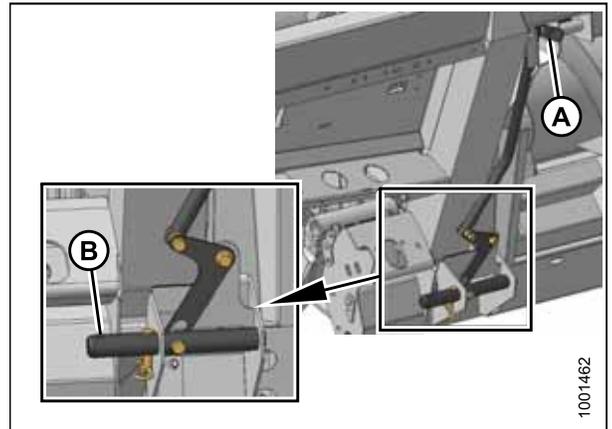


Figure 3.126: Pins Retracted

ASSEMBLING HEADER AND ADAPTER

CAUTION

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

2. Start engine and slowly drive combine up to header until feeder house saddle (A) is directly under adapter top cross member (B).
3. Raise feeder house slightly to lift header, ensuring feeder saddle is properly engaged in adapter frame.
4. Stop engine and remove key from ignition.

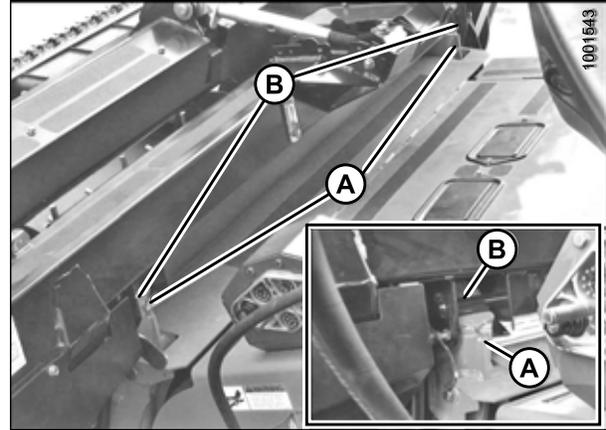


Figure 3.127: Header on Combine

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

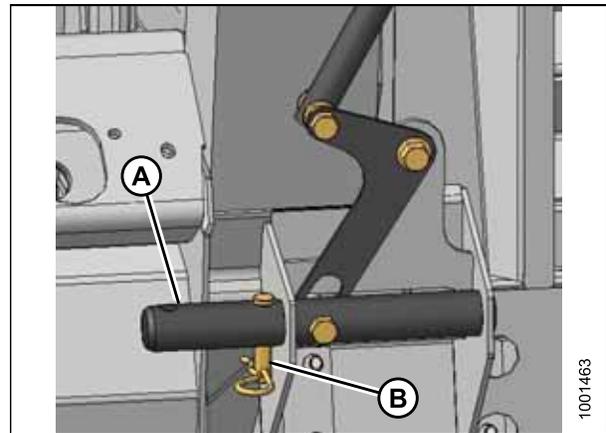


Figure 3.128: Adapter Pin

6. Lower handle (A) to engage pins (B) into feeder house. Reinsert locking pin (C) and secure with the hairpin.
7. Remove blocks from under cutterbar.

CAUTION

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

8. Start engine and lower header.
9. Stop engine and remove key from ignition.

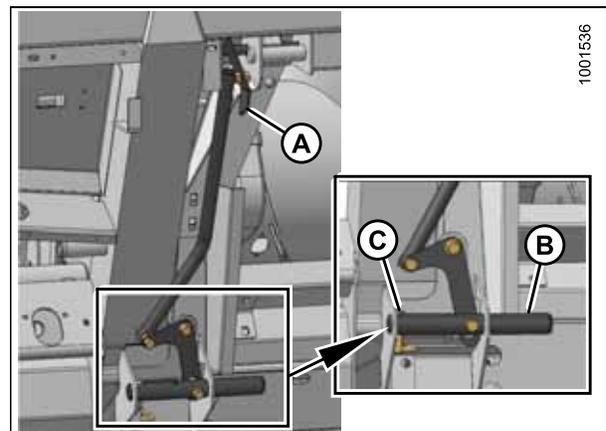


Figure 3.129: Engaging Pins

ASSEMBLING HEADER AND ADAPTER

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

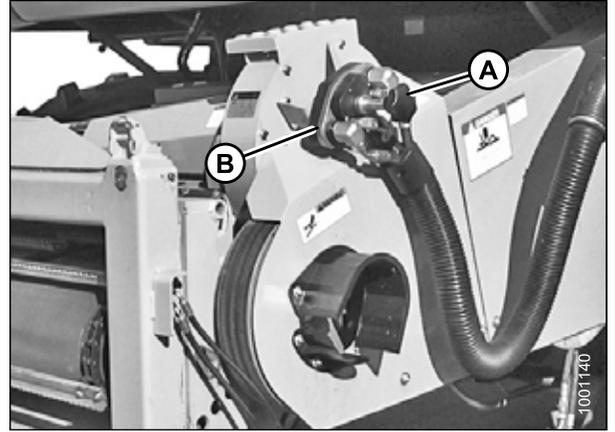


Figure 3.130: Combine Coupler

11. Remove CA25 receptacle cover (A).

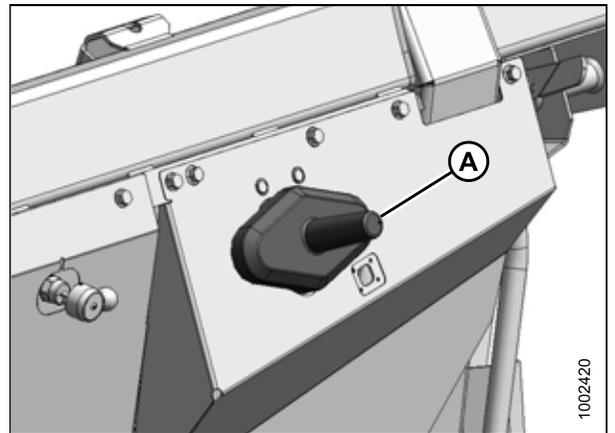


Figure 3.131: Receptacle Cover

12. Place CA25 receptacle cover (A) onto combine receptacle.

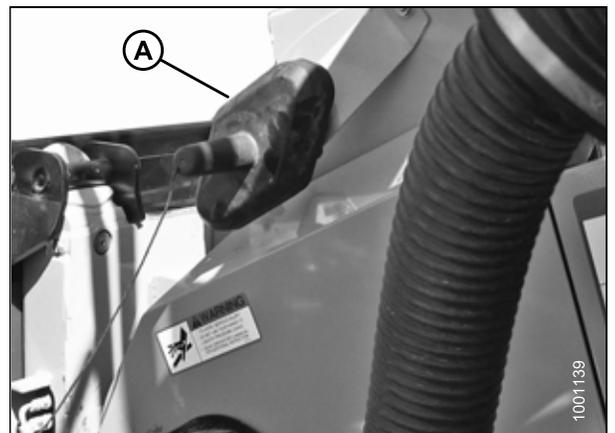


Figure 3.132: Receptacle Cover

ASSEMBLING HEADER AND ADAPTER

13. Clean mating surface of coupler (A) and position onto CA25 receptacle (B).
14. Turn knob (C) to secure coupler to receptacle.
15. Connect combine harness (D) to reel fore-aft/header tilt selector receptacle (E).

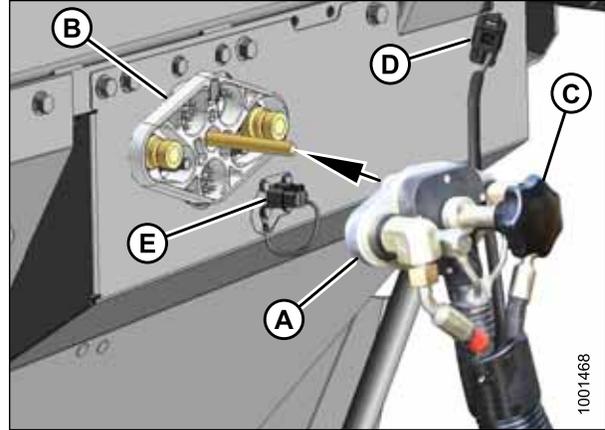


Figure 3.133: Coupler

16. Remove shipping wire from driveline (A) and float lock lever (B).

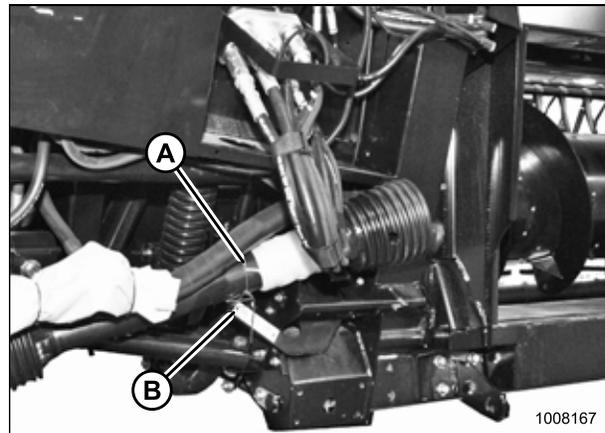


Figure 3.134: Adapter Shipping Configuration

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

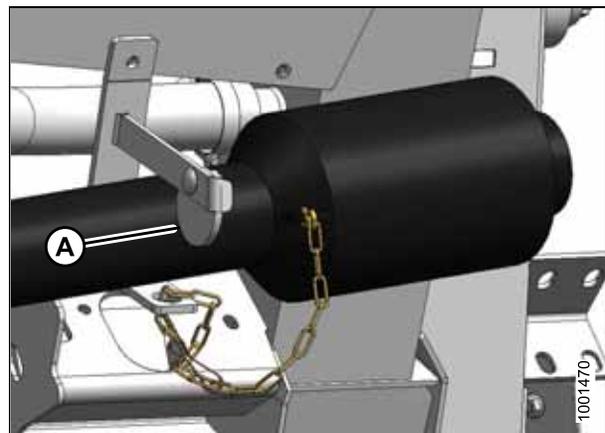


Figure 3.135: Driveline

ASSEMBLING HEADER AND ADAPTER

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

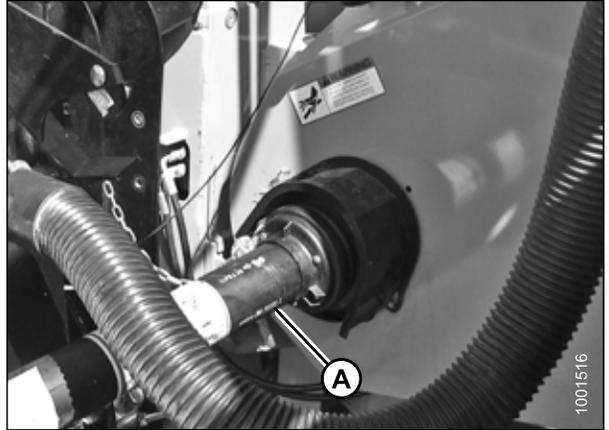


Figure 3.136: Driveline and Output Shaft

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

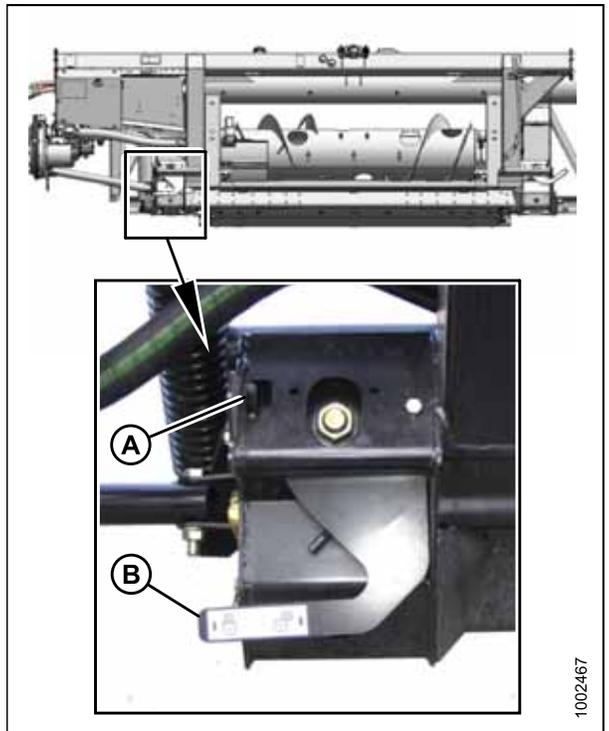


Figure 3.137: Float Lock in UNLOCK Position

20. Proceed to [3.4 Completing Header Assembly, page 79](#).

3.3.5 New Holland Combines

Attaching Header to New Holland CR/CX Combine

DANGER

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

ASSEMBLING HEADER AND ADAPTER

1. On upper left of CA25, remove nut (A) and flip lever (B) horizontally.

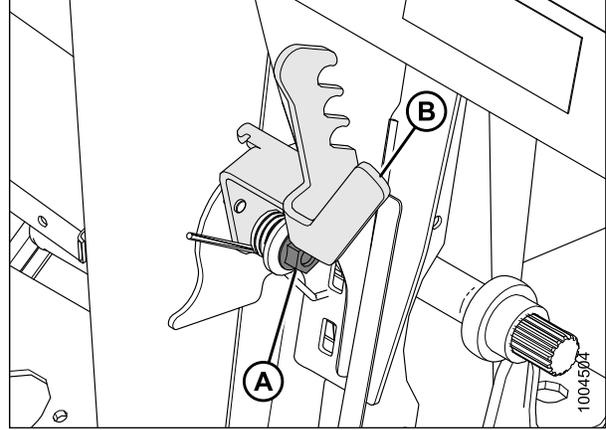


Figure 3.138: Feeder House Lever Lock on CA25

2. Position lever (A) onto stud (B).

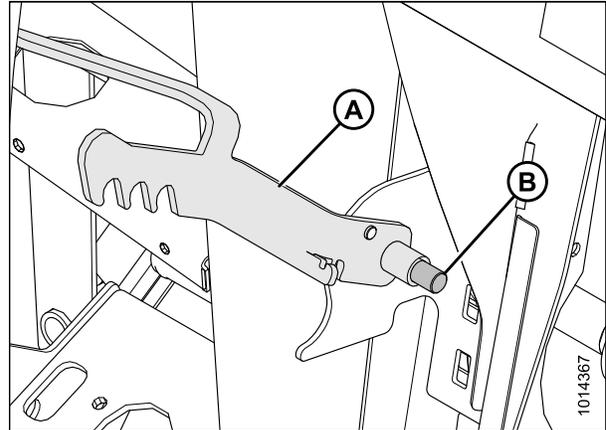


Figure 3.139: Feeder House Lever Lock on CA25

3. Place spring arm (C) into hook on lever (B) to preload it, and tighten nut (A) with washer.

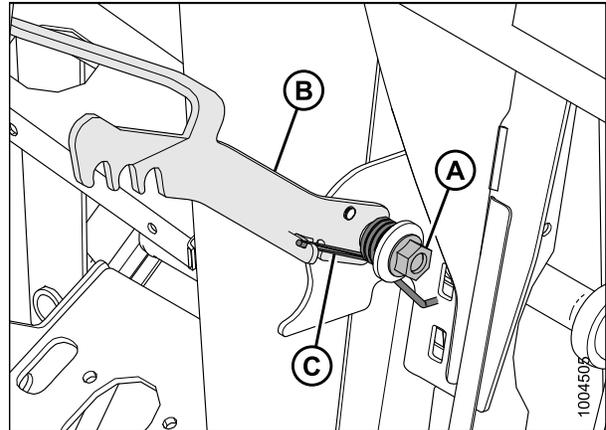


Figure 3.140: Feeder House Lever Lock on CA25

ASSEMBLING HEADER AND ADAPTER

4. Ensure handle (A) is positioned so hooks (B) can engage CA25 adapter.

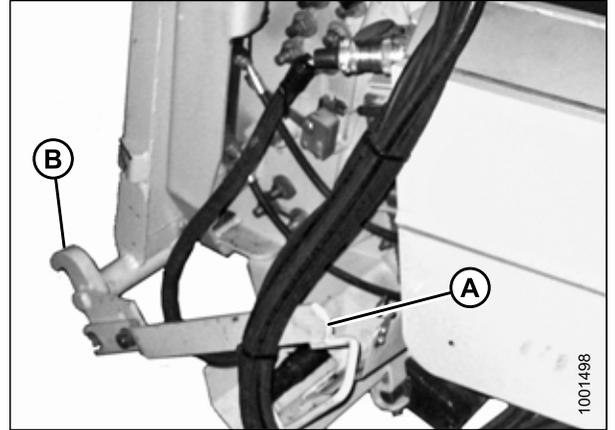


Figure 3.141: Feeder House Locks

CAUTION

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

5. Start engine and slowly drive combine up to CA25 until feeder house saddle (A) is directly under CA25 top cross member (B).
6. Raise feeder house slightly to lift header ensuring feeder saddle is properly engaged in CA25 frame.
7. Stop engine and remove key from ignition.
8. Lift lever (A) on CA25 on left side of feeder house, and push handle (B) on combine to engage locks (C) on both sides of feeder house.
9. Push down on lever (A) so slot in lever engages handle and locks handle in place.
10. Loosen bolts (E) and adjust lock (C) if lock does not fully engage pin on CA25 when lever (A) and handle (B) are engaged. Retighten bolts.

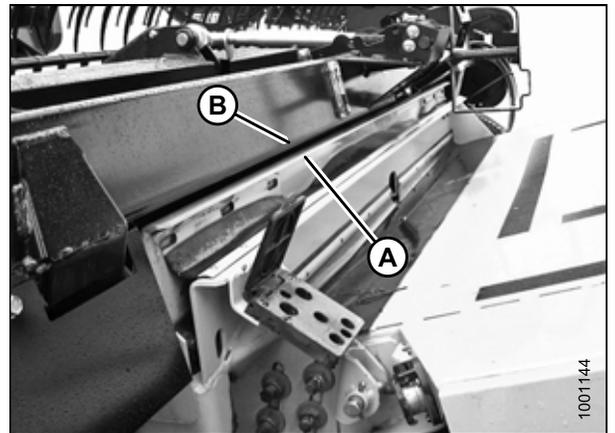


Figure 3.142: Header on Combine

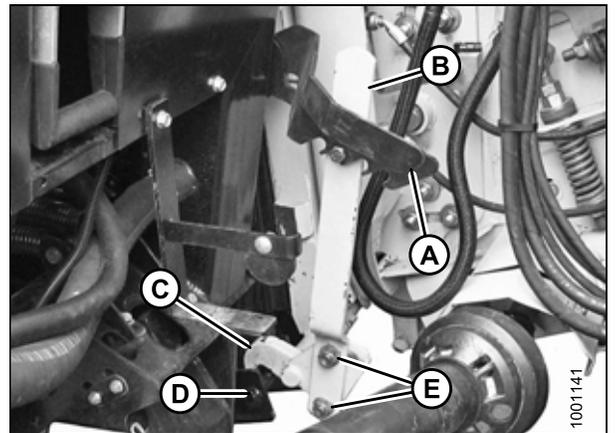


Figure 3.143: Feeder House Locks

ASSEMBLING HEADER AND ADAPTER

11. Open receptacle cover (A) on CA25.
12. Push in lock button (B) and pull handle (C) to full open position.
13. Clean receptacle mating surfaces.

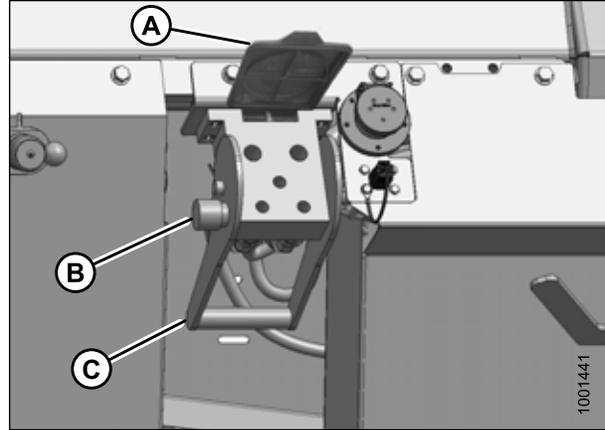


Figure 3.144: Adapter Receptacle

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

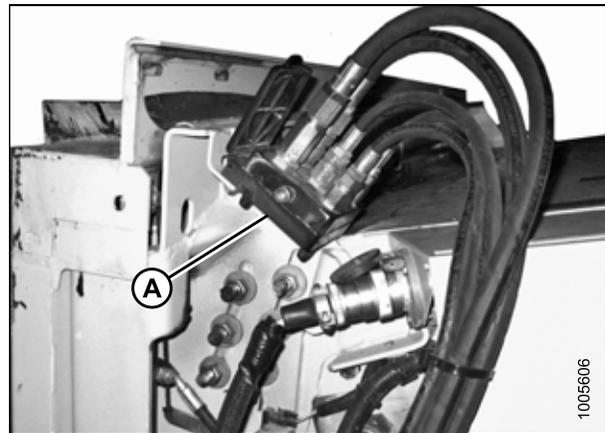


Figure 3.145: Combine Coupler

15. Position coupler (A) onto CA25 receptacle, and push handle (B) to engage pins into receptacle.
16. Push handle (B) to closed position until lock button (C) snaps out.
17. Remove cover on CA25 electrical receptacle.
18. Remove connector (D) from combine.
19. Align lugs on connector (D) with slots in CA25 receptacle, and push connector onto receptacle. Turn collar on connector to lock it in place.

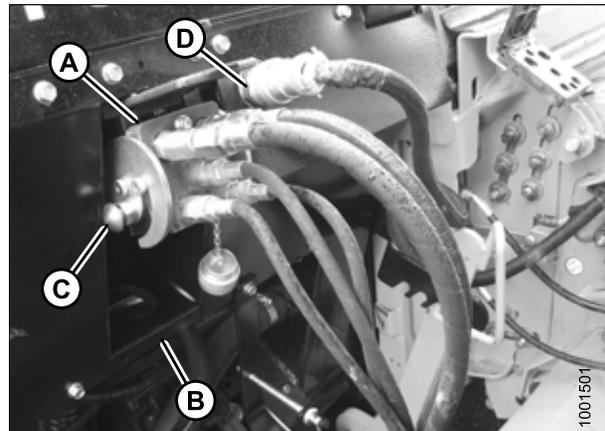


Figure 3.146: Connections

ASSEMBLING HEADER AND ADAPTER

20. Remove shipping wire (A) from driveline and float lock lever (B).

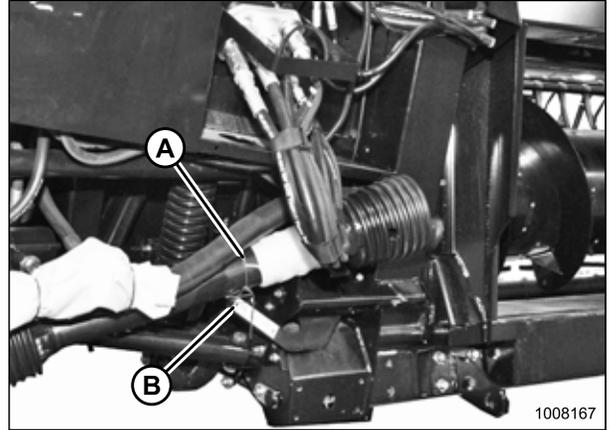


Figure 3.147: Shipping Wire on Driveline and Float Lock Lever

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

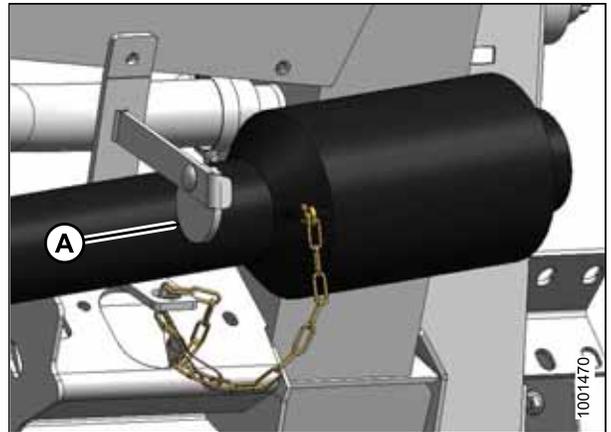


Figure 3.148: Driveline

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

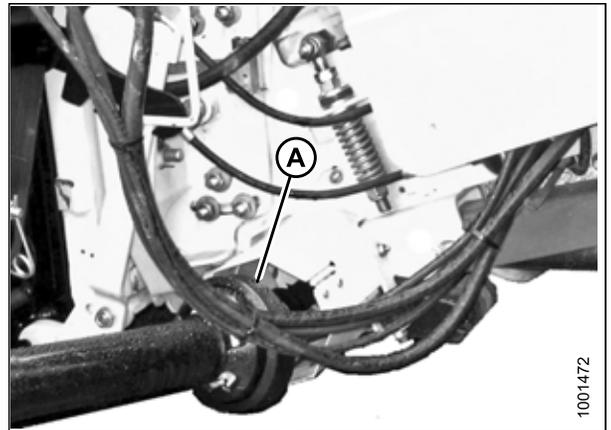


Figure 3.149: Driveline and Output Shaft

ASSEMBLING HEADER AND ADAPTER

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

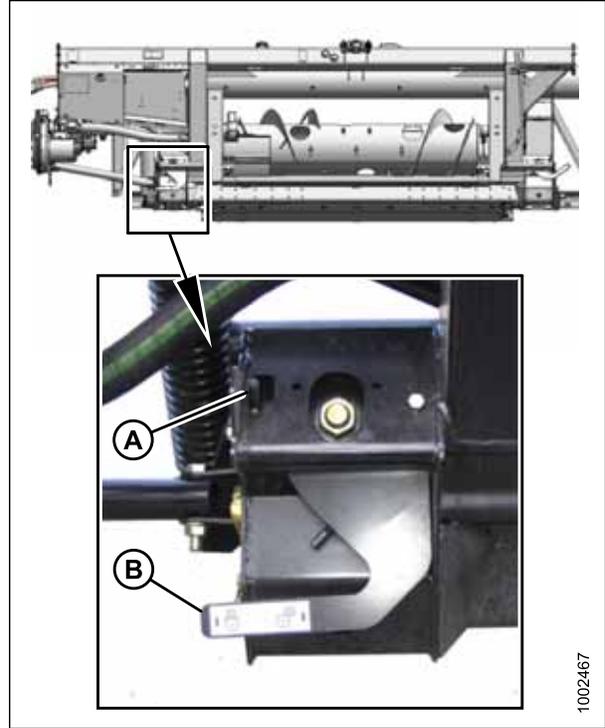


Figure 3.150: Float Lock in UNLOCK Position

24. Proceed to [3.4 Completing Header Assembly, page 79](#).

3.4 Completing Header Assembly

3.4.1 Attaching Cam Arms

To attach reel cam arms, follow these steps:

1. Rotate reel manually until tine tube cranks (A) with disconnected cam links are accessible.
2. Remove shipping wires one row at a time.

NOTE:

To prevent reel cams from rotating over center, remove shipping wires one row at a time.

3. Remove bag of hardware (A) from tine bar. It contains hardware for cam links and endshields.

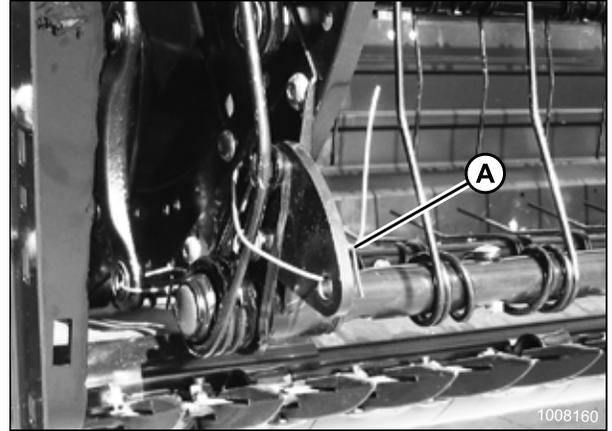


Figure 3.151: Disconnected Cam Links and Shipping Wire

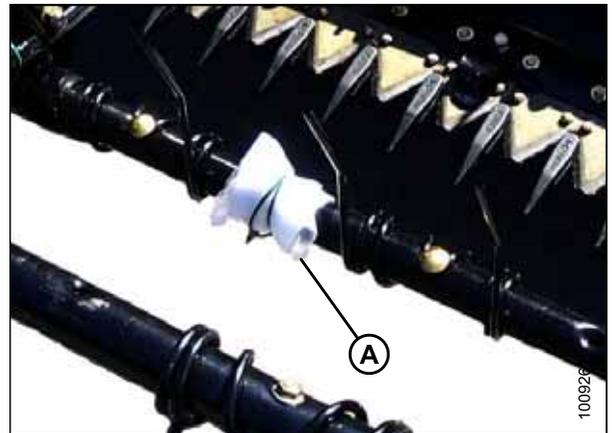


Figure 3.152: Hardware Bag Right Reel

ASSEMBLING HEADER AND ADAPTER

4. Rotate tine tube crank (A) and position link (B) so attachment holes in bar crank are aligned with hole in link.
5. Install bolt (C) in link, and position shim (D) on bolt so that shim is between link and tine bar crank.

NOTE:

Bolts are precoated with Loctite®, so no further locking method is required.

6. Realign link (B) and tine bar crank (A), and thread in bolt (C).
7. Repeat for remaining tine bars and torque bolts to 165 Nm (120 lbf·ft).
8. Position reel pitch at position 4 to access bolt (A) after rotating reel. Reposition reel pitch to position 2 when done.

NOTE:

This procedure is done only on right reel.

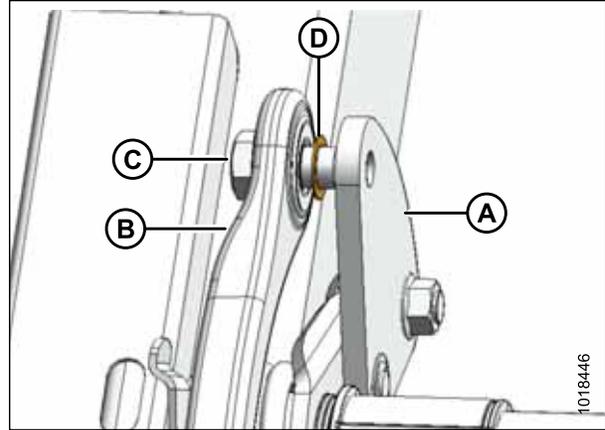


Figure 3.153: Tine Bar Crank and Link

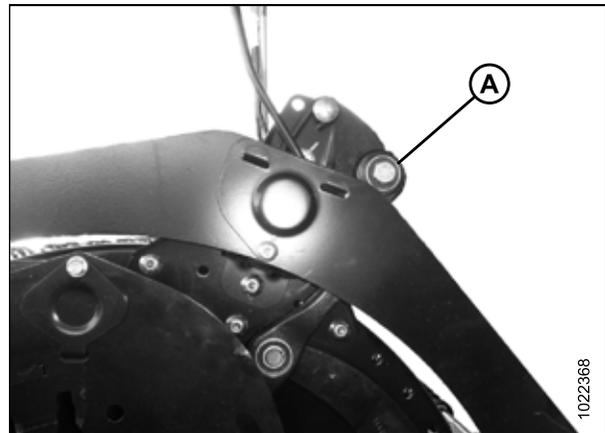


Figure 3.154: Right Reel with Cam Arms Attached

3.4.2 Repositioning Gearbox

To reposition the gearbox, follow these steps:

1. Remove shipping wire and wrapping on brace (A). Swing brace clear of gearbox.

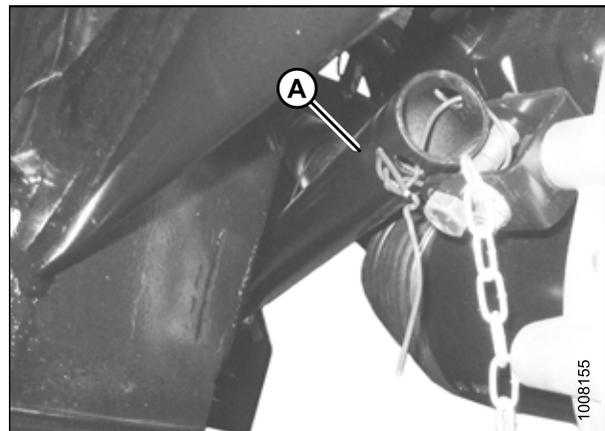


Figure 3.155: Shipping Wire and Brace

ASSEMBLING HEADER AND ADAPTER

2. Loosen nut (A) and move bolt out of shipping position slot.



Figure 3.156: Shipping Position

3. Rotate gearbox and insert bolt into working position slot (A). Tighten nut.

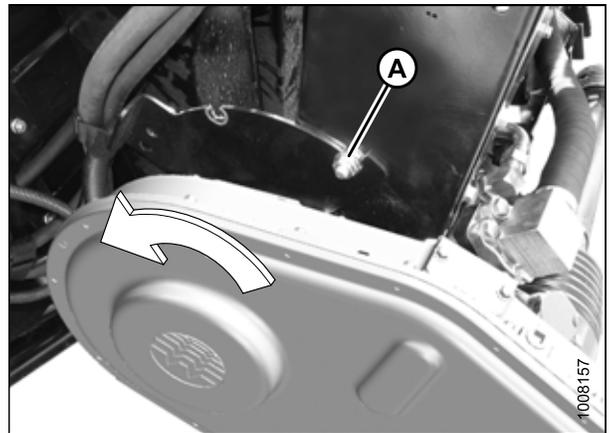


Figure 3.157: Working Position

4. Remove bolt and nut from bracket on gearbox.
5. Position brace (A) inside bracket, and reinstall bolt (B) and nut.

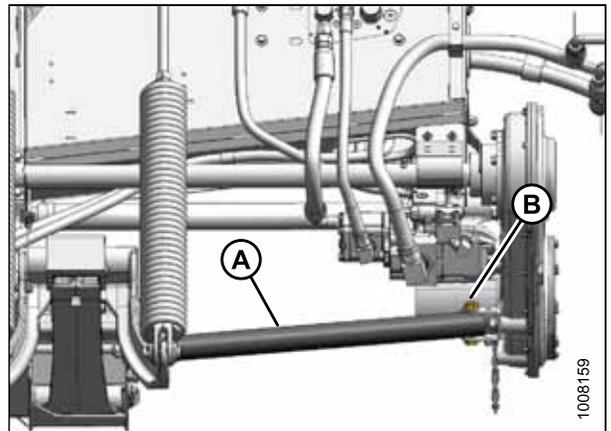


Figure 3.158: Brace Position

3.4.3 Removing Shipping Supports

The shipping supports are painted yellow, remove supports as follows:

NOTE:

Unless otherwise specified, discard supports as well as all shipping material and hardware.

ASSEMBLING HEADER AND ADAPTER

1. Remove two bolts (A) and remove strap (B) from both sides of center frame.

NOTE:

If strap is difficult to remove, lift on one end of header to release load on strap so that bolts can be removed.

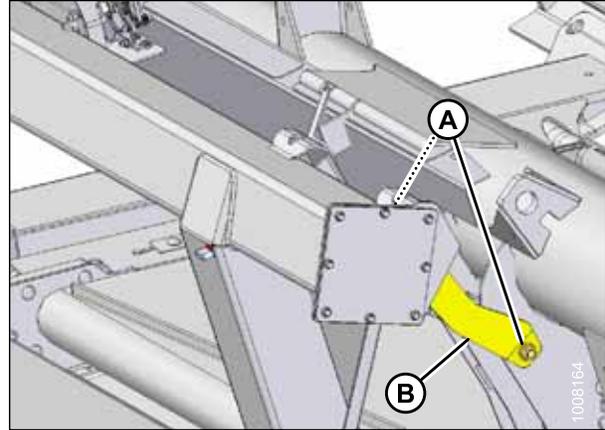


Figure 3.159: Strap on Center Frame

2. Remove lynch pin (A), nut and bolt (B), and remove shipping brace (C).
3. Reinstall lynch pin (A).

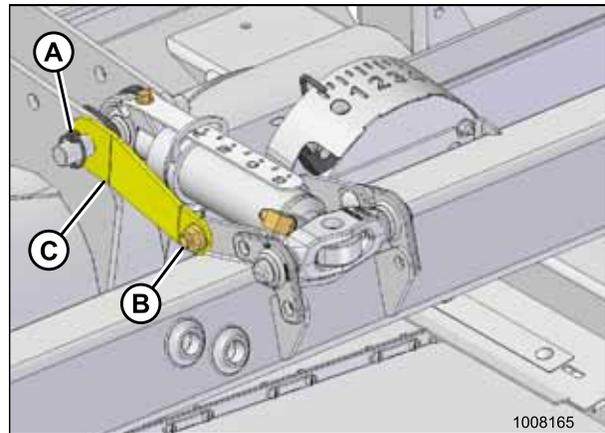


Figure 3.160: Shipping Brace

3.4.4 Positioning Transport Lights

Transport lights are located on each outboard reel arm.

1. Position light (A) perpendicular to header. Light arm should move with normal hand force yet maintain its position. If not, proceed to next step.
2. Loosen jam nut (B) on light attachment bolt, and adjust hex nut (C) as required. Tighten jam nut (B).
3. Repeat above for opposite side.

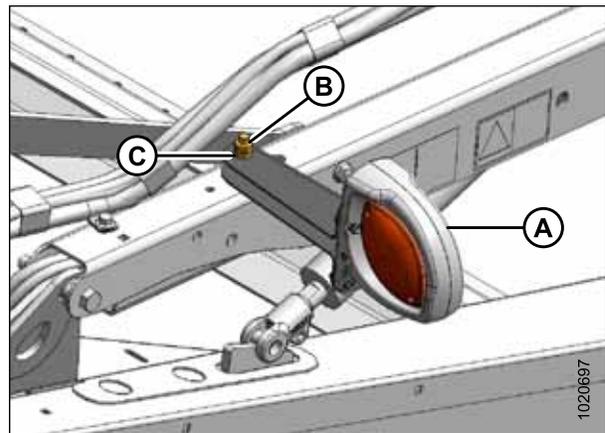


Figure 3.161: Transport Light

3.4.5 Opening Endshield

1. Remove lynch pin (A) and tool (B) from pin (C) at top rear of endshield.

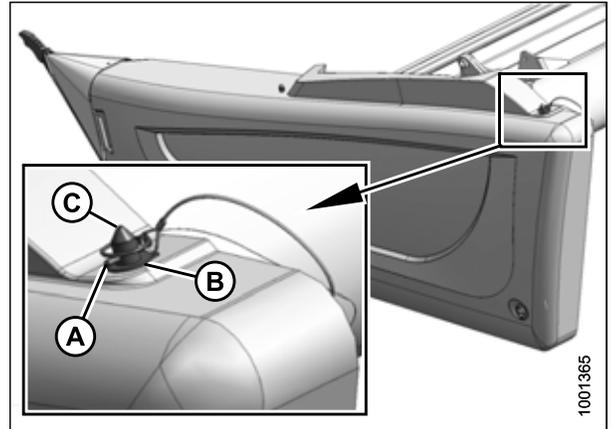


Figure 3.162: Left Endshield

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

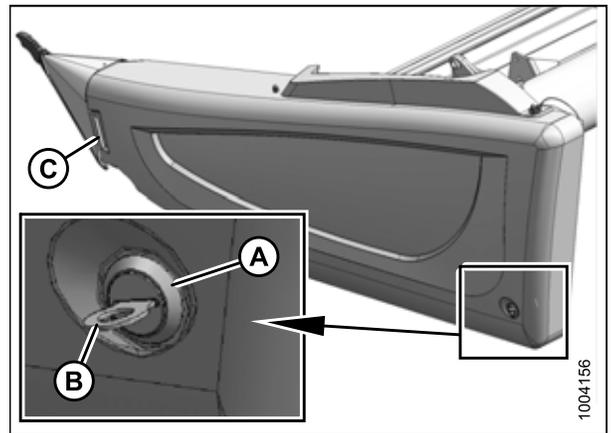


Figure 3.163: Left Endshield

IMPORTANT:

Do **NOT** force endshield once it has reached its end of travel or damage to endshield structure may result. The endshield is designed to open sufficiently to allow access to drive system and manual case.

NOTE:

To access the knife drive box, carefully disengage front of endshield from tab at front of endsheet and swing front of endshield away from header.

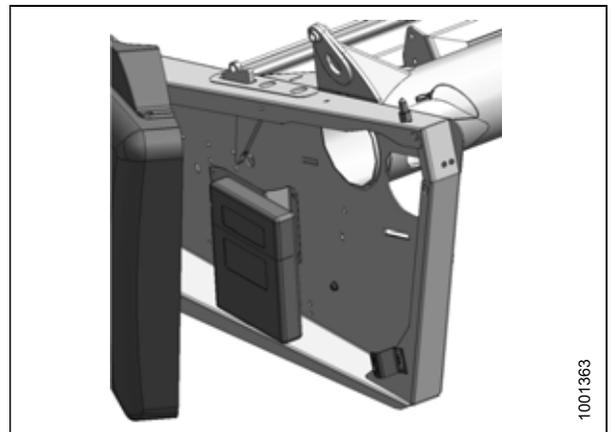


Figure 3.164: Left Endshield Open

3.4.6 Removing Crop Dividers from Storage

Crop dividers are shipped attached to inboard side of endsheets. To remove crop dividers, follow these steps:

1. Open endshields. Refer to [3.4.5 Opening Endshield, page 83](#).
2. Support crop divider and remove shipping wire at front end (A).
3. Remove bolt (B).
4. Remove bolt with washer (C) and retain for installation.
5. Repeat above steps for opposite end.

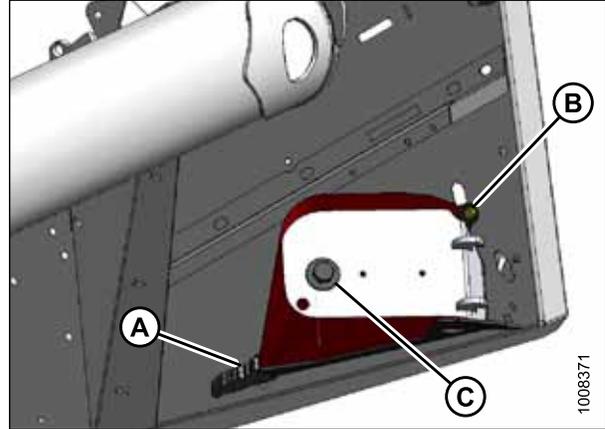


Figure 3.165: Crop Divider Storage

3.4.7 Installing Crop Dividers without Latch Option

NOTE:

If crop divider latch option was ordered with header, proceed to [3.4.8 Installing Crop Dividers with Latch Option, page 86](#). Otherwise, complete the following procedure:

1. If not already open, open endshields. Refer to [3.4.5 Opening Endshield, page 83](#).
2. Position crop divider as shown by inserting lugs (A) into holes (B) in endsheet.

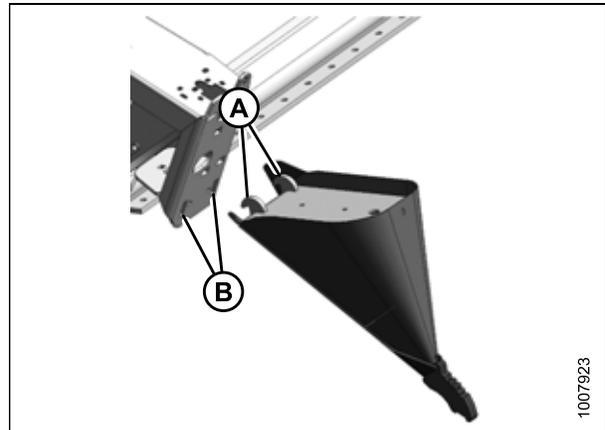


Figure 3.166: Crop Divider Installation

ASSEMBLING HEADER AND ADAPTER

3. Lift forward end of crop divider and install bolt (B) and special stepped washer (A) (step towards divider). Tighten bolt.

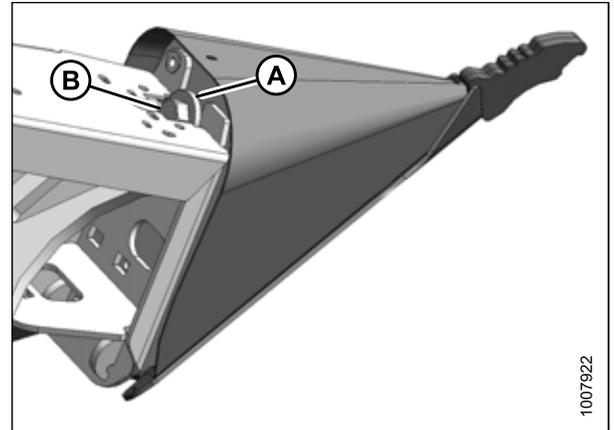


Figure 3.167: Crop Divider Installation

4. Check that divider does not move laterally. Adjust bolts (A) as required to tighten divider and remove lateral play when pulling at divider tip.
5. Close endshield. Refer to [3.4.9 Closing Endshield](#), page 87.

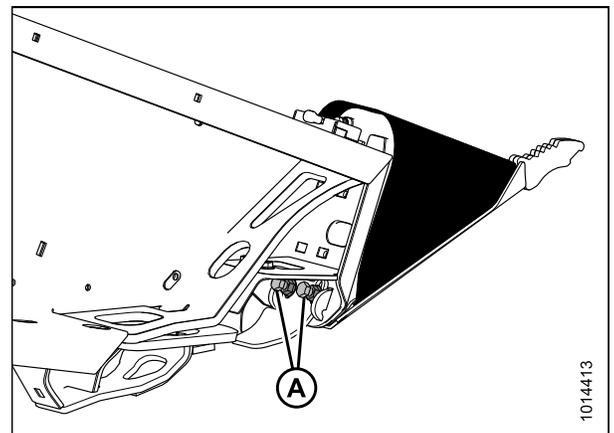


Figure 3.168: Crop Divider Adjustment

3.4.8 Installing Crop Dividers with Latch Option

1. If not already open, open endshields. Refer to [3.4.5 Opening Endshield, page 83](#).
2. Position crop divider as shown by inserting lugs (A) into holes in endsheet.
3. Lift forward end of divider until pin (B) engages and closes latch (C).
4. Push safety lever (D) down to lock pin in latch.

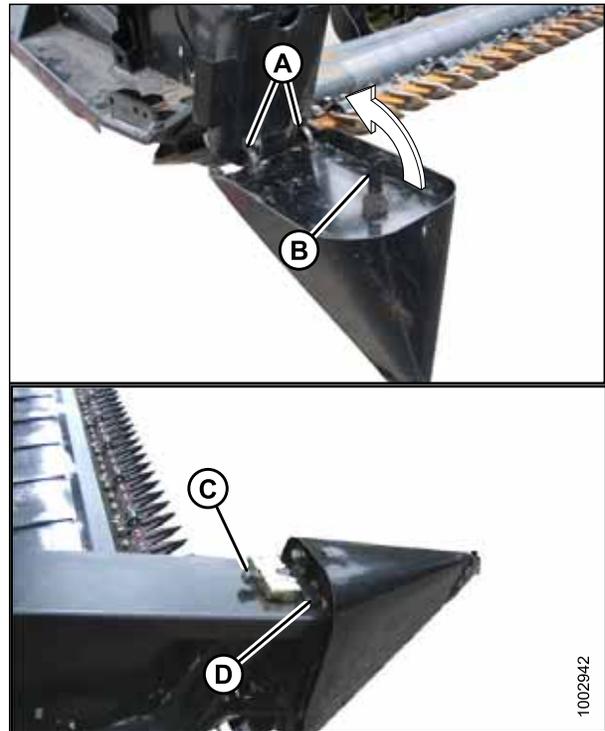


Figure 3.169: Crop Divider Installation

5. Check that divider does not move laterally. Adjust bolts (A) as required to tighten divider and remove lateral play when pulling at divider tip.
6. Close endshield. Refer to [3.4.9 Closing Endshield, page 87](#).

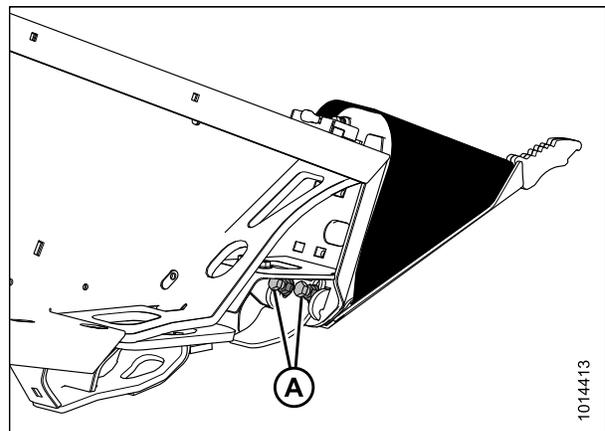


Figure 3.170: Crop Divider Adjustment

3.4.9 Closing Endshield

1. Maintain forward pressure and swing the rear of the endshield towards the header.
2. Lift the endshield and engage pin (A) located on the top of the endsheet frame with the hole in endshield (B).

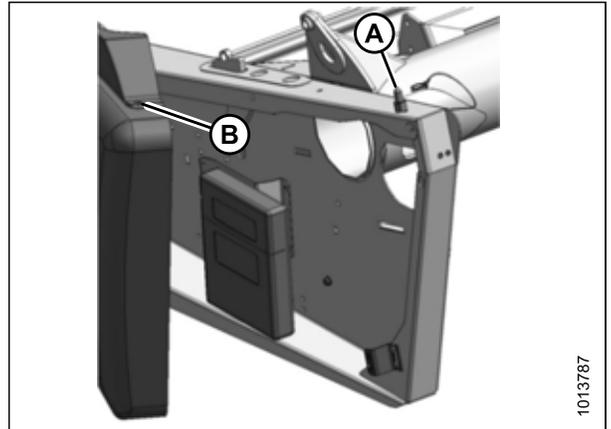


Figure 3.171: Left Endshield

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

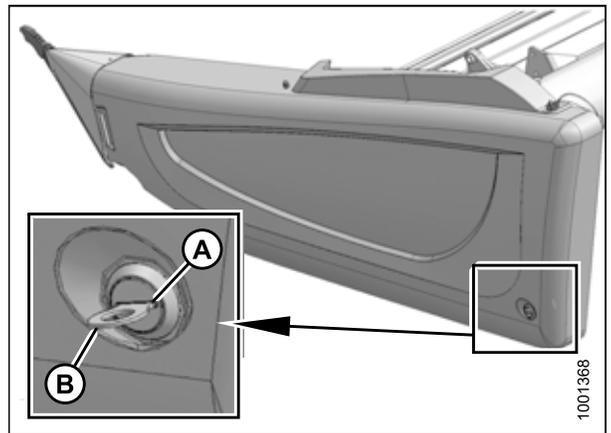


Figure 3.172: Left Endshield

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

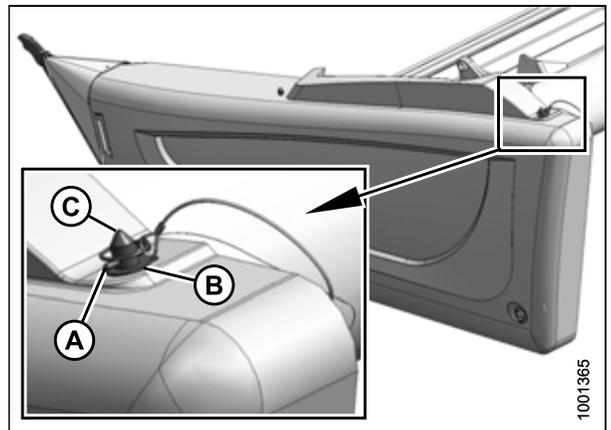


Figure 3.173: Left Endshield Pin

3.4.10 Installing Crop Divider Rods

1. Remove divider rods from shipping location on header endsheet.

ASSEMBLING HEADER AND ADAPTER

2. Position crop divider rod (B) on tip of crop divider as shown, and tighten bolt (A).
3. Repeat procedure at opposite end of header.

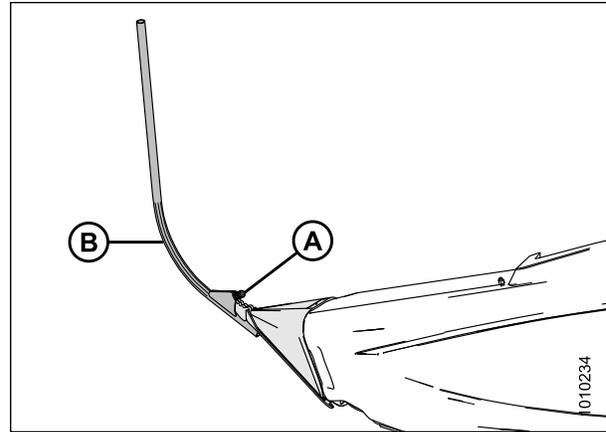


Figure 3.174: Divider Rod on Crop Divider

3.4.11 Installing Options

1. Retrieve kits supplied as options with header and install them according to instructions supplied with each kit.
2. Proceed to [4 Performing Predelivery Checks, page 89](#).

4 Performing Predelivery Checks

This machine has been set at the factory and should not require further adjustments; however, the following checks will ensure your machine provides maximum performance. If adjustments are necessary, follow the procedures in this chapter.

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

IMPORTANT:

To avoid machine damage, check that no shipping material has fallen into machine.

1. Perform final checks as listed on **Predelivery Checklist** (yellow sheet attached to this instruction –) to ensure machine is field-ready. Refer to following pages for detailed instructions as indicated on Checklist. The completed Checklist should be retained either by Operator or Dealer.

4.1 Checking Transport/Stabilizer Tire Pressure

Check tire inflation pressure. If necessary, adjust pressure according to following table:

Table 4.1 Tire Inflation Pressure

Size	Load Range	Pressure
ST205/75 R15	D	448 kPa (65 psi)
	E	552 kPa (80 psi)

IMPORTANT:

Do **NOT** exceed maximum pressure specified on tire sidewall.

4.2 Checking Wheel Bolt Torque

Perform following procedure to ensure that transport and stabilizer wheel bolts are correctly torqued:

1. Check wheel bolt torque is 110–120 Nm (80–90 lbf·ft).
Refer to bolt tightening sequence illustration at right.

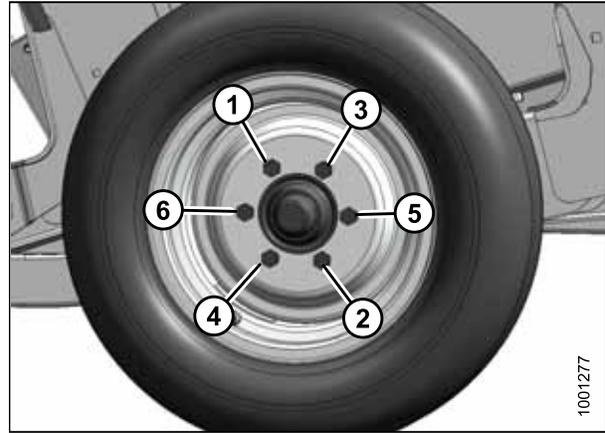


Figure 4.1: Bolt Tightening Sequence

4.3 Checking Knife Drive Box

To access knife drive box, endshield must be fully opened.

1. Fully open endshield(s) for access to knife drive box. Refer to [3.4.5 Opening Endshield, page 83](#).

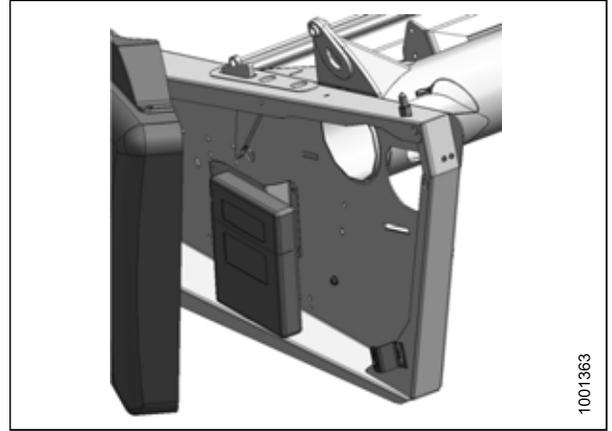


Figure 4.2: Left Endshield Open

IMPORTANT:

The knife drive box breather is shipped in position (A) (forward) to prevent oil loss during transport. The breather plug **MUST** be repositioned to location (B) to prevent oil loss during normal operation. Failure to do so can result in damage to knife drive box.

2. Check position of plug (A) and breather (B) at knife drive box. Position **MUST** be as shown. Reposition if necessary.
3. Check oil level. It should be between lower hole (C) on dipstick and bottom end of dipstick. If necessary, add oil. Use clean SAE 85W-140 lubricant.

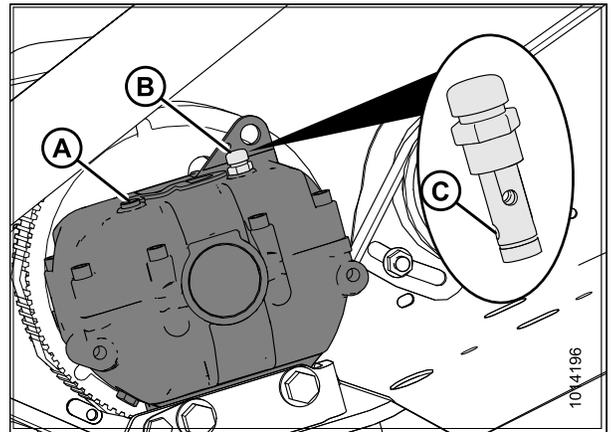


Figure 4.3: Knife Drive Box

IMPORTANT:

Check oil level with top of knife drive box horizontal.

4. Close endshield(s). Refer to [3.4.9 Closing Endshield, page 87](#).

IMPORTANT:

If header has dual knife drive (DKD), repeat on opposite side.

4.4 Checking Oil Level in Header Drive Gearbox

DANGER

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

1. Lower cutterbar to ground and ensure gearbox is in working position.
2. Shut down combine and remove key from ignition.
3. Remove oil level plug (A) and check that oil level is up to bottom of hole.
4. If no oil is required, replace oil level plug (A).

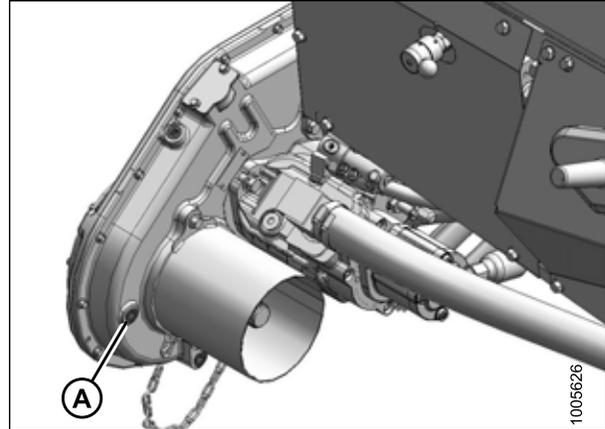


Figure 4.4: Header Drive Gearbox

4.5 Checking Oil Level in Hydraulic Reservoir

1. Check oil level using lower sight (A) and upper sight (B) with cutterbar just touching the ground.

NOTE:

Check level when oil is cold and with center-link retracted.

2. Ensure oil is at appropriate level for terrain as follows:
 - **Hilly terrain (C):** Maintain level so lower sight (A) is full, and upper sight (B) is up to one-half filled.
 - **Normal terrain (D):** Maintain level so lower sight (A) is full, and upper sight (B) is empty.
 - **Level ground (E):** For slopes of 6° or less, oil level may be kept slightly lower if desired. Maintain level so lower sight (A) is one-half filled or slightly higher.
3. Maintain level for normal terrain (D) so lower sight (A) is full, and upper sight (B) is empty.

NOTE:

It may be necessary to slightly reduce oil level when ambient temperatures are above 35°C (95°F) to prevent overflow at breather when normal operating temperatures are reached.

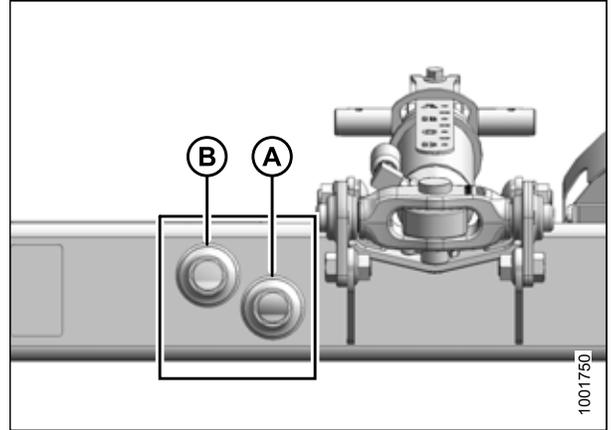


Figure 4.5: Oil Level Sight Glass

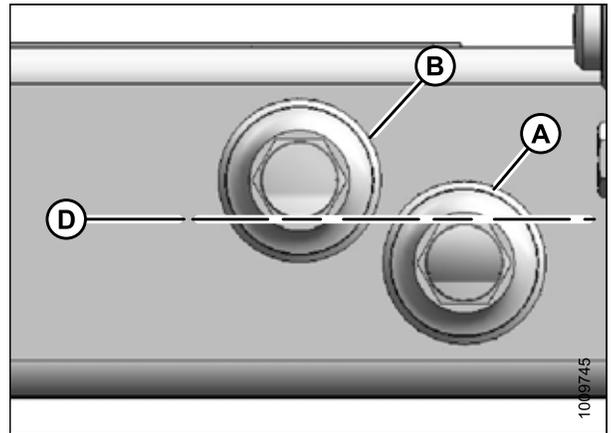


Figure 4.6: Oil Level Sight Glass

4.6 Checking and Adjusting Non-Timed Knife Drive Belt Tension

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

1. Shut down combine and remove key from ignition.
2. Open endshield(s). Refer to [3.4.5 Opening Endshield](#), page 83.

NOTE:

The knife drive is identical on both sides of the header for double knife headers.

3. Apply a force of 90 N (20 lbf) to mid-span (A) of belt. The belt should deflect 18 mm (3/4 in.). If necessary, adjust tension as per the following steps.

IMPORTANT:

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

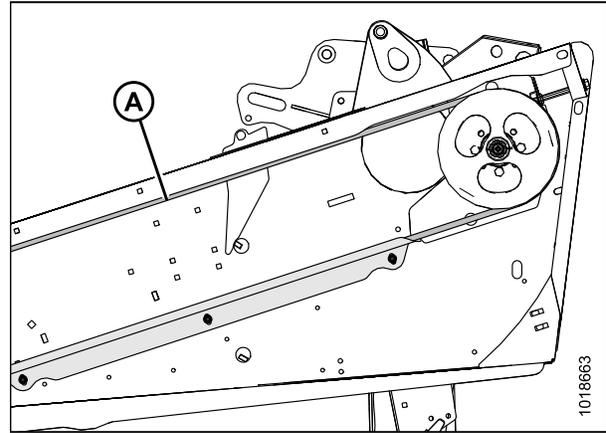


Figure 4.7: Knife Drive (Left Shown – Right Opposite)

4. Loosen two bolts (A) that secure motor assembly to header endsheet.
5. Turn adjuster bolt (B) as required to move drive motor to achieve belt deflection as per above. Tighten bolts (A).
6. Ensure that clearance between belt (C) and belt guide (E) is 1 mm (1/32 in.).
7. Loosen three bolts (D), and adjust position of guide (E) as required.
8. Tighten bolts (D).
9. Close endshield(s). Refer to [3.4.9 Closing Endshield](#), page 87.

NOTE:

Readjust tension of a new belt after a five hour run-in period.

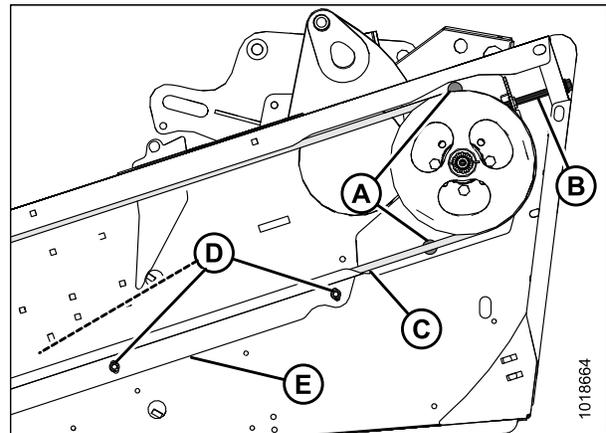


Figure 4.8: Knife Drive (Left Shown – Right Opposite)

4.7 Checking and Adjusting Knife Hold-Downs

NOTE:

Align guards prior to checking and adjusting hold-downs. Refer to [6.1.1 Adjusting Knife and Guards, page 276](#).

Refer to following procedures:

- [4.7.1 Checking Pointed Guard Hold-Downs, page 95](#)

4.7.1 Checking Pointed Guard Hold-Downs

This procedure is applicable to headers with pointed guards.

1. Check guard alignment and adjust as required. Refer to [6.1.1 Adjusting Knife and Guards, page 276](#).

Measure clearance between hold-downs and knife sections as follows:

! WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

2. Shut down combine, and remove key from ignition.
3. Manually stroke knife to locate section (A) under hold-down (B).
4. At standard guard locations, push knife section (A) down against guard (C) and measure clearance between hold-down (B) and knife section (A) with a feeler gauge. The clearance should be 0.1–0.6 mm (0.004–0.024 in.).
5. If necessary, refer to [Adjusting Pointed Guard Hold-Downs, page 96](#).

Double-knife:

6. Manually stroke knife to locate sections (A) and (C) under center hold-down (B).
7. Measure between knife sections (A) and (C) with a feeler gauge. The clearances should be as follows:
 - At tip of hold-down: 0.1–0.4 mm (0.004–0.016 in.)
 - At rear of hold-down: 0.1–1.0 mm (0.004–0.040 in.)
8. If necessary, refer to [Adjusting Hold-Down at Double-Knife Center Pointed Guard, page 96](#).

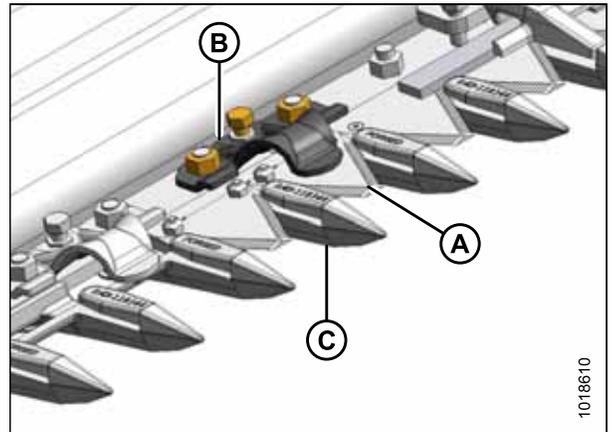


Figure 4.9: Normal Guard Hold-Down

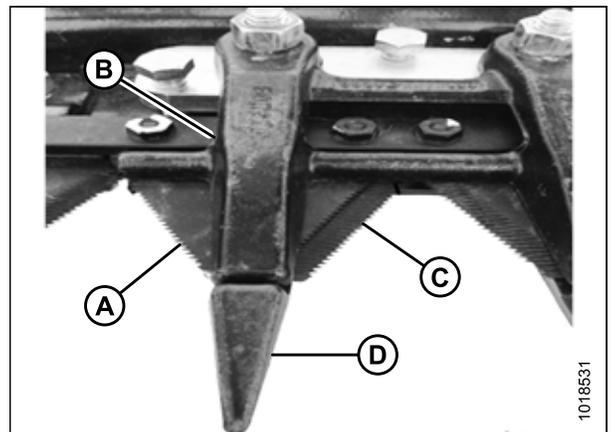


Figure 4.10: Double-Knife Center Guard Hold-Down

PERFORMING PREDELIVERY CHECKS

Adjusting Pointed Guard Hold-Downs

This procedure is applicable to formed sheet metal hold-downs. Do **NOT** use this procedure for hold-down at center guard position where knives overlap on double-knife headers. For center guard, refer to [Adjusting Hold-Down at Double-Knife Center Pointed Guard](#), page 96.

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

1. Shut down combine, and remove key from ignition.
2. Decrease clearance by turning bolt (B) clockwise to lower front of hold-down (A).
3. Increase clearance by turning bolt (B) counterclockwise to raise front of hold-down.

NOTE:

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

4. Recheck clearance and readjust as required.

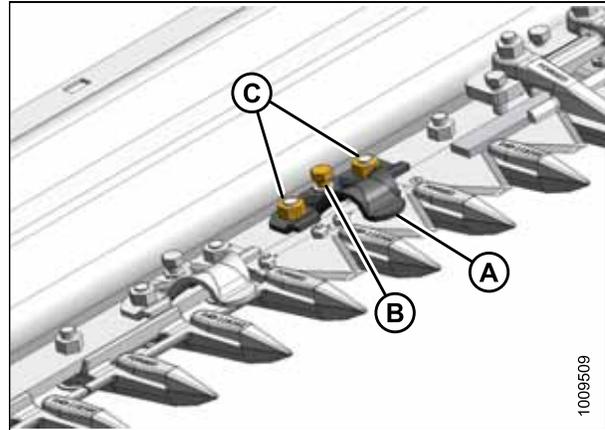


Figure 4.11: Cutterbar

Adjusting Hold-Down at Double-Knife Center Pointed Guard

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

1. Shut down combine, and remove key from ignition.
2. Manually stroke knives so that sections (A) are under hold-down (B) as shown.
3. Loosen nuts (C) and back off bolts (D) until they don't contact cutterbar.
4. Lightly clamp hold-down (B) to guard (E) with a C-clamp or equivalent. Position clamp on trash-bar at (F) as shown.
5. Turn bolts (D) until they contact cutterbar, then tighten **ONE** turn.
6. Remove clamp.
7. Tighten nuts (C) and torque to 45 Nm (35 lbf-ft).
8. Check clearances. Refer to [4.7.1 Checking Pointed Guard Hold-Downs](#), page 95.

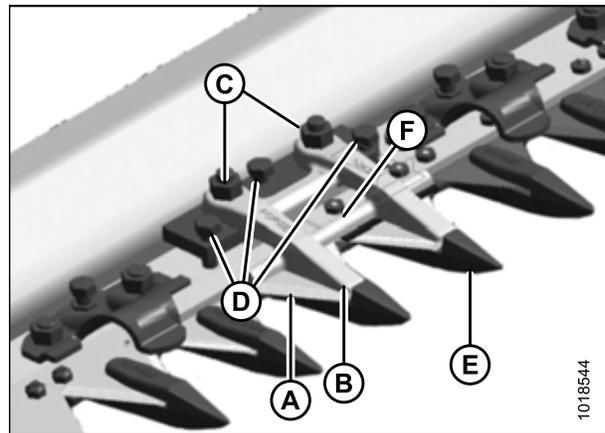


Figure 4.12: Center Guard

4.8 Centering Reel

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

1. Start engine and set header down on 150 mm (6 in.) blocks (B) at the ends of header. Header should be in a smile shape.
2. Lower reel and adjust fore-aft position to 5 on reel arm indicator decal.
3. Stop engine and remove key from ignition.
4. Disengage float locks and wing locks.
5. Manually rotate reel to position a tine tube above cutterbar.
6. Measure clearance (A) between reel tine tube and endsheet at both ends of header. If the reel is centered, the clearances will be the same. Refer to following steps to center reel.

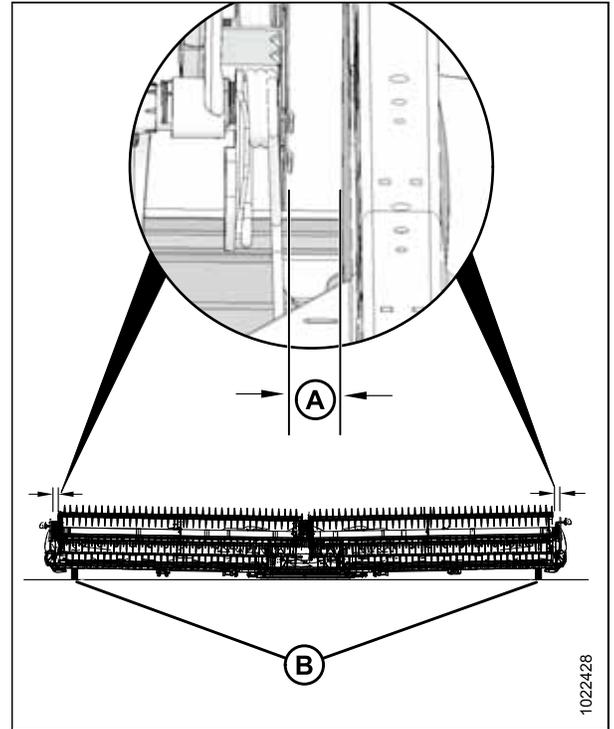


Figure 4.13: Centering Reel

7. Loosen bolts (D) on braces (E) at center support arm.
8. Move forward end of reel support arm (F) laterally as required to center reel.
9. Tighten bolts (D) and torque to 359 Nm (265 lbf-ft).

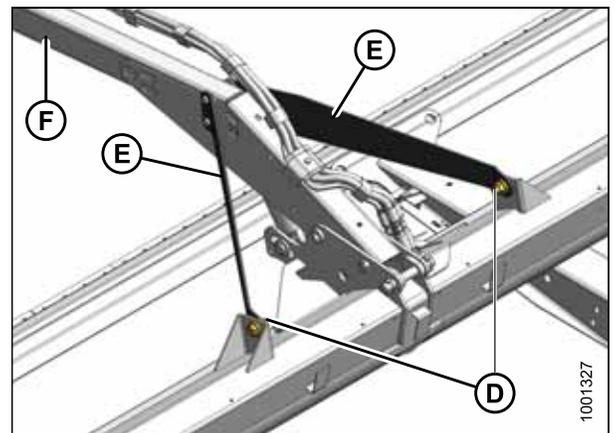


Figure 4.14: Center Support Arm

4.9 Measuring and Adjusting Reel Clearance to Cutterbar

The minimum clearance between reel fingers and cutterbar ensures that reel fingers do not contact cutterbar during operation. The clearance is set at the factory, but some adjustment may be necessary before operation or if there is evidence of contact during operation.

The finger to guard/cutterbar clearances with reel fully lowered are shown in Table 4.2, page 98.

IMPORTANT:

Measurements must be taken at **both ends of each reel and at cutterbar flex locations** with header in full frown mode.

Table 4.2 Finger to Guard/Cutterbar Clearance

Header Width	(X) +/- 3 mm (1/8 in.) at Reel Ends and Flex Locations
All	20 mm (3/4 in.)

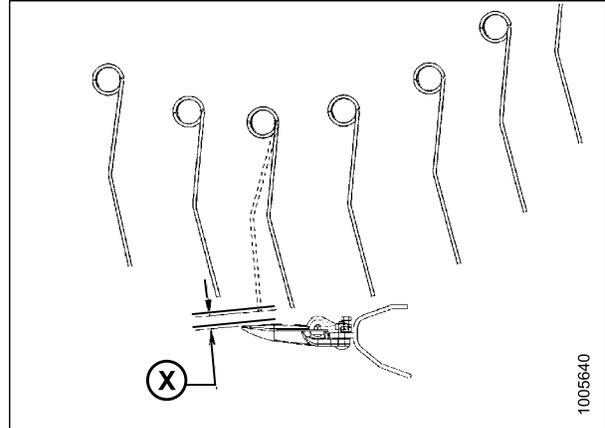


Figure 4.15: Finger Clearance

4.9.1 Measuring Reel Clearance

⚠ DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason.

1. Park machine on level ground.
2. Adjust header to working height.
3. Move spring handles (A) down to (UNLOCK) position.

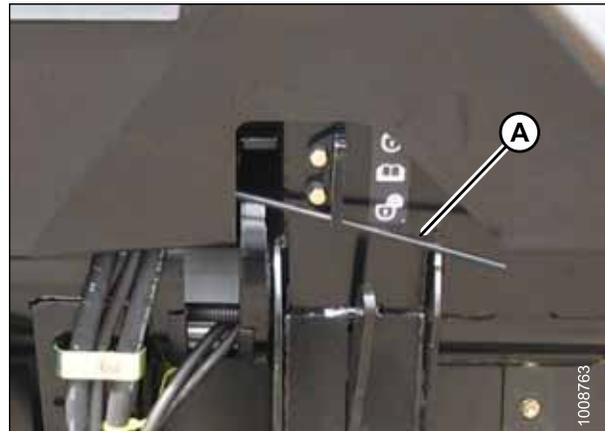


Figure 4.16: Wing Unlocked

PERFORMING PREDELIVERY CHECKS

4. Raise header and place two 150 mm (6 in.) blocks (A) under cutterbar, just inboard of wing flex points.
5. Lower header fully, allowing it to flex into full frown mode.

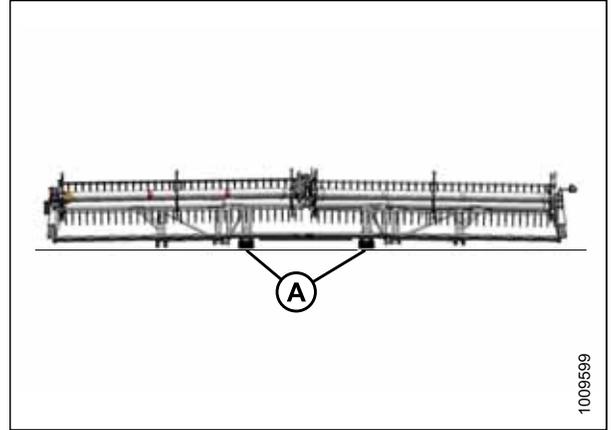


Figure 4.17: FlexDraper® Block Locations

6. Set fore-aft position to middle position 5 on fore-aft position indicator decal (A).
7. Lower reel fully.
8. Shut down engine and remove key from ignition.

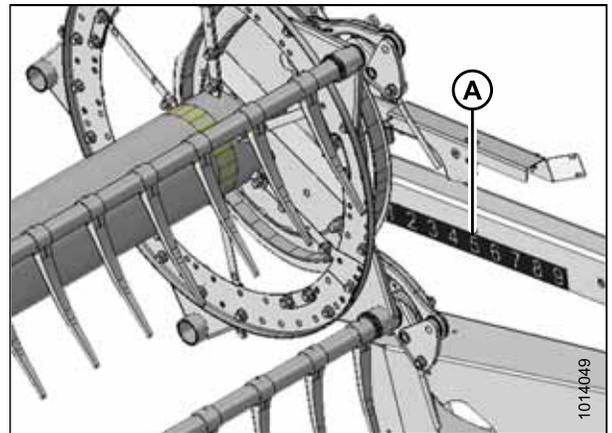


Figure 4.18: Fore-Aft Position

9. Measure clearance at ends (A) of each reel and at flex locations (B).

NOTE:

The reel is factory-set to provide more clearance at center of reel than at ends (frown) to compensate for reel flexing.

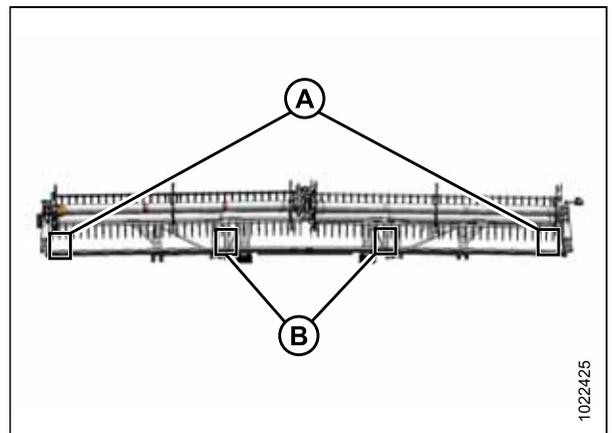


Figure 4.19: Measurement Locations

A - Clearance Points

B - Flex Points

PERFORMING PREDELIVERY CHECKS

10. Check clearance (X) between (C) and (D). Depending on reel fore-aft position, minimum clearance can result at guard tine, hold-down, or cutterbar.
11. Adjust reel if necessary. Refer to [4.9.2 Adjusting Reel Clearance](#), page 100.

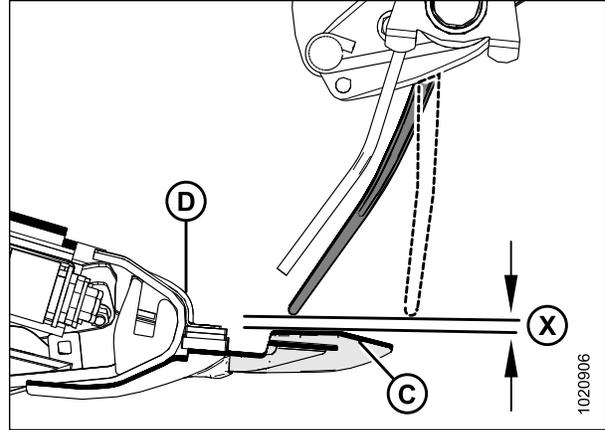


Figure 4.20: Reel Clearance

4.9.2 Adjusting Reel Clearance

Perform this procedure with reel at mid-point of fore-aft range and fully lowered.

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.

1. Adjust outboard reel arm lift cylinders to set clearance as follows:
 - a. Loosen bolt (A).
 - b. Turn cylinder rod (B) out of clevis to raise reel and increase clearance to cutterbar, or turn cylinder rod into clevis to lower reel and decrease clearance.
 - c. Tighten bolt (A).
 - d. Repeat at opposite side.

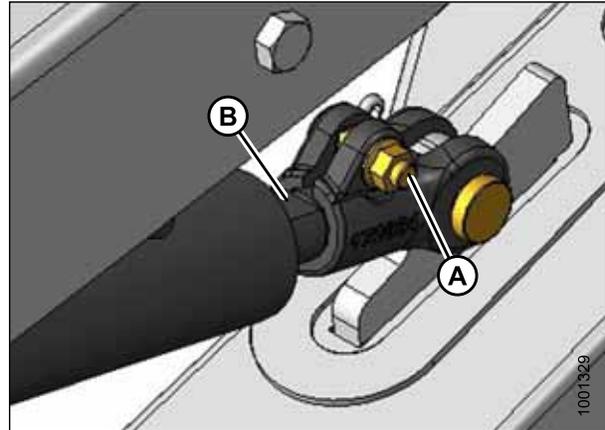


Figure 4.21: Reel Outboard Arm

PERFORMING PREDELIVERY CHECKS

2. Adjust center arm lift cylinder link (A) to set clearance at center of reel and clearance at flex points as follows:
 - a. Loosen nut (B).
 - b. Turn nut (C) counterclockwise to raise reel and increase clearance to cutterbar, or clockwise to lower reel and decrease clearance.
 - c. Tighten nut (B).

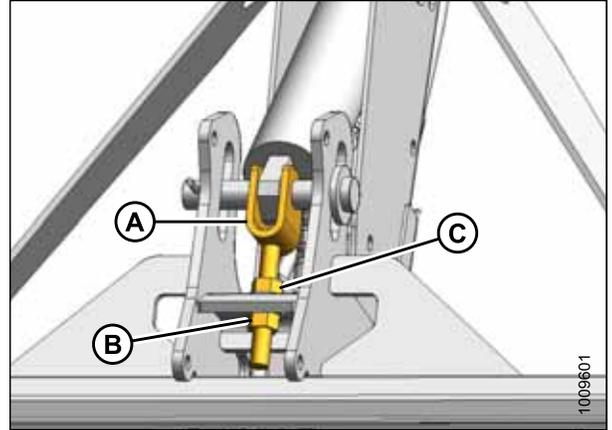


Figure 4.22: Center Arm

3. Move reel back to ensure steel end fingers do not contact deflector shields.
4. If contact is evident, adjust reel upward to maintain clearance at all reel fore/aft positions. Alternatively, trim steel end fingers to obtain proper clearance.
5. Periodically check for evidence of contact, and adjust clearance as required.

4.9.3 Checking and Adjusting Reel Cam

DANGER

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

1. Ensure reel cam latch pin (A) is in the same cam position (B) at both the center cam disc and right cam disc (not shown) . If latch pin position is not the same on both cams, proceed to Step 2, [page 102](#) to adjust reel cam position.

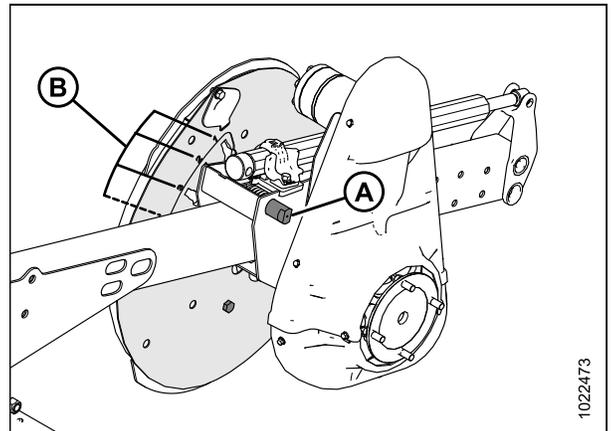


Figure 4.23: Cam Disc Center Reel Arm

PERFORMING PREDELIVERY CHECKS

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

NOTE:

Bolt (B) is positioned through the cam disc (transparent view shown in illustration for improved clarity).

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

IMPORTANT:

Ensure the cam is secured into position before operating the machine.

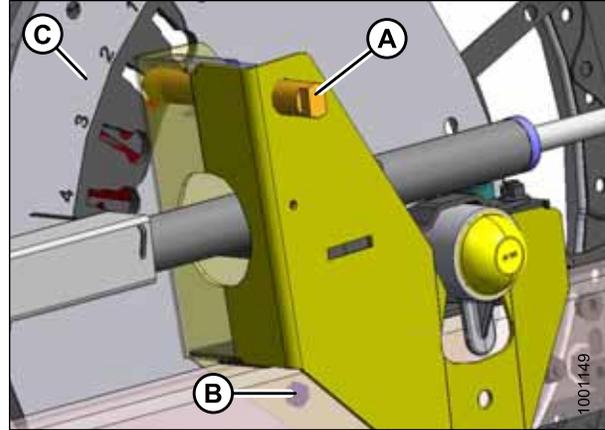


Figure 4.24: Cam Disc Positions

4.10 Checking and Adjusting Header Levelness

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 that header knife drive compartments are empty.
- Check combine tire pressures.
- Check that combine feeder house is level. Refer to your combine operator's manual for instructions.
- Check that top of adapter is level and parallel with feeder house.

NOTE:

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

1. Park combine on level ground.
2. Set header approximately 150 mm (6 in.) off ground, shut down combine, and remove key from ignition.
3. Check that header is against down stops.
4. Check wing balance and adjust if required. Refer to [4.12.1 Checking Wing Balance, page 110](#).
5. Move wing lock handle (A) to lock position.
6. Check header float and adjust if required. Refer to [4.11 Checking and Adjusting Header Float, page 105](#).

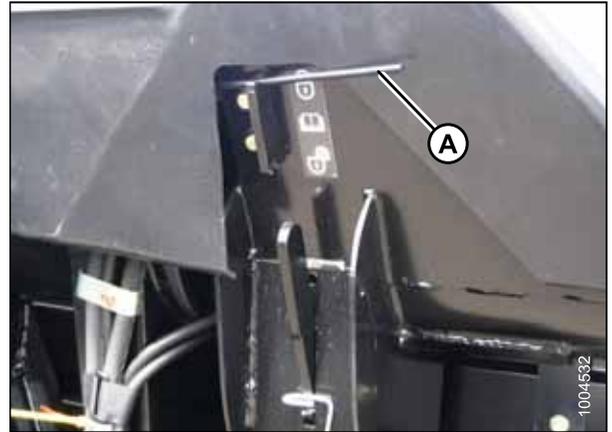


Figure 4.25: Wing Lock

7. Adjust header levelness by making small adjustments (1/4–1/2 turn) to nut (A) on each float lock. Adjust each side equally but in opposite directions as follows:

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.

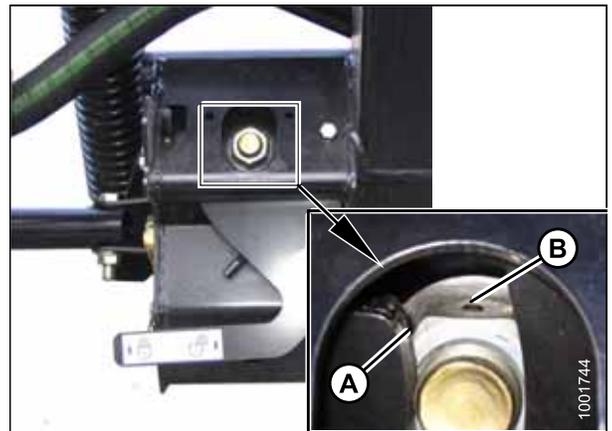


Figure 4.26: Float Lock

NOTE:

Ensure a minimum clearance of 2–3 mm (1/8 in.) (A) between the frame and the back of the bell crank lever.

PERFORMING PREDELIVERY CHECKS

NOTE:

Check the float after levelling header. Refer to [4.11 Checking and Adjusting Header Float](#), page 105.



Figure 4.27: Bell Crank

4.11 Checking and Adjusting Header Float

DANGER

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

NOTE:

Ensure all header options are installed before adjusting float.

1. Park combine on level surface and lower reel fully.
2. Adjust fore-aft position to between 5 and 6 on position indicator decal (A) located on right reel arm.

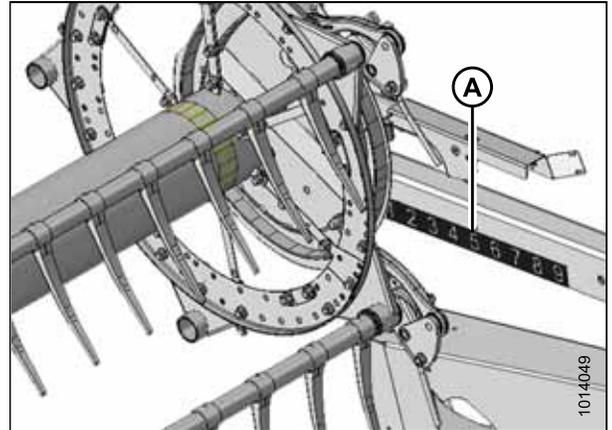


Figure 4.28: Fore-Aft Position

3. Adjust center-link to between B and C on indicator (A).
4. Position cutterbar 200–300 mm (8–12 in.) off the ground.
5. Stop engine and remove key from ignition.

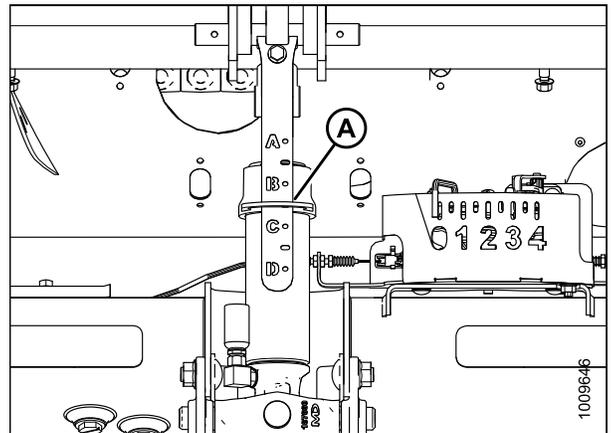


Figure 4.29: Center-Link

PERFORMING PREDELIVERY CHECKS

6. Place wing lock spring handles (A) in lock (upper) position.

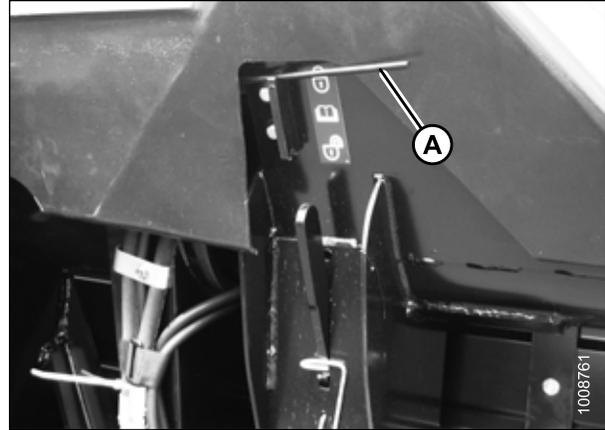


Figure 4.30: Wing Lock in Lock Position

7. Check that both header float lock levers (A) are in down (UNLOCK) position.

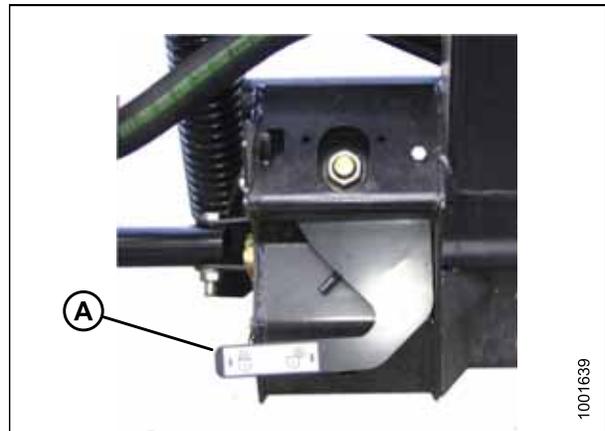


Figure 4.31: Header Float Lock in Unlock Position

8. Place stabilizer wheels and slow speed transport wheels (if equipped) in storage position as follows:
 - a. Support wheel weight by lifting slightly with one hand, and pull up on handle (A) to release the lock.
 - b. Lift wheels to desired height, and engage support channel into slot (B) in upper support.
 - c. Push down on handle (A) to lock.

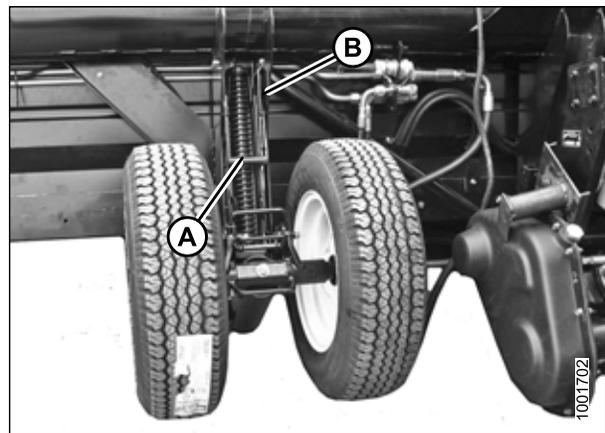


Figure 4.32: Left Wheel

PERFORMING PREDELIVERY CHECKS

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

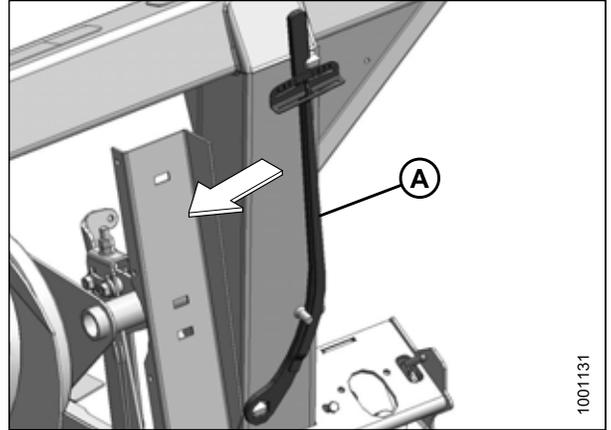


Figure 4.33: Torque Wrench

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

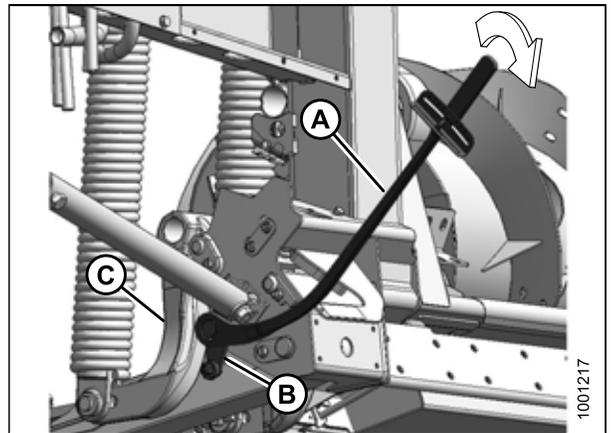


Figure 4.34: Left Side of Adapter

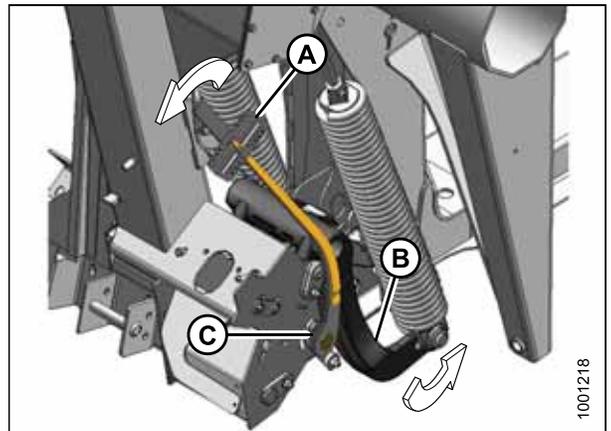


Figure 4.35: Right Side of Adapter

PERFORMING PREDELIVERY CHECKS

12. Push down on wrench until indicator (A) reaches a maximum reading and then begins to decrease. Note maximum reading and repeat at opposite side.
13. Use following table as a guide for float settings:
 - If reading on wrench is high, header is heavy
 - If reading on wrench is low, header is light

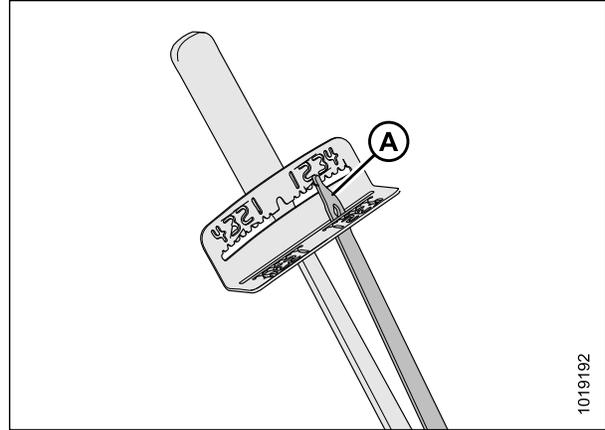


Figure 4.36: Indicator

Table 4.3 Float Settings

Header Size (feet)	Torque Settings	
	Cutting on Ground	Cutting off Ground
30 and 35	1-1/2 to 2	2 to 2-1/2
40 and 45	2 to 2-1/2	2-1/2 to 3

14. To increase float (decrease header weight)
 - a. Loosen jam nuts.
 - b. Turn left adjustment bolts (A) and right adjustment bolts (B) clockwise.
 - c. Tighten jam nuts.
15. To decrease float (increase header weight)
 - a. Loosen jam nuts.
 - b. Turn left adjustment bolts (A) and right adjustment bolts (B) counterclockwise.
 - c. Tighten jam nuts.

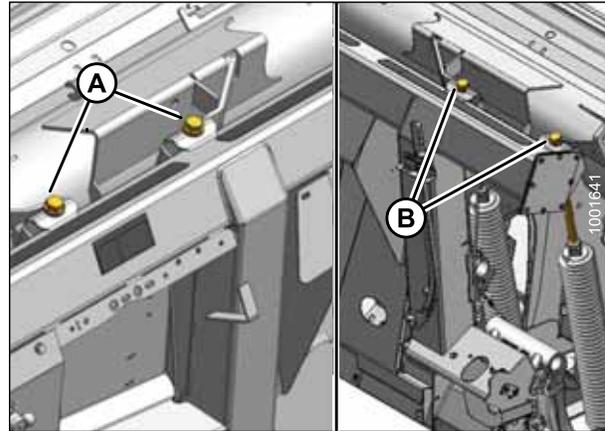


Figure 4.37: Float Adjustment

16. Use following guidelines when adjusting float:
 - Adjust float so wrench readings are equal on both sides of the header.
 - **For 40- and 45-foot double-knife headers:** adjust float so wrench readings are equal at both sides, and then loosen both right spring bolts two turns.
 - Turn each bolt pair equal amounts. Refer to Step 12, page 108, and repeat torque wrench reading procedure.

NOTE:

If adequate header float cannot be achieved using all of available adjustments, an optional heavy duty spring is available. Refer to parts catalog for ordering information.

PERFORMING PREDELIVERY CHECKS

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

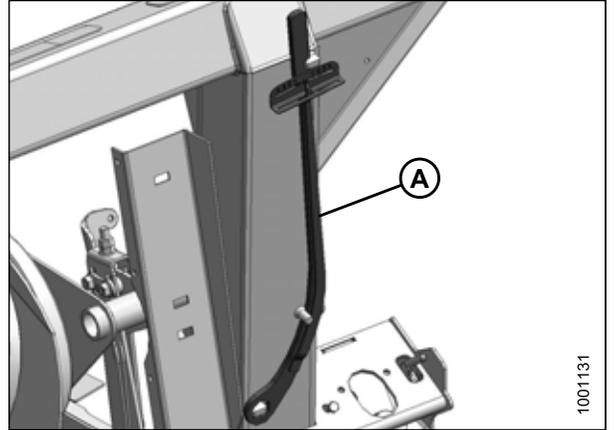


Figure 4.38: Torque Wrench

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4.12 Checking and Adjusting Header Wing Balance

NOTE:

Before proceeding, the header float must be set properly. Refer to *4.11 Checking and Adjusting Header Float, page 105*.

The header wing balance allows the wings to react to changing ground conditions. If set too light, the wings will bounce or not follow ground contours, leaving uncut crop. If set too heavy, the end of the header will dig into the ground. After the header float has been set, the wings must be balanced for the header to follow the ground contours properly.

4.12.1 Checking Wing Balance

This procedure describes how to check the balance of each wing.

⚠ WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

If a wing has a tendency to be in a smile (A) or frown (B) position, wing balance may require adjusting. Perform the following steps to verify if the wings are not balanced and the degree of imbalance:

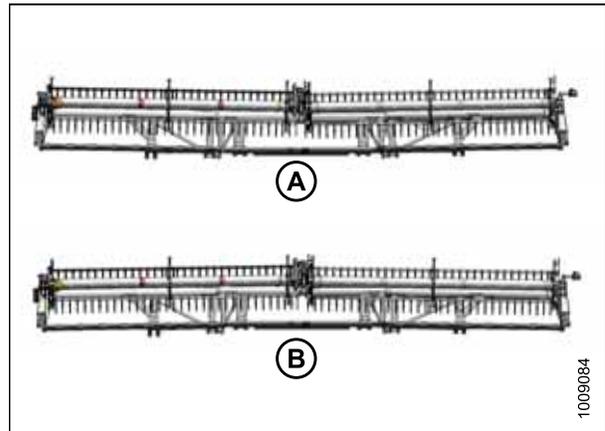


Figure 4.39: Wing Imbalance

1. Adjust the header center-link to approximately halfway between **B** and **C** on indicator (A).
2. Park combine on level ground and raise header until cutterbar is 152–254 mm (6–10 in.) off the ground.
3. Stop engine and remove key.
4. If installed, move transport/stabilizer wheels so that they are supported by header. Refer to instructions provided with the transport/stabilizer system.

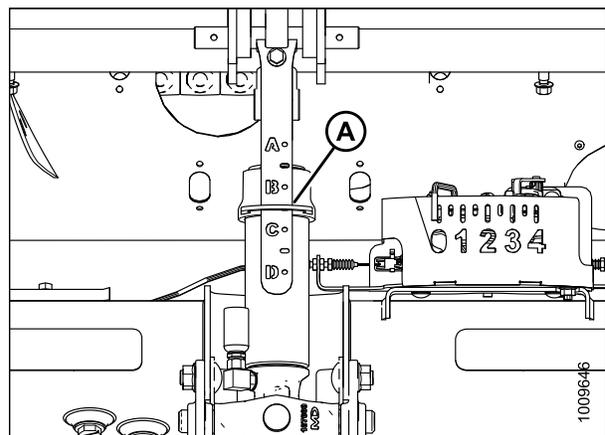


Figure 4.40: Center-Link

PERFORMING PREDELIVERY CHECKS

5. Remove linkage cover (A) by removing bolt (B) and rotating cover upward until inboard end can be lifted off.

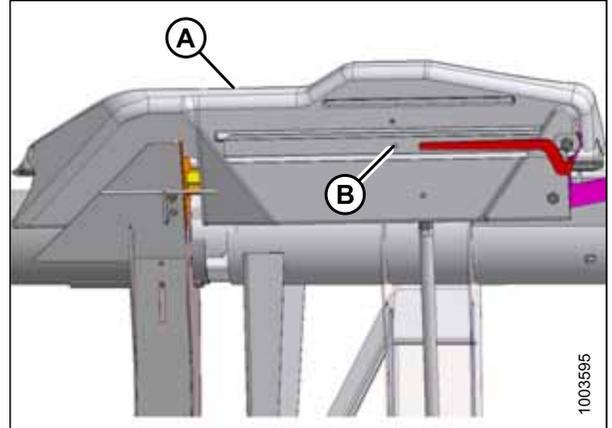


Figure 4.41: Linkage Cover

NOTE:

Refer to the decal (A) inside each linkage cover.

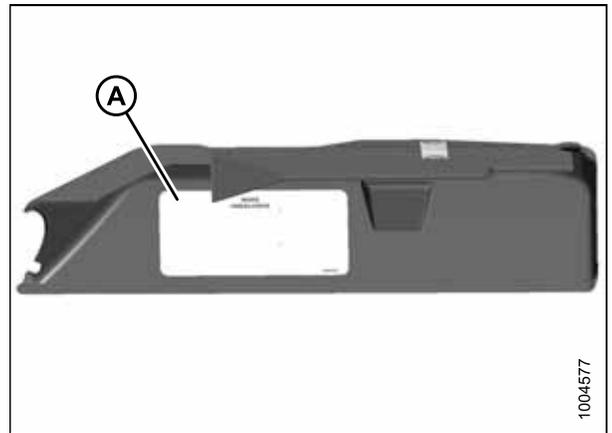


Figure 4.42: Linkage Cover

6. Unlock the wings by moving spring handles (A) to lower (UNLOCK) position.

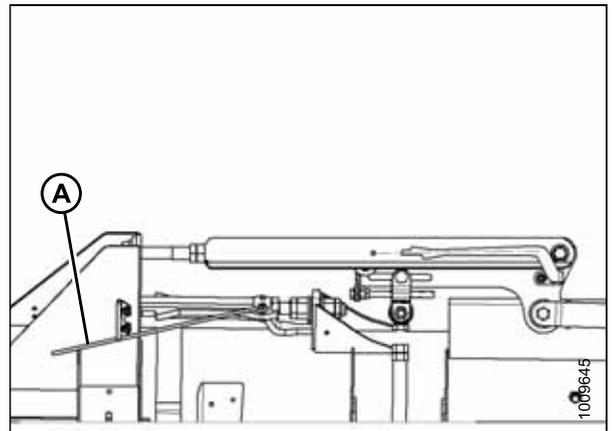


Figure 4.43: Wing Lock in UNLOCK Position

PERFORMING PREDELIVERY CHECKS

- Retrieve wrench (A) from right leg of adapter.

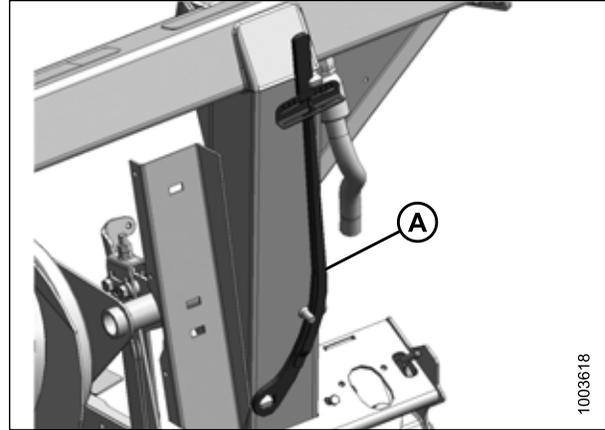


Figure 4.44: Torque Wrench

- Place torque wrench (A) on bolt (B).

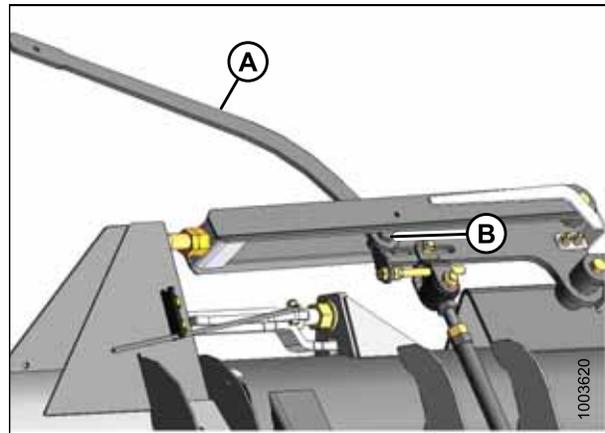


Figure 4.45: Balance Linkage

- Check that pointer (D) is properly positioned as follows:
 - Use wrench (A) to move bell crank (B) so that lower edge of bell crank is parallel to top-link (C).
 - Check that pointer (D) is lined up with the top-link (C). Bend pointer if necessary.

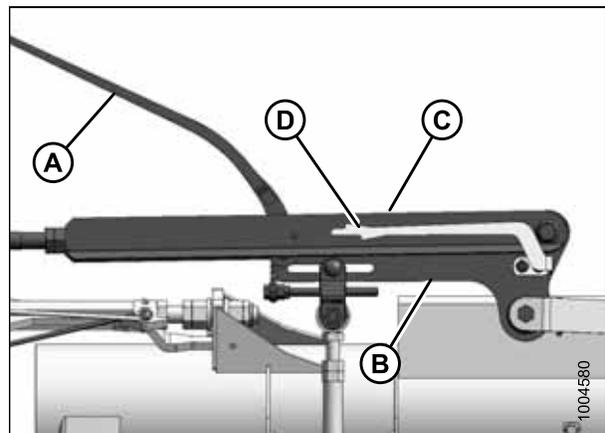


Figure 4.46: Balance Linkage

PERFORMING PREDELIVERY CHECKS

10. Move wing upward with torque wrench (A) until pointer lower alignment tab (C) lines up with upper edge of top-link (B). Observe indicator reading (A) on wrench and record it.

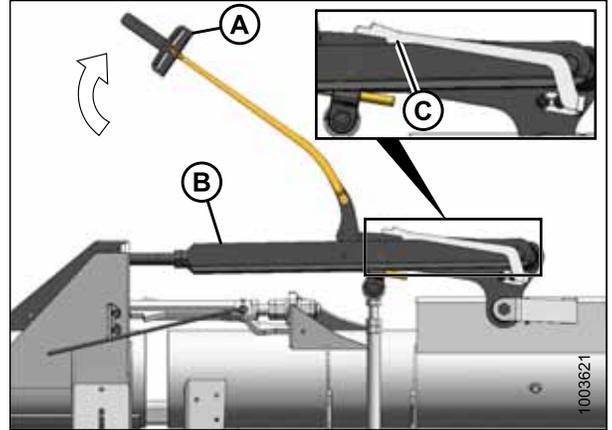


Figure 4.47: Balance Linkage

11. Move wing downward with torque wrench (A) until pointer upper alignment tab (C) lines up with the lower edge of the top-link (B). Observe indicator reading (A) on the wrench and record it.

- If the difference between the readings is 0.5 or less, the wing is balanced and no further adjustment is required. Follow the steps below to reinstall the linkage cover.
- If the difference between the readings is more than 0.5, the wing is not balanced. Refer to [4.12.2 Adjusting Wing Balance, page 115](#).

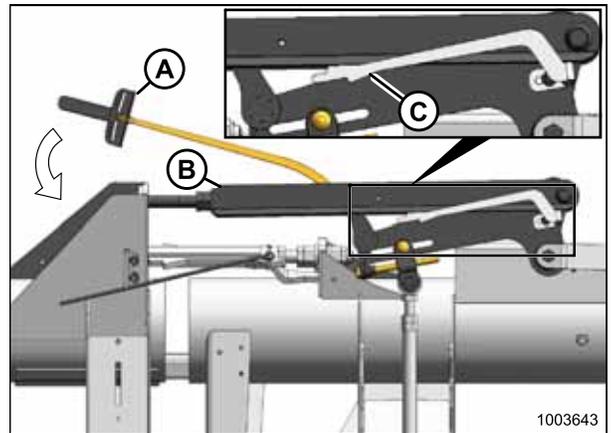


Figure 4.48: Balance Linkage

- If the indicator range is as shown at right, the wing is too light.

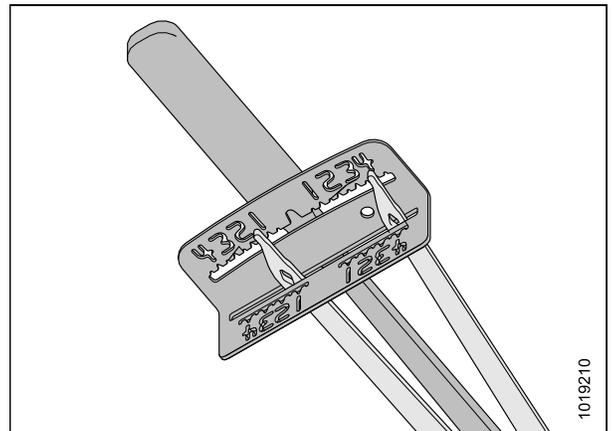


Figure 4.49: Wrench Indicator

PERFORMING PREDELIVERY CHECKS

- If the indicator range is as shown at right, the wing is too heavy.

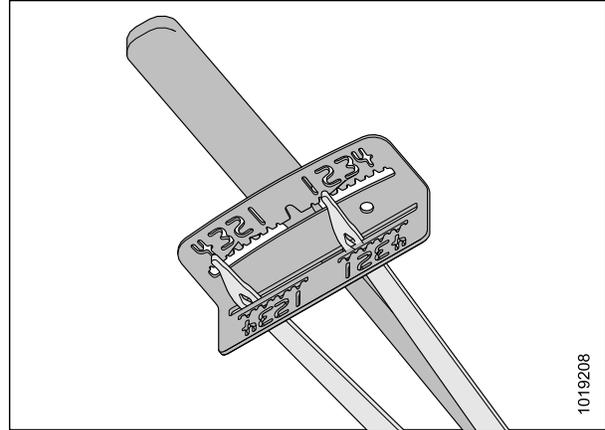


Figure 4.50: Wrench Indicator

12. Place wrench (A) back onto right leg of adapter.

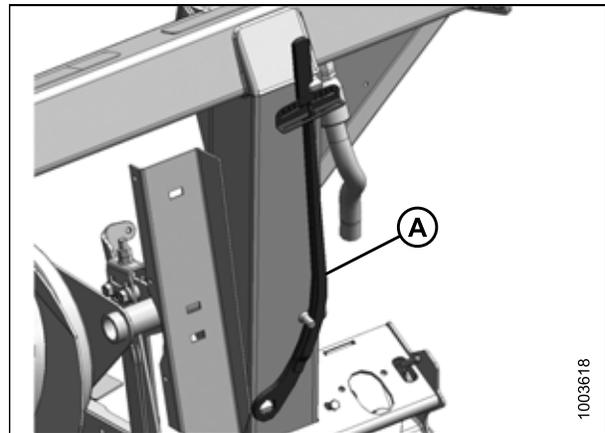


Figure 4.51: Torque Wrench

13. Lock the wings by moving spring handles (A) to upper LOCK position.

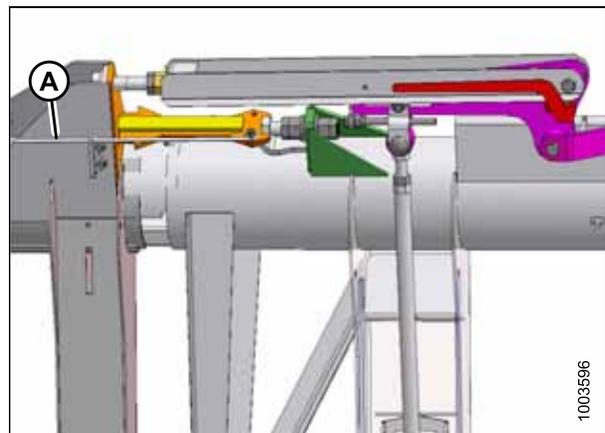


Figure 4.52: Wing Lock in Lock Position

PERFORMING PREDELIVERY CHECKS

14. Reinstall linkage cover (A) and secure it with bolt (B).

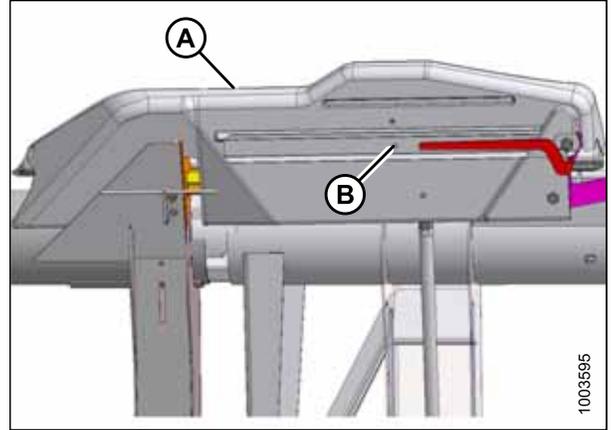


Figure 4.53: Linkage Cover

4.12.2 Adjusting Wing Balance

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

Before proceeding, check the wing balance to verify how to adjust the wing. Refer to [4.12.1 Checking Wing Balance](#), page 110.

NOTE:

Left side is shown.

1. Extend the header center-link to between B and C on indicator (A).
2. Park combine on level ground and raise header until cutterbar is 152–254 mm (6–10 in.) off the ground.
3. Stop engine and remove key.
4. If installed, move transport/stabilizer wheels so that they are supported by header. Refer to instructions provided with the transport/stabilizer system.

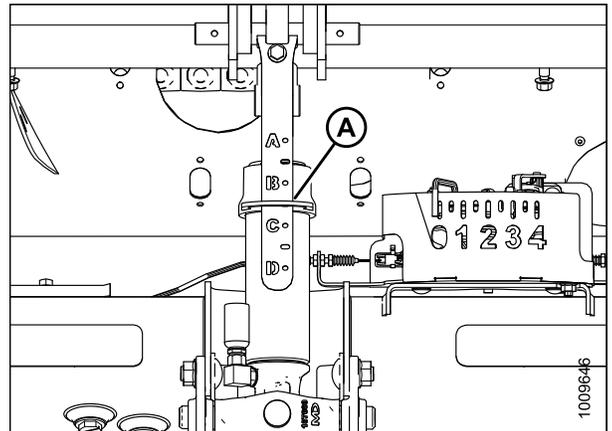


Figure 4.54: Center-Link

PERFORMING PREDELIVERY CHECKS

5. Remove linkage cover (A) by removing bolt (B).

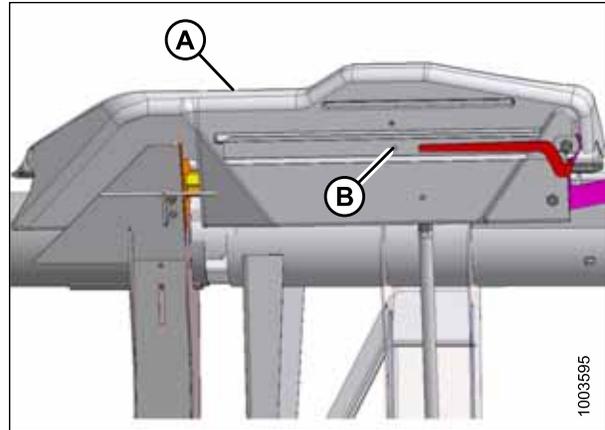


Figure 4.55: Linkage Cover

NOTE:

Refer to the decal (A) inside each linkage cover.

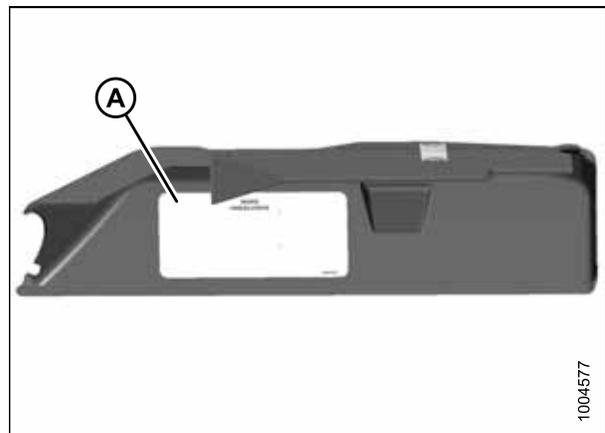


Figure 4.56: Linkage Cover

6. Unlock the wings by moving handle (A) to lower (UNLOCK) position.

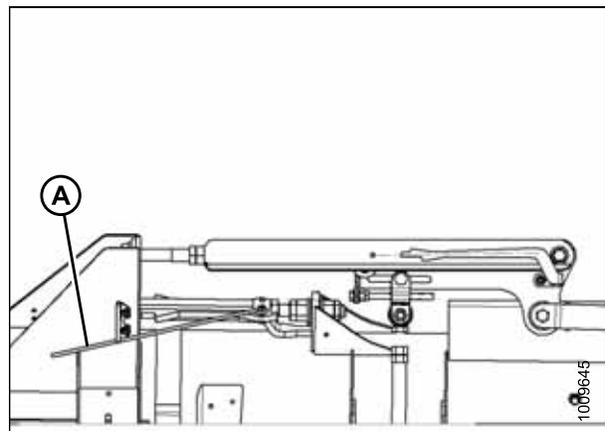


Figure 4.57: Wing Lock in UNLOCK Position

PERFORMING PREDELIVERY CHECKS

- Retrieve wrench (A) from adapter leg.

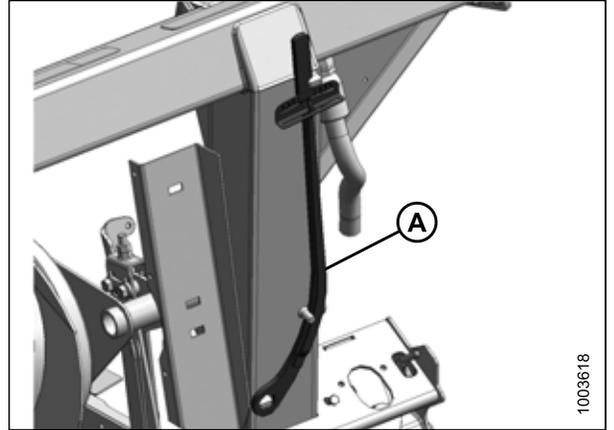


Figure 4.58: Torque Wrench

- Place torque wrench (A) on bolt (B).

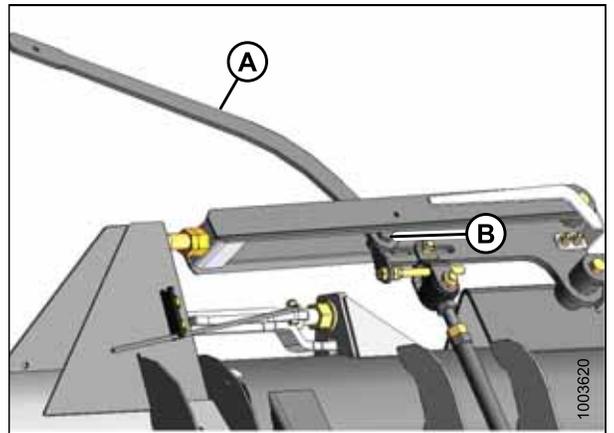


Figure 4.59: Balance Linkage

- Loosen the clevis bolt (A) for the wing requiring adjustment as determined by the wing balance check.

NOTE:

Do **NOT** loosen any other hardware.

- Adjust bolt (B) and set dimension (C).

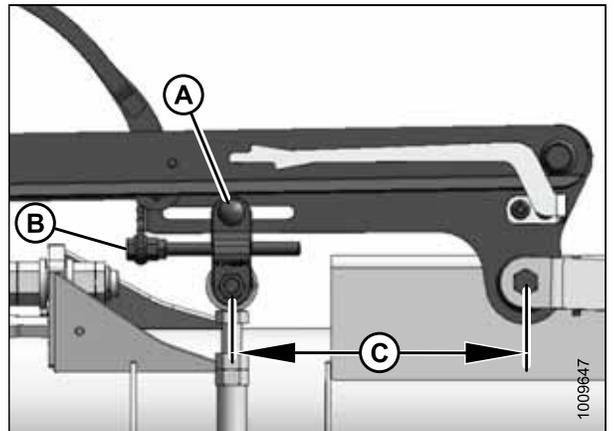


Figure 4.60: Balance Linkage

PERFORMING PREDELIVERY CHECKS

11. Recheck the wing balance. Refer to [4.12.1 Checking Wing Balance, page 110](#).
12. If necessary, perform the following adjustments:
 - If the wing is too heavy, turn adjuster bolt (B) to move clevis (C) outboard (D).
 - If the wing is too light, turn adjuster bolt (B) to move clevis (C) inboard (E).
13. Adjust clevis (C) position if necessary until indicator readings are within one increment.
14. Tighten clevis bolt (A).

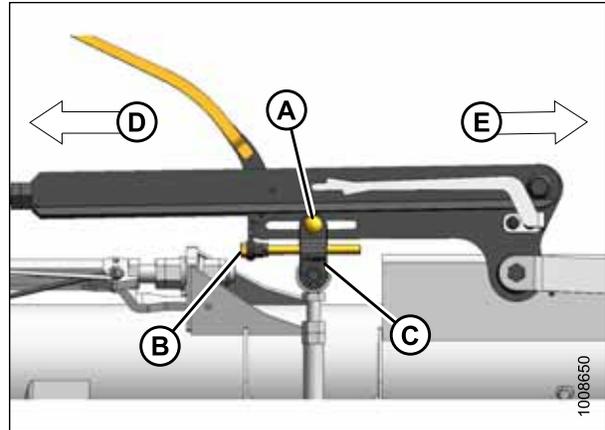


Figure 4.61: Balance Linkage

15. Move handle (A) to the upper LOCK position.
16. If lock does not engage, move the wing up and down with torque wrench until it locks. When locked, there will be some movement in the linkage.
17. If the cutterbar is not straight when wings are in lock mode, then further adjustments are required.

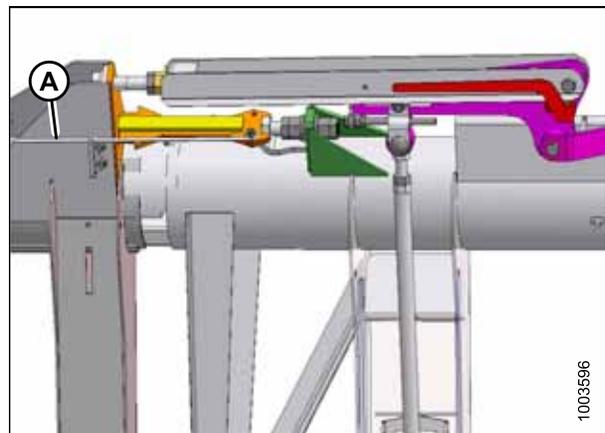


Figure 4.62: Wing Lock in Lock Position

18. Replace torque wrench on adapter frame.
19. Reinstall linkage cover (A) and secure it with bolt (B).

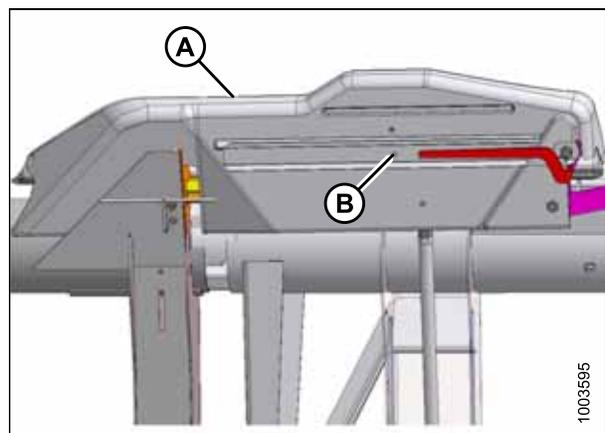


Figure 4.63: Linkage Cover

4.13 Adjusting Auger to Pan Clearance

DANGER

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

IMPORTANT:

Maintain an appropriate distance between auger and auger pan. Too little clearance may cause tines or flighting to contact and damage feed draper or pan when operating header at certain angles. Look for evidence of contact when greasing adapter.

1. Extend center-link to steepest header angle, and position header 150–254 mm (6–10 in.) off the ground.
2. Lock header wings.
3. Shut down combine and remove key from ignition.
4. Ensure float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

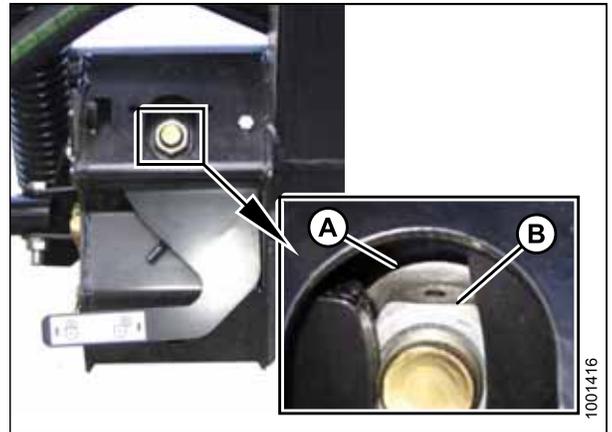


Figure 4.64: Float Lock

5. Ensure lower end of linkage bars (A) are against studs (B) at both ends of auger.

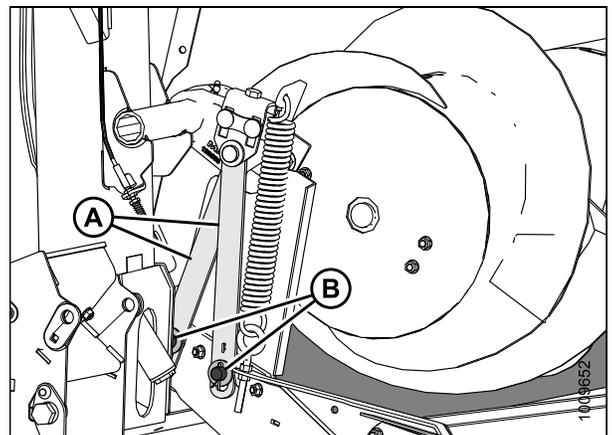


Figure 4.65: Linkage Bars

PERFORMING PREDELIVERY CHECKS

6. Loosen two nuts (B).
7. Use adjuster bolt (A) to set clearance (C) to 5–10 mm (3/16–3/8 in.). Turn adjuster bolt (A) clockwise to increase clearance and counterclockwise to decrease clearance.

NOTE:

The clearance increases 25–40 mm (1–1-1/2 in.) when center-link is fully retracted.

8. Repeat previous two steps on opposite end of auger.
9. Tighten nuts (B) on both ends of feed auger. Torque nuts to 106–118 Nm (79–87 lbf·ft).

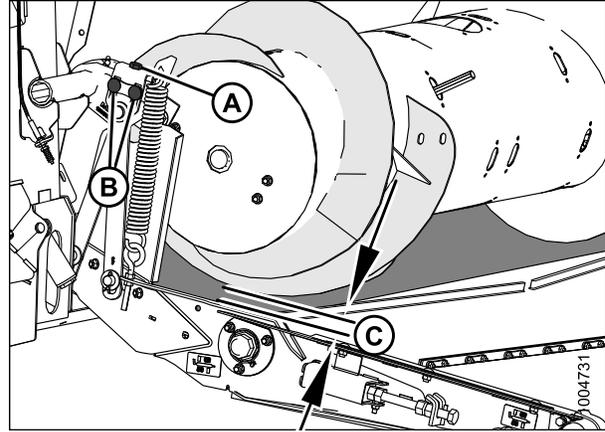


Figure 4.66: Auger Clearance

4.14 Checking and Adjusting Feed Draper Tension

Follow these steps to check and adjust feed draper tension.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Raise the header fully, stop engine, and remove key from ignition.
2. Engage the header safety props.
3. Ensure draper guide (rubber track on the underside of draper) is engaged in groove of the drive roller and the idler roller is between the guides.

Checking feed draper tension

NOTE:

The default position of spring retainer (A) is flush to the edge of the spring box (B); however, the position of the spring retainer varies with draper tracking adjustment at the factory. Illustration shows transparent spring box to show spring retainer position.

4. Check the position of spring retainer (A). If feed draper tracks properly and spring retainers on both sides are positioned within the following dimensions, than no adjustment is necessary:
 - Loosened to 3 mm (1/8 in.) outside (C) the front edge of spring box (B)
 - Tightened to 6 mm (1/4 in.) inside (D) the front edge of the spring box (B)
5. If adjustment is necessary, proceed to Step 6, page 121.

Adjusting feed draper tension

6. To adjust feed draper tension, loosen jam nut (A) and hold nut (B) with a wrench while turning bolt (C) clockwise to increase draper tension or counterclockwise to decrease draper tension.

IMPORTANT:

To avoid uneven draper tracking, adjust both sides equally.

7. Tension draper until spring retainer (D) is within range described in Step 4, page 121, and bolt (E) is free.
8. Ensure draper is tracking properly after adjusting.
9. Tighten jam nut (A).

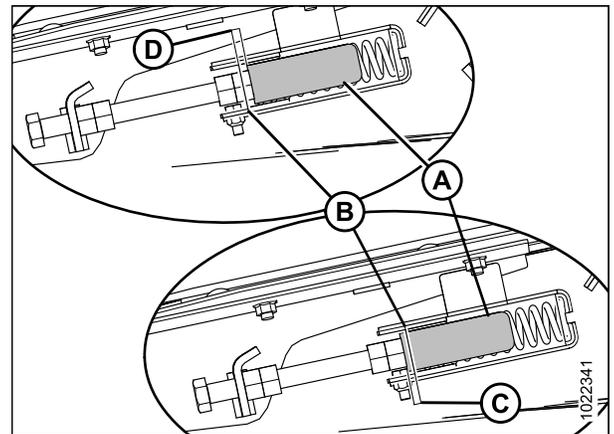


Figure 4.67: Feed Draper Tensioner (Spring Box Drawn Transparent)

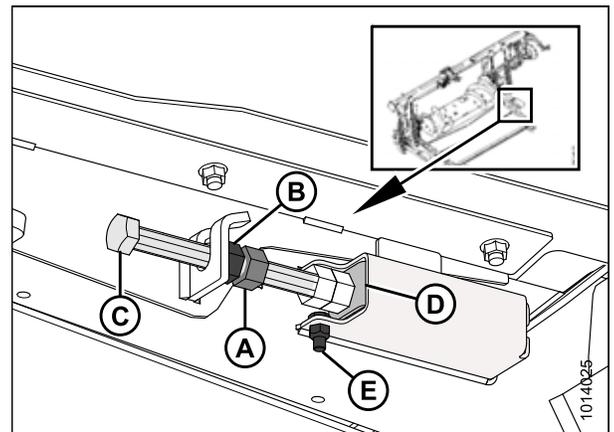


Figure 4.68: Tensioner

4.15 Checking and Adjusting Side Draper Tension

WARNING

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 machine for any reason.

The drapers are tensioned at the factory and should not require adjustment. Draper tension should be just enough to prevent slipping and to keep draper from sagging below cutterbar.

1. Check that white bar (A) is approximately halfway in window.

NOTE:

Draper tension should be just enough to prevent slipping and to keep draper from sagging below cutterbar.

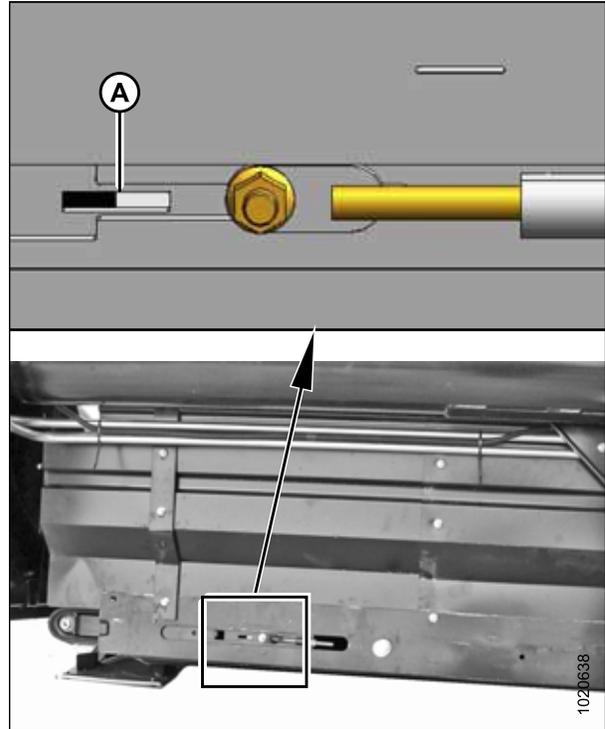


Figure 4.69: Tension Adjuster (Left Shown – Right Opposite)

To adjust draper tension, follow these steps:

CAUTION

Check to be sure all bystanders have cleared the area.

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

PERFORMING PREDELIVERY CHECKS

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

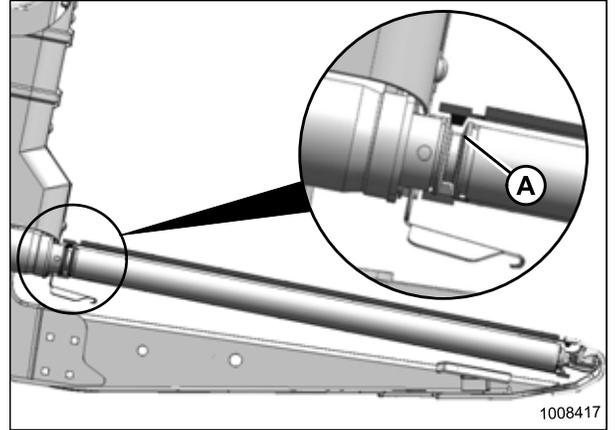


Figure 4.70: Drive Roller

5. Check that idler roller (A) is between guides (B).

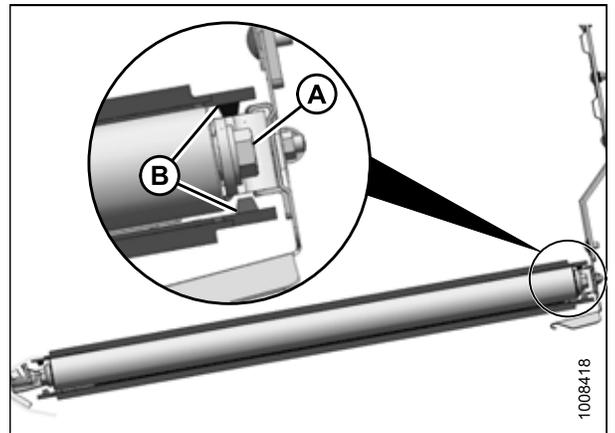


Figure 4.71: Idler Roller – Typical Both Ends of Roller

PERFORMING PREDELIVERY CHECKS

IMPORTANT:

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

6. Turn adjuster bolt (A) counterclockwise to loosen draper. The white indicator bar (B) will move outboard in direction of arrow (D) to indicate that draper is loosening. Loosen until bar is about halfway in window.
7. Turn adjuster bolt (A) clockwise to tighten draper. The white indicator bar (B) will move inboard in direction of arrow (E) to indicate that draper is tightening. Tighten until bar is about halfway in window.

IMPORTANT:

- To avoid premature failure of draper, draper rollers, and/or tightener components, operate **ONLY** with the white bar visible.
- To prevent draper from scooping dirt, ensure draper is tight enough that it does **NOT** sag below point where cutterbar contacts the ground.

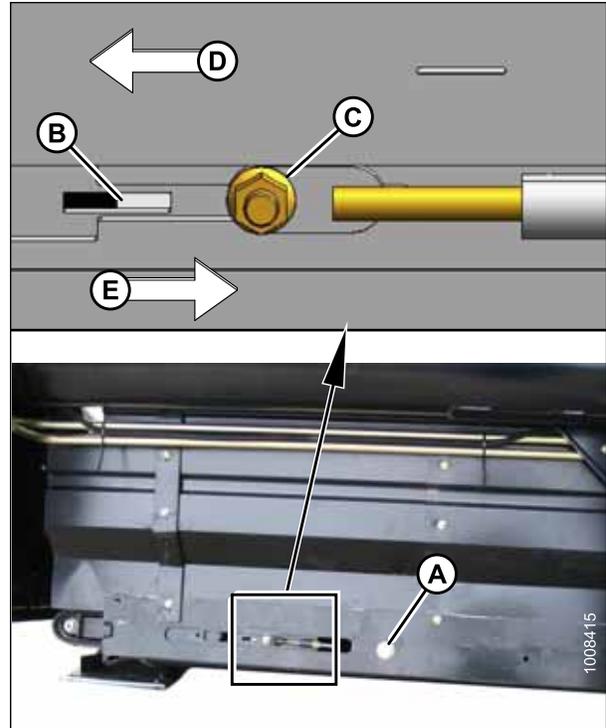


Figure 4.72: Tension Adjuster (Left Shown – Right Opposite)

4.16 Checking and Adjusting Skid Shoes

If optional skid shoes are installed, check position and adjust if necessary.

WARNING

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 machine for any reason.

DANGER

Engage header safety props and reel props before working under header or reel.

1. Check skid shoes are set to same position.
2. If necessary, adjust skid shoe as follows:
 - a. Raise header fully and engage header safety props. Shut down engine and remove key from ignition.
 - b. Remove lynch pin (B).
 - c. Hold shoe and remove pin (C) by disengaging frame and then pulling away from shoe.
 - d. Raise or lower skid shoe to desired position using holes in support (A) as a guide.
 - e. Reinsert pin (C), engage in frame, and secure with lynch pin (B).
 - f. Check that all skid shoes are adjusted to same position.

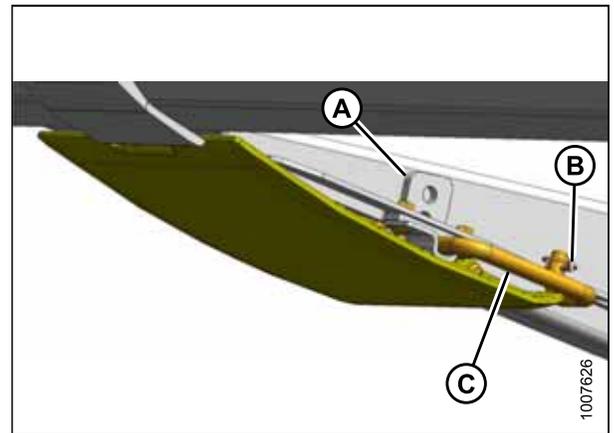


Figure 4.73: Inner Skid Shoe

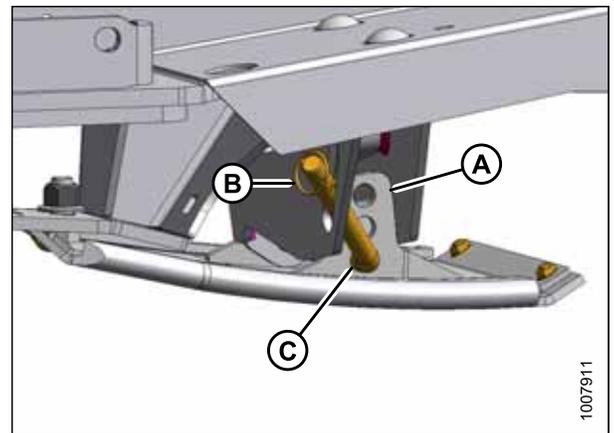


Figure 4.74: Outer Skid Shoe

4.17 Checking Draper Seal

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

1. Lower header to working position. Stop engine, and remove key from ignition.
2. Check that clearance (A) between draper (B) and cutterbar (C) is 0–3 mm (1/8 in.). Take measurements at deck support locations. Refer to chart and illustration on following page for approximate support locations.

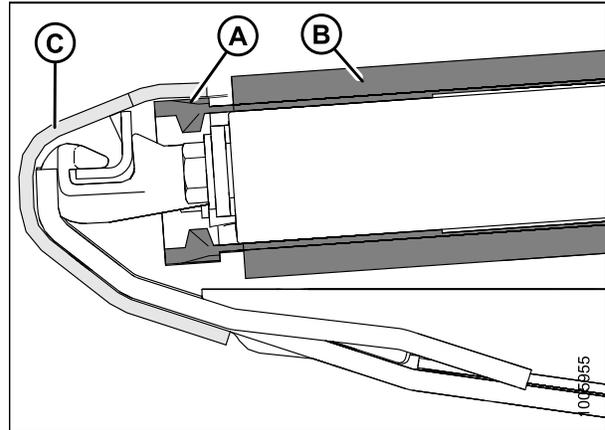


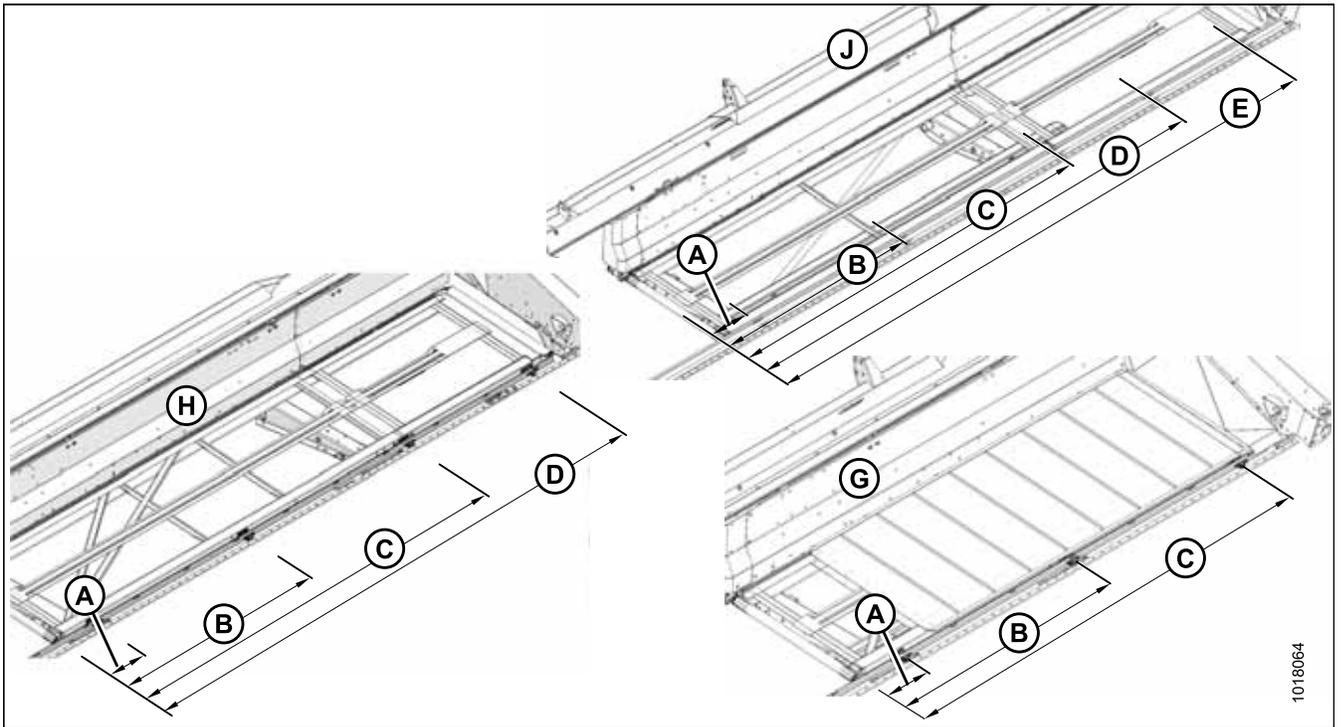
Figure 4.75: Draper Seal

PERFORMING PREDELIVERY CHECKS

Table 4.4 Deck Support Locations

Header Size	Approximate Location of Support from Drive Roller (mm. [in.])				
	A	B	C	D	E
30-ft. (G)	354 (13-15/16)	1773 (69-13/16)	3191 (125-5/8)	-	-
35-ft. (H)	354 (13-15/16)	1550 (61)	2747 (108-3/16)	3949 (155-7/16)	-
40-ft. (H)	354 (13-15/16)	1809 (71-1/8)	3258 (128-1/4)	4710 (185-7/16)	-
45-ft. (J)	354 (13-15/16)	1864 (73-3/8)	3486 (137-1/4)	4483 (176-1/2)	5479 (215-11/16)

Figure 4.76: Deck Support Locations – Left Shown, Right Opposite



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4.18 Lubricating Header

Table 4.5 Recommended Lubricant

Specification	Description	Use
SAE multipurpose	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

4.18.1 Greasing Procedure

Greasing points are marked on machine by decals showing a grease gun and grease interval in hours of operation. Master grease point location decals are provided on header and adapter back frame.

DANGER

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

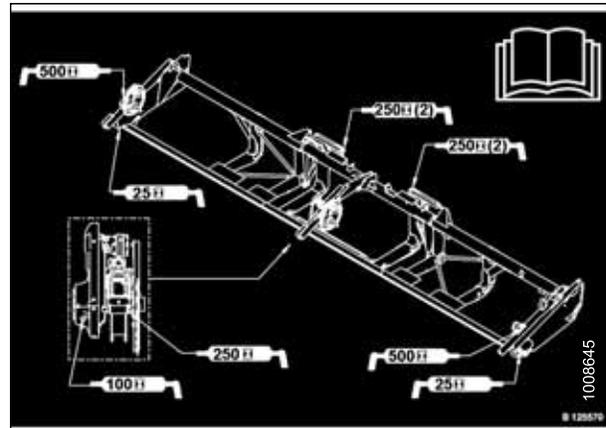


Figure 4.77: FD75 Master Grease Point Decal

4.18.2 Lubrication Points

Refer to illustrations on following pages to identify various locations that require lubrication.

Knifehead

IMPORTANT:

Overgreasing can cause knife to bend and make contact with guards closest to knifehead. Check for signs of excessive heating on first few guards after greasing. If required, relieve some pressure by removing grease fitting.

- To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** over grease knifehead (A).
- Apply only 1–2 pumps of grease with a grease gun, or just until knifehead starts to move away from arm. Do **NOT** use an electric grease gun.
- If more than 6–8 pumps of grease gun are required to fill cavity, replace seal in the knifehead.
- Check for signs of excessive heating on first few guards after greasing. If required, relieve pressure by pressing check-ball in grease fitting.

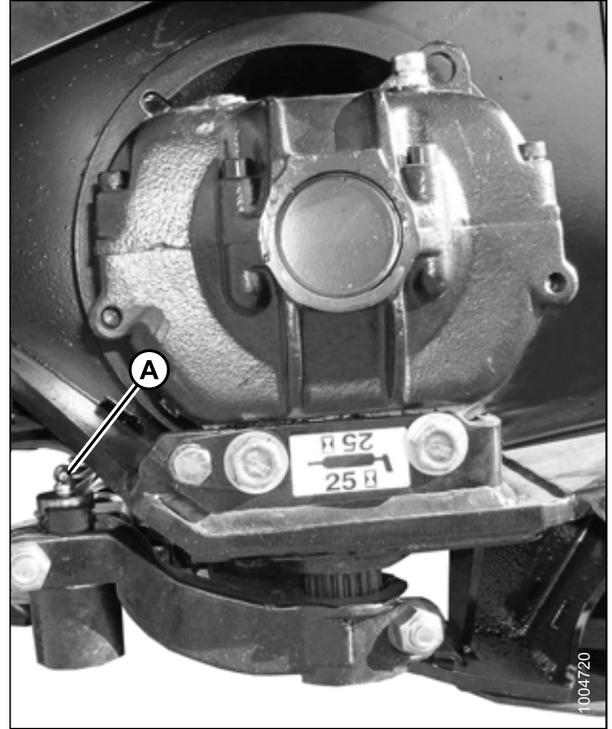


Figure 4.78: Knifehead

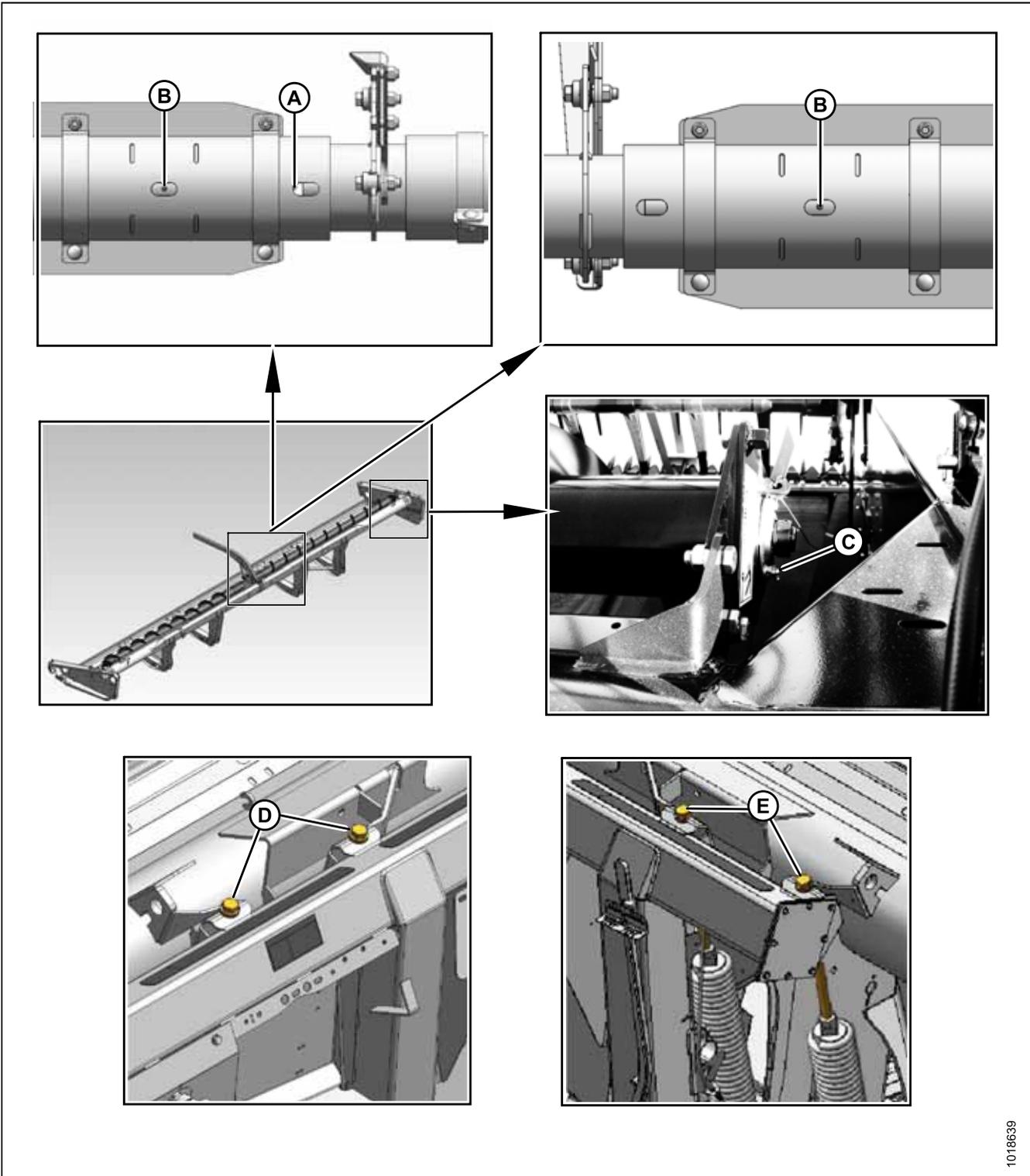
Single Knife – 1 Place
Double Knife – 2 Places

NOTE:

Use high temperature extreme pressure (EP2) performance with 1% max Molybdenum Disulphide (NLGI grade 2) Lithium base grease unless otherwise specified.

PERFORMING PREDELIVERY CHECKS

Figure 4.79: Upper Cross Auger and Float Spring Tensioners



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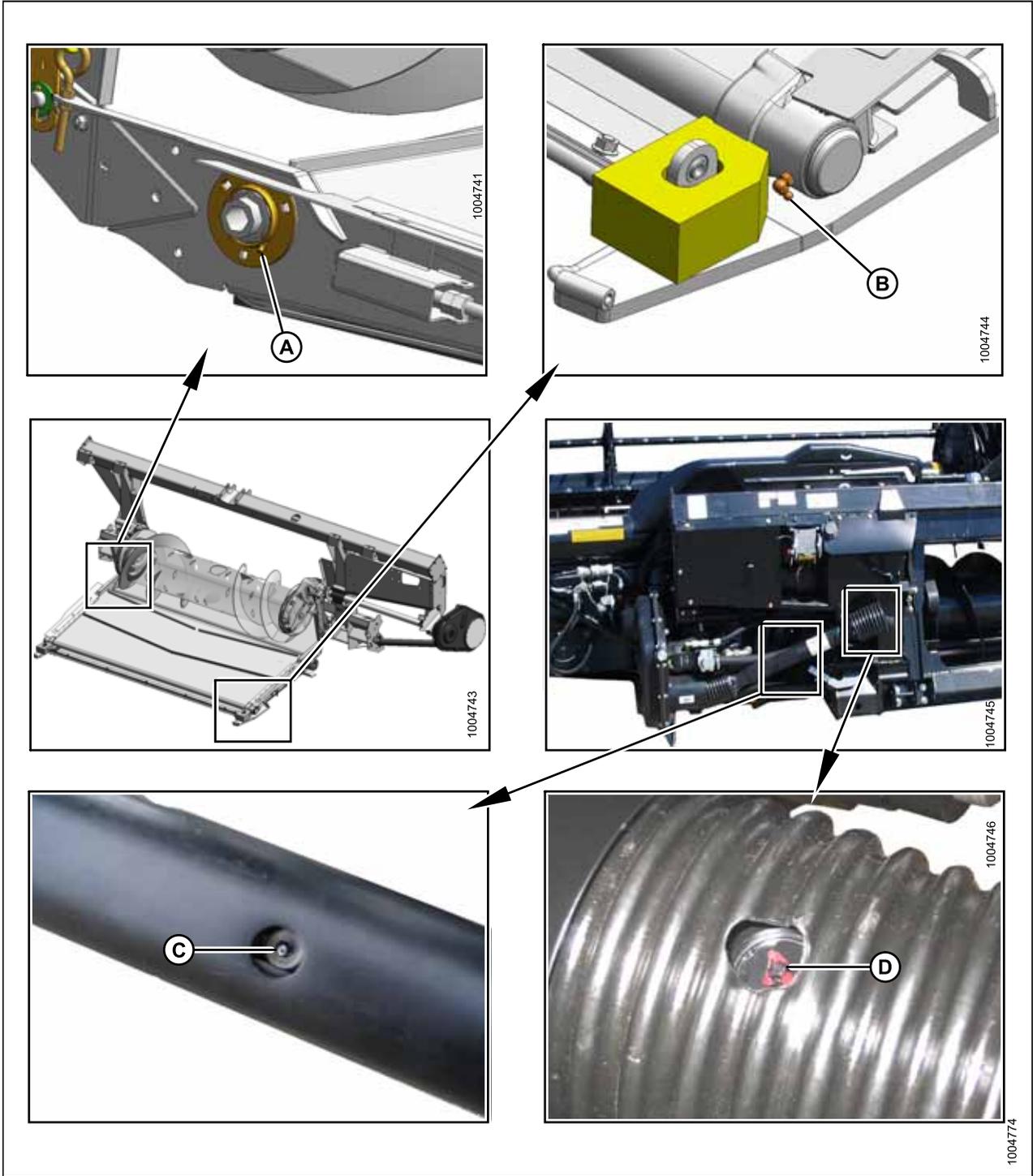
A - Upper Cross Auger U-joint
D - Float Spring Tensioners - Left

B - Upper Cross Auger Bearing
E - Float Spring Tensioners - Right

C - Upper Cross Auger Bearing

PERFORMING PREDELIVERY CHECKS

Figure 4.80: Drive Roller Bearing, Idler Roller, Slip Joint, and Driveline Universal



A - Drive Roller Bearing

B - Idler Roller - Both Sides

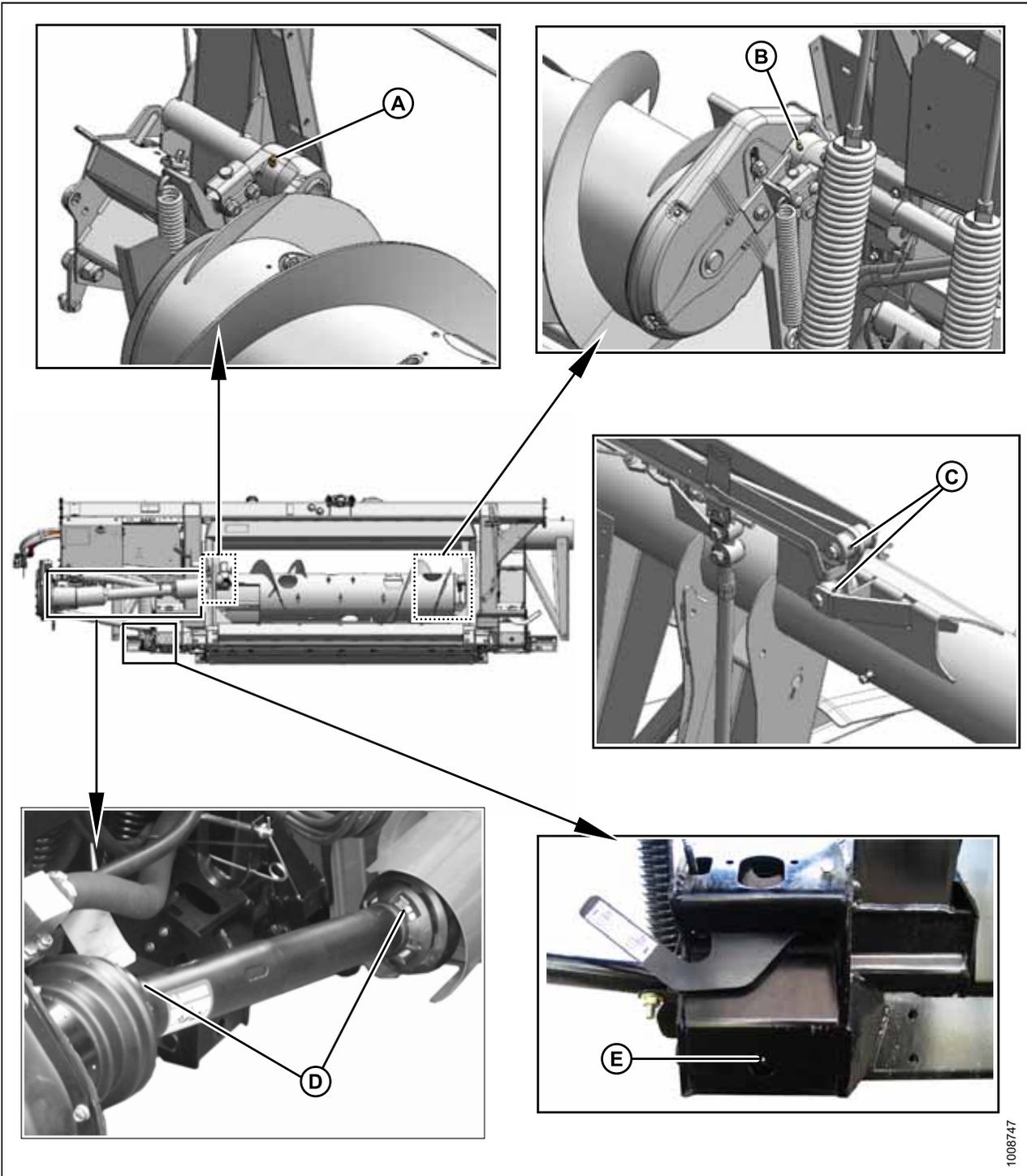
C - Driveline Slip Joint¹

D - Driveline Universal (2 Places)

1. 10% moly grease is recommended for the driveline slip joint.

PERFORMING PREDELIVERY CHECKS

Figure 4.81: Float Pivot, Driveline Guard, Flex Linkage, and Auger Pivot



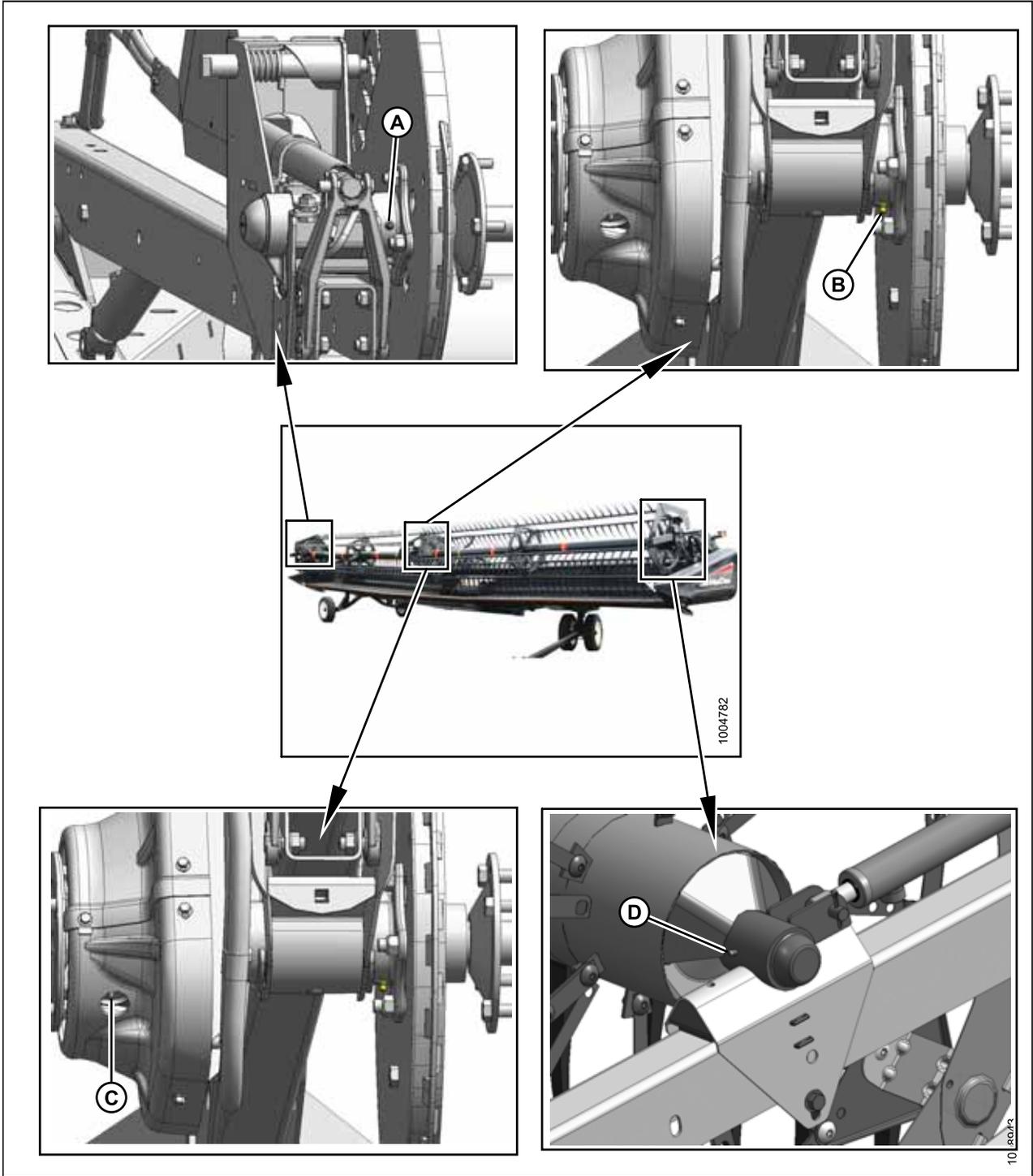
A - Auger Right Pivot
D - Driveline Guard (2 Places)

B - Auger Left Pivot
E - Float Pivot (2 Places)

C - Flex Linkage (2 Places) (Both Sides)

PERFORMING PREDELIVERY CHECKS

Figure 4.82: Reel Shaft Bearings



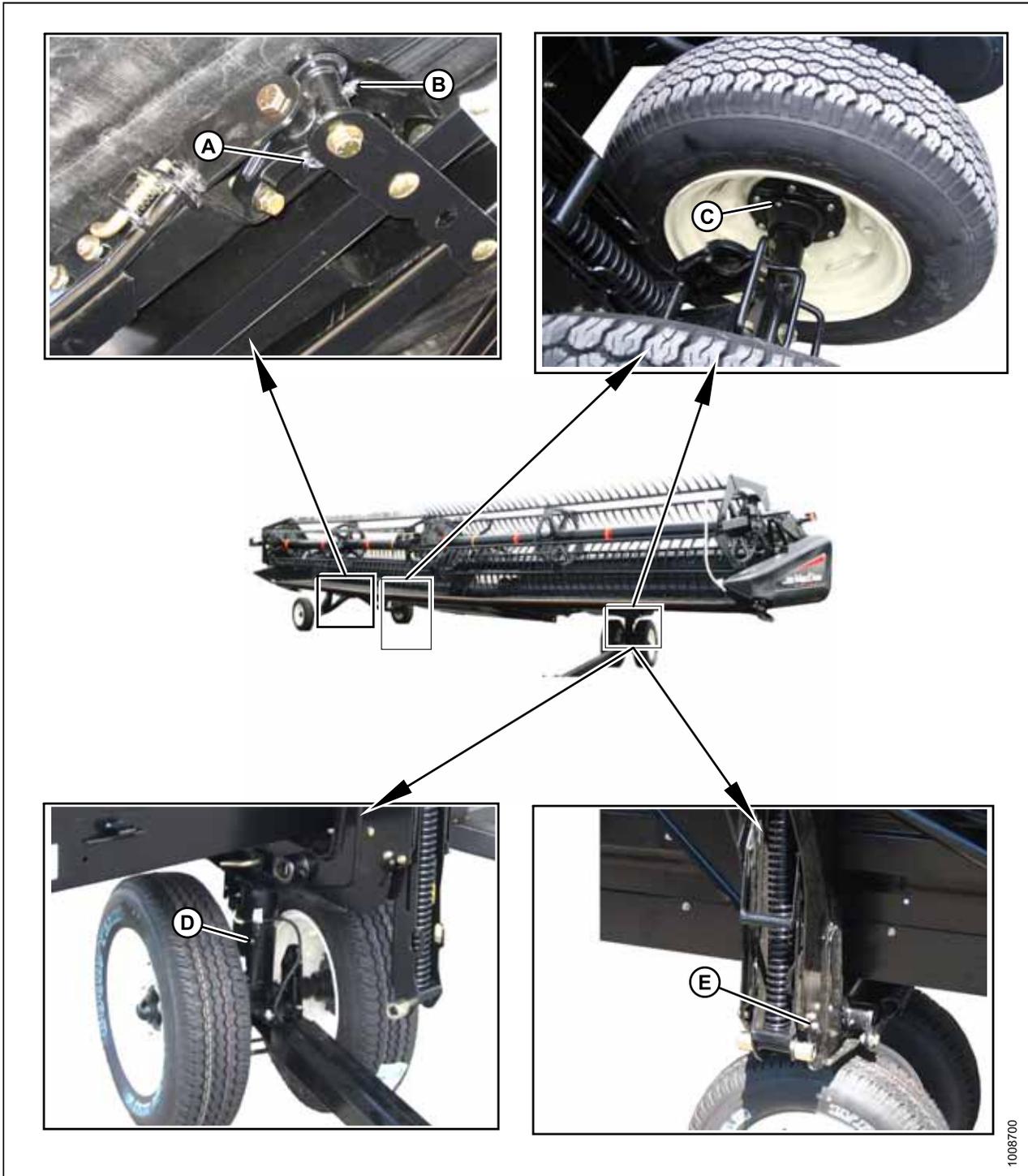
A - Reel Shaft Right Bearing (1 Place)
D - Reel Shaft Left Bearing (1 Place)

B - Reel Center Bearing (1 Place)

C - Reel Universal (1 Place)

PERFORMING PREDELIVERY CHECKS

Figure 4.83: Rear Wheel Axle, Wheel Bearings, Frame/Wheel Pivot, and Front Wheel Pivot



A - Rear Wheel Axle
D - Front Wheel Pivot

B - Rear Wheel Axle
E - Frame/Wheel Pivot (1 Place) Both Sides

C - Wheel Bearings (4 Places)

4.19 Checking and Adjusting Endshields

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

1. Check gap (X) between front end of shields and header frame and compare to values in Table 4.6, page 135.

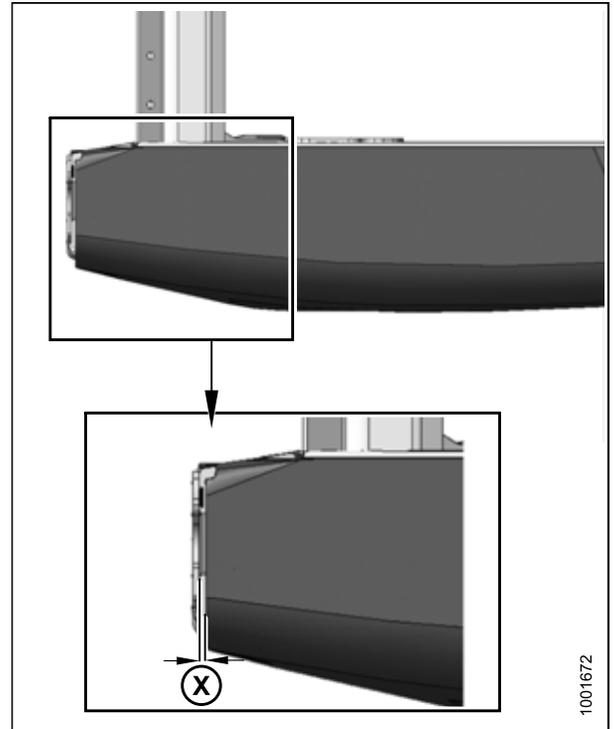


Figure 4.84: Gap Between Endshield and Header Frame

Table 4.6 Endshield Gap at Various Temperatures

Temperature °C (°F)	Gap (X) mm (in.)
-4 (25)	28 (1-1/10)
7 (45)	24 (1)
18 (65)	20 (13/16)
29 (85)	16 (5/8)
41 (105)	12 (1/2)
52 (125)	8 (5/16)
63 (145)	4 (3/16)
89 (165)	0

NOTE:

If endshield gap is correct, skip to next procedure. If adjustment is required, follow these steps:

PERFORMING PREDELIVERY CHECKS

2. Open endshield. Refer to [3.4.5 Opening Endshield, page 83](#).
3. Loosen nut (A) on pin (B) from inside endsheet.
4. Close endshield and adjust position to achieve desired gap between front end of shield and header frame in accordance with [Table 4.6, page 135](#).
5. Open endshield and tighten nut (A).
6. Check for a snug fit between top of shield and header frame, and for full engagement of endshield on pin (B).
7. If necessary, loosen bolts on catch (C) and adjust catch as required to reposition shield.
8. Tighten bolts on catch (C).
9. Close endshield. Refer to [3.4.9 Closing Endshield, page 87](#).

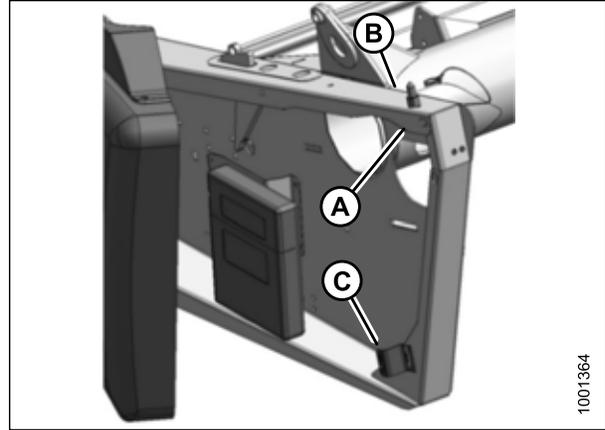


Figure 4.85: Endshield Adjustment

4.20 Checking Manuals

Check manual case contents. The manual case is located inside left endshield.

1. Open left endshield and remove cable tie on manual case.

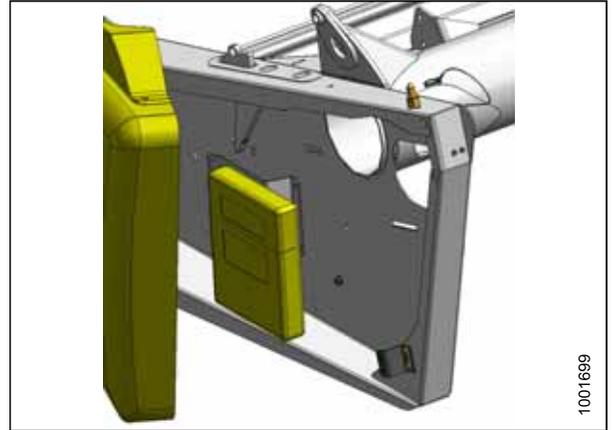


Figure 4.86: Manual Case

2. Confirm that case contains following manuals:
 - FD75 FlexDraper® Operator's Manual
 - FD75 FlexDraper® Quick Card
 - FD75 FlexDraper® Parts Catalog
 - CA25 Combine Adapter Parts Catalog



Figure 4.87: FD75 and CA25 Manuals

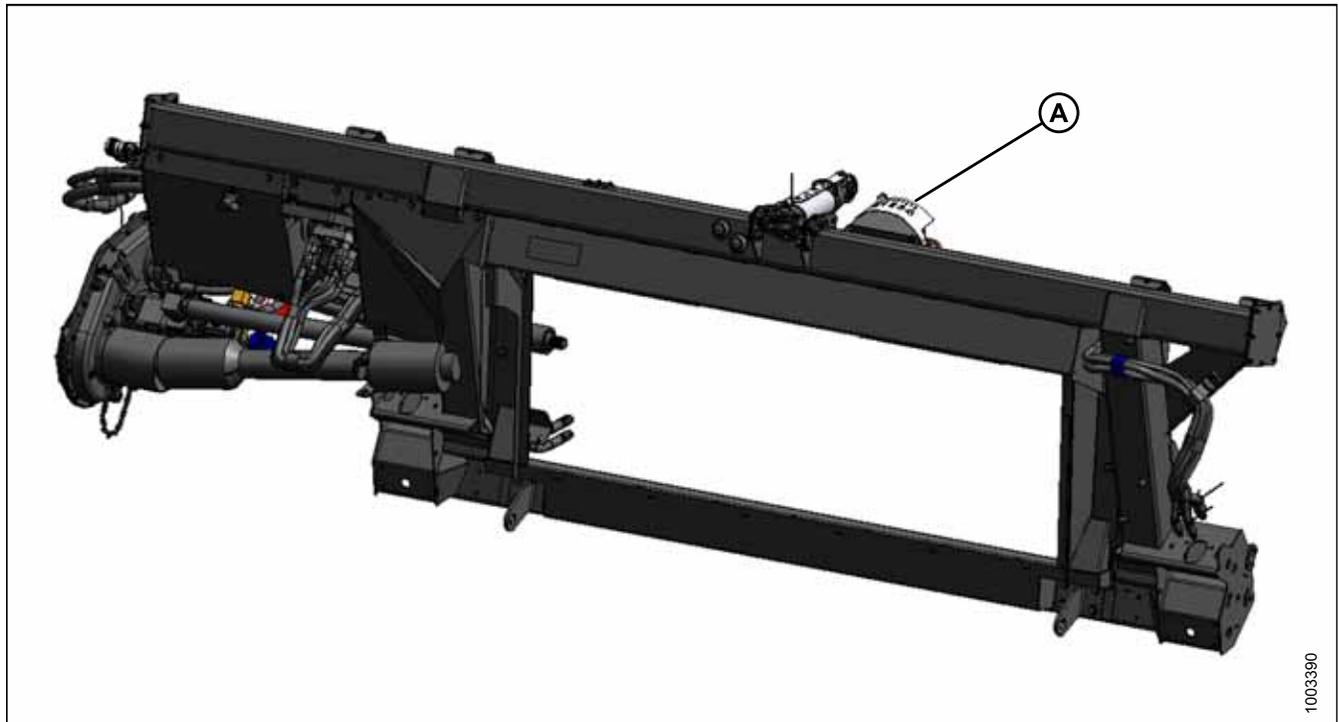
5 Setting up Auto Header Height Control

5.1 Auto Header Height Control (AHHC)

MacDon's auto header height control (AHHC) feature works in conjunction with the AHHC option available on certain combine models.

A sensor is installed in float indicator box (A) on the CA25 Combine Adapter. This sensor sends a signal to combine allowing it to maintain a consistent cutting height and an optimum adapter float as header follows ground contours.

Figure 5.1: CA25 Combine Adapter



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

1. Ensure that AHHC sensor's output voltage range is appropriate for combine. For more information, refer to [5.1.1 Sensor Output Voltage Range – Combine Requirements, page 140](#).
2. Prepare combine to use AHHC feature (applies only to some combine models—refer to instructions for your combine).
3. Calibrate AHHC system so that combine can correctly interpret data from height sensor on combine adapter (refer to instructions for your combine).

NOTE:

Once calibration is complete, you are ready to use AHHC feature in field. Individual combine settings can improve AHHC performance (refer to your combine instruction manual).

NOTE:

If your CA25 Combine Adapter is not equipped to work with a specific combine model, you will need to install appropriate combine completion package. Completion packages come with instructions for installing AHHC sensor on combine adapter.

SETTING UP AUTO HEADER HEIGHT CONTROL

Refer to the following instructions for your specific combine model:

- [5.1.2 Case IH 2300/2500 and 5088/6088/7088 Combines, page 144](#)
- [5.1.3 Case IH 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines, page 148](#)
- [5.1.4 Challenger 6 and 7 Series Combines, page 159](#)
- [5.1.5 Gleaner R62/R72 Combines, page 166](#)
- [5.1.6 Gleaner R65/R66/R75/R76 and S Series Combines \(Except S9 Series\), page 170](#)
- [5.1.7 Gleaner S9 Series Combines, page 179](#)
- [5.1.8 John Deere 50 Series Combines, page 193](#)
- [5.1.9 John Deere 60 Series Combines, page 204](#)
- [5.1.10 John Deere 70 Series Combines, page 210](#)
- [5.1.11 John Deere S and T Series Combines, page 217](#)
- [5.1.12 CLAAS 500 Series Combines, page 229](#)
- [5.1.13 CLAAS 700 Series Combines, page 241](#)
- [5.1.14 New Holland Combines CX/CR Series \(CR Series – Model Year 2014 and Earlier\), page 250](#)
- [5.1.15 New Holland Combines \(CR Series – Model Year 2015 and Later\), page 260](#)

5.1.1 Sensor Output Voltage Range – Combine Requirements

The auto header height control (AHHC) sensor output must be within a specific voltage range for each combine, or the AHHC feature will not work properly.

Table 5.1 Sensor Voltage Limits

Combine	Low Voltage Limit	High Voltage Limit	Minimum Voltage Range
Challenger, Gleaner A, Gleaner S, Massey Ferguson	0.7 V	4.3 V	2.5 V
Case IH 5088/6088/7088, 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230	0.7 V	4.3 V	2.5 V
Case IH 2300/2500	3.0 V	7.0 V	4.0 V
Gleaner R and S Series	0.7 V	4.3 V	2.5 V
John Deere 50, 60, 70, S and T Series	0.7 V	4.3 V	2.5 V
CLAAS 500/600/700 Series	0.7 V	4.3 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	3.0 V	7.0 V	4.1–4.4 V

NOTE:

Some combine models do not support checking sensor output voltage from cab (early 23/2588 series, CLAAS 500/700 series). For these models, check output voltage manually. Refer to [Manually Checking Voltage Range, page 141](#).

SETTING UP AUTO HEADER HEIGHT CONTROL

Manually Checking Voltage Range

The output voltage range of auto header height control (AHHC) sensors in some combines can be checked from cab. For instructions, refer to your combine operator's manual or AHHC instructions later in this document.

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

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

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

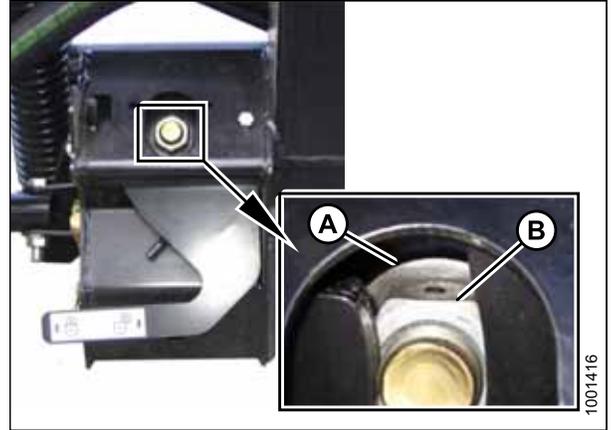


Figure 5.2: Float Lock

3. Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

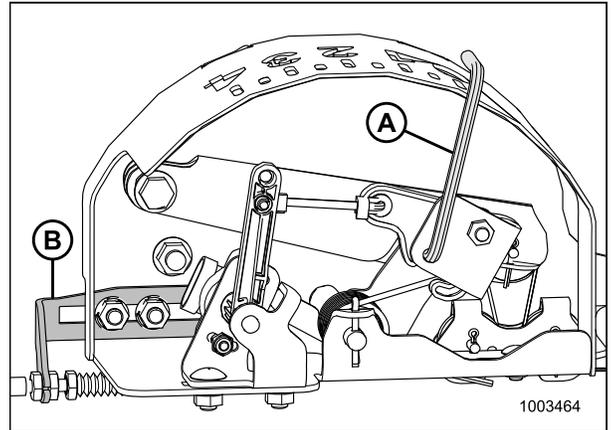


Figure 5.3: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

SETTING UP AUTO HEADER HEIGHT CONTROL

4. Use a voltmeter (A) to measure voltage between ground (Pin 2) and signal (Pin 3) wires at AHHC sensor in float indicator box. Ensure it is at high voltage limit for combine. Refer to Table 5.1, page 140.

NOTE:

The harness connector must be plugged into sensor.

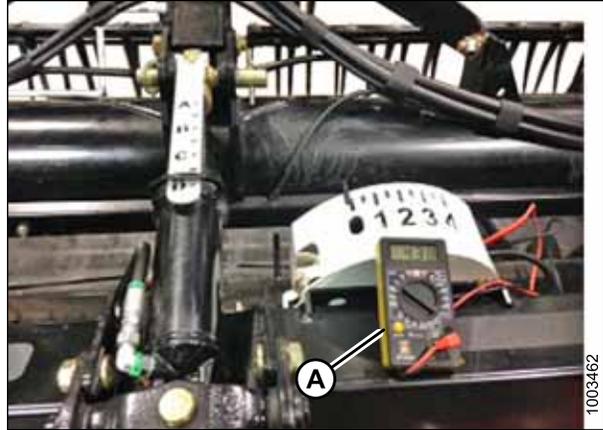


Figure 5.4: Measuring Voltage at Float Indicator Box

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

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

6. Use a voltmeter (A) to measure voltage between ground and signal wires at AHHC sensor in float indicator box. It should be at low voltage limit for combine. Refer to Table 5.1, page 140.

NOTE:

The harness connector must be plugged into sensor.

7. Adjust voltage limits (refer to [Adjusting Voltage Limits](#), page 142) if sensor voltage is not within low and high limits or if range between low and high limits is insufficient. Refer to Table 5.1, page 140.

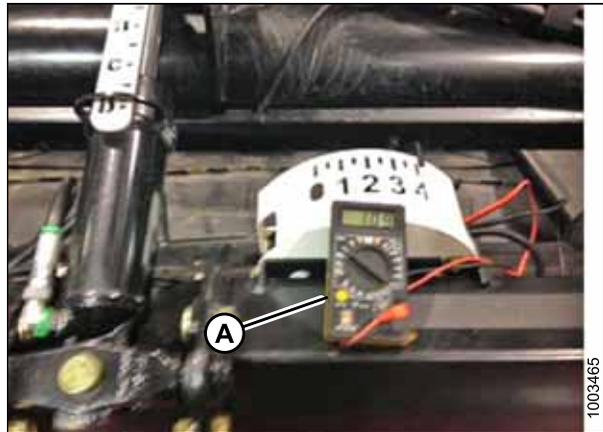


Figure 5.5: Measuring Voltage at Float Indicator Box

Adjusting Voltage Limits

NOTE:

The auto header height control (AHHC) sensor assemblies used for Lexion and some New Holland combines are slightly different from sensor assemblies used for other combine models—all three assemblies are illustrated in this procedure.

SETTING UP AUTO HEADER HEIGHT CONTROL

1. Complete the following steps to adjust high voltage limit:
 - a. Extend guard angle fully; header angle indicator should be at D.
 - b. Position header 152–254 mm (6–10 in.) above ground; float indicator should be at 0.
 - c. Loosen sensor mounting bolts (A).
 - d. Slide sensor support (B) to right to increase high voltage limit and to left to decrease it.
 - e. Tighten sensor mounting bolts (A).

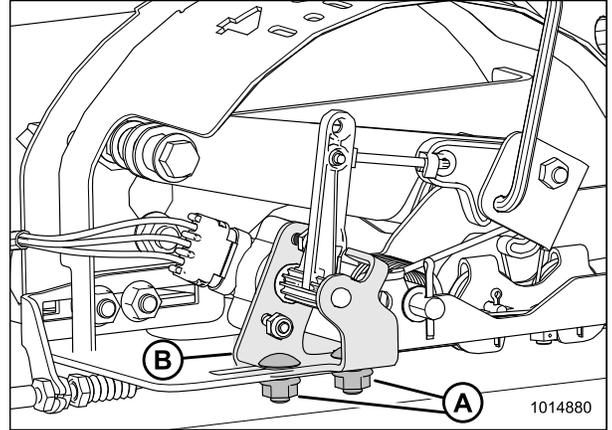


Figure 5.6: AHHC Sensor Assembly for Use with Lexion Combines

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

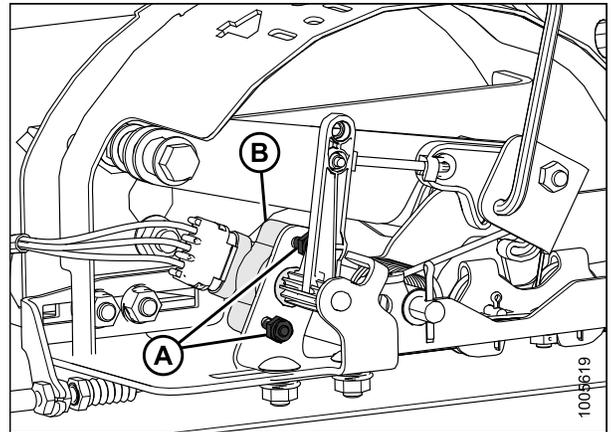


Figure 5.7: Most Common 5 Volt AHHC Sensor Assembly

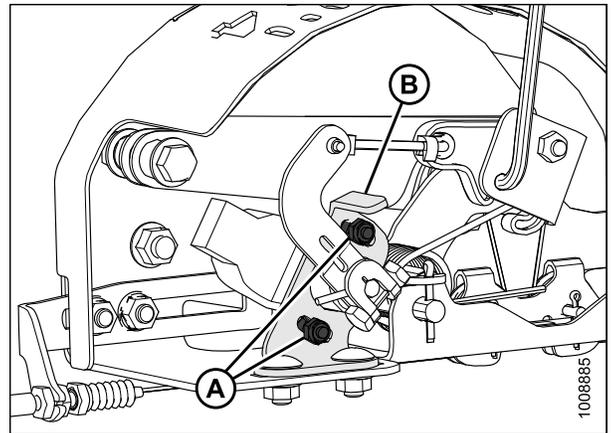


Figure 5.8: 10 Volt AHHC Sensor Assembly for Use with Some New Holland Combines

SETTING UP AUTO HEADER HEIGHT CONTROL

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

Engaging Auto Header Height Control (Case IH 2300)

NOTE:

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

1. Turn mode select switch (A) to HT.
2. Set desired header height with position control knob (B). The auto header height control (AHHC) will raise and lower header to maintain this fixed distance from ground.
3. Turn feeder ON.
4. Push header LOWER switch.

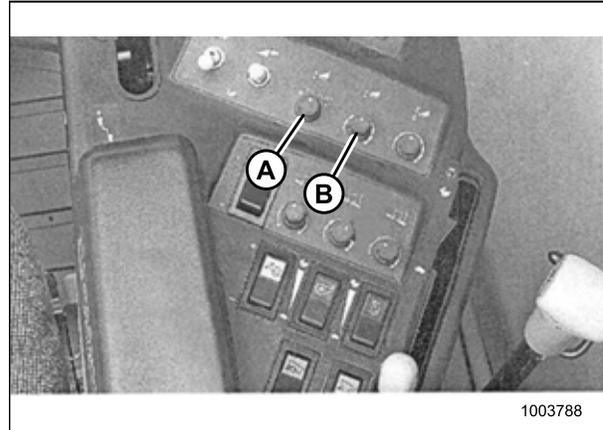


Figure 5.9: Combine Controls

5. Use header raise rate control (A) and header lower rate control (B) as required to adjust rate at which header raises or lowers to maintain desired header height.



Figure 5.10: Combine Controls

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

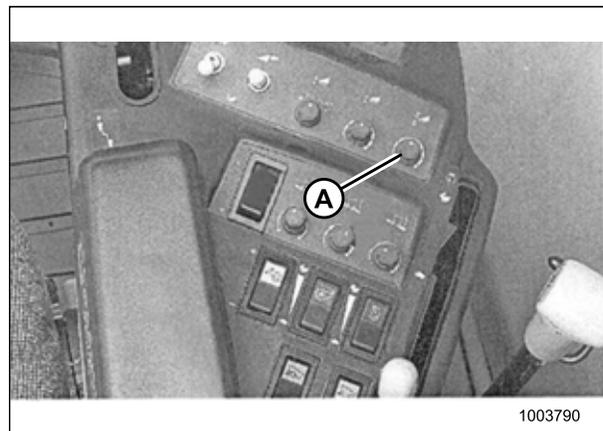


Figure 5.11: Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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

To calibrate the AHHC system, follow these steps:

1. Set float on header and adapter package (refer to operator's manual for instructions). Position fore-aft and center-link in midspan.
2. Start combine engine, but do **NOT** engage separator or feeder house.
3. Locate header control switch (A) on right console, and set to HT (this is AHHC mode).

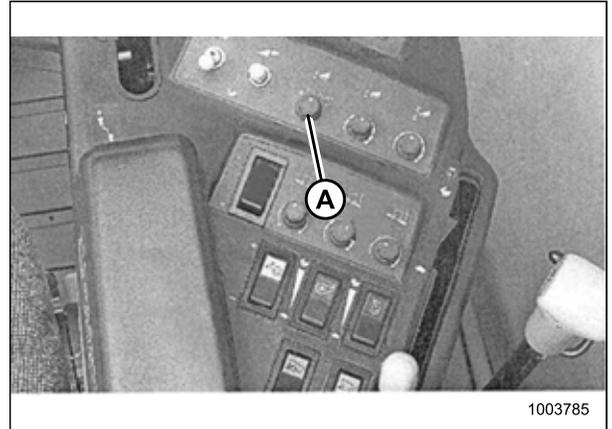


Figure 5.12: Right Console

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

NOTE:

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

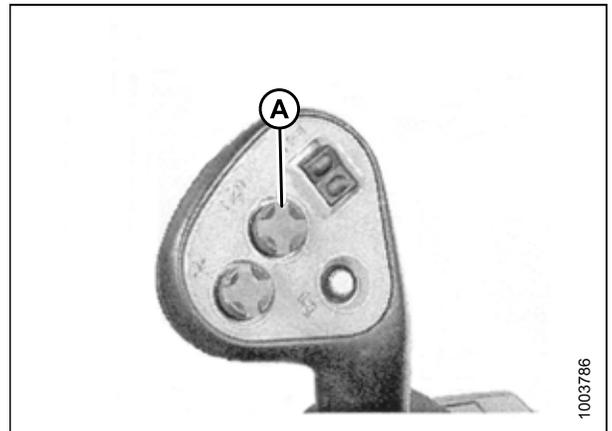


Figure 5.13: Joystick Lever (Case IH 2300/2500)

SETTING UP AUTO HEADER HEIGHT CONTROL

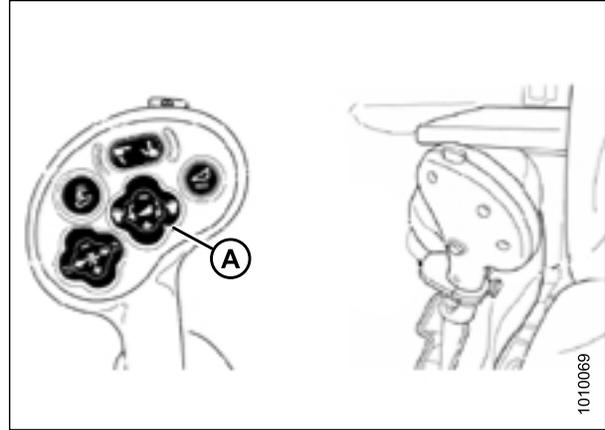


Figure 5.14: Joystick Lever (Case IH 5088/6088/7088)

NOTE:

The ideal ground pressure—in most cases—is one number (on float indicator box) above header suspended off ground. For example, if float indicator needle (B) is positioned at 0 with header suspended off ground, then ideal ground pressure will be achieved with needle positioned at 1 (A). Operating with heavier pressures can wear cutterbar wearplate prematurely.

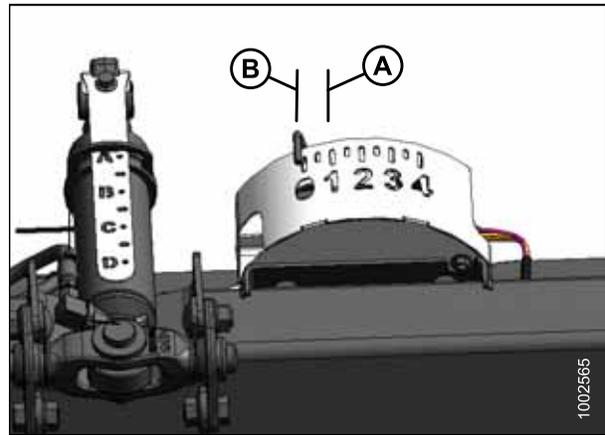


Figure 5.15: Float Indicator Box

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

The sensitivity adjustment controls distance cutterbar must travel up or down before auto header height control (AHHC) reacts and raises or lowers feeder house. When sensitivity is set to maximum, only small changes in ground height are needed to cause feeder house to raise or lower. When sensitivity is set to minimum, large changes in ground height are needed to cause feeder house to raise or lower.

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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

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



Figure 5.16: Combine Controls

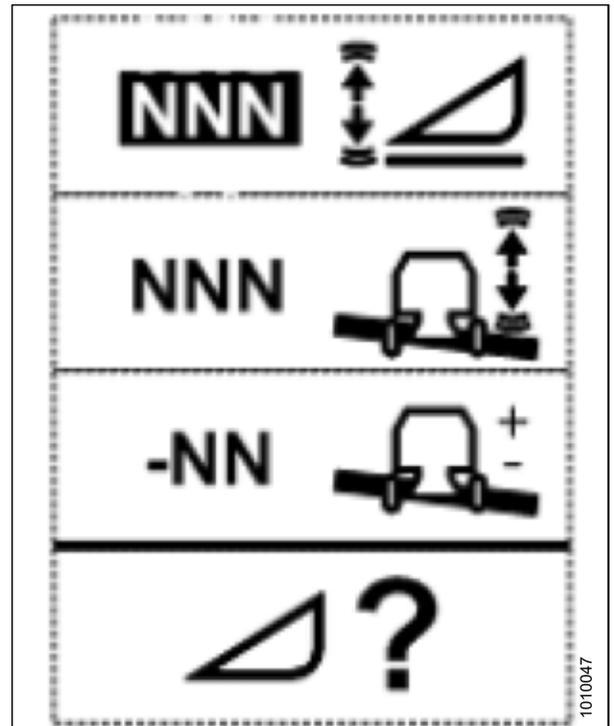


Figure 5.17: Height Sensitivity Change Page

SETTING UP AUTO HEADER HEIGHT CONTROL

5.1.3 Case IH 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines

Checking Voltage Range from Combine Cab (Case 8010)

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position header 150 mm (6 in.) above ground, and unlock CA25 float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

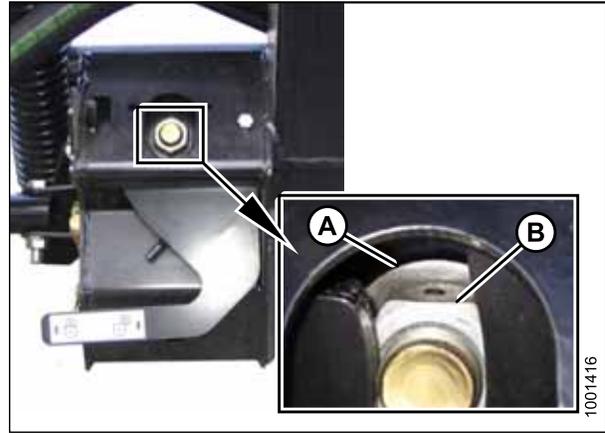


Figure 5.18: Float Lock

3. Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

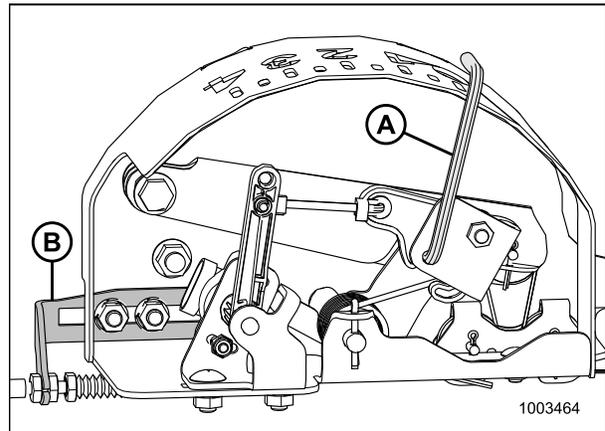


Figure 5.19: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

4. Ensure header float is unlocked.

SETTING UP AUTO HEADER HEIGHT CONTROL

5. Select DIAG (A) on Universal display MAIN page. The DIAG page displays.

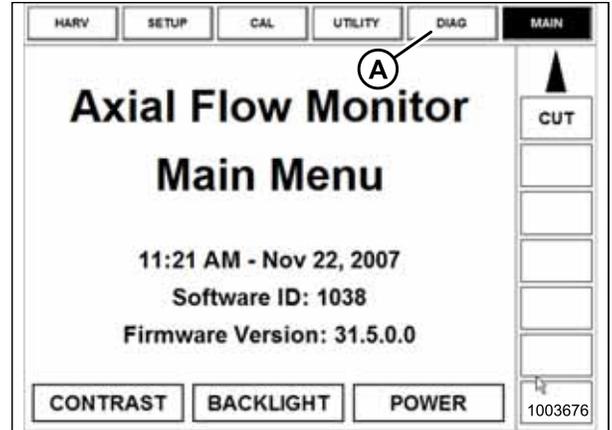


Figure 5.20: Case 8010 Combine Display

6. Select SUB SYSTEM (A). The SUB SYSTEM page displays.

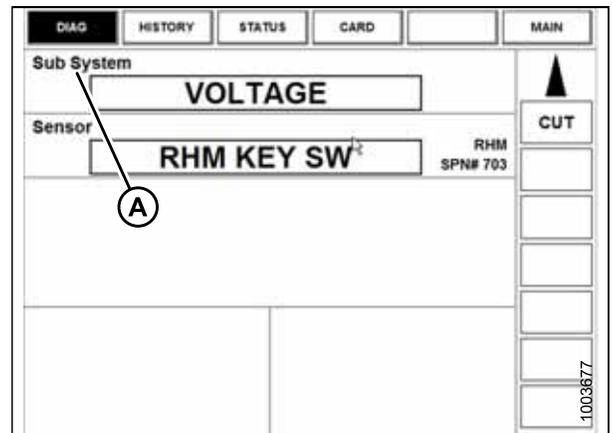


Figure 5.21: Case 8010 Combine Display

7. Select HDR HEIGHT/TILT (A). The SENSOR page displays.

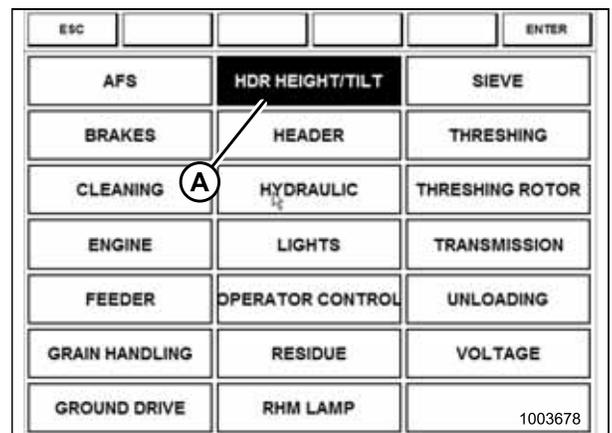


Figure 5.22: Case 8010 Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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

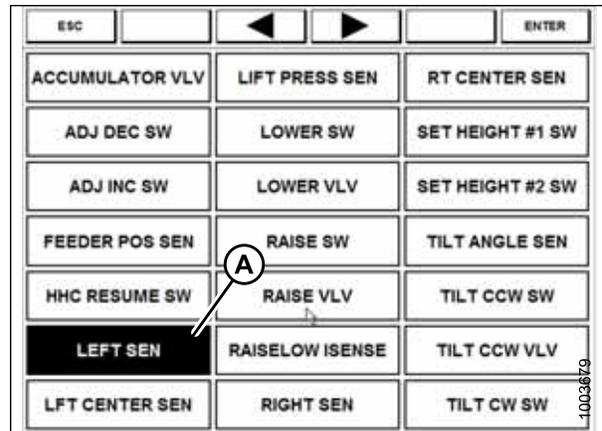


Figure 5.23: Case 8010 Combine Display

- Adjust voltage limits (refer to [Adjusting Voltage Limits, page 142](#)) if sensor voltage is not within low and high limits, or if range between low and high limits is insufficient (refer to [Table 5.1, page 140](#)).

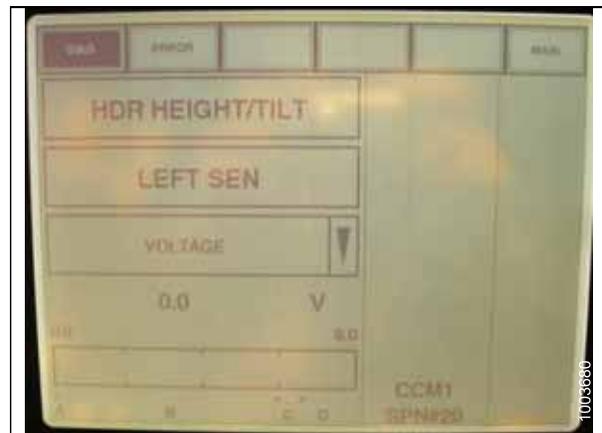


Figure 5.24: Case 8010 Combine Display

Setting Header Controls (Case 8010)

The following procedure applies to Case 8010 combines without a shift button on the GSL.

The reel fore/aft controls (A) also control header fore/aft tilt (if header is equipped with the fore/aft tilt option). The ground speed lever (GSL) needs to be configured to allow the Operator to swap between reel fore/aft and header fore/aft tilt.

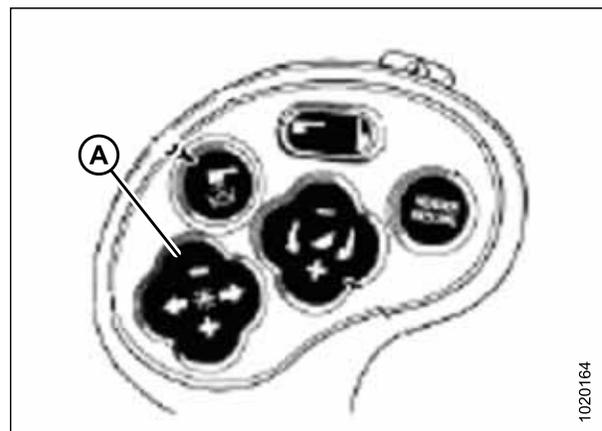


Figure 5.25: Case Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

- To be able to swap between reel fore/aft controls and header fore/aft tilt controls, select FORE/AFT CONTROL (A) and place it on one of the operator configurable screens—HARV1, HARV2, HARV3 or ADJUST under the RUN menu.

NOTE:

H F/A (B) is displayed on the status bar on the right of the screen when HEADER is selected with the FORE/AFT CONTROL.

- If HEADER is selected with the FORE/AFT CONTROL, press the reel aft button on the GSL to tilt the header rearward, or press the reel fore button on the GSL to tilt the header forward.

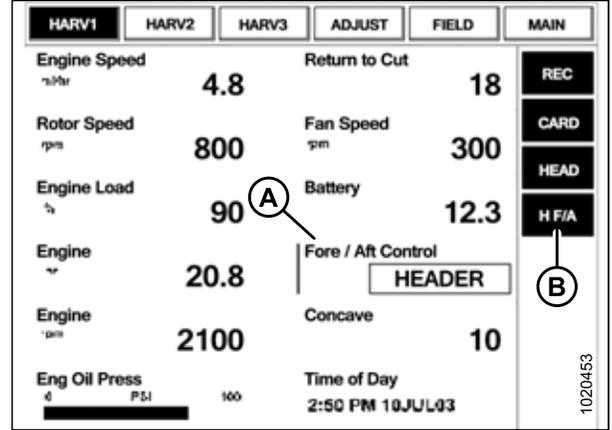


Figure 5.26: Case Combine Display

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

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

- Position header 150 mm (6 in.) above ground, and unlock adapter float.
- Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

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

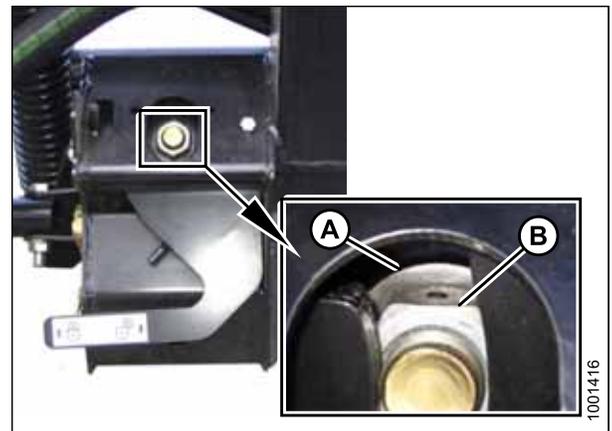


Figure 5.27: Float Lock

SETTING UP AUTO HEADER HEIGHT CONTROL

- Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

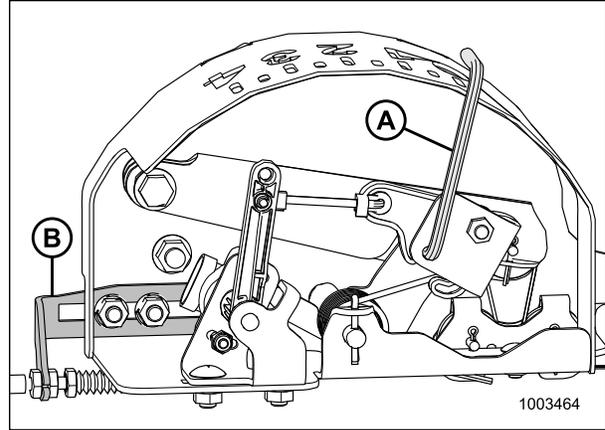


Figure 5.28: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

- Ensure header float is unlocked.
- Select DIAGNOSTICS (A) on MAIN page. The DIAGNOSTICS page opens.
- Select SETTINGS. The SETTINGS page opens.

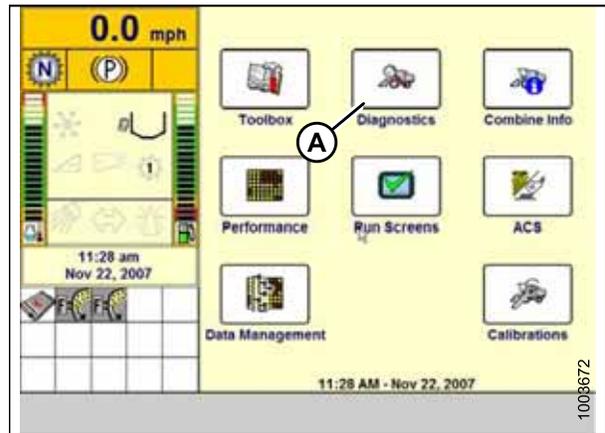


Figure 5.29: Case IH Combine Display

- Select GROUP drop-down arrow (A). The GROUP dialog box displays.

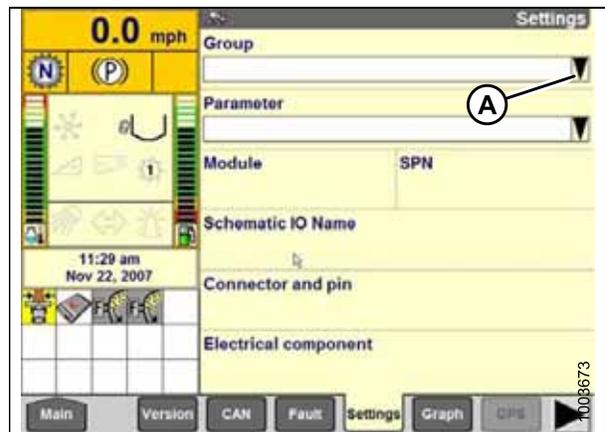


Figure 5.30: Case IH Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

8. Select HEADER HEIGHT/TILT (A). The PARAMETER page opens.

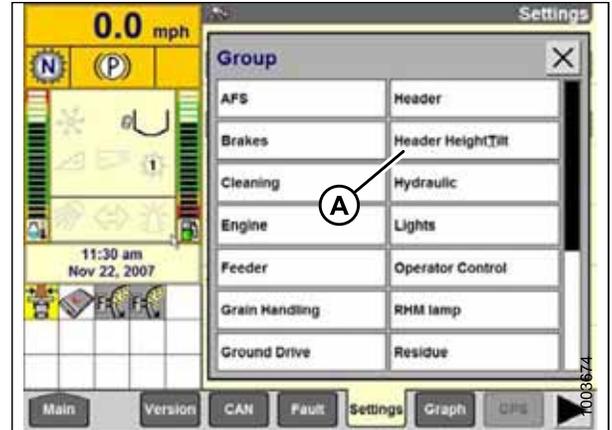


Figure 5.31: Case IH Combine Display

9. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage is displayed at top of page. Raise and lower header to see full range of voltage readings.

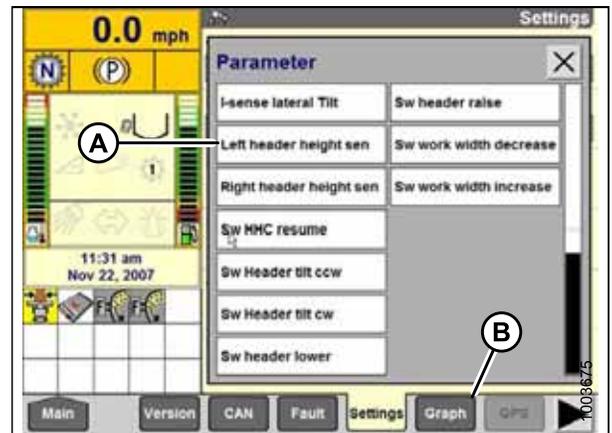


Figure 5.32: Case IH Combine Display

10. Adjust voltage limits (refer to [Adjusting Voltage Limits, page 142](#)) if sensor voltage is not within low and high limits or if range between low and high limits is insufficient (refer to [Table 5.1, page 140](#)).

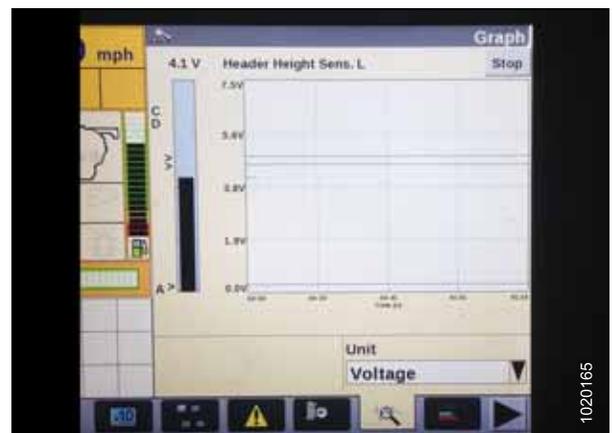


Figure 5.33: Case IH Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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

For best performance from the auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

This procedure applies to combines with a software version below 28.00. For instructions on calibrating the AHHC for combines with software version 28.00 or above, refer to [Calibrating Auto Header Height Control \(Case Combines with Version 28.00 or Higher Software\)](#), page 156.

NOTE:

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

1. Ensure center-link is set to D.
2. Ensure all header and adapter electrical and hydraulic connections are made.
3. Select TOOLBOX on MAIN page, and then select HEADER.
4. Set appropriate HEADER STYLE.



Figure 5.34: Case IH Combine Display

5. Set AUTO REEL SPEED SLOPE.
6. Set HEADER PRESSURE FLOAT to NO if equipped, and ensure REEL DRIVE is HYDRAULIC.

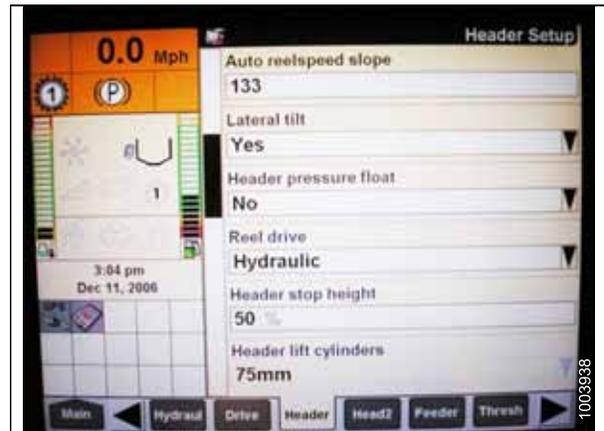


Figure 5.35: Case IH Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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



Figure 5.36: Case IH Combine Display

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

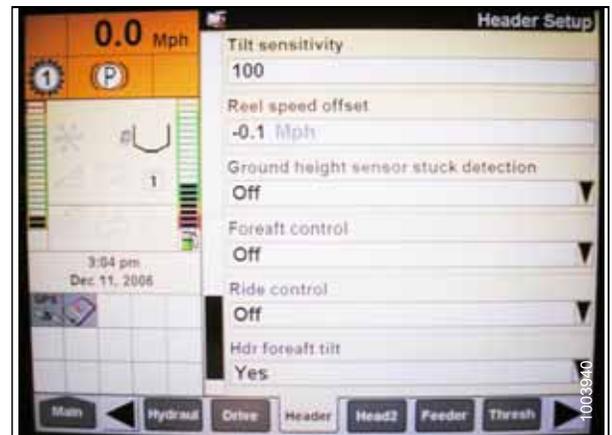


Figure 5.37: Case IH Combine Display

10. Press HEAD2 at bottom of page.
11. Ensure HEADER TYPE is DRAPER.

NOTE:

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

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



Figure 5.38: Case IH Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

Calibrating Auto Header Height Control (Case Combines with Version 28.00 or Higher Software)

For best performance of the auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

1. Ensure center-link is set to D.
2. Select TOOLBOX on MAIN page, and then select HEADER SETUP.
3. Locate HEADER SUB TYPE field. It will be located on either HEAD 1 or HEAD 2 tab.
4. Select 2000 (A).



Figure 5.39: Case IH Combine Display

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

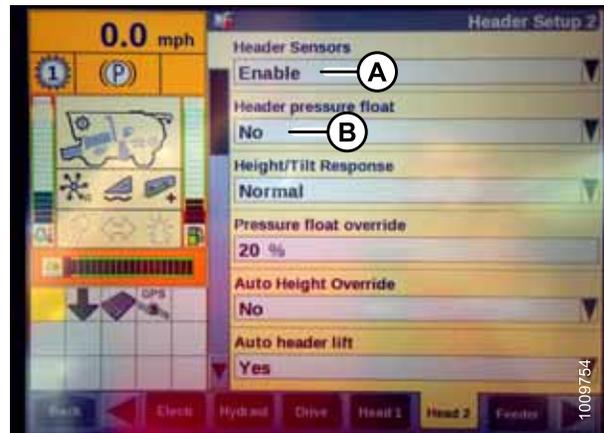


Figure 5.40: Case IH Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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



Figure 5.41: Case IH Combine Display

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

NOTE:

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

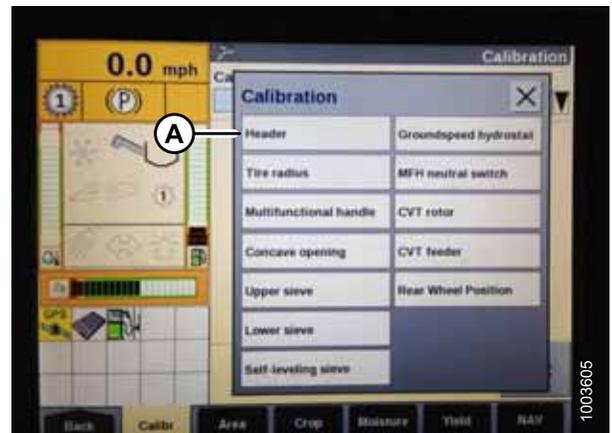


Figure 5.42: Case IH Combine Display

- Follow calibration steps in order in which they appear in dialog box. As you proceed through calibration process, display will automatically update to show next step.

NOTE:

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

NOTE:

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



Figure 5.43: Case IH Combine Display

- When all steps have been completed, CALIBRATION SUCCESSFUL message is displayed on page. Exit CALIBRATION menu by pressing ENTER or ESC key.

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

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

13. If unit does not function properly, conduct maximum stubble height calibration.

Setting Preset Cutting Height (Case 7010/8010, 7120/8120/9120, 7230/8230/9230)

To set preset cutting height, follow these steps:

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Engage separator and header.
2. Manually raise or lower header to desired cutting height.
3. Press SET #1 switch (A). The HEADER HEIGHT MODE lamp (C), next to SET #1 switch, turns on.
4. Manually raise or lower header to a second desired cutting height.
5. Press SET #2 switch (B). The HEADER HEIGHT MODE lamp (D), next to SET #2 switch, turns on.

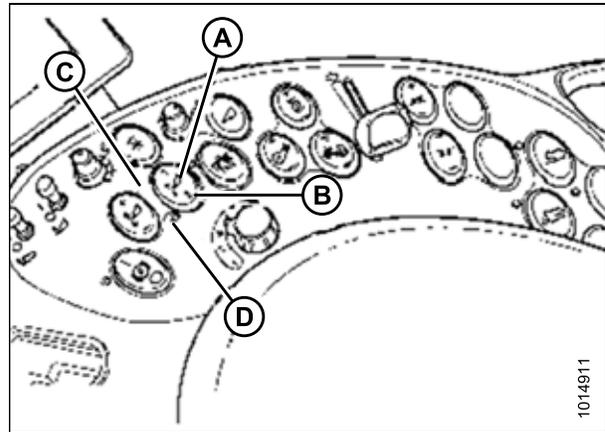


Figure 5.44: Case Combine Controls

6. To swap between set points, press HEADER RESUME (A).
7. To pick up header at headlands, press HEADER RESUME (A) twice. To lower, press HEADER RESUME (A).

NOTE:

You can fine adjust these set points by using FINE ADJUST switch.

NOTE:

Pressing HEADER RAISE/LOWER switch will disengage AUTO HEIGHT mode. Press HEADER RESUME to re-engage.

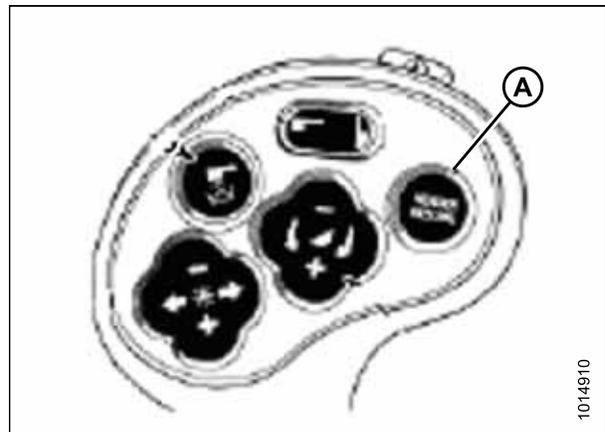


Figure 5.45: Case Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

The ideal ground pressure—in most cases—is one number (on float indicator box) above header suspended off ground. For example, if float indicator needle (A) is positioned at 0 with header suspended off ground, then ideal ground pressure will be achieved with needle positioned at 1. Operating with heavier pressures can wear cutterbar wearplate prematurely.

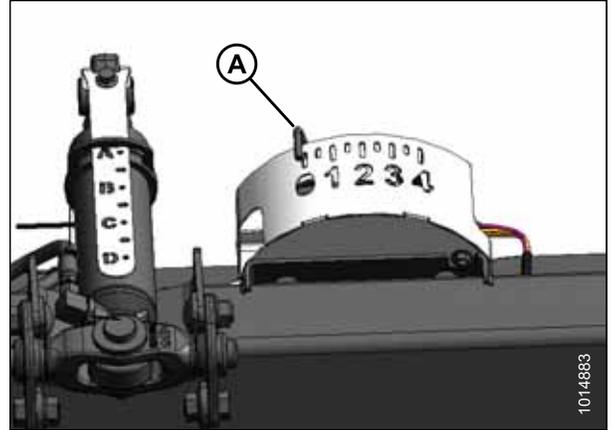


Figure 5.46: Float Indicator Box

5.1.4 Challenger 6 and 7 Series Combines

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

NOTE:

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

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

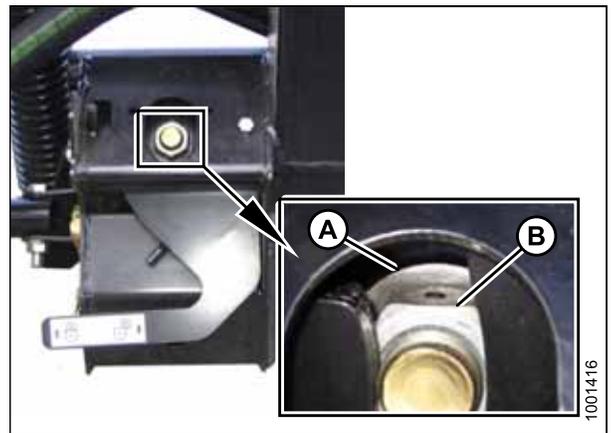


Figure 5.47: Float Lock

SETTING UP AUTO HEADER HEIGHT CONTROL

- Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

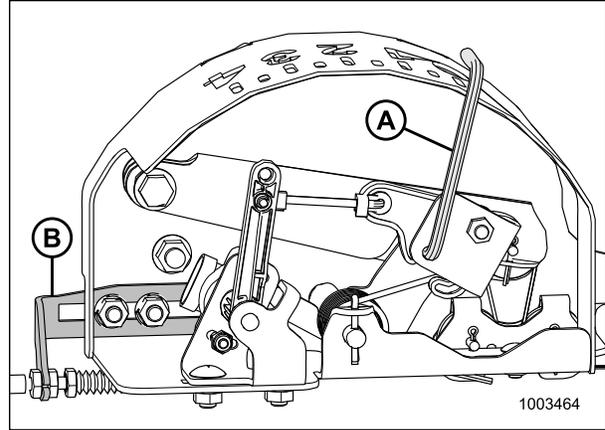


Figure 5.48: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

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

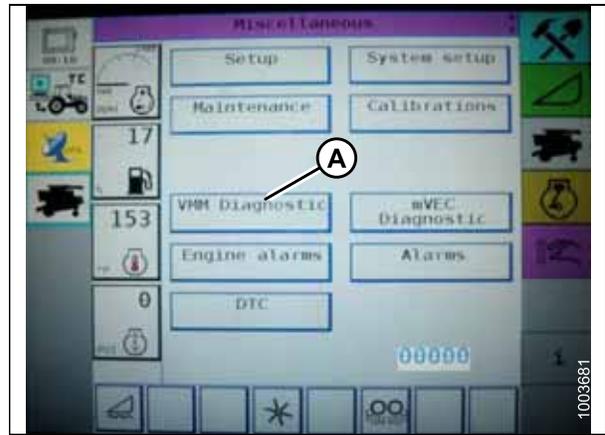


Figure 5.49: Challenger Combine Display

- Go to ANALOG IN tab, and then select VMM MODULE 3 by pressing text box below four tabs. The voltage from AHHC sensor is now displayed on page as HEADER HEIGHT RIGHT POT and HEADER HEIGHT LEFT POT. Both readings should be identical.

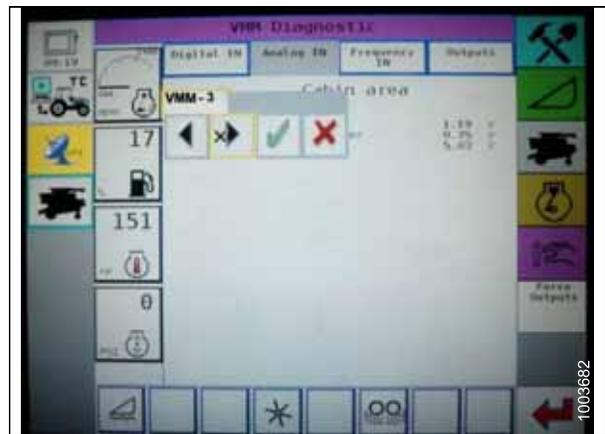


Figure 5.50: Challenger Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

- Fully lower combine feeder house (adapter should be fully separated from header).

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

- Read voltage.
- Raise header so cutterbar is 150 mm (6 in.) off the ground.
- Read voltage.



Figure 5.51: Challenger Combine Display

- Adjust voltage limits (refer to [Adjusting Voltage Limits, page 142](#)) if sensor voltage is not within low and high limits or if range between low and high limits is insufficient (refer to [Table 5.1, page 140](#)).

Engaging Auto Header Height Control (Challenger 6 Series)

NOTE:

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

The following system components are required in order for auto header height control (AHHC) 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 control console module (CC) panel

NOTE:

In addition to above components, electro hydraulic header lift control valve is an integral part of system.

Engage AHHC as follows:

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

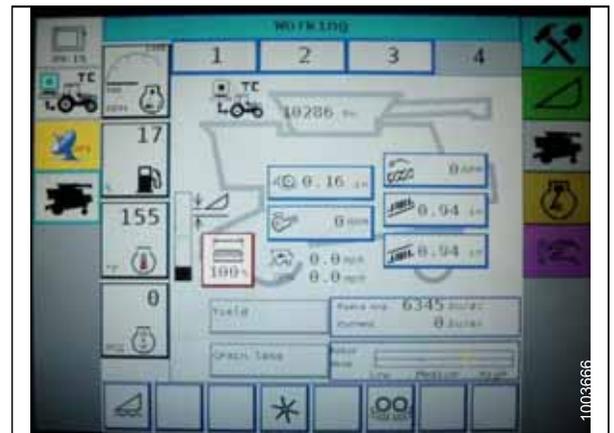


Figure 5.52: Challenger Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

Calibrating Auto Header Height Control (Challenger 6 Series)

NOTE:

For best performance of auto header height control (AHHC) system, perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual.

NOTE:

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

1. Ensure center-link is set to D.
2. On FIELD page, press DIAGNOSTICS icon. The MISCELLANEOUS page appears.

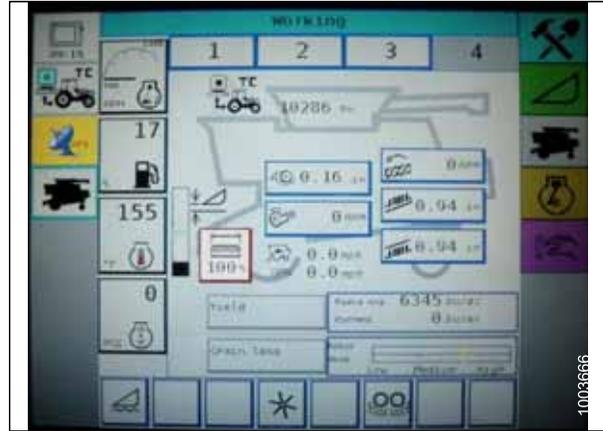


Figure 5.53: Challenger Combine Display

3. Press CALIBRATIONS button. The CALIBRATIONS page appears.

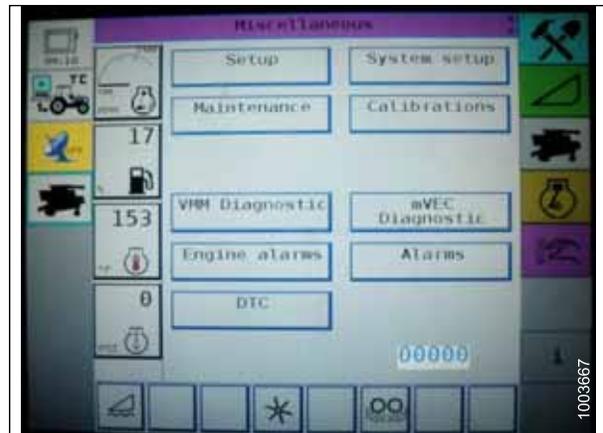


Figure 5.54: Challenger Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

4. Press HEADER button. The HEADER CALIBRATION page displays a warning.



Figure 5.55: Challenger Combine Display

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

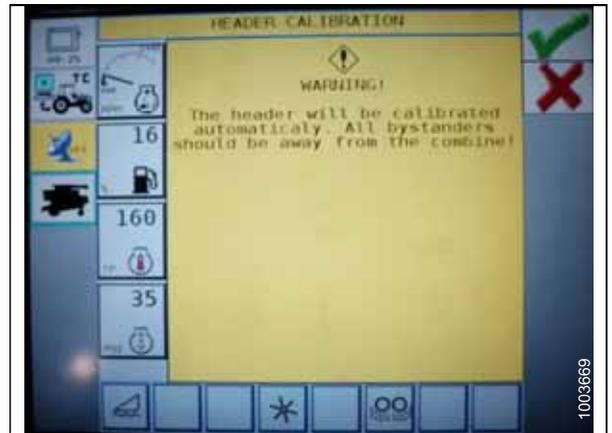


Figure 5.56: Challenger Combine Display

6. Follow on-screen prompts to complete calibration.

NOTE:

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

NOTE:

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

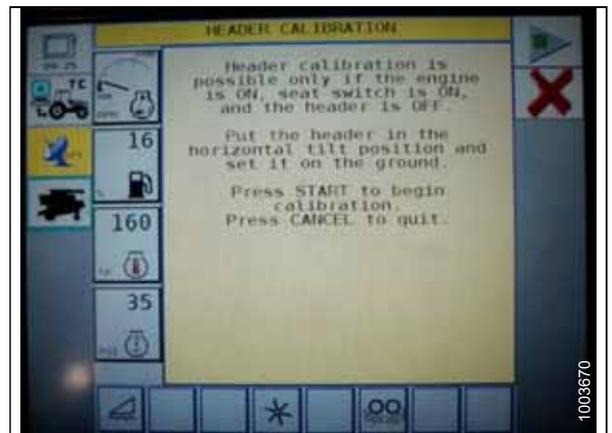


Figure 5.57: Challenger Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

Adjusting Header Height (Challenger 6 Series)

Once auto header height control (AHHC) is activated, press and release HEADER LOWER button on control handle. The AHHC will automatically lower header to selected height setting.

NOTE:

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

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



Figure 5.58: Height Adjustment Knob on Combine Control Console

Adjusting Header Raise/Lower Rate (Challenger 6 Series)

NOTE:

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

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

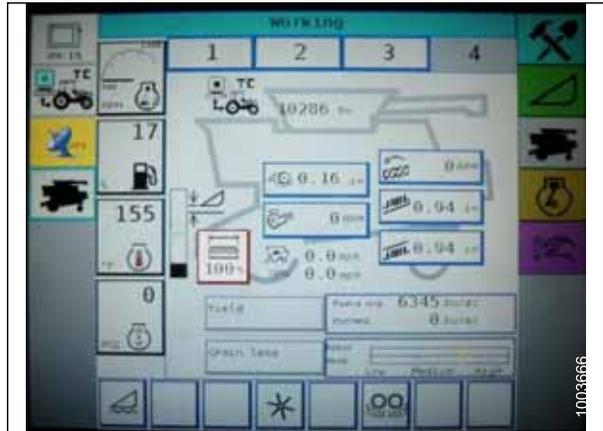


Figure 5.59: Challenger Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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



Figure 5.60: Challenger Combine Display

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

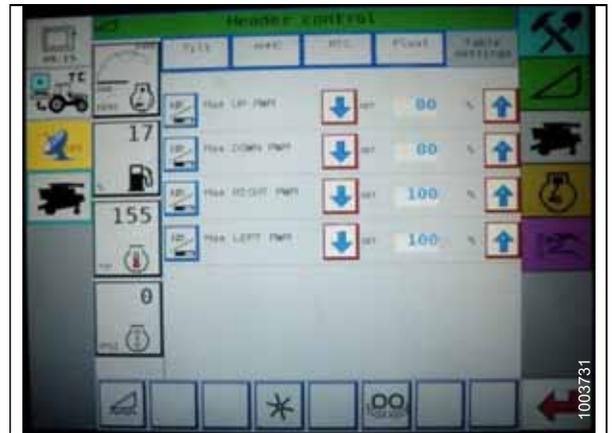


Figure 5.61: Challenger Combine Display

Setting Sensitivity of Auto Header Height Control (Challenger 6 Series)

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

NOTE:

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

1. Press HEADER icon on FIELD page. The HEADER page appears.

SETTING UP AUTO HEADER HEIGHT CONTROL

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

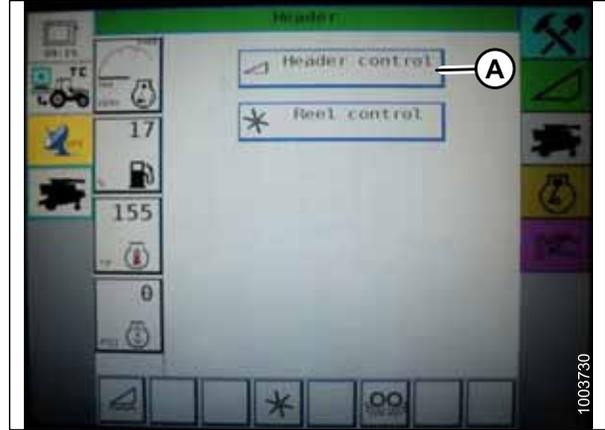


Figure 5.62: Challenger Combine Display

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

NOTE:

This is maximum sensitivity and is only an initial setting. The final setting must be made in field as system reaction will vary with changing surfaces and operating conditions.

NOTE:

If maximum sensitivity is not needed, a less sensitive setting will reduce frequency of header height corrections and component wear. Partially opening accumulator valve will cushion action of header lift cylinders and reduce header hunting.



Figure 5.63: Challenger Combine Display

5.1.5 Gleaner R62/R72 Combines

System Requirements (Gleaner R62/R72)

NOTE:

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

The following system components are required in order for auto header height control (AHHC) 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 control console module (CC) panel

NOTE:

In addition to components listed above, electro hydraulic header lift control valve is an integral part of system.

SETTING UP AUTO HEADER HEIGHT CONTROL

Calibrating Auto Header Height Control (Gleaner R62/R72)

For best performance of the auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

To calibrate auto header height control, follow these steps:

CAUTION

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

1. Ensure center-link is set to D.
2. Start combine engine, and press and hold hidden C1 button (A) until LED light (B) flashes briefly.
3. Lower feeder house as far as it will go.
4. Press and hold hidden L2 button (C) until LED light (B) flashes briefly. The AHHC system is now calibrated.

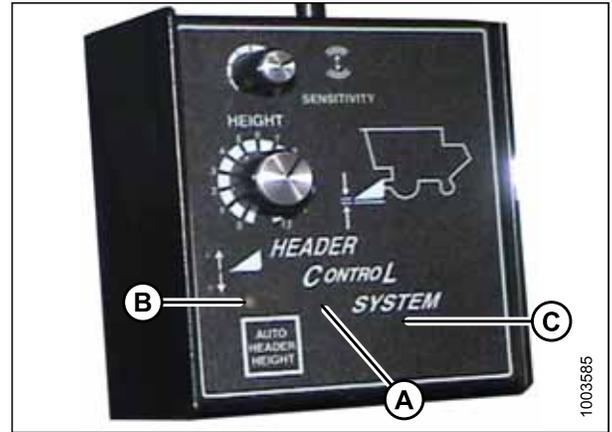


Figure 5.64: Combine Header Control System

Setting Sensitivity of Auto Header Height Control (Gleaner R62/R72 Series)

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

1. Engage main threshing clutch (A) and header clutch (B).

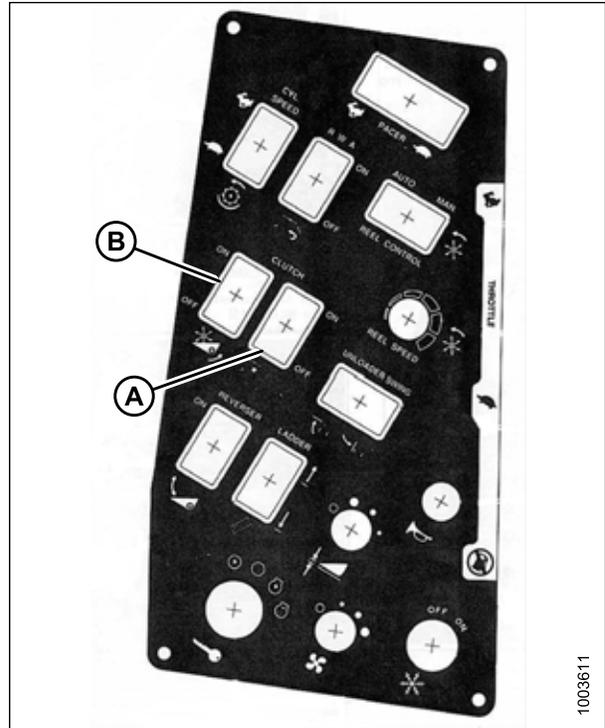


Figure 5.65: Combine Control Console

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

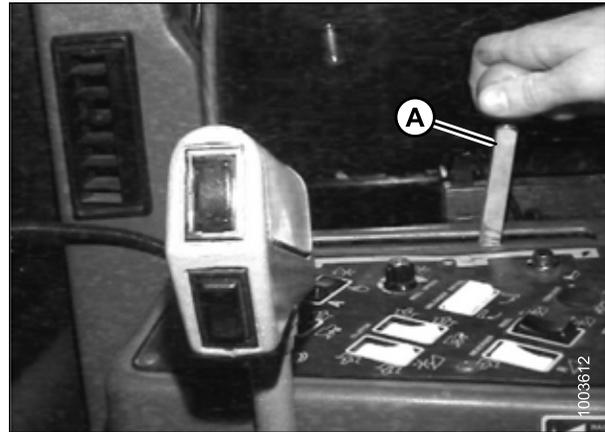


Figure 5.66: Throttle

SETTING UP AUTO HEADER HEIGHT CONTROL

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

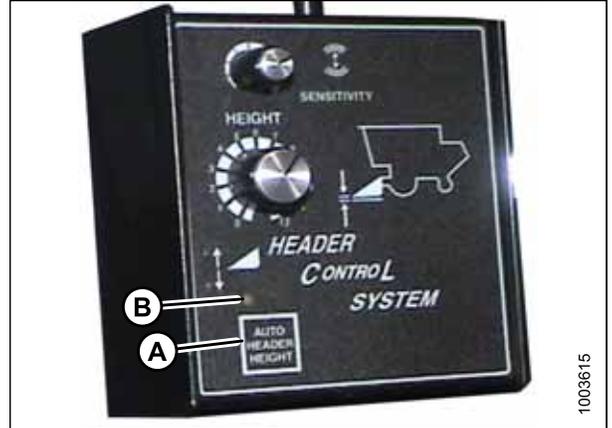


Figure 5.67: Combine Header Control System

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

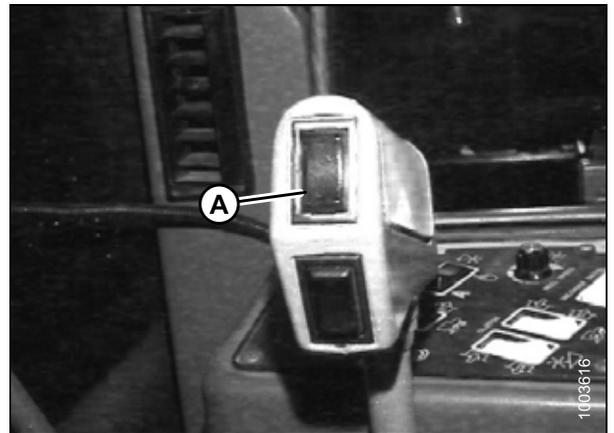


Figure 5.68: Header Down Button

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

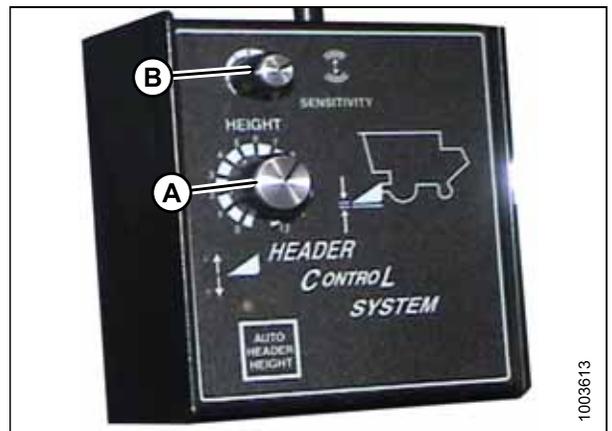


Figure 5.69: Combine Header Control System

SETTING UP AUTO HEADER HEIGHT CONTROL

5.1.6 Gleaner R65/R66/R75/R76 and S Series Combines (Except S9 Series)

Checking Voltage Range from Combine Cab (Gleaner R65/R66/R75/R76 and S Series)

NOTE:

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

NOTE:

Refer to [5.1.7 Gleaner S9 Series Combines, page 179](#) for information specific to Gleaner S9 Series.

1. Position header 150 mm (6 in.) above ground, and unlock CA25 float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

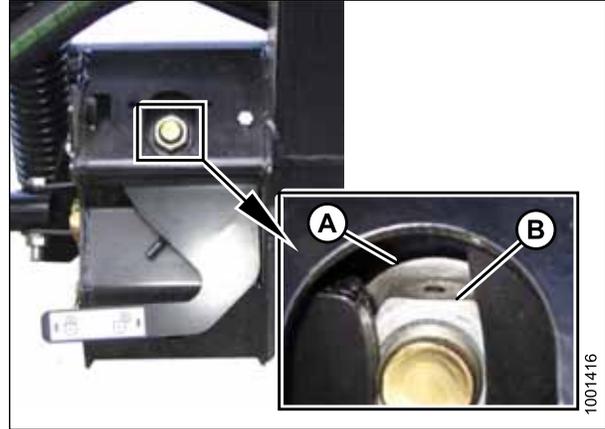


Figure 5.70: Float Lock

3. Ensure pointer (A) on float indicator box is on 0. If necessary, adjust cable take-up bracket (B) until pointer is on 0.

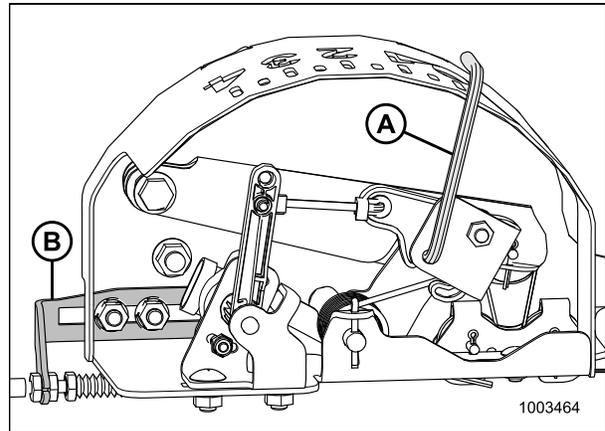


Figure 5.71: Float Indicator Box

SETTING UP AUTO HEADER HEIGHT CONTROL

Figure 5.72: Combine Heads-Up Display



4. Ensure header float is unlocked.
5. Press and hold button (A) on heads-up display for three seconds to enter diagnostic mode.
6. Scroll down using button (B) until LEFT is displayed on LCD screen.
7. Press OK button (C). The number indicated on LCD screen is voltage reading from sensor of AHHC. Raise and lower header to see full range of voltage readings.

Engaging Auto Header Height Control (Gleaner R65/R66/R75/R76 and S Series)

NOTE:

Refer to [5.1.7 Gleaner S9 Series Combines, page 179](#) for information specific to Gleaner S9 Series.

NOTE:

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

The following system components are required in order for auto header height control (AHHC) to work:

- Main module (PCB board) and header driver module (PCB board) mounted in card box in fuse pane module (FP).
- Multi-function control handle operator inputs.
- Operator inputs mounted in control console module (CC) panel.

NOTE:

In addition to above components, electro hydraulic header lift control valve also is an integral part of system.

SETTING UP AUTO HEADER HEIGHT CONTROL

Figure 5.73: Combine Auto Header Height Controls



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

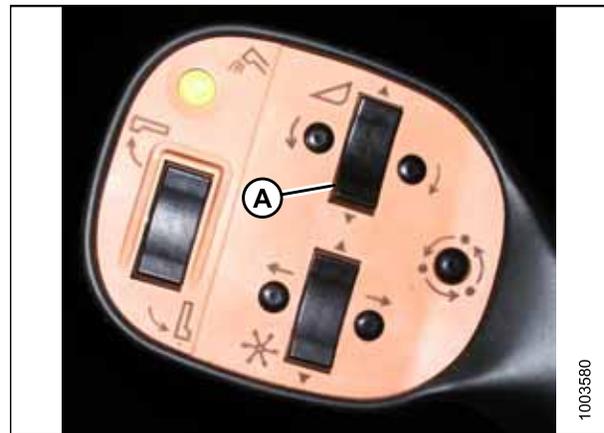


Figure 5.74: Control Handle

Calibrating Auto Header Height Control (Gleaner R65/R66/R75/R76 and S Series)

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 be above 2000 rpm. The header tilt option on 2004 and earlier model combines does **NOT** work with MacDon headers. This system will have to be removed and disabled in order to calibrate auto header height control (AHHC). Refer to combine manual for instructions.

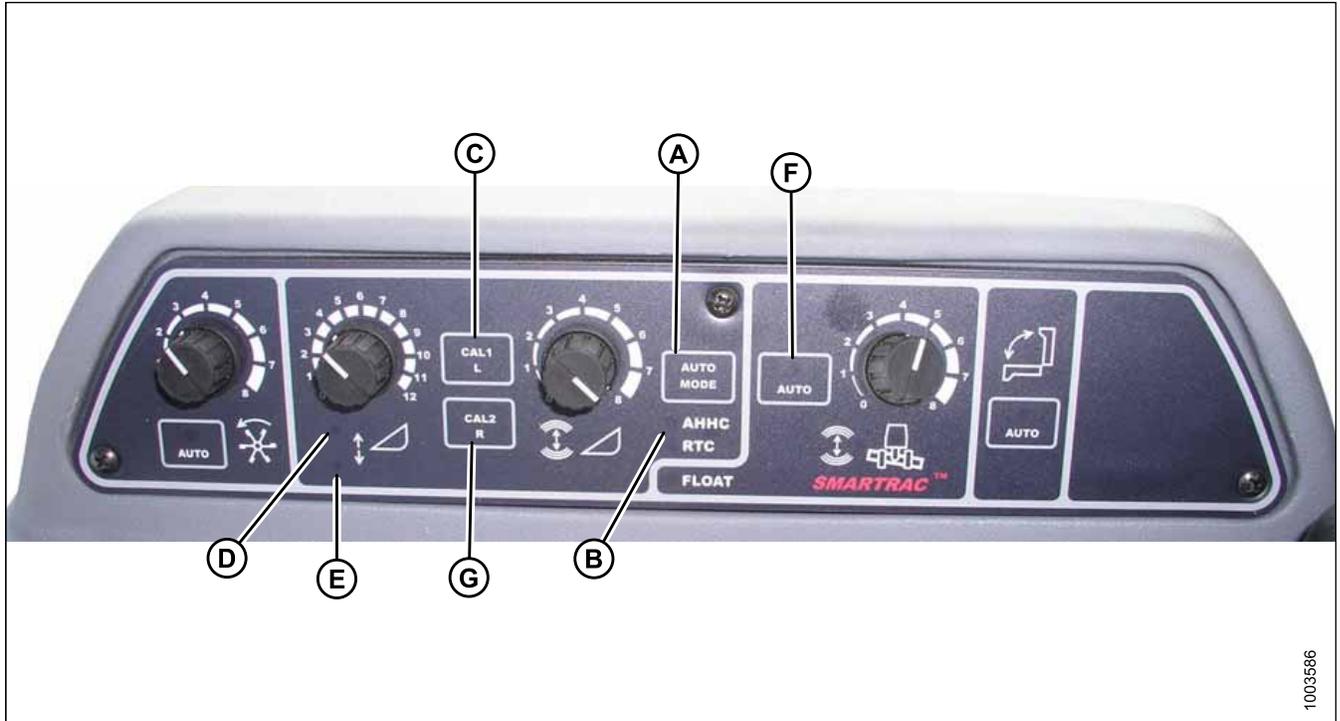
To setup AHHC on Gleaner S9 Series combines, refer to [5.1.7 Gleaner S9 Series Combines, page 179](#).

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

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

Figure 5.75: Combine Auto Header Height Controls



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

B - AHHC Light
E - Lower Header

C - CAL1 Button
F - Auto Mode

NOTE:

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

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

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

8. Wait for HEADER TILT LEFT light (not shown) to start flashing, and then tilt header to maximum left position.
9. Press CAL2 button (G) until HEADER TILT LEFT light (not shown) stops flashing, and release button when HEADER TILT RIGHT light (not shown) begins flashing.
10. Tilt header to maximum right position.
11. Press CAL2 button (G) until all of following lights flash: raise header (D), lower header (E), height auto mode (A), right header and left header (not shown), and tilt auto mode (F).
12. Center header.
13. Press CAL1 button (C) to exit calibration and save all values to memory. All lights should stop flashing.

Turning Accumulator Off (Gleaner R65/R66/R75/R76 and S Series)

The accumulator will affect combine's reaction time and greatly inhibit auto header height control's performance.

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

NOTE:

The accumulator is located in front of front left axle beam.



Figure 5.76: Combine Accumulator ON/OFF Switch

A - Accumulator Lever (Off Position)

Adjusting Header Raise/Lower Rate (Gleaner R65/R66/R75/R76 and S Series)

NOTE:

Refer to [5.1.7 Gleaner S9 Series Combines, page 179](#) for information specific to Gleaner S9 Series.

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

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

If there is too much header movement (for example, hunting) when header is on ground, adjust lower rate to a slower rate of drop: seven or eight seconds.

NOTE:

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

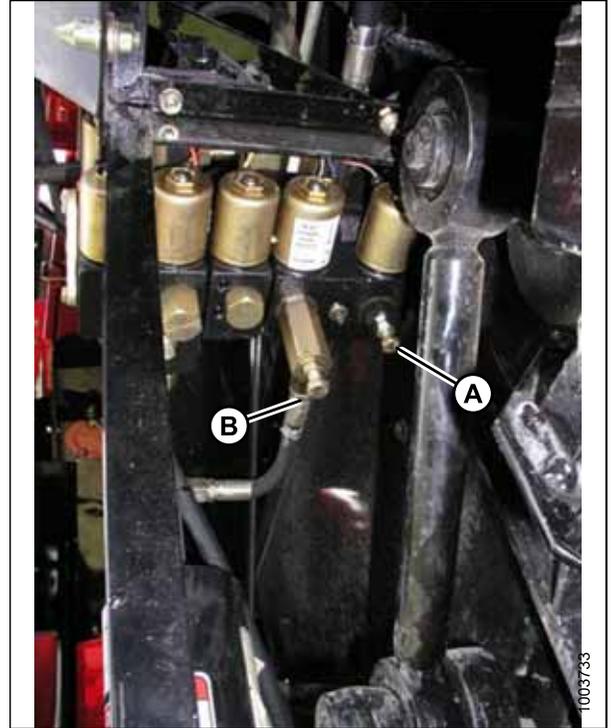


Figure 5.77: Header Raise and Lower Adjustable Restrictors

Adjusting Ground Pressure (Gleaner R65/R66/R75/R76 and S Series)

NOTE:

Refer to [5.1.7 Gleaner S9 Series Combines, page 179](#) for information specific to Gleaner S9 Series.

NOTE:

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

To adjust header height, ensure header is in auto header height control (AHHC) mode. This is indicated by AUTO MODE LED light (A) displaying a continuous, solid light. The header will lower to height (ground pressure) corresponding to position selected with height control knob (B).

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



Figure 5.78: Auto Header Height Control Console

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

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

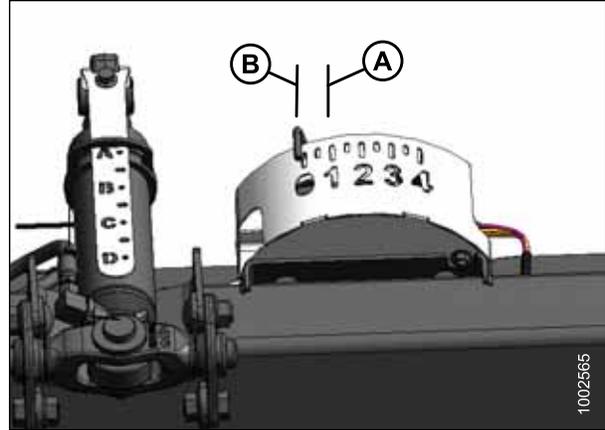


Figure 5.79: Float Indicator Box

Adjusting Sensitivity of Auto Header Height Control (Gleaner R65/R66/R75/R76 and S Series)

NOTE:

Refer to [5.1.7 Gleaner S9 Series Combines, page 179](#) for information specific to Gleaner S9 Series.

NOTE:

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

Figure 5.80: Auto Header Height Control Console



The SENSITIVITY ADJUSTMENT dial (A) controls the distance cutterbar must travel up or down before AHHC reacts and raises or lowers feeder house.

SETTING UP AUTO HEADER HEIGHT CONTROL

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

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

The HEADER SENSE LINE input also changes range of sensitivity. When connected to a draper, counterclockwise position (least sensitive) allows for approximately 102 mm (4 in.) of vertical travel before correction is made.

Troubleshooting Alarms and Diagnostic Faults (Gleaner R65/R66/R75/R76 and S Series)

NOTE:

Refer to [5.1.7 Gleaner S9 Series Combines, page 179](#) for information specific to Gleaner S9 Series.

NOTE:

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

Display type:

Displayed on tachometer (A) as XX or XXX.

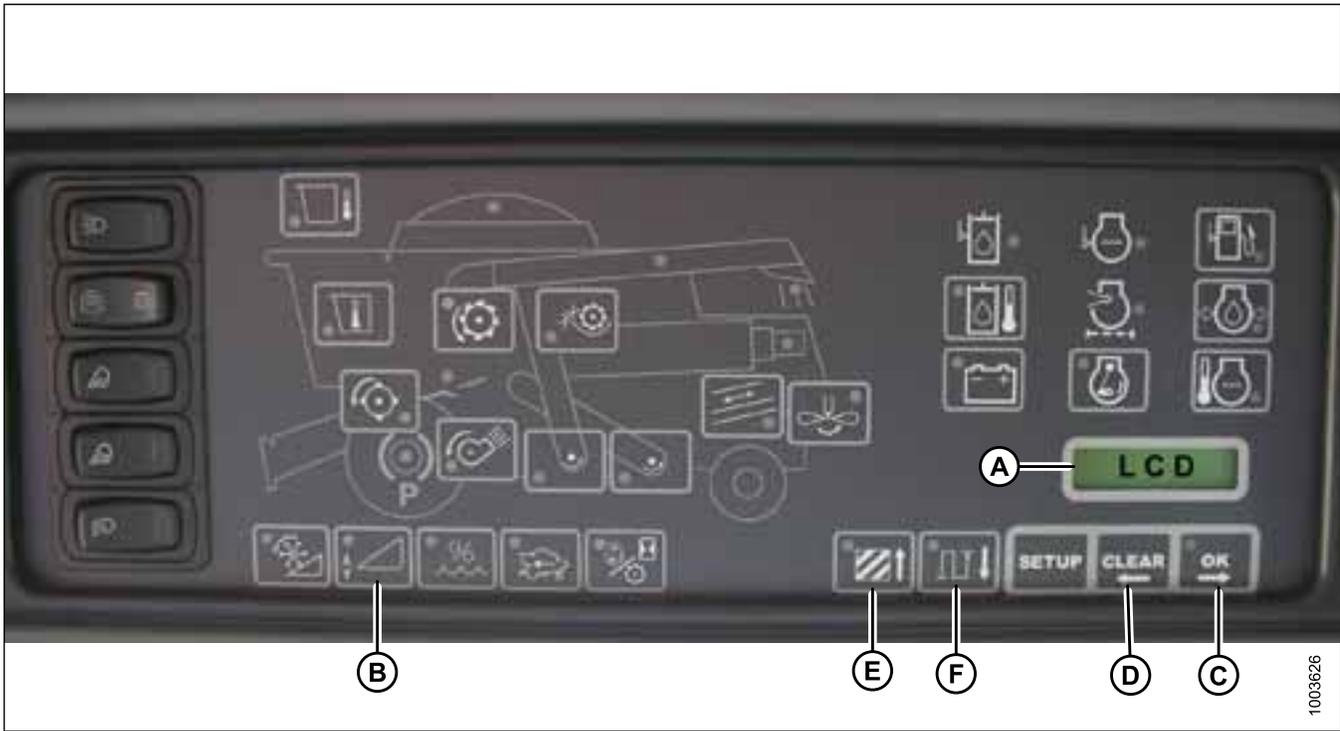


Figure 5.81: Tachometer

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

SETTING UP AUTO HEADER HEIGHT CONTROL

Figure 5.82: Combine Heads-Up Display



SETTING UP AUTO HEADER HEIGHT CONTROL

Alarm conditions:

If an error message is received from fuse panel, an audible alarm sounds. The LCD on electronic instrument panel (EIP) indicates header system in error as HDR CTRL followed by HGT ERR for height, and HDR CTRL followed by TILT ERR for tilt. The header height LED flashes yellow two times every second.

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

When an alarm condition occurs, a green LED flashes on and off (green, yellow, or red depending on input). In addition, a message is displayed on LCD to identify nature of alarm. For example, HYD TEMP, OPEN, SHRT will be flashed alternately.

Diagnostic fault failures: Refer to Figure 5.82, page 178.

Pressing header height switch (B) for a minimum of five seconds will put EIP in header diagnostic mode. The LCD (shown on previous page) will display message HDR DIAG when EIP has entered header diagnostic mode.

In this mode, after three seconds, header fault parameter labels are displayed on EIP LCD. All information displayed is read-only.

The OK (C) and CLEAR (D) buttons allow you to scroll through list of parameters. If there are no active fault codes, EIP LCD will display NO CODE.

When a parameter is displayed, its label is displayed for three seconds, after which its value is automatically displayed.

Pressing OK button (C) while value is displayed will advance to next parameter and display its label.

When a parameter label is displayed and OK button (C) is pressed before three seconds, parameter's value will be displayed.

Pressing AREA (E) will cycle through options. When LEFT is displayed on LCD, press OK button (C), and auto header height control (AHHC) voltage will be shown on the display.

Press DIST button (F) to cycle back through table.

Press CLEAR button (D) to exit header diagnostics and return to normal mode.

Refer to [5.1.16 Sensor Operation, page 270](#).

5.1.7 Gleaner S9 Series Combines

This section is for Gleaner S9 Series combines only.

Setting up Header (Gleaner S9 Series)

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

The AGCO Tyton terminal is used to set up and manage a MacDon draper header on an Gleaner S9 combine. The terminal has a touch screen so you can simply touch desired area on terminal screen to select an item.



Figure 5.83: Gleaner S9

A - Tyton Terminal B - Hydro Handle/Ground Speed Lever
C - Throttle Lever D - Header Control Cluster

1. On top right of home page, touch COMBINE icon (A) on top right. The COMBINE MAIN MENU opens.

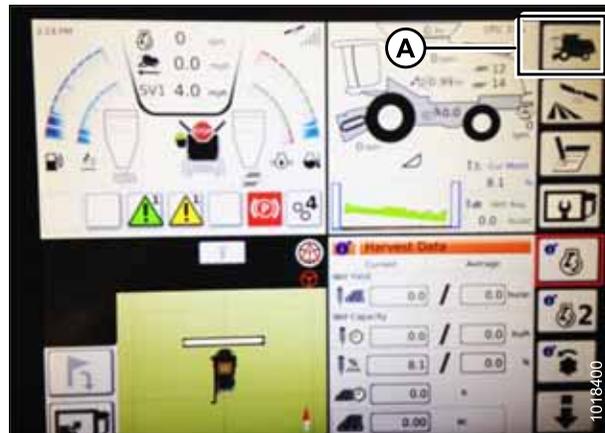


Figure 5.84: Combine Icon on Home Page

2. On COMBINE MAIN MENU, touch HEADER SETTINGS (A). The HEADER SETTINGS page opens.



Figure 5.85: Header Settings in Combine Main Menu

SETTING UP AUTO HEADER HEIGHT CONTROL

3. Touch **HEADER CONFIGURATION** field (A). A page showing predefined headers opens.
 - If your MacDon header is already set up, it appears on header list. Touch MacDon header title (B) to highlight selection in blue, and then touch green check mark (E) to continue.
 - If only default header (D) is shown, touch **ADD/KEYBOARD** button (C), and use on-screen keyboard to enter MacDon header information. When complete, touch one of areas at bottom of page and you will be returned to **HEADER SETTINGS** page.
 - The green check mark saves settings
 - The garbage can icon deletes highlighted header from list
 - The red X cancels change(s)

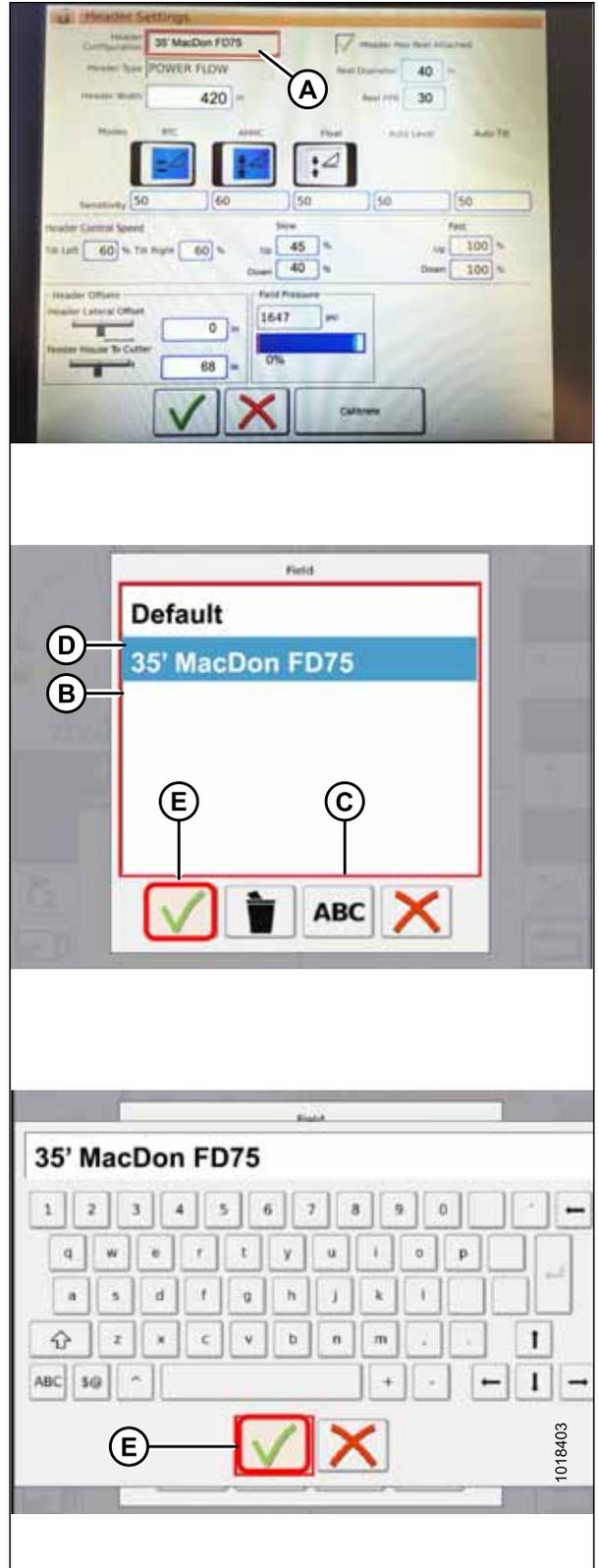


Figure 5.86: Header Configuration Menu on Header Settings Page

SETTING UP AUTO HEADER HEIGHT CONTROL

- To specify type of header installed on machine, touch HEADER TYPE field (A).

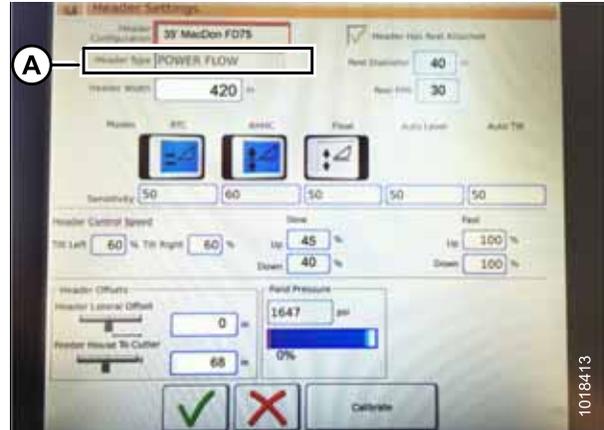


Figure 5.87: Header Settings

- A list of predefined header types appears.
 - For MacDon Draper and FlexDraper headers, touch POWER FLOW (A).
 - Touch green check mark (B) to save selection and continue.

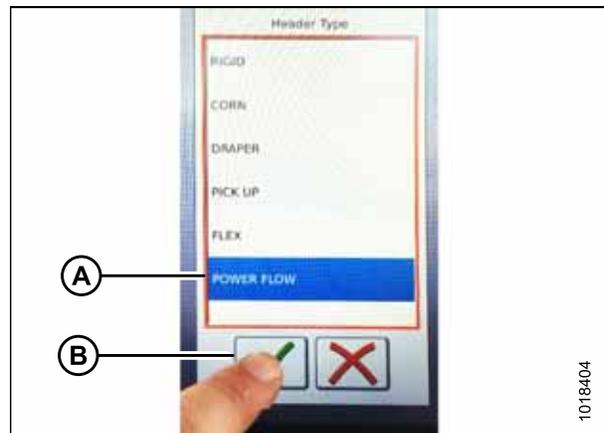


Figure 5.88: Header Type

- Make sure that HEADER HAS REEL ATTACHED green check box (A) is checked.

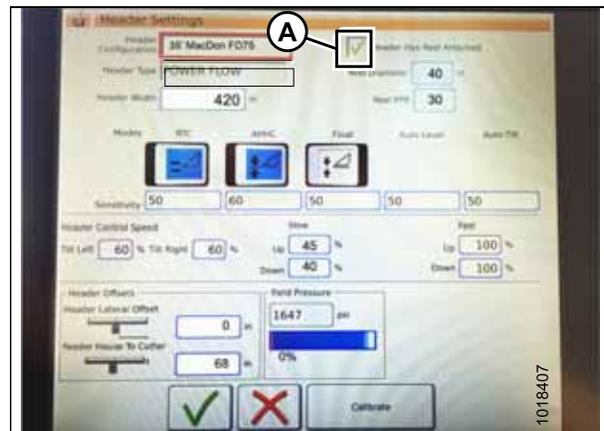


Figure 5.89: Header Settings

SETTING UP AUTO HEADER HEIGHT CONTROL

7. Touch REEL DIAMETER field (A) and a numeric keypad displays. Enter **40** as MacDon Reel Diameter.
8. Touch REEL PPR (Speed Pulses Per Revolution) field (B) and enter **30** as PPR value for your MacDon header. (PPR is number of teeth on reel speed sprocket. AGCO configured MacDon headers have 30 teeth on sensor pickup reel).

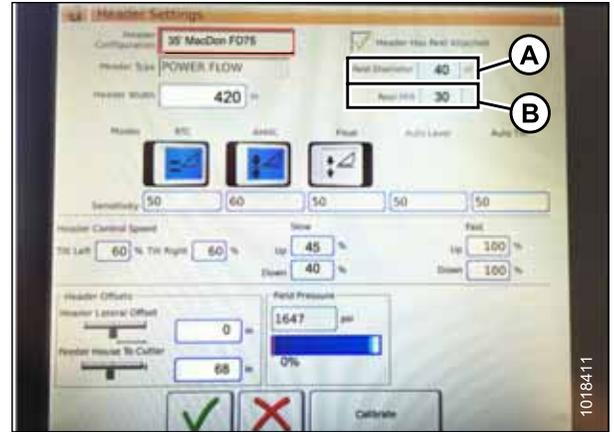


Figure 5.90: Header Settings

9. Touch green check mark (B) at bottom of numeric keypad when complete, or red X to cancel.

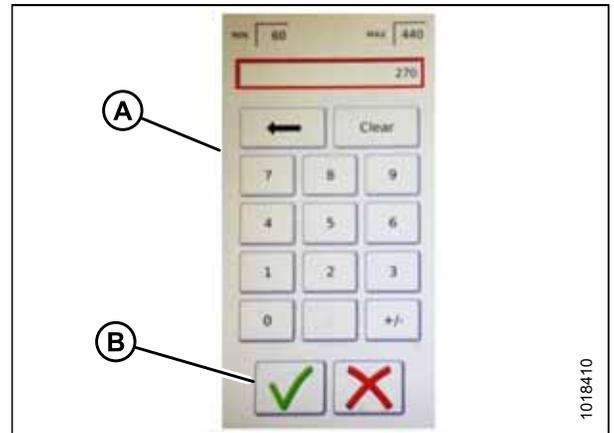


Figure 5.91: Numeric Keypad

10. When entries are complete, touch green check mark (A) at bottom of HEADER SETTINGS page.

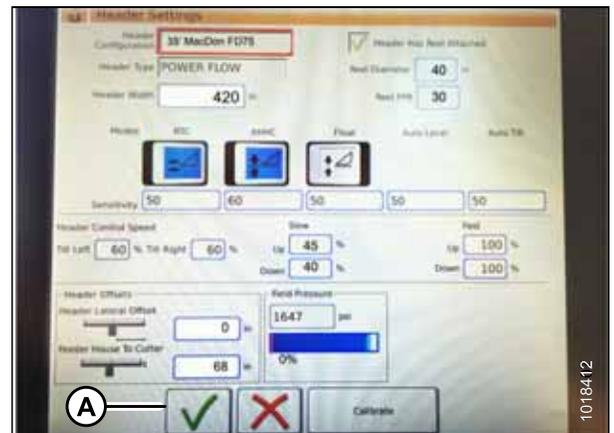


Figure 5.92: Header Settings Page

Setting up Reel Settings (Gleaner S9 Series)

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.

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

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

1. From COMBINE MAIN MENU, touch REEL SETTINGS (A) to open REEL SETTINGS page.



Figure 5.93: Reel Settings on Combine Main Menu

2. To set minimum reel speed, touch SPEED MINIMUM FIELD (B). The on-screen keyboard displays. Enter desired value. Touch green check mark to accept new value, or red X to cancel. The reel speed (in mph) and rpm are shown.

NOTE:

At bottom of REEL SETTINGS page, reel diameter and reel pulses per revolution are displayed. These values have already been set in HEADER SETTINGS page.

3. Reel speed is calibrated in REEL SETTINGS page by touching CALIBRATE button (A) in top right of page.

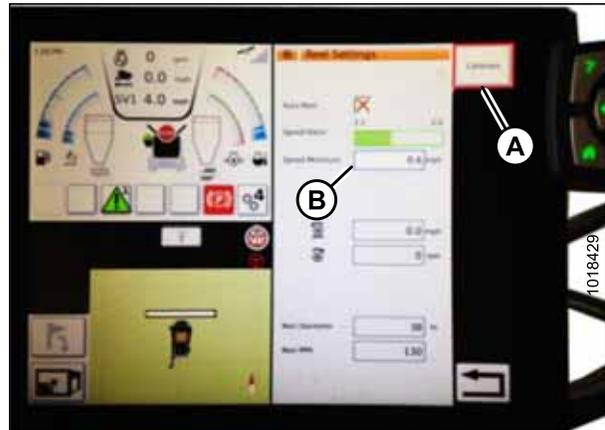


Figure 5.94: Reel Settings Calibration

4. The CALIBRATION WIZARD opens and displays a hazard message warning page.

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.

5. Make sure all conditions listed on CALIBRATION WIZARD warning page are met. Press green check mark to accept and start reel calibration. Pressing red X will cancel calibration procedure.



Figure 5.95: Calibration Wizard

SETTING UP AUTO HEADER HEIGHT CONTROL

6. A message appears in CALIBRATION WIZARD when reel calibration has started. The reel will begin turning slowly and increase to high speed. A progress bar is provided. If necessary, touch red X to cancel. Otherwise, wait for message that reel calibration has completed successfully. Touch green check mark to save calibrated settings.



Figure 5.96: Calibration Progress

Setting up Automatic Header Controls (Gleaner S9 Series)

Automatic header functions are configured on HEADER SETTINGS page.

NOTE:

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

1. **Automatic Control Functions:** There are toggle (OFF/ON) switches on HEADER SETTINGS page for automatic control functions. For MacDon headers, ensure following two functions are enabled as shown:

- RTC (return to cut) (A)
- AHHC (automatic header height control) (B)

All other switches are disabled (and are not highlighted).

2. The **Sensitivity** setting (C) controls how responsive a control (RTC or AHHC) is to a given change in sensor feedback. The setting fields are located directly below toggle switches. To enter a new sensitivity setting, touch setting field below specific toggle switch, and enter new value using on-screen keyboard.

- If combine does not change feeder position quickly enough when in Auto Mode, increase sensitivity.
- If combine hunts for a position in Auto Mode, decrease sensitivity.

NOTE:

Recommended sensitivity starting points for MacDon headers are:

- **50** for RTC (A)
- **60** for AHHC (B)

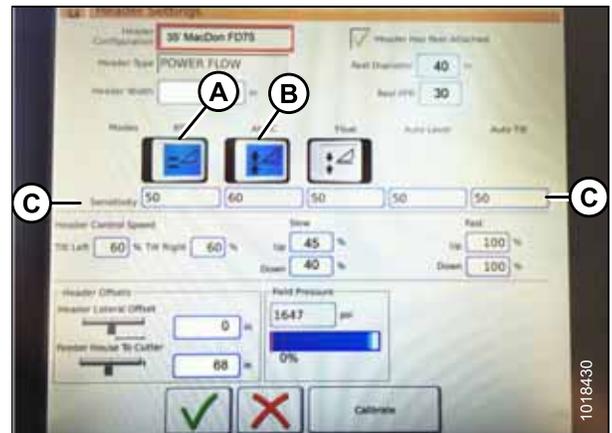


Figure 5.97: Automatic Controls and Sensitivity Settings

SETTING UP AUTO HEADER HEIGHT CONTROL

3. **Header Speed:** Header tilt and raise/lower speed is adjusted in HEADER CONTROL SPEED area (A) of HEADER SETTINGS page.
 - Tilt left and right is lateral tilt of combine faceplate.
 - Header up and down (slow and fast speeds) is a two-stage button with slow speed on first detent and fast on second.

NOTE:

Recommended header control speed starting points for MacDon headers are:

- Slow: 45 up/40 down
- Fast: 100 up/100 down

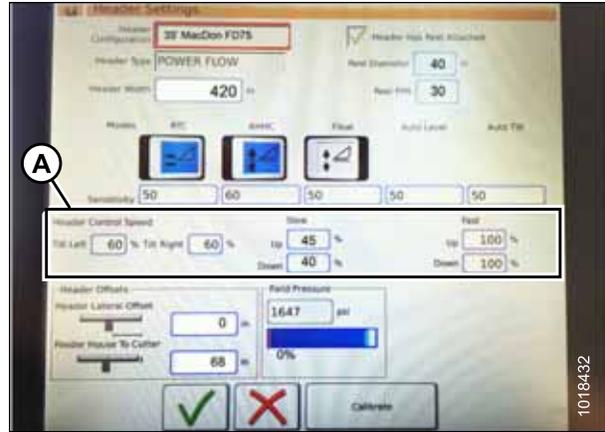


Figure 5.98: Header Speed Control Settings

4. **Header Offsets (A):** Offset distances are important for yield mapping. There are two dimensions that can be adjusted on HEADER SETTINGS page:
 - Header Lateral Offset: distance between centerline of header and centerline of machine. This should be set at **0** for a MacDon header.
 - Feeder House to Cutter: distance from machine interface to cutterbar. This should be set at **68** for a MacDon header.

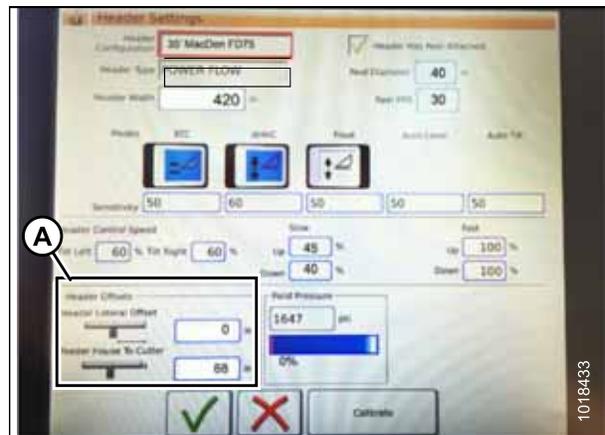
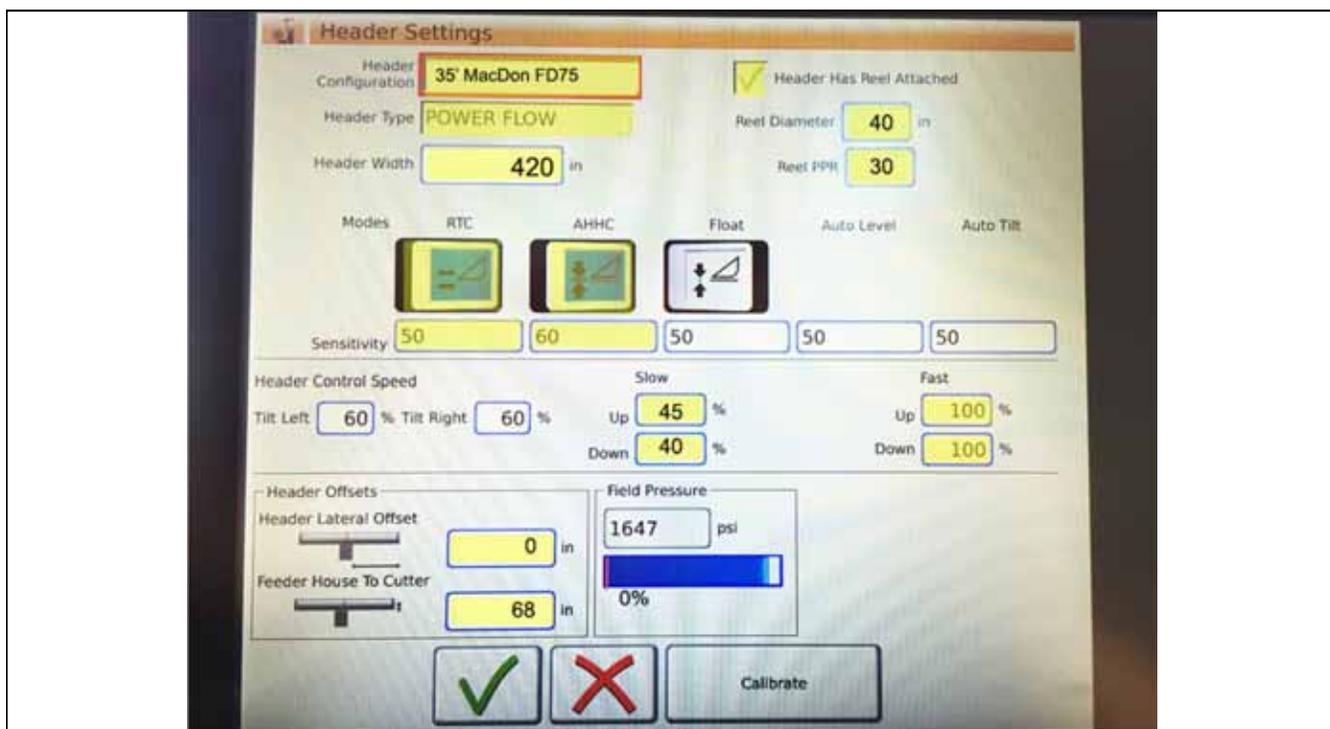


Figure 5.99: Header Offset Settings

SETTING UP AUTO HEADER HEIGHT CONTROL

Figure 5.100: Header Settings Inputs for MacDon Headers



Calibrating Header (Gleaner S9 Series)

The auto header control functions are configured on HEADER SETTINGS page.

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.

NOTE:

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

1. On COMBINE MAIN MENU, touch HEADER SETTINGS (A).



Figure 5.101: Combine Main Menu

SETTING UP AUTO HEADER HEIGHT CONTROL

2. Touch CALIBRATE (A) at bottom right of page. The HEADER CALIBRATION page displays.

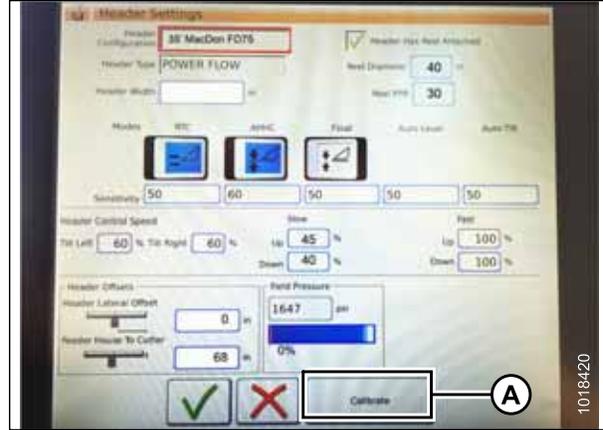


Figure 5.102: Calibration

The right of page shows calibration information (A). Results are shown for a variety of sensors (B) at top of list:

- Left and right header sensor (V) (values will be same with MacDon headers)
- Header height sensor (mA)
- Tilt position sensor (mA)

The modes applicable to MacDon headers are shown with check marks below line (C):

- Return to cut
- Automatic header height control

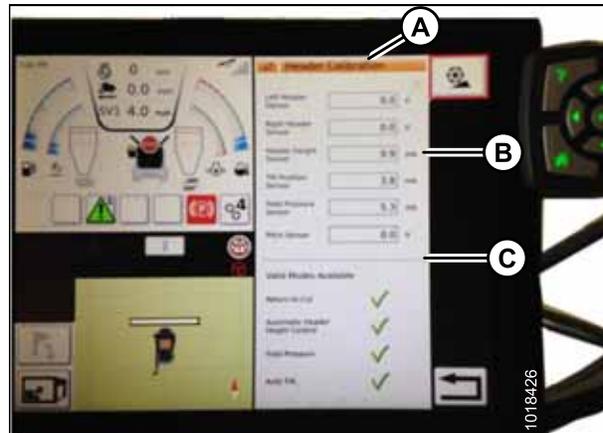


Figure 5.103: Header Calibration Page

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.

3. On ground speed lever (GSL), press HEADER DOWN button (A). Sensor values start changing on HEADER CALIBRATION page as header lowers.

NOTE:

The header needs to be lowered all the way, and then raised off ground. The range should be between **0.5 and 4.5 V**. If value is not in that range, sensor needs to be adjusted.



Figure 5.104: Header Down Switch

SETTING UP AUTO HEADER HEIGHT CONTROL

- When sensor values are stable, touch CALIBRATE icon (A).

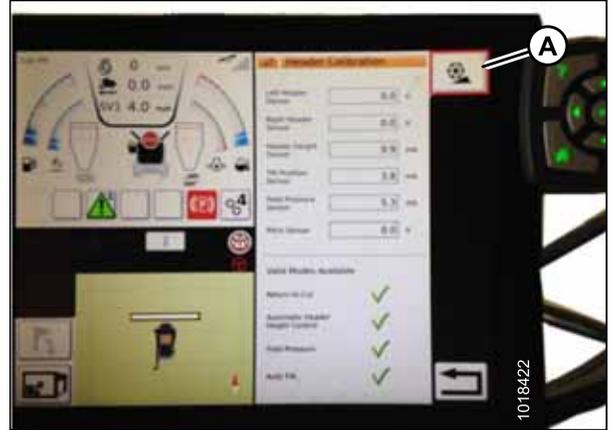


Figure 5.105: Header Calibration

- The hazard message warning page for HEADER CALIBRATION appears. Before proceeding with calibration by touching green check mark, make sure that all conditions on page are met.
- Touch green check mark at bottom of page to start CALIBRATION WIZARD.

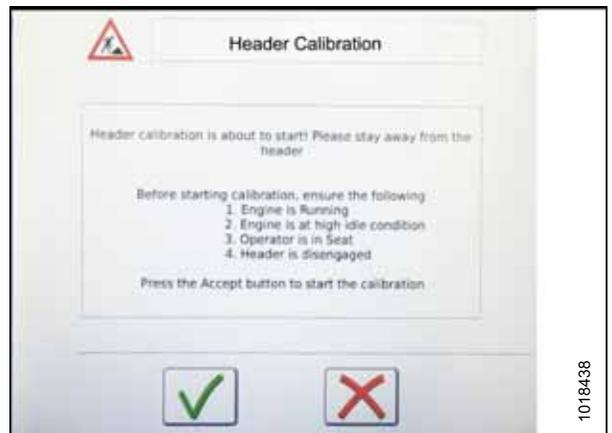


Figure 5.106: Header Calibration Warning

A progress bar is provided and wizard can be stopped at any time by touching red X. The header moves automatically and erratically during this process.

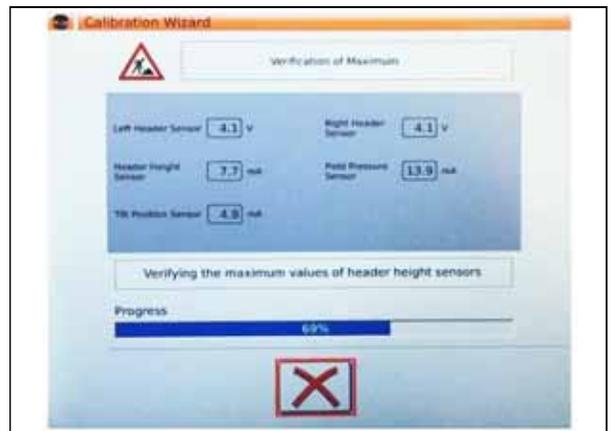


Figure 5.107: Calibration In Progress

SETTING UP AUTO HEADER HEIGHT CONTROL

- When calibration is complete, a message displays, and summary information (A) is shown. Green check marks confirm functions have been calibrated (B). Touch bottom green check mark (C) to save.



Figure 5.108: Completed Calibration Page

NOTE:

On COMBINE MAIN MENU page, there is a CALIBRATION icon (A) that, when touched, opens a general CALIBRATION menu where you can directly choose from a variety of calibrations including header and reel calibration.



Figure 5.109: Direct Calibration Menu

Operating with a Gleaner S9 Series Combine

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

These are primary controls to be used to engage and use auto header height control (AHHC) function.



Figure 5.110: Gleaner S9

A - Tyton Terminal B - Hydro Handle/Ground Speed Lever
C - Throttle Lever D - Header Control Cluster

1. With header running, set Lateral Tilt to MANUAL by pressing switch (A) upward to MAN position.
2. Engage AHHC by pressing switch (B) upward to I position.



Figure 5.111: Header Control Cluster

3. Press AHHC control switch (A) on ground speed lever (GSL) to engage AHHC. The header positions itself in current setpoint position.



Figure 5.112: AHHC on GSL

SETTING UP AUTO HEADER HEIGHT CONTROL

4. Use HEADER HEIGHT SETPOINT control dial (A) as necessary to fine-tune setpoint position.



Figure 5.113: Header Control Cluster

Header In-Field Settings

NOTE:

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

1. To quickly view header group settings, touch HEADER icon (A) that is second from bottom on right of Tyton terminal home page.
2. The display area shows:
 - (B) – The left header height indicator is current position of header.
 - (C) – The red line on current header height position indicator (B) shows setpoint cut-off position.
 - (D) – Adjust setpoint cut-off position by touching HEADER symbol and using scroll wheel on right of Tyton terminal. As scroll wheel is moved, position of cut-off will move.
 - (E) – The right indicator is set cut height for AHHC. Fine-tune cutting height with header height setpoint control dial on header control cluster. As control is adjusted, cut height indicator will move.
 - (F) – The header working width.
 - (G) – Header pitch.
3. Touching a field opens on-screen keyboard so that values can be adjusted. Enter new value and touch green check mark when complete.

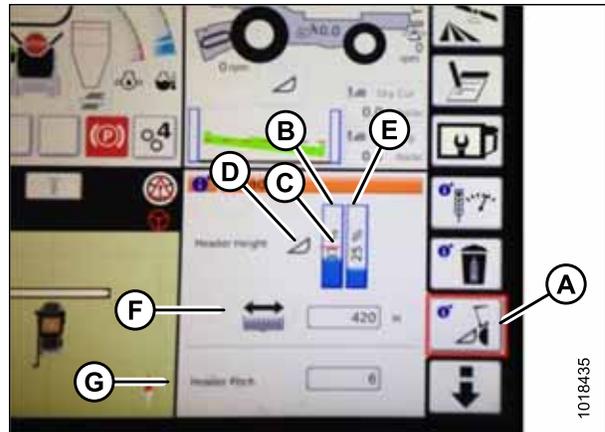


Figure 5.114: Header Groups

SETTING UP AUTO HEADER HEIGHT CONTROL

The scroll wheel (A) is on right of Tyton terminal.



Figure 5.115: Scroll Wheel for Adjustments

Header height setpoint control dial (A) is on header control cluster.



Figure 5.116: Header Control Cluster

5.1.8 John Deere 50 Series Combines

Output Voltage Range

The auto header height sensor output must be within a specific range, or feature will not work properly.

Combine	Low Voltage Limit	High Voltage Limit	Minimum Range
John Deere 50 Series	0.7 V	4.3 V	3.0 V

Check sensor's output voltage range from combine cab or manually at float indicator box according to instructions that follow.

Manually Checking Output Voltage Range

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

SETTING UP AUTO HEADER HEIGHT CONTROL

1. Position header 150 mm (6 in.) above ground, and rest it on safety props. Unlock adapter float.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

2. The pointer (A) on float indicator box should point at **0**. If it does not, adjust cable take-up bracket (B) until pointer (A) on float indicator box points to **0**.

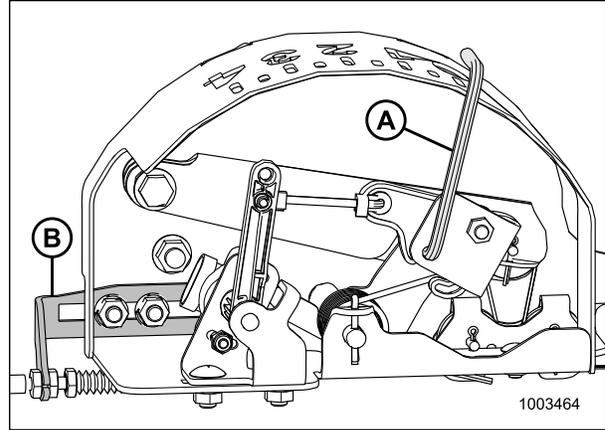


Figure 5.117: Float Indicator Box with Auto Header Height Sensor

3. Use a voltmeter (A) to measure voltage between ground and signal wires at AHHC sensor in float indicator box.

NOTE:

The voltage reading should be below **4.3 V**.

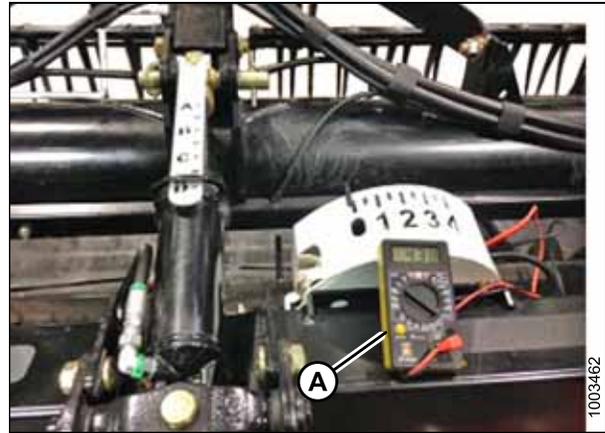


Figure 5.118: Checking Voltage with Voltmeter

4. Fully lower combine feeder house, and float header up off safety props (float indicator should be at **4**, and adapter should be fully separated from header).

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

5. Use a voltmeter (A) to measure voltage between ground and signal wires at AHHC sensor in float indicator box. It should be at low voltage limit for combine—**0.7 V**.

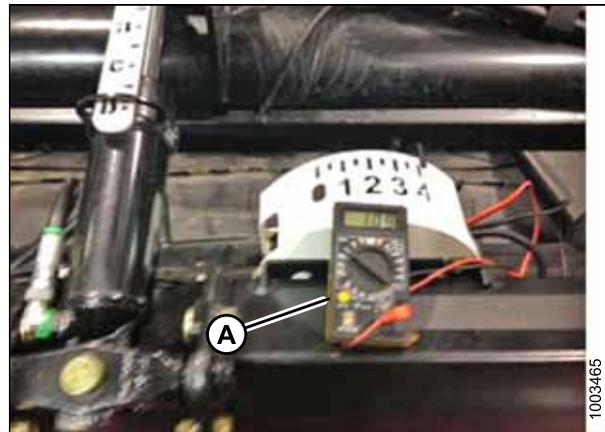


Figure 5.119: Checking Voltage with Voltmeter

6. If sensor voltage is not within low and high limits, or if range between low and high limits is insufficient (on this combine, it should be at **least 3.0 V**), make adjustments according to *Adjusting Voltage Limits, page 197*.

SETTING UP AUTO HEADER HEIGHT CONTROL

Checking Voltage Range from Combine Cab

Before checking voltage range, follow these steps:

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

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

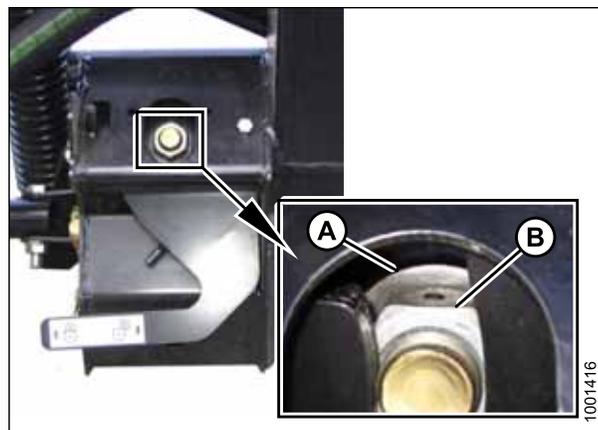


Figure 5.120: Float Lock

3. The pointer (A) on float indicator box should point at 0. If it does not point at zero, adjust cable take-up bracket (B) until it does.

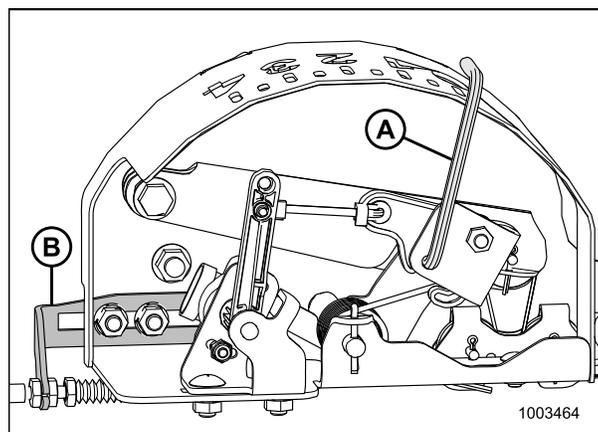
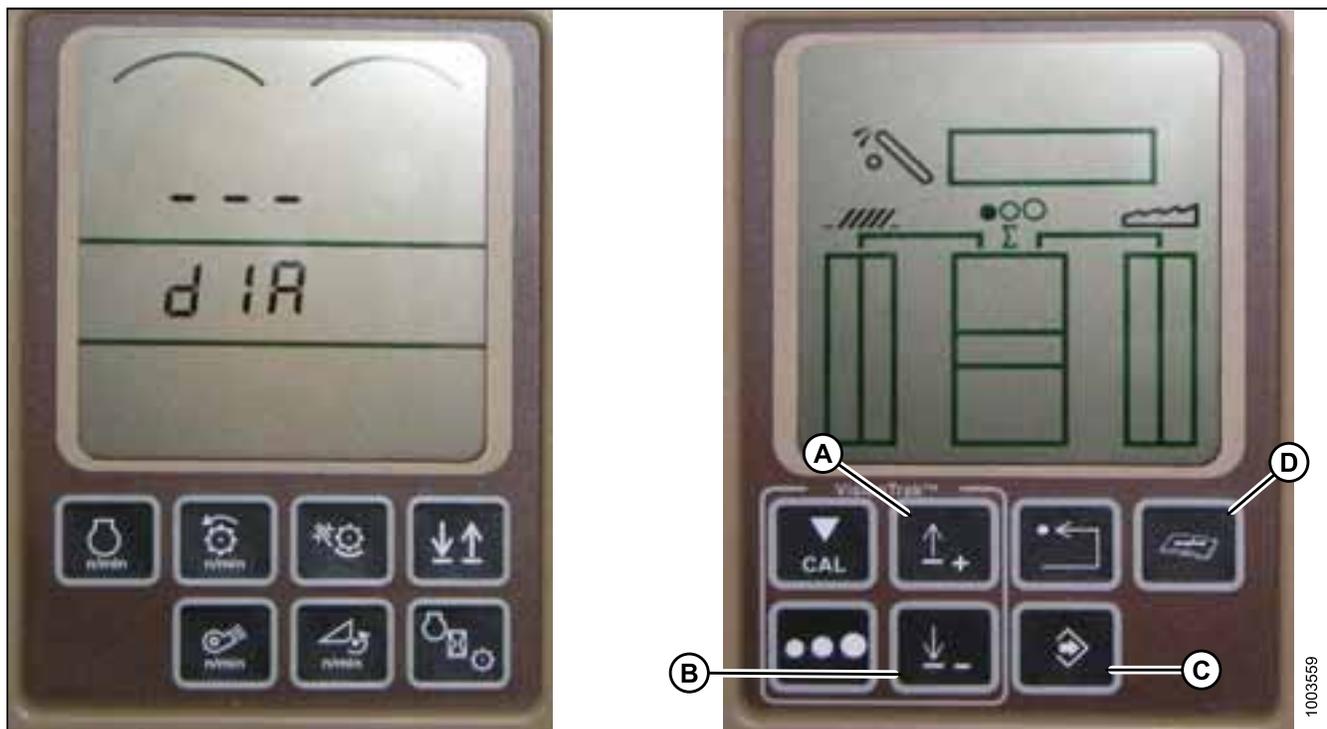


Figure 5.121: Float Indicator Box with Auto Header Height Sensor

SETTING UP AUTO HEADER HEIGHT CONTROL

Figure 5.122: John Deere Combine Display



4. Press DIAGNOSTIC button (D) on monitor—**dIA** appears on monitor.
 5. Press UP button (A) until **EO1** appears on monitor—this is header adjustment.
 6. Press ENTER button (C).
 7. Press UP (A) or DOWN button (B) until **24** is displayed on top portion of monitor—this is voltage reading for sensor.
 8. Ensure header float is unlocked.
 9. Start combine, and fully lower feeder house to ground. The adapter should be completely separated from header.
- NOTE:**
You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.
10. Check sensor reading on monitor. It should be at or above **0.7 V**.
 11. Raise header so it is just off ground, and recheck sensor reading.
 12. Raise header so it is just off ground and check sensor reading again. It should be below **4.3 V**.
 13. If sensor voltage is not within low and high limits (**0.5–4.3 V**), or if range between low and high limits is less than **3.0 V**, you need to make adjustments according to *Adjusting Voltage Limits, page 197*.

SETTING UP AUTO HEADER HEIGHT CONTROL

4. Press DIAGNOSTIC button (A) on monitor—**dIA** appears on monitor.



Figure 5.124: Combine Display

5. Press CAL button (A)—**dIA-CAL** appears on the monitor.

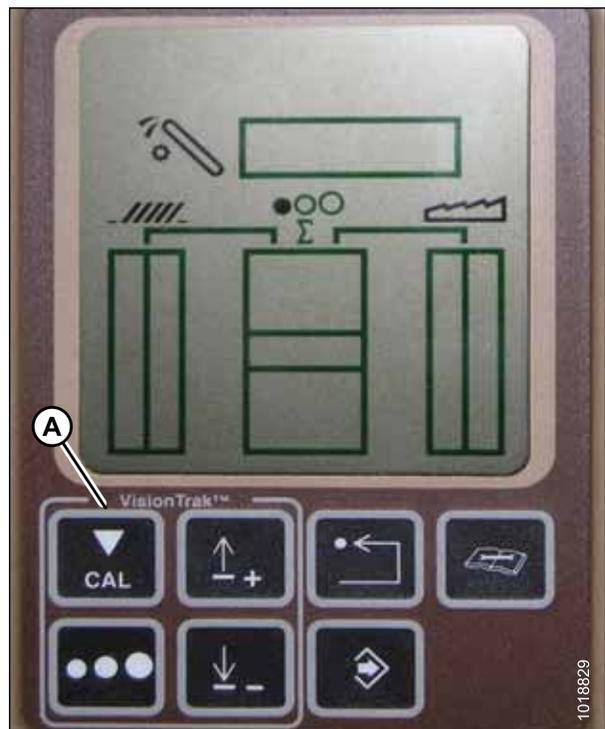


Figure 5.125: Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

6. Press UP or DOWN buttons until **hdr** appears on the monitor.
7. Press ENTER button—**hdr H-dn** appears on the monitor.
8. Fully lower feeder house to ground.

NOTE:

Hold HEADER DOWN switch for 5–8 seconds to ensure feeder house is fully lowered.

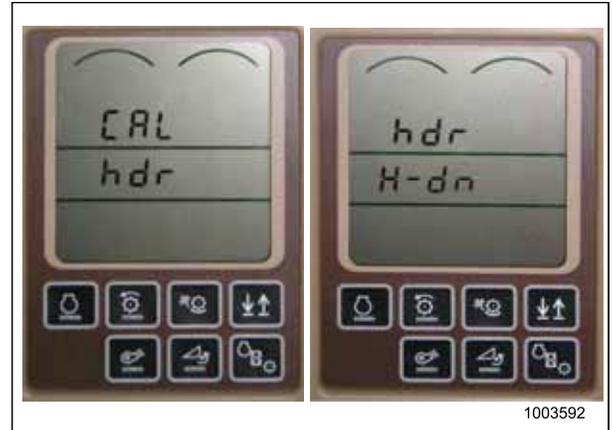


Figure 5.126: Combine Display

9. Press CAL button (A) to save lower calibration of header—**hdr H-UP** appears on monitor.
10. Raise header three feet off ground, and press CAL (A) button—**EOC** appears on monitor.
11. Press ENTER button (B) to save calibration of header. Your AHHC is now calibrated.

NOTE:

If an error code appears on screen, sensor is not in correct working range. Refer to [Output Voltage Range, page 193](#) to check and adjust range.

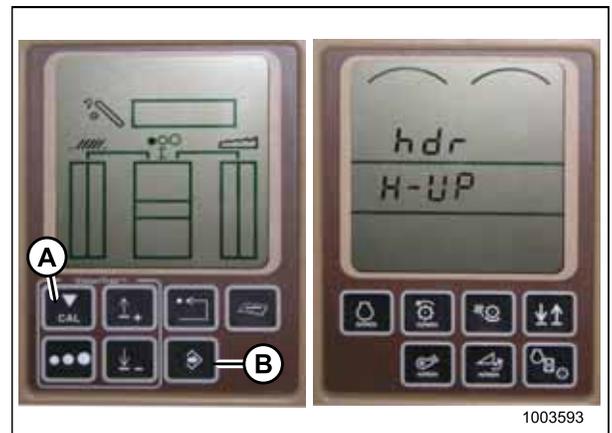


Figure 5.127: Combine Display

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

Setting Sensitivity of Auto Header Height Control

This is also known as dead band adjustment.

NOTE:

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

To increase sensitivity of auto header height, follow these steps:

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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

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

NOTE:

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

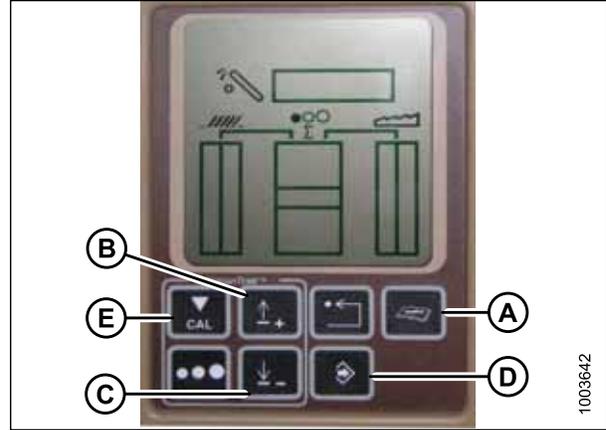


Figure 5.128: John Deere Combine Display

Adjusting Threshold for Drop Rate Valve

This procedure explains how to adjust point at which restrictor valve opens allowing full flow to lift cylinders.

NOTE:

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

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

NOTE:

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

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

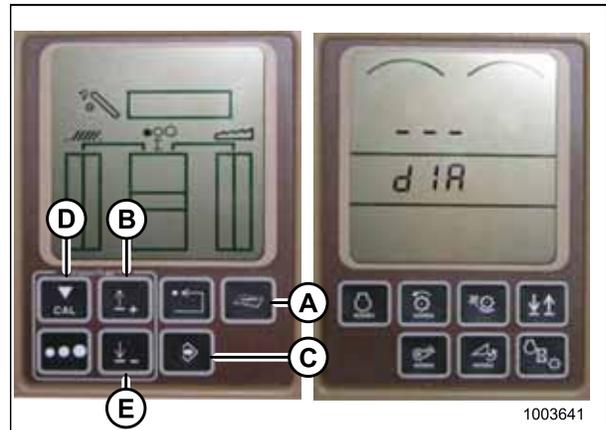


Figure 5.129: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

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

Operating Auto Header Height

To operate your auto header height, follow these steps:

IMPORTANT:

For proper performance, deactivate accumulator (A) as described in combine's operator's manual.

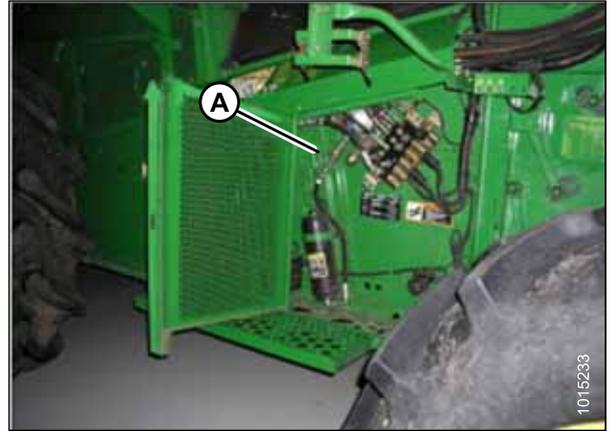


Figure 5.130: Accumulator Shut-off

1. Ensure HEADER HEIGHT RESUME and ACTIVE HEADER CONTROL functions are ON by pressing buttons on top monitor. Icons will appear on monitor with same picture that is displayed on buttons. This indicates that your auto header height, resume, and active header control are turned ON.
 - ACTIVE HEADER HEIGHT (A) is indicated with an arrow going up and down in front of it.
 - HEADER HEIGHT RESUME (B) is indicated with a header diagram with a curved arrow in front of it.



Figure 5.131: Active Header Control Display

SETTING UP AUTO HEADER HEIGHT CONTROL

- Once HEADER HEIGHT RESUME and AUTO HEADER CONTROL are turned ON, use buttons 2 (B) and 3 (C) on your hydrostatic lever for active header control.

NOTE:

Button 1 (A) is reserved for AUTO HEIGHT RESUME which will return header to a certain height, but will not automatically compensate for ground variation.

NOTE:

To use buttons, combine must be running, AUTO HEADER HEIGHT SENSING must be ON, and header switch and feeder house must be engaged.

- Push button you would like to use, and header will position itself at default height.
- Adjust header to desired ground pressure by turning your auto header control dial located at upper right corner of console (A). Once you have set your desired ground pressure, auto header height will now maintain constant float at this ground pressure (it will lower or raise feeder house to compensate for changes in ground height).

NOTE:

Auto header height is designed to optimize your float when cutting on ground. It does not function when cutterbar is off ground.

NOTE:

The ideal ground pressure, in most cases, is one number of separation on AHHC from having header fully suspended off ground (B) to just resting on ground (A). Operating with heavier pressures can wear cutterbar wearplate prematurely.

- The additional buttons (2 or 3) on hydrostatic lever are used for two different ground pressure settings. The header control dial on console will work for specific button that was pushed to activate auto header height control. Each time button is pushed, header will return to that specific ground pressure.

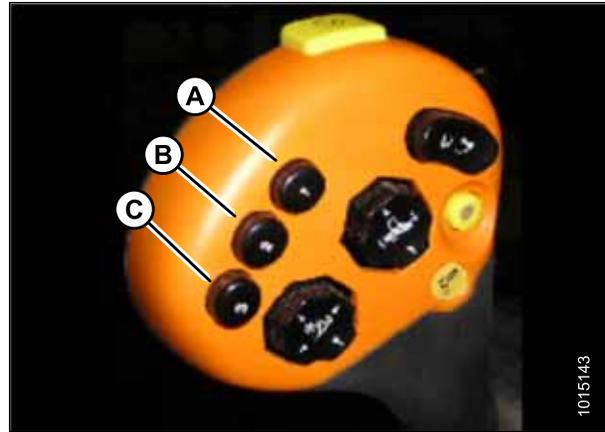


Figure 5.132: Hydrostatic Lever



Figure 5.133: Auto Header Control Dial

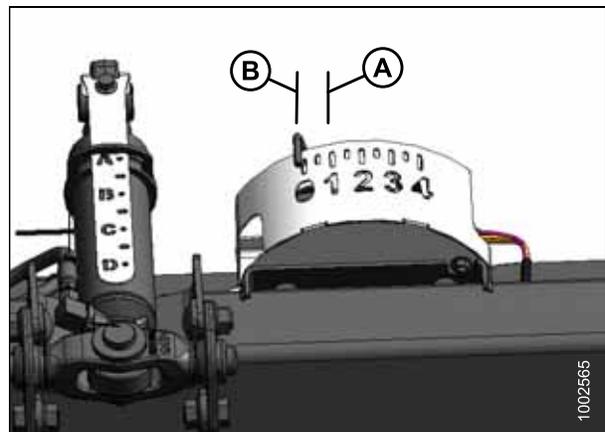


Figure 5.134: Float Indicator Box

SETTING UP AUTO HEADER HEIGHT CONTROL

Replacing Auto Header Height Control (AHHC) Sensor

The auto header height control (AHHC) sensor/potentiometer sends a signal to combine allowing it to maintain a cutting height and optimize float as header follows ground contours. To replace AHHC sensor, follow these steps:

1. Disconnect wiring harness from existing sensor (A).
2. Remove two nuts and bolts (B) that secure sensor to bracket and remove sensor (A).

IMPORTANT:

To avoid damaging new sensor, install sensor as follows:

3. Position sensor control arm (A) against stop (B).
4. Install new sensor (C) onto linkage arm with wiring plug facing away from stop.
5. Pretension sensor's internal spring by rotating sensor (C) until bolt holes align with holes on bracket.

6. Secure new sensor (A) to bracket with two nuts and bolts (B).

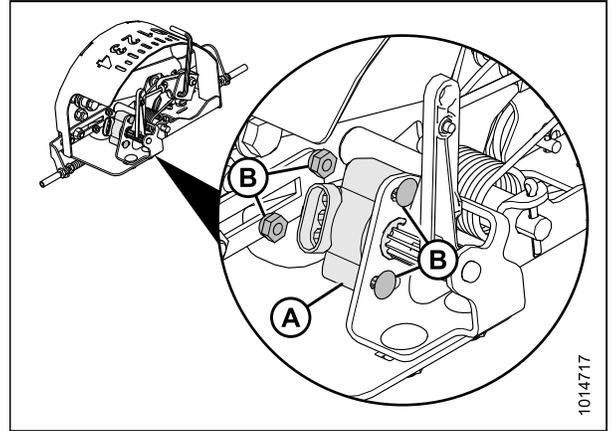


Figure 5.135: AHHC Sensor

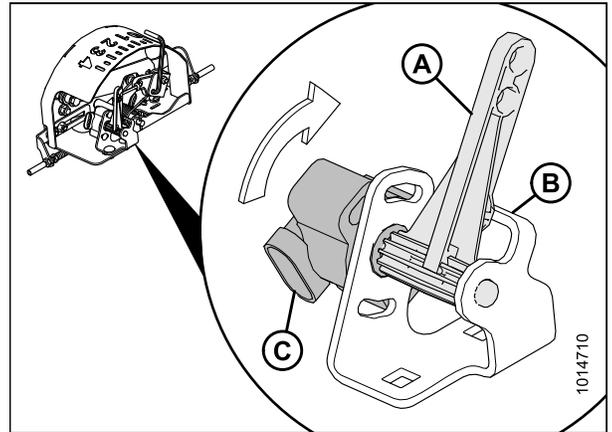


Figure 5.136: AHHC Sensor

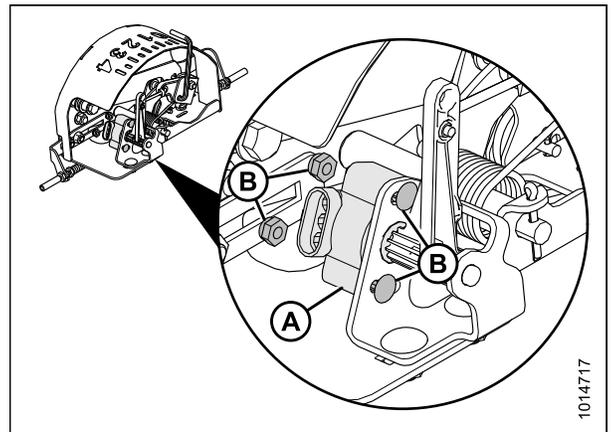


Figure 5.137: AHHC Sensor

SETTING UP AUTO HEADER HEIGHT CONTROL

7. Ensure linkage (A) operates freely (arrow indicates approximate range).
8. Reconnect wiring harness to plug (B) on sensor.

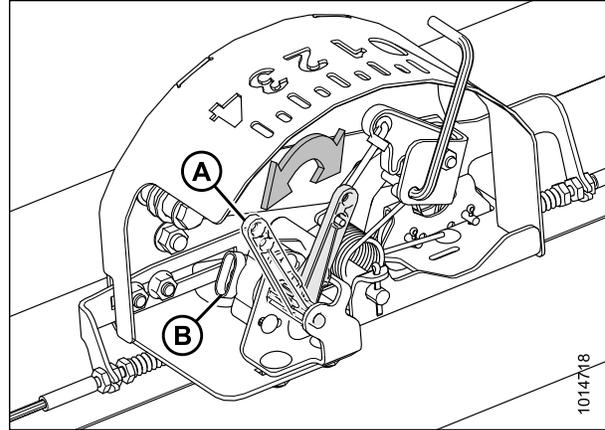


Figure 5.138: AHC Sensor Range

9. Check voltage range of new sensor and adjust if necessary.

5.1.9 John Deere 60 Series Combines

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

The auto header height sensor output must be within a specific range, or feature will not work properly.

Combine	Low Voltage Limit	High Voltage Limit	Minimum Range
John Deere 60 Series	0.7 V	4.3 V	3.0 V

Check sensor's output voltage range from combine cab according to instructions that follow.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHC) system.

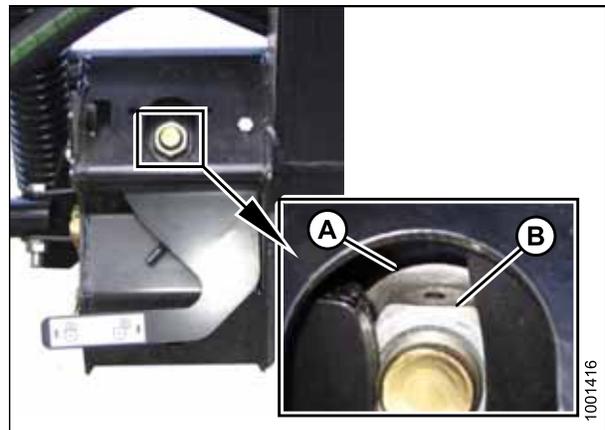


Figure 5.139: Float Lock

SETTING UP AUTO HEADER HEIGHT CONTROL

- Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

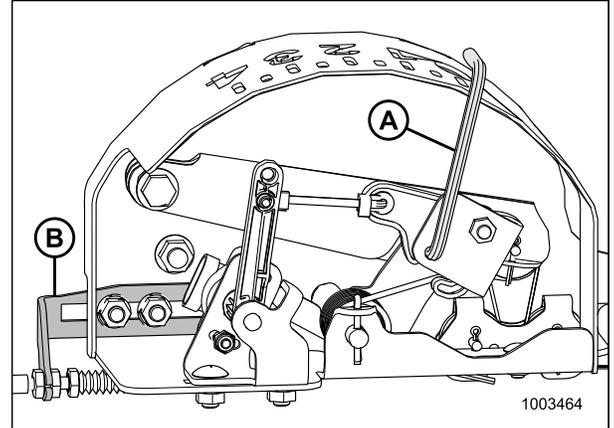
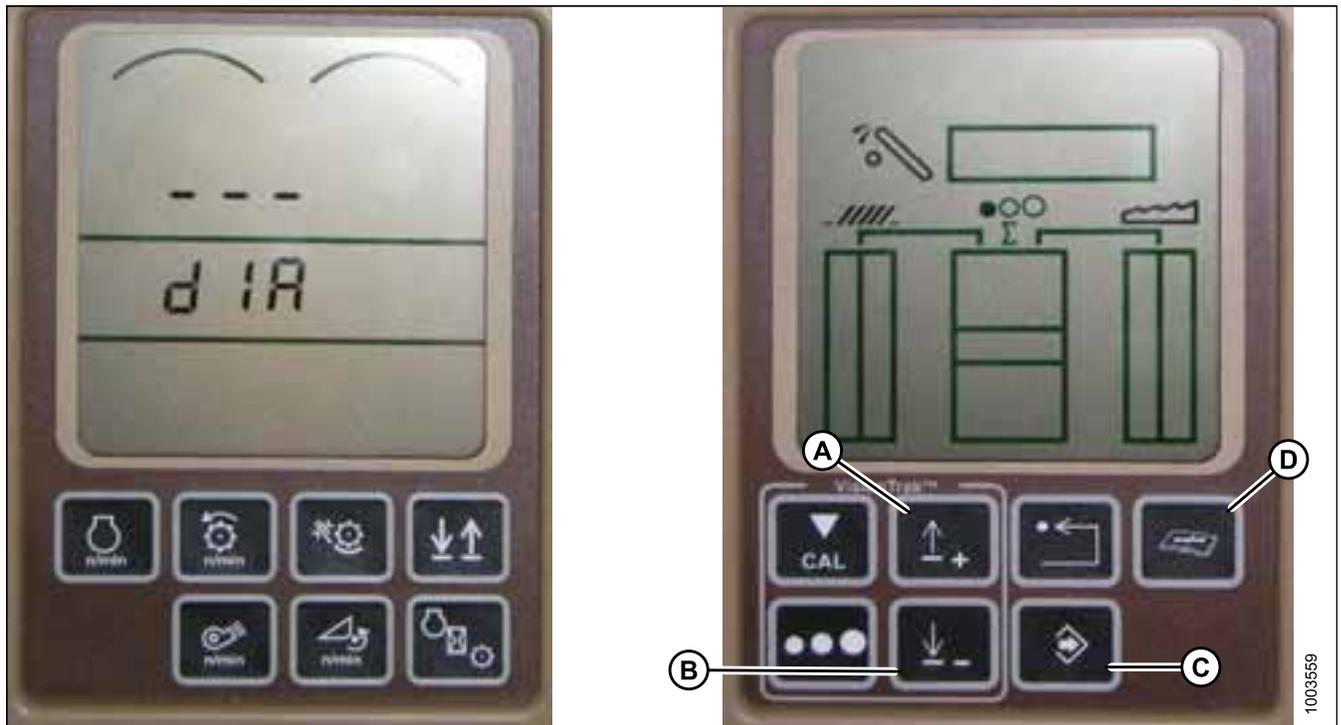


Figure 5.140: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

Figure 5.141: John Deere Combine Display



- Press DIAGNOSTIC button (D) on monitor—DIA appears on monitor.
- Press UP button (A) until EO1 appears on monitor—this is header adjustment.
- Press ENTER button (C).
- Press UP (A) or DOWN button (B) until 24 is displayed on top portion of monitor—this is voltage reading for sensor.
- Ensure header float is unlocked.
- Start combine, and fully lower feeder house to ground.

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

10. Check sensor reading on monitor.
11. Raise header so it is just off ground, and recheck sensor reading.
12. If sensor voltage is not within low and high limits or if range between low and high limits is insufficient, refer to [Adjusting Voltage Limits, page 142](#).

Calibrating Auto Header Height Control (John Deere 60 Series)

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Ensure center-link is set to D.
2. Rest header on down stops, and unlock adapter float.
3. Put wings in locked position.
4. Start combine.
5. Press DIAGNOSTIC button (A) on monitor. DIA appears on monitor.
6. Press CAL button (B). DIA-CAL appears on monitor.

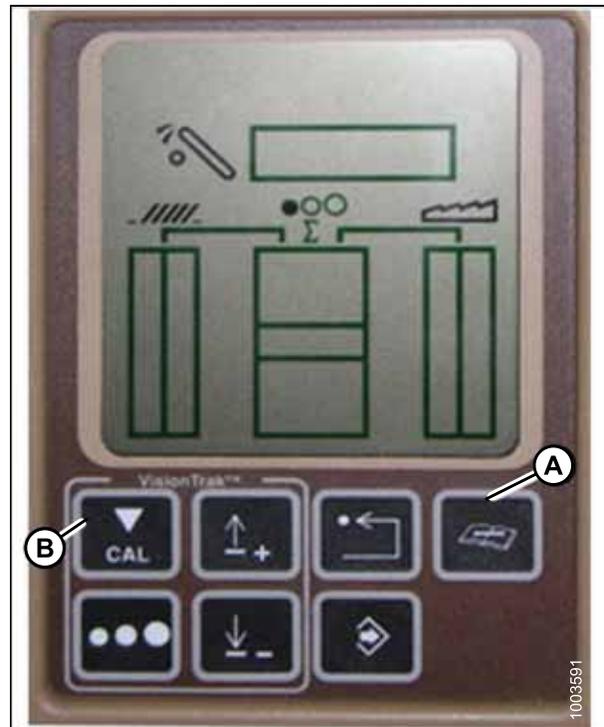


Figure 5.142: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

7. Press UP or DOWN buttons until HDR appears on monitor.
8. Press ENTER button. HDR H-DN appears on monitor.
9. Fully lower feeder house to ground.

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

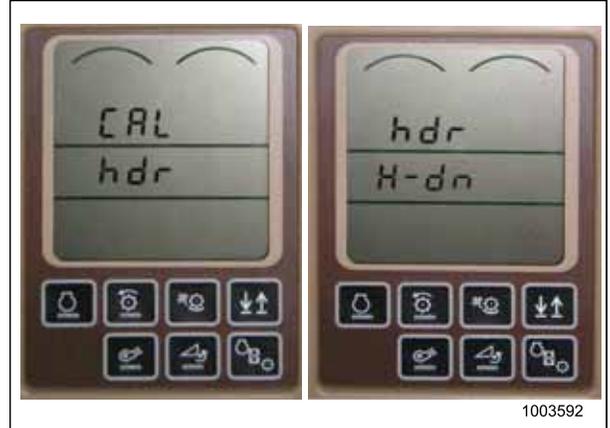


Figure 5.143: John Deere Combine Display

10. Press CAL button (A) to save calibration of header. HDR H-UP appears on monitor.
11. Raise header three feet off ground and press CAL (A) button. EOC appears on monitor.
12. Press ENTER button (B) to save calibration of header. Your AHHC is now calibrated.

NOTE:

If an error code appears during calibration, sensor is out of voltage range and will require adjustment. Refer to [Calibrating Auto Header Height Control \(John Deere 60 Series\)](#), page 206.

NOTE:

After calibration is complete, adjust combine operation settings to ensure proper field operation.

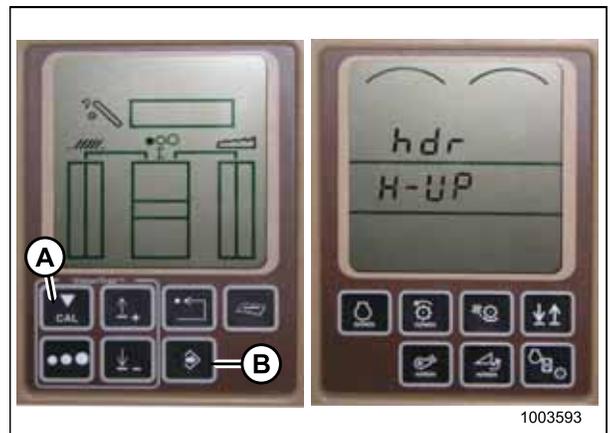


Figure 5.144: John Deere Combine Display

Turning Accumulator Off (John Deere 60 Series)

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

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

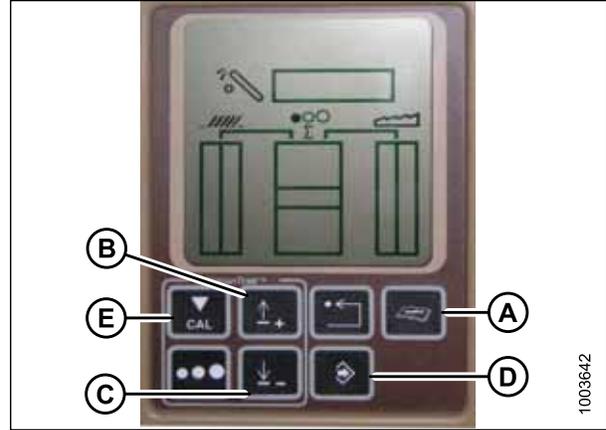


Figure 5.145: John Deere Combine Display

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

NOTE:

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

To set sensing grain header height, follow these steps:

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

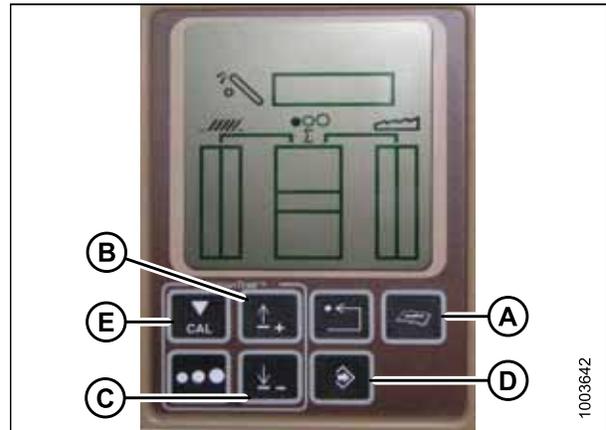


Figure 5.146: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

Do **NOT** use active header float function (A) in combination with MacDon auto header height control (AHHC)—the two systems will counteract one another. The header symbol (B) on display should **NOT** have a wavy line under it and should appear exactly as shown on Active Header Control Display in Figure 5.147, page 209.

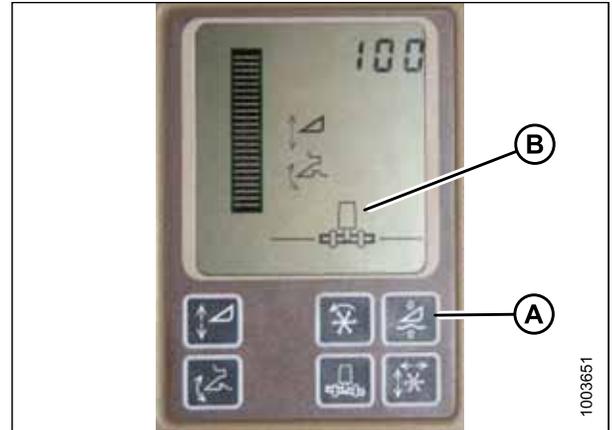


Figure 5.147: John Deere Combine Display

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

This is also known as dead band adjustment.

NOTE:

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

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

NOTE:

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

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

NOTE:

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

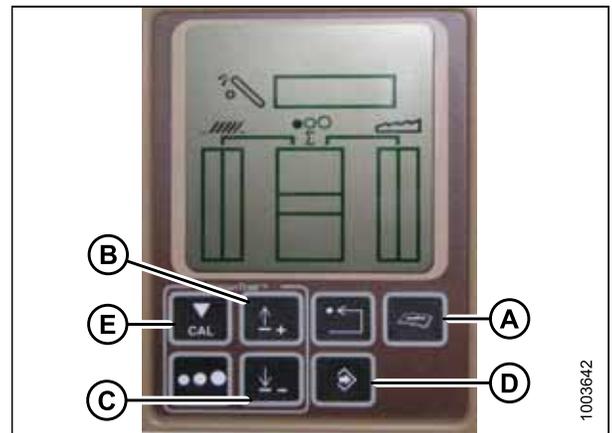


Figure 5.148: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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

This procedure explains how to adjust point at which restrictor valve opens allowing full flow to lift cylinders.

NOTE:

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

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

NOTE:

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

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

NOTE:

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

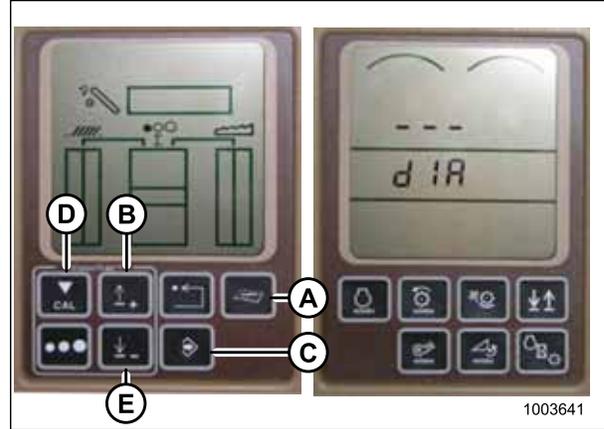


Figure 5.149: John Deere Combine Display

5.1.10 John Deere 70 Series Combines

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

The auto header height sensor output must be within a specific range, or feature will not work properly.

Combine	Low Voltage Limit	High Voltage Limit	Minimum Range
John Deere 70 Series	0.7 V	4.3 V	3.0 V

Check sensor's output voltage range from combine cab according to instructions that follow.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.

SETTING UP AUTO HEADER HEIGHT CONTROL

2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

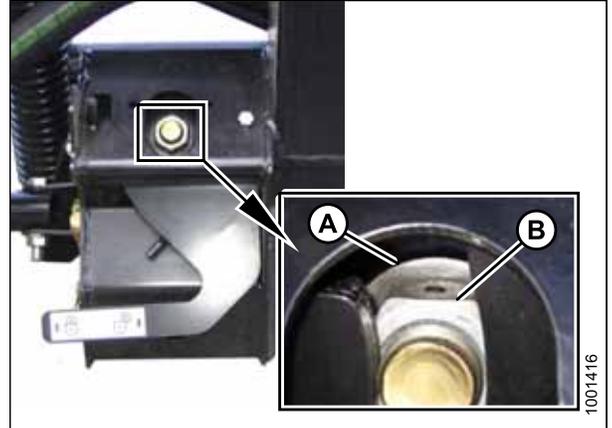


Figure 5.150: Float Lock

3. Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

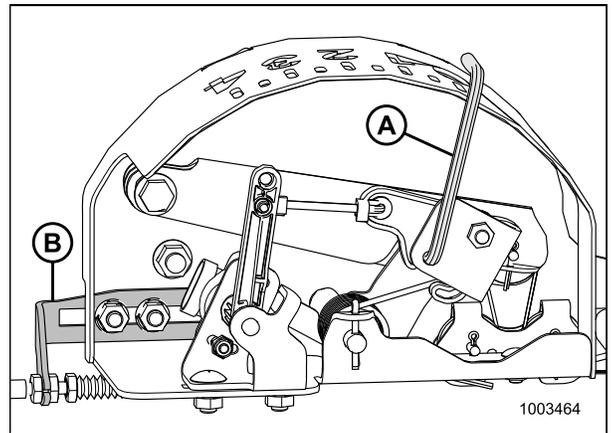


Figure 5.151: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

4. Press HOME PAGE button (A) on main page of combine display.



Figure 5.152: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

5. Ensure three icons (A) depicted in illustration at right appear on combine display.



Figure 5.153: John Deere Combine Display

6. Use scroll knob (A) to highlight middle icon (the green i) and press check mark button (B) to select it. This will display Message Center.

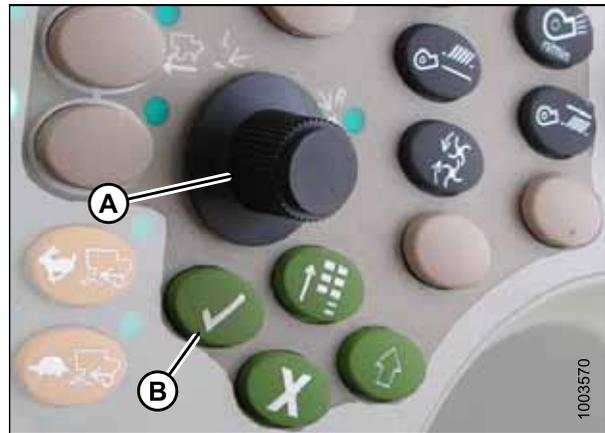


Figure 5.154: John Deere Combine Control Console

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

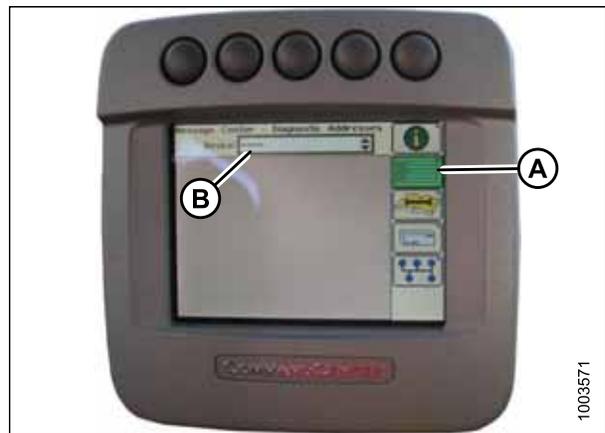


Figure 5.155: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

- Use scroll knob to highlight LC 1.001 VEHICLE (A), and then press check mark button to select it.



Figure 5.156: John Deere Combine Display

- Use scroll knob to highlight down arrow (A) and press check mark button to scroll through list until 029 DATA (B) is displayed and voltage reading (C) appears on combine display.



Figure 5.157: John Deere Combine Display

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

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

- Check sensor reading on monitor.
- Raise header so it is just off ground and recheck sensor reading.
- If sensor voltage is not within low and high limits or if range between low and high limits is insufficient, refer to [Adjusting Voltage Limits, page 142](#).

SETTING UP AUTO HEADER HEIGHT CONTROL

Calibrating Feeder House Speed (John Deere 70 Series)

The feeder house speed must be calibrated before you calibrate auto header height control (AHHC) system. Refer to combine operator's manual for instructions.

Calibrating Auto Header Height Control (John Deere 70 Series)

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Ensure center-link is set to D.
2. Rest header on safety props and unlock adapter float.
3. Place wings in locked position.
4. Start combine.
5. Press button located fourth from left along top of monitor (A) to select icon that resembles an open book with a wrench on it (B).
6. Press top button (A) a second time to enter diagnostics and calibration mode.

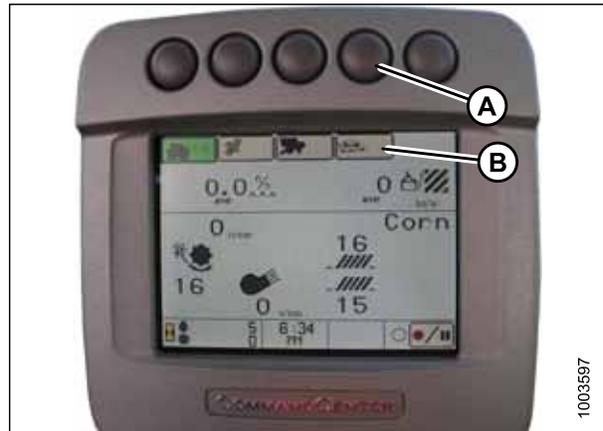


Figure 5.158: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

7. Select HEADER in box (A) by scrolling down to box using scroll knob, and then pressing check mark button (knob and button are shown in Figure 5.160, page 215).
8. Scroll down to lower right icon that resembles an arrow in a diamond (B) and press check mark button to select it.

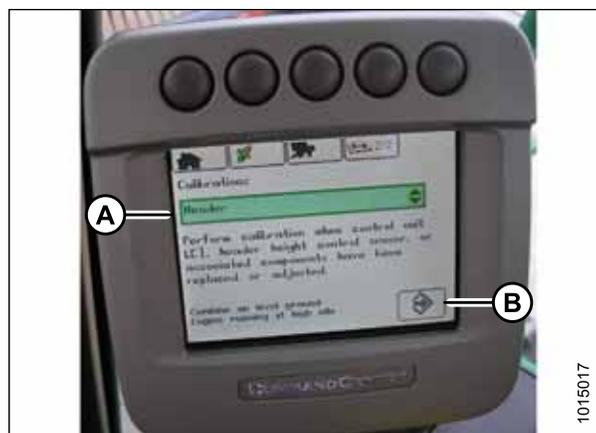


Figure 5.159: John Deere Combine Display

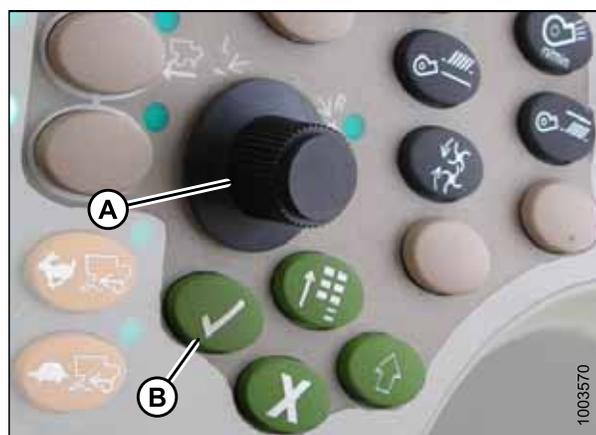


Figure 5.160: John Deere Combine Control Console

A - Scroll Knob

B - Check Mark Button

9. Follow steps listed on combine display to perform the calibration.

NOTE:

If an error code appears on page, sensor is not in correct working range. Refer to [Checking Voltage Range from Combine Cab \(John Deere 70 Series\), page 210](#) to check and adjust range.

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

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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

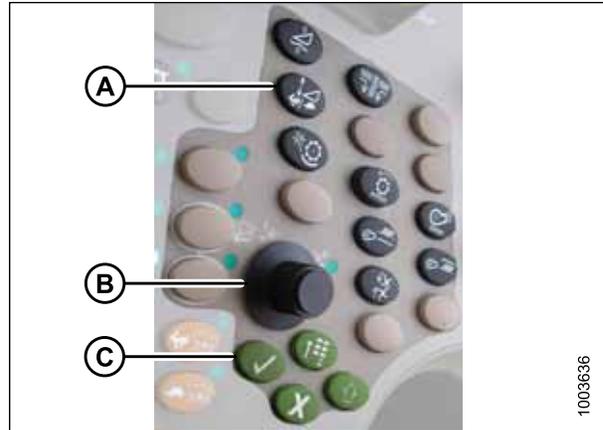


Figure 5.161: John Deere Combine Control Console

NOTE:

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



Figure 5.162: John Deere Combine Display

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

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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

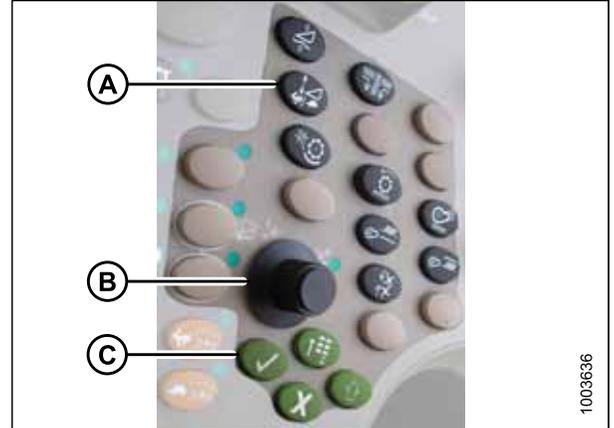


Figure 5.163: John Deere Combine Control Console

NOTE:

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



Figure 5.164: John Deere Combine Display

5.1.11 John Deere S and T Series Combines

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

The auto header height sensor output must be within a specific range, or feature will not work properly.

Combine	Low Voltage Limit	High Voltage Limit	Minimum Range
John Deere S and T Series	0.7 V	4.3 V	3.0 V

Check sensor's output voltage range from combine cab according to instructions that follow.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.

SETTING UP AUTO HEADER HEIGHT CONTROL

2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHC) system.

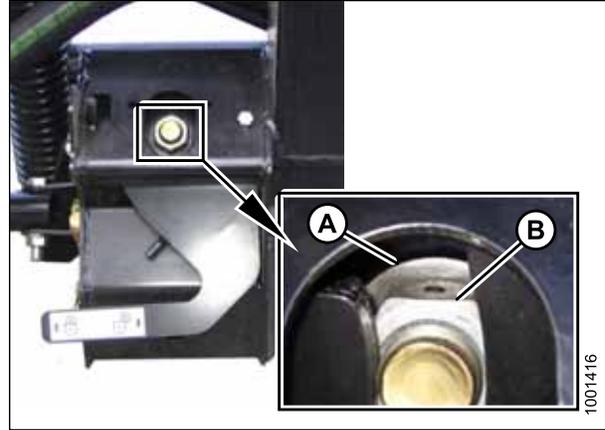


Figure 5.165: Float Lock

3. Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

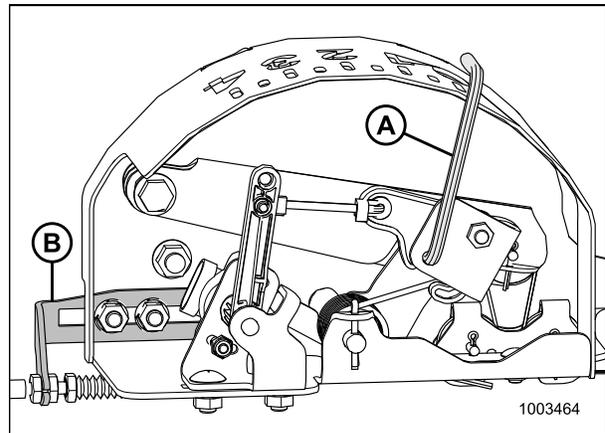


Figure 5.166: Float Indicator Box (Most Common 5 Volt AHC Sensor Assembly Shown)

4. Press CALIBRATION icon (A) on main page of combine display. The CALIBRATION page appears.



Figure 5.167: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

5. Press DIAGNOSTIC READINGS icon (A) on CALIBRATION page. The DIAGNOSTIC READINGS page appears. This page provides access to calibrations, header options, and diagnostic information.

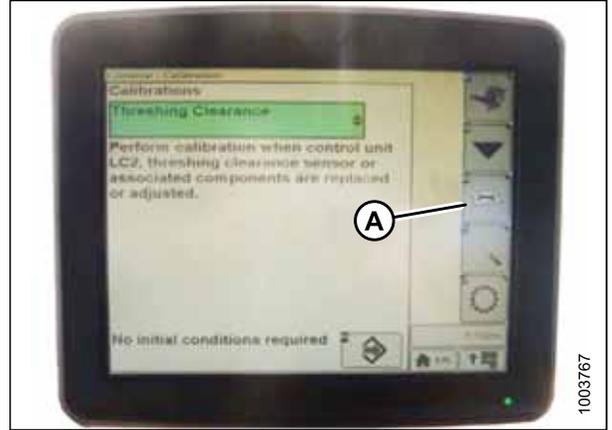


Figure 5.168: John Deere Combine Display

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



Figure 5.169: John Deere Combine Display

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



Figure 5.170: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

9. Press icon (A) until it reads Page 5 near top of the page and following sensor readings appear:

- LEFT HEADER HEIGHT
- CENTER HEADER HEIGHT
- RIGHT HEADER HEIGHT

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



Figure 5.171: John Deere Combine Display

10. Ensure header float is unlocked.

11. Start combine and fully lower feeder house to the ground.

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

12. Check sensor reading on monitor.

13. If sensor voltage is not within low and high limits or if range between low and high limits is insufficient refer to [Adjusting Voltage Limits, page 142](#).

Calibrating Feeder House Fore/Aft Tilt Range (John Deere S and T Series)

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

This procedure applies only to model year 2015 and later John Deere S and T Series combines.

NOTE:

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

The feeder house fore/aft tilt is controlled by buttons (C) and (D) at back of hydro handle.



Figure 5.172: John Deere Hydro Handle

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

The feeder house fore/aft tilt controls can be changed to work with buttons E and F by pressing hydro handle icon (A) and then selecting FEEDER HOUSE FORE/AFT TILT from drop-down menu (B) on combine display.

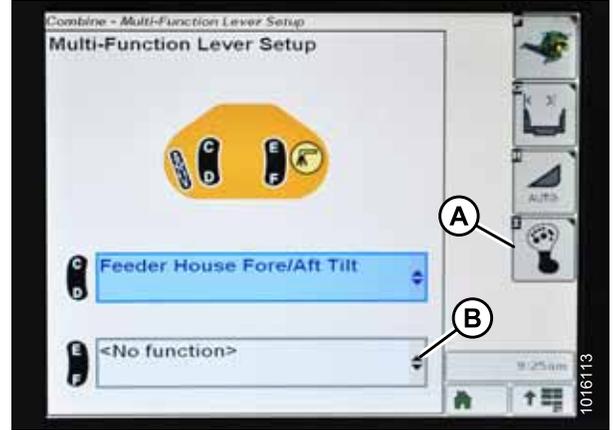


Figure 5.173: John Deere Combine Display

To calibrate feeder house fore/aft tilt range, follow these steps:

1. Ensure center-link is set to D.
2. Rest header on down stops and unlock adapter float.
3. Place wings in locked position.
4. Press DIAGNOSTIC icon (A) on main page of combine display. The CALIBRATION page displays.

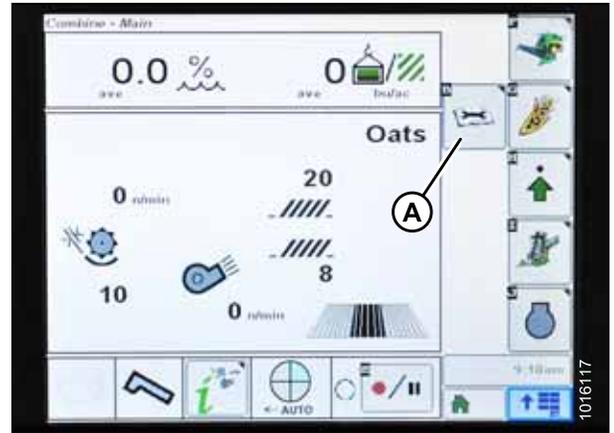


Figure 5.174: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

5. Select CALIBRATIONS drop-down menu (A) to view list of calibration options.

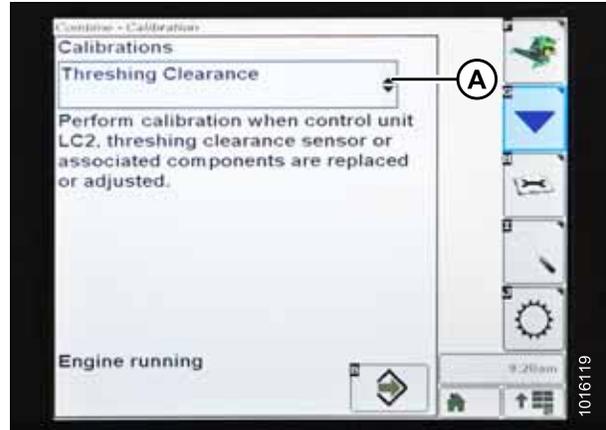


Figure 5.175: John Deere Combine Display

6. Press arrow (A) to cycle up through calibration options and select FEEDER HOUSE FORE/AFT TILT RANGE.

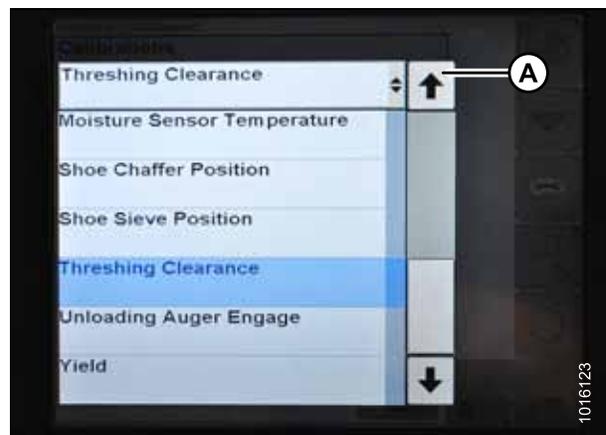


Figure 5.176: John Deere Combine Display

7. Press ENTER icon (A).

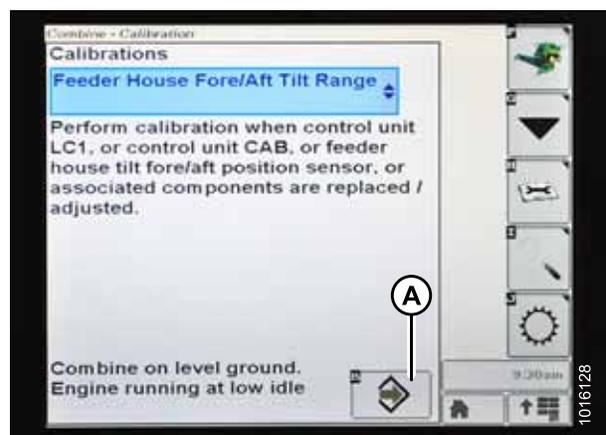


Figure 5.177: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

- Follow instructions that appear on combine display. As you proceed through calibration process, display will automatically update to show next step.

NOTE:

If an error code appears during calibration, sensor is out of voltage range and will require adjustment. Refer to [Checking Voltage Range from Combine Cab \(John Deere S and T Series\)](#), page 217.

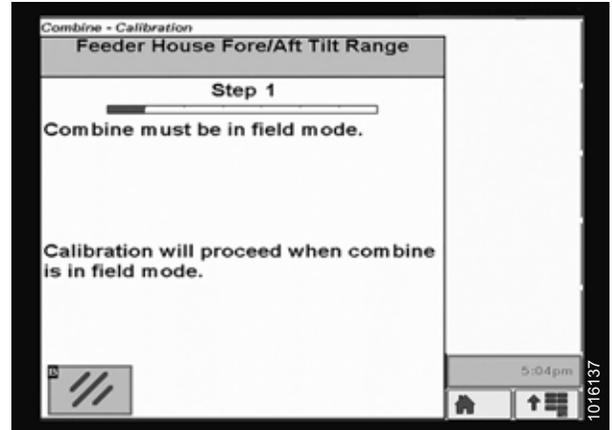


Figure 5.178: John Deere Combine Display

Calibrating Auto Header Height Control (John Deere S and T Series)

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

- Ensure center-link is set to D.
- Rest header on down stops and unlock adapter float.
- Place wings in locked position.
- Press DIAGNOSTIC icon (A) on main page of monitor. The CALIBRATION page appears.



Figure 5.179: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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

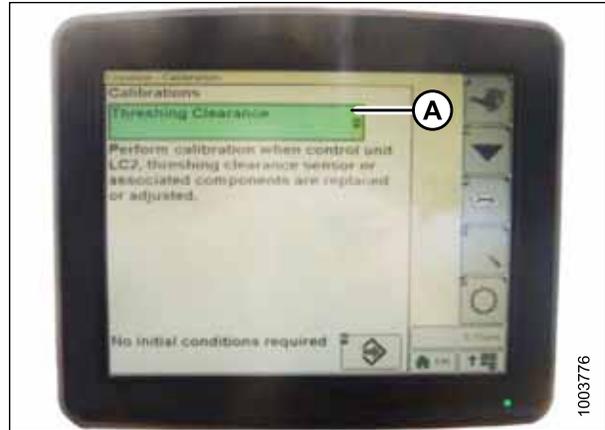


Figure 5.180: John Deere Combine Display

6. Select FEEDER HOUSE SPEED (A) and calibrate.
7. Select HEADER (B) and calibrate.

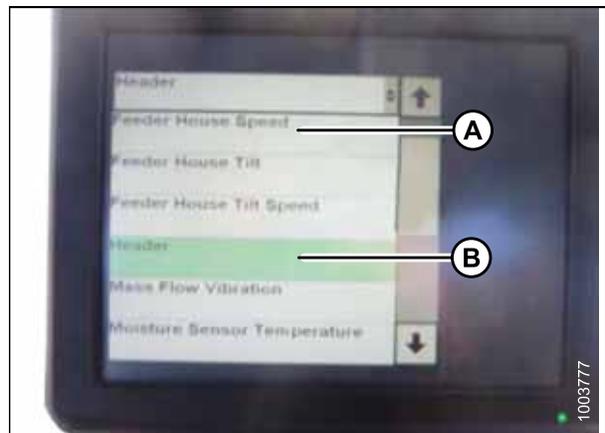


Figure 5.181: John Deere Combine Display

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

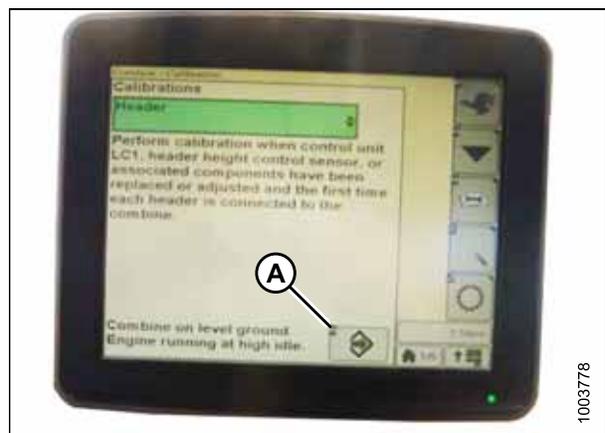


Figure 5.182: John Deere Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

If an error code appears during calibration, sensor is out of voltage range and will require adjustment. Refer to *Adjusting Voltage Limits, page 142*.

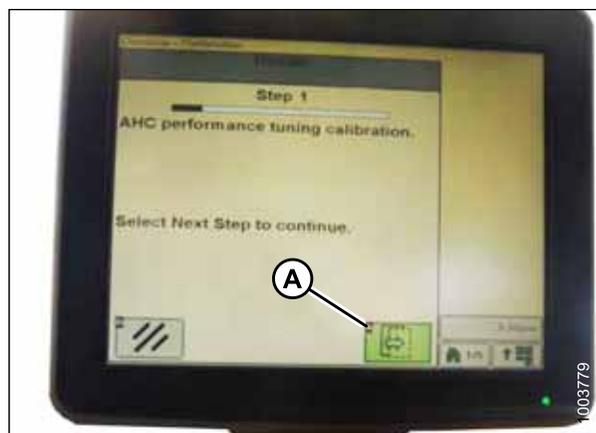


Figure 5.183: John Deere Combine Display

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

NOTE:

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

- Press button (A) twice and current sensitivity setting will appear on combine display.



Figure 5.184: John Deere Combine Command Center

SETTING UP AUTO HEADER HEIGHT CONTROL

2. Press – or + icon (A) to adjust rates.

NOTE:

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



Figure 5.185: John Deere Combine Display

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

NOTE:

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

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



Figure 5.186: John Deere Combine Command Center

SETTING UP AUTO HEADER HEIGHT CONTROL

2. Press – or + icon (A) to adjust rates.

NOTE:

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

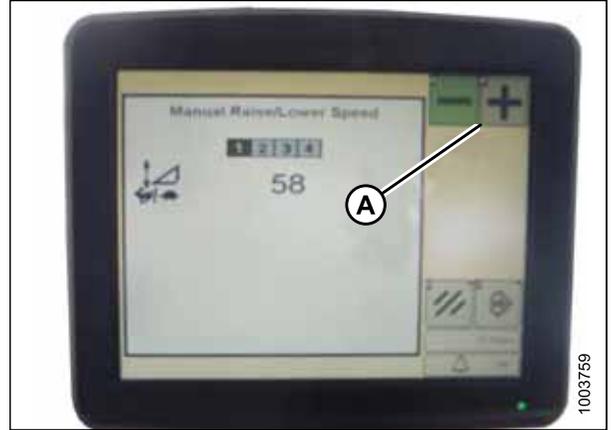


Figure 5.187: John Deere Combine Display

NOTE:

The ideal ground pressure—in most cases—is one number (on float indicator box) above header suspended off ground. For example, if float indicator needle (A) is positioned at 0 with header suspended off ground, then ideal ground pressure will be achieved with needle positioned at 1. Operating with heavier pressures can wear cutterbar wearplate prematurely.

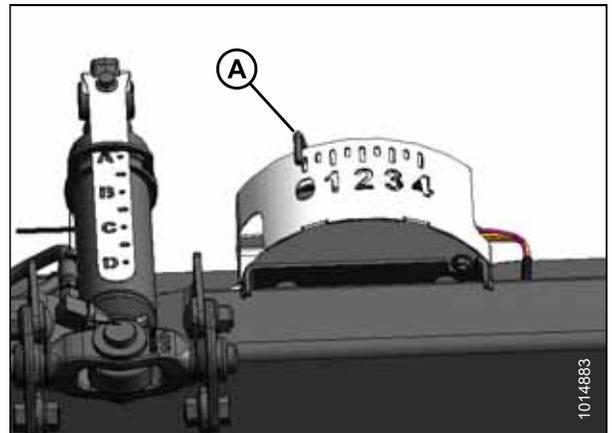


Figure 5.188: Float Indicator Box

Setting Preset Cutting Height (John Deere S and T Series)

NOTE:

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

1. Press COMBINE – HEADER SETUP icon (A) on main page. The COMBINE – HEADER SETUP page appears. 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 5.189: Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

2. Select COMBINE – HEADER SETUP AHC icon (A). The COMBINE – HEADER SETUP AHC screen appears.



Figure 5.190: Combine Display

3. Select top-left (A) and top-center (B) icons for auto height sensing and return to cut.

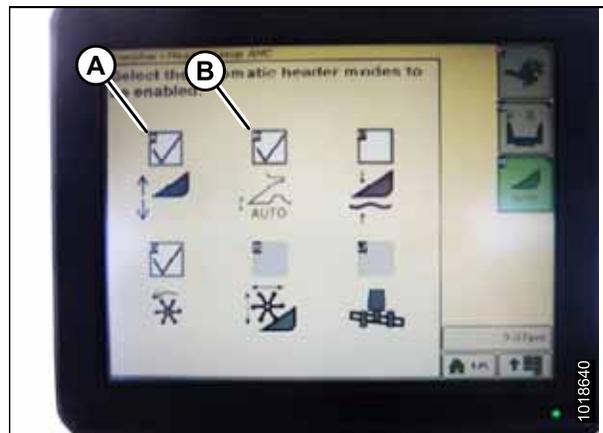


Figure 5.191: Combine Display

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

NOTE:

Preset button 1 (A) is reserved for header lift on headland and is not used for ground cutting.



Figure 5.192: Joystick Buttons

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

The ideal ground pressure—in most cases—is one number (on float indicator box) above header suspended off ground. For example, if float indicator needle (A) is positioned at 0 with header suspended off ground, then ideal ground pressure will be achieved with needle positioned at 1. Operating with heavier pressures can wear cutterbar wearplate prematurely.

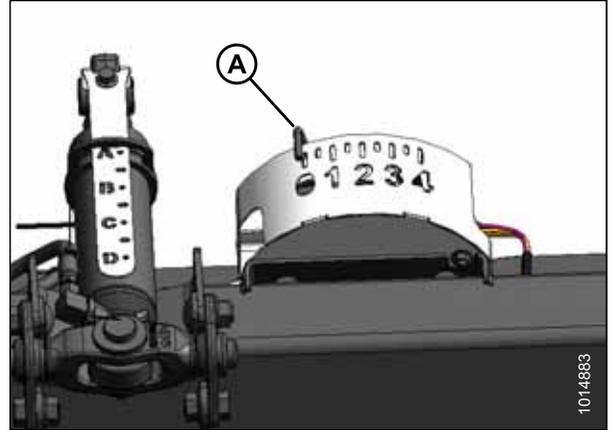


Figure 5.193: Float Indicator Box

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



Figure 5.194: Combine Control Console

NOTE:

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

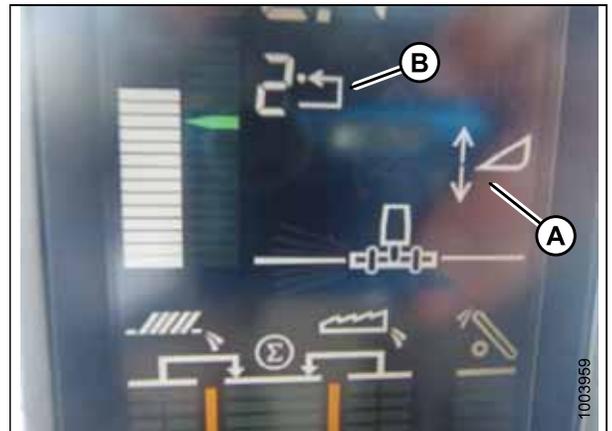


Figure 5.195: Combine Display

5.1.12 CLAAS 500 Series Combines

Auto Header Height Sensor Voltage Requirements

The auto header height sensor output must be within a specific voltage range for the feature to work properly.

SETTING UP AUTO HEADER HEIGHT CONTROL

Combine	Lower Voltage Limit (+/- 0.2)	Upper Voltage Limit (+/- 0.2)	Minimum Range Difference
CLAAS 500/600/700 Series	0.7 V	4.3 V	2.5 V

Check sensor's output voltage range at float indicator according to the instructions that follow.

Checking Sensor's Output Voltage Range

The auto header height sensor output must be within a specific range for feature to work properly. To check sensor's output voltage range, follow these steps:

1. Position header 150 mm (6 in.) above ground, and rest it on safety props. Unlock adapter float.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHC) system.

2. The pointer (A) on float indicator should point at **0**. If it does not, adjust cable bracket (B) until pointer (A) on float indicator points to **0**.

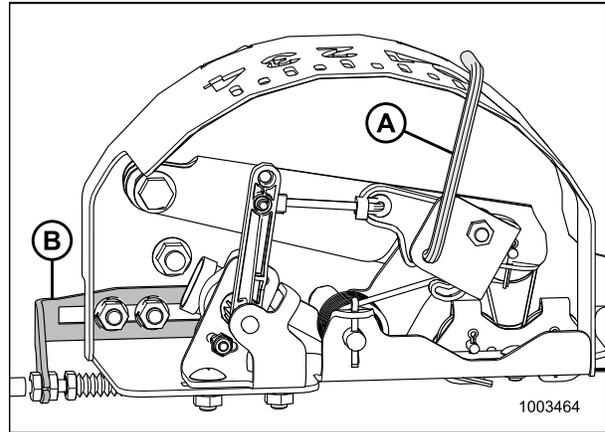


Figure 5.196: Float Indicator with Auto Header Height Sensor

3. Measure voltage between ground and signal wires at AHC sensor in float indicator with a voltmeter (A).

NOTE:

The voltage reading should be below **4.3 V**.

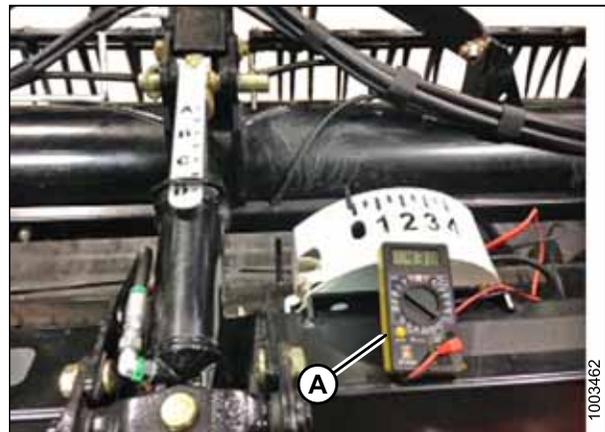


Figure 5.197: Float Indicator Reading 1 V

SETTING UP AUTO HEADER HEIGHT CONTROL

4. Fully lower combine feeder house until adapter is no longer supporting header. The float indicator should read **4**.

NOTE:

You may need to hold HEADER DOWN switch for a few seconds to ensure feeder house is fully lowered.

5. Measure voltage between ground and signal wires at AHHC sensor in float indicator with a voltmeter (A). It should be at low voltage limit for combine – **0.7 V**.
6. If sensor voltage is not within low and high limits, or if range between low and high limits is less than **3.0 V**, make adjustments according to [Adjusting Voltage Limits, page 231](#).

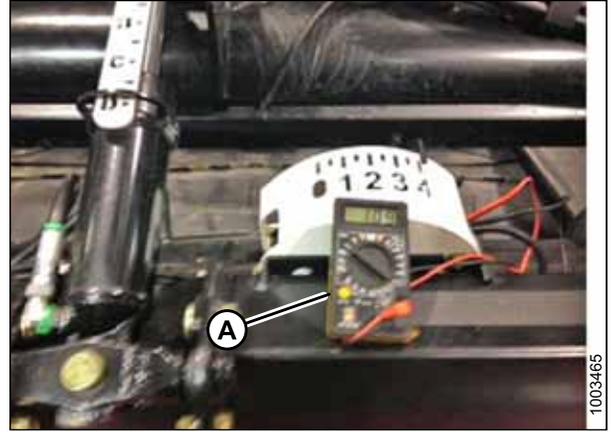


Figure 5.198: Float Indicator Reading 4.3 V

Adjusting Voltage Limits

1. To adjust high voltage limit:
 - a. Extend guard angle fully. Header angle indicator should be at **D**.
 - b. Position header 150–254 mm (6–10 in.) above ground. Float indicator should be at **0**.
 - c. Loosen sensor mounting bolts (A).
 - d. Slide sensor support (B) to right to increase high voltage limit, or to left to decrease it.
 - e. Tighten sensor mounting bolts (A).
2. To adjust low voltage limit:
 - a. Fully extend center-link, (i.e., increase header/guard angle to maximum). Header angle indicator should be at **D**.
 - b. Fully lower header to ground. Float indicator should be at **4**.
 - c. Loosen potentiometer mounting bolts (C).
 - d. Rotate potentiometer (D) clockwise to increase low voltage limit, or counterclockwise to decrease it.
 - e. Tighten potentiometer mounting bolts (C).
3. When readings are in proper range, auto header height control can be calibrated.

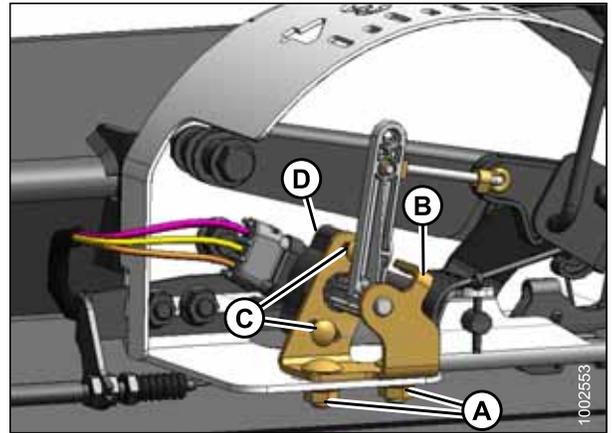


Figure 5.199: AHHC Sensor Assembly

Calibrating Auto Header Height System

The calibration procedure determines limits of auto header height sensor.

Calibrate auto header height system after initial header installation, and after replacing or adjusting any component of auto header height system. If system does not function, calibrate it again.

SETTING UP AUTO HEADER HEIGHT CONTROL

Calibrating Auto Header Height Control (CLAAS 500 Series)

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

1. Ensure center-link is set to **D**.
2. Use < key (A) or > key (B) to select AUTO HEADER, and press OK key (C). The E5 page displays whether automatic header height is ON or OFF.

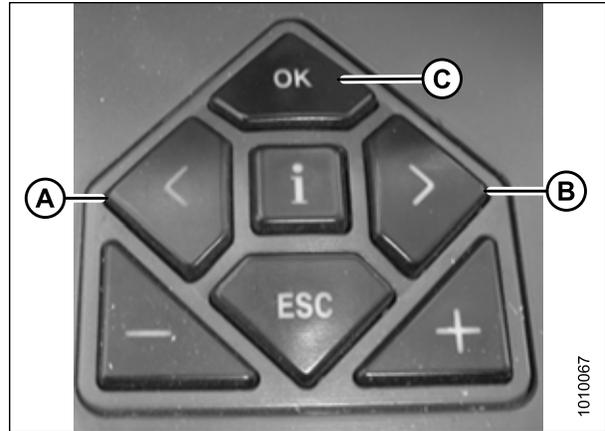


Figure 5.200: CLAAS Combine Controls

3. Use – key (A) or + key (B) to turn ON AHHC, and press OK (C).
4. Engage threshing mechanism and header.

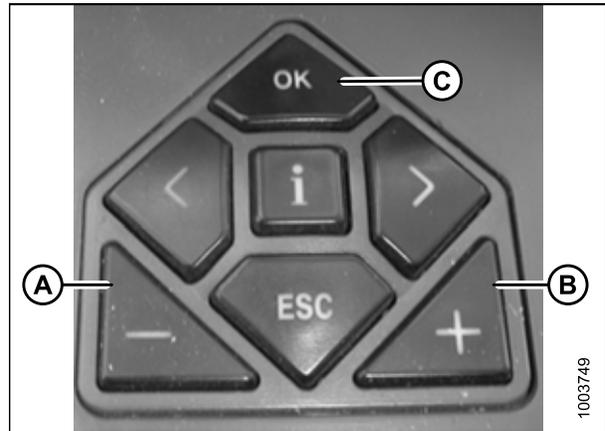


Figure 5.201: CLAAS Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

5. Use < or > key to select CUTT.HEIGHT LIMITS, and press OK.
6. Follow procedure displayed on screen to program upper and lower limits of header into CEBIS (CLAAS Electronic on-Board Information System).

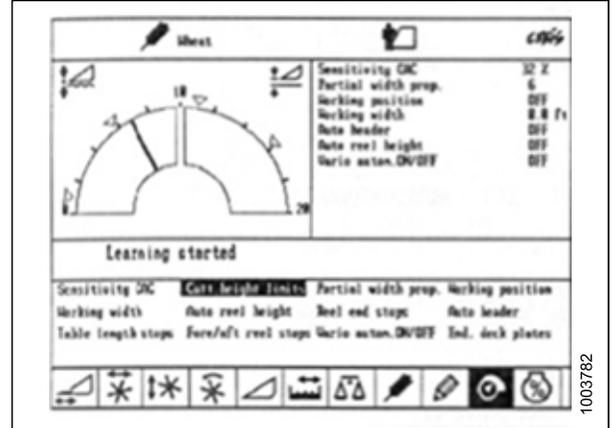


Figure 5.202: CLAAS Combine Display

7. Use < or > key to select SENSITIVITY CAC, and press OK.

NOTE:

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

8. Use – key or + key to change setting of reaction speed, and press OK key.

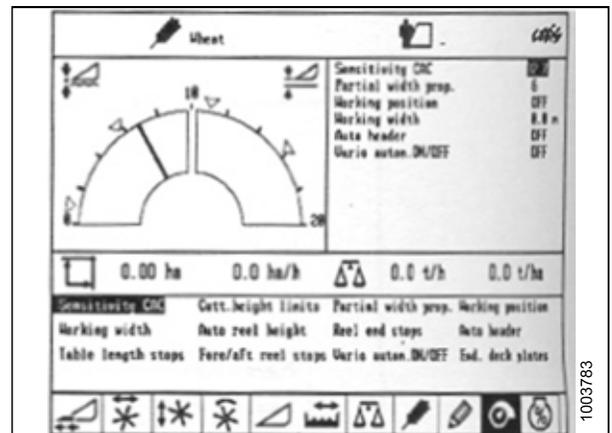


Figure 5.203: CLAAS Combine Display

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

NOTE:

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

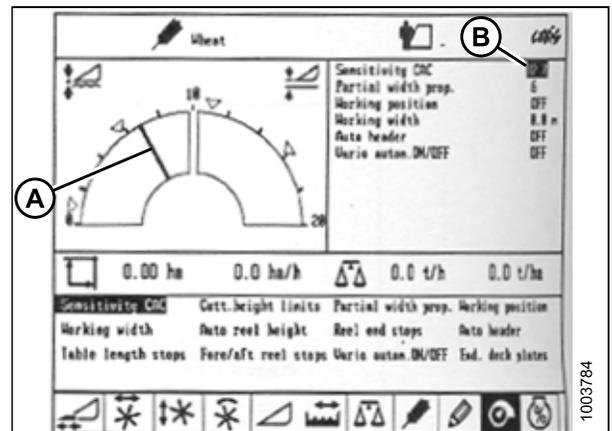


Figure 5.204: CLAAS Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

Setting Cutting Height (CLAAS 500 Series)

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

Setting Preset Cutting Height (CLAAS 500 Series)

NOTE:

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

1. Start engine.
2. Activate machine enable switch.
3. Engage threshing mechanism.
4. Engage header.
5. Briefly press button (A) in order to activate auto contour system, or briefly press button (B) in order to activate preset cutting height system.

NOTE:

Button (A) is used only with auto header height control (AHHC) function. Button (B) is used only with return to cut function.



Figure 5.205: Joystick Buttons

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

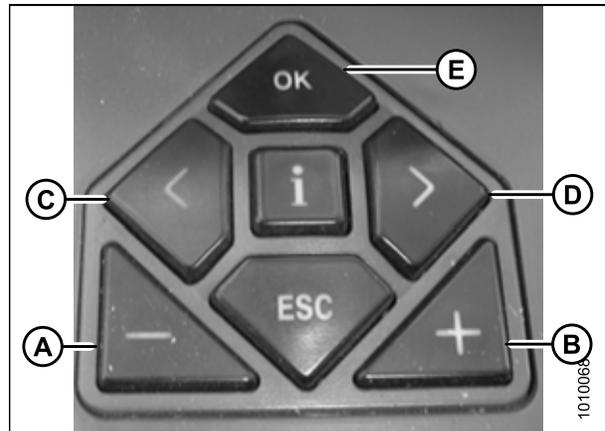


Figure 5.206: CLAAS Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

- Briefly press button (A) or button (B) in order to select set point.
- Repeat Step 7, page 234 for set point.



Figure 5.207: Joystick Buttons

Setting Cutting Height Manually (CLAAS 500 Series)

To set cutting height manually, follow these steps:

NOTE:

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

- Use button (A) to raise header, or button (B) to lower header to desired cutting height.
- Press and hold button (C) for three seconds to store cutting height into CLAAS Electronic on-Board Information System (CEBIS). An alarm will sound when new setting has been stored.
- If desired, program a second set point by using button (A) to raise header or button (B) to lower header to desired cutting height, and briefly press button (C) to store second set point into CEBIS. An alarm will sound when new setting has been stored.



Figure 5.208: Joystick Buttons

NOTE:

For above ground cutting, repeat Step 1, page 235, and use button (D) instead of button (C) while repeating Step 2, page 235.

Setting Sensitivity of Auto Header Height Control (CLAAS 500 Series)

Setting sensitivity of auto header height control (AHHC) system impacts reaction speed of AHHC on header.

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

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

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

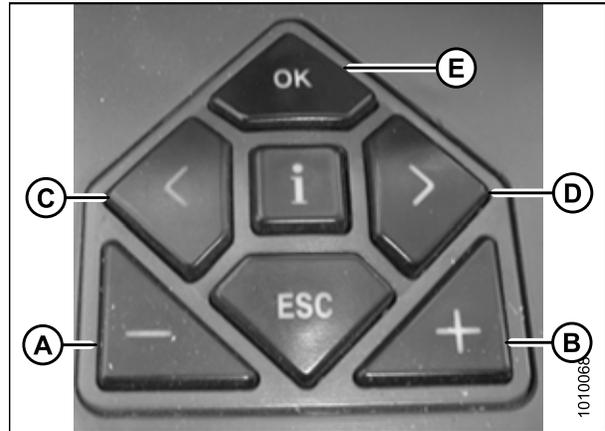


Figure 5.209: CLAAS Combine Controls

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

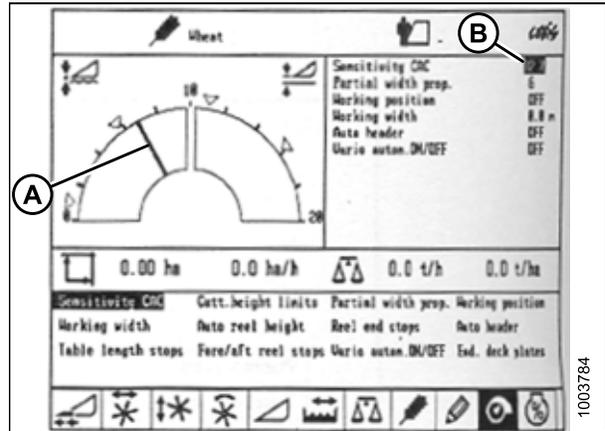
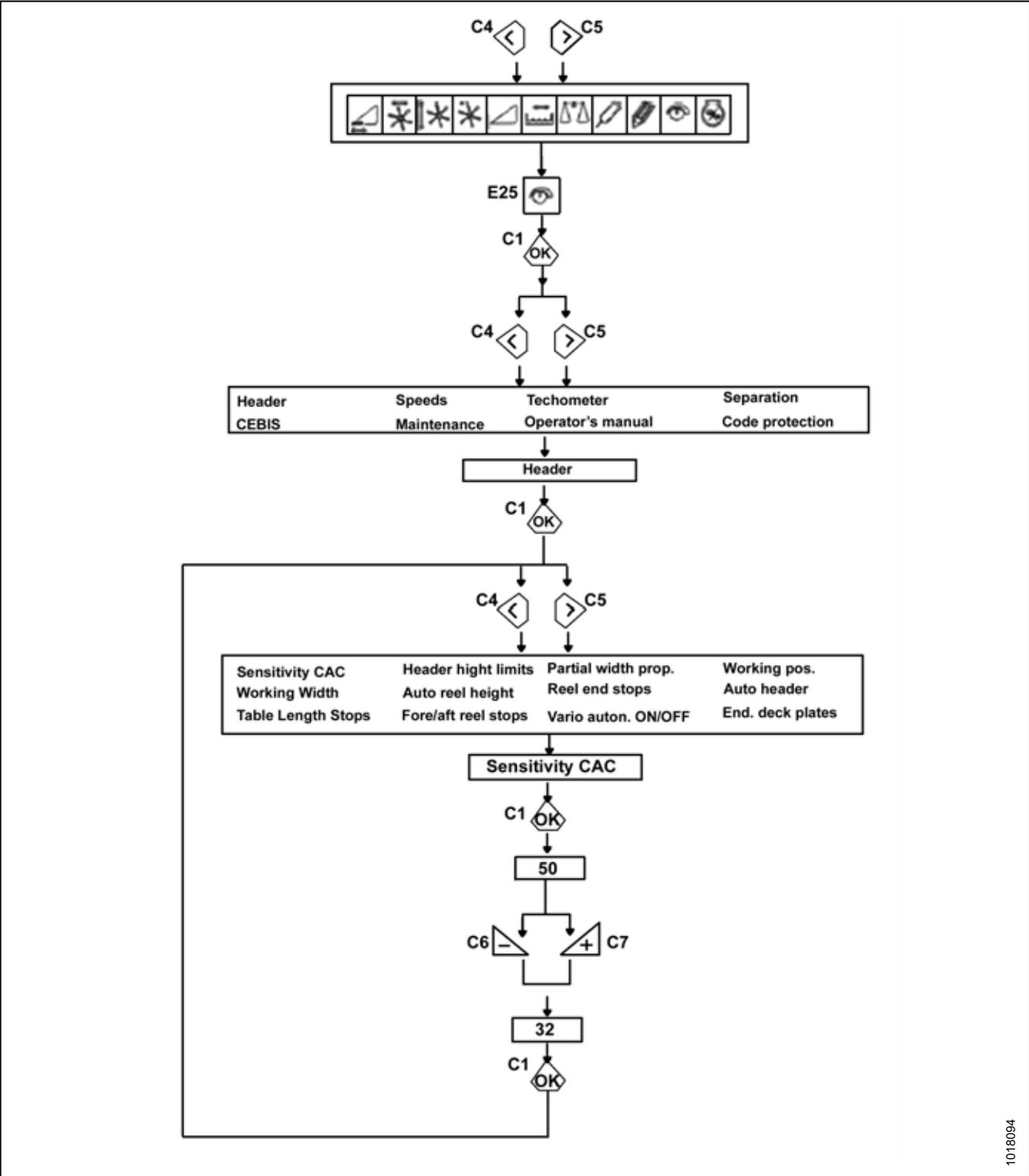


Figure 5.210: CLAAS Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

Figure 5.211: Flow Chart for Setting Sensitivity of Float Optimizer



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SETTING UP AUTO HEADER HEIGHT CONTROL

Adjusting Auto Reel Speed (CLAAS 500 Series)

The reel speed can be preset when automatic header functions are activated. Follow these steps to preset reel speed.

NOTE:

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

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

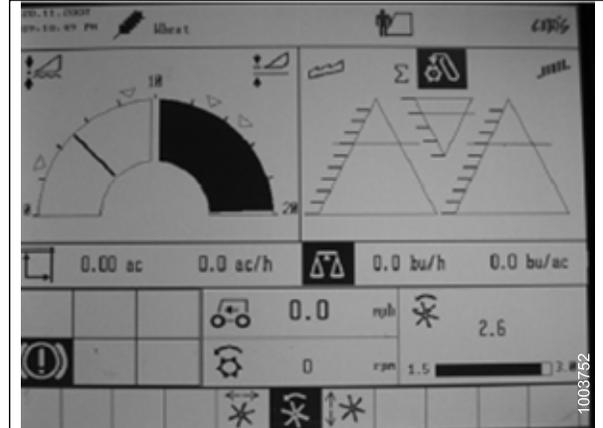


Figure 5.212: Combine Display

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

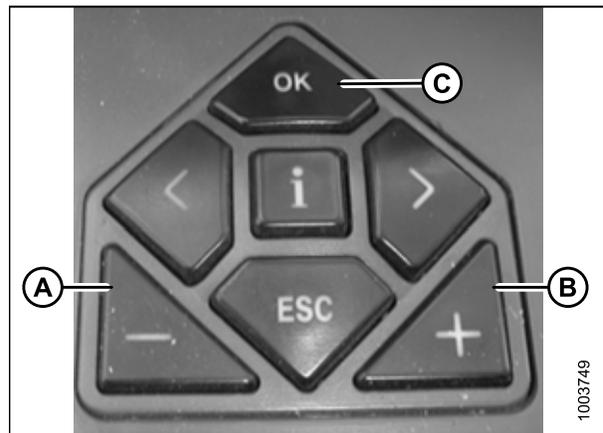


Figure 5.213: Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

4. If desired, manually adjust reel speed by rotating rotary switch to reel position (A), and then use – or + key to set reel speed. Window **E15** will display selected reel speed.



Figure 5.214: Combine Rotary Switch

5. Press and hold button (A) or button (B) for 3 seconds to store setting into CLAAS Electronic on-Board Information System (CEBIS). An alarm will sound when new setting has been stored.

NOTE:

Whenever button (A) or button (B) is pressed for 3 seconds, current positions for reel speed and cutting height are stored.



Figure 5.215: Joystick Buttons

SETTING UP AUTO HEADER HEIGHT CONTROL

- Use < or > key to select REEL WINDOW. When reel window is selected, window **E15** will display current advance or retard speed of reel in relation to ground speed.

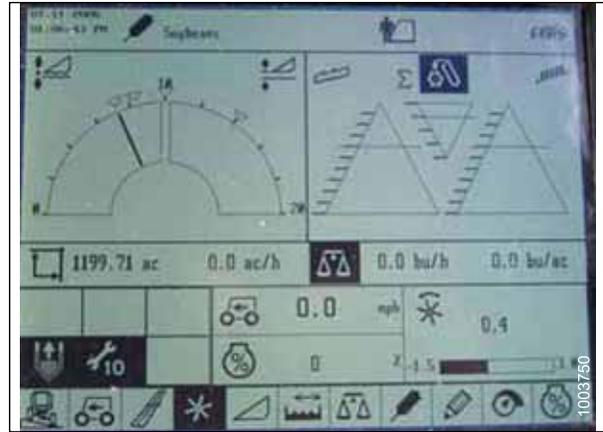


Figure 5.216: Combine Display

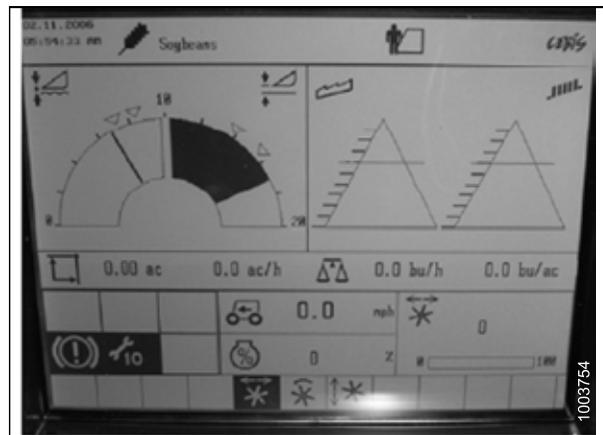


Figure 5.217: Combine Display

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

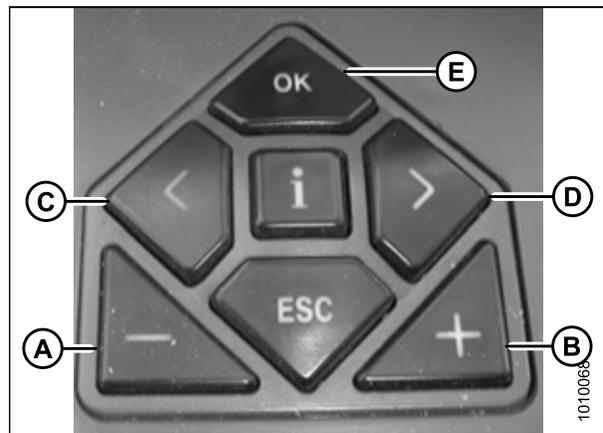


Figure 5.218: Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

Reel fore-aft position can also be set using joystick.

9. Press and hold button (C) or button (D) for 3 seconds to store setting into CEBIS (CLAAS Electronic on-Board Information System). An alarm will sound when new setting has been stored.

NOTE:

Whenever button (C) or button (D) is pressed for 3 seconds, current positions for reel speed and cutting height are stored.

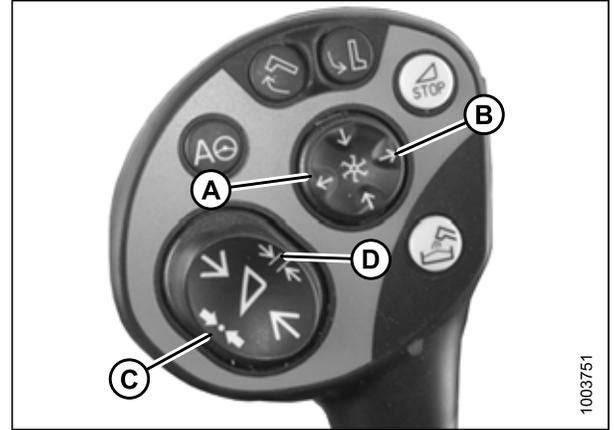


Figure 5.219: Joystick Buttons

5.1.13 CLAAS 700 Series Combines

This section applies to CLAAS 700 Series combines. Refer to [5.1.12 CLAAS 500 Series Combines, page 229](#) for CLAAS 500 Series.

Auto Header Height Sensor Voltage Requirements

The auto header height sensor output must be within a specific voltage range for the feature to work properly.

Combine	Lower Voltage Limit (+/- 0.2)	Upper Voltage Limit (+/- 0.2)	Minimum Range Difference
CLAAS 500/600/700 Series	0.7 V	4.3 V	2.5 V

Check sensor's output voltage range at float indicator according to the instructions that follow.

Checking Sensor's Output Voltage Range

The auto header height sensor output must be within a specific range for feature to work properly. To check sensor's output voltage range, follow these steps:

1. Position header 150 mm (6 in.) above ground, and rest it on safety props. Unlock adapter float.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

SETTING UP AUTO HEADER HEIGHT CONTROL

- The pointer (A) on float indicator should point at **0**. If it does not, adjust cable bracket (B) until pointer (A) on float indicator points to **0**.

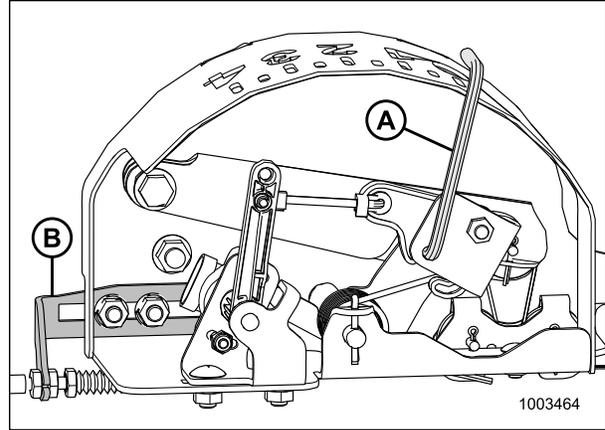


Figure 5.220: Float Indicator with Auto Header Height Sensor

- Measure voltage between ground and signal wires at AHC sensor in float indicator with a voltmeter (A).

NOTE:

The voltage reading should be below **4.3 V**.

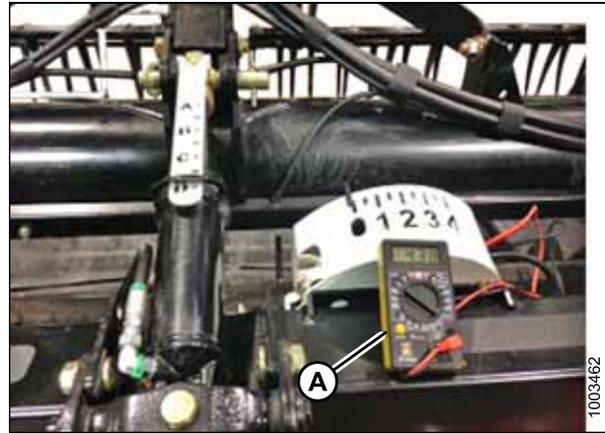


Figure 5.221: Float Indicator Reading 1 V

- Fully lower combine feeder house until adapter is no longer supporting header. The float indicator should read **4**.

NOTE:

You may need to hold **HEADER DOWN** switch for a few seconds to ensure feeder house is fully lowered.

- Measure voltage between ground and signal wires at AHC sensor in float indicator with a voltmeter (A). It should be at low voltage limit for combine – **0.7 V**.
- If sensor voltage is not within low and high limits, or if range between low and high limits is less than **3.0 V**, make adjustments according to [Adjusting Voltage Limits](#), page 243.

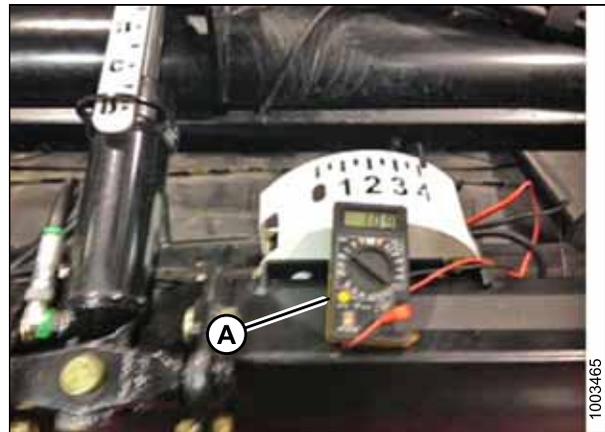


Figure 5.222: Float Indicator Reading 4.3 V

SETTING UP AUTO HEADER HEIGHT CONTROL

Adjusting Voltage Limits

1. To adjust high voltage limit:
 - a. Extend guard angle fully. Header angle indicator should be at **D**.
 - b. Position header 150–254 mm (6–10 in.) above ground. Float indicator should be at **0**.
 - c. Loosen sensor mounting bolts (A).
 - d. Slide sensor support (B) to right to increase high voltage limit, or to left to decrease it.
 - e. Tighten sensor mounting bolts (A).
2. To adjust low voltage limit:
 - a. Fully extend center-link, (i.e., increase header/guard angle to maximum). Header angle indicator should be at **D**.
 - b. Fully lower header to ground. Float indicator should be at **4**.
 - c. Loosen potentiometer mounting bolts (C).
 - d. Rotate potentiometer (D) clockwise to increase low voltage limit, or counterclockwise to decrease it.
 - e. Tighten potentiometer mounting bolts (C).
3. When readings are in proper range, auto header height control can be calibrated.

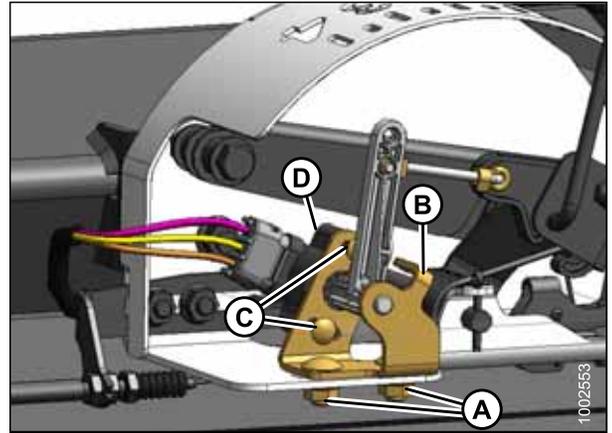


Figure 5.223: AHC Sensor Assembly

Calibrating Auto Header Height System

The calibration procedure determines limits of auto header height sensor.

Calibrate auto header height system after initial header installation, and after replacing or adjusting any component of auto header height system. If system does not function, calibrate it again.

Calibrating Auto Header Height Control (CLAAS 700 Series)

For best performance of the auto header height control (AHC), perform these procedures with center-link set to **D**. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

1. Ensure center-link is set to **D**.
2. Ensure that header float is unlocked.

SETTING UP AUTO HEADER HEIGHT CONTROL

3. To calibrate AUTO CONTOUR, use control knob (A) to scroll left and right in top row until AUTO CONTOUR icon (B) is highlighted. Press control knob (A) to select it.

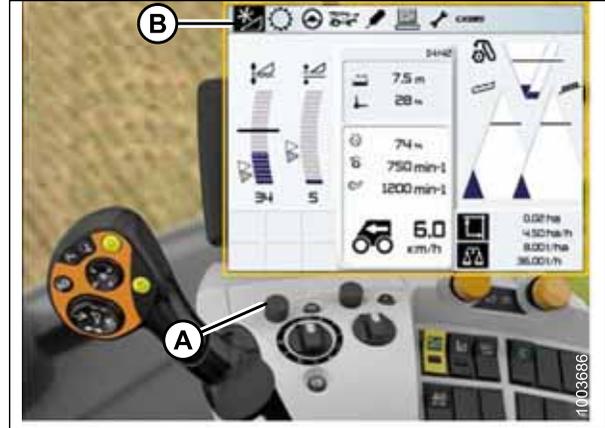


Figure 5.224: CLAAS Combine Display, Console, and Joystick

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



Figure 5.225: CLAAS Combine Display, Console, and Joystick

5. With letter A (A) highlighted, use control knob (B) to move to highlight icon that resembles a header with up and down arrows (C), and press control knob (B) to select it.

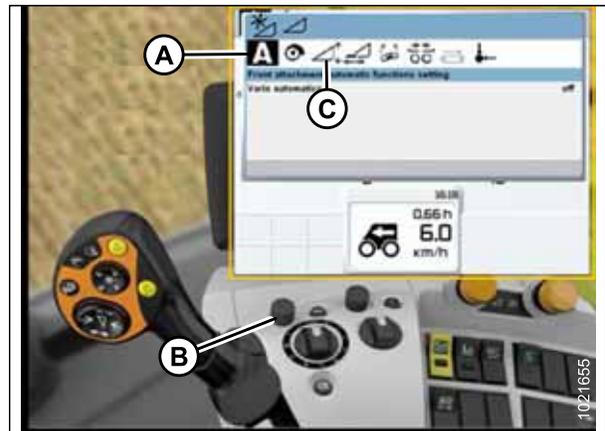


Figure 5.226: CLAAS Combine Display, Console, and Joystick

SETTING UP AUTO HEADER HEIGHT CONTROL

6. After pressing control knob, letter **A** and screwdriver icon (B) appear on screen (as shown).
7. Use control knob (A) to highlight the screwdriver icon (B).
8. Exit cab to engage combine separator and feeder house.
9. Press control knob (A) and a progress bar chart will appear.



Figure 5.227: CLAAS Combine Display, Console, and Joystick

10. Fully raise feeder house and progress bar chart will advance to 25% (A).
11. Fully lower feeder house until header stops moving. Header float should be unlocked. The progress bar chart will advance to 50%.
12. Fully raise feeder house a second time and progress bar chart will advance to 75%.
13. Fully lower feeder house until header stops moving, and progress bar chart will advance to 100%.



Figure 5.228: CLAAS Combine Display, Console, and Joystick

14. Once calibrations are complete, progress bar chart displays 100% (A).

NOTE:

At any time during calibration, if voltage is not within range of 0.5–4.5 volts, monitor will indicate that learning procedure has not concluded.

NOTE:

If header float is set too light, an error message will appear. If error message appears, back float off three full-turns of adjuster bolts to adjust float to approximately 45–55 kg (100–125 lb.).



Figure 5.229: CLAAS Combine Display, Console, and Joystick

SETTING UP AUTO HEADER HEIGHT CONTROL

Setting Cutting Height (CLAAS 700 Series)

To set cutting height, follow these steps.

CAUTION

Check to be sure all bystanders have cleared the area.

NOTE:

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

1. Lower header to desired cutting height or ground pressure setting. The float indicator (the white module on top of CA25 adapter) should be set to 1.5.

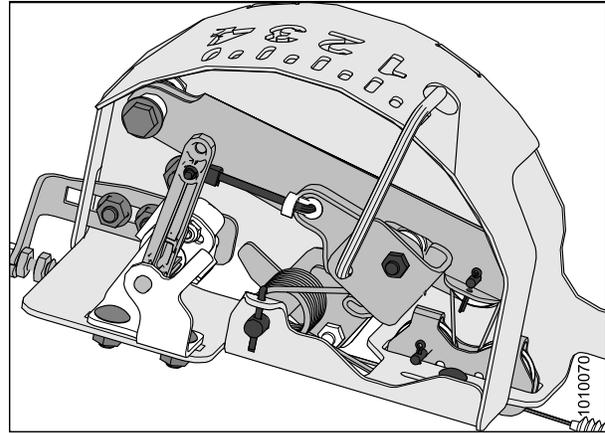


Figure 5.230: Float Indicator

2. Push and hold left side of header raise/lower switch (A) until you hear a ping.

NOTE:

Two different cutting heights can be programmed.



Figure 5.231: CLAAS Combine Display, Console, and Joystick

Setting Sensitivity of Auto Header Height Control (CLAAS 700 Series)

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

1. Use control knob (A) to highlight HEADER/REEL icon (B), and press control knob (A) to select it. The HEADER/REEL dialog box opens.
2. Select HEADER icon.

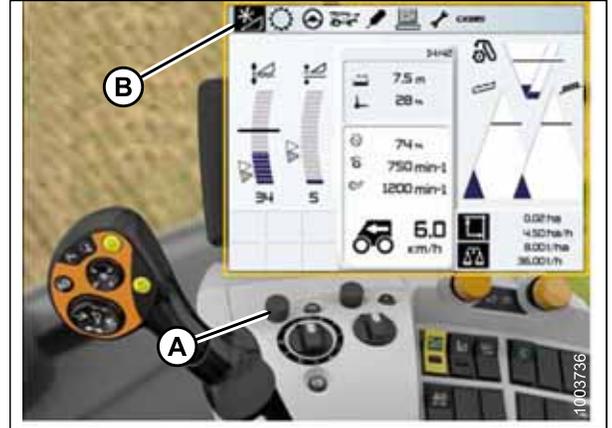


Figure 5.232: CLAAS Combine Display, Console, and Joystick Lever

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



Figure 5.233: CLAAS Combine Display, Console, and Joystick Lever

5. Select SENSITIVITY CAC icon (A).

NOTE:

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

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

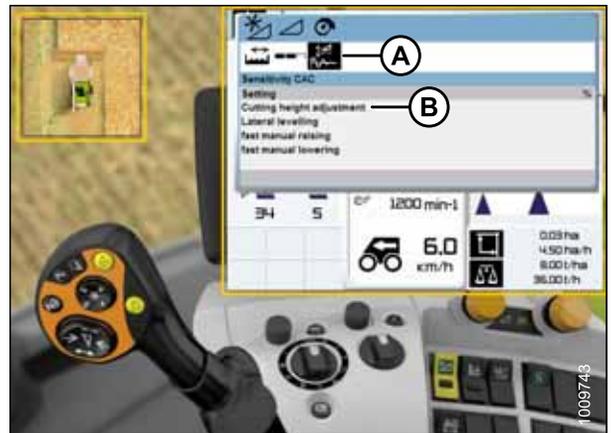


Figure 5.234: CLAAS Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

Adjusting Auto Reel Speed (CLAAS 700 Series)

Adjust auto reel speed as follows:

NOTE:

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

1. Turn control knob (A) to highlight HEADER/REEL icon (B), and press control knob (A) to select it. The HEADER/REEL dialog menu opens.

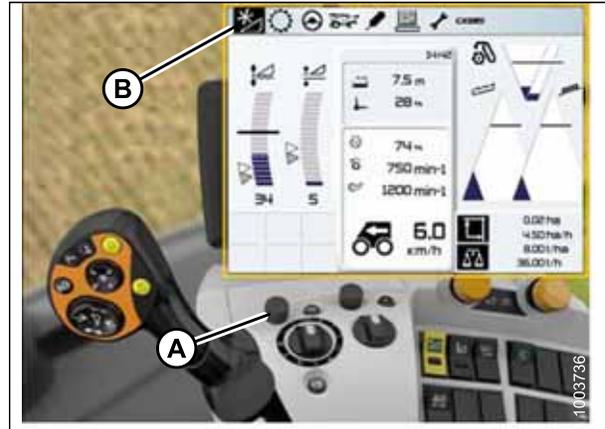


Figure 5.235: CLAAS Combine Display, Console, and Joystick

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



Figure 5.236: CLAAS Combine Display, Console, and Joystick

SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select ACTUAL VALUE (A) from AUTO REEL SPEED dialog menu (if you are using Auto Reel Speed). The ACTUAL VALUE indicates auto reel speed.



Figure 5.237: CLAAS Combine Display, Console, and Joystick

4. Use control knob (A) to change reel speed.



Figure 5.238: CLAAS Combine Display, Console, and Joystick

NOTE:

In most cases, ideal ground pressure is one number higher than value on float indicator with header off ground. For example, if float indicator needle (A) is positioned at 0 with header off ground, then ideal ground pressure will be achieved with needle positioned at 1. Operating with heavier pressures can wear cutterbar wearplate prematurely.

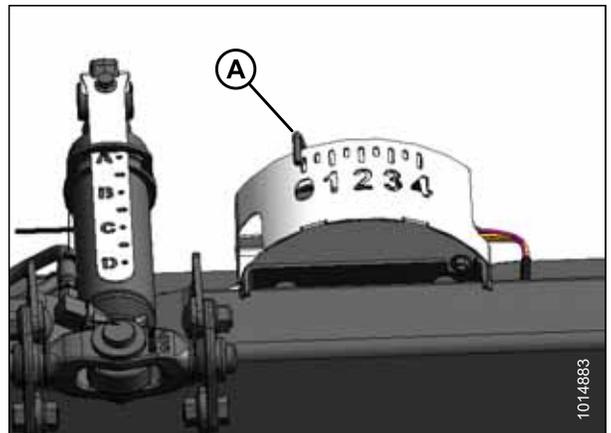


Figure 5.239: Float Indicator

SETTING UP AUTO HEADER HEIGHT CONTROL

5.1.14 New Holland Combines CX/CR Series (CR Series – Model Year 2014 and Earlier)

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [5.1.15 New Holland Combines \(CR Series – Model Year 2015 and Later\)](#), page 260.

Checking Voltage Range from Combine Cab (New Holland)

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

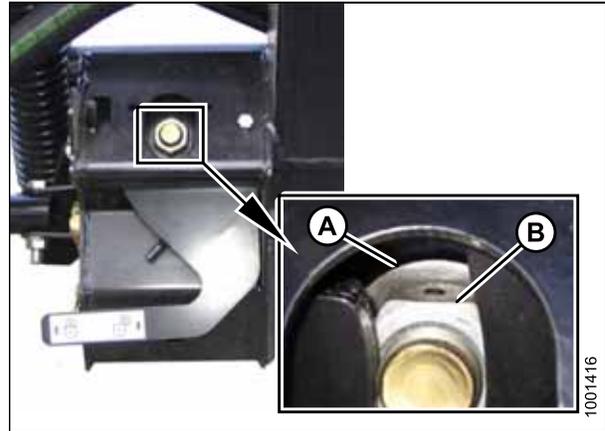


Figure 5.240: Float Lock

3. Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

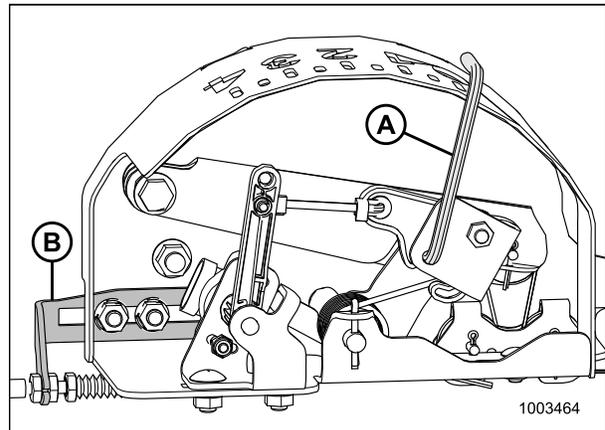


Figure 5.241: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

4. Ensure header float is unlocked.

SETTING UP AUTO HEADER HEIGHT CONTROL

5. Select DIAGNOSTICS (A) on main page. The DIAGNOSTICS page displays.
6. Select SETTINGS. The SETTINGS page displays.

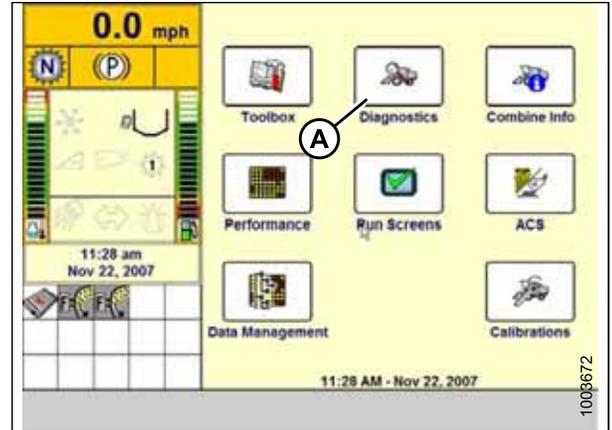


Figure 5.242: New Holland Combine Display

7. Select GROUP drop-down arrow (A). The GROUP dialog box displays.

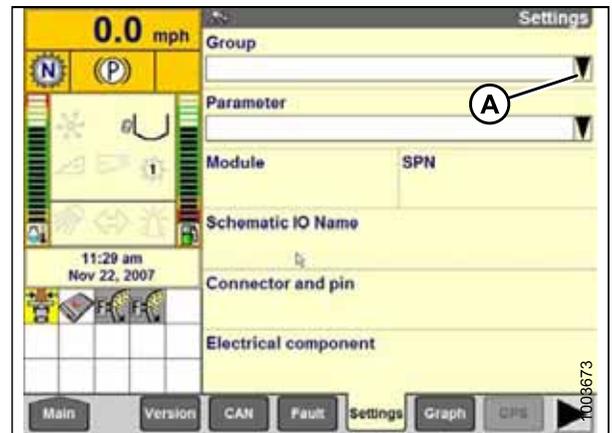


Figure 5.243: New Holland Combine Display

8. Select HEADER HEIGHT/TILT (A). The PARAMETER page displays.

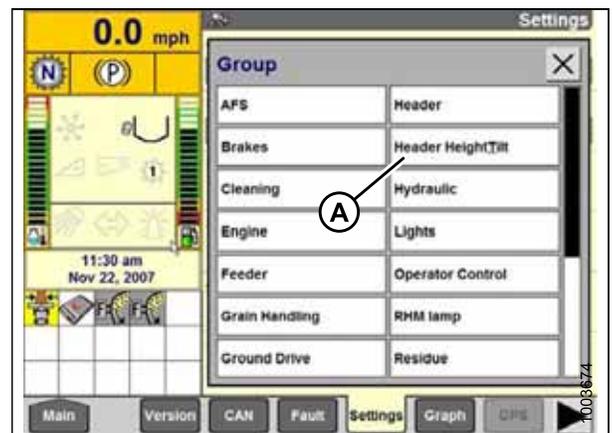


Figure 5.244: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

9. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage is displayed at top of page.
10. Raise and lower header to see full range of voltage readings.

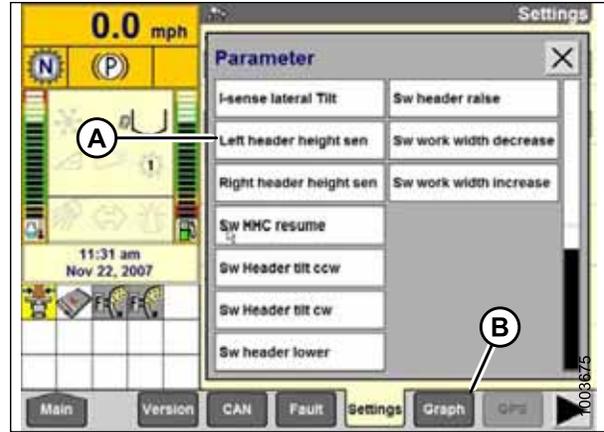


Figure 5.245: New Holland Combine Display

11. Adjust voltage limits (refer to [Adjusting Voltage Limits, page 142](#)) if sensor voltage is not within low and high limits or if range between low and high limits is insufficient (refer to [Table 5.1, page 140](#)).

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

NOTE:

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

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



Figure 5.246: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select HEADER AUTOFLOAT, and press ENTER.
4. Use up and down navigation keys to move between options, and select INSTALLED.

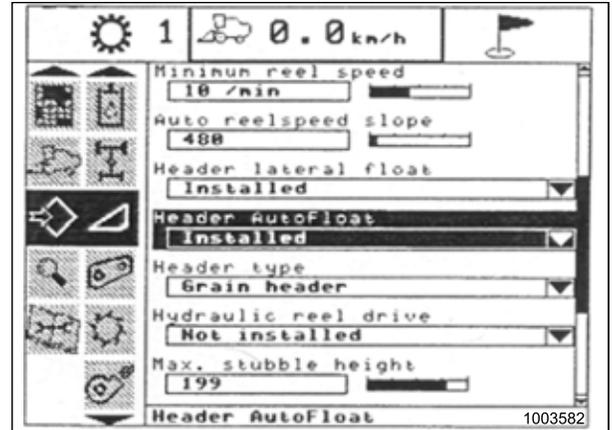


Figure 5.247: New Holland Combine Display

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

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

Check following conditions before starting header calibration procedure:

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

To calibrate the AHHC, follow these steps:

1. Select CALIBRATION on combine display, and press right arrow navigation key to enter information box.

SETTING UP AUTO HEADER HEIGHT CONTROL

2. Select HEADER (A), and press ENTER. The CALIBRATION dialog box opens.

NOTE:

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

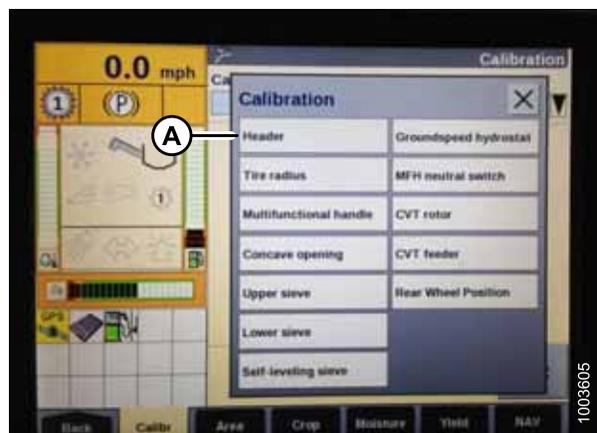


Figure 5.248: New Holland Combine Display

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

NOTE:

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

NOTE:

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



Figure 5.249: New Holland Combine Display

4. When all steps have been completed, CALIBRATION SUCCESSFUL message is displayed on page. Exit CALIBRATION menu by pressing ENTER or ESC key.

NOTE:

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

5. If unit does not function properly, conduct maximum stubble height calibration.

Calibrating Maximum Stubble Height

This procedure describes how to calibrate the area counter to stop or start counting at the correct height. Program header to a height that will never be reached while cutting. The area counter will stop counting when header is above programmed height, and will begin counting when header is below programmed height.

Select height of header that corresponds to description above.

IMPORTANT:

- If value is set too low, area may NOT be counted since header is sometimes raised above this threshold although combine is still cutting.
- If value is set too high, area counter will keep counting even when header is raised (but below this threshold) and combine is no longer cutting crop.

SETTING UP AUTO HEADER HEIGHT CONTROL

CAUTION

Check to be sure all bystanders have cleared the area.

1. Select MAXIMUM STUBBLE HEIGHT calibration dialog box. As you proceed through calibration process, display will automatically update to show next step.

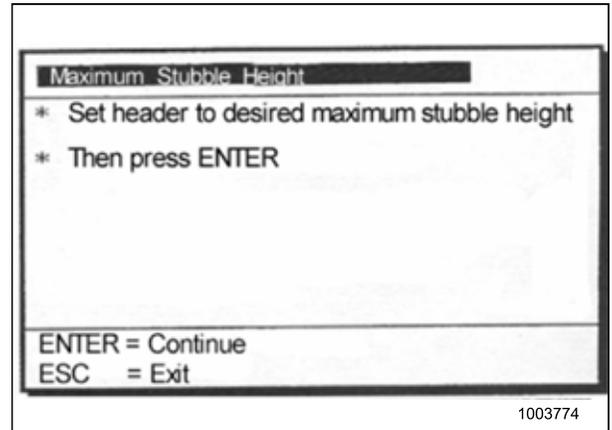


Figure 5.250: New Holland Calibration Dialog Box

2. Move header to correct position using header up or down control switch on multifunction handle.
3. Press ENTER to continue. As you proceed through calibration process, display will automatically update to show next step.
4. Press ENTER or ESC to close calibration page. The calibration is now complete.

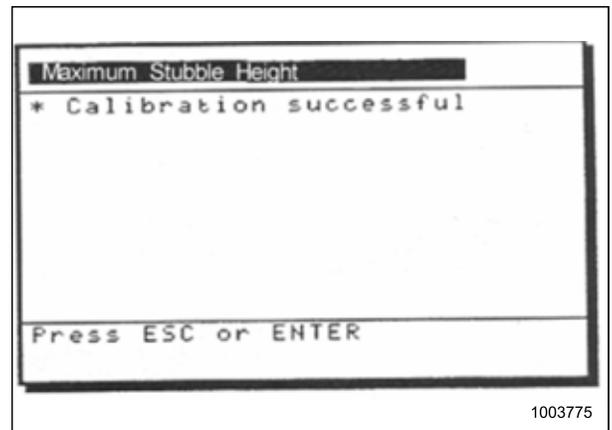


Figure 5.251: New Holland Calibration Dialog Box

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

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

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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

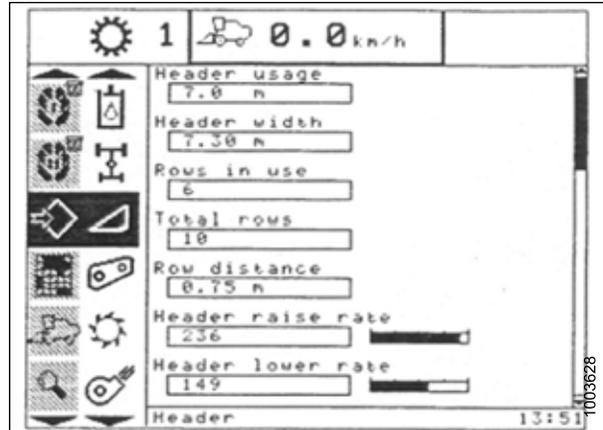


Figure 5.252: New Holland Combine Display

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

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

NOTE:

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

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

NOTE:

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

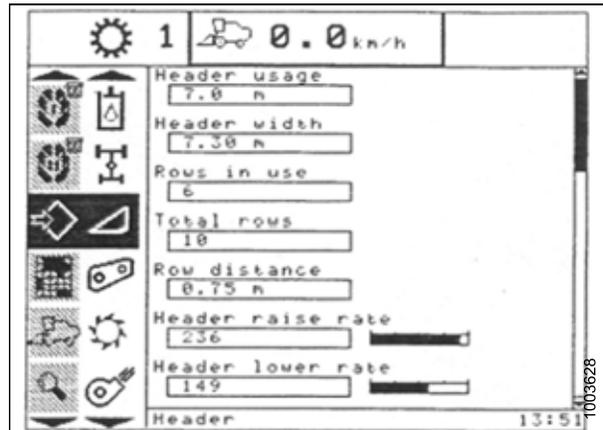


Figure 5.253: New Holland Combine Display

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

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

SETTING UP AUTO HEADER HEIGHT CONTROL

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

NOTE:

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



Figure 5.254: New Holland Combine Display

Setting Preset Cutting Height (New Holland CR/CX Series)

To set preset cutting height, follow these steps:

NOTE:

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

1. Engage threshing mechanism and feeder with switches (A) and (B).
2. Set HEADER MEMORY rocker switch (D) in STUBBLE HEIGHT/AUTOFLOAT MODE position (A) or (B).
3. Lower header to desired cutting height using HEADER HEIGHT AND HEADER LATERAL FLOAT rocker switch (C).
4. Press AUTOMATIC HEADER HEIGHT CONTROL button (E) for a minimum of two seconds to store height position. A beep will confirm setting.

NOTE:

It is possible to store two different header height values by using HEADER MEMORY rocker switch (D) in STUBBLE HEIGHT/AUTOFLOAT MODE position (A) or (B).

5. To change one of memorized header height set points while combine is in use, use HEADER HEIGHT AND HEADER LATERAL FLOAT rocker switch (C) (slow up/down) to raise or lower header to desired value. Press AUTOMATIC HEADER HEIGHT CONTROL button (E) for a minimum of 2 seconds to store new height position. A beep will confirm setting.

NOTE:

Do **NOT** press too hard on AUTOMATIC HEADER HEIGHT CONTROL button (E), or float mode will be disengaged.

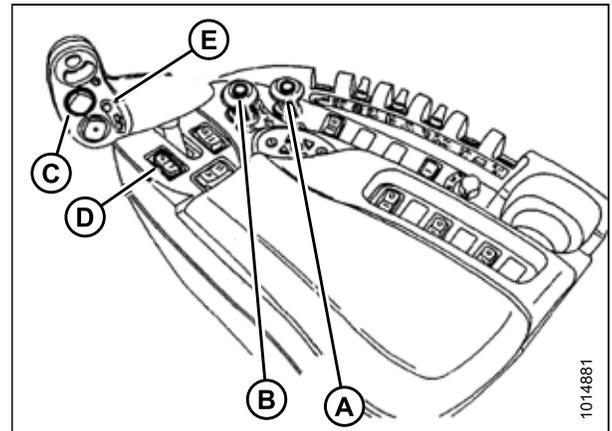


Figure 5.255: New Holland Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

It is not necessary to press rocker switch (D) again after adjusting.

NOTE:

The ideal ground pressure—in most cases—is one number (on float indicator box) above header suspended off ground. For example, if float indicator needle (A) is positioned at 0 with header suspended off ground, then ideal ground pressure will be achieved with needle positioned at 1. Operating with heavier pressures can wear cutterbar wearplate prematurely.

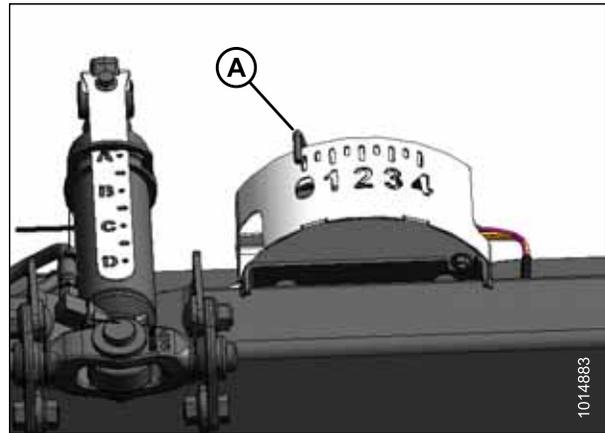


Figure 5.256: Float Indicator Box

Configuring Reel Fore-Aft, Header Tilt, and Header Type (New Holland CR Series)

This procedure applies only to 2016 New Holland CR models 6.90, 7.90, 8.90, and 9.90.

NOTE:

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

1. Simultaneously press both UNLOAD (A) and RESUME (B) buttons on hydro handle.

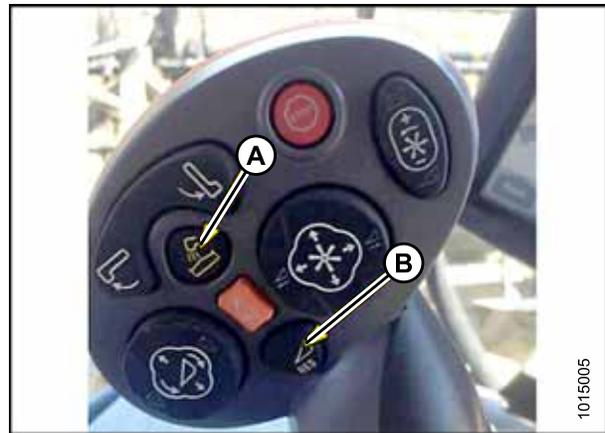


Figure 5.257: New Holland Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

2. On HEAD 1 page, change CUTTING TYPE from FLEX to PLATFORM as shown at (A).

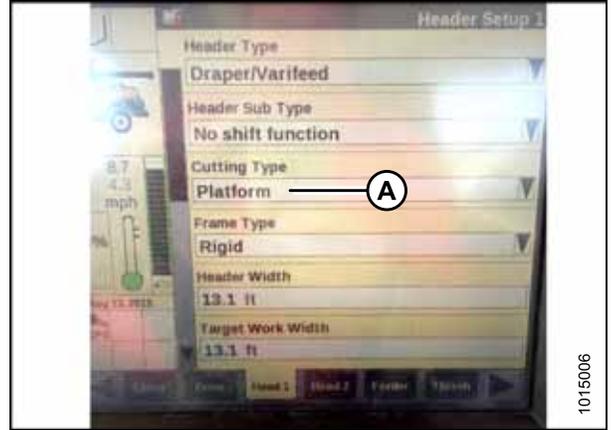


Figure 5.258: New Holland Combine Display

3. On HEAD 2 page, change HEADER SUB TYPE from DEFAULT to 80/90 as shown at (A).

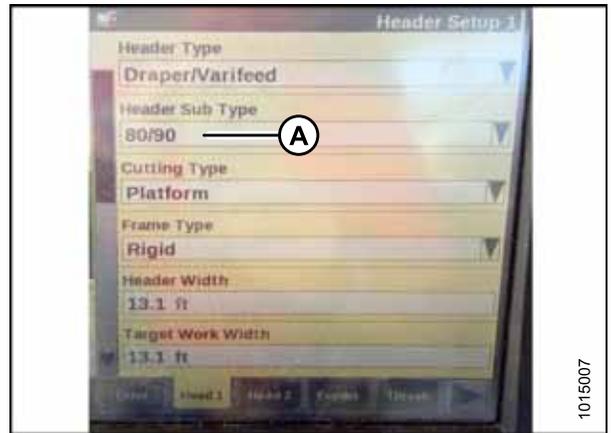


Figure 5.259: New Holland Combine Display

There are now two different buttons for ON GROUND presets. The toggle switch that was present on previous models is now configured as shown at right. MacDon headers only require first two buttons (A) and (B). The third button down (C) is not configured.

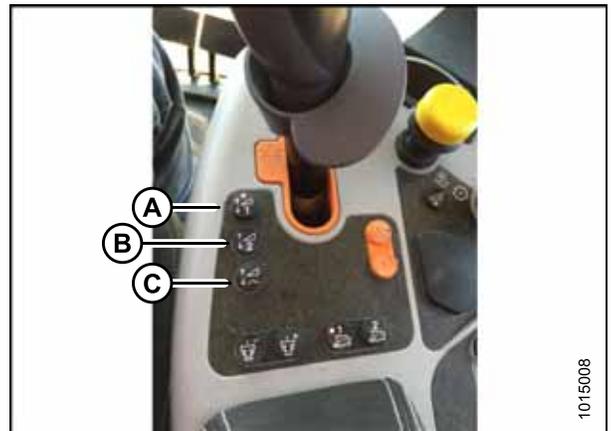


Figure 5.260: New Holland Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

5.1.15 New Holland Combines (CR Series – Model Year 2015 and Later)

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90). For other New Holland combine models, refer to [5.1.14 New Holland Combines CX/CR Series \(CR Series – Model Year 2014 and Earlier\)](#), page 250.

Engaging Auto Header Height Control (New Holland CR Series)

This procedure applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90).

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle.

NOTE:

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

1. Ensure center-link is set to D.
2. Select TOOLBOX (A) on main page. The TOOLBOX page displays.

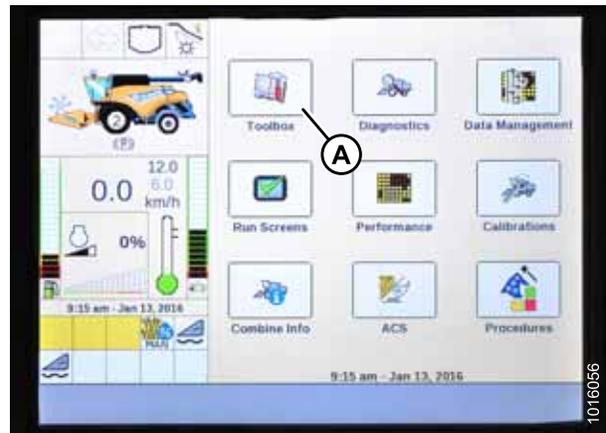


Figure 5.261: New Holland Combine Display

3. Simultaneously press both UNLOAD (A) and RESUME (B) buttons on hydro handle.



Figure 5.262: New Holland Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

4. Select HEAD 1 (A). The HEADER SETUP 1 page displays.
5. Select CUTTING TYPE drop-down arrow (B) and change CUTTING TYPE to PLATFORM (C).



Figure 5.263: New Holland Combine Display

6. Select HEADER SUB TYPE drop-down arrow (A). The HEADER SUB TYPE dialog box displays.



Figure 5.264: New Holland Combine Display

7. Select 80/90 (A).



Figure 5.265: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

8. Select HEAD 2 (A). The HEADER SETUP 2 page displays.



Figure 5.266: New Holland Combine Display

9. Select AUTOFLOAT drop-down arrow and set AUTOFLOAT to INSTALLED (A).
10. Select AUTO HEADER LIFT drop-down arrow and set AUTO HEADER LIFT to INSTALLED (B).

NOTE:

With AUTO HEADER LIFT installed and AHHC engaged, header will lift up automatically when you pull back on GSL.

11. Set values for MANUAL HHC RAISE RATE (C) and MANUAL HHC LOWER RATE (D) for best performance according to ground conditions.



Figure 5.267: New Holland Combine Display

12. Set values for HHC HEIGHT SENSITIVITY (A) and HHC TILT SENSITIVITY (B) for best performance according to ground conditions.



Figure 5.268: New Holland Combine Display

Checking Voltage Range from Combine Cab (New Holland CR Series)

NOTE:

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

SETTING UP AUTO HEADER HEIGHT CONTROL

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position header 150 mm (6 in.) above ground, and unlock adapter float.
2. Check that float lock linkage is on down stops (washer [A] and nut [B] cannot be moved) at both locations.

NOTE:

If header is not on down stops, float is too light. Readjust float if necessary.

NOTE:

If header is not on down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

3. Adjust cable take-up bracket (B) (if necessary) until pointer (A) on float indicator is on 0.

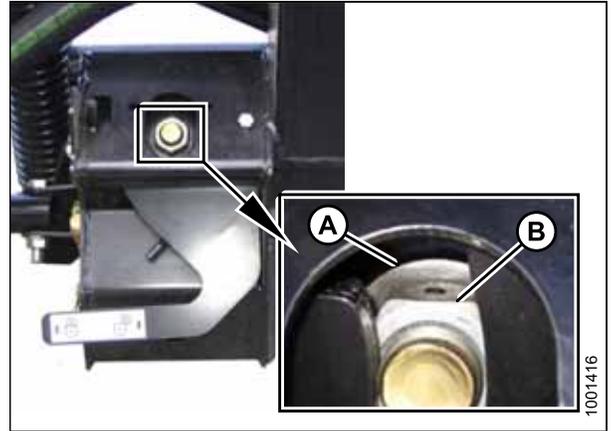


Figure 5.269: Float Lock

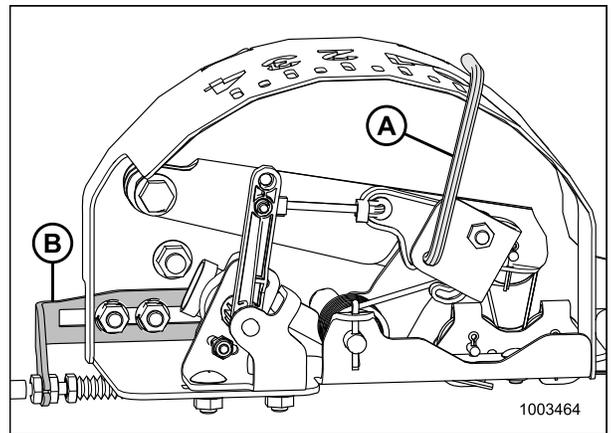


Figure 5.270: Float Indicator Box (Most Common 5 Volt AHHC Sensor Assembly Shown)

SETTING UP AUTO HEADER HEIGHT CONTROL

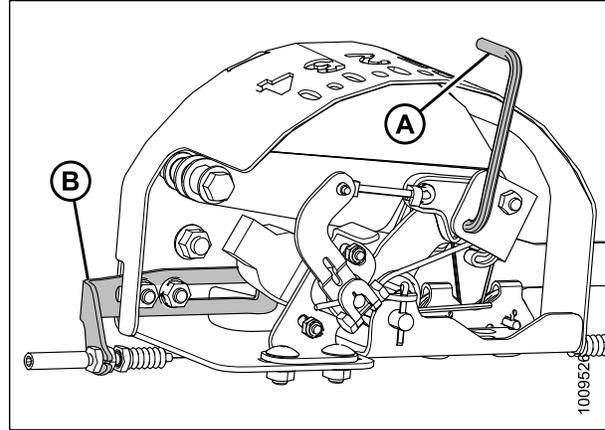


Figure 5.271: 10 Volt AHHC Sensor Assembly

4. Ensure header float is unlocked.
5. Select DIAGNOSTICS (A) on main page. The DIAGNOSTICS page displays.

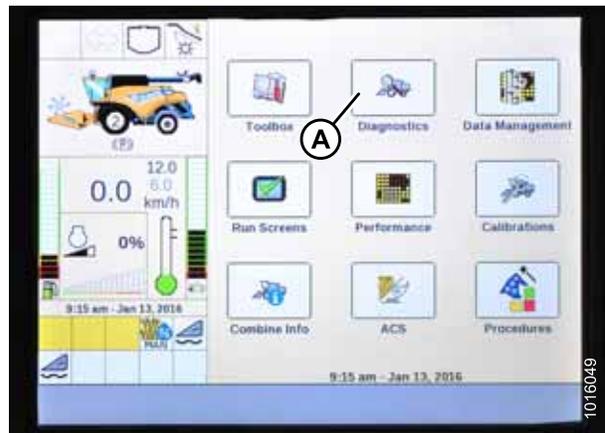


Figure 5.272: New Holland Combine Display

6. Select SETTINGS (A). The SETTINGS page displays.



Figure 5.273: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

7. Select HEADER HEIGHT/TILT (A) from GROUP drop-down menu.
8. Select HEADER HEIGHT SENS. L (B) from PARAMETER drop-down menu.

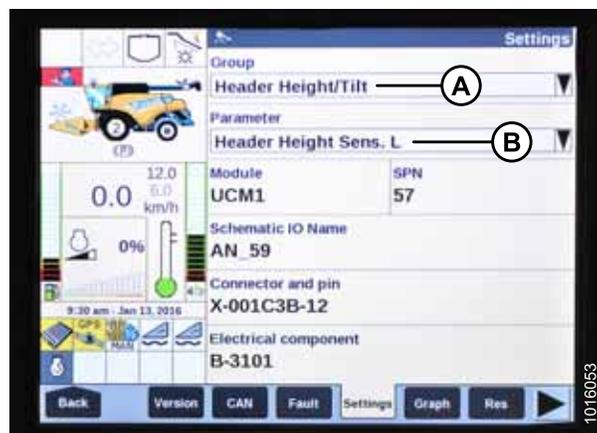


Figure 5.274: New Holland Combine Display

9. Select GRAPH (A). The exact voltage (B) is displayed at top of page.
10. Raise and lower header to see full range of voltage readings.
11. Adjust voltage limits (refer to [Adjusting Voltage Limits, page 142](#)) if sensor voltage is not within low and high limits or if range between low and high limits is insufficient (refer to [Table 5.1, page 140](#)).

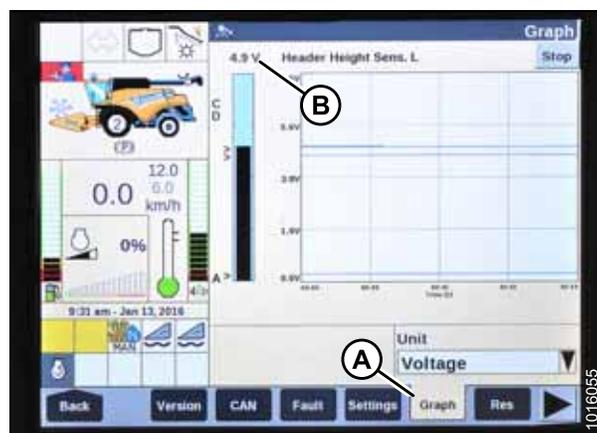


Figure 5.275: New Holland Combine Display

Calibrating Auto Header Height Control (New Holland CR Series)

For best performance of auto header height control (AHHC), perform these procedures with center-link set to D. When setup and calibration are complete, adjust center-link back to desired header angle. Refer to Header Angle in header operator's manual for instructions.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

Check following conditions before starting header calibration procedure:

- The header is attached to combine.
- The combine is on level ground, with header level to ground.
- The header is on down stops, and center-link is set to D.
- The engine is running.
- The combine is not moving.

SETTING UP AUTO HEADER HEIGHT CONTROL

- No faults have been received from Header Height Controller (HHC) module.
- Header/feeder is disengaged.
- Lateral float buttons are NOT pressed.
- ESC key is NOT pressed.

To calibrate AHHC, follow these steps:

1. Select CALIBRATIONS (A) on main page. The CALIBRATION page displays.

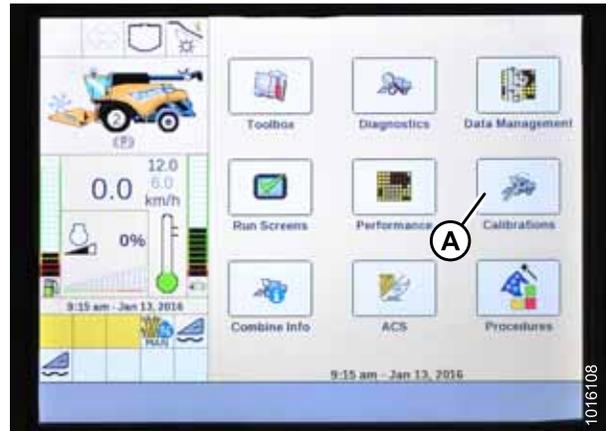


Figure 5.276: New Holland Combine Display

2. Select CALIBRATION drop-down arrow (A).



Figure 5.277: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select HEADER (A) from list of calibration options.



Figure 5.278: New Holland Combine Display

4. Follow calibration steps in order in which they appear on screen. As you proceed through calibration process, display will automatically update to show next step.

NOTE:

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

NOTE:

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



Figure 5.279: New Holland Combine Display

5. When all steps have been completed, CALIBRATION COMPLETED message is displayed on screen.

NOTE:

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



Figure 5.280: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

Setting Auto Height (New Holland CR Series)

This procedure applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90).

The console has two buttons used for auto height presets. The toggle switch that was present on previous models is now configured as shown at right. MacDon headers only require first two buttons (A) and (B). The third button (C) is not configured.

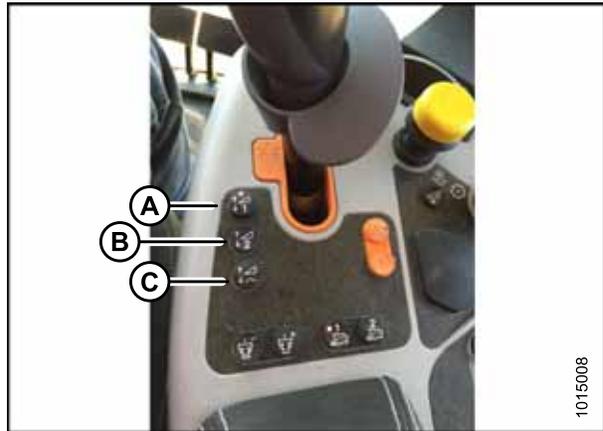


Figure 5.281: New Holland Combine Controls

To set auto height, follow these steps:

1. Engage separator and header.
2. Select RUN SCREENS (A) on main page.

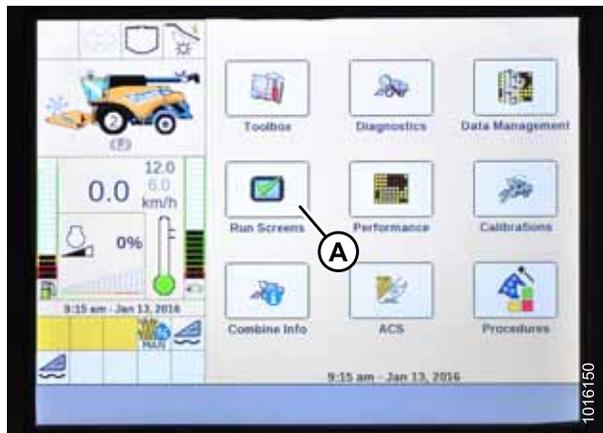


Figure 5.282: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select RUN tab that shows MANUAL HEIGHT.

NOTE:

The MANUAL HEIGHT field may appear on any of RUN tabs. When an auto height set point button is pressed, display will change to AUTO HEIGHT (A).

4. Lower header to ground.
5. Select one of auto height set point buttons shown in Figure 5.281, page 268.
 - Press SET 1 button for a light ground setting (1 on float indicator box)
 - Press SET 2 button for a heavier ground setting (2 on float indicator box)



Figure 5.283: New Holland Combine Display

Setting Maximum Work Height (New Holland CR Series)

This procedure applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90).

1. Select TOOLBOX (A) on main page. The TOOLBOX page displays.



Figure 5.284: New Holland Combine Display

2. Select FEEDER (A). The FEEDER SETUP page displays.
3. Select MAXIMUM WORK HEIGHT field (B).

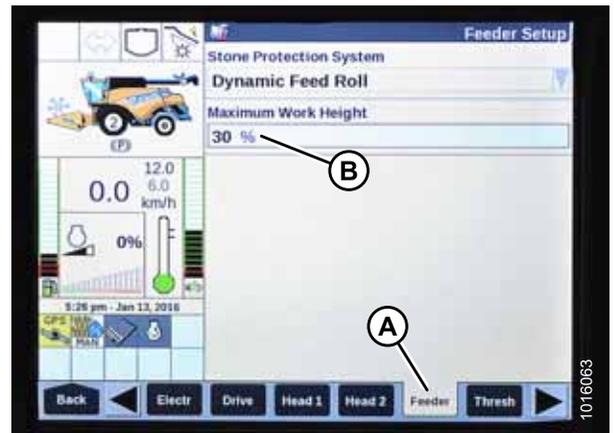


Figure 5.285: New Holland Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL

4. Set MAXIMUM WORK HEIGHT to desired value.
5. Press SET and then press ENTER.



Figure 5.286: New Holland Combine Display

5.1.16 Sensor Operation

The position sensors supplied with auto header height control (AHC) system are 1000 ohm (1 k) industrial series sensors containing sealed connectors. Normal operating signal voltages for sensors fall between 10% (0.5VDC) and 90% (4.5VDC).

- A sensor operating with a signal voltage **below 5%** is considered to be shorted
- A sensor with a signal voltage **above 95%** is considered to be open

An increase in sensor voltage correlates to an increase in header height.

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

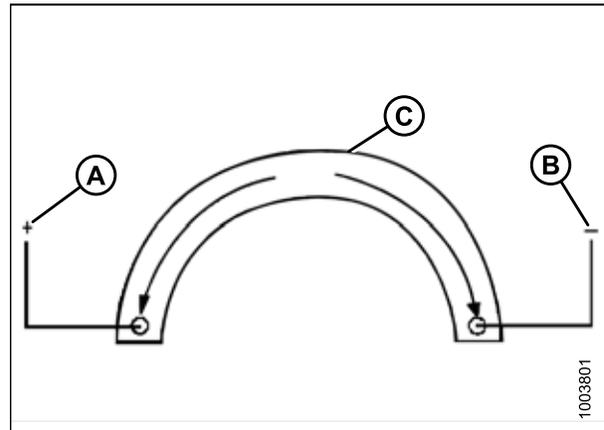


Figure 5.287: Power, Ground, and Signal Wires

SETTING UP AUTO HEADER HEIGHT CONTROL

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

The resistance measured across signal and ground wires should increase uniformly from a low 80–100 ohms (.08–0.1 k) to a high 800–1200 ohms (0.8–1.2 k). This can be observed if an ohm meter is connected across signal and power wires and sensor shaft rotated. When an input voltage is applied to high resistance filament band through power wire (A), output (or measured) voltage in signal wire (C) is changed by this variable resistance.

NOTE:

Ground and power wires may differ depending on combine.

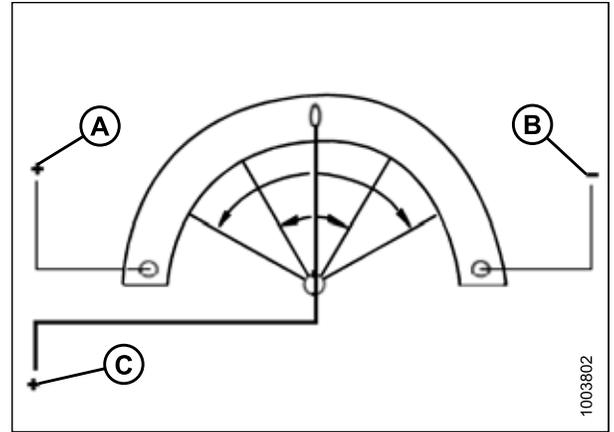


Figure 5.288: Power, Ground, and Signal Wires

6 Running up Header

To run up header, follow these steps:

DANGER

Engage header safety props and reel props before working under header or reel.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

CAUTION

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

1. Start combine, raise header fully, and engage header lift cylinder lock-out valves.
2. Stop engine and remove key.
3. Lower plastic pan under adapter and check for shipping materials/debris that may have fallen under adapter draper.
4. Rotate latches (A) to unlock handles (B).
5. Hold pan (C) and rotate handles (B) to release pan. Lower pan to expose draper.

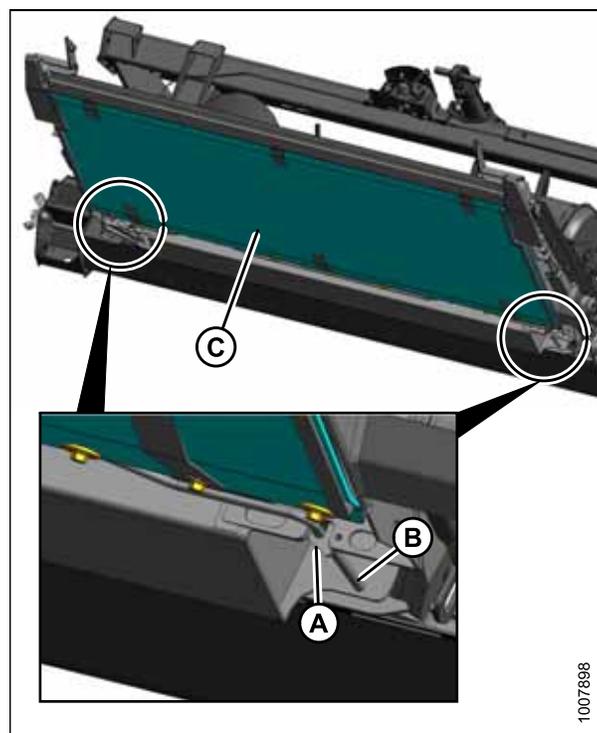


Figure 6.1: Adapter Plastic Pan

RUNNING UP HEADER

6. Check and remove debris from pan (A) and draper.

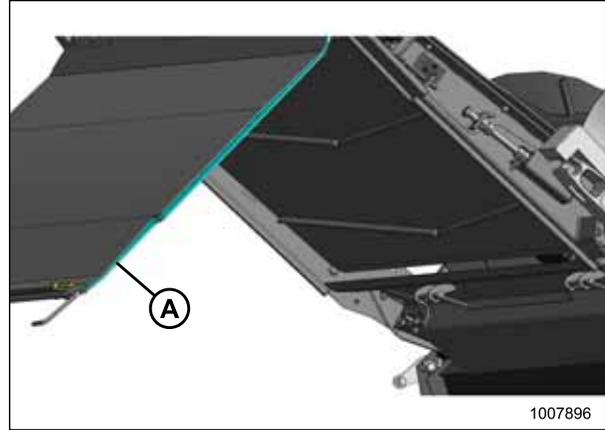


Figure 6.2: Adapter Plastic Pan

7. Raise pan and rotate handle (A) so that rod engages clips (B) on pan.

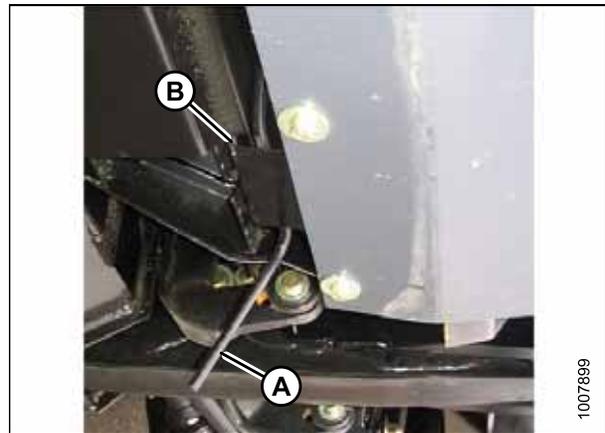


Figure 6.3: Clips Engaged

8. Push handle (B) into slot and secure it with latches (A).

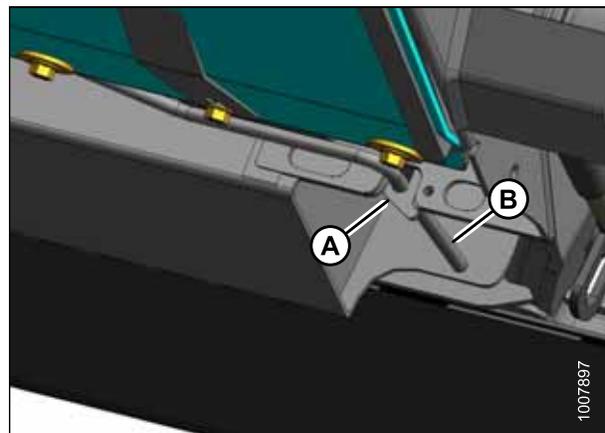


Figure 6.4: Latches Secured

RUNNING UP HEADER

9. Check that draper speed control (A) is set to **6** as shown. If required, turn knob until desired setting lines up with slot in panel.
10. Ensure feeder house variable speed is set to MINIMUM.

CAUTION

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

11. Open left endshield. Refer to [3.4.5 Opening Endshield](#), page 83
12. Start combine and run header slowly for five minutes while 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 lines.
13. Run header for an additional ten minutes at operating speed while watching and listening **FROM THE OPERATOR'S SEAT** for binding or interfering parts.
14. Have someone check rpm of knife drive box pulley (A) with a handheld tachometer.

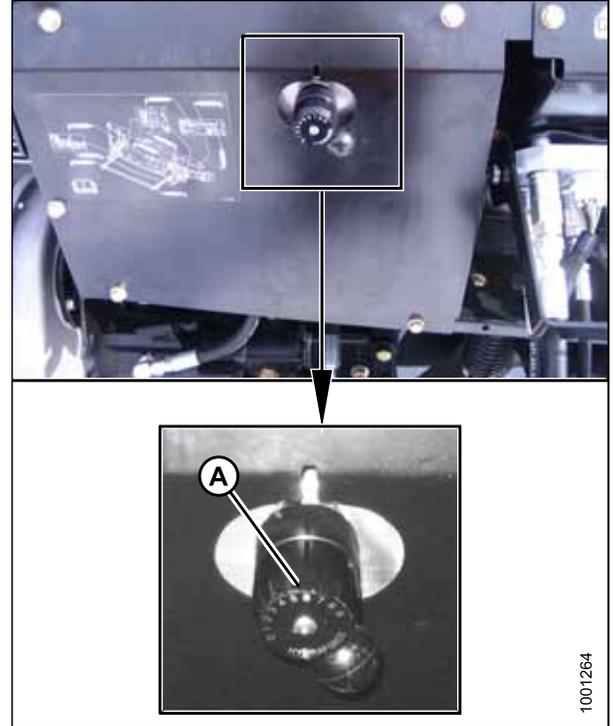


Figure 6.5: Draper Speed Control

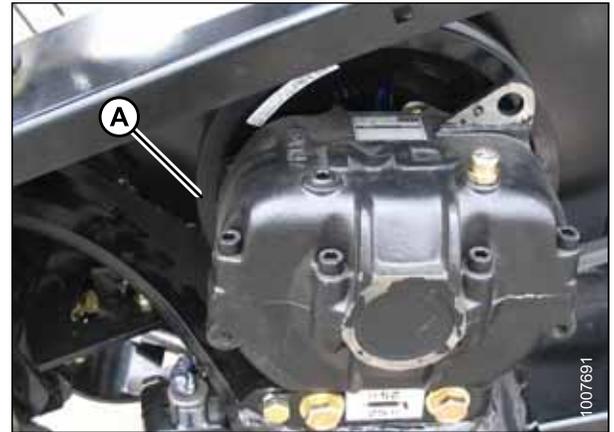


Figure 6.6: Knife Drive Box

15. Compare actual pulley rpm with values in following chart:

Table 6.1 Recommended Knife Drive Speed (rpm)

Header Size	Recommended Knife Drive Speed Range: Single Knife	Recommended Knife Drive Speed Range: Double Knife
30 foot	600–700 rpm	—
35 foot	550–650 rpm	
40 foot	525–600 rpm	550–700 rpm
45 foot	N/A	

RUNNING UP HEADER

The header knife drive is driven by the adapter-mounted hydraulic pump. The following speeds are factory-set for the combine feeder house:

- AGCO: 625 rpm (includes Challenger, Gleaner, and Massey Ferguson)
- Case: 580 rpm
- John Deere: 490 rpm
- CLAAS: 750 rpm (420 on combine display)
- New Holland: 580 rpm

IMPORTANT:

These are the **MINIMUM** speed settings for variable speed feeder houses. To avoid damage to the header, do **NOT** operate at speeds higher than the minimum speed settings.

16. If adjustment to knife drive box pulley rpm is necessary, refer to your combine operator's manual.
17. Perform run-up check as listed on Predelivery Checklist (yellow sheet attached to this instruction - [8 Predelivery Checklist, page 295](#)).

6.1 Performing Post Run-Up Adjustments

Perform post run-up check as listed on Predelivery Checklist. Refer to yellow sheet attached to this instruction to ensure machine is field-ready.

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

Some adjustments may be necessary after run-up. Refer to following:

- [6.1.1 Adjusting Knife and Guards, page 276](#)

6.1.1 Adjusting Knife and Guards

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before making adjustments to machine.

RUNNING UP HEADER

1. Stop engine and remove key.
2. Check guards for signs of heating during run-up due to insufficient clearance between guard and knife.
3. If heating is evident, check gap between knifehead (A) and pitman arm (B). A business card should slide easily through gap. If not, adjust gap by loosening bolt and tapping knifehead (A) with a hammer. Retighten bolt.

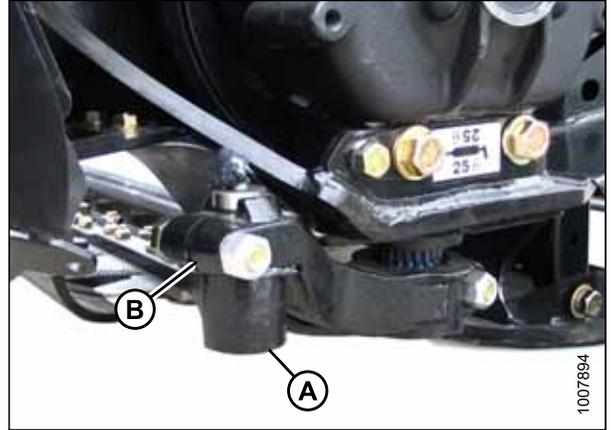


Figure 6.7: Knifehead and Pitman Arm

4. Adjust guard alignment as necessary using guard straightening tool (MD #140135). Adjust guard tips upwards by positioning tool as shown and pulling up.



Figure 6.8: Guard Tips – Upward Adjustment

5. Adjust guard tips downward by positioning tool as shown and pushing down.

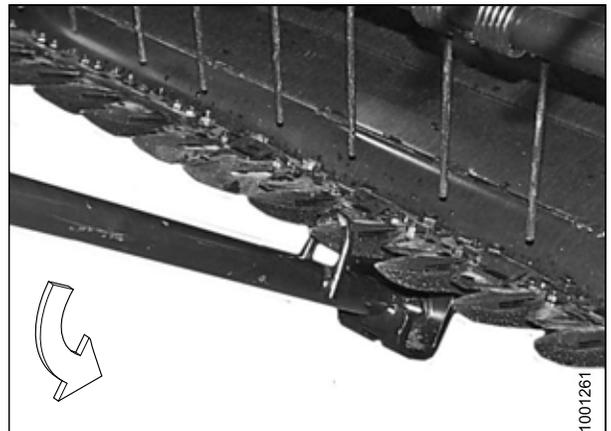


Figure 6.9: Guard Tips – Downward Adjustment

7 Reference

7.1 Torque Specifications

The following tables provide correct torque values for various bolts, cap screws, and hydraulic fittings.

- Tighten all bolts to torque values specified in charts (unless otherwise noted throughout this manual).
- Replace hardware with same strength and grade of bolt.
- Use torque value tables as a guide and periodically check tightness of bolts.
- Understand torque categories for bolts and cap screws by using their identifying head markings.

Jam nuts

When applying torque to finished jam nuts, multiply the torque applied to regular nuts by $f=0.65$.

Self-tapping screws

Standard torque is to be used (not to be used on critical or structurally important joints).

7.1.1 SAE Bolt Torque Specifications

Torque values shown in following tables 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 Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
1/4-20	11.9	13.2	*106	*117
5/16-18	24.6	27.1	*218	*241
3/8-16	44	48	32	36
7/16-14	70	77	52	57
1/2-13	106	118	79	87
9/16-12	153	170	114	126
5/8-11	212	234	157	173
3/4-10	380	420	281	311
7/8-9	606	669	449	496
1-8	825	912	611	676

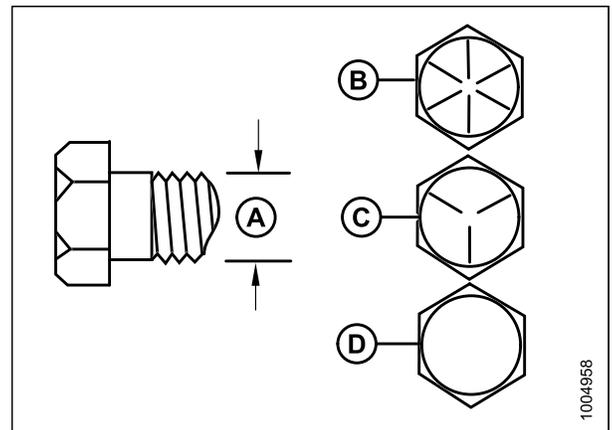


Figure 7.1: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

1004958

REFERENCE

Table 7.2 SAE Grade 5 Bolt and Grade F Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf-ft) (*lbf-in)	
	Min.	Max.	Min.	Max.
1/4-20	8.1	9	*72	*80
5/16-18	16.7	18.5	*149	*164
3/8-16	30	33	22	24
7/16-14	48	53	35	39
1/2-13	73	80	54	59
9/16-12	105	116	77	86
5/8-11	144	160	107	118
3/4-10	259	286	192	212
7/8-9	413	456	306	338
1-8	619	684	459	507

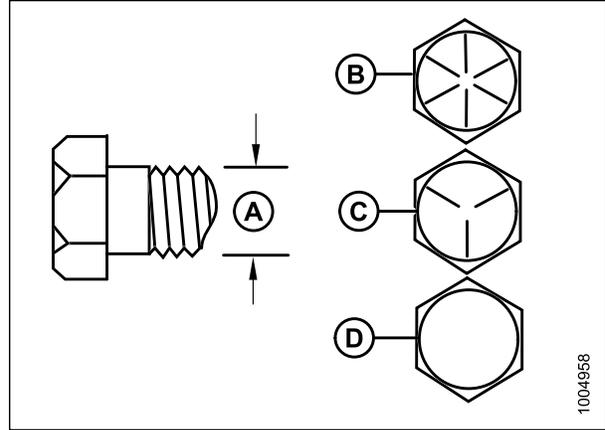


Figure 7.2: Bolt Grades

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

Table 7.3 SAE Grade 8 Bolt and Grade G Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf-ft) (*lbf-in)	
	Min.	Max.	Min.	Max.
1/4-20	16.8	18.6	*150	*165
5/16-18	24	26	18	19
3/8-16	42	46	31	34
7/16-14	67	74	50	55
1/2-13	102	113	76	84
9/16-12	148	163	109	121
5/8-11	204	225	151	167
3/4-10	362	400	268	296
7/8-9	583	644	432	477
1-8	874	966	647	716

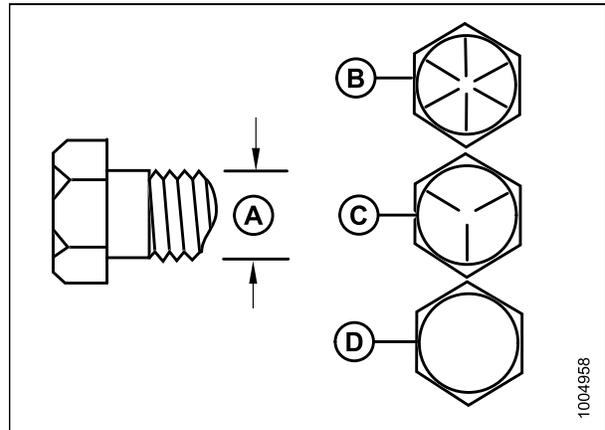


Figure 7.3: Bolt Grades

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

REFERENCE

Table 7.4 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
1/4-20	16.8	18.6	*150	*165
5/16-18	35	38	26	28
3/8-16	61	68	46	50
7/16-14	98	109	73	81
1/2-13	150	166	111	123
9/16-12	217	239	160	177
5/8-11	299	330	221	345
3/4-10	531	587	393	435
7/8-9	855	945	633	700
1-8	1165	1288	863	954

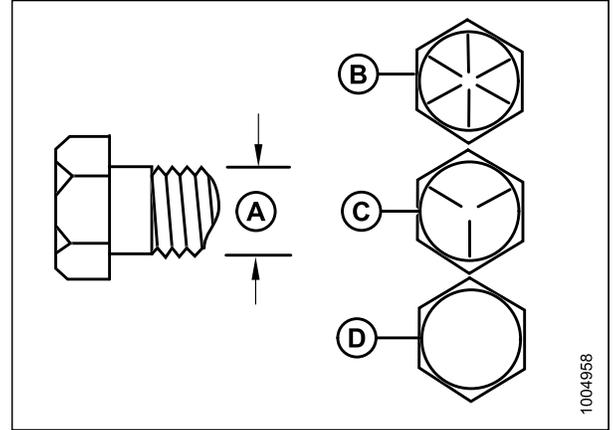


Figure 7.4: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

7.1.2 Metric Bolt Specifications

Table 7.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

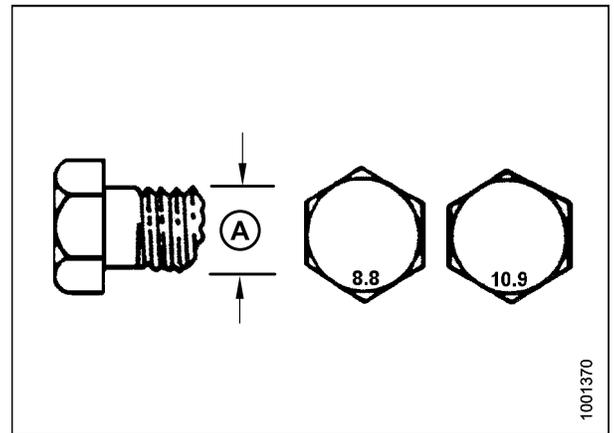


Figure 7.5: Bolt Grades

REFERENCE

Table 7.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

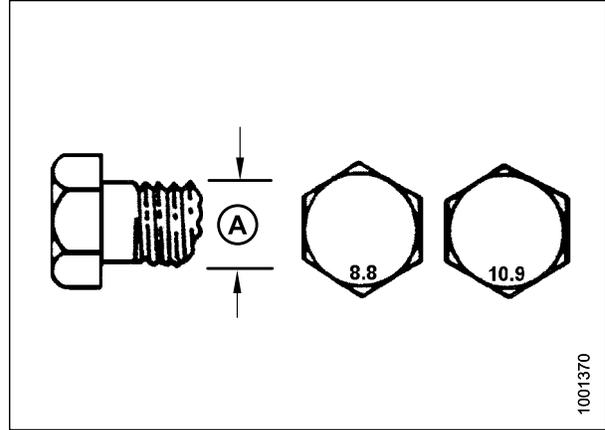


Figure 7.6: Bolt Grades

Table 7.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

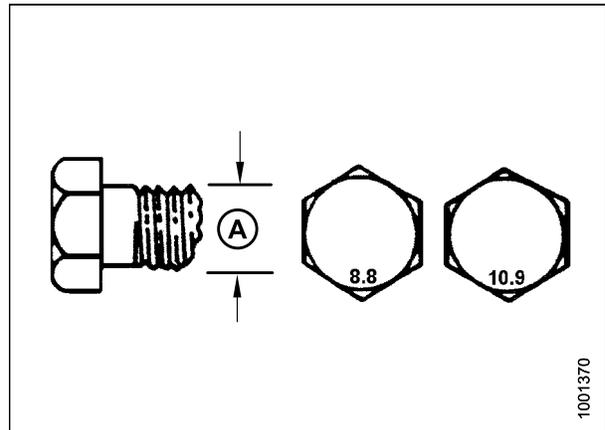


Figure 7.7: Bolt Grades

REFERENCE

Table 7.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

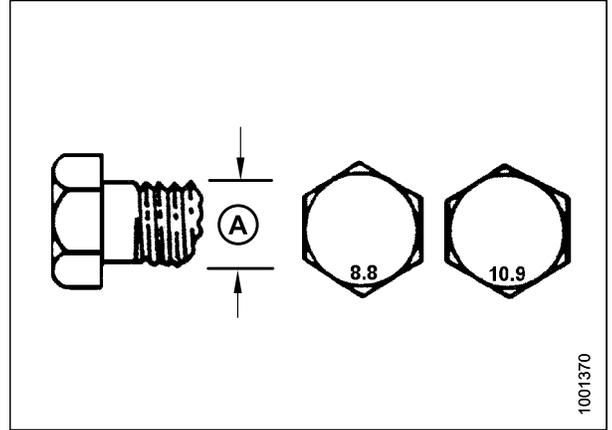


Figure 7.8: Bolt Grades

7.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

Table 7.9 Metric Bolt Bolting into Cast Aluminum

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

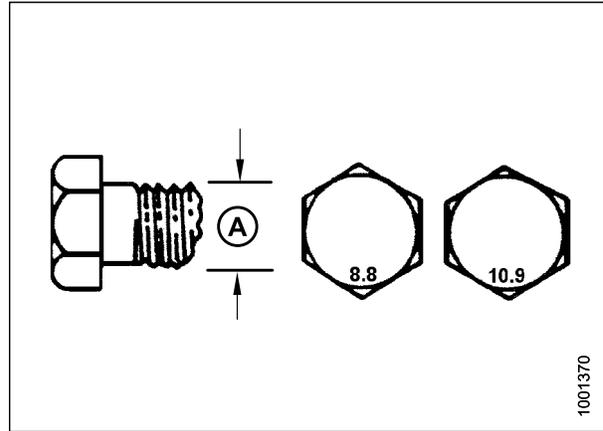


Figure 7.9: Bolt Grades

7.1.4 Flare-Type Hydraulic Fittings

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D) and thread nut (E) onto fitting without lubrication until contact has been made between flared surfaces.
3. Torque fitting nut (E) to specified number of flats from finger tight (FFFT) or to a given torque value in Table 7.10, page 284.
4. Use two wrenches to prevent fitting (D) from rotating. Place one wrench on fitting body (D), and tighten nut (E) with other wrench to torque shown.
5. Assess final condition of connection.

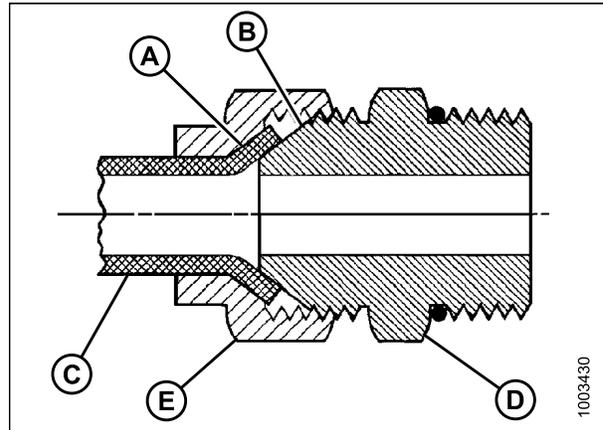


Figure 7.10: Hydraulic Fitting

Table 7.10 Flare-Type Hydraulic Tube Fittings

SAE Dash Size	Thread Size (in.)	Torque Value ²		Flats from Finger Tight (FFFT)	
		Nm	lbf-ft	Tube	Swivel Nut or Hose
-2	5/16–24	4–5	3–4	—	—
-3	3/8–24	7–8	5–6	—	—
-4	7/16–20	18–19	13–14	2-1/2	2
-5	1/2–20	19–21	14–15	2	2

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

REFERENCE

Table 7.10 Flare-Type Hydraulic Tube Fittings (continued)

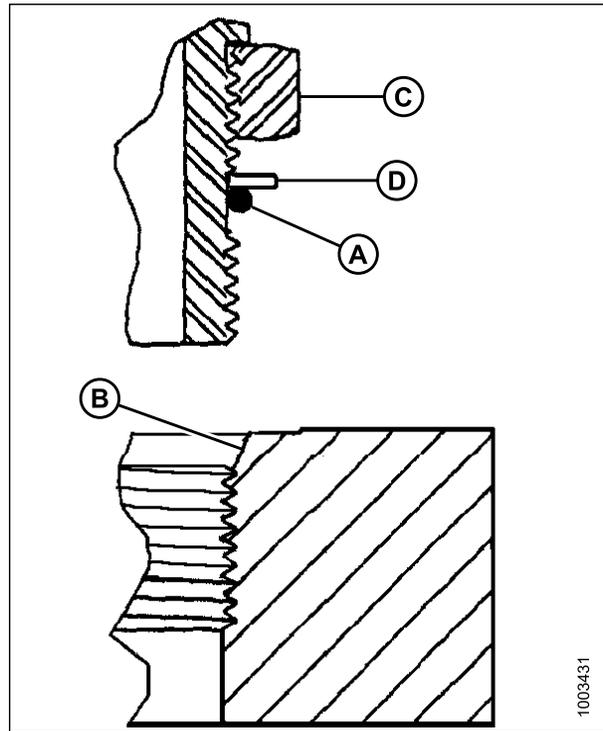
SAE Dash Size	Thread Size (in.)	Torque Value ³		Flats from Finger Tight (FFFT)	
		Nm	lbf-ft	Tube	Swivel Nut or Hose
-6	9/16-18	30-33	22-24	2	1-1/2
-8	3/4-16	57-63	42-46	2	1-1/2
-10	7/8-14	81-89	60-66	1-1/2	1-1/2
-12	1-1/16-12	113-124	83-91	1-1/2	1-1/4
-14	1-3/16-12	136-149	100-110	1-1/2	1-1/4
-16	1-5/16-12	160-176	118-130	1-1/2	1
-20	1-5/8-12	228-250	168-184	1	1
-24	1-7/8-12	264-291	195-215	1	1
-32	2-1/2-12	359-395	265-291	1	1
-40	3-12	—	—	1	1

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

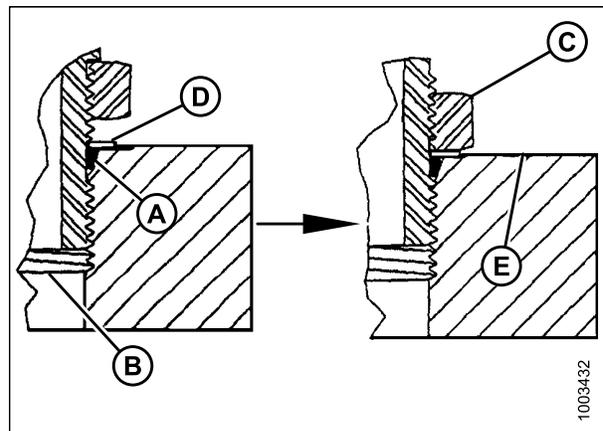
REFERENCE

7.1.5 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Back off lock nut (C) as far as possible. Ensure that washer (D) is loose and is pushed toward lock nut (C) as far as possible.
3. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
4. Apply hydraulic system oil to O-ring (A).



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



REFERENCE

Table 7.11 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ⁴	
		Nm	lbf·ft (*lbf·in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1-1/16-12	120-132	88-97
-14	1-3/8-12	153-168	113-124
-16	1-5/16-12	176-193	130-142
-20	1-5/8-12	221-243	163-179
-24	1-7/8-12	270-298	199-220
-32	2-1/2-12	332-365	245-269

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

REFERENCE

7.1.6 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
3. Apply hydraulic system oil to O-ring.
4. Install fitting (C) into port until fitting is hand-tight.
5. Torque fitting (C) according to values in Table 7.12, page 288.
6. Check final condition of fitting.

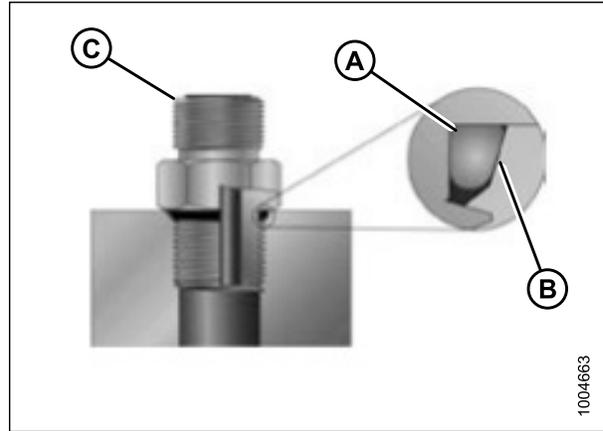


Figure 7.13: Hydraulic Fitting

Table 7.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ⁵	
		Nm	lbf·ft (*lbf·in)
-2	5/16–24	6–7	*53–62
-3	3/8–24	12–13	*106–115
-4	7/16–20	19–21	14–15
-5	1/2–20	21–33	15–24
-6	9/16–18	26–29	19–21
-8	3/4–16	46–50	34–37
-10	7/8–14	75–82	55–60
-12	1-1/16–12	120–132	88–97
-14	1-3/8–12	153–168	113–124
-16	1-5/16–12	176–193	130–142
-20	1-5/8–12	221–243	163–179
-24	1-7/8–12	270–298	199–220
-32	2-1/2–12	332–365	245–269

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

REFERENCE

7.1.7 O-Ring Face Seal (ORFS) Hydraulic Fittings

1. Check components to ensure that sealing surfaces and fitting threads are free of burrs, nicks, scratches, or any foreign material.



Figure 7.14: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align tube or hose assembly so that flat face of sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fittings according to values in Table 7.13, page 289.

NOTE:

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

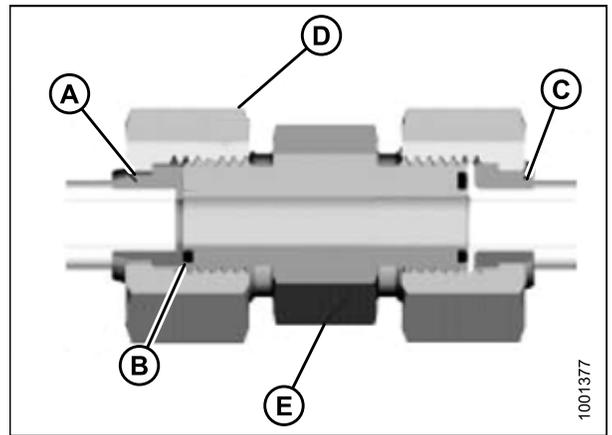


Figure 7.15: Hydraulic Fitting

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

Table 7.13 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ⁶	
			Nm	lbf-ft
-3	Note ⁷	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note ⁷	5/16	–	–
-6	11/16	3/8	40–44	29–32
-8	13/16	1/2	55–61	41–45
-10	1	5/8	80–88	59–65
-12	1-3/16	3/4	115–127	85–94

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

REFERENCE

Table 7.13 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ⁸	
			Nm	lbf-ft
-14	Note ⁷	7/8	–	–
-16	1-7/16	1	150–165	111–122
-20	1-11/16	1-1/4	205–226	151–167
-24	1–2	1-1/2	315–347	232–256
-32	2-1/2	2	510–561	376–414

7.1.8 Tapered Pipe Thread Fittings

Assemble pipe fittings as follows:

1. Check components to ensure that fitting and port threads are free of burrs, nicks and scratches, or any form of contamination.
2. Apply pipe thread sealant (paste type) to external pipe threads.
3. Thread fitting into port until hand-tight.
4. Torque connector to appropriate torque angle. The Turns From Finger Tight (T.F.F.T.) values are shown in Table 7.14, page 290. Make sure that tube end of a shaped connector (typically 45° or 90°) is aligned to receive incoming tube or hose assembly. Always finish alignment of fitting in tightening direction. Never back off (loosen) pipe threaded connectors to achieve alignment.
5. Clean all residue and any excess thread conditioner with appropriate cleaner.
6. Assess final condition of fitting. Pay special attention to possibility of cracks to port opening.
7. Mark final position of fitting. If a fitting leaks, disassemble fitting and check for damage.

NOTE:

Overtorque failure of fittings may not be evident until fittings are disassembled.

Table 7.14 Hydraulic Fitting Pipe Thread

Tapered Pipe Thread Size	Recommended T.F.F.T.	Recommended F.F.F.T.
1/8–27	2–3	12–18
1/4–18	2–3	12–18
3/8–18	2–3	12–18
1/2–14	2–3	12–18
3/4–14	1.5–2.5	12–18
1–11 1/2	1.5–2.5	9–15
1 1/4–11 1/2	1.5–2.5	9–15
1 1/2–11 1/2	1.5–2.5	9–15
2–11 1/2	1.5–2.5	9–15

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

REFERENCE

7.2 Conversion Chart

Table 7.15 Conversion Chart

Quantity	SI Units (Metric)		Factor	Inch-Pound Units	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	hectares	ha	x 2.4710 =	acres	acres
Flow	liters per minute	L/min	x 0.2642 =	US gallons per minute	gpm
Force	Newtons	N	x 0.2248 =	pounds force	lbf
Length	millimeters	mm	x 0.0394 =	inch	in.
	meters	m	x 3.2808 =	foot	ft.
Power	kilowatts	kW	x 1.341 =	horsepower	hp
Pressure	kilopascals	kPa	x 0.145 =	pounds per square inch	psi
	megapascals	MPa	x 145.038 =		
	bar (Non-SI)	bar	x 14.5038 =		
Torque	Newton meters	Nm	x 0.7376 =	pound feet or foot pounds	lbf·ft
	Newton meters	Nm	x 8.8507 =	pound inches or inch pounds	lbf·in
Temperature	Celsius	°C	(°C x 1.8) + 32 =	degrees Fahrenheit	°F
Velocity	meters per minute	m/min	x 3.2808 =	feet per minute	ft/min
	meters per second	m/s	x 3.2808 =	feet per second	ft/s
	kilometers per hour	km/h	x 0.6214 =	miles per hour	mph
Volume	liters	L	x 0.2642 =	US gallons	US gal
	milliliters	ml	x 0.0338 =	ounces	oz.
	cubic centimeters	cm ³ or cc	x 0.061 =	cubic inches	in. ³
Weight	kilograms	kg	x 2.2046 =	pounds	lb.

REFERENCE

7.3 Definitions

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

Term	Definition
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut
Center-link	A hydraulic cylinder link between header and machine used to change header angle
CGVW	Combined vehicle gross weight
DWA	Double Windrow Attachment
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other, and fitting has been tightened to a point where fitting is no longer loose
FFFT	Flats from finger tight
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Header	A machine that cuts crop and feeds it into an attached combine
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive); also known as an Allen key and various other synonyms
hp	Horsepower
ISC	Intermediate Speed Control
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
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
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict 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 into a mating part
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time

REFERENCE

Term	Definition
Truck	A four-wheel highway/road vehicle weighing no less than 3400 kg (7500 lb.)
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)
TFFT	Turns from finger tight
Torque	The product of a force X lever arm length, usually measured in Newton-meters (Nm) or foot-pounds (lbf-ft)
Torque angle	A tightening procedure where fitting is assembled to a precondition (finger tight) and then nut is turned farther a number of degrees to achieve its final position
Torque-tension	The relationship between assembly torque applied to a piece of hardware and axial load it induces in bolt or screw
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or a locking mechanism

8 Predelivery Checklist

Perform these checks and adjustments prior to delivery to your Customer. Adjustments are normally not required as the machine is factory-assembled and adjusted. If adjustments are required, refer to the appropriate page number in this manual. The completed checklist should be retained by either Operator or Dealer.

CAUTION

Carefully follow the instructions given. Be alert for safety related messages that bring your attention to hazards and unsafe practices.

Header Serial Number:

Adapter Serial Number:

Table 8.1 Model FD75 FlexDraper®/CA25 Combine Adapter Predelivery Checklist – North America

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping material is removed.	—
	Check for loose hardware. Tighten to required torque.	<i>7.1 Torque Specifications, page 279</i>
	Check tire pressure (Transport/Stabilizer Option).	<i>4.1 Checking Transport/Stabilizer Tire Pressure, page 89</i>
	Check wheel bolt torque (Transport/Stabilizer Option).	<i>4.2 Checking Wheel Bolt Torque, page 90</i>
	Check knife drive box breather position.	<i>4.3 Checking Knife Drive Box, page 91</i>
	Check knife drive box lube level.	<i>4.3 Checking Knife Drive Box, page 91</i>
	Check adapter gearbox lube level.	<i>4.4 Checking Oil Level in Header Drive Gearbox, page 92</i>
	Check hydraulic reservoir lube level before and after run-up.	<i>4.5 Checking Oil Level in Hydraulic Reservoir, page 93</i>
	Check knife drive belt(s) tension.	<i>4.6 Checking and Adjusting Non-Timed Knife Drive Belt Tension, page 94</i>
	Check if reel is centered between header endsheets (with header in full smile).	<i>4.8 Centering Reel, page 97</i>
	Check reel tine to cutterbar clearance.	<i>4.9.1 Measuring Reel Clearance, page 98</i>
	Check feed draper tension.	<i>4.14 Checking and Adjusting Feed Draper Tension, page 121</i>
	Check side draper tension.	<i>4.15 Checking and Adjusting Side Draper Tension, page 122</i>
	Check draper seal.	<i>4.17 Checking Draper Seal, page 126</i>
	Check header levelness.	<i>4.10 Checking and Adjusting Header Levelness, page 103</i>

PREDELIVERY CHECKLIST

Table 8.1 Model FD75 FlexDraper®/CA25 Combine Adapter Predelivery Checklist – North America (continued)

✓	Item	Reference
	Check header float. IMPORTANT: Install all options before setting float and wing balance.	<i>4.11 Checking and Adjusting Header Float, page 105</i>
	Check wing balance.	<i>4.12.1 Checking Wing Balance, page 110</i>
	Check auger flighting to feed pan clearance.	<i>4.13 Adjusting Auger to Pan Clearance, page 119</i>
	Check knife hold-down adjustment.	<i>4.7 Checking and Adjusting Knife Hold-Downs, page 95</i>
	Check fitment of endshields.	<i>4.19 Checking and Adjusting Endshields, page 135</i>
	Check skid shoes are evenly adjusted at a setting appropriate for first crop.	<i>4.16 Checking and Adjusting Skid Shoes, page 125</i>
	Check feeder house variable speed is set to minimum.	—
	Grease all bearings and drivelines.	<i>4.18 Lubricating Header, page 128</i>
	Check entire machine for shipping wires or strapping and remove.	—
Run-up procedure		<i>6 Running up Header, page 273</i>
	Check hydraulic hose and wiring harness routing for clearance when raising or lowering header and reel.	—
	Check lights are functional.	—
	Check auto header height is calibrated and functioning correctly.	<i>5.1 Auto Header Height Control (AHHC), page 139</i>
	Check knife speed.	<i>6 Running up Header, page 273</i>
Post run-up check. Stop engine.		<i>6.1 Performing Post Run-Up Adjustments, page 276</i>
	Check knife sections for discoloration caused by misalignment of components.	<i>6.1.1 Adjusting Knife and Guards, page 276</i>
	Check for hydraulic leaks.	—
	Check that manual storage case contains all of required manuals.	<i>4.20 Checking Manuals, page 137</i>

Date Checked:

Checked by:

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