MacDon

D1 Series
Combine Draper Header with FM100 Float Module

Unloading and Assembly Instructions (North America)

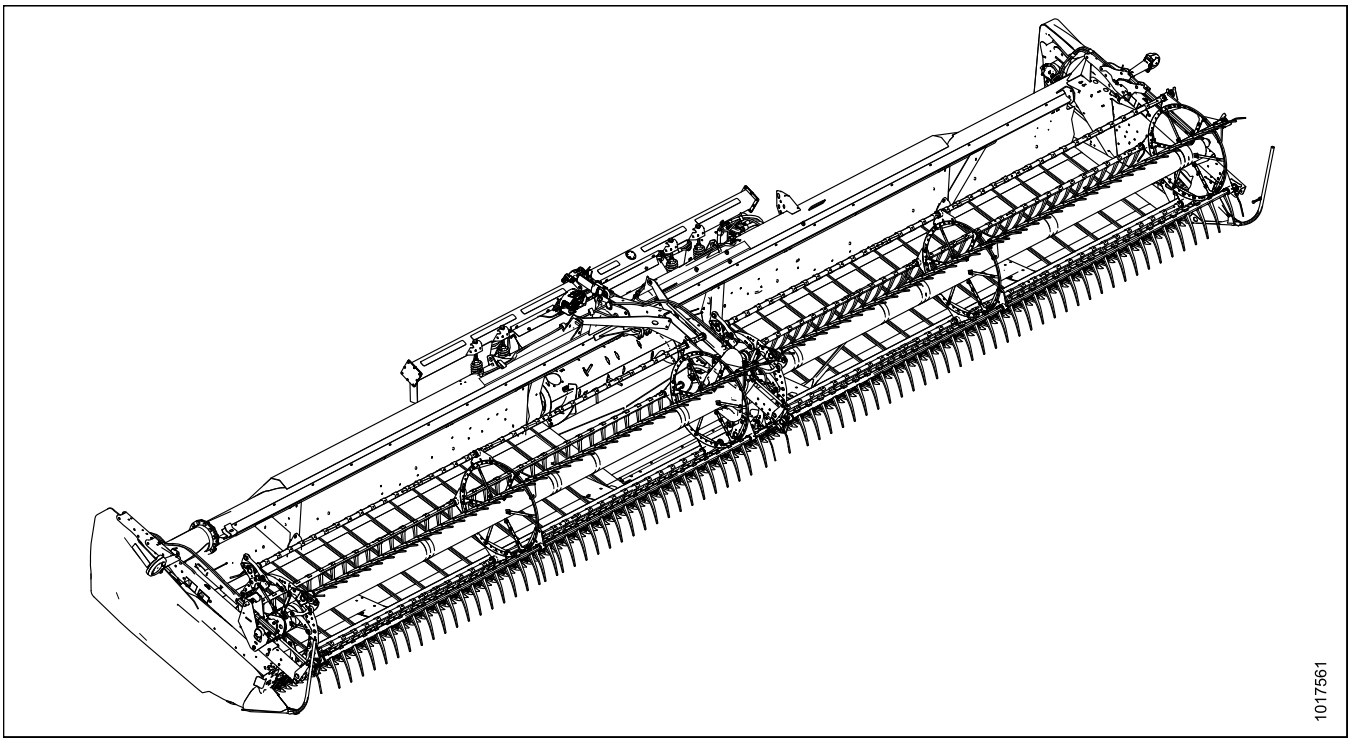
214410 Revision A

2018 Model Year

Original Instruction

The harvesting specialists.

D1 Series Draper Header for Combines



Published: February 2018

Introduction

This instruction manual describes the unloading, setup, and predelivery requirements for the MacDon D1 Series Combine Draper Header with FM100 Float Module.

To ensure the best performance of this product and the safety of your customers, 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).

This document is available in English.

1 Safety

1.1 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. Signal words are 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 earmuffs or earplugs to help protect against loud noises.

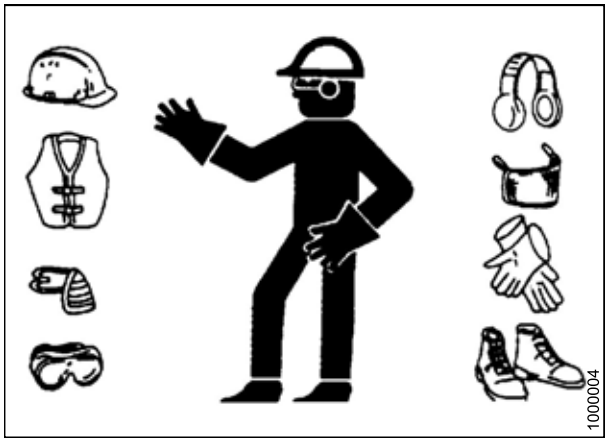


Figure 1.1: Safety Equipment

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.

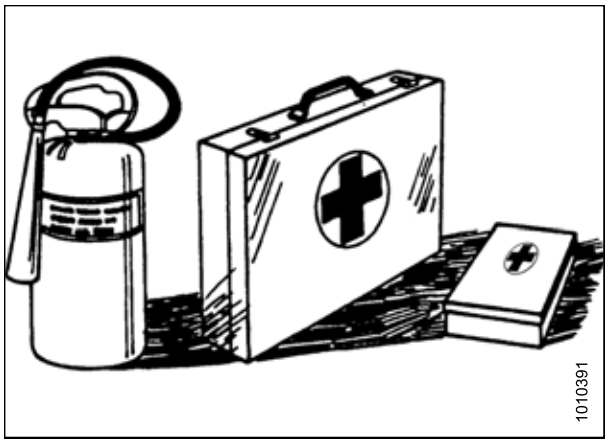


Figure 1.3: Safety Equipment

- 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.

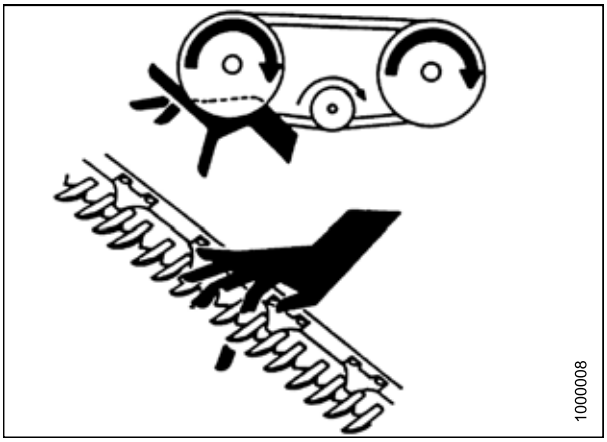


Figure 1.5: Safety around Equipment

- 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 part on which a safety sign was installed is replaced, be sure repair part also bears current safety sign.
- Safety signs are available from your MacDon Dealer.

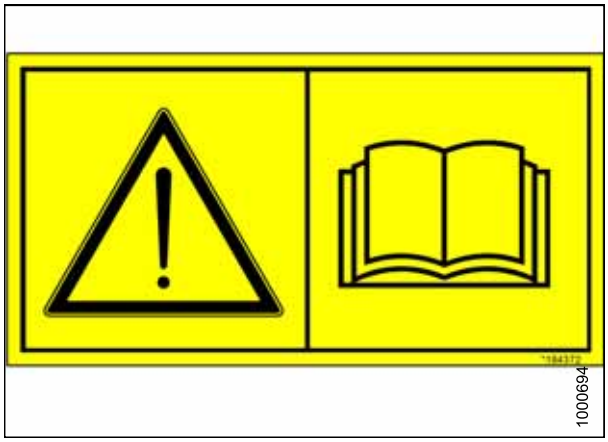


Figure 1.7: Operator's Manual Decal

2 Unloading

Perform all procedures in this chapter in the order they are listed.

2.1 Unloading Header and Float Module from Trailer

The following procedure assumes that two headers were shipped on the 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 the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, or machine damage.

IMPORTANT:

Forklifts are normally rated with the load centered 610 mm (24 in.) from the 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.)

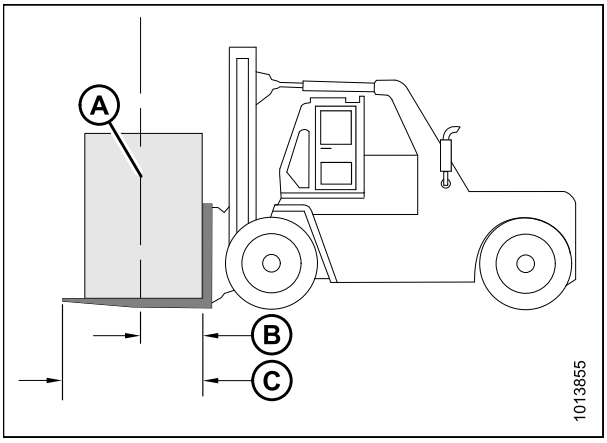


Figure 2.1: Minimum Lifting Capacity

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

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

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

3. Approach one of the headers and line up forks (A) with fork slider channels (B) under the float module frame.
4. Slide forks (A) underneath fork slider channels (B) as far as possible without contacting the shipping support of the opposite header.
5. Remove hauler's tie-down straps, chains, and wooden blocks.
6. Slowly raise header off trailer deck.

WARNING

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

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

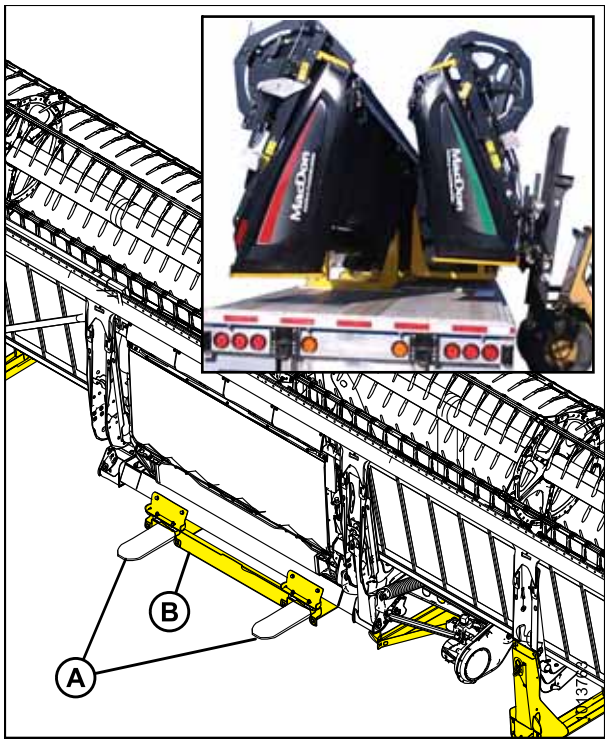


Figure 2.2: Header Shipping Supports

8. Take header to the storage or setup area. Ensure ground is flat and free of rocks or debris that could damage the header.
9. Repeat above steps for second header.
10. Check for shipping damage and missing parts.

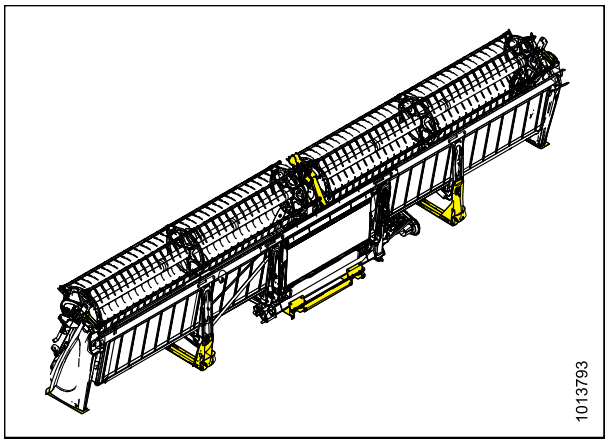


Figure 2.3: Header on Level Ground

2.2 Lowering Header

1. Approach the underside of the header with the lifting vehicle.
2. Attach chain to shipping support (double reel [A]) (single reel [B]) at center reel arm.

   IMPORTANT:

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

CAUTION

Stand clear of header when lowering. Machine may swing.

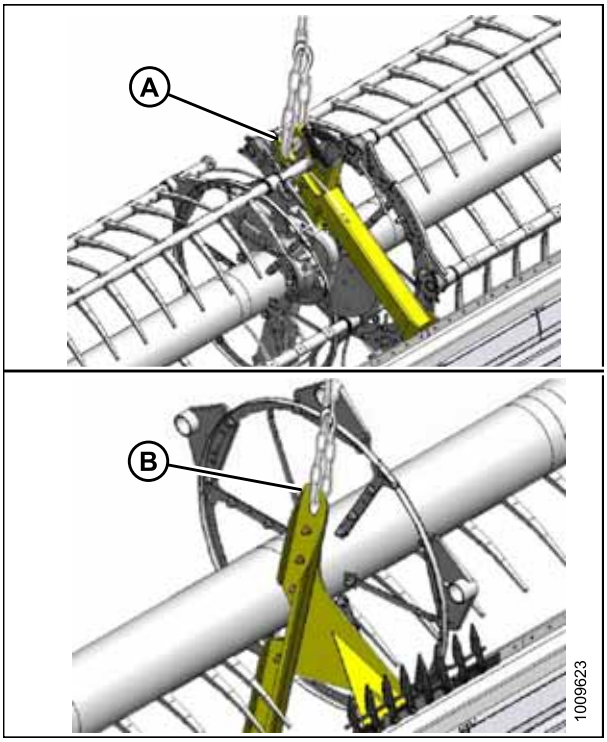


Figure 2.4: Chain Attachment Locations

A - Double Reel **B - Single Reel**

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

Figure 2.5: Header Lowered onto Ground

4. Place 150 mm (6 in.) blocks (A) under each end and at the center of cutterbar, then lower header onto blocks.
5. Remove chain.

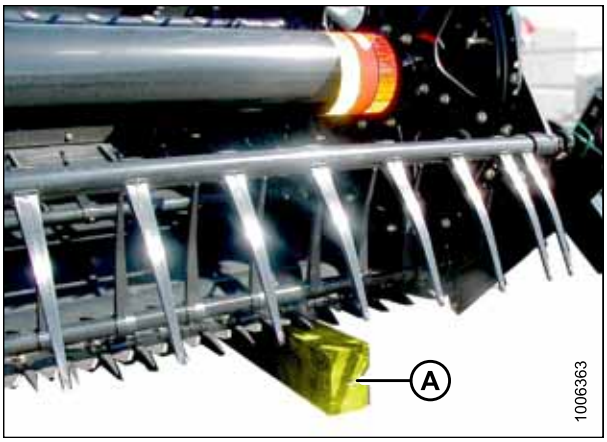


Figure 2.6: Blocks at Each End of Cutterbar

2.3 Removing Shipping Stands

NOTE:

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

1. Remove the two bolts (A) securing the right fork channel (B) to the shipping stand (C).

   NOTE:

   To access the bolts at the lower stand support, the header must be supported on 150 mm (6 in.) blocks, as directed in Step *4, page 9*.

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

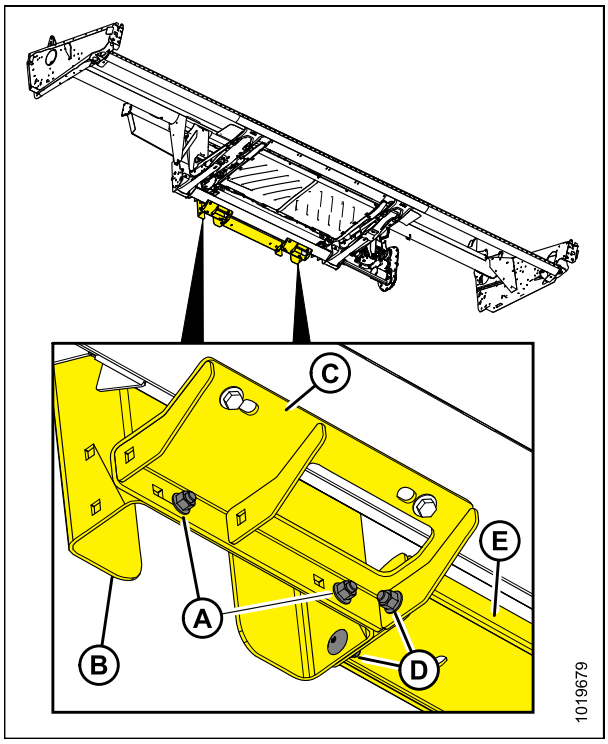


Figure 2.7: Shipping Supports

4. Remove the lower brace (A).

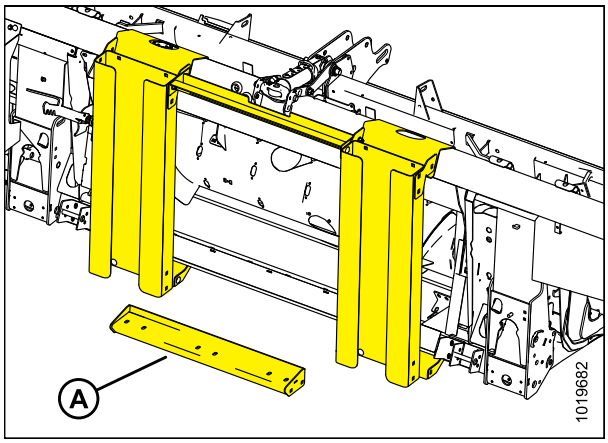


Figure 2.8: Shipping Supports

5. Remove the two bolts (A) from the upper brace. Repeat for the opposite side.

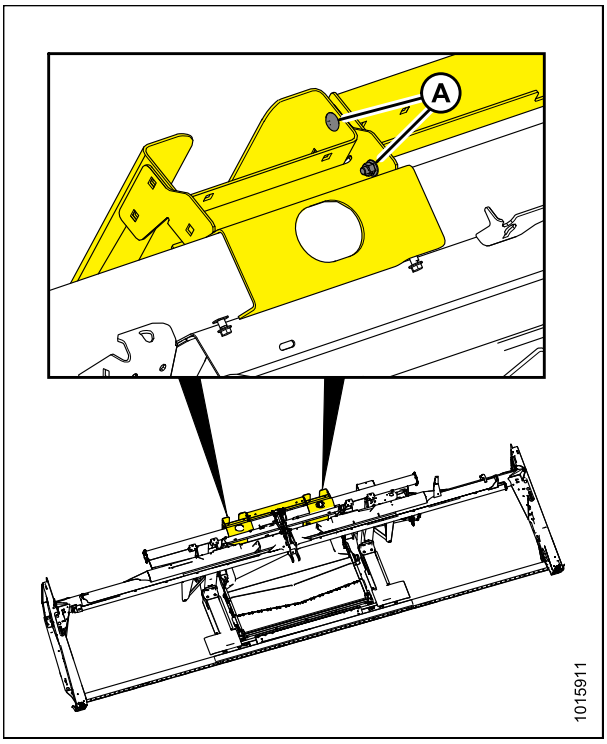


Figure 2.9: Shipping Supports

6. Remove the right and left fork channels (A).
7. Remove the upper brace (B).

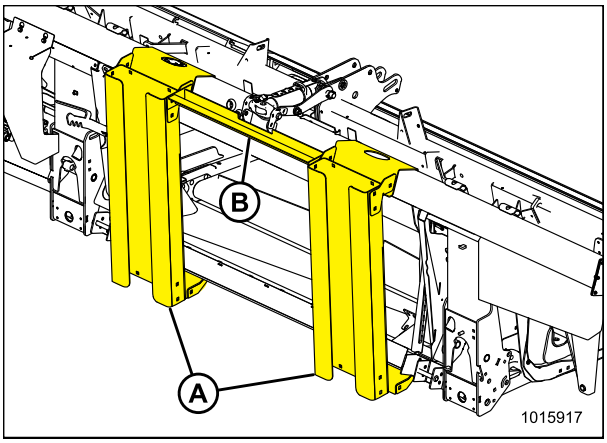


Figure 2.10: Shipping Supports

8. Remove four bolts (A) and remove shipping stands (B) from the bottom of the float module.

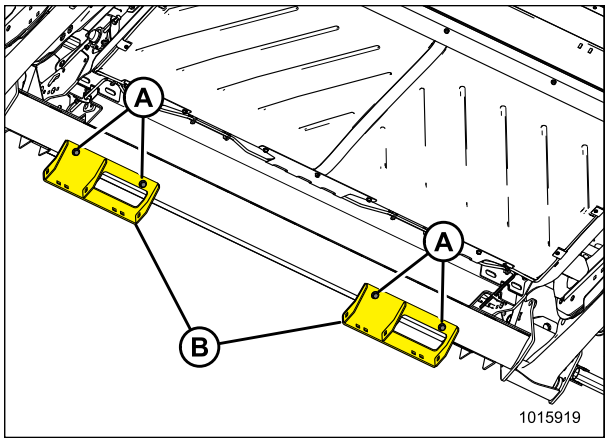


Figure 2.11: View from Below Header

9. Remove two bolts (A) securing the bottom of coupler cover (B) to the float module.

   IMPORTANT:

   Do **NOT** remove bolts (C) because they hold multicoupler components in place. Loosen bolts (C) only enough so that coupler cover (B) can be removed, and then make sure you retighten the bolts.

10. Loosen two bolts (C), slide coupler cover to the left until cutouts are aligned with bolts, and then remove coupler cover.

11. Tighten two bolts (C).

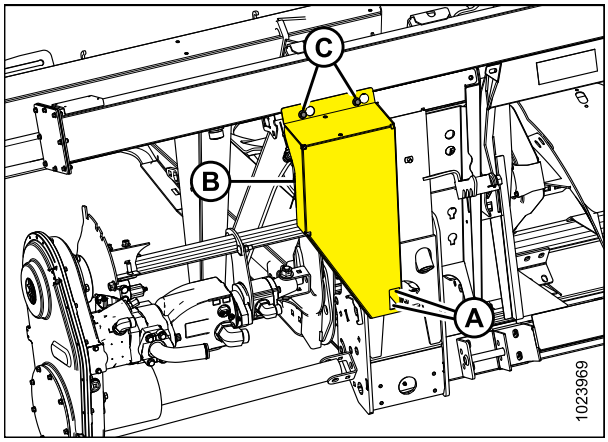


Figure 2.12: Coupler Cover

12. **30- to 45-foot headers:** Remove the four bolts (A) from the shipping stands at both outboard header legs. Remove stands.

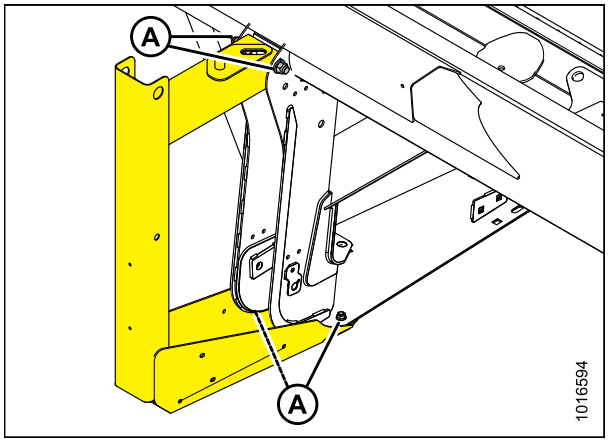


Figure 2.13: Shipping Stands at Outboard Legs (Right Side Shown)

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

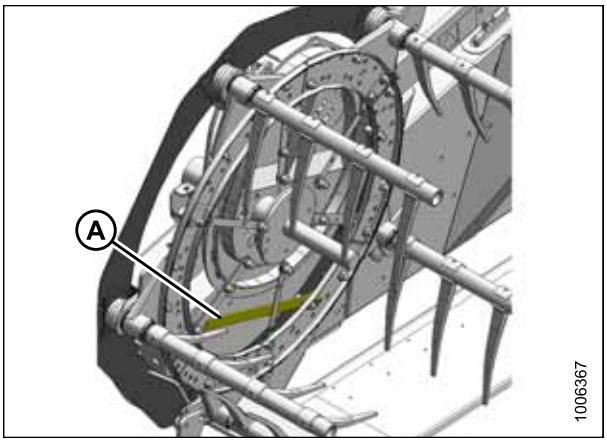


Figure 2.14: Reel Anti-Rotation Strap

14. Loosen three bolts (A) in each endshield guard (B), and remove guards.

    NOTE:

    Hardware can be removed when header endshields are opened.

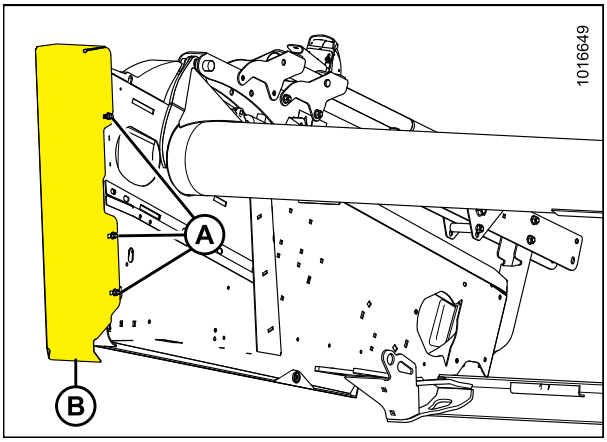


Figure 2.15: Endshield Guard

15. **Single Reel:** Remove the center shipping support by removing the two bolts (A) at the backtube and the three bolts (B) at the cutterbar.

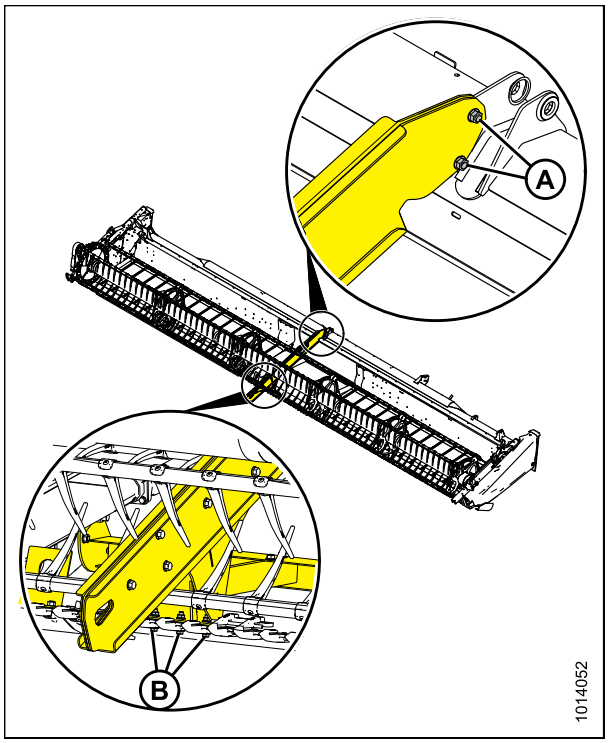


Figure 2.16: Single Reel Center Shipping Support

3 Assembling Header and Float Module

Perform all the procedures in this chapter in the order in which they are listed.

3.1 Attaching Reel Lift Cylinders

CAUTION

Bolts (A) (with tags) on reel arms keep the reel from sliding forward. Ensure fore-aft cylinders are attached before removing bolts.

NOTE:

Reel, draper, and cutterbar parts removed from illustration for clarity.

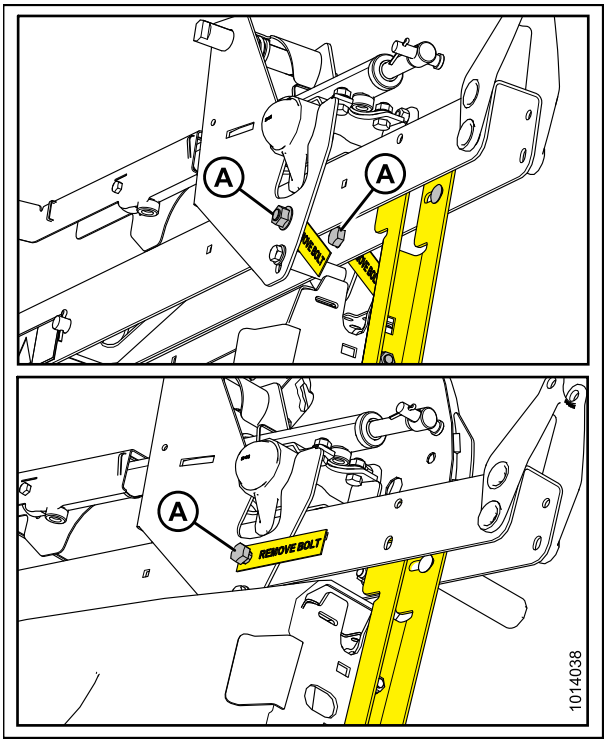


Figure 3.1: Reel Right Arm

Top Image - Single Reel
Bottom Image - Double Reel

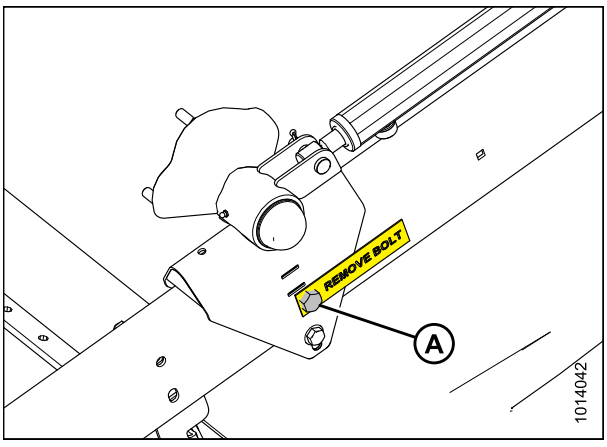


Figure 3.2: Reel Left Arm

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

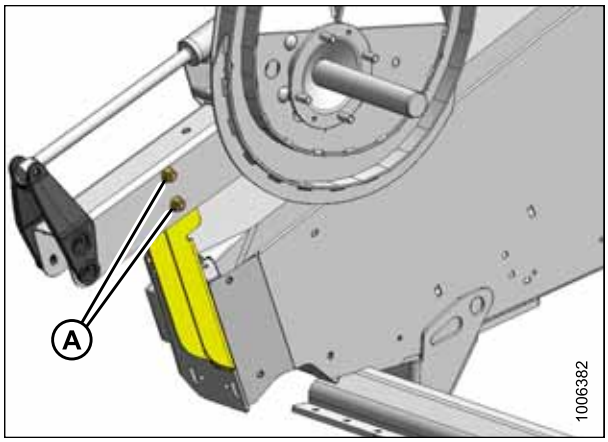


Figure 3.3: Reel Arm Shipping Support

2. **Double reel:** Remove two top bolts (A) on center reel arm to allow the center reel arm to move.

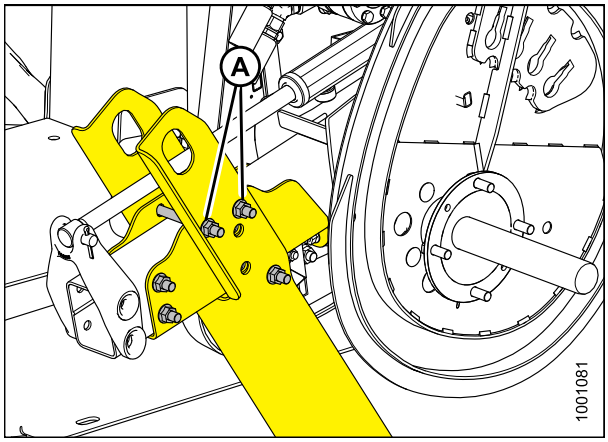


Figure 3.4: Double-Reel Center Arm Shipping Support

3. Position sling (A) around the reel tube (B) close to the outboard end of reel and attach sling to a forklift (or equivalent).
4. Remove shipping wire/banding from the reel lift cylinder that is secured to the reel right arm.

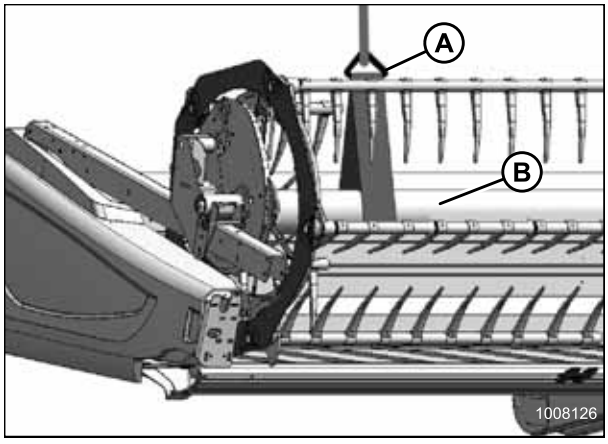


Figure 3.5: Reel Right End

5. Lift reel and remove pins from the endsheet and the reel arm.
6. Align the reel lift cylinder mounting holes until they line up with the lug on the endsheet and the hole in the reel arm.
7. 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.

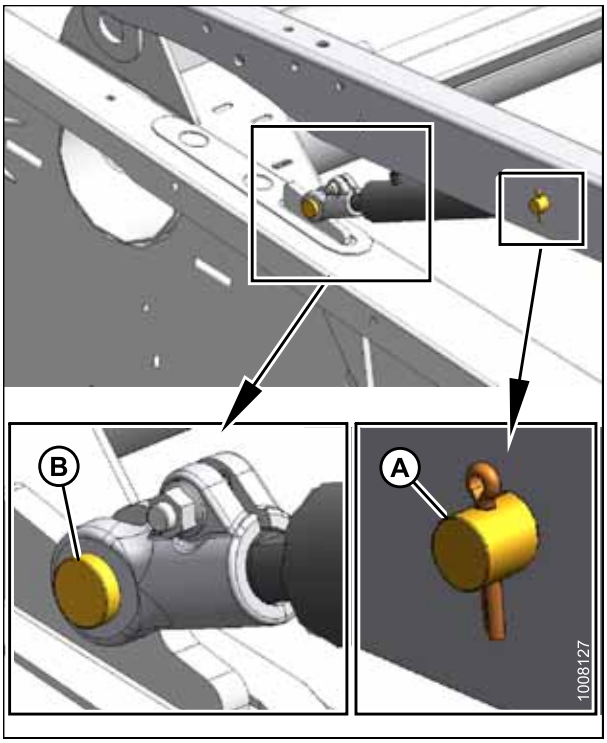


Figure 3.6: Reel Right Lift Cylinder Attachment

8. **Double reel:** Position sling (A) around the reel tube near the reel center support arm. Raise lifting device to relieve load on shipping supports (B).

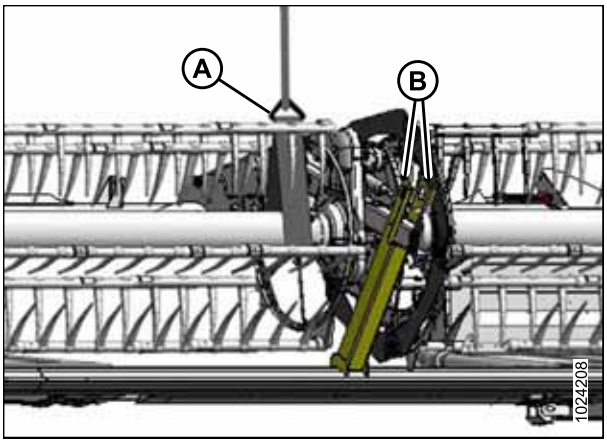


Figure 3.7: Lifting Double Reel

9. **Double reel:** Lift reel to gain access to the center lift cylinder.
10. **Double reel:** Remove shipping wire and banding from center reel lift cylinder. Remove socket head bolt and nut from cylinder rod.
11. **Double reel:** 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. **Double reel:** Torque bolt and nut (A) to 54–61 Nm (40–45 lbf·ft).
13. **Double reel:** Remove pin at barrel end of cylinder.
14. **Double reel:** Adjust reel height so pin (B) can be installed at barrel end of cylinder and mounting structure.
15. Reposition the sling (A) around the reel tube near the opposite outboard reel arm.
16. Remove shipping wire and banding from the reel lift cylinder.

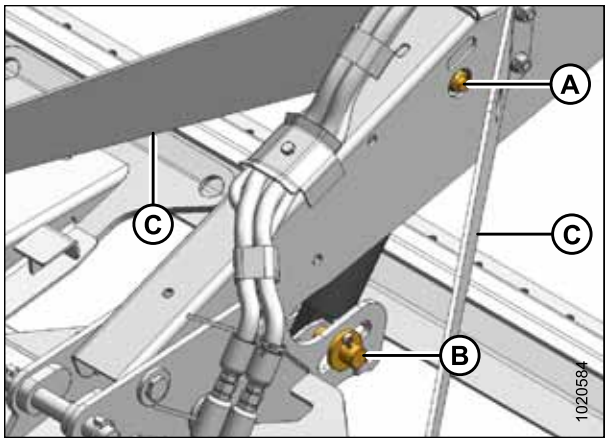


Figure 3.8: Reel Arm Braces

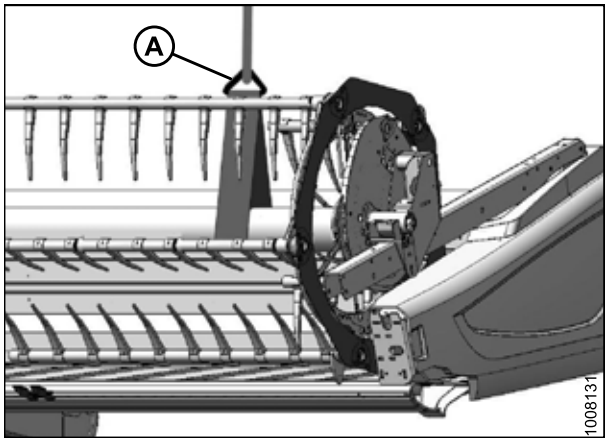


Figure 3.9: Outboard Reel Arm

17. Lift reel and remove pins from the endsheet and the reel arm.
18. Align the reel lift cylinder mounting holes until they line up with the lug on the endsheet and the hole in the reel arm.
19. Secure cylinder to endsheet and reel arm with pins 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.

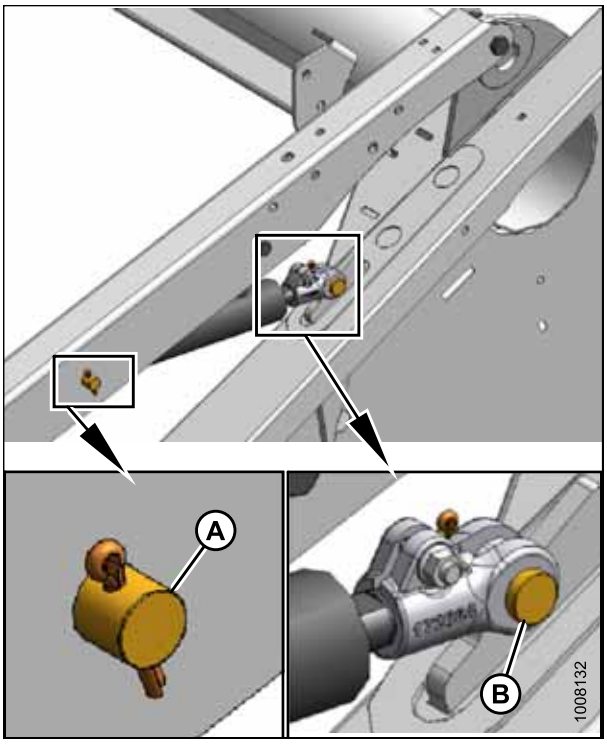


Figure 3.10: Lift Cylinder Attachment

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

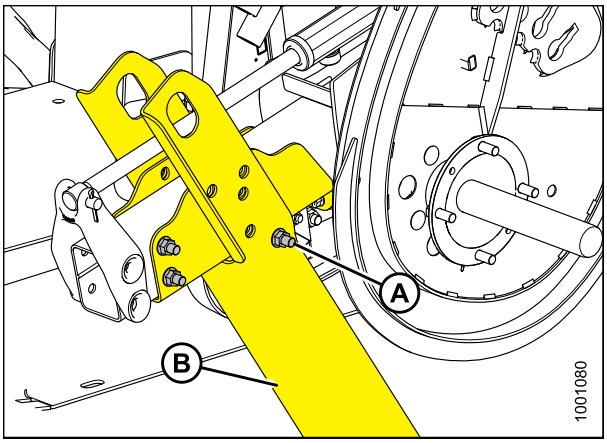


Figure 3.11: Reel Center Arm Shipping Support

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

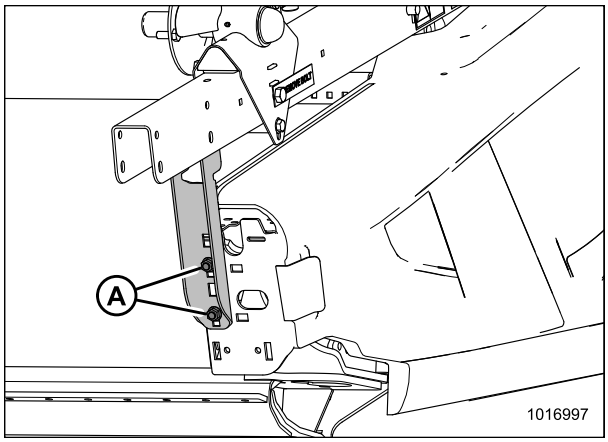


Figure 3.12: Reel Outboard Arm Support

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

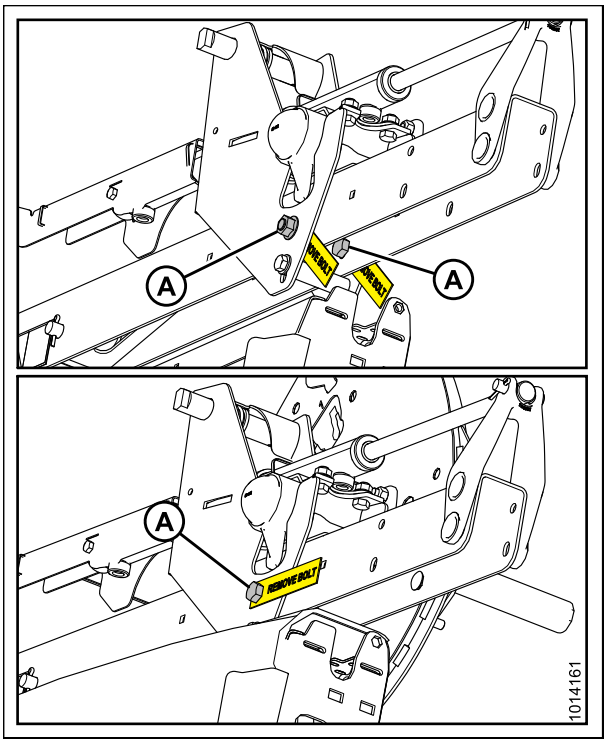


Figure 3.13: Reel Right Arm

Top Image - Single Reel
Bottom Image - Double Reel

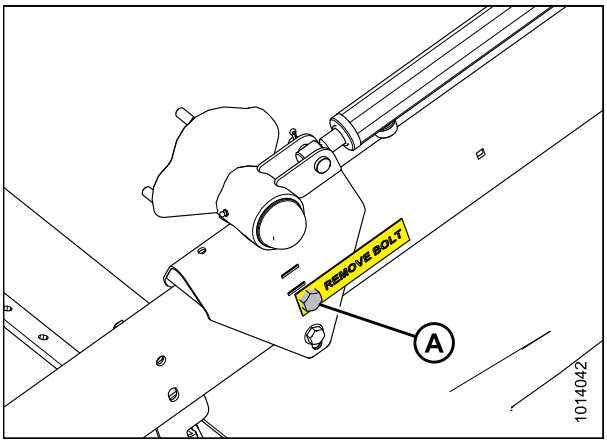


Figure 3.14: Reel Left Arm

23. **Double reel:** Remove the remaining three bolts (A) locking the reel fore-aft position at the center reel arm, and remove shipping channel (B).

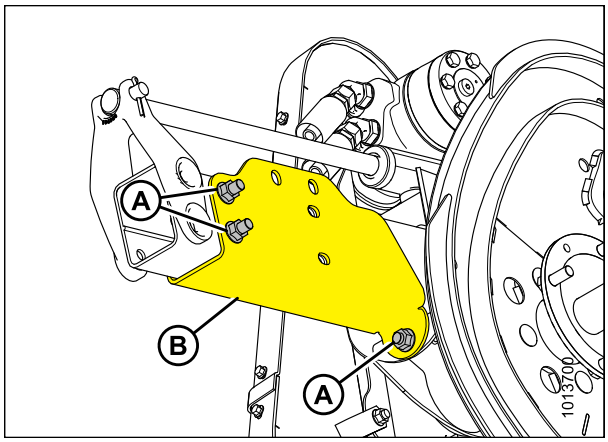


Figure 3.15: Double Reel Center Arm Shipping Channel

3.2 Attaching Reel Height Sensor

The reel height sensor linkage (located toward the back of the right reel arm) is disconnected to prevent shipping damage. Reconnect the sensor using the following procedure:

1. Remove the shipping wire from sensor (A).

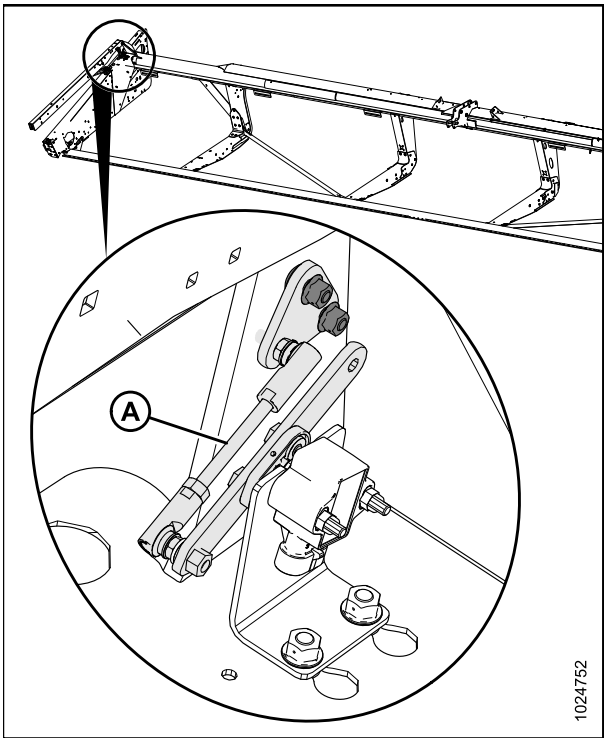
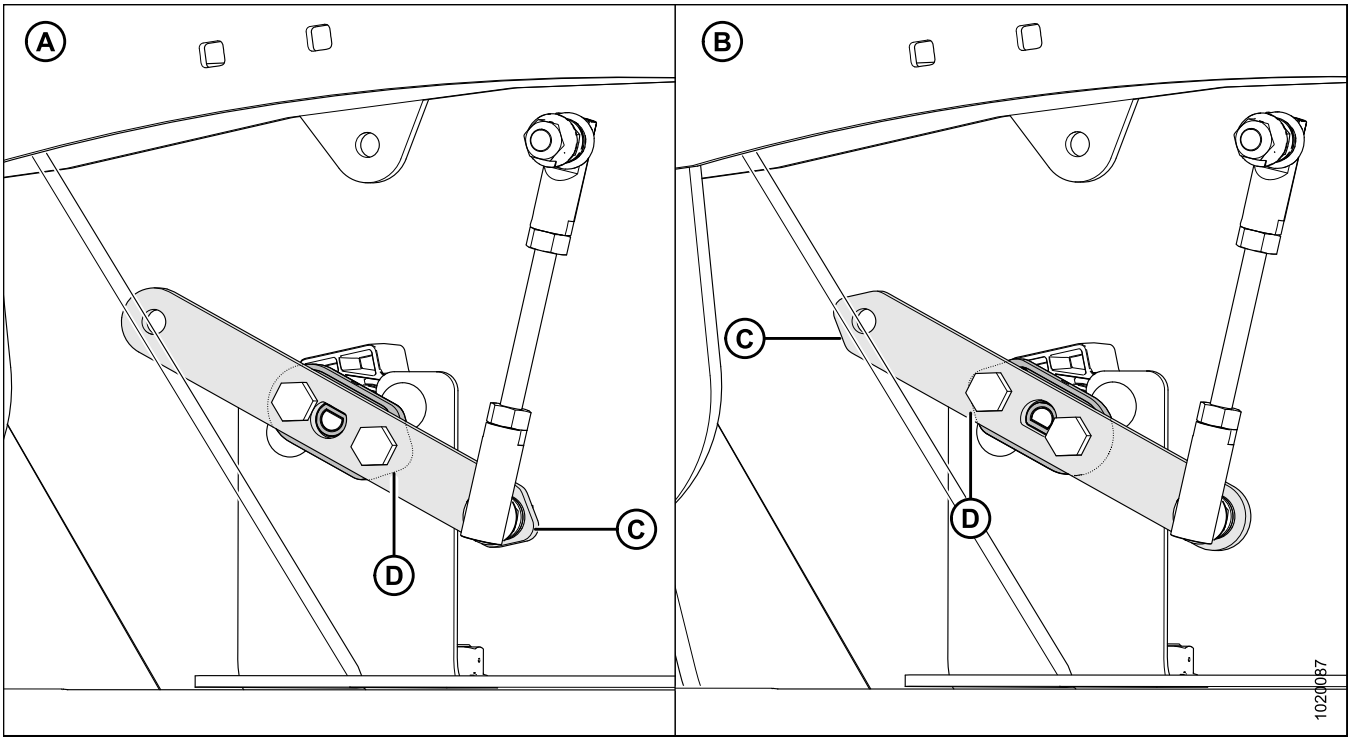


Figure 3.16: Reel Height Sensor (Disconnected)

Figure 3.17: Sensor Arm/Pointer Configurations



A - Case/New Holland Configuration

B - John Deere/CLAAS Configuration

C - Sensor Arm (Shown Semitransparent)

D - Sensor Pointer (Shown Under Sensor Arm)

2. Check that sensor arm (C) (drawn semitransparent) and pointer (D) are configured properly for your combine. Refer to Figure *3.17, page 24*.

3. Attach reel height sensor plate (A) to reel arm with existing bolts and nuts (B).

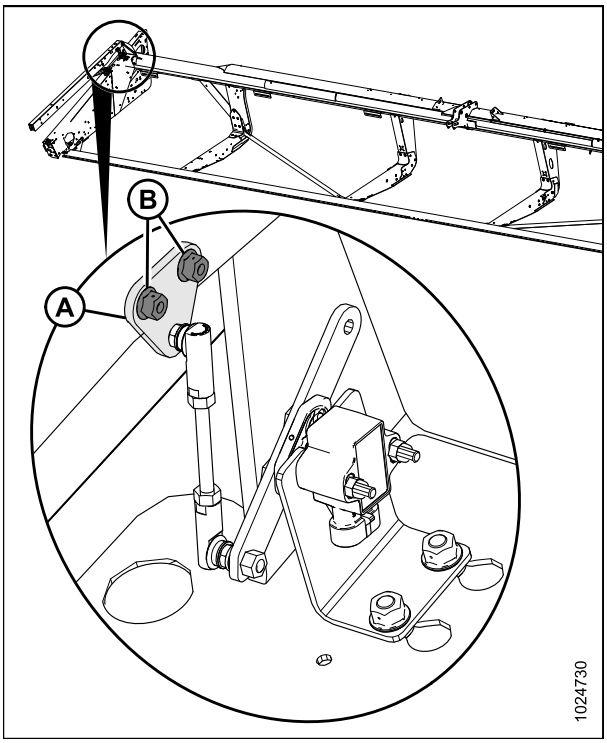


Figure 3.18: Reel Height Sensor

3.3 Attaching Cam Arms

To attach the reel cam arms, follow these steps:

1. Rotate the reel manually until the tine bars with disconnected cam links are accessible.
2. Remove shipping wire (A) (if not already removed).

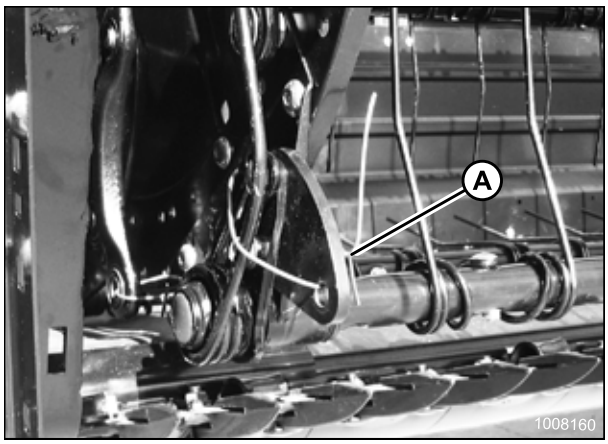


Figure 3.19: Disconnected Cam Links and Shipping Wire

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

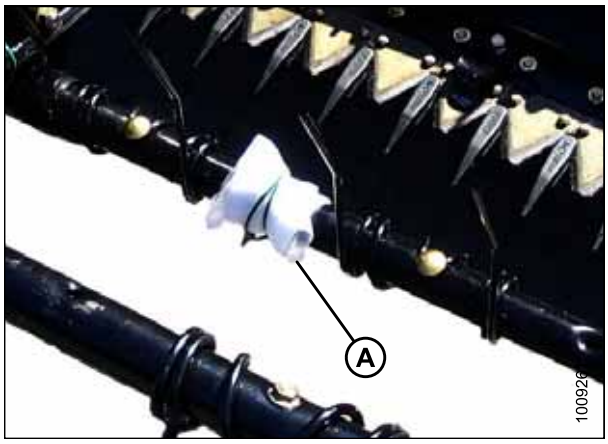


Figure 3.20: Hardware Bag Right Reel

4. Rotate tine bar 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).

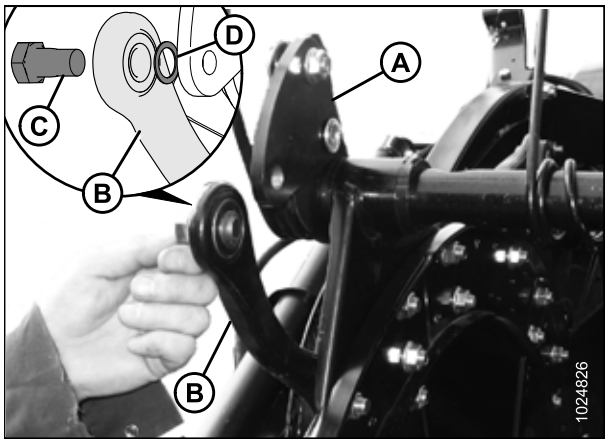


Figure 3.21: Bar Crank Attachment Holes and Link Alignment

3.4 Repositioning Gearbox

To reposition the gearbox, follow these steps:

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

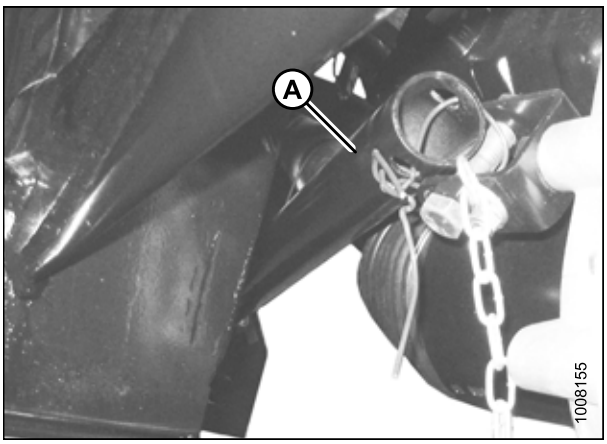


Figure 3.22: Shipping Wire and Brace

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

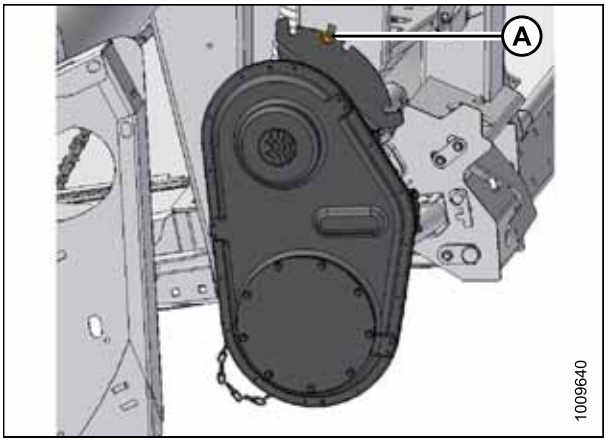


Figure 3.23: Shipping Position

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

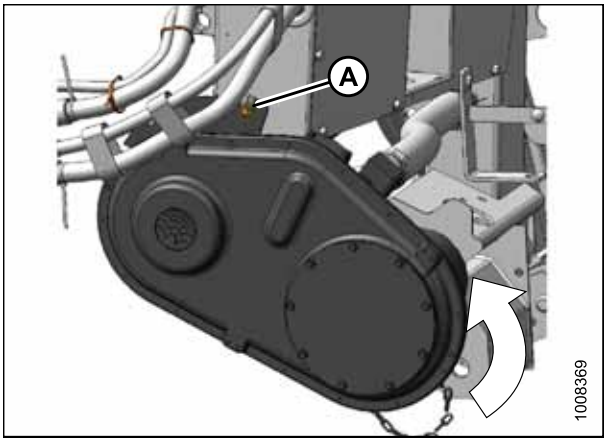


Figure 3.24: Working Position

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

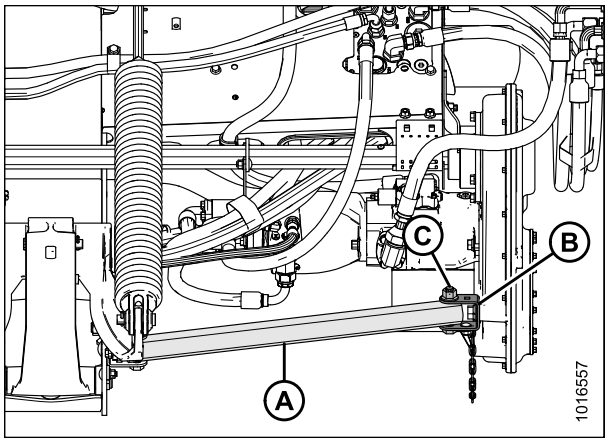


Figure 3.25: Brace Position

3.5 Installing Driveline

CAUTION

To prevent injury to the installer and damage to the driveline, hold the driveline so that it doesn't fall to the floor or ground.

NOTE:

Case New Holland drivelines are stored in a lower position on the float module. If installing a Case New Holland driveline, proceed to Step *2, page 29*.

1. Position the driveline storage support (A) onto the left side frame of the float module. Secure in place with two M10 carriage bolts and hex flange nuts (B).

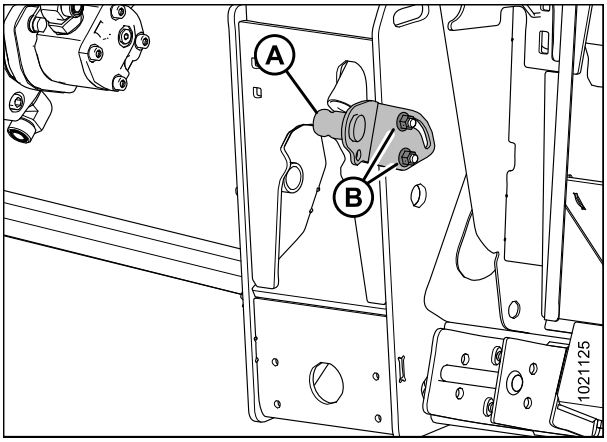


Figure 3.26: Driveline Support

2. **Case New Holland only:** Position the driveline storage support (A) onto left side of bracket (B) as shown. Secure in place with two M12 hex head bolts (C) and hex flange nuts.

   NOTE:

   The support for 21-tooth spline drivelines is shown in the illustration at right. The support for 6-tooth spline drivelines is similar.

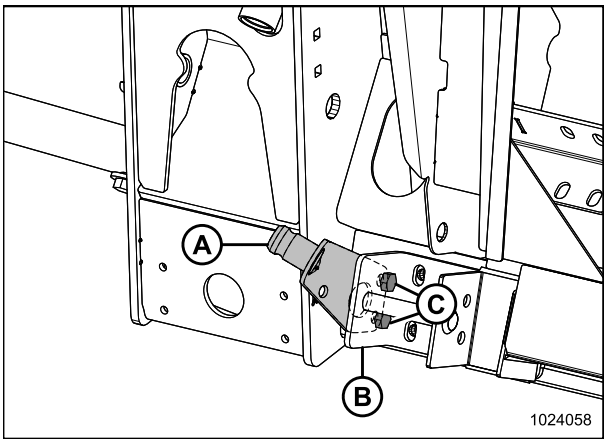


Figure 3.27: Driveline Support – Case New Holland

3. At gearbox end, remove driveline shield (A) by loosening nuts (B).
4. Position the driveline quick disconnect onto the float module gearbox shaft, pull back the collar, and slide onto the shaft until the yoke locks on to the shaft. Release the collar.
5. Position the shield (A) on the gearbox and secure with bolts (B).
6. Attach driveline chain (C) to existing chain on shield (A).

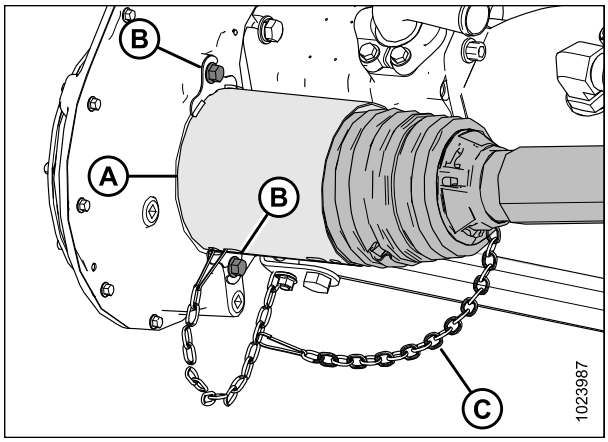


Figure 3.28: Gearbox End of Driveline

7. Position the combine end of the driveline (A) onto storage support (B), pull back the collar, and slide onto the shaft until the yoke locks on to the shaft. Release the collar.
8. Secure loose end of driveline chain (C) to driveline storage support (B).

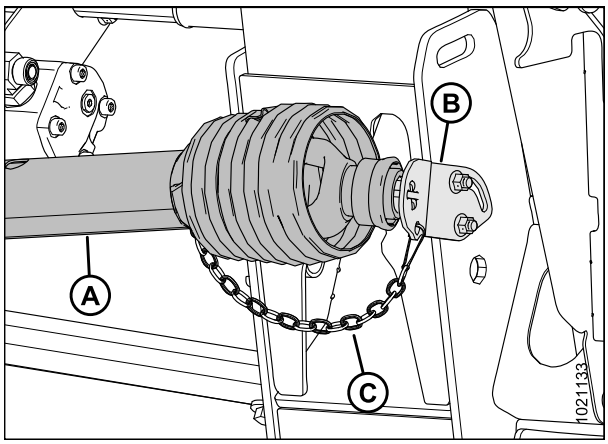


Figure 3.29: Driveline in Storage Position

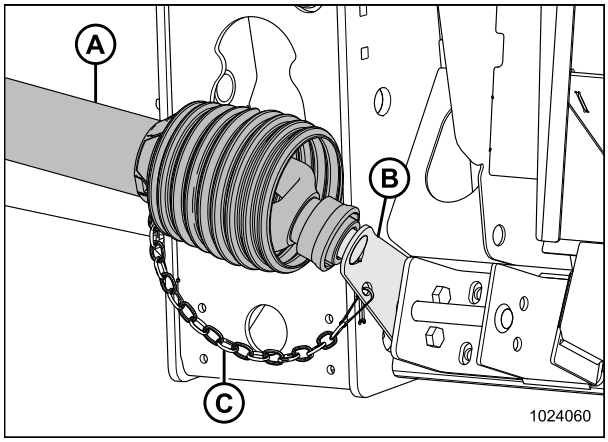


Figure 3.30: Driveline in Storage Position – Case New Holland

3.6 Installing Guards: Single Reel

Double-Reel Headers: Proceed to *3.7 Setting up Float Module, page 34*.

Single-Reel Headers: Choose between the following procedures for installing cutterbar components at the center shipping beam location, depending on whether the header has formed hold-downs (A) or forged hold-downs (B).

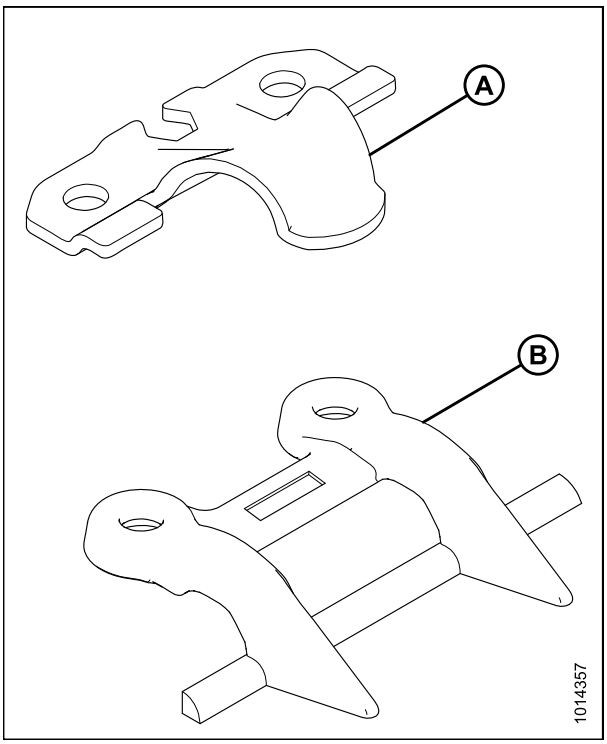


Figure 3.31: Knife Hold-Downs

3.6.1 Installing Formed Hold-Down

1. If equipped, position the cutterbar wearplate (A) on the cutterbar and install with two 7/16 in. x 1-1/2 in. long carriage bolts (B).

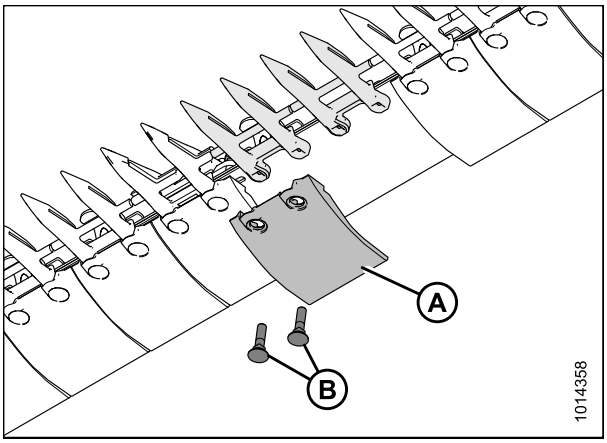


Figure 3.32: Cutterbar Wearplate

2. Place hold-down (A) on cutterbar as shown and secure with existing nuts (B). Adjuster bolt (C) should **NOT** require adjusting.

   NOTE:

   Cutterbar wearplates should be installed with special bolts (D) as shown.

3. Repeat the previous steps for the second (adjacent) location.

4. Torque nuts to 88 Nm (65 lbf·ft).

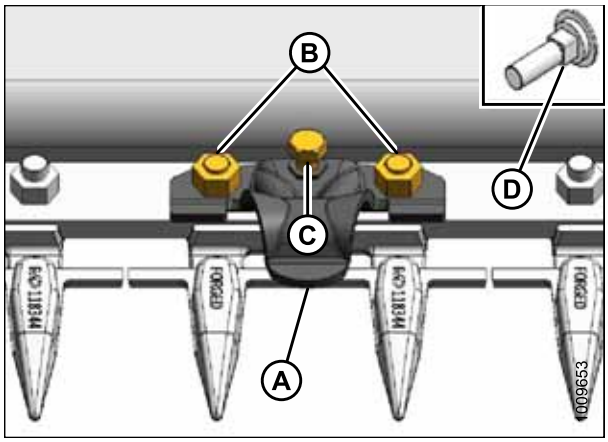


Figure 3.33: Pointed Guard

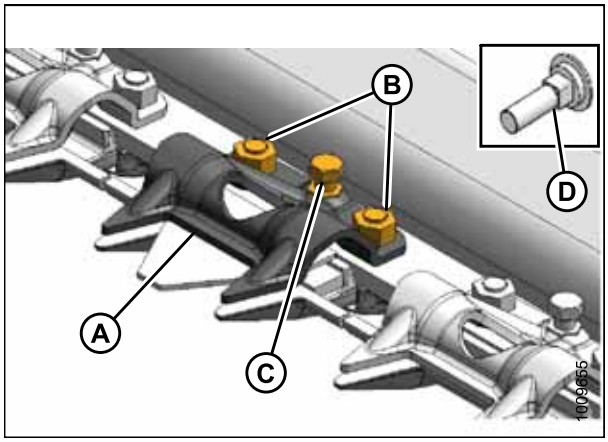


Figure 3.34: Stub Guard

3.6.2 Forged Hold-Down (Stub Guard Only)

1. If equipped, position the cutterbar wearplate (A) on the cutterbar and install with two 7/16 in. x 1-1/2 in. long carriage bolts (B).

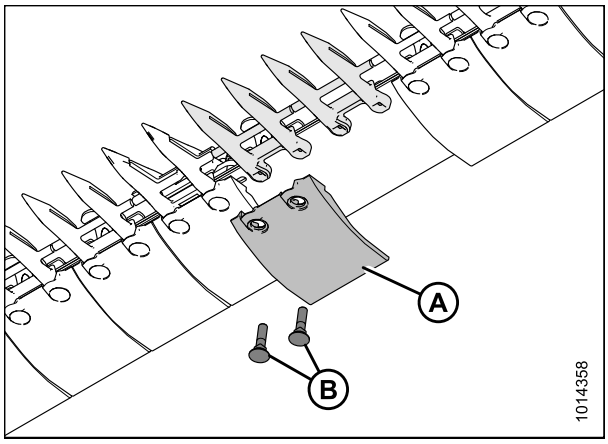


Figure 3.35: Cutterbar Wearplates

2. Place adjuster plate (D) and hold-down (A) on cutterbar as shown and secure with 7/16 in. hex nuts (B). Adjuster bolt (C) should **NOT** require adjusting.
3. Repeat the previous steps for the second (adjacent) location.
4. Torque nuts to 72 Nm (53 lbf·ft).

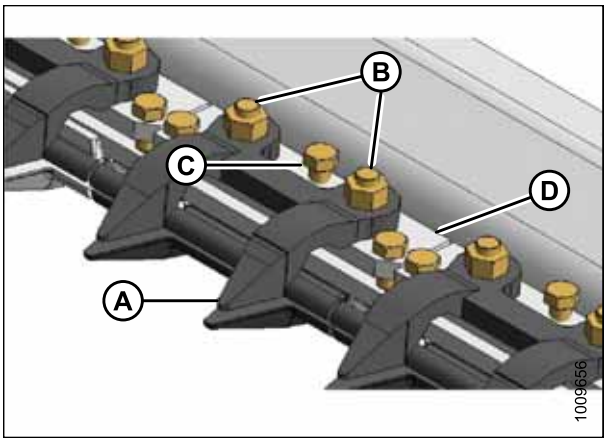


Figure 3.36: Stub Guard

3.7 Setting up Float Module

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

3.7.1 Installing Filler Cap

1. Remove filler cap from bag (A).

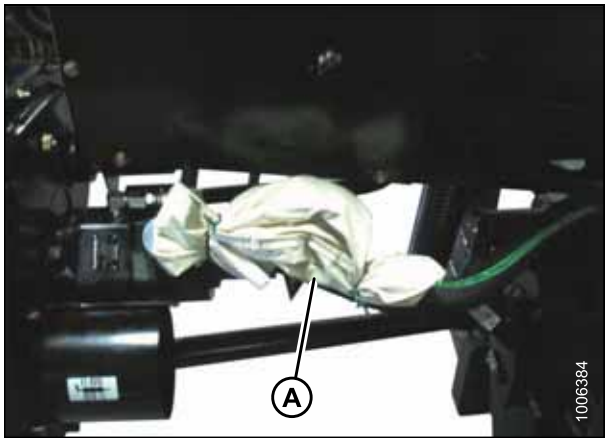


Figure 3.37: Hardware Bag

CAUTION

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

2. Remove yellow shipping cover (A) from the float module frame. Discard cover. Keep screws if screws are not supplied with filler cap.

Figure 3.38: Yellow Shipping Cover

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

   NOTE:

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

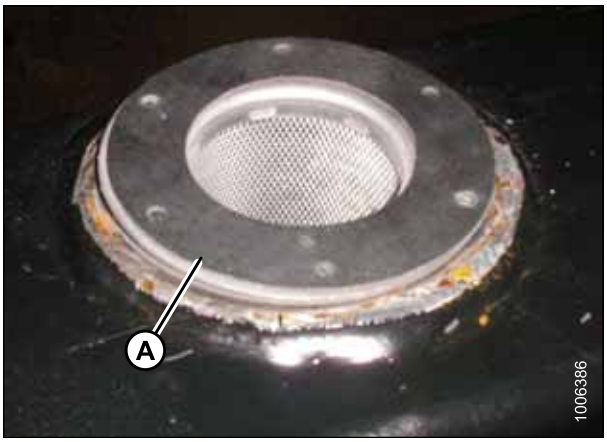


Figure 3.39: Top Gasket

4. Place gasket (A) (removed from the top of the filler strainer) onto the filler cap neck (B) and align holes.
5. Install #10-32 screws (if supplied with cap, otherwise use existing screws) into filler cap neck (B) and push screws through gasket (A).
6. Apply hydraulic pipe thread sealant (controlled strength pipe thread sealant Loctite® 565 or equivalent) to screws.

Figure 3.40: Filler Cap Neck

7. Place filler cap neck (A) (complete with screws) over opening and ensure the machine screws are aligned with the threaded holes.
8. Carefully thread in the machine screws using a cross pattern (as shown) in order to prevent cross threading of tapped holes.
9. Repeat pattern to gradually tighten screws to 3.5 Nm (31 lbf·in).

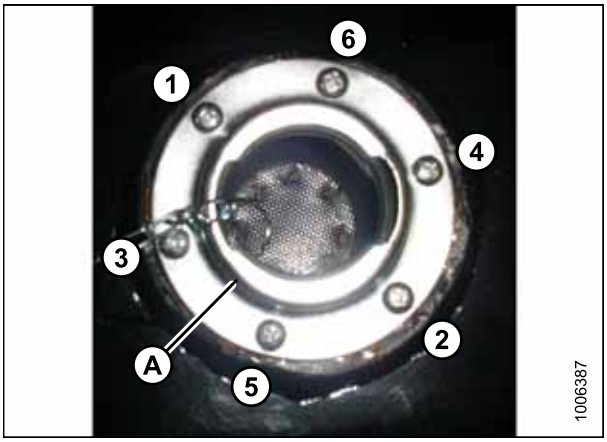


Figure 3.41: Screw Hole Locations

10. Install filler cap (A).

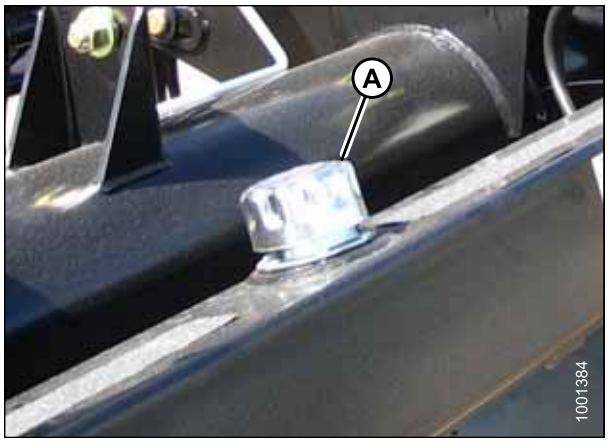


Figure 3.42: Filler Cap

3.7.2 Float Module Feed Auger Configurations

The FM100 feed auger can be configured to suit various crop conditions; there are four configurations available. Check the conversion instructions to determine if additional auger flighting kits are required.

Narrow configuration is a standard configuration for the following combines:

- Gleaner (R6/75, R6/76, S6/77, S6/7/88, S96/7/8)
- New Holland CR (920/940/960, 9020/40/60/65, 6090/7090, 8060/8070/8080)

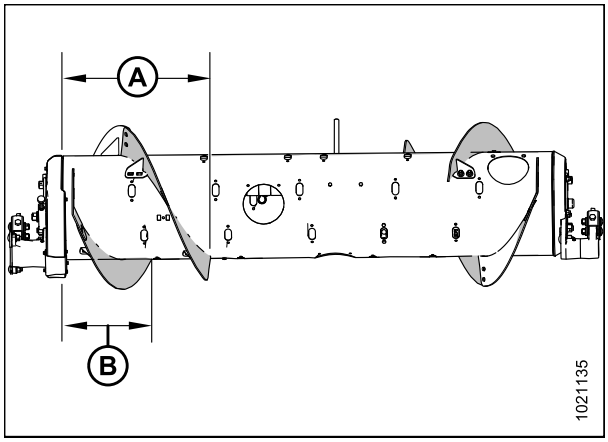


Figure 3.43: Narrow Configuration (Rear View)

A - 514 mm (20-1/4 in.) **B - 356 mm (14 in.)**

NOTE:

Dimensions are the same on the other end of the auger. They should be within 15 mm (9/16 in.) of the numbers given.

Medium configuration is a standard configuration for the following combines:

- Case (5/6/7088, 7/8010, 7/8/9120, 5/6/7130, 7/8/9230, 5/6/7140, 7/8/9240)
- Challenger (66/67/680B, 54/560C, 54/560E)
- CLAAS (56/57/58/590R, 57/58/595R, 62/63/64/65/66/670, 73/74/75/76/77/780)
- John Deere (95/96/97/9860, 95/96/97/9870, S65/66/67/68/690, T670)
- Massey Ferguson (96/97/9895, 9520/40/60, 9545/65, 9380)
- New Holland CR (970/980, 9070/9080, 8090/9090, X.90, X.80)
- New Holland CX (8X0, 80X0, 8.X0, 8080/8090 Elevation)
- Versatile (RT490)

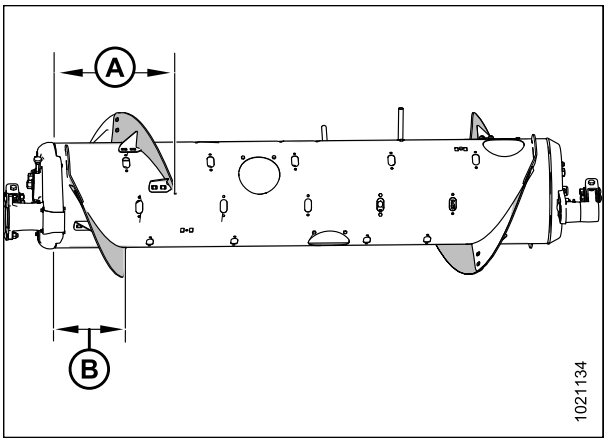


Figure 3.44: Medium Configuration (Rear View)
A - 410 mm (16-1/8 in.) **B - 260 mm (10-1/4 in.)**

NOTE:

Dimensions are the same on the other end of the auger. They should be within 15 mm (9/16 in.) of the numbers given.

Wide configuration is an optional configuration for the following combines:

- Challenger (670B/680B, 540C/560C, 540E/560E)
- CLAAS (590R/595R, 660/670, 760/770/780)
- John Deere (T670)
- Massey Ferguson (9895, 9540, 9560, 9545, 9565, 9380)
- New Holland CX (8X0, 80X0, 8.X0)

NOTE:

This configuration may increase combine capacity on wide feeder house combines in certain crop conditions.

NOTE:

In some conditions, feeding may be further improved by removing all bolt-on flighting. Refer to *Optional Modification to Wide Configuration, page 50*.

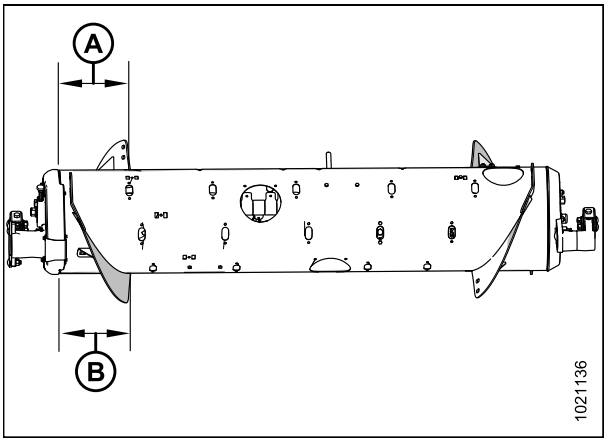


Figure 3.45: Wide Configuration (Rear View)
A - 257 mm (10-1/8 in.) **B - 257 mm (10-1/8 in.)**

NOTE:

Dimensions are the same on the other end of the auger. They should be within 15 mm (9/16 in.) of the numbers given.

Ultra Narrow configuration is an optional configuration that may improve feeding performance on combines with narrow feeder houses. It may also be helpful when harvesting rice.

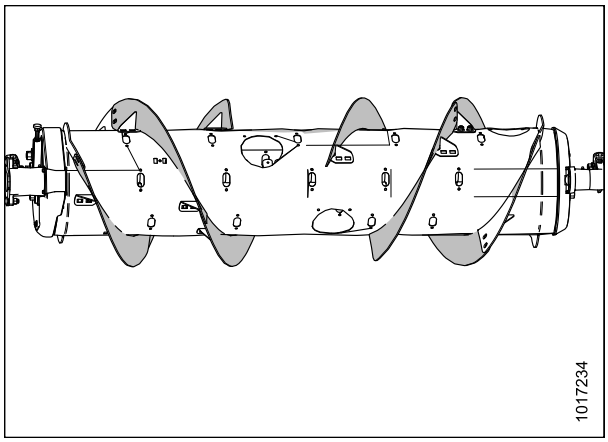


Figure 3.46: Ultra Narrow Configuration (Rear View)

Converting from Ultra Narrow Configuration or Narrow Configuration to Medium Configuration

Two kits of either MD #287031 or B6215[1] are required to convert to this configuration.

Ultra Narrow, Narrow, and Medium auger configurations are shown at right. When converting from the Ultra Narrow configuration or Narrow configuration to Medium configuration, you will need to replace the existing flightings (A) with flightings (B).

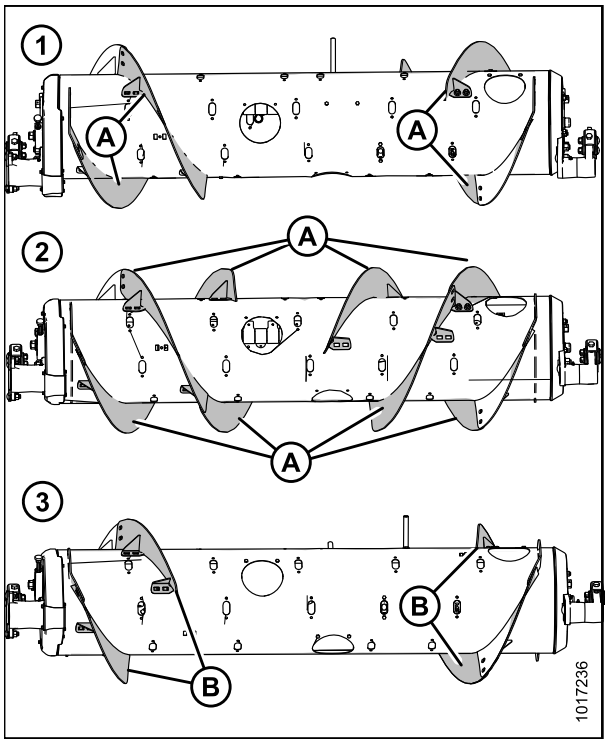


Figure 3.47: Auger Configurations (Rear View)

1 - Narrow Configuration 2 - Ultra Narrow Configuration
3 - Medium Configuration

1. MD #287031 is available for ordering only through MacDon Parts. B6215 is available for ordering only through Whole Goods. The former contains wear-resistant flightings while the latter contains regular flightings.

1. To improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

   NOTE:

   Some parts have been removed from the illustrations for clarity.

2. Remove bolts (A) and access cover (B) from right end of auger. Retain for reassembly later.

   NOTE:

   If necessary, remove multiple access covers for ease of access.

3. Remove hardware (C) and bolt-on flighting (D) from the right end of the auger. Repeat for all the remaining hardware and bolt-on flighting.

4. Repeat Steps *2, page 39* and *3, page 39* at the left side of the feed auger.

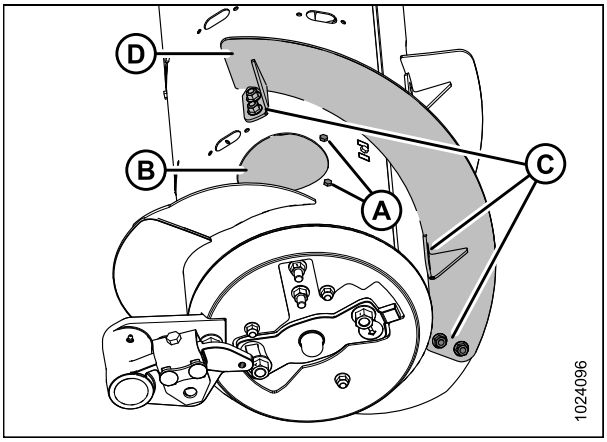


Figure 3.48: Narrow Configuration (Right Side)

5. Remove flighting slot plug (B), M6 bolt (A), and tee nut from inside the feed auger. Repeat at the left side of the feed auger.

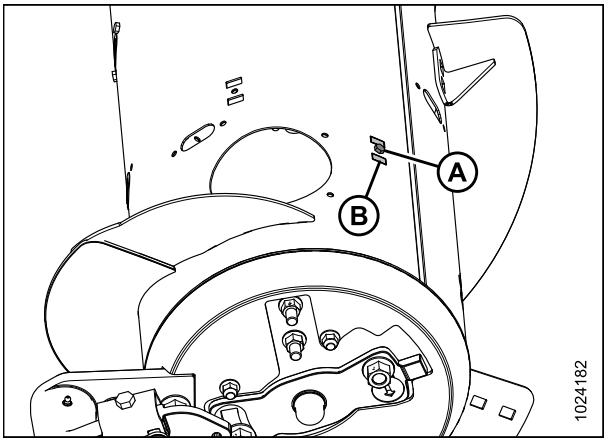


Figure 3.49: Narrow Configuration (Right Side)

6. Install two bolt-on flightings (A) on the right side as shown, and secure each flighting with six carriage head bolts and nuts at location (B).

   IMPORTANT:

   Flighting bolt heads must be installed on inside of auger to prevent damage to internal components.

7. Torque all nuts and bolts to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then torque them to 58–64 Nm (43–47 lbf·ft).

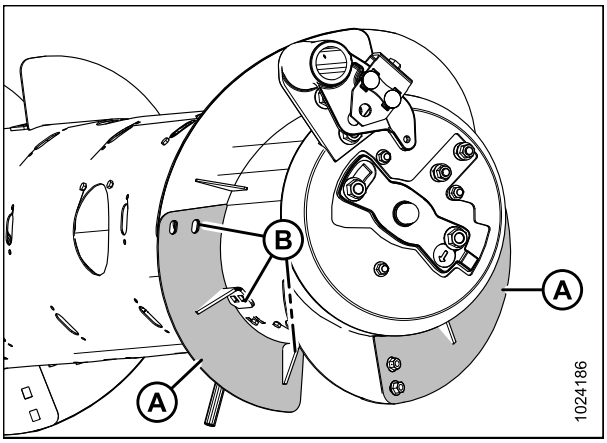


Figure 3.50: Medium Configuration (Right Side)

8. Install two bolt-on flightings (A) on the left side as shown, and secure each flighting with six carriage head bolts and nuts at location (B).

   IMPORTANT:

   Flighting bolt heads must be installed on inside of auger to prevent damage to internal components.

9. Torque all nuts and bolts to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then torque them to 58–64 Nm (43–47 lbf·ft).

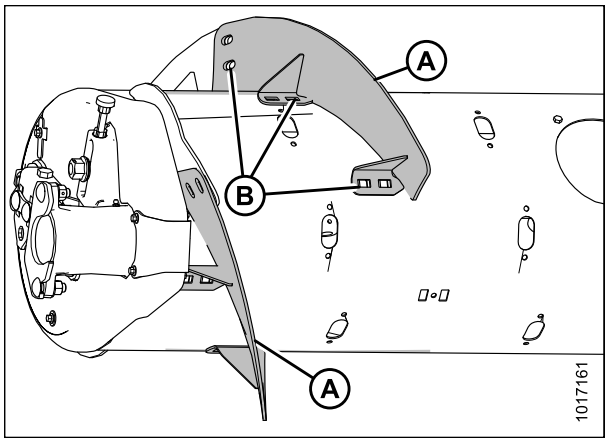


Figure 3.51: Medium Configuration (Left Side)

10. Use the access hole (A) to position the flighting slot plug (B) from inside the feed auger (as shown) and secure with a 20 mm long M6 hex head bolt (C) and tee nut. Repeat for the remaining locations previously used to mount the flighting in Step *3, page 39* and Step *4, page 39*.

11. Install additional auger fingers. A total of 22 auger fingers is recommended for this configuration. Refer to *Installing Feed Auger Fingers, page 57*.

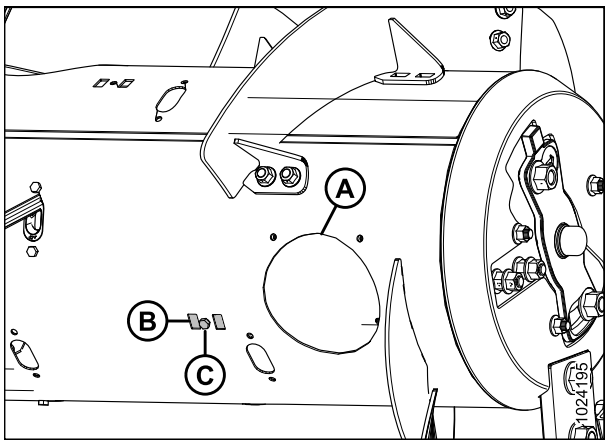


Figure 3.52: Medium Configuration Flighting Plug (Right Side)

Converting from Wide Configuration to Medium Configuration

One kit (either MD #287031 or B6215[2]) is required to convert to this configuration.

Wide and Medium auger configurations are shown at right. When converting from Wide configuration to Medium configuration, you will need to install new flightings (A).

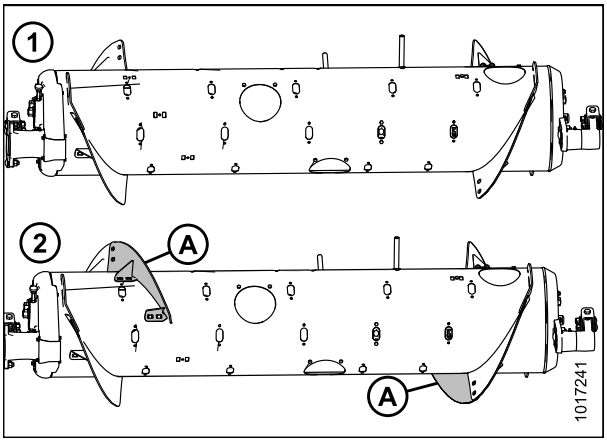


Figure 3.53: Auger Configurations (Rear View)

1 - Wide Configuration **2 - Medium Configuration**

1. If necessary to improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.
2. Remove bolts (A) and remove the access cover (B) on the right side of the auger. Retain for reassembly later.

   NOTE:

   If necessary, remove multiple access covers for ease of access.
3. Remove and discard the two flighting slot plugs (C) on the right side of the auger.

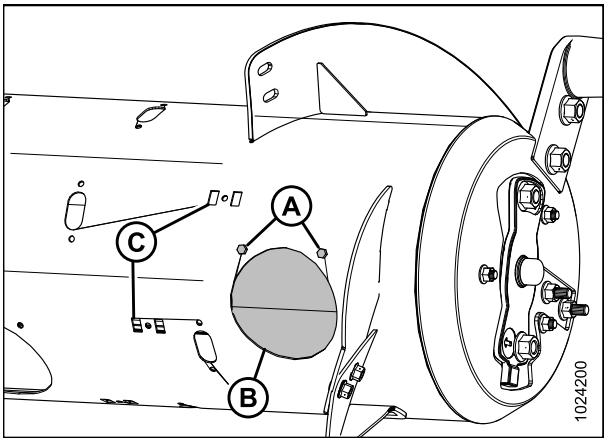


Figure 3.54: Wide Configuration (Right Side)

2. MD #287031 is available for ordering only through MacDon Parts. B6215 is available for ordering only through Whole Goods. The former contains wear-resistant flightings; the latter contains regular flightings.

4. Install bolt-on flighting (A) on the right side of the auger as shown, and secure with six carriage head bolts and six nuts at location (B).

   IMPORTANT:

   Bolt heads must be installed on inside of auger to prevent damage to internal components.

5. Torque all nuts and bolts to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then torque them to 58–64 Nm (43–47 lbf·ft).

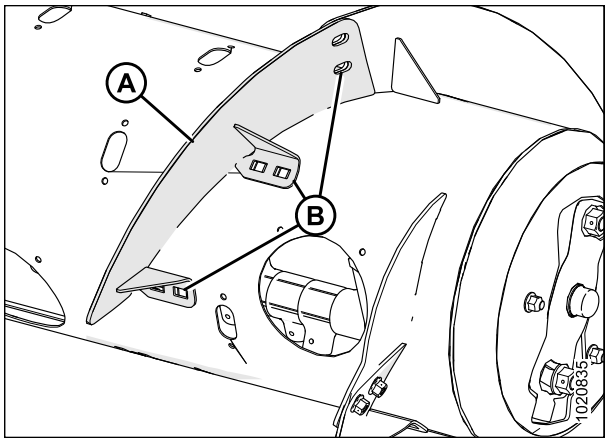


Figure 3.55: Medium Configuration (Right Side)

6. Repeat Step *2, page 41* and Step *3, page 41* at the left side of auger.
7. Install bolt-on flighting (A) on the left side as shown, and secure with six carriage head bolts and six nuts at location (B).

   IMPORTANT:

   Bolt heads must be installed on inside of auger to prevent damage to internal components.

8. Torque all nuts and bolts (B) to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then torque them to 58–64 Nm (43–47 lbf·ft).
9. Remove extra auger fingers. A total of 22 fingers are recommended for this configuration. Refer to *Removing Feed Auger Fingers, page 59*.

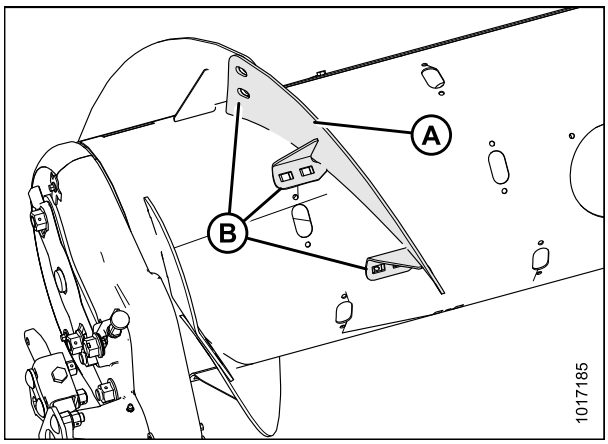


Figure 3.56: Medium Configuration (Left Side)

Converting from Medium Configuration or Wide Configuration to Narrow Configuration

Two of either MD #287032, B6400, or B6216[3] are required to convert to this configuration. Extra hardware is included in these kits. Be sure to use the correct hardware in the correct location to prevent damage and to maximize performance.

Medium, Wide, and Narrow auger configurations are shown at right. When converting from the Medium or Wide configuration to the Narrow configuration, you will need to replace the existing flightings (A) with flightings (B).

NOTE:

Ideally, the flighting should fit tight against the auger tube; however, gaps are not uncommon. Crop material may collect in this gap, but generally this will not affect performance. If desired, silicone sealant may be used to fill these gaps.

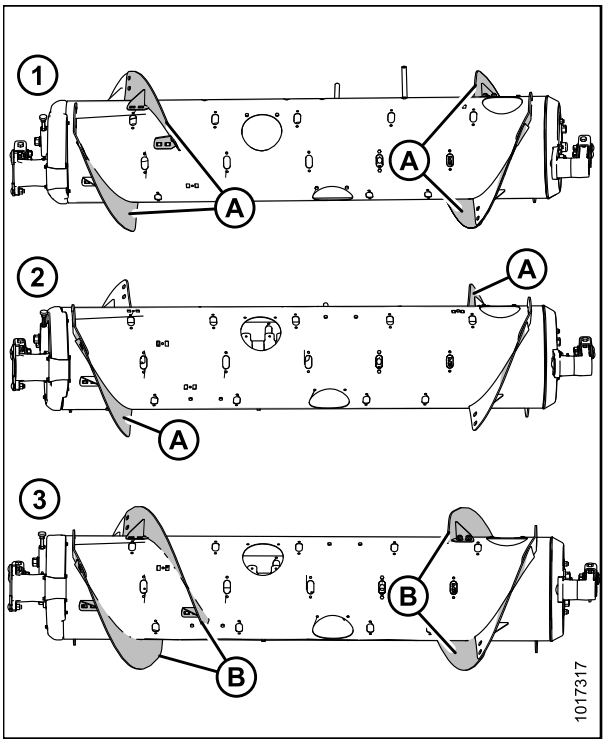


Figure 3.57: Auger Configurations (Rear View)

1 - Medium Configuration **2 - Wide Configuration**
3 - Narrow Configuration

1. To improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

   NOTE:

   Some parts have been removed from the illustrations for clarity.

3. MD #287032 is available for ordering only through MacDon Parts. B6400 and B6216 are available for ordering only through Whole Goods. The first two contain wear-resistant flightings; the third contains regular flightings.

2. Remove bolts (A) and access cover (B) from the right side of the auger. Retain for reassembly.
3. Remove hardware (C) and bolt-on flighting (D) from the auger.
4. Remove and discard the flighting slot plug (E) located close to the end of the flighting (D).
5. **Converting from Medium configuration:** Repeat above steps for the other flighting on the right side.

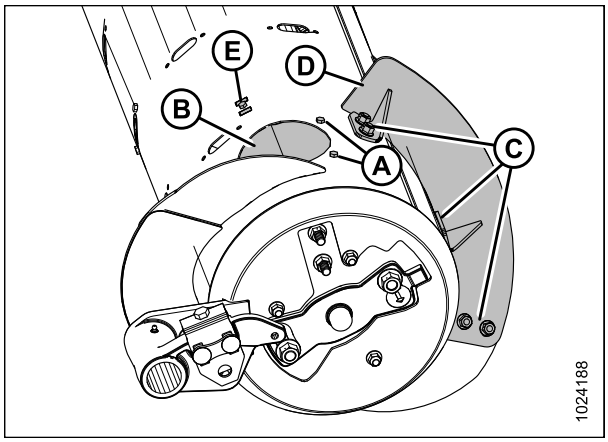


Figure 3.58: Wide Configuration (Right Side)

6. **Converting from Wide configuration:** Remove bolts (A), access cover (B), and two flighting slot plugs (C) from the right side of the auger.
7. Repeat Steps *2, page 44* to *6, page 44* at the left side of the feed auger.

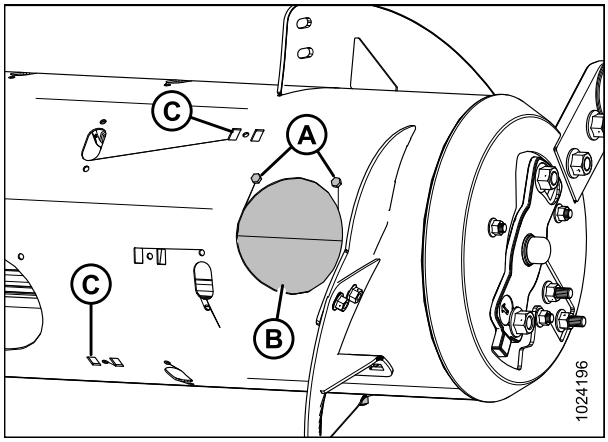


Figure 3.59: Wide Configuration (Right Side)

8. Install two bolt-on flightings (A) on the right side as shown, and secure each flighting with six carriage head bolts and nuts at location (B).

   IMPORTANT:

   Bolt heads must be installed on inside of auger to prevent damage to internal components.
9. Torque all nuts and bolts to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then torque them to 58–64 Nm (43–47 lbf·ft).
10. Install flighting slot plug (MD #213084) at location (C) from inside the auger and secure with an M6 hex head bolt (MD #252703) and tee nut (MD #197263). Repeat for the other flighting mounting locations.

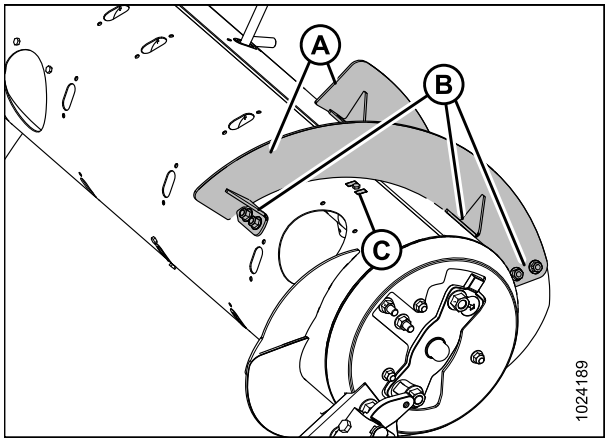


Figure 3.60: Narrow Configuration (Right Side)

11. Install two bolt-on flightings (A) on the left side as shown, and secure each flighting with six carriage head bolts (MD #136178) and nuts (MD #135799) at location (B).

    IMPORTANT:

    Bolt heads must be installed on inside of auger to prevent damage to internal components.

12. Torque all nuts and bolts to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then torque them to 58–64 Nm (43–47 lbf·ft).

13. Install flighting slot plug (C) (MD #213084) from inside the auger and secure with an M6 hex head bolt (MD #252703) and tee nut (MD #197263). Repeat for the other flighting mounting location used to mount the previous flighting in Step *3, page 44*.

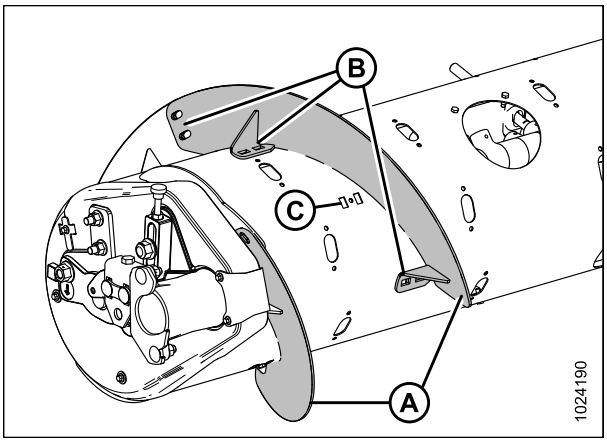


Figure 3.61: Narrow Configuration (Left Side)

14. Remove extra auger fingers. A total of 18 fingers is recommended for this configuration. Refer to *Removing Feed Auger Fingers, page 59*.

Converting from Ultra Narrow Configuration to Narrow Configuration

The Ultra Narrow and Narrow auger configurations are shown at right. Existing flightings (A) are removed from the auger when converting to the Narrow configuration.

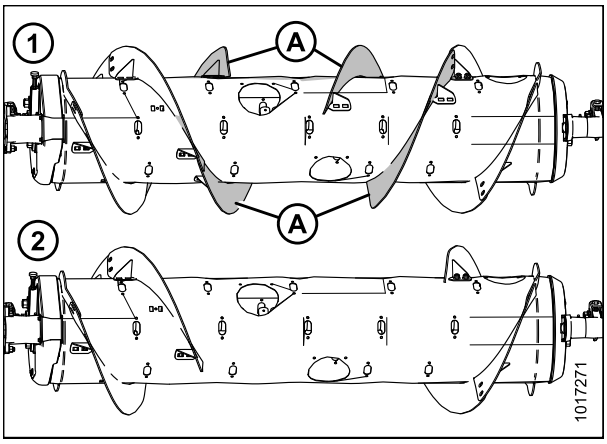


Figure 3.62: Auger Configurations (Rear View)

1 - Ultra Narrow Configuration **2 - Narrow Configuration**

1. If necessary to improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

2. Remove bolts (A) and access cover (B). Retain for reassembly.

   NOTE:

   Some parts are removed from the illustration for clarity.

3. Remove hardware from location (C), and remove bolt-on flighting (D) from feed auger.
4. Repeat procedure for the remaining three inboard flightings.
5. Install additional auger fingers. A total of 18 fingers are recommended for this configuration. Refer to *Installing Feed Auger Fingers, page 57* for instructions.

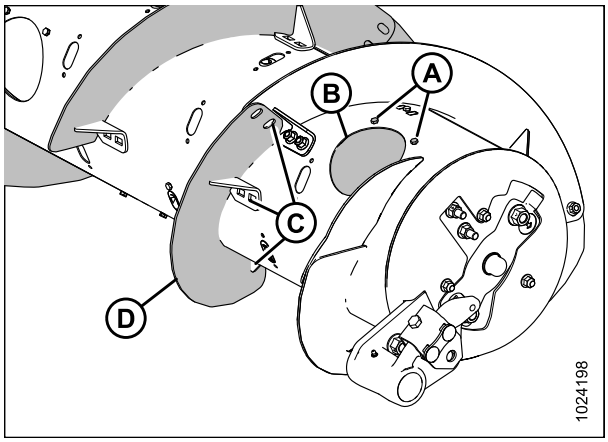


Figure 3.63: Ultra Narrow Configuration (Right Side)

Converting from Medium Configuration to Wide Configuration

The Medium and Wide auger configurations are shown at right. When converting from the Medium configuration to the Wide configuration, you will need to remove existing flightings (A) from auger and add auger fingers.

Four flighting plugs (MD #213084), M6 hex head bolts (MD #252703), and M6 tee nuts (MD #197263) are needed to cover exposed flighting mounting holes after the flightings are removed. These parts can be ordered from a MacDon Dealer.

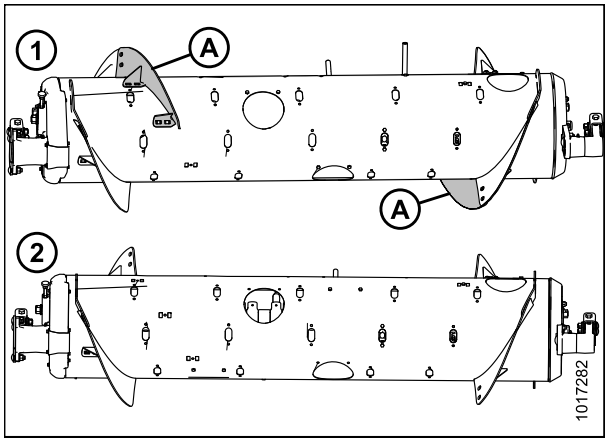


Figure 3.64: Auger Configurations (Rear View)

1 - Medium Configuration **2 - Wide Configuration**

1. If necessary to improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

   NOTE:

   Some parts have been removed from the illustrations for clarity.

2. Remove bolts (A) and access cover (B). Retain for reassembly.
3. Remove hardware from location (C), and remove bolt-on flighting (D) from the feed auger.

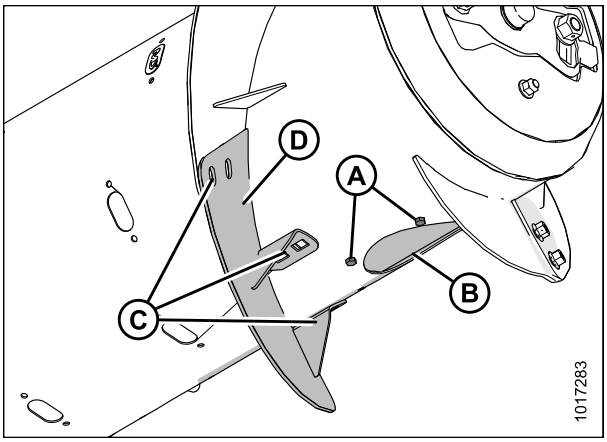


Figure 3.65: Right Side of Medium Configuration

4. Install flighting slot plug (A) (MD #213084) in the flighting slot from inside the auger. Secure with M6 hex head bolts (B) (MD #252703) and tee nuts (MD #197263).
5. Repeat above steps at the left side of the auger.
6. Install additional fingers. A total of 30 fingers are recommended for this configuration. Refer to *Installing Feed Auger Fingers, page 57*.

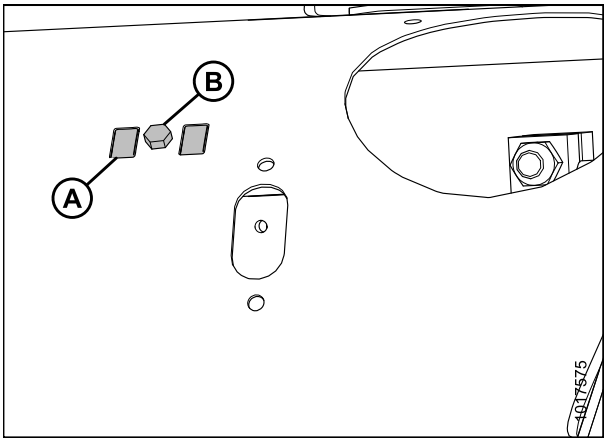


Figure 3.66: Right Side of Wide Configuration

Converting from Ultra Narrow or Narrow Configuration to Wide Configuration

One kit (either MD #287031 or B6215[4]) is required to convert to this configuration. Two flighting plugs (MD #213084), two M6 hex head bolts (MD #252703), and two M6 tee nuts (MD #197263) are recommended to close the flighting mounting locations. These parts can be ordered from a MacDon Dealer.

The Narrow, Ultra Narrow, and Wide auger configurations are shown at right. When converting from the Narrow or Ultra Narrow configuration to the Wide configuration, you will need to replace the existing flightings (A).

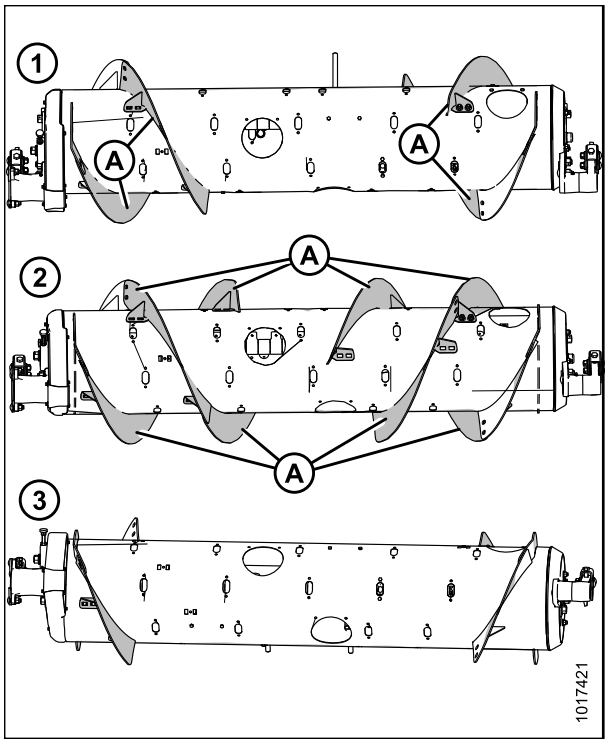


Figure 3.67: Auger Configurations (Rear View)

1 - Narrow Configuration **2 - Ultra Narrow Configuration**
3 - Wide Configuration

1. If necessary to improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

4. MD #287031 is available for ordering only through MacDon Parts. B6215 is available for ordering only through Whole Goods. The former contains wear-resistant flightings; the latter contains regular flightings.

2. Remove bolts (A) and access cover (B) from the right side of the auger. Retain for reassembly later.

   NOTE:

   Some parts have been removed from the illustrations for clarity.

3. Remove hardware (C) and bolt-on flighting (D) from the right side of the auger. Discard flighting, but retain hardware to attach the new flighting.

4. Remove flighting slot plug, bolt, and tee nut (E). Retain for reinstallation later.

   NOTE:

   Only two flighting slot plugs (E) should be removed—one from each outboard side of the auger.

5. Repeat Step *2, page 49* and Step *3, page 49* for the remaining bolt-on flighting(s).

6. Install the new bolt-on flighting (A) using six carriage head bolts and nuts (B) on the right side of the auger.

   IMPORTANT:

   Flighting bolt heads must be installed on inside of auger to prevent damage to internal components.

7. Reinstall flighting slot plug (C) removed in Step *4, page 49*.

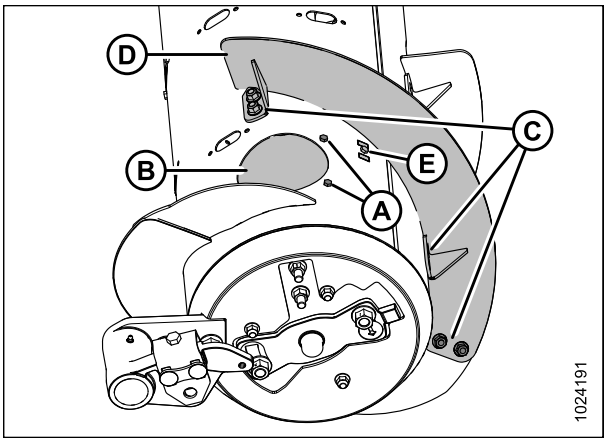


Figure 3.68: Narrow Configuration (Right Side)

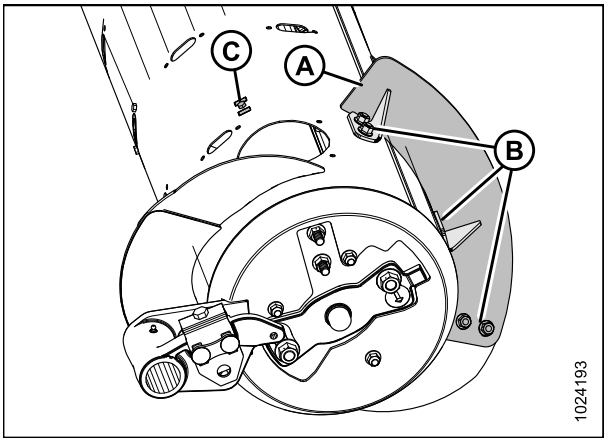


Figure 3.69: Wide Configuration (Right Side)

8. Install the new bolt-on flighting (A) on the left side of the auger using six carriage head bolts and nuts (B).

   IMPORTANT:

   Flighting bolt heads must be installed on inside of auger to prevent damage to internal components.

9. Reinstall flighting slot plug (C) removed in Step *4, page 49*.

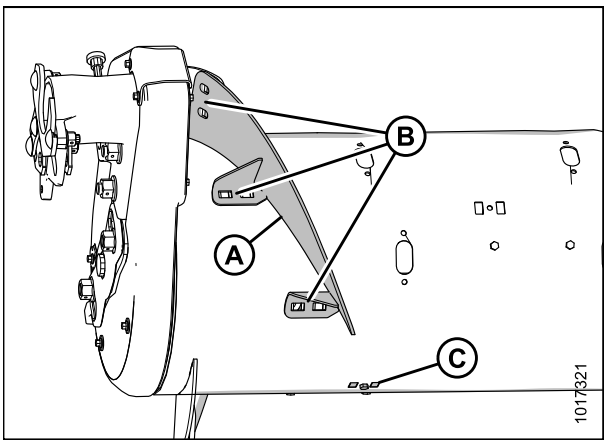


Figure 3.70: Wide Configuration (Left Side)

10. Install the remaining flighting slot plugs (MD #213084) using the M6 hex head bolts (MD #252703) and tee nuts (MD #197263) in the locations previously used to mount the flighting in Step *3, page 49* and Step *5, page 49*.

Optional Modification to Wide Configuration

1. To improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

   NOTE:

   Some parts have been removed from the illustrations for clarity.

2. Remove two bolts and access cover (A).
3. Remove hardware (B), and bolt-on flighting (C).
4. Install flighting slot plugs (MD #213084) in the flighting mounting locations (D) and secure with M6 bolts (MD #252703) and tee nuts (MD #197263).
5. Repeat at the left side of the auger.
6. Install additional auger fingers. A total of 30 fingers are recommended for this configuration. Refer to *Installing Feed Auger Fingers, page 57*.

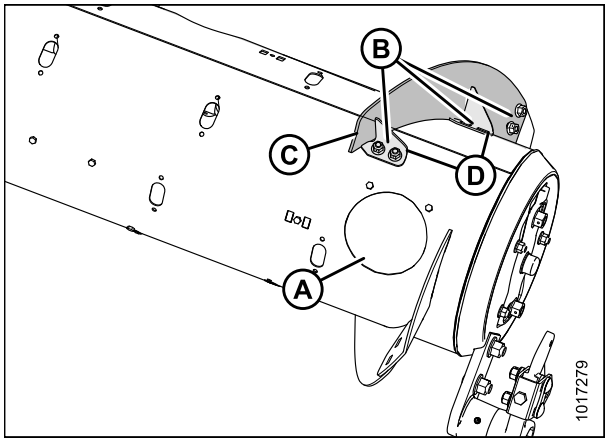


Figure 3.71: Wide Configuration (Right Side)

Converting from Medium Configuration or Wide Configuration to Ultra Narrow Configuration

Four kits of either MD #287032, B6400, or B6216 and some hole-drilling are required to convert to the Ultra Narrow configuration. Extra hardware is included in these kits. Be sure to use the correct hardware in the correct location to prevent damage and to maximize performance.

1. If necessary to improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

   NOTE:

   Some parts have been removed from the illustrations for clarity.

2. Remove bolts (A) and access cover (B) from the right side of the auger. Retain for reassembly.
3. Remove hardware (C) and bolt-on flighting (D) from the auger.
4. Remove the flighting slot plug (E) located close to the end of the flighting (D).
5. **Converting from Medium configuration:** Repeat above steps for the other bolt-on flighting on the same side.

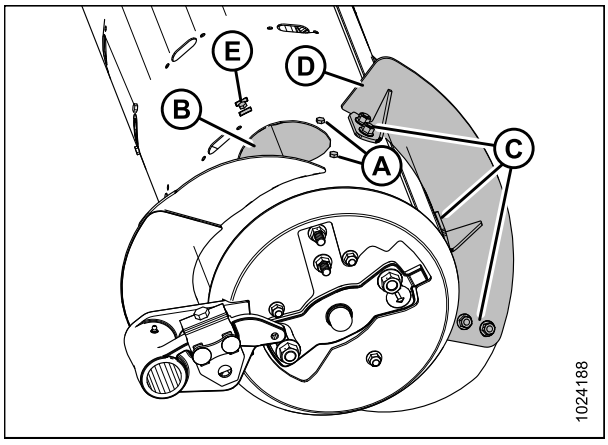


Figure 3.72: Wide Configuration (Right Side)

6. **Converting from Wide configuration:** Remove bolts (A), access cover (B), and two flighting slot plugs (C) from the right side of the auger.
7. Repeat Steps *2, page 50* to *6, page 51* at the left side of the auger.

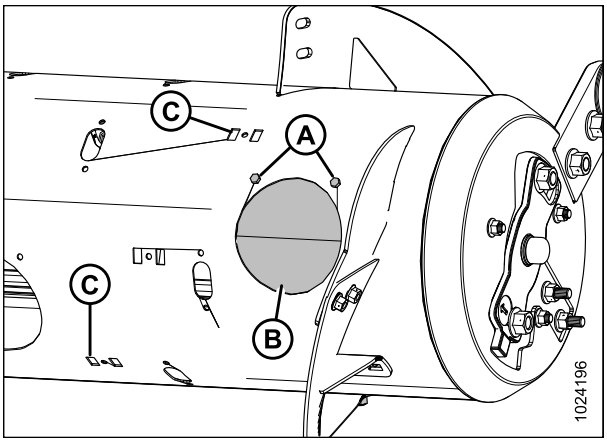


Figure 3.73: Wide Configuration (Right Side)

8. Position two bolt-on flightings (A) on the right side, as shown. Temporarily secure flightings with two carriage head bolts and nuts at each location (B).

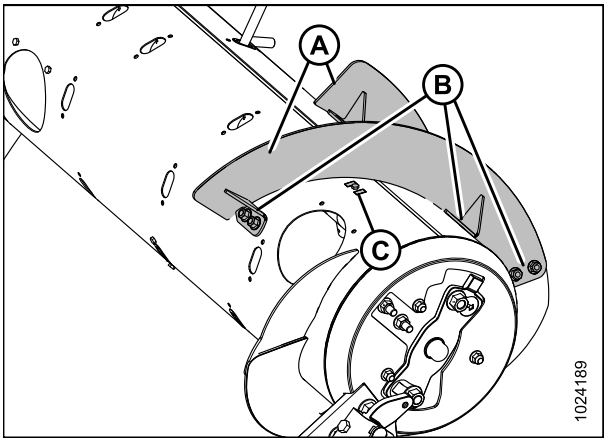


Figure 3.74: Right Side of Auger

9. Position another bolt-on flighting (A) outboard of the temporarily installed flighting (B). Mark hole locations (C) of the bolt-on flighting onto the temporarily installed bolt-on flighting (B).
10. Remove temporarily installed bolt-on flighting (B) from the auger and drill two 11 mm (7/16 in.) holes at the marked locations.
11. Install the bolt-on flighting (B) with newly drilled holes using six carriage head bolts and nuts.

    IMPORTANT:

    Carriage bolt heads must be installed on inside of auger to prevent damage to internal components.
12. Repeat Steps *9, page 51* to *11, page 51* to the remaining bolt-on flighting on the right side of the auger.

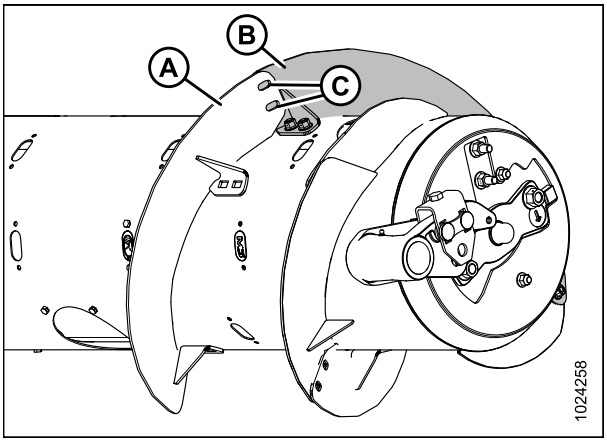


Figure 3.75: Right Side of Auger

13. Position two bolt-on flightings (A) on the left side, as shown. Temporarily secure flightings with two carriage head bolts and nuts at each location (B).

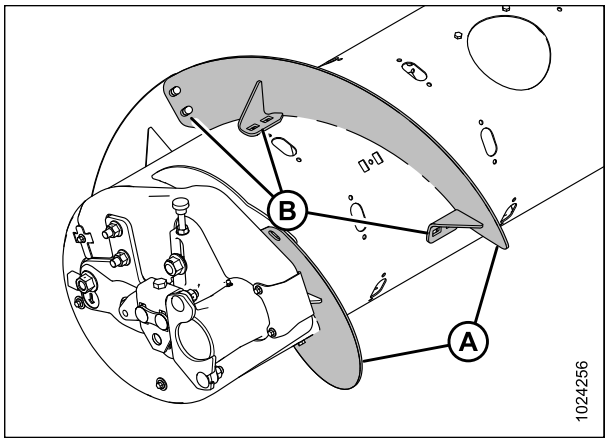


Figure 3.76: Left Side of Auger

14. Position another bolt-on flighting (A) outboard of the temporarily installed flighting (B). Mark hole locations (C) of the bolt-on flighting onto the temporarily installed bolt-on flighting.
15. Remove temporarily installed bolt-on flighting (B) from the auger and drill two 11 mm (7/16 in.) holes at the marked locations.
16. Install the bolt-on flighting (B) with newly drilled holes using six carriage head bolts and nuts.

    IMPORTANT:

    Carriage bolt heads must be installed on inside of auger to prevent damage to internal components.

17. Repeat Steps *14, page 52* to *16, page 52* to the remaining bolt-on flighting on the left side of the auger.
18. Place bolt-on flighting (A) outboard of the other flighting (B) on the left side of the auger, as shown.
19. Temporarily secure bolt-on flighting (A) with two button head bolts and nuts at location (C).

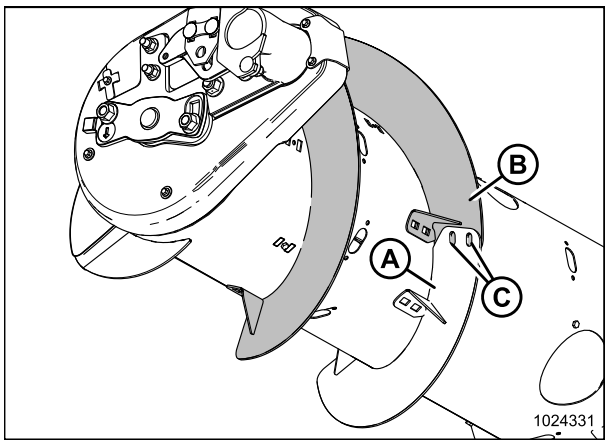


Figure 3.77: Left Side of Auger

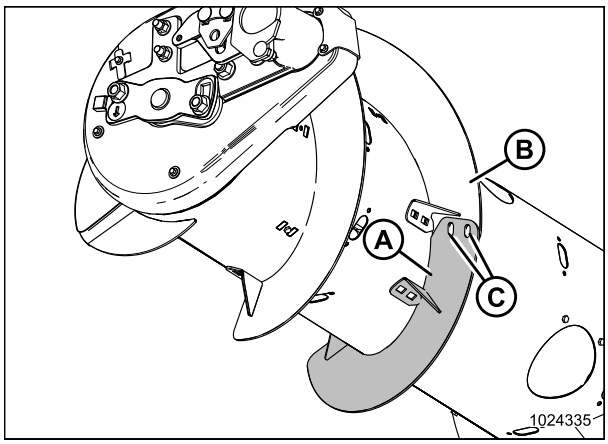


Figure 3.78: Left Side of Auger

20. Stretch flighting (A) to fit auger tube as shown. Use slotted holes on flighting to get the best fit around the auger tube.

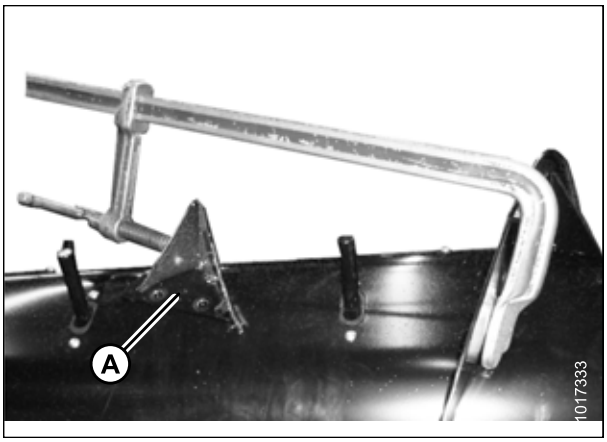


Figure 3.79: Flighting Stretched Axially

21. With flighting in the desired position, mark hole locations (A) on auger tube.
22. Remove the flighting (B) from auger, and drill 11 mm (7/16 in.) holes at the marked locations (A) on auger tube.
23. Remove nearest access cover(s). Retain for reinstallation.
24. Install the bolt-on flighting (B) using two button head bolts and nuts at location (C), and four flange head bolts and nuts at location (A).

    IMPORTANT:

    Ensure bolt heads at location (C) are on the inboard (crop side) and nuts are on the outboard side of the flighting.
25. Repeat Steps *18, page 52* to *24, page 53* for the remaining flighting on the left side of the auger.
26. Place bolt-on flighting (A) outboard of the other flighting (B) on the right side of the auger as shown.
27. Temporarily secure bolt-on flighting (A) with two button head bolts and nuts at location (C).
28. Repeat Steps *20, page 53* to for both pieces of flighting on the right side of the auger.
29. Install flighting slot plugs (MD #213084) in the flighting mounting locations and secure with M6 bolts and tee nuts.
30. Torque all nuts and bolts to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then retorque them to 58–64 Nm (43–47 lbf·ft).

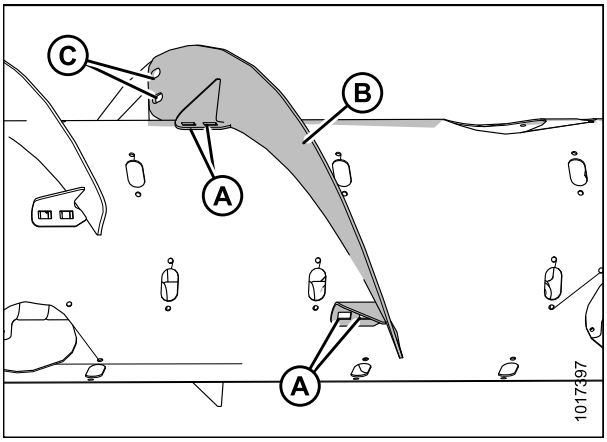


Figure 3.80: Left Side of Auger

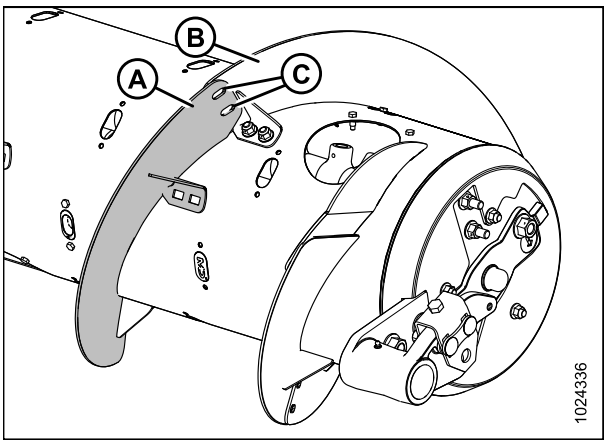


Figure 3.81: Right Side of Auger

NOTE:

Ideally, the flighting should fit tightly against the auger tube; however, gaps are not uncommon. Crop material may collect in these gaps, but generally, this will not affect performance. If desired, you can use silicone sealant to fill these gaps.

31. Add or remove auger fingers to optimize feeding for your combine and crop conditions. Refer to *Installing Feed Auger Fingers, page 57* or *Removing Feed Auger Fingers, page 59*.
32. If not adding or removing auger fingers, reinstall all access covers and secure with bolts. Coat bolts with medium-strength threadlocker (Loctite® 243 or equivalent) and torque to 8.5 Nm (75 lbf·in).

Converting from Narrow Configuration to Ultra Narrow Configuration

Two kits of either MD #287032, B6400, or B6216[5] and some hole-drilling are required to convert to this configuration. Extra hardware is included in these kits. Be sure to use the correct hardware at the correct location to prevent damage and to maximize performance.

NOTE:

A wear-resistant long flighting kit is available for this configuration conversion. This kit includes long tungsten carbide coated flightings that have increased durability for harvesting abrasive crops like rice. If this is required, order two kits of either MD #287032 or B6400[6] instead of two kits of B6216.

NOTE:

Additional holes on the auger are needed before these flightings (A) can be installed.

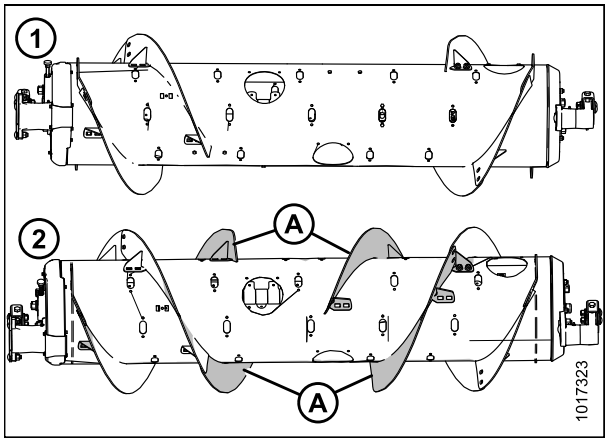


Figure 3.82: Auger Configurations (Rear View)

1 - Narrow Configuration **2 - Ultra Narrow Configuration**

1. If necessary to improve access and ease installation, remove float module from combine. For instructions, refer to the header operator's manual or technical manual.

   NOTE:

   Some parts have been removed from the illustrations for clarity.

5. MD #287032 is available for ordering only through MacDon Parts. B6400 and B6216 are available for ordering only through Whole Goods. MD #287032 and B6400 contain wear-resistant flightings. B6216 contains regular flightings.
6. MD #287032 is available for ordering only through MacDon Parts. B6400 and B6216 are available for ordering only through Whole Goods.

2. Place new bolt-on flighting (A) outboard of the existing flighting (B) on the left side of the auger, as shown.
3. Mark hole locations (C) of the new bolt-on flighting (A) onto existing bolt-on flighting (B).
4. Remove nearest access cover to existing bolt-on flighting (B). Retain hardware for reassembly.
5. Remove existing bolt-on flighting (B) from the auger. Retain hardware for reassembly.
6. Drill two 11 mm (7/16 in.) holes at the marked locations of existing bolt-on flighting (B).
7. Reinstall existing bolt-on flighting (B) on the auger.

   NOTE:

   Ensure carriage bolt heads are on the inside of the auger to prevent damage to internal components.
8. Place new bolt-on flighting (A) outboard of the existing flighting (B) of the left side of the auger, as shown.
9. Secure with two button head bolts and nuts at location (C).

   IMPORTANT:

   Ensure bolt heads are on the inboard (crop side) and nuts are on the outboard side of the flighting.

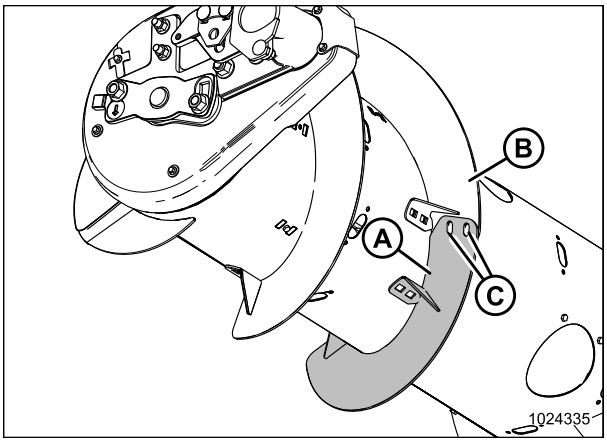


Figure 3.83: Left Side of Auger

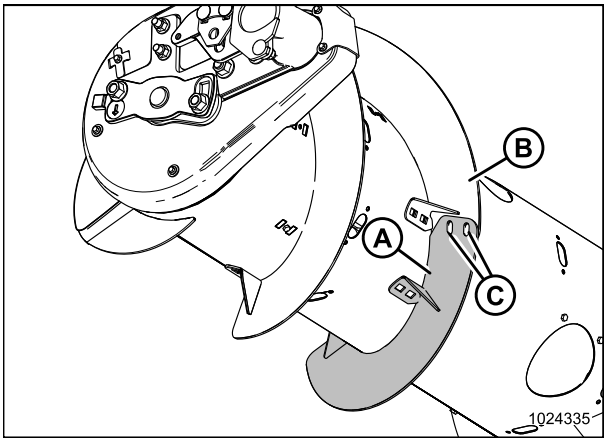


Figure 3.84: Left Side of Auger

10. Stretch flighting (A) to fit auger tube as shown. Use slotted holes on flighting to get the best fit around the auger tube.

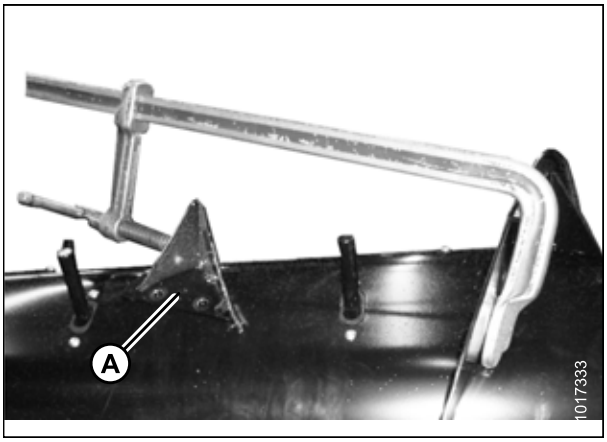


Figure 3.85: Flighting Stretched Axially

11. With flighting in desired position, mark hole locations (A) and drill 11 mm (7/16 in.) holes in auger tube.
12. Remove nearest access cover(s). Retain for reinstallation.
13. Secure bolt-on flighting on the newly drilled holes (A) using four flange head bolts and nuts.
14. Repeat Steps *2, page 55* to *13, page 56* for the other flighting on the left side of the auger.

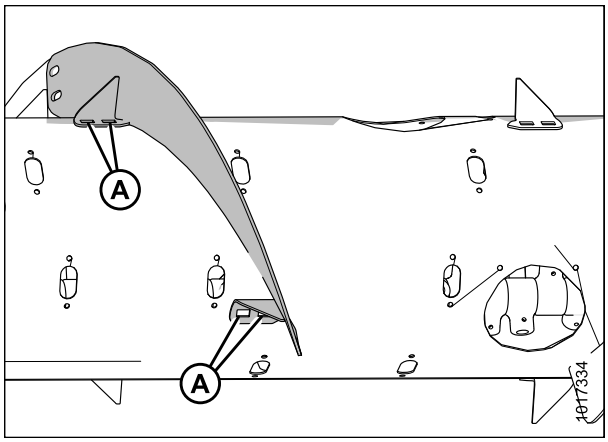


Figure 3.86: Flighting on Left Side of Auger

15. Place flighting (A) outboard of the existing flighting (B) on the right side of the auger, as shown.
16. Repeat Steps *3, page 55* to *13, page 56* for both flightings on the right side of the auger.
17. Install flighting slot plugs (MD #213084) in the flighting mounting locations and secure with M6 bolts (MD #252703) and tee nuts (MD #197263).
18. Torque all nuts and bolts to 47 Nm (35 lbf·ft) to eliminate deflection on flighting, then torque nuts and bolts again to 58–64 Nm (43–47 lbf·ft).

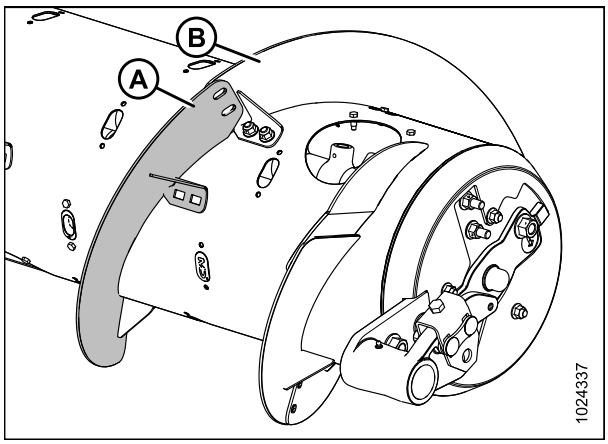


Figure 3.87: Flighting on Right Side of Auger

NOTE:

Ideally, the flighting should fit tightly against the auger tube; however, gaps are not uncommon. Crop material may collect in these gaps, but generally, this will not affect performance. If desired, you can use silicone sealant to fill these gaps.

19. Add or remove auger fingers as necessary to optimize feeding for your combine and crop conditions. Refer to *Installing Feed Auger Fingers, page 57* or *Removing Feed Auger Fingers, page 59*.
20. If not adding or removing auger fingers, reinstall all access covers and secure with bolts. Coat bolts with medium-strength threadlocker (Loctite® 243 or equivalent) and torque to 8.5 Nm (75 lbf·in).

Installing Feed Auger Fingers

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.

NOTE:

Not all parts needed for this procedure are included in this kit, and depending on the original configuration of the feed auger, additional parts may need to be ordered. Refer to *3.7.2 Float Module Feed Auger Configurations, page 36* to see which parts are available.

1. Remove bolts (A) and access cover (B) from the access cutout closest to the finger that needs to be installed or replaced.

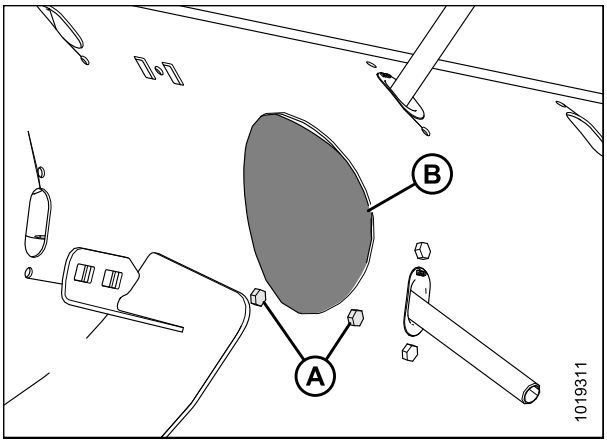


Figure 3.88: Auger Access Cover

2. Remove the two bolts (B), tee nuts, and plug (A).

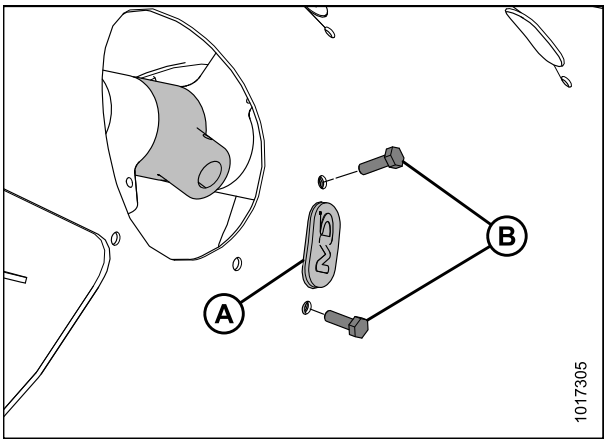


Figure 3.89: Auger Finger Hole

3. Coat bolts (A) with medium-strength threadlocker (Loctite® 243 or equivalent), and then insert the plastic finger guide (B) from inside the auger and secure it with bolts and tee nuts. Torque bolts to 8.5 Nm (75 lbf·in).

   NOTE:

   When installing additional fingers, ensure you install an equal number on each side of the auger.

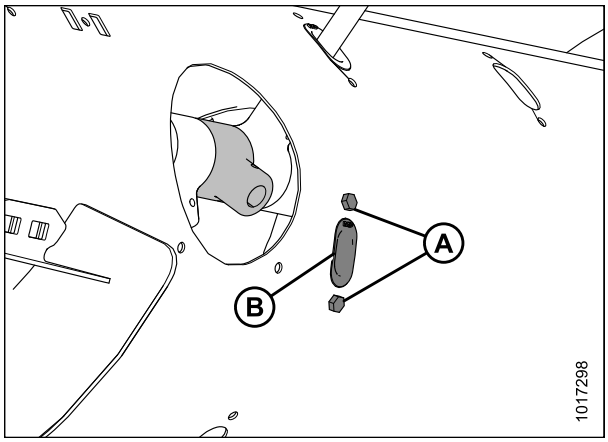


Figure 3.90: Auger Finger Hole

4. From inside the auger, insert the new auger finger (B) through the plastic guide (D).
5. Insert the finger (B) into finger holder (C) and secure with hairpin (A).

   NOTE:

   Note the orientation of the hairpin (A). The round part should face the direction of auger rotation; the formed side (that is, the S-shaped side) must face the chain drive side of the auger.

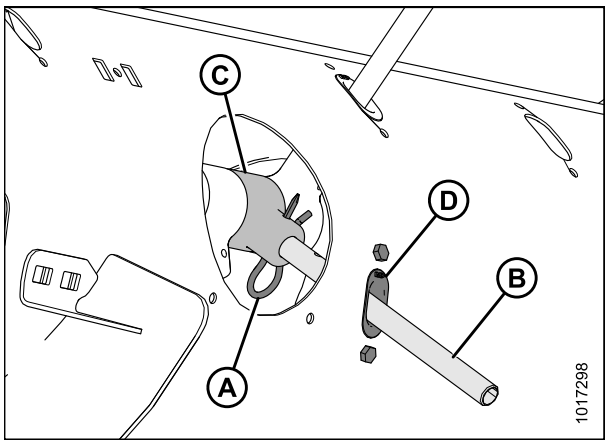


Figure 3.91: Auger Finger

6. Coat bolts (A) with medium-strength threadlocker (Loctite® 243 or equivalent), then replace the access cover (B) and secure with bolts. Torque to 8.5 Nm (75 lbf·in).

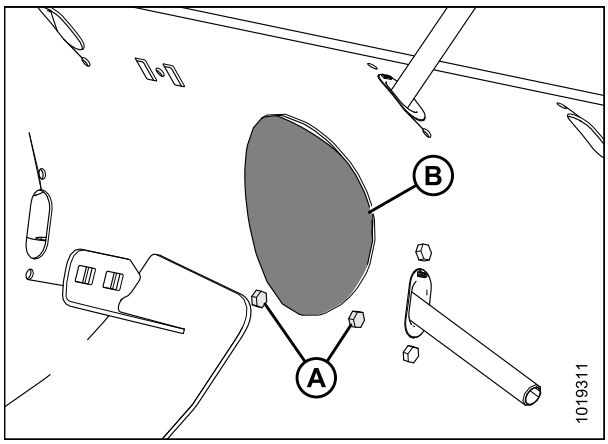


Figure 3.92: Auger Access Cover

Removing Feed Auger Fingers

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. Remove bolts (A) and remove the access cover (B) closest to the finger you are removing.

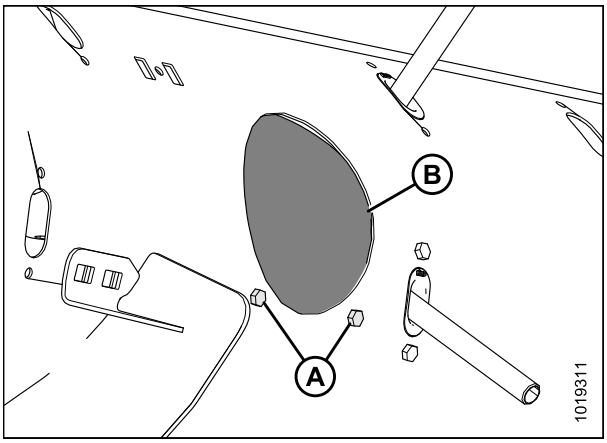


Figure 3.93: Auger Access Hole Cover

2. Remove hairpin (A), pull finger (B) out of finger holder (C) from inside the auger, and then remove the finger from the auger by pulling it out through plastic guide (D).

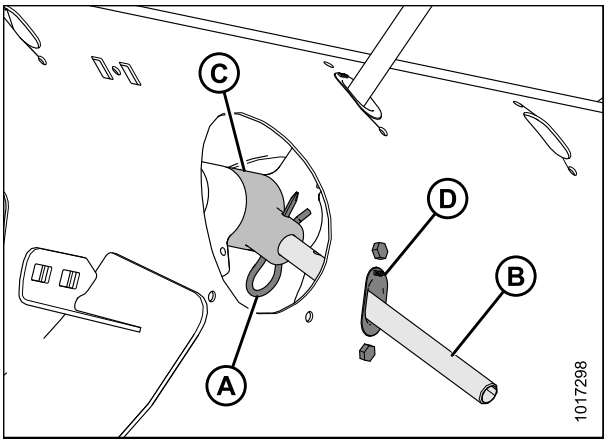


Figure 3.94: Auger Finger

3. Remove the bolts (A) and tee nuts securing the plastic guide (B) to the auger, and remove the guide from inside the auger.

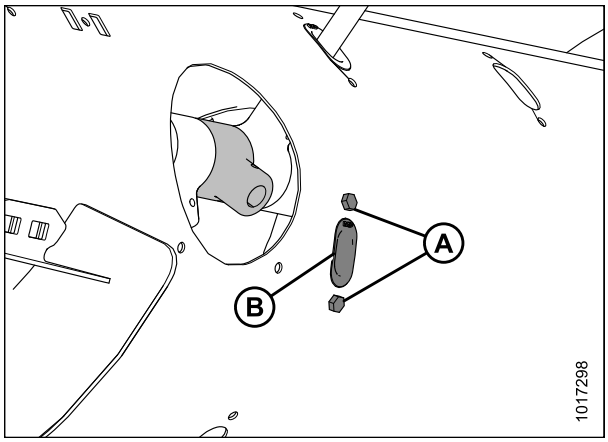


Figure 3.95: Auger Finger Hole

4. Coat bolts (B) with medium-strength threadlocker (Loctite® 243 or equivalent), and then position plug (A) into the hole from inside the auger, and secure with two bolts (B) and tee nuts. Torque to 8.5 Nm (75 lbf·in).

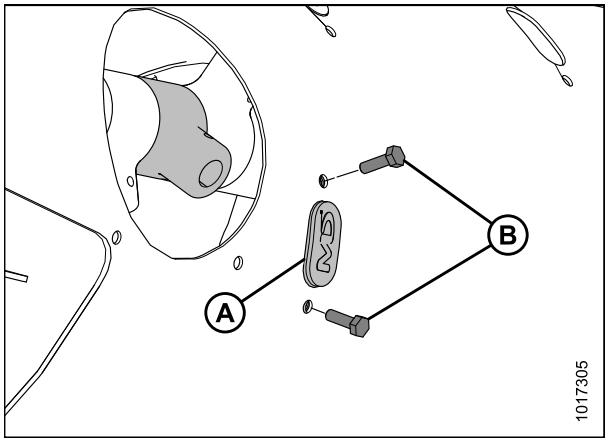


Figure 3.96: Plug

5. Coat bolts (A) with medium-strength threadlocker (Loctite® 243 or equivalent) and replace the access cover (B) using the bolts to secure the access cover in place. Torque bolts to 8.5 Nm (75 lbf·in).

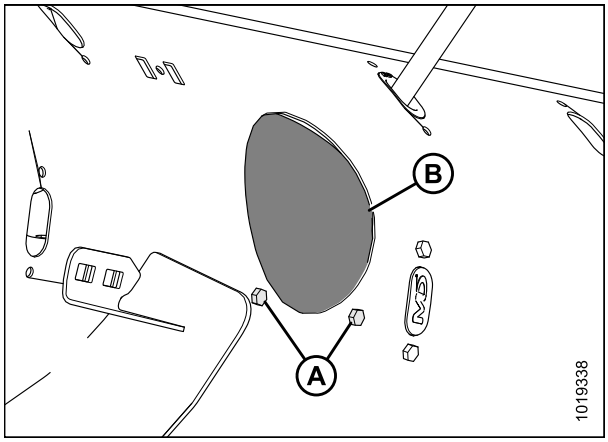


Figure 3.97: Auger Access Cover

3.7.3 Float Module Stripper Bars and Feed Deflectors

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:

New Holland CR960, 9060, 970, 9070, and 9080 combine FM100 Float Modules are not equipped with stripper bars. The following procedure does **NOT** apply to those models.

If necessary, remove auger stripper bars as follows:

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

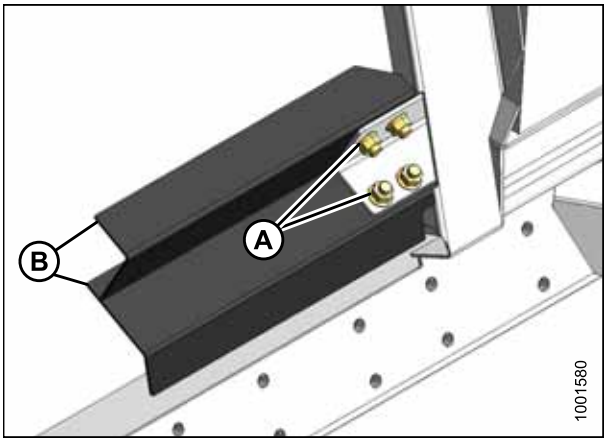


Figure 3.98: Auger Stripper Bar

CR Feeder Deflectors

For New Holland combines only: Short feeder deflectors have been factory-installed on the float module to improve feeding into the feeder house. Remove the feeder deflectors if necessary. Refer to *Replacing CR Feeder Deflectors, page 61*.

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

Feeder House Size	Feeder Kit Size	MacDon Part Number
1250–1350 mm (49–65 in.)	Short: 200 mm (7-7/8 in.)	MD #213613, 213614
1100 mm (43-1/2 in.) and below	Long: 325 mm (12-13/16 in.)	MD #213592, 213593

Replacing CR Feeder Deflectors

If the header is configured for a New Holland CR 960, 9070, or 9080 combine, the float module has a factory-installed feeder deflector kit to improve feeding into the 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 D1 Series/FM100 combine completion package for the New Holland models includes both a short feeder kit (installed at the factory) and a long feeder kit for narrow feeder house combines. Refer to Table *3.1, page 62*.

Table 3.1 FM100 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 (12–3/4 in.)

If required, replace the feeder deflectors as follows:

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

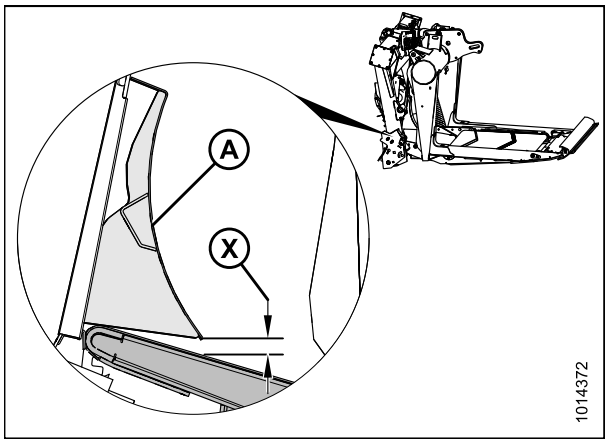


Figure 3.99: Side View of Deflector

2. Remove the two bolts and nuts (B) securing the deflector (A) to the float module frame and remove deflector.
3. Position the replacement deflector and reinstall bolts and nuts (B). Do not tighten bolts.

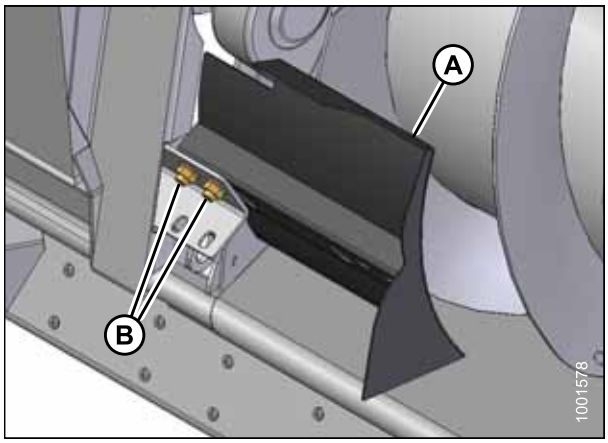


Figure 3.100: Replacement Deflector: Left Shown – Right Opposite

4. Set the gap (X) to the dimension recorded in Step *1, page 62* and tighten the nuts.
5. Repeat for the opposite deflector.

CAUTION

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

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

   NOTE:

   The minimum gap, when attached to the combine, should be 19–25 mm (3/4–1 in.).
9. If necessary, detach header from the combine and adjust the deflector to achieve the minimum gap.

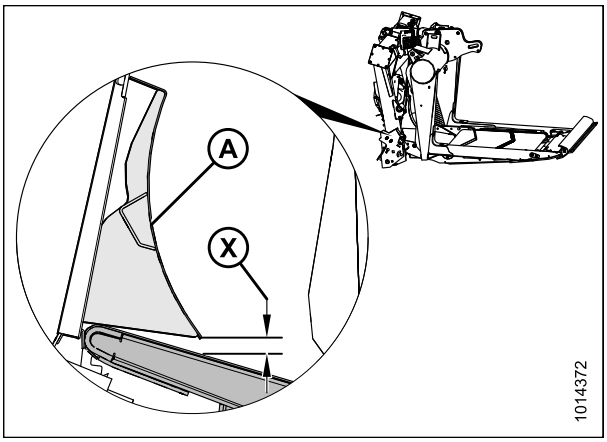


Figure 3.101: Side View of Deflector

4 Attaching Header to Combine

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

Table 4.1 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	*4.1 AGCO (Challenger, Gleaner, and Massey Ferguson) Combines, page 65*
Case IH 7010, 8010, 7120, 8120, 9120, 5088, 6088, 7088, 5130, 6130, 7130, 7230, 8230, and 9230	*4.2 Case IH Combines, page 73*
CLAAS 500, 600, and 700 (R Series)	*4.4 CLAAS Combines, page 91*
John Deere 60, 70, S, and T Series	*4.3 John Deere Combines, page 79*
New Holland CR and CX	*4.5 New Holland Combines, page 96*

IMPORTANT:

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

4.1 AGCO (Challenger, Gleaner, and Massey Ferguson) Combines

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

Gleaner combines prior to model year 2014 are not equipped to accommodate 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

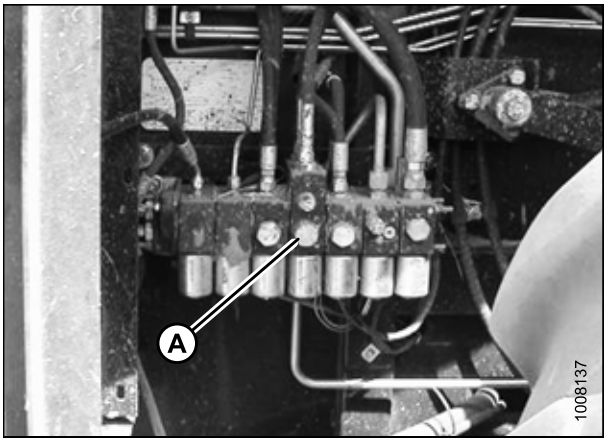


Figure 4.1: Converted Gleaner R72 Shown

NOTE:

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

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

IMPORTANT:

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

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.

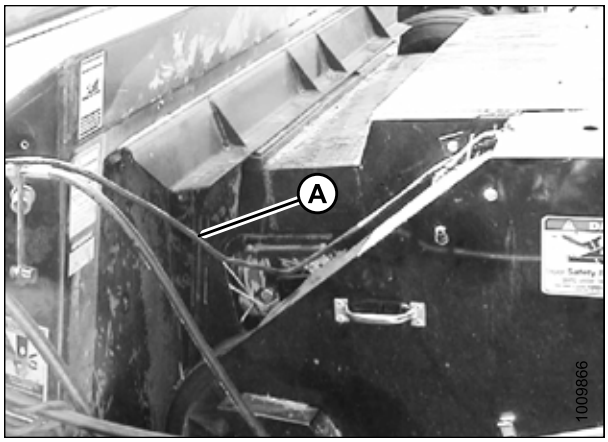


Figure 4.2: Switch Harness Routing

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 location (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.

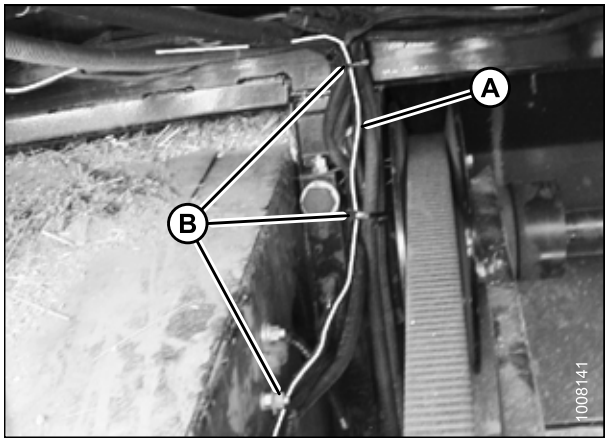


Figure 4.3: Left Side of Feeder House

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

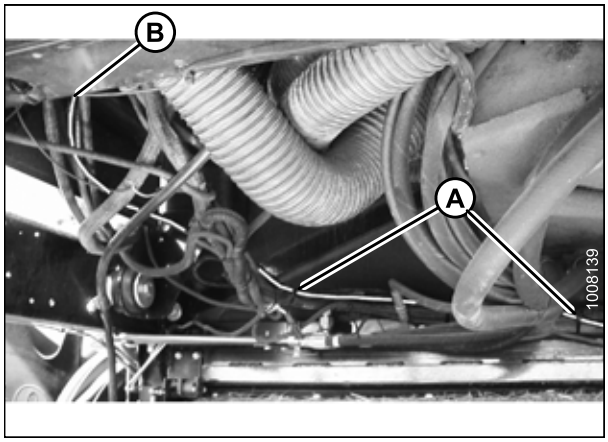


Figure 4.4: Harness under Right Side of Cab Floor

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

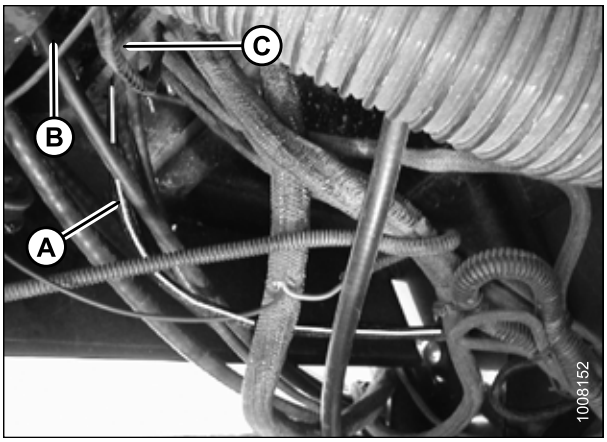


Figure 4.5: Harness through Cab Floor

6. Remove the console cover (A) as shown.
7. Connect the switch harness to the power supply inside the console at location (B).
   - The red wire from the inline 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).

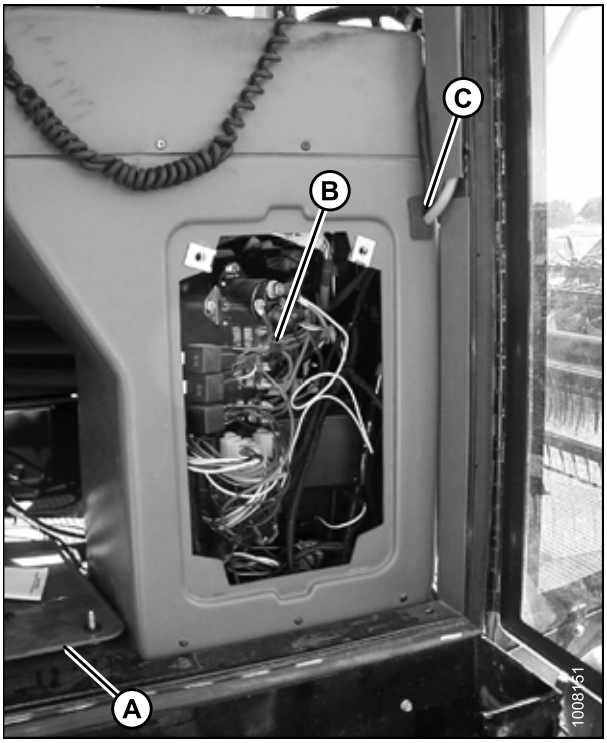


Figure 4.6: Switched Power Supply

9. Mount switch plate onto console (A) in a comfortable position.
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.

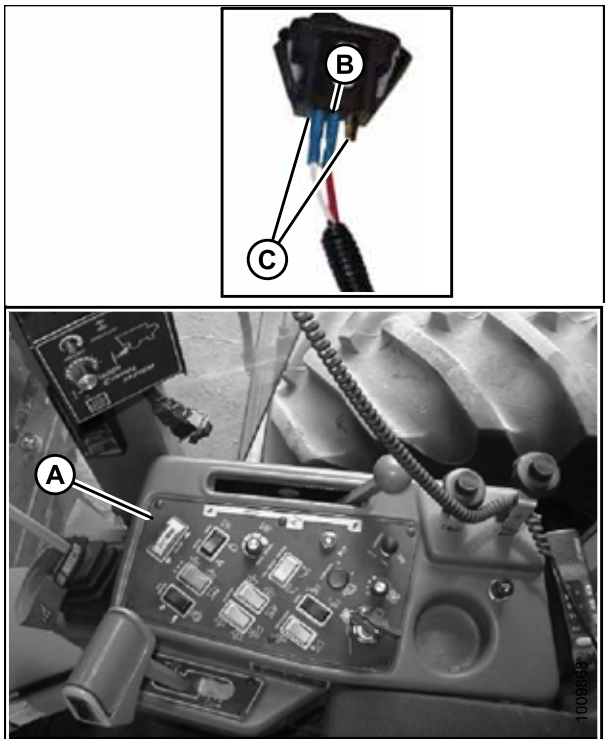


Figure 4.7: Switch and Console

4.1.2 Attaching Header to a 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 the lock handle (B) to retract the lugs (A) at the base of the feeder house.

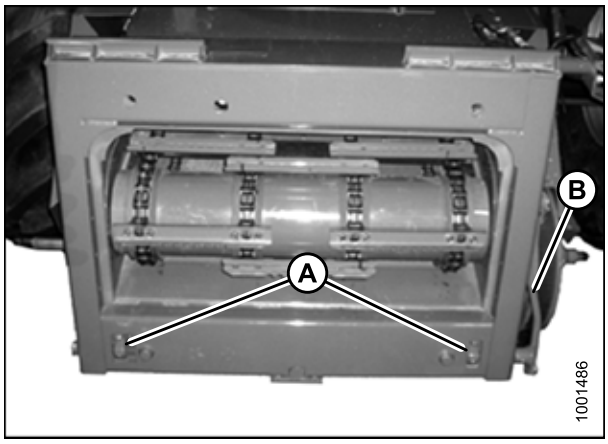


Figure 4.8: AGCO Group Feeder House

CAUTION

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

2. Start the engine and slowly approach the header until the feeder house is directly under the float module top cross member (A) and the alignment pins (C) (refer to Figure *4.10, page 69*) on the feeder house are aligned with the holes (B) in the float module frame.

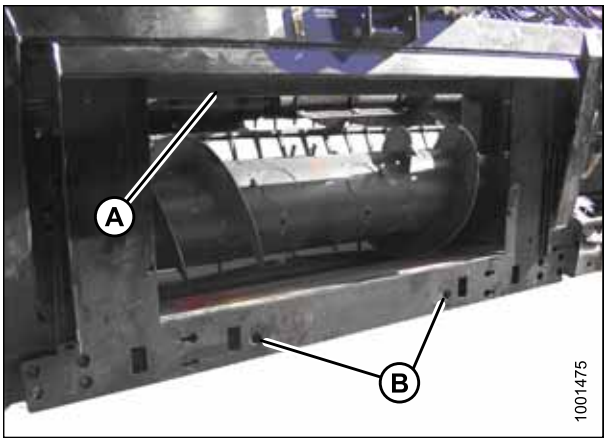


Figure 4.9: Float Module

NOTE:

Your combine feeder house may not be exactly as shown.

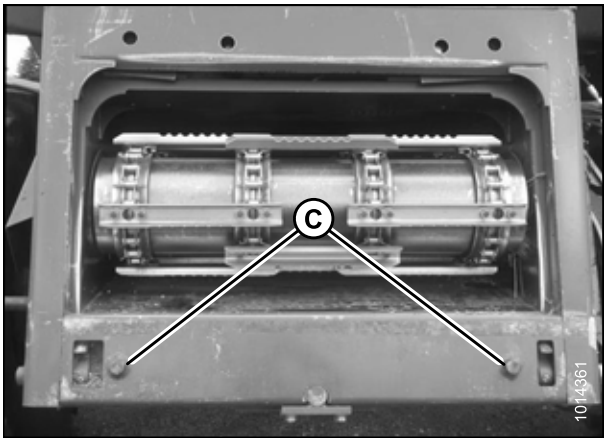


Figure 4.10: AGCO Group Alignment Pins

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

Figure 4.11: Feeder House and Float Module

5. Use the lock handle (B) to engage lugs (A) with the float module.

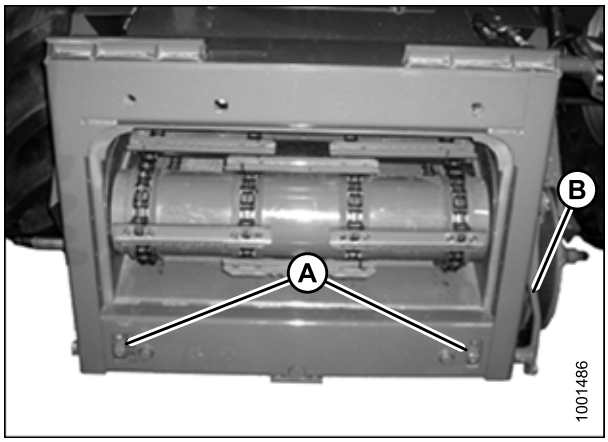


Figure 4.12: AGCO Group Feeder House

CAUTION

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

6. Start the engine and lower the header.
7. Stop the engine and remove the key from the ignition.

   NOTE:

   The FM100 Float Module is equipped with a multicoupler that connects to the combine. If your combine is equipped with individual connectors, a multicoupler kit (single-point connector) must be installed. Refer to Table *4.2, page 70* for a list of kits and installation instructions that are available through your combine Dealer.

Table 4.2 Multicoupler Kits

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

8. Raise the handle (A) to release the multicoupler (B) from the float module.

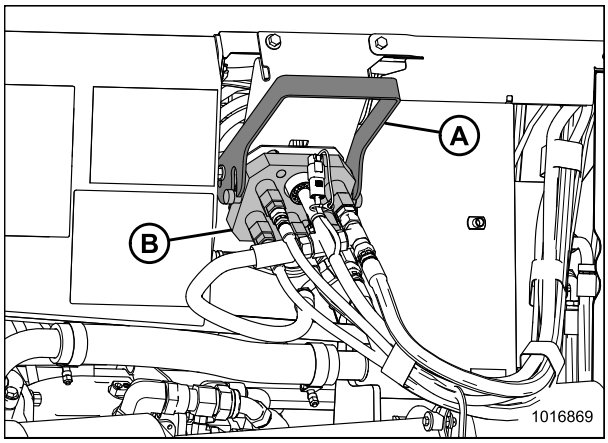


Figure 4.13: Float Module Multicoupler

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

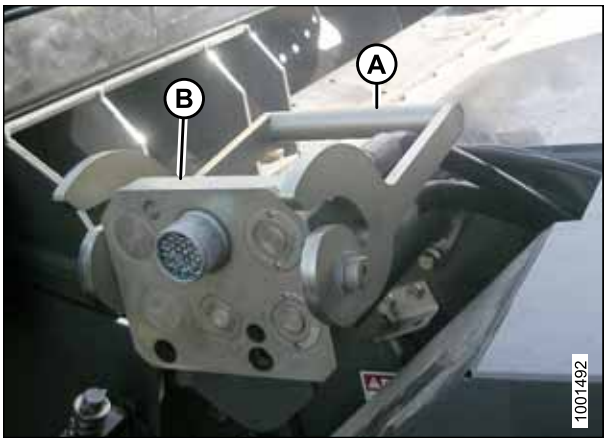


Figure 4.14: Combine Receptacle

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

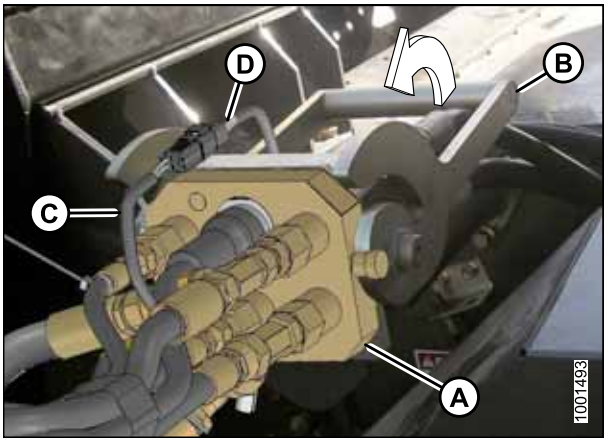


Figure 4.15: Multicoupler

13. Detach safety chain (C) from support bracket (B).
14. Pull collar (D) back to release driveline (A) from support bracket. Remove the driveline from support bracket.

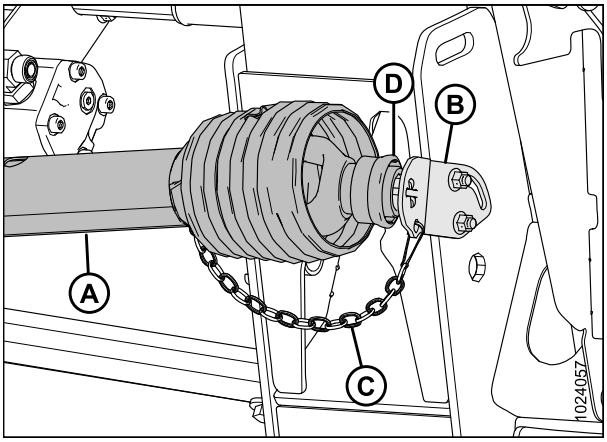


Figure 4.16: Driveline

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

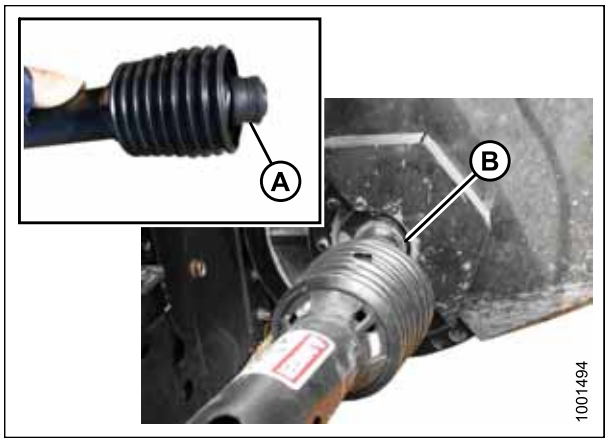


Figure 4.17: Driveline

16. Proceed to *4.6 Completing the Header Assembly, page 101*.

4.2 Case IH Combines

4.2.1 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.

1. On the upper left side of the combine float module, remove nut (A), washer, spring, and lever (B).

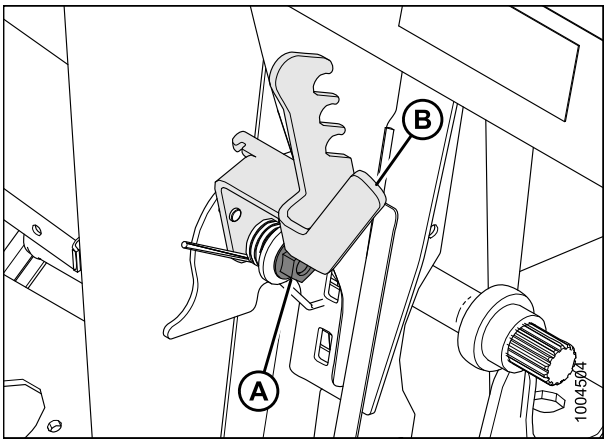


Figure 4.18: Combine Float Module Upper Left Side

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

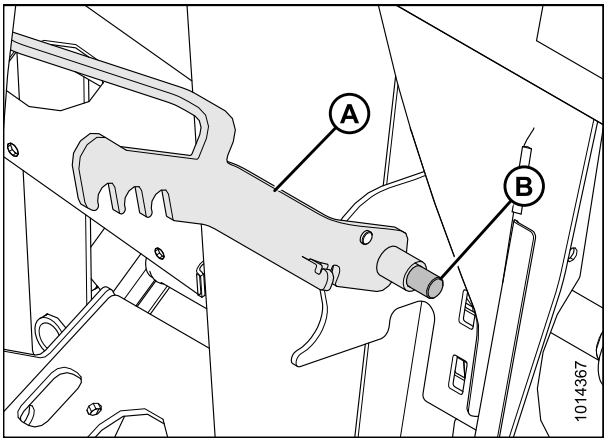


Figure 4.19: Combine Float Module Upper Left Side

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

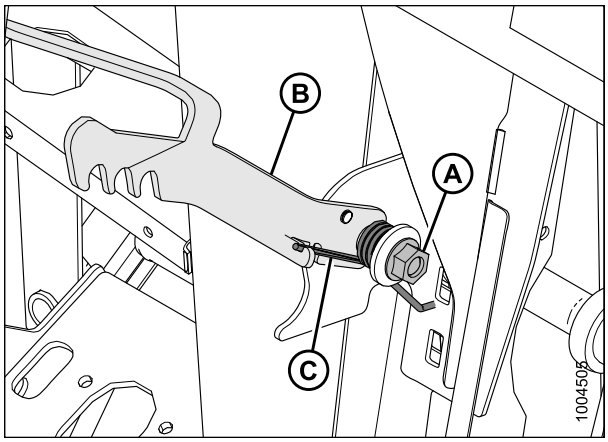


Figure 4.20: Combine Float Module Left Side

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

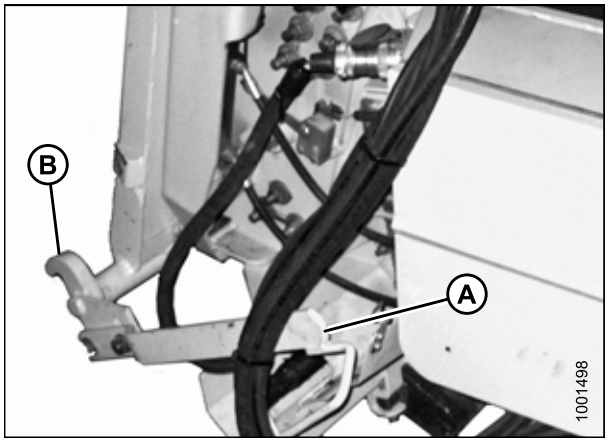


Figure 4.21: Feeder House Locks

CAUTION

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

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

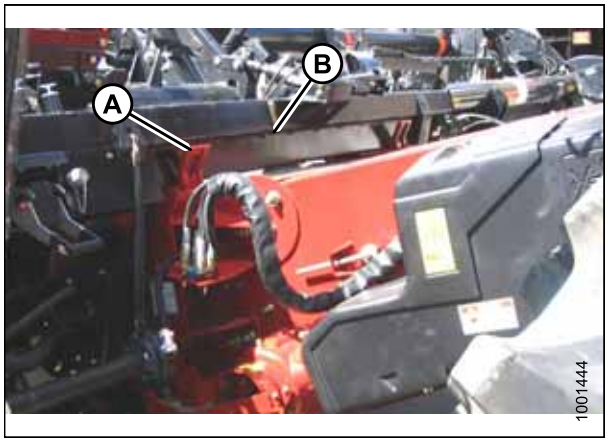


Figure 4.22: Combine and Float Module

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

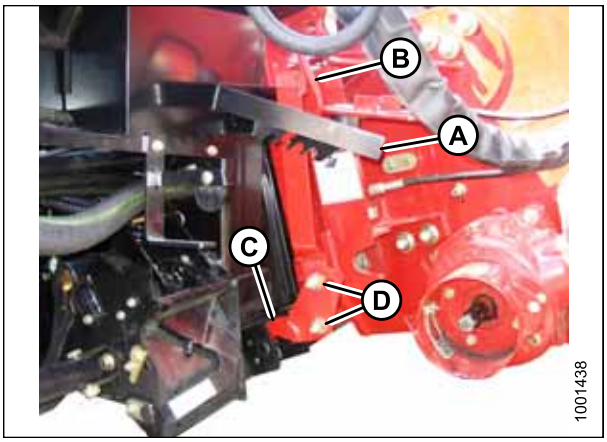


Figure 4.23: Combine and Float Module

11. Open the cover on the receptacle (A) located on the left side of the float module.
12. Press the lock button (B) and pull the handle (C) to the fully-open position.
13. Clean the receptacle mating surfaces.

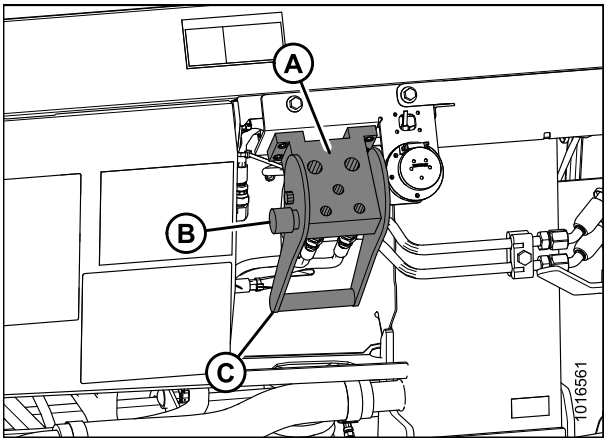


Figure 4.24: Float Module Receptacle

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

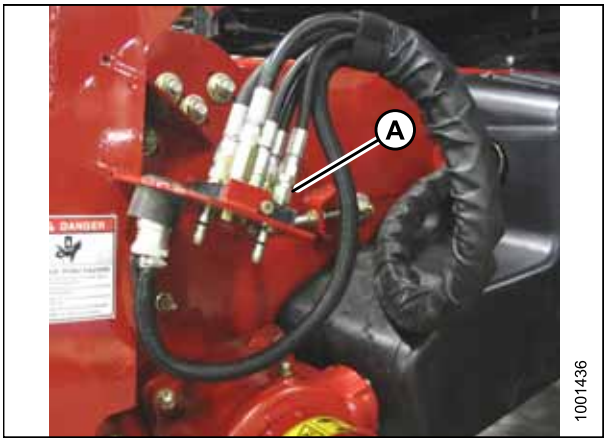


Figure 4.25: Combine Connectors

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

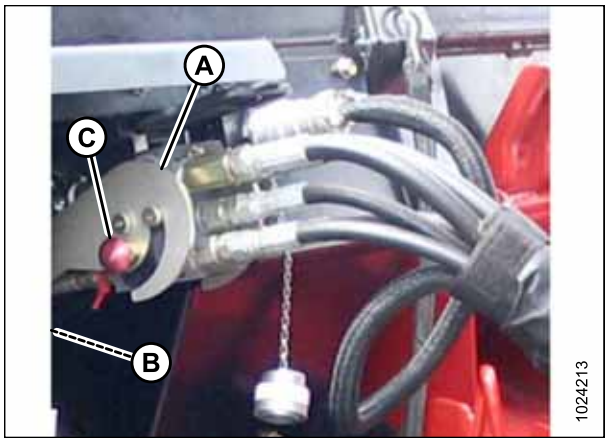


Figure 4.26: Hydraulic Connection

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

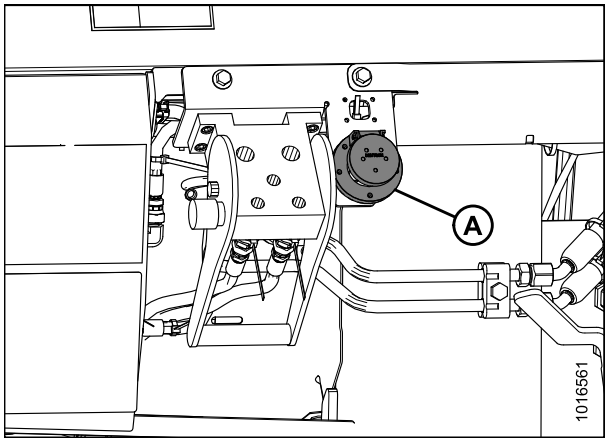


Figure 4.27: Electrical Receptacle

18. Remove the electrical connector (A) from the storage cup on the combine and route it to the float module receptacle.

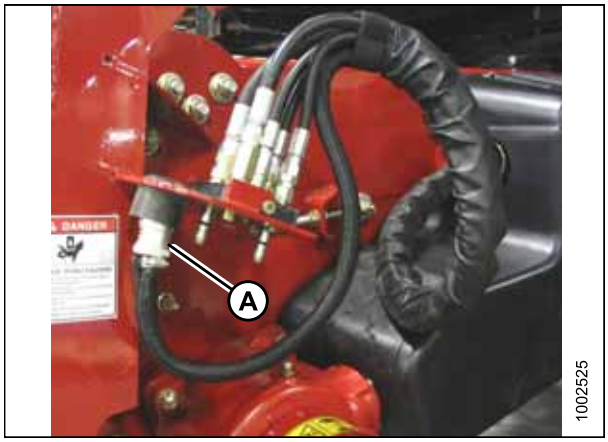


Figure 4.28: Combine Connectors

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

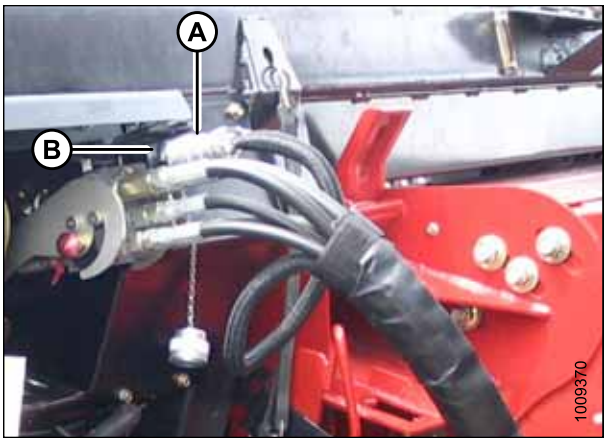


Figure 4.29: Electrical Connection

20. Detach safety chain (C) from support bracket (B).
21. Pull collar (D) back to release driveline (A) from support bracket. Remove the driveline from support bracket.

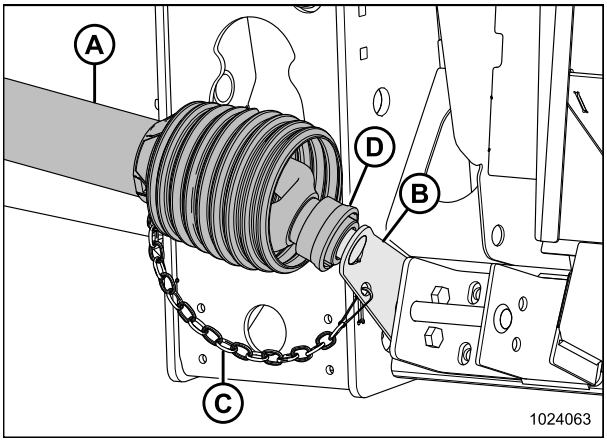


Figure 4.30: Driveline in Storage Position

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

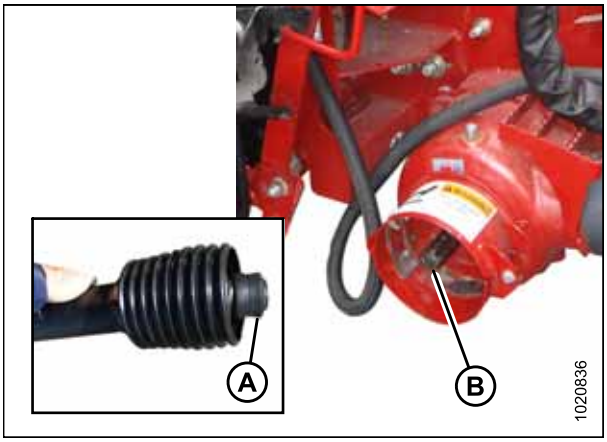


Figure 4.31: Combine Output Shaft

23. Disengage the float locks by pulling each float lock handle (A) away from the float module and setting it in the unlocked position (B).
24. Proceed to *4.6 Completing the Header Assembly, page 101*.

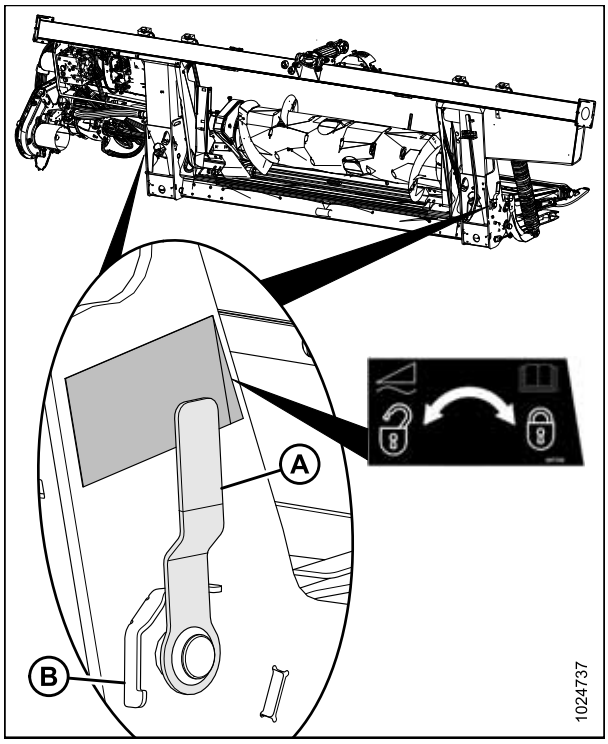


Figure 4.32: Float Lock Handle (Right Side Shown in Detail, Left Side Opposite)

4.3 John Deere Combines

The D1 Series Draper Header is compatible with John Deere 60, 70, S, and T Series combines.

4.3.1 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. For John Deere 60 or 70 Series combines, refer to *4.3.2 Installing Reel Fore-Aft / Header Tilt Switch: 60 and 70 Series Combines, page 83*.

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:

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

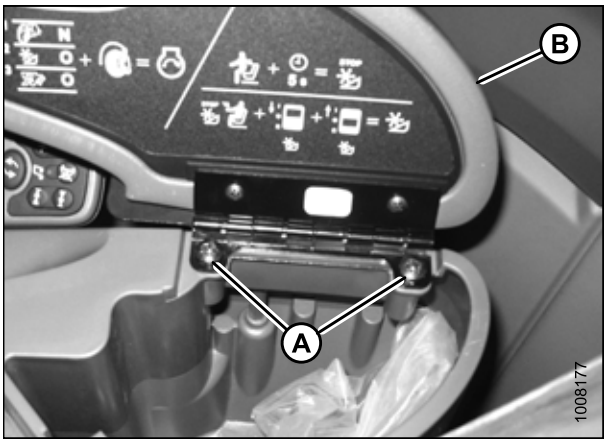


Figure 4.33: Storage Compartment and Cover

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

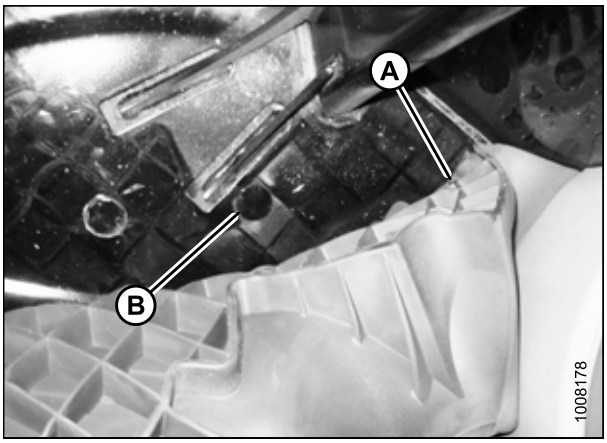


Figure 4.34: Floor Mat at Forward Right Corner and Knockout

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

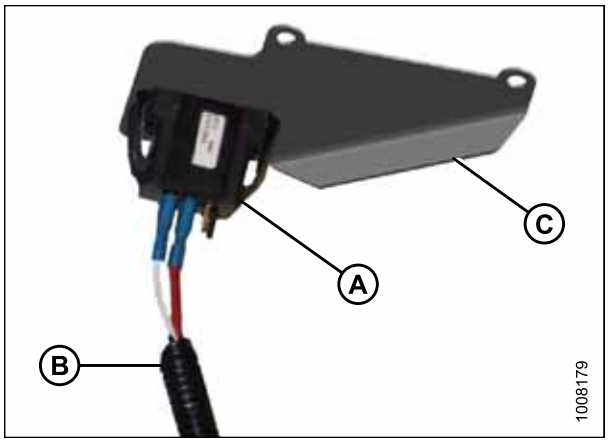


Figure 4.35: Switch and Harness

7. 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.

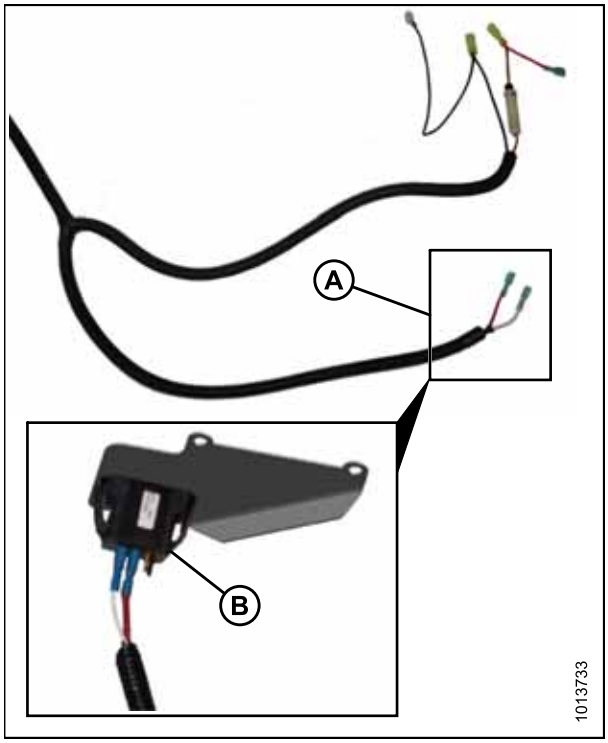


Figure 4.36: Switch End of Harness and Switch

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

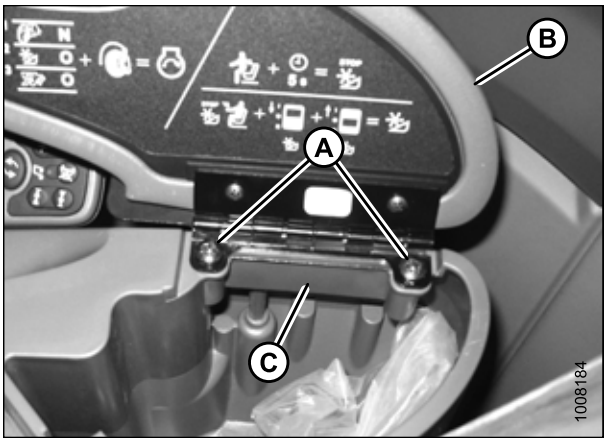


Figure 4.37: Support Position on Console

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

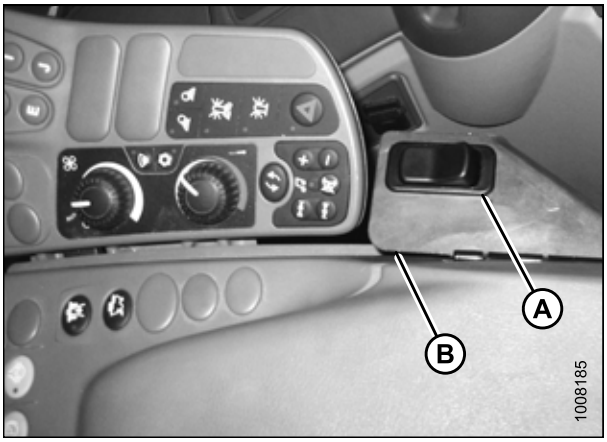


Figure 4.38: Secured Switch

11. Connect the feed end of harness (A) to the auxiliary power outlet strip on the right side of the cab floor.

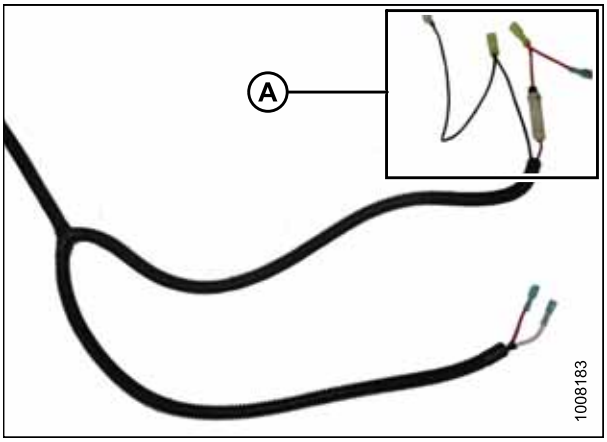


Figure 4.39: Feed End of Harness

12. Connect the harness end to one of the auxiliary power supply points (A).
13. Connect the wire (from the in-line fuse) to the switched power supply (C).
14. Connect the other wire to 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.

15. Tape unused wire jumpers to harness.

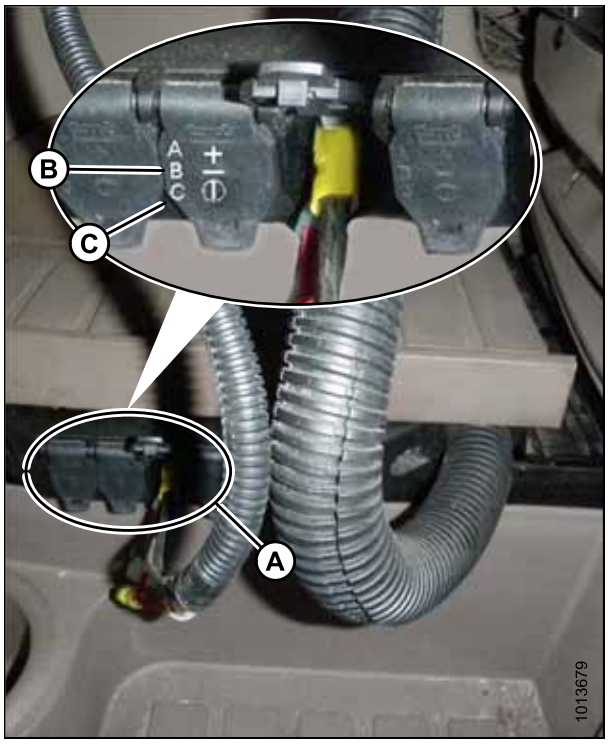


Figure 4.40: Combine Auxiliary Power Supply

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

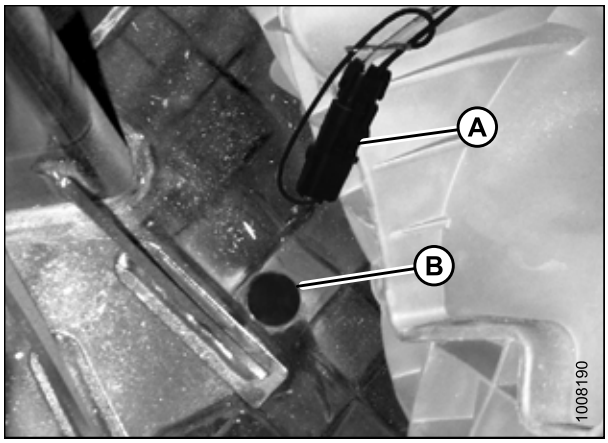


Figure 4.41: Plug End of Harness

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

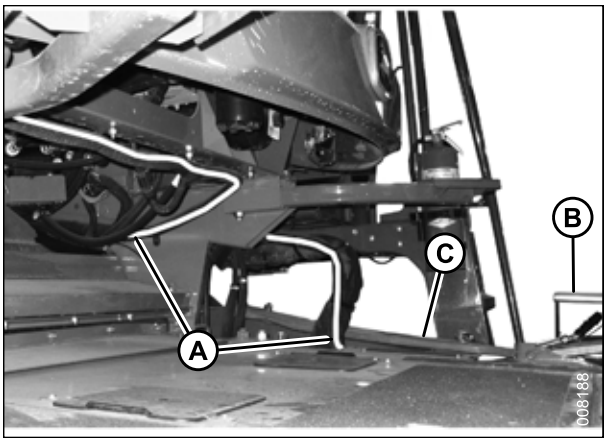


Figure 4.42: Harness and Feeder House Multicoupler

4.3.2 Installing Reel Fore-Aft / Header Tilt Switch: 60 and 70 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 applies to John Deere 60 and 70 Series combines. For John Deere S and T Series combines, refer to *4.3.1 Installing Reel Fore-Aft / Header Tilt Switch: S and T Series Combines, page 79*.

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.

1. To ensure the switch harness will attach to selector valve wiring harness (with header tilted forward) and that the feeder house can be fully lowered with adequate slack in the harness, lay the switch harness along the route from front of the feeder house to the auxiliary power supply in the cab.

2. Route the switch harness (A) through an existing grommet (B) on the combine's electrical plate (located at the rear of the right side window).

   NOTE:

   To simplify feeding the harness through the grommet, wrap the switch and power plugs with electrical tape.

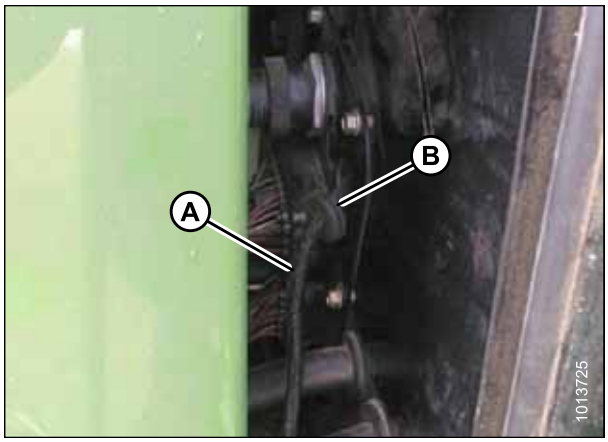


Figure 4.43: Switch Harness Routing

3. Retrieve switch (A) and support (C) provided with kit.
4. 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 (A) connected to the harness (B).

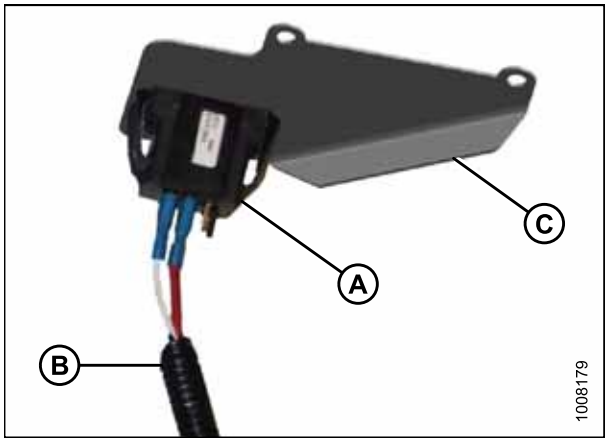


Figure 4.44: Switch and Harness

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

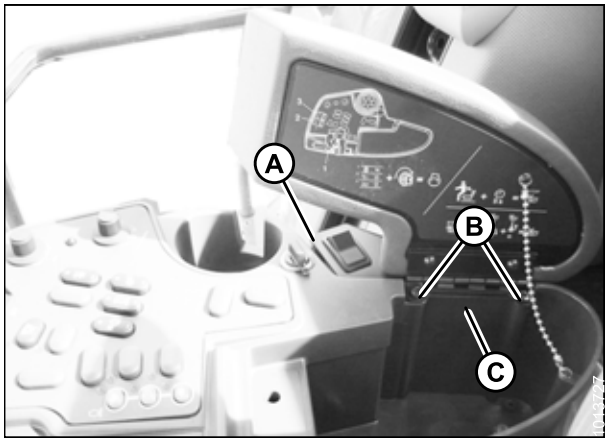


Figure 4.45: Switch Plate Mounting

6. 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.

   NOTE:

   The color of the wires does not matter; ensure one wire terminates at the center terminal.

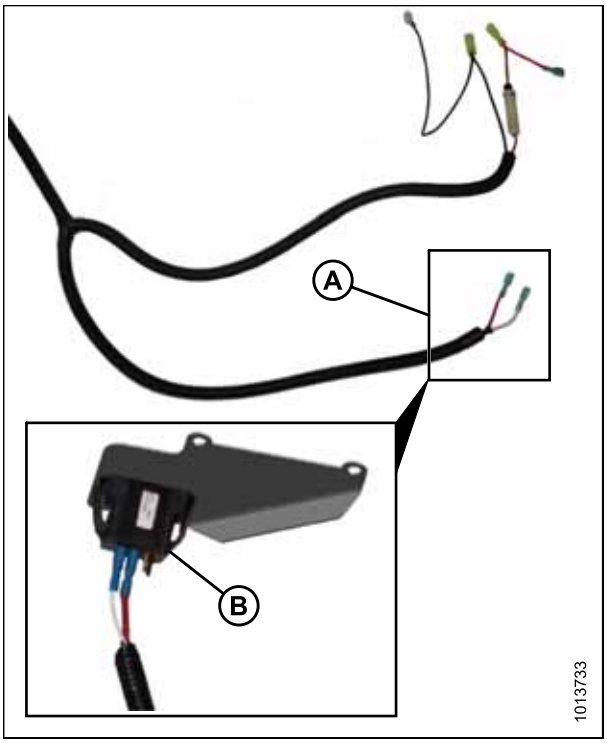


Figure 4.46: Switch End of Harness and Switch

7. 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.

8. Tape the unused wire jumpers to the harness.

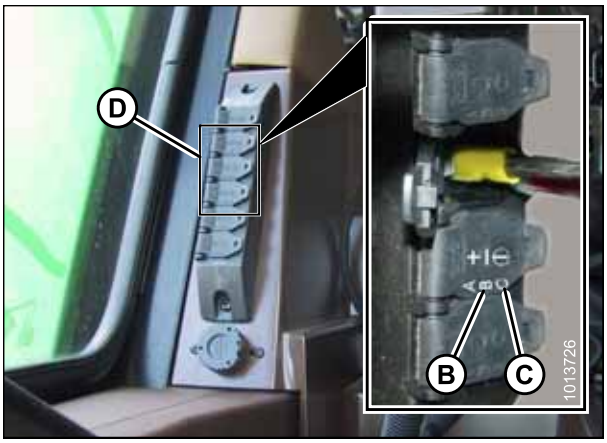


Figure 4.47: Auxiliary Power Supply

9. Route the switch harness (A) across the underside of the cab, alongside an existing harness, to the left side of the feeder house.

   IMPORTANT:

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

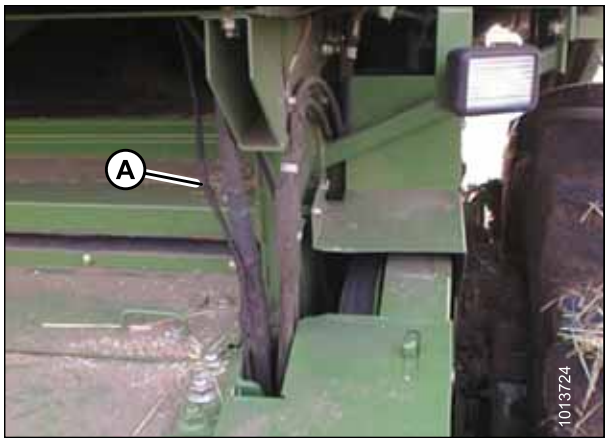


Figure 4.48: Switch Harness Routing

10. Secure the switch harness (A) at the rear of the feeder house with cable tie.

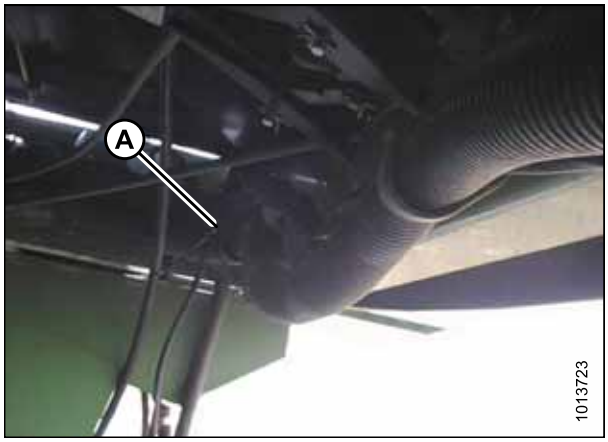


Figure 4.49: Switch Harness Routing

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

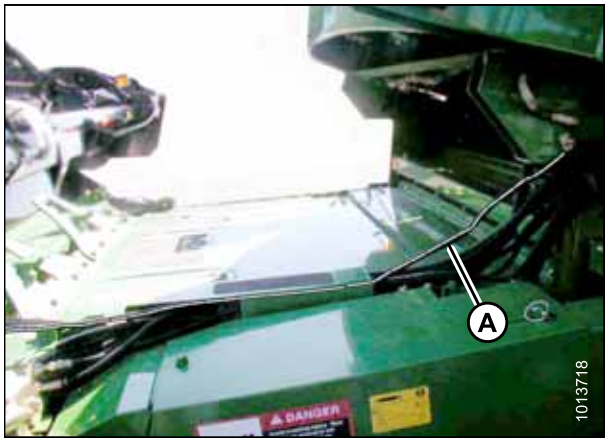


Figure 4.50: 60/70 Series Harness Routing

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

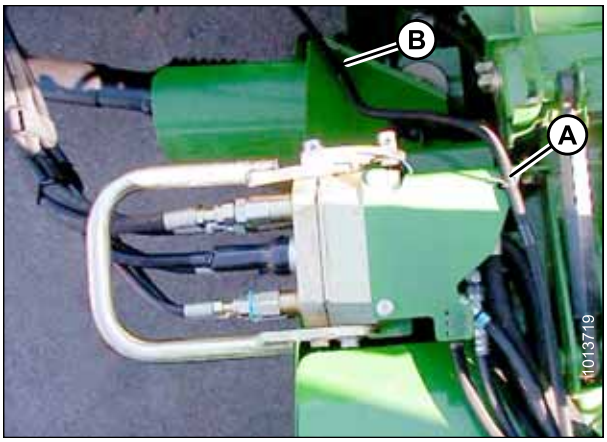


Figure 4.51: Switch Harness Routing

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

CAUTION

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

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

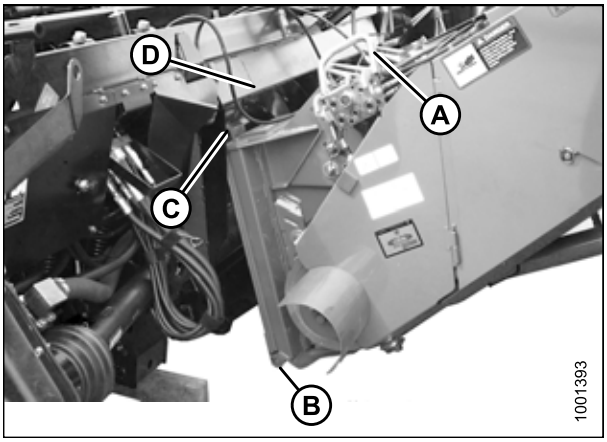


Figure 4.52: Combine and Float Module

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

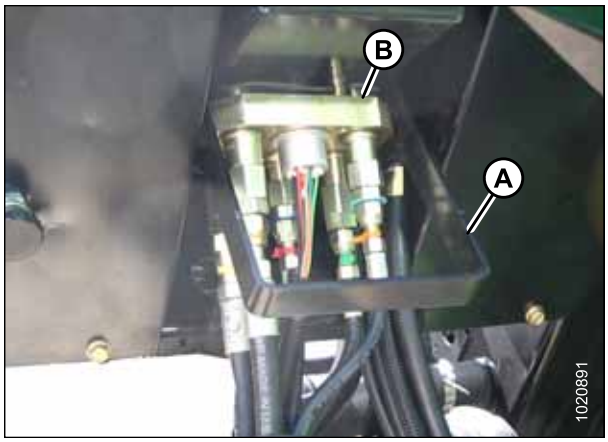


Figure 4.53: Multicoupler Storage

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

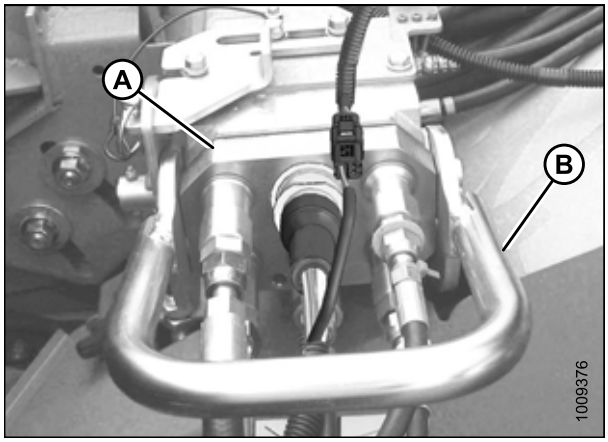


Figure 4.54: Multicoupler

8. Ensure that both feeder house pins (A) are fully engaged into the float module brackets.

   NOTE:

   If the pins (A) do not fully engage the float module brackets, loosen the bolts (B) and adjust the bracket as required.
9. Tighten bolts (B).

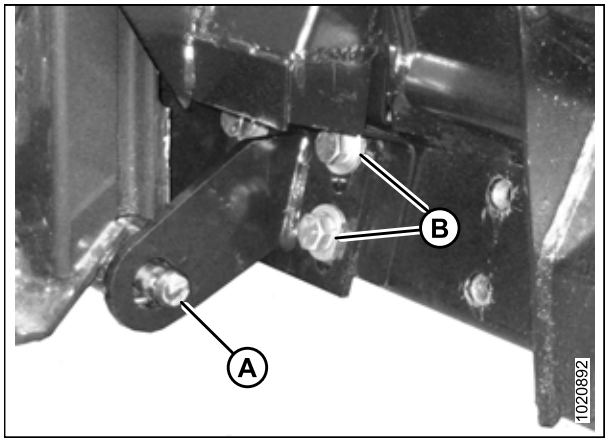


Figure 4.55: Feeder House Pin

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

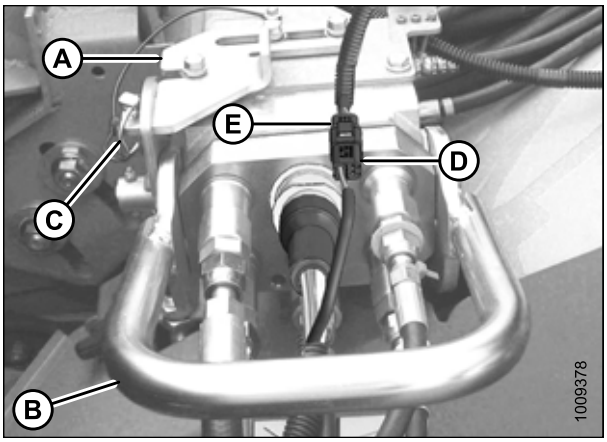


Figure 4.56: Multicoupler

12. Detach safety chain (C) from support bracket (B)
13. Pull collar (D) back to release driveline (A) from support bracket. Remove the driveline from the support bracket.

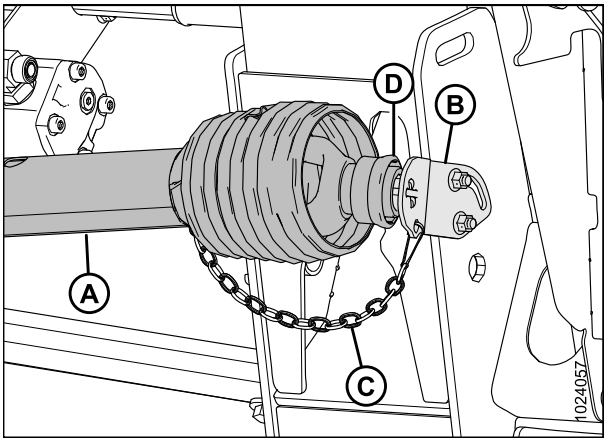


Figure 4.57: Driveline

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

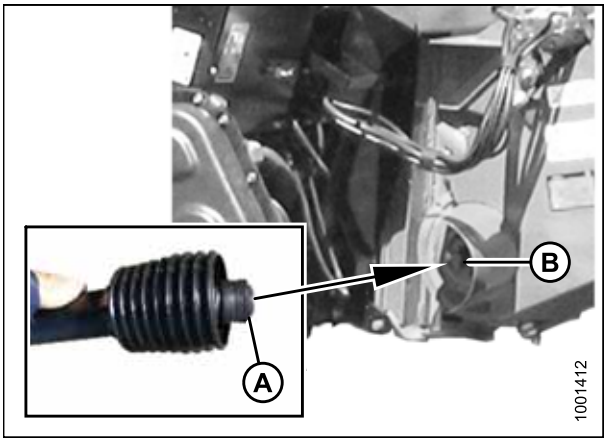


Figure 4.58: Driveline

15. Disengage the float locks by pulling each float lock handle (A) away from the float module, and setting it in the unlocked position (B).
16. Proceed to *4.6 Completing the Header Assembly, page 101*.

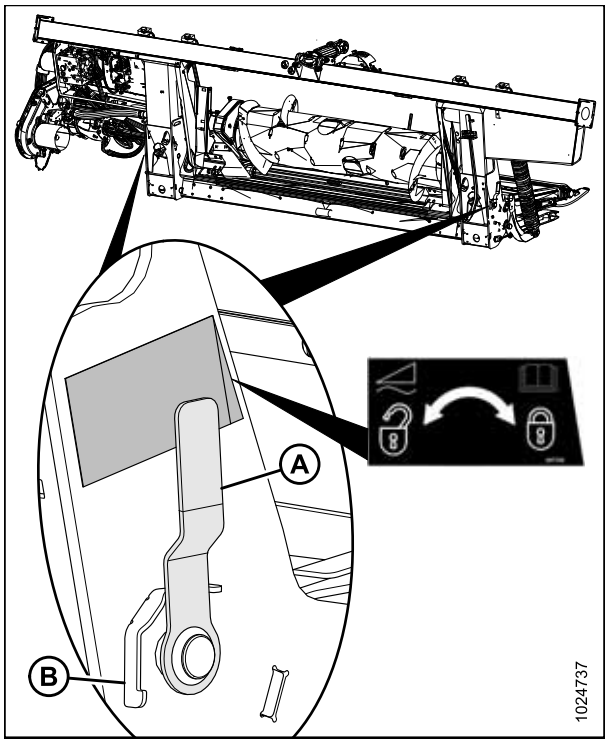


Figure 4.59: Float Lock Handle (Right Side Shown in Detail, Left Side Opposite)

4.4 CLAAS Combines

The D1 Series Draper Header is compatible with CLAAS 500, 600, and 700 Series combines.

4.4.1 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 the handle (A) on the FM100 Float Module into the raised position, and ensure the pins (B) at the bottom corners of the float module are retracted.

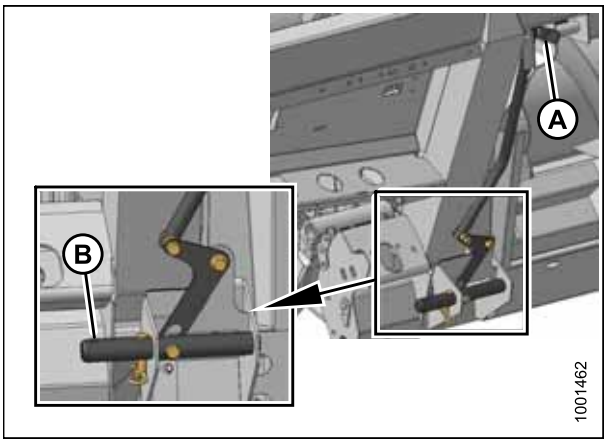


Figure 4.60: Pins Retracted

CAUTION

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

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

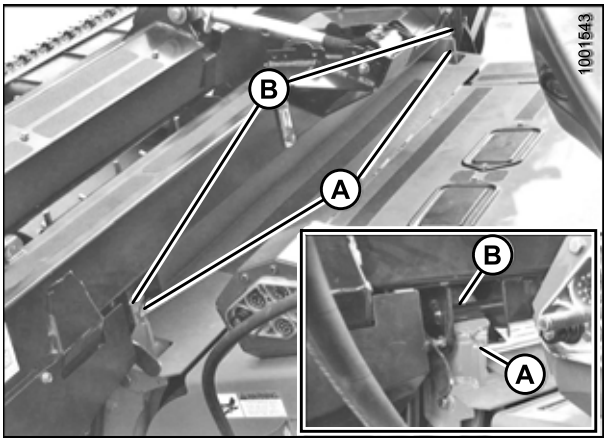


Figure 4.61: Header on Combine

5. Remove the locking pin (B) from the float module pin (A).

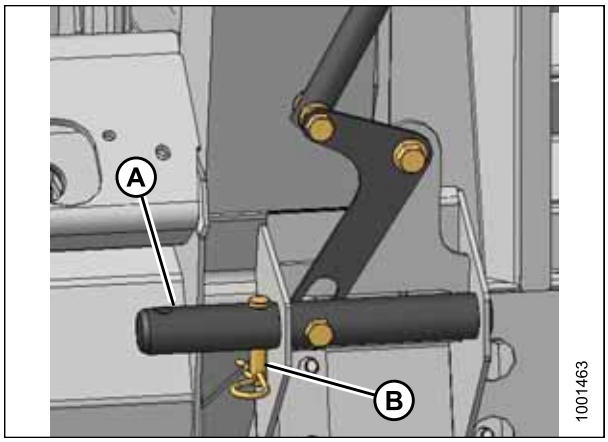


Figure 4.62: Locking Pins

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

CAUTION

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

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

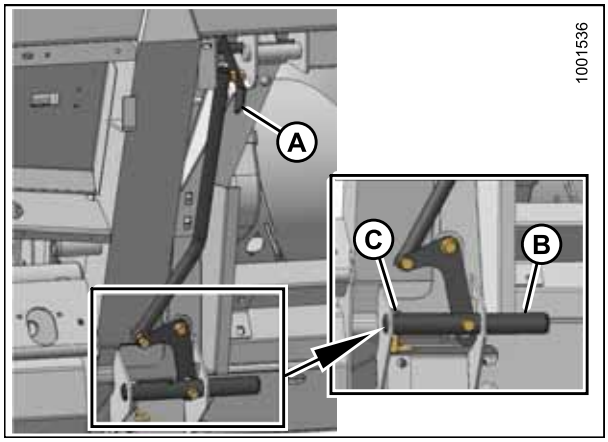


Figure 4.63: Engaging Pins

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

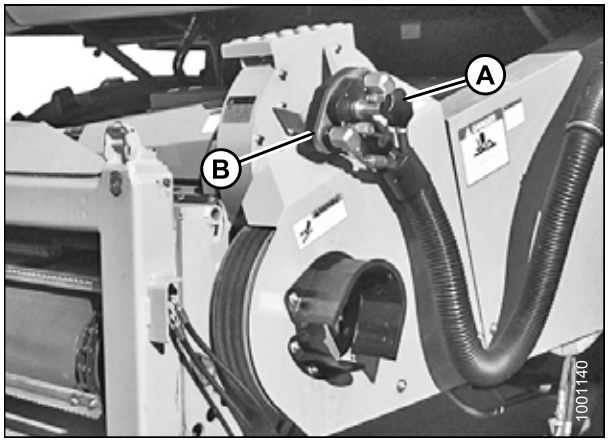


Figure 4.64: Combine Coupler

11. Remove float module receptacle cover (A).

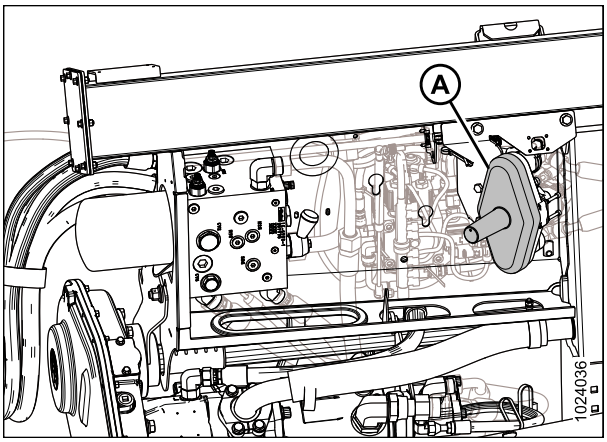


Figure 4.65: Receptacle Cover

12. Place the float module receptacle cover (A) onto the combine receptacle.

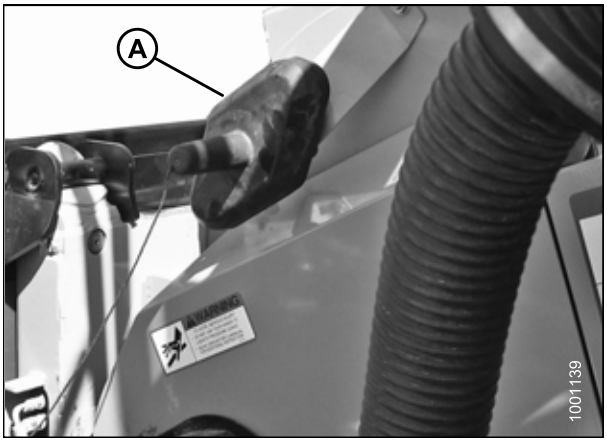


Figure 4.66: Receptacle Cover

13. Clean the mating surface of the coupler (A) and position onto the float module receptacle (B).
14. Turn the knob (C) to secure the coupler to the receptacle.

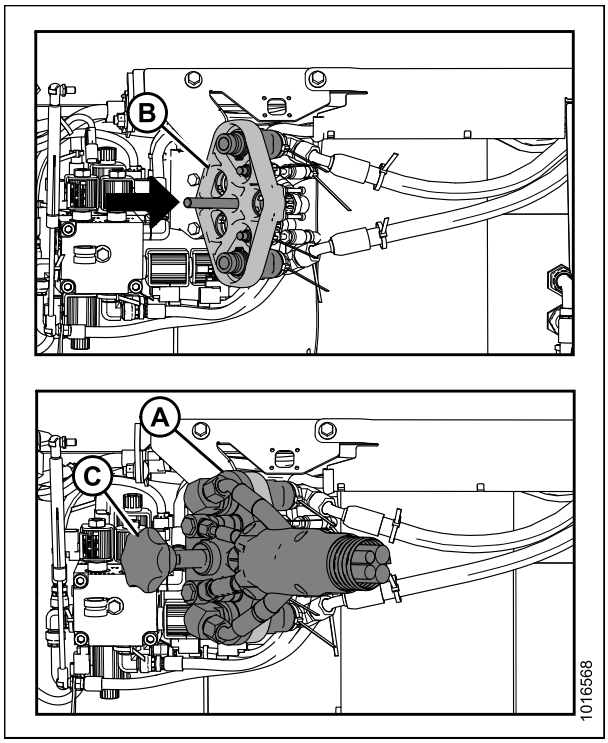


Figure 4.67: Coupler

15. Detach safety chain (C) from support bracket (B).
16. Pull collar (D) back to release driveline (A) from support bracket. Remove the driveline from the support bracket.

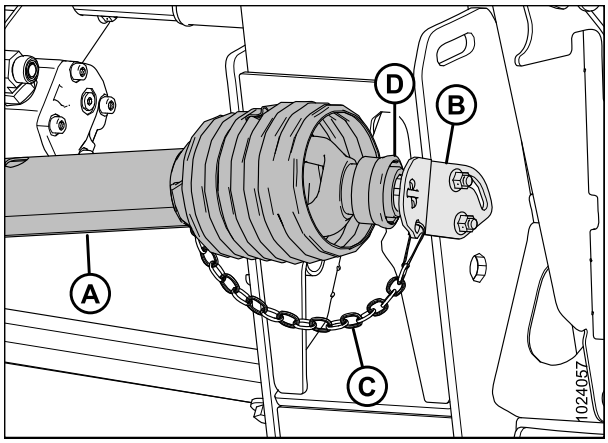


Figure 4.68: Driveline

17. Attach the driveline (A) to the combine output shaft.

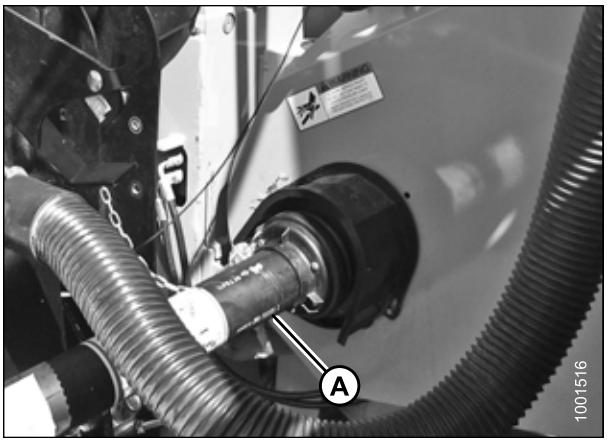


Figure 4.69: Driveline and Output Shaft

18. Disengage both header float locks by pulling each float lock handle (A) away from the float module and setting it in the unlocked position (B).
19. Proceed to *4.6 Completing the Header Assembly, page 101*.

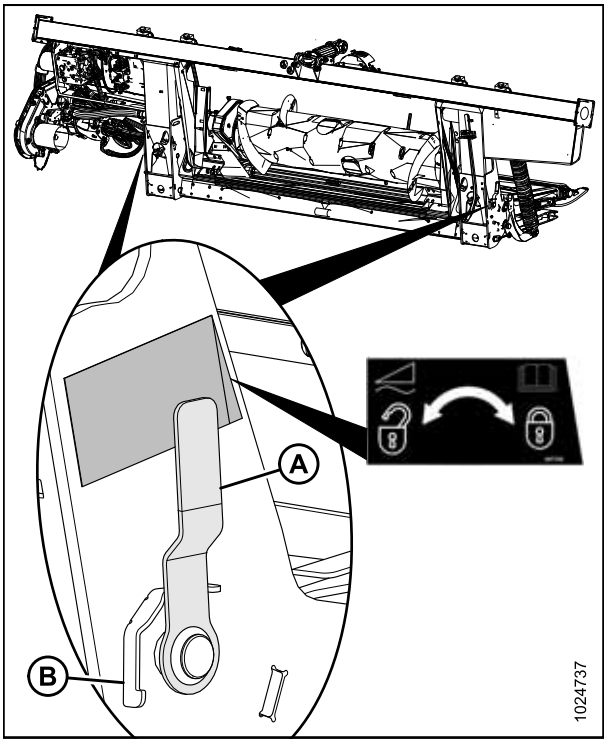


Figure 4.70: Float Lock Handle (Right Side Shown in Detail, Left Side Opposite)

4.5 New Holland Combines

The D1 Series Draper Header is compatible with the following New Holland combines:

Series	Combine Model
CR	920, 940, 960, 970, 980
	9020, 9040, 9060, 9065, 9070, 9080
	6090, 7090, 8080, 8090, 9090
	6.80, 6.90, 7.90, 8.90, 9.90, 10.90
CX	840, 860, 870, 880
	8070, 8080, 8090
	8080 Elevation, 8090 Elevation

4.5.1 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.

1. On the upper left side of the combine float module, remove nut (A), washer, spring, and lever (B).

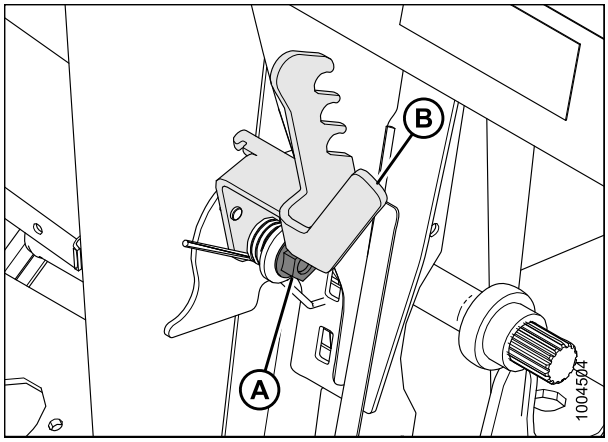


Figure 4.71: Combine Float Module Upper Left Side

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

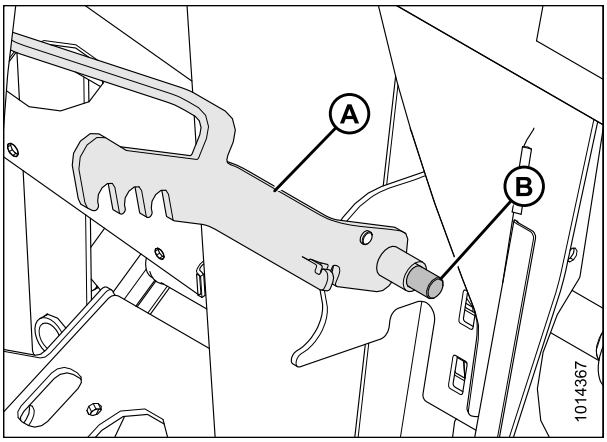


Figure 4.72: Combine Float Module Upper Left Side

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

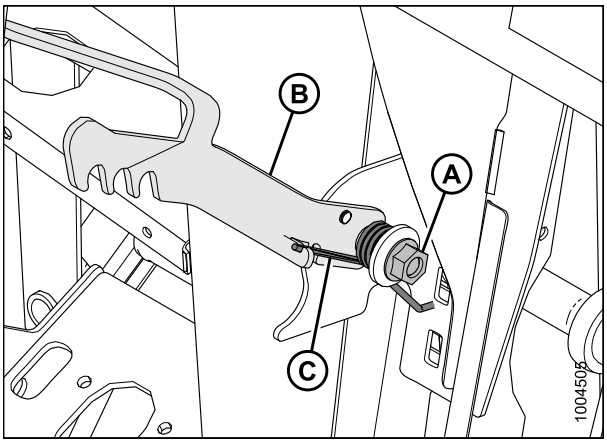


Figure 4.73: Combine Float Module Upper Left Side

4. Ensure the handle (A) is positioned so the hooks (B) can engage the float module.

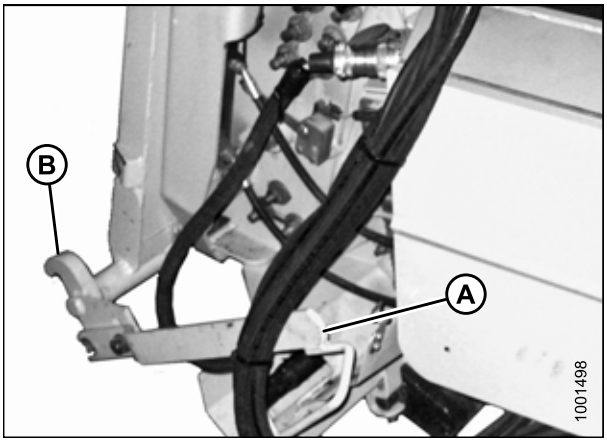


Figure 4.74: Feeder House Locks

CAUTION

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

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

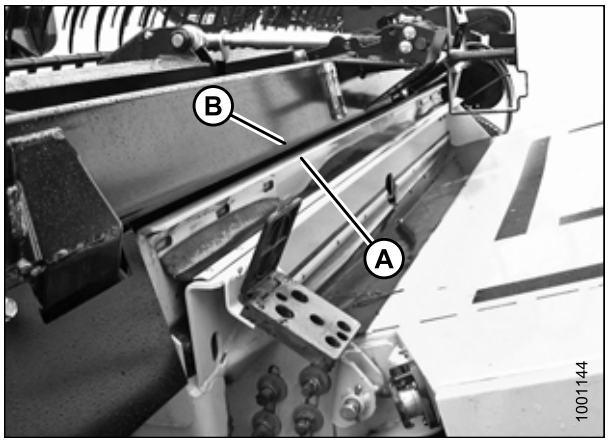


Figure 4.75: Header on Combine

8. Lift lever (A) on the float module on the left side of the feeder house, and push the handle (B) on the combine to engage the locks (C) on both sides of the feeder house.
9. Push down on the lever (A) so the slot in the lever engages the handle and locks the handle in place.
10. If the lock does not fully engage the pin (D) on the float module when the lever (A) and handle (B) are engaged, loosen bolts (E) and adjust the lock (C). Retighten bolts.

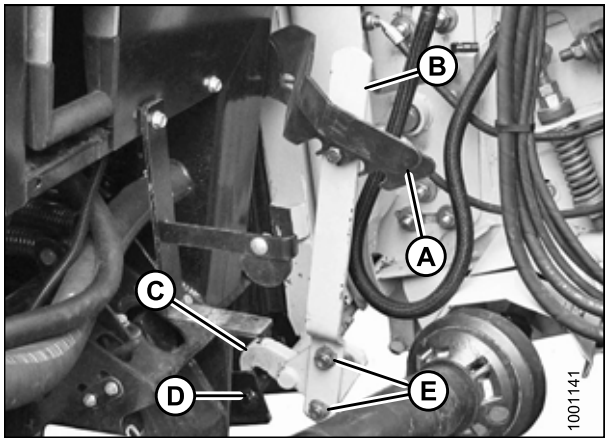


Figure 4.76: Feeder House Locks

11. Open the cover on the receptacle (A) located on the left side of the float module.
12. Push in the lock button (B) and pull the handle (C) to the full open position.
13. Clean the receptacle mating surfaces.

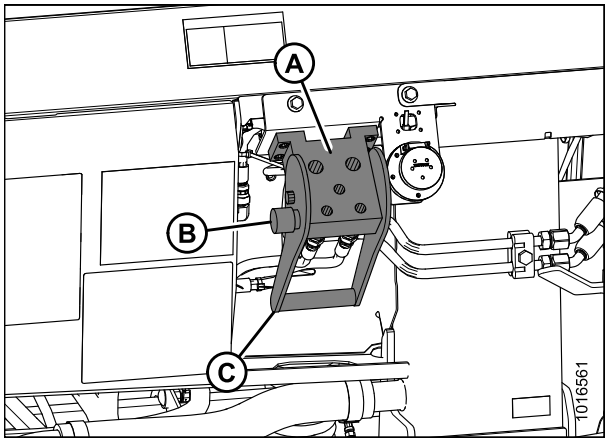


Figure 4.77: Float Module Receptacle

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

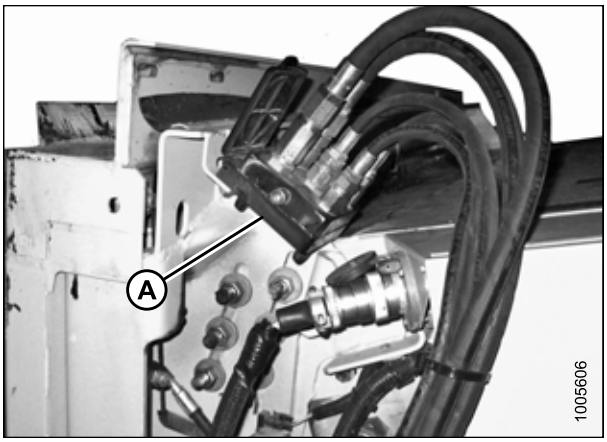


Figure 4.78: Combine Coupler

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

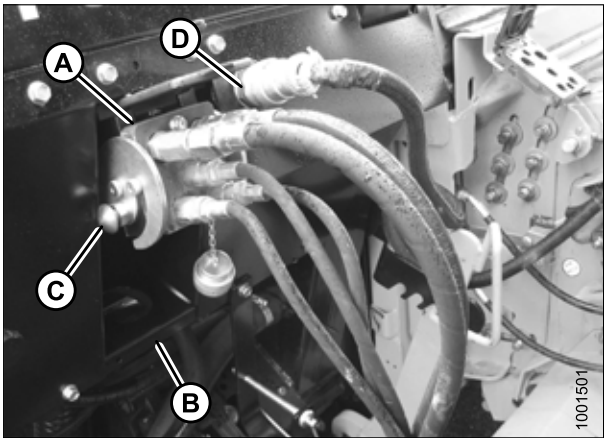


Figure 4.79: Connections

20. Detach safety chain (C) from support bracket (B).
21. Pull collar (D) back to release driveline (A) from support bracket. Remove the driveline from support bracket.

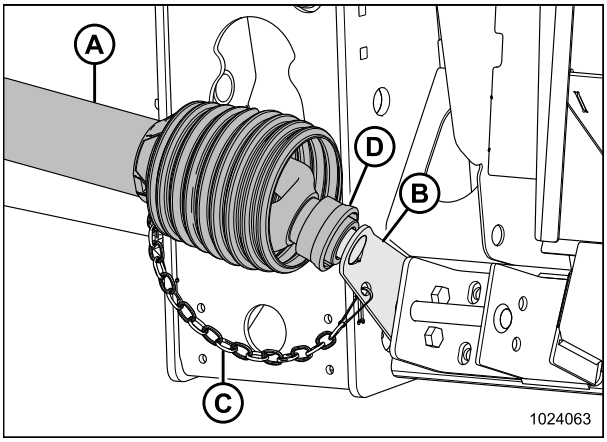


Figure 4.80: Driveline in Storage Position

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

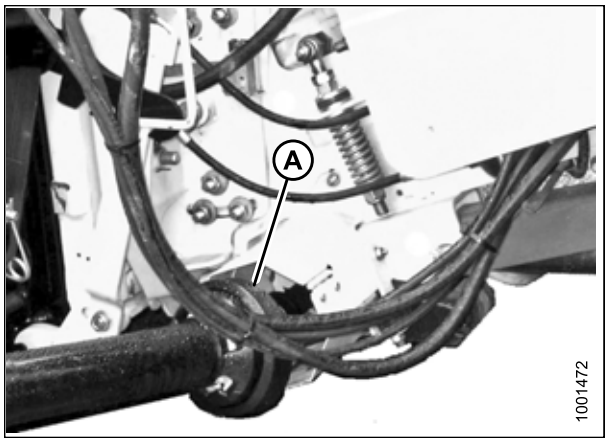


Figure 4.81: Driveline and Output Shaft

23. Disengage the float locks by pulling each float lock handle (A) away from the float module and setting it in the unlocked position (B).
24. Proceed to *4.6 Completing the Header Assembly, page 101*.

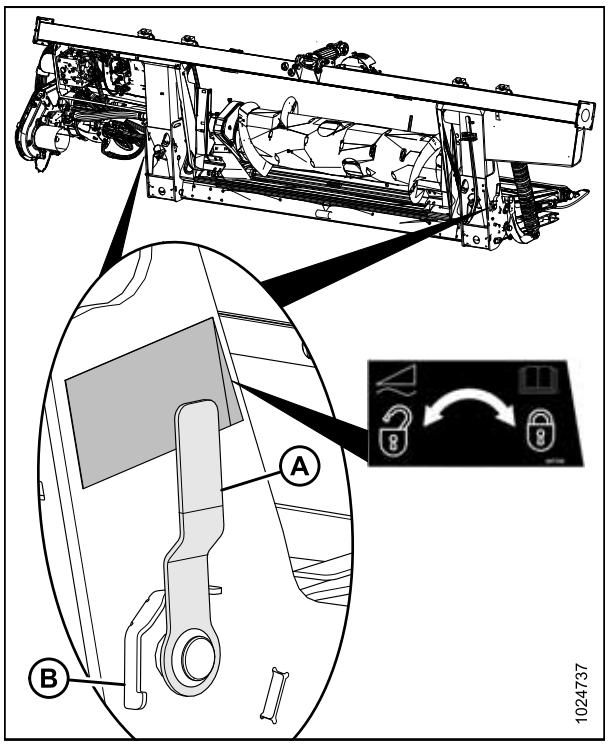


Figure 4.82: Float Lock Handle (Right Side Shown in Detail, Left Side Opposite)

4.6 Completing the Header Assembly

4.6.1 Removing Shipping Supports

The removable supports are painted yellow. Refer to illustrations and remove the remaining supports as follows:

NOTE:

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

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 the load on the strap so that bolts can be removed.

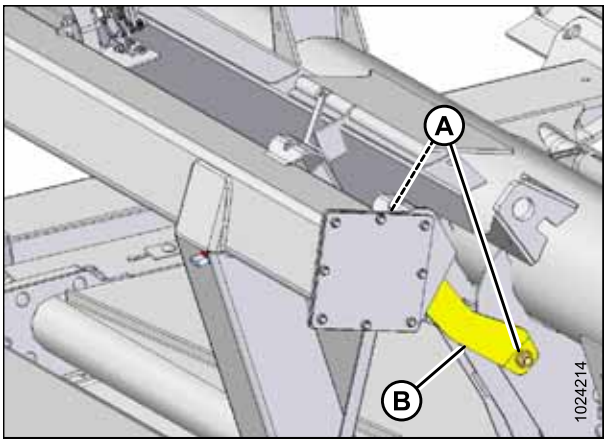


Figure 4.83: Strap on Center Frame

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

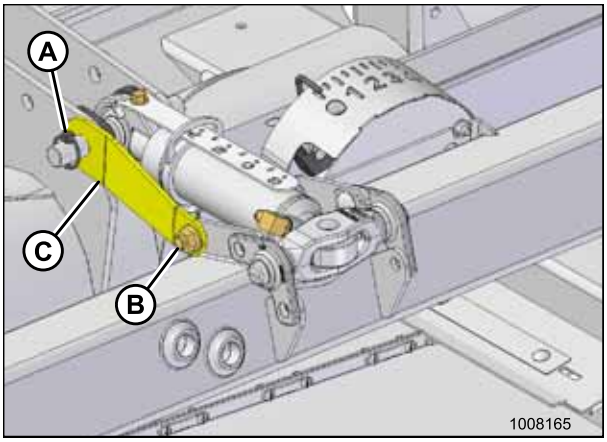


Figure 4.84: Lynch Pin, Hardware, and Shipping Brace

4.6.2 Positioning Transport Lights

Transport lights are located on each of the outboard reel arms.

1. Position lights (A) perpendicular to header.

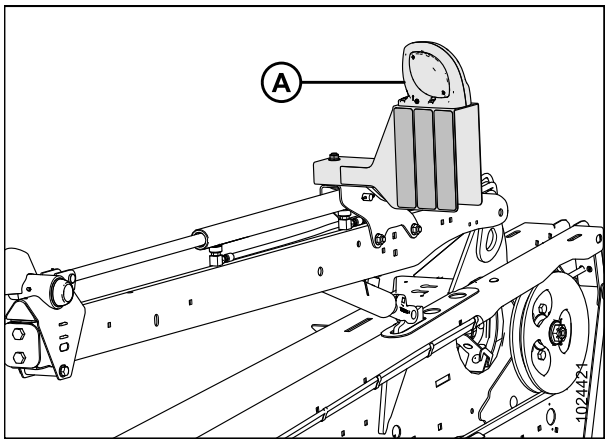


Figure 4.85: Transport Light Perpendicular to Header

4.6.3 Crop Dividers

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

Removing Crop Dividers from Storage

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

1. Support the crop divider and remove the shipping wire at the front end (A).
2. Remove bolt (B).
3. Remove the bolt with washer (C) and retain for installation.

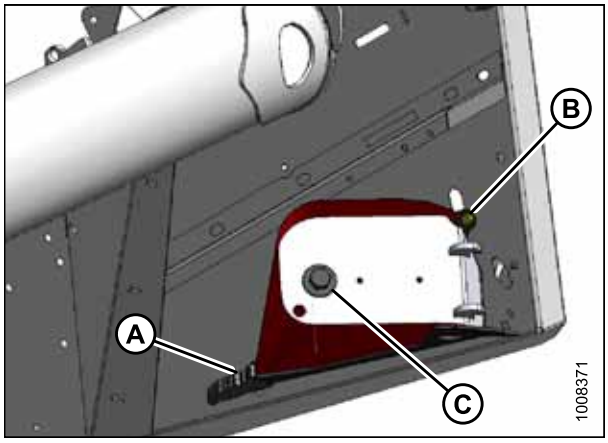


Figure 4.86: Crop Divider Stored on Endsheet

Opening Endshields

1. Push release lever (A) located on the backside of the endshield to unlock the shield.
2. Pull endshield open using handle depression (B).

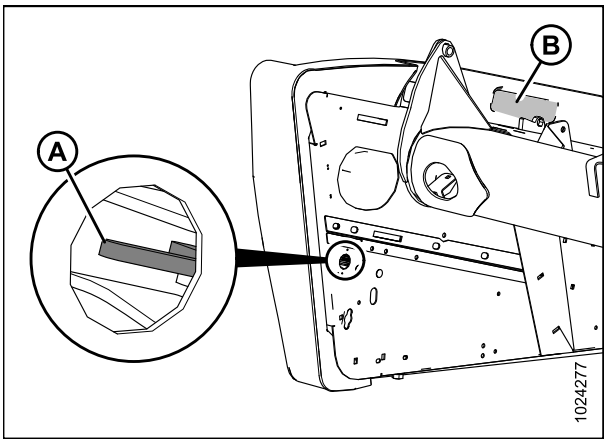


Figure 4.87: Left Endshield

3. Pull endshield at handle depression (A). Endshield is retained by a hinge tab (B) and will open in direction (C).

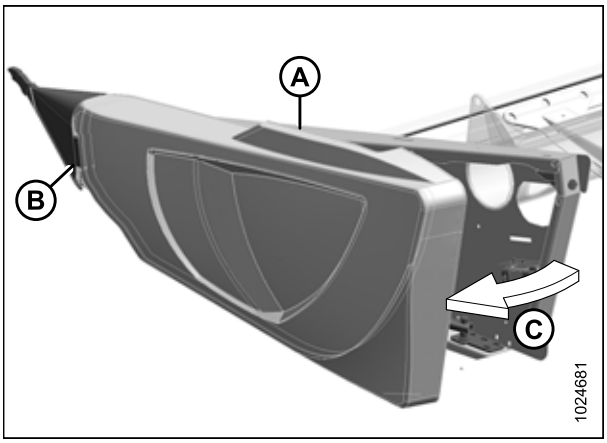


Figure 4.88: Left Endshield

4. Pull the endshield free of hinge tab (A) if additional clearance is required, and swing shield towards the rear of the header.
5. Engage safety latch (B) on hinge arm to secure the shield in fully-open position.

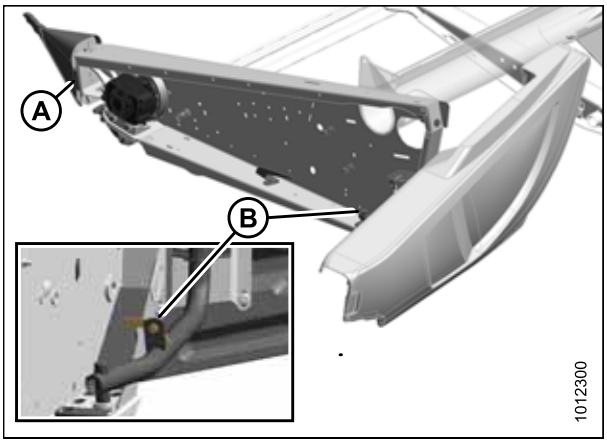


Figure 4.89: Left Endshield

Installing Crop Divider without Latch Option

NOTE:

If the crop divider latch option was ordered with the header, proceed to *Installing Crop Divider with Latch Option, page 105*. Otherwise, complete the following procedure:

1. Position crop divider as shown by inserting lugs (A) into the holes (B) in endsheet.

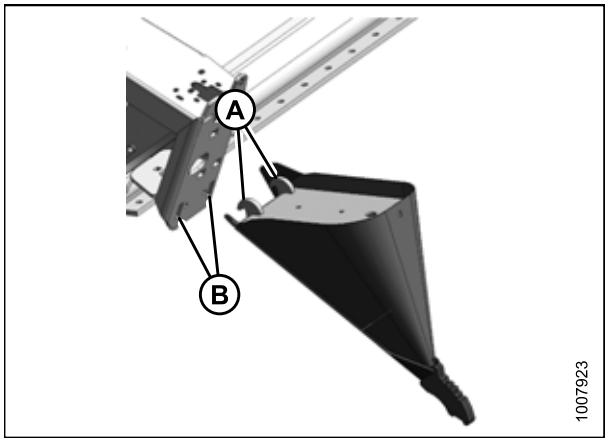


Figure 4.90: Crop Divider without Latch

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

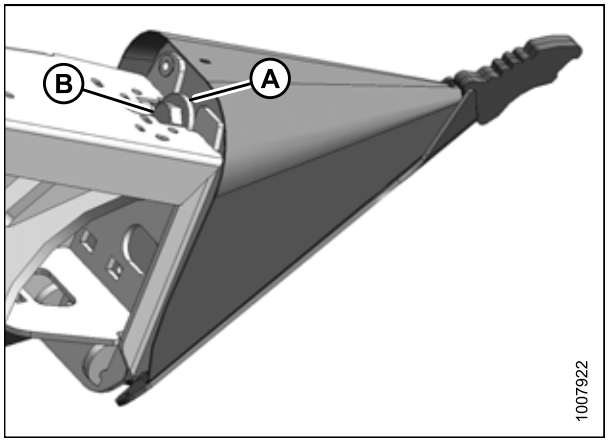


Figure 4.91: Crop Divider without Latch

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

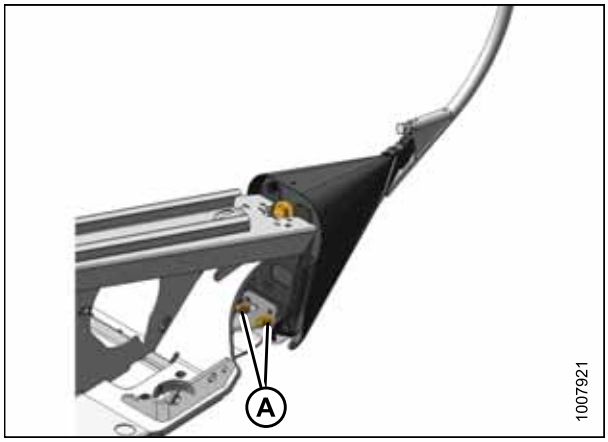


Figure 4.92: Crop Divider Adjustment

Installing Crop Divider with Latch Option

1. Position the crop divider as shown by inserting the lugs (A) into holes in the endsheet.
2. Lift the forward end of the divider until the pin (B) engages and closes the latch (C).
3. Push the safety lever (D) down to lock the pin in latch.

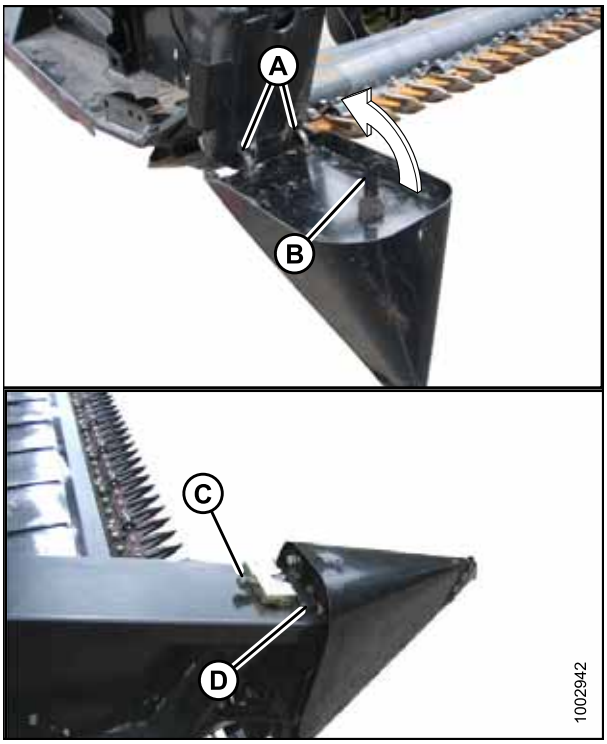


Figure 4.93: Crop Divider with Latch

4. Adjust bolts (A) to tighten divider and remove lateral play when pulling at divider tip.

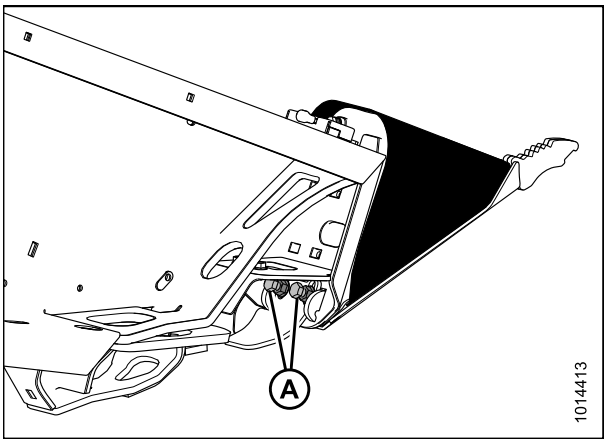


Figure 4.94: Crop Divider Adjustment

Closing Endshields

1. Disengage lock (B) to allow endshield to move.
2. Insert front of endshield behind hinge tab (A) and into divider cone.

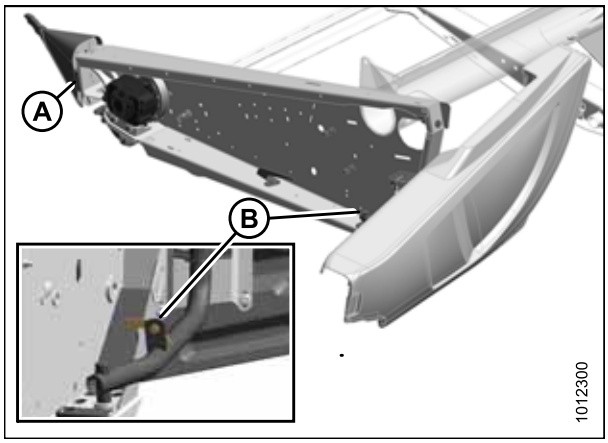


Figure 4.95: Left Endshield

3. Swing endshield in direction (A) into closed position. Engage lock with a firm push.
4. Check that endshield is locked.

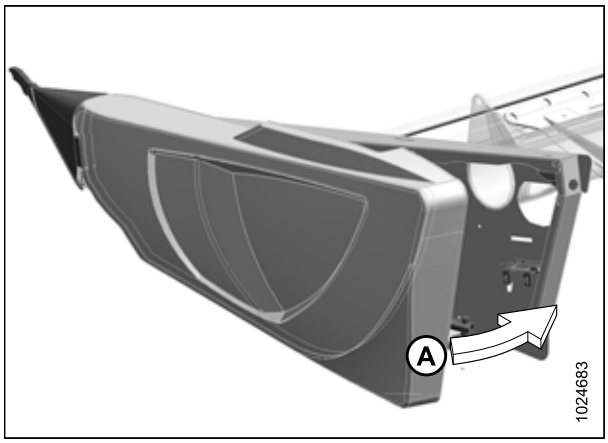


Figure 4.96: Left Endshield

Installing Crop Divider Rods

4.6.4 Installing Options

1. Retrieve the kits supplied as options with the header, and install them according to the instructions supplied with each kit.
2. Proceed to *5 Performing Predelivery Checks, page 107*.

5 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 the machine.

1. Perform the final checks as listed on the **Predelivery Checklist** (yellow sheet attached to this instruction – *Predelivery Checklist, page 275*) to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the Checklist. The completed Checklist should be retained by either the Operator or the Dealer.

5.1 Recording Model and Serial Number

Record the machine serial numbers on the Predelivery Checklist

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

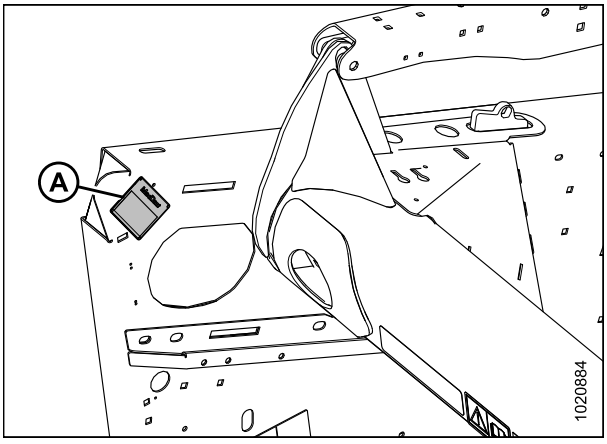


Figure 5.1: Header, Left Side Endshield

The serial number plate (A) is located at the top left side of the float module.

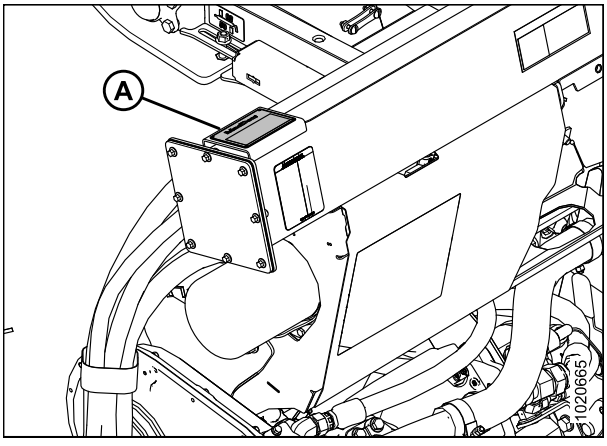


Figure 5.2: Float Module

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

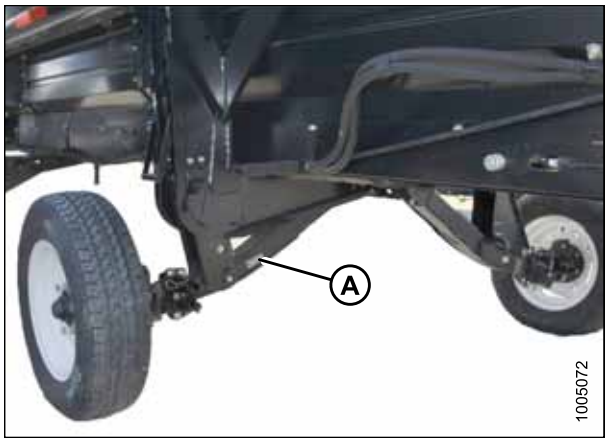


Figure 5.3: Transport/Stabilizer Option

5.2 Checking Tire Pressure: Transport and Stabilizer Wheels

Check tire inflation pressure. If necessary, inflate tires according to the following table:

Table 5.1 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.

5.3 Checking Wheel Bolt Torque

Perform the 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) and adjust as necessary. Refer to bolt tightening sequence illustration.

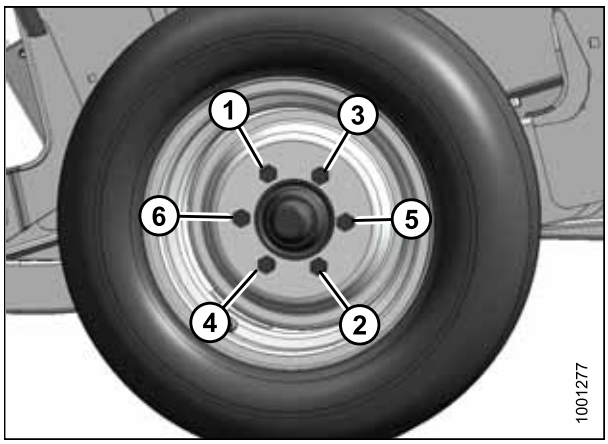


Figure 5.4: Bolt Tightening Sequence

5.4 Checking Knife Drive Box

Single-knife headers have one knife-drive box and double-knife headers have two knife-drive boxes. To access the knife drive box(es), endshield(s) must be fully opened.

WARNING

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

1. Press down on the latch in the opening (A) on the inboard side of the endsheet.
2. Pull endshield open using handle depression (B).

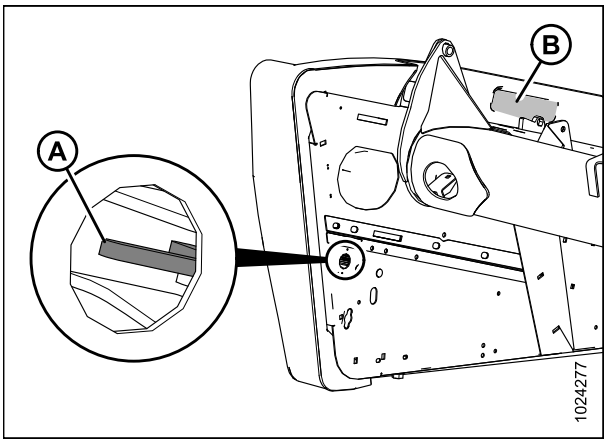


Figure 5.5: Endshield Latch Access

3. Swivel the endshield toward the back of the header and use the safety latch (B) to secure the endshield support tube (A) to the endsheet.

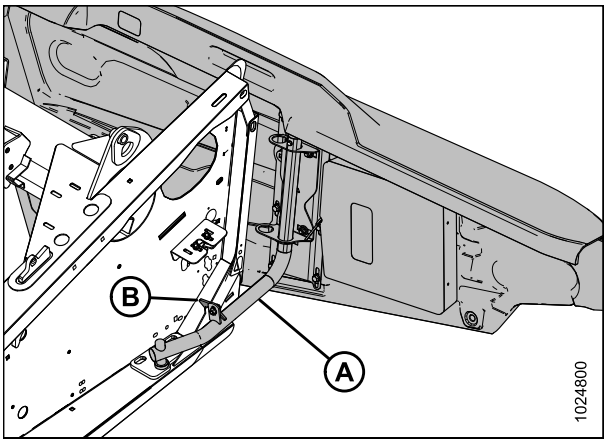


Figure 5.6: Left Endshield Support Tube

IMPORTANT:

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

4. Check position of plug (A) and breather (B) at knife drive box. Position **MUST** be as shown.
5. Remove breather (B) and check oil level. The oil level should be between the bottom edge (C) of the lower hole (D) and the bottom (E) of the breather.

NOTE:

Check oil level with top of knife drive box horizontal and with the breather (B) screwed in.

6. Reinstall breather and tighten.

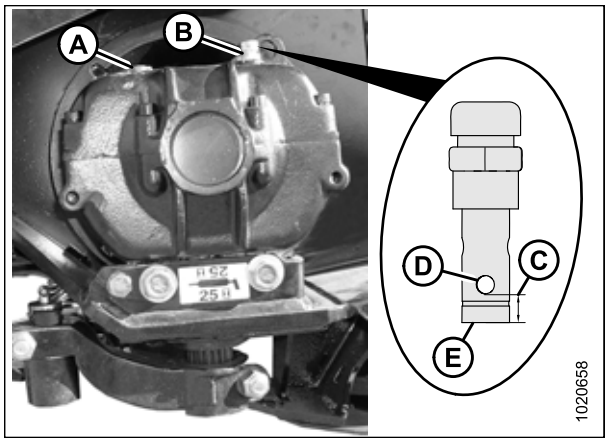


Figure 5.7: Knife Drive Box

5.5 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 the header to the ground and ensure the gearbox is in working position.
2. Shut down the engine, and remove the key from the ignition.
3. Remove the oil level plug (A) and check that the oil level is up to the bottom of the hole.
4. Reinstall the oil level plug (A).

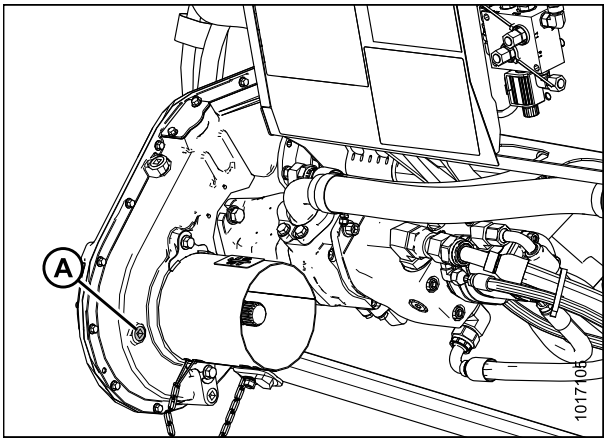


Figure 5.8: Header Drive Gearbox

5.6 Checking Oil Level in Hydraulic Reservoir

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

   NOTE:

   Check the level when the oil is cold.

2. Ensure the oil is at the appropriate level for the terrain as follows:

   - **Hilly terrain:** Maintain level so lower sight (A) is full, and upper sight (B) is up to one-half filled.
   - **Normal terrain:** Maintain level so lower sight (A) is full, and upper sight (B) is empty.

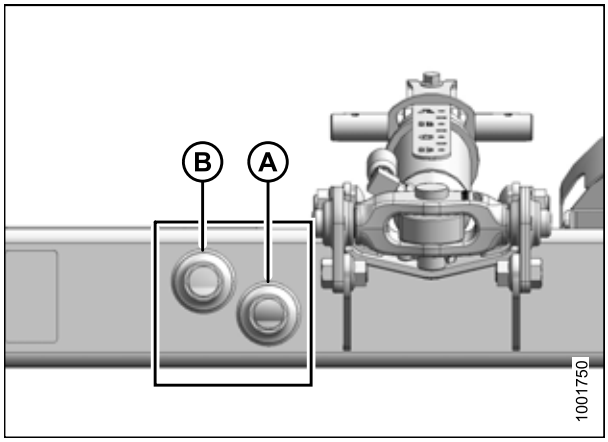


Figure 5.9: Oil Level Sight Glass

5.7 Checking Knife Drive Belt Tension

Refer to the appropriate section for your equipment type:

- *5.7.1 Checking and Tensioning Non-Timed Knife Drive Belts, page 115*
- *5.7.2 Checking and Tensioning Timed Knife Drive Belts, page 116*

5.7.1 Checking and Tensioning Non-Timed Knife Drive Belts

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

1. Open the left endshield.

   NOTE:

   Belt guide removed for clarity.

2. Loosen the two bolts (A) securing the motor assembly to the header endsheet.
3. Check drive belt tension. A properly tensioned drive belt (C) should deflect 24–28 mm (15/16–1-1/8 in.) when 133 N (30 lbf) of force is applied at the midspan. If the belt needs to be tensioned, turn the adjuster bolt (B) clockwise to move the drive motor until proper tension is set.

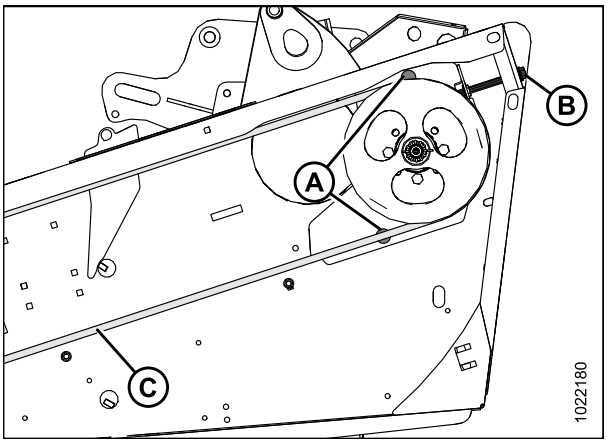


Figure 5.10: Non-Timed Double-Knife Drive

4. Ensure the clearance between the belt (A) and the belt guide (B) is 1 mm (1/16 in.).
5. Loosen the three bolts (C), and adjust the position of the guide (B) as required.
6. Tighten the three bolts (C).
7. Close the endshield.
8. **Double-knife headers only:** Repeat procedure on the other side of the header.

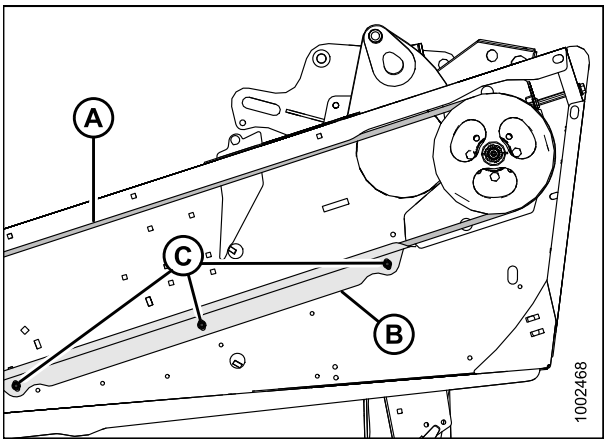


Figure 5.11: Knife Drive

5.7.2 Checking and Tensioning Timed Knife Drive Belts

The procedure for tensioning timed knife drive belts is the same for both sides of the header. The illustrations shown are for the left side—the right side is opposite.

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

IMPORTANT:

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

1. Shut down the combine, and remove the key from the ignition.
2. Open the endshield.
3. Check drive belt tension. A properly tensioned belt should deflect 13 mm (1/2 in.) at the midpoint of the upper span when a force of 27 N (6 lbf) is applied.

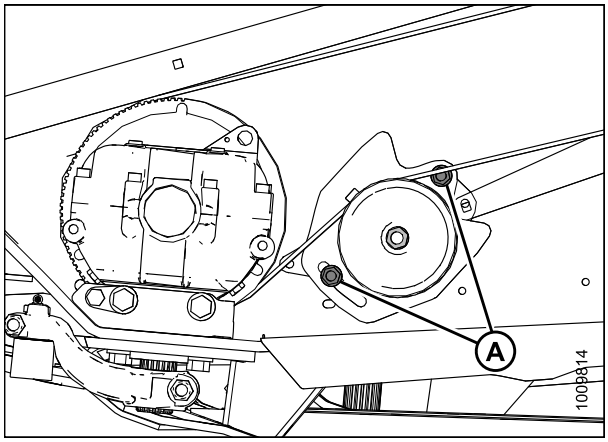


Figure 5.12: Knife Drive – Left Side

4. If the belt needs to be tensioned, loosen two nuts (A) on the knife drive belt idler bracket (B).
5. Position the pry bar (C) under the idler bracket, and push the bracket upwards until a force of 27 N (6 lbf) deflects the belt 13 mm (1/2 in.) at the midpoint of the upper span.

   NOTE:

   Protect the machine's paint by placing a piece of wood (D) under the pry bar (C).

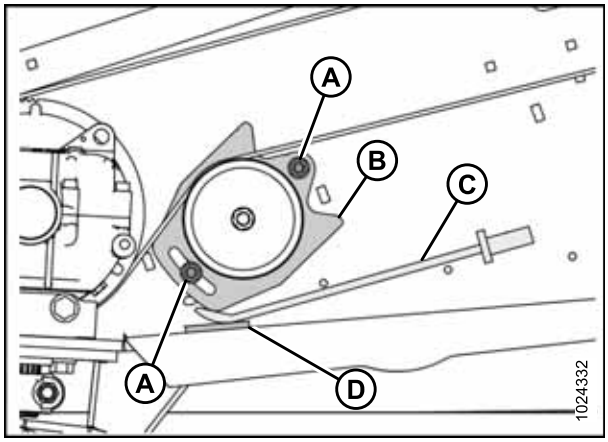


Figure 5.13: Knife Drive – Left Side

6. After achieving the proper belt tension, tighten the nuts (C) to 73–80 Nm (54–59 lbf·ft).
7. Remove the pry bar (A) and wood (B).

   NOTE:

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

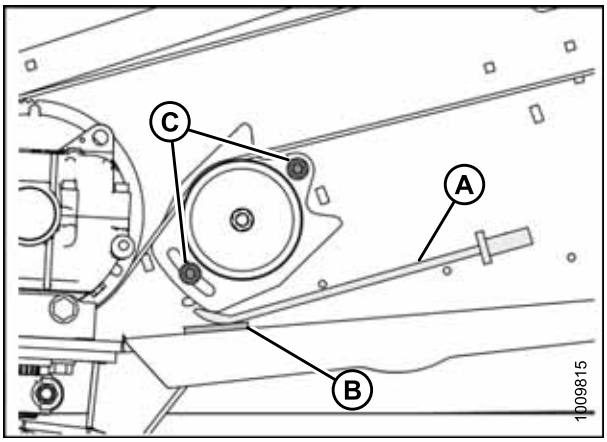


Figure 5.14: Knife Drive – Left Side

8. Ensure the clearance (A) between the belt (B) and the guide (C) is 0.5–1.5 mm (1/32–1/16 in.).
9. Loosen bolts (D) and adjust the guide if necessary. Tighten bolts.
10. Close the endshield.
11. Repeat procedure for the opposite side of the header.

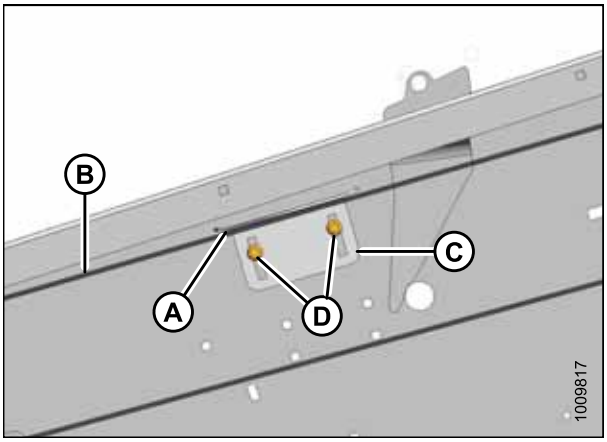


Figure 5.15: Belt Guide – Left Side

5.8 Checking Knife Hold-Downs

Perform daily inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding. Use a feeler gauge to measure the clearance between the hold-downs and knife sections and refer to the following for adjustment procedures:

- *5.8.1 Adjusting Hold-Downs with Pointed Guards, page 118*
- *5.8.2 Adjusting Hold-Downs with Stub Guards, page 119*

5.8.1 Adjusting Hold-Downs with Pointed Guards

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 the engine, and remove the key from the ignition.
2. Use a feeler gauge to measure the clearance between the standard guard hold-down (A) and the knife section. Ensure the clearance is 0.1–0.6 mm (0.004–0.024 in.).
3. To lower the front of the hold-down and decrease clearance, turn bolt (B) clockwise; to raise the front of the hold-down and increase clearance, turn bolt (B) counterclockwise.

   NOTE:

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

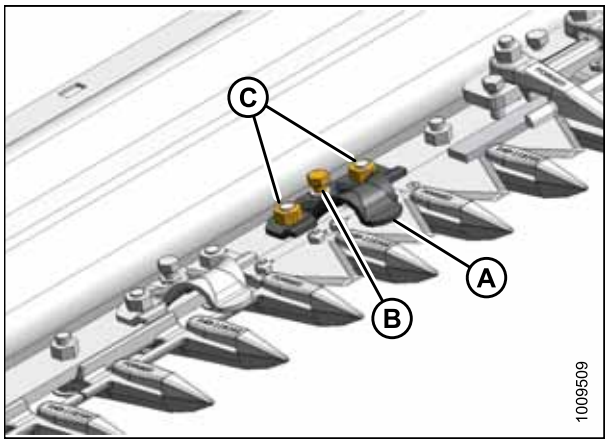


Figure 5.16: Standard Guard Hold-Down

4. Use a feeler gauge to measure the clearance between the center guard hold-down (A) and the knife section. Ensure the clearance is between the following measurements:
   - **At guide tip (B):** 0.1–0.4 mm (0.004–0.016 in.)
   - **At rear of guide (C):** 0.1–1.0 mm (0.004–0.040 in.)
5. Adjust the clearance as follows:
   a. Tighten nuts (D) until finger tight.
   b. Turn the three adjuster bolts (E) clockwise to raise the front of the hold-down and increase clearance, or counterclockwise to lower the front of the hold-down and decrease clearance.
   c. Torque the nuts (D) to 88 Nm (65 lbf·ft) after all the adjustments are complete and the specified clearances are achieved.

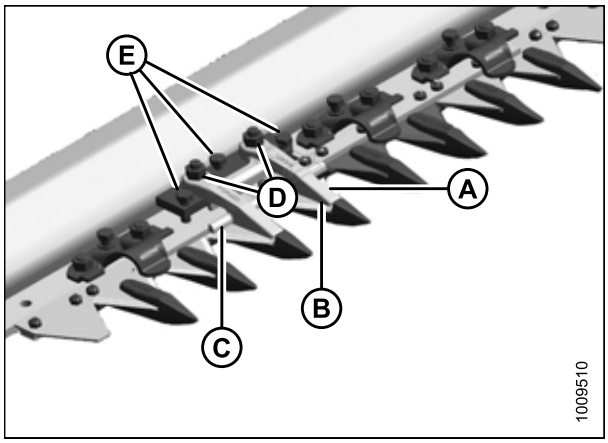


Figure 5.17: Center Guard Hold-Down

WARNING

Check to be sure all bystanders have cleared the area.

6. Complete the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

   NOTE:

   Insufficient hold-down clearance will result in overheating of the knife and guards—readjust as necessary.

5.8.2 Adjusting Hold-Downs with Stub Guards

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 the engine, and remove the key from the ignition.
2. Use a feeler gauge to measure the clearance between the stub guard hold-down (A) and the knife section. Ensure the clearance is between the following measurements:
   - **At guide tip (B):** 0.1–0.4 mm (0.004–0.016 in.)
   - **At rear of guide (C):** 0.1–1.0 mm (0.004–0.040 in.)
3. Adjust the clearance as follows:
   a. Tighten nuts (D) until they are finger tight.
   b. To lower the front of the hold-down and decrease clearance, turn the three adjuster bolts (E) clockwise; to raise the front of the hold-down and increase clearance, turn the adjuster bolts (E) counterclockwise.
   c. Torque the nuts (D) to 72 Nm (53 lbf·ft) after all the adjustments are complete and the specified clearances are achieved.

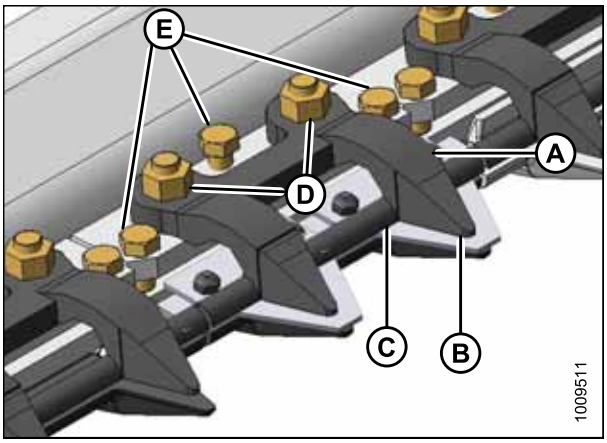


Figure 5.18: Stub Guards

WARNING

Check to be sure all bystanders have cleared the area.

4. Complete the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

   NOTE:

   Insufficient hold-down clearance will result in overheating of the knife and guards—readjust as necessary.

5.9 Centering the Reel

To check and center the reel, follow these steps:

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.

CAUTION

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

1. Start combine and lower reel and header fully.
2. Stop engine and remove key from ignition.
3. Measure clearance at locations (A) between reel and both endsheets. The clearances should be the same if the reel is centered.

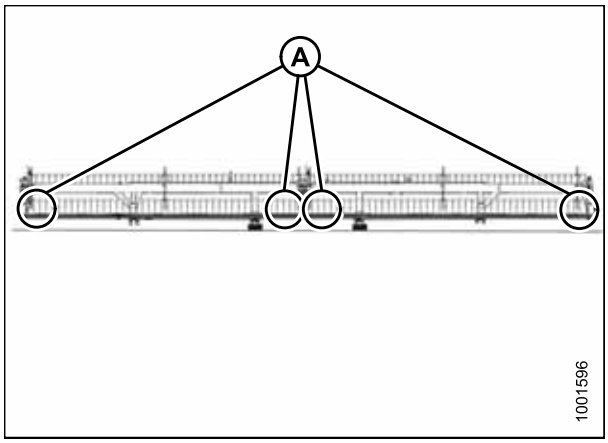


Figure 5.19: Double Reel Measurement Locations

4. **Double Reel Only:** If the reel is not centered, follow these steps:
   a. Loosen bolt (A) on each brace (B).
   b. Move the forward end of center support arm (C) laterally as required to center both reels.
   c. Tighten bolts (A) and torque to 359 Nm (265 lbf·ft).

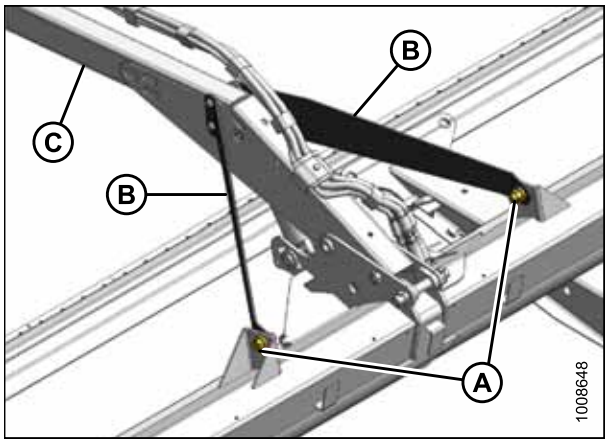


Figure 5.20: Center Support Arm and Braces – Double Reel Only

5. **Single Reel Only:** If the reel is not centered, follow these steps:
   a. Loosen bolt (A) on brace (B) at both ends of reel.
   b. Move the forward end of reel support arm (C) laterally as required to center reel.
   c. Tighten bolts (A), and torque to 359 Nm (265 lbf·ft).

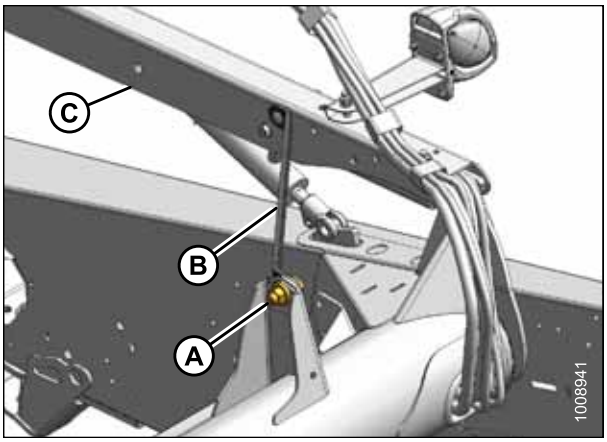


Figure 5.21: Support Arm and Brace – Single Reel Only

5.10 Checking and Adjusting Header Float

The header is equipped with a suspension system that floats the header over the ground to compensate for ridges, trenches, and other variations in ground contour. If the header float is not set properly, it may cause the cutterbar to push into the ground or leave uncut crop. This procedure describes how to check header float and adjust to the factory-recommended settings.

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.

Use the following guidelines when adjusting float:

- Turn each adjustment bolt pair equally. Refer to Step *13, page 125*, and repeat torque wrench reading procedure on both sides of header.
- Set header float as light as possible without causing excessive bouncing to prevent knife component breakage, soil scooping, or soil build-up at the cutterbar in wet conditions.
- To avoid excessive bouncing and leaving a ragged cut, use a slower ground speed with a light float setting, if necessary.
- When cutting off the ground, use the stabilizer wheels in conjunction with header float to minimize bouncing at the header ends and to control cut height.

NOTE:

If adequate header float cannot be achieved using all of the available adjustments, an optional heavy duty spring is available.

To check and adjust header float, follow these steps:

1. Level the header and float module. If the header and float module are not level, perform the following checks before adjusting the float:

   IMPORTANT:

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

   - Park the combine on a level surface.
   - Check that the combine feeder house is level. Refer to your combine operator's manual for instructions.
   - Check that the top of the float module is level with the combine axle.
   - Ensure the combine tires are inflated equally.

2. Adjust header so that the cutterbar is 150–254 mm (6–10 in.) off the ground.
3. Extend the header angle hydraulic cylinder to between **B** and **C** on indicator (A).

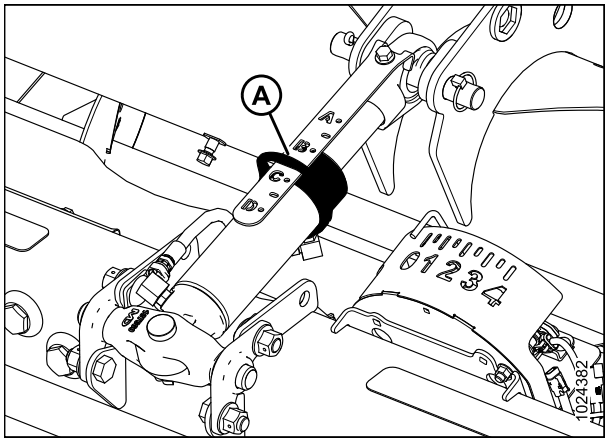


Figure 5.22: Center-Link

4. Adjust the reel fore-aft position to between 5 and 6 on the position indicator decal (A) located on the reel right arm.
5. Lower the reel fully.
6. Shut down the combine, and remove the key from the ignition.

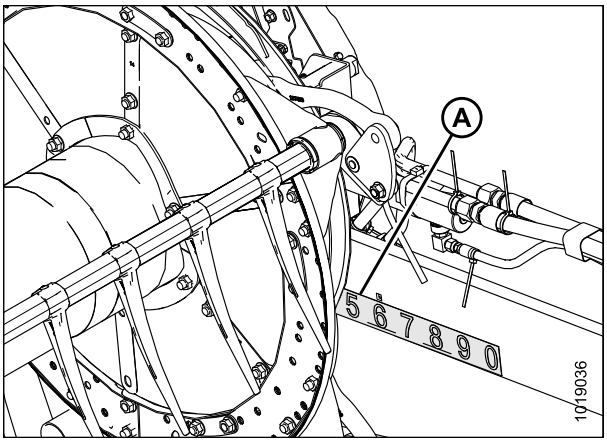


Figure 5.23: Fore-Aft Position

7. Disengage both header float locks by pulling the float lock handle (A) away from the float module and pushing the float lock handle down and into position (B) (**UNLOCK**).

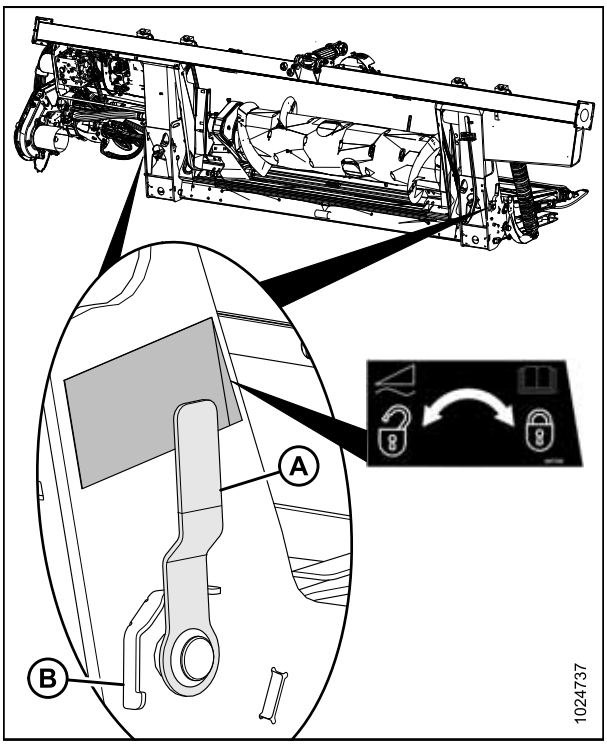


Figure 5.24: Header Float Lock (in Locked Position)

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

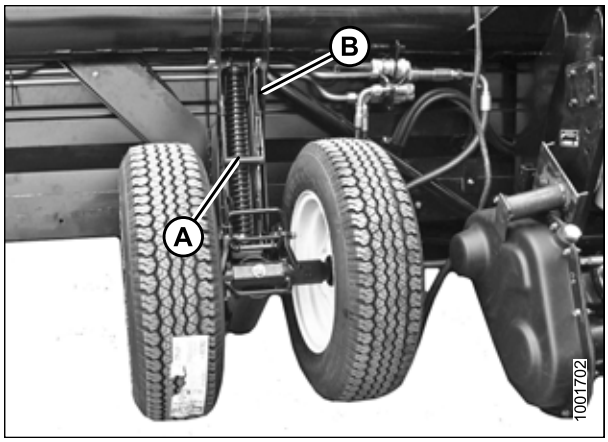


Figure 5.25: Left Wheel

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

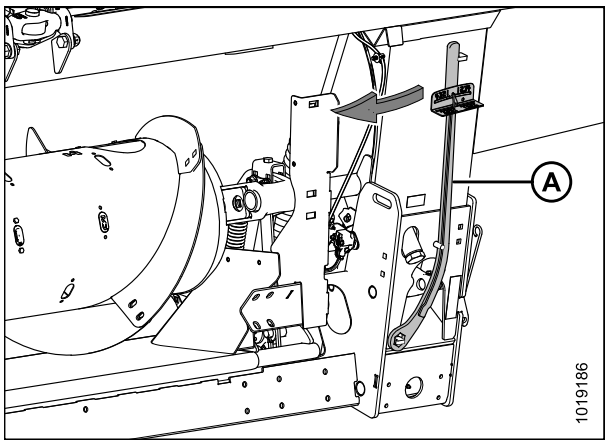


Figure 5.26: Torque Wrench Storage Location

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

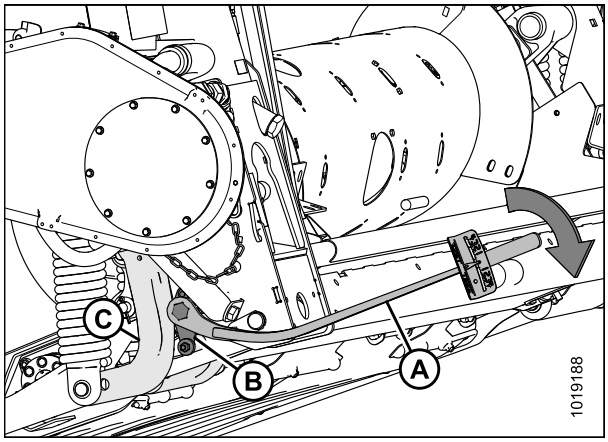


Figure 5.27: Float Module – Left Side

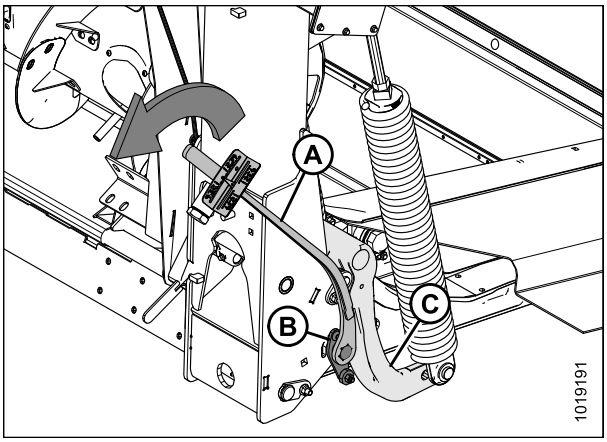


Figure 5.28: Float Module – Right Side

13. Push down on the wrench until indicator (A) reaches a maximum reading and then begins to decrease. Note the maximum reading. Repeat at opposite side.

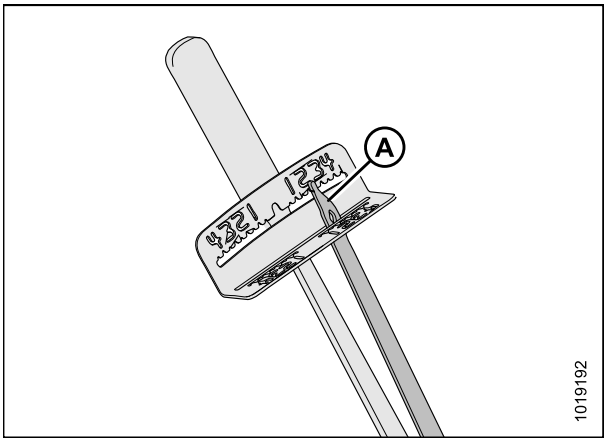


Figure 5.29: Torque Wrench

14. Use the following table as a guide for float settings:
    - If reading on the wrench is high, the header is heavy
    - If reading on the wrench is low, the header is light

Table 5.2 Float Settings

Header Size	Indicator Reading	
	Cutting on the Ground	Cutting off the Ground
6.1 m, 7.6 m, 9.1 m, and 10.7 m (20 ft., 25 ft., 30 ft., and 35 ft.)	1-1/2 to 2	2 to 2-1/2
12.2 m and 13.7 m (40 ft. and 45 ft.)	2 to 2-1/2	2-1/2 to 3

15. Before adjusting the float spring adjustment bolts (A), rotate the spring locks (B) by loosening bolts (C).
16. To increase float (decrease header weight), turn both adjustment bolts (A) on the left side clockwise. Repeat adjustment at opposite side.

    NOTE:

    Turn each bolt pair equally.
17. To decrease float (increase header weight), turn left side adjustment bolts (A) counterclockwise. Repeat at opposite side.

    NOTE:

    Turn each bolt pair equally.
18. Adjust the float so the wrench readings are equal on both sides of the header.
19. Lock adjustment bolts (A) with spring locks (B). Ensure bolt heads (A) are engaged in the spring lock cutouts. Tighten bolts (C) to secure spring locks in place.

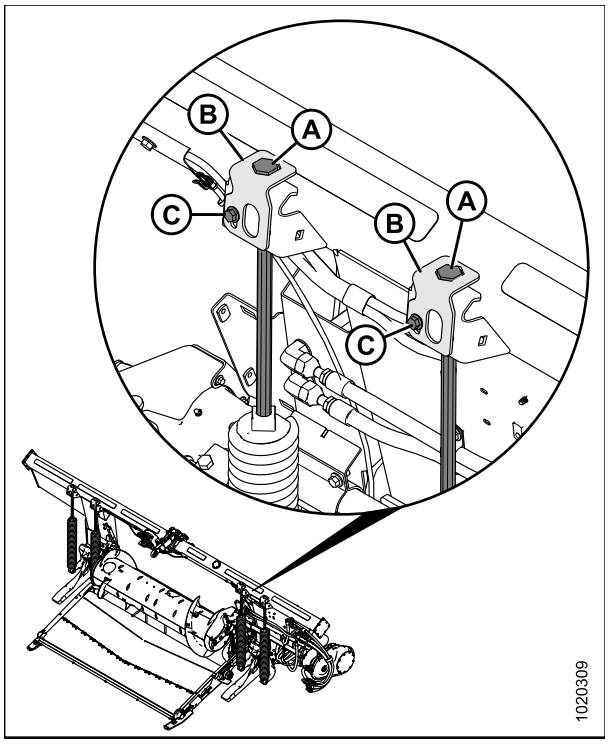


Figure 5.30: Float Adjustment (Left Side Shown)

5.11 Checking and Adjusting Skid Shoe Settings

To check and adjust skid shoes, follow these steps:

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 the adjustment hole positions on the lugs (A) on each skid shoe. They should be the same.
2. If necessary, adjust skid shoe as follows:
   a. Remove lynch pin (B).
   b. Hold shoe and remove pin (C) by disengaging frame and then pulling away from shoe.
   c. Raise or lower skid shoe to desired position using holes in support as a guide.
   d. Reinsert pin (C), engage in frame, and secure with lynch pin (B).
   e. Check that all skid shoes are adjusted to the same position.

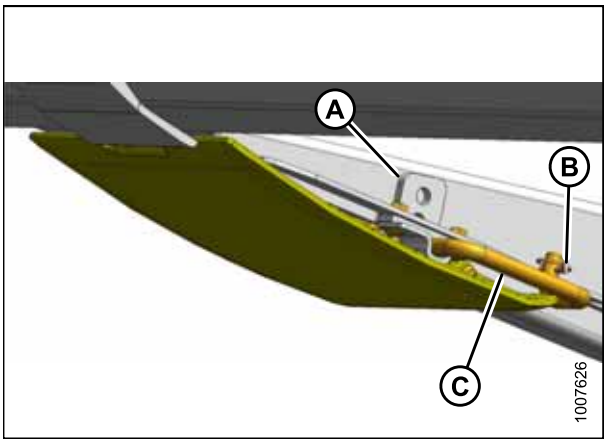


Figure 5.31: Inner Skid Shoe

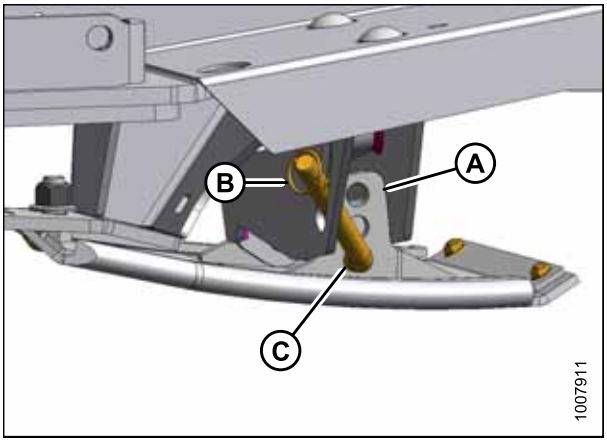


Figure 5.32: Outer Skid Shoe

5.12 Measuring and Adjusting Reel Clearance to Cutterbar

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

The finger to guard/cutterbar clearances with reels fully lowered are shown in Table *5.3, page 128*.

Table 5.3 Finger to Guard/Cutterbar Clearance

Header Width	(X) 3 mm (+/- 1/8 in.) at Reel Ends	
	Single Reel	Double Reel
6.1 m (20 ft.)	20 mm (3/4 in.)	—
7.6 m (25 ft.)	25 mm (1 in.)	—
9.1 m (30 ft.)	45 mm (1-3/4 in.)	20 mm (3/4 in.)
10.7 m (35 ft.)	60 mm (2-3/8 in.)	20 mm (3/4 in.)
12.2 m (40 ft.)	—	20 mm (3/4 in.)
13.7 m (45 ft.)	—	20 mm (3/4 in.)

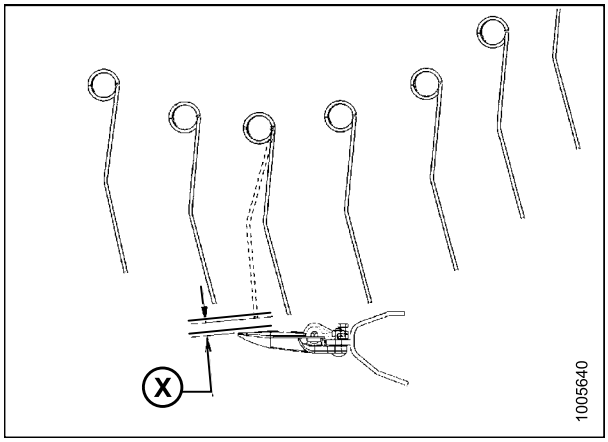


Figure 5.33: Finger Clearance

5.12.1 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 the header on level ground.
2. Set the fore-aft position to the middle position 5 on the fore-aft position decal (A).
3. Lower the reel fully.
4. Shut down the engine and remove key from the ignition.

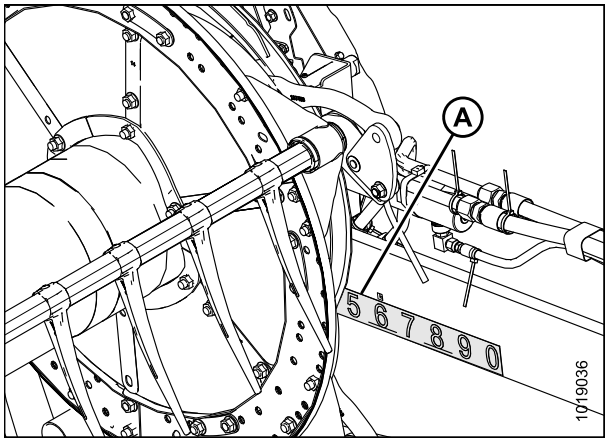


Figure 5.34: Fore-Aft Position

5. Measure the clearance (X) at all possible points of contact (between points [B] and [C] at the ends of each reel [A]) as shown in Figures *5.36, page 129* and *5.37, page 129*.

   NOTE:

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

   NOTE:

   When measuring reel clearance at the center of a double-reel header, measure the lowest reel.

6. Check all possible points of contact between points (B) and (C). Depending on the reel fore-aft position, minimum clearance can result at the guard tine, hold-down, or cutterbar.

7. Adjust the reel if necessary. Refer to *5.12.2 Adjusting Reel Clearance, page 130*.

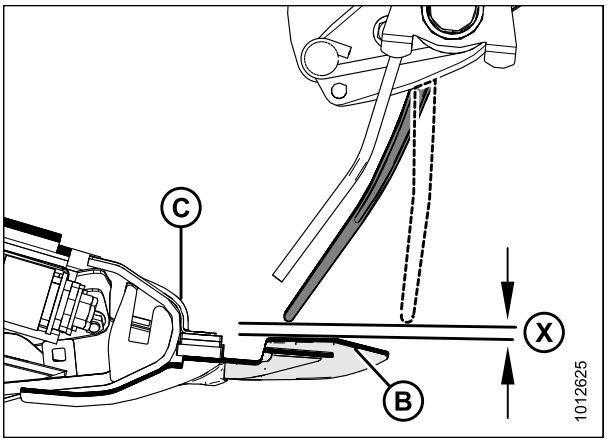


Figure 5.35: Reel Clearance

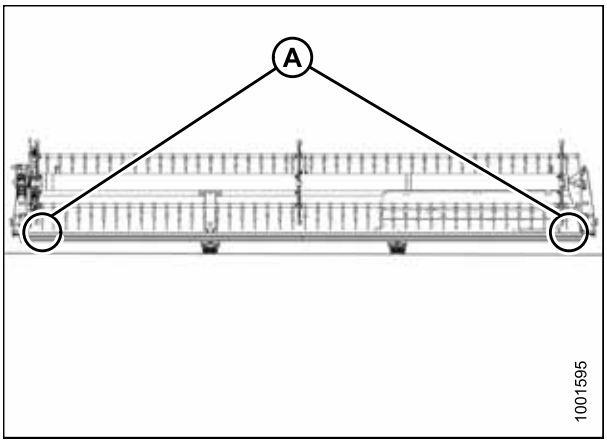


Figure 5.36: Single Reel Measurement Locations (Two Places)

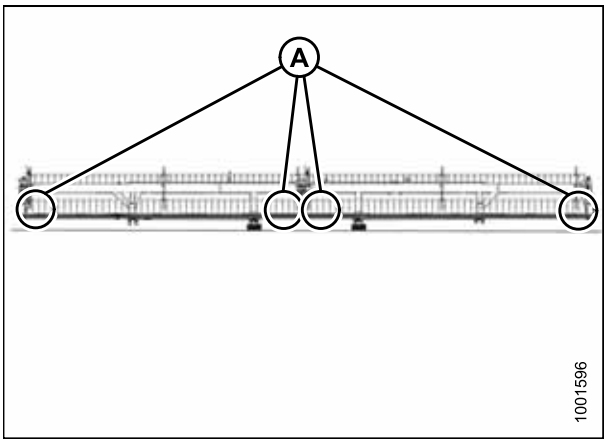


Figure 5.37: Double Reel Measurement Locations (Four Places)

5.12.2 Adjusting Reel Clearance

DANGER

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

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

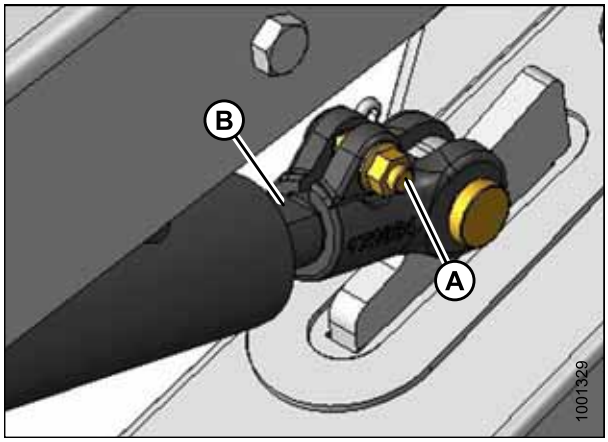


Figure 5.38: Outside Reel Arm

3. ***For double reel:*** Adjust center arm lift cylinder stop (A) to change clearance at inboard ends of reels 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).

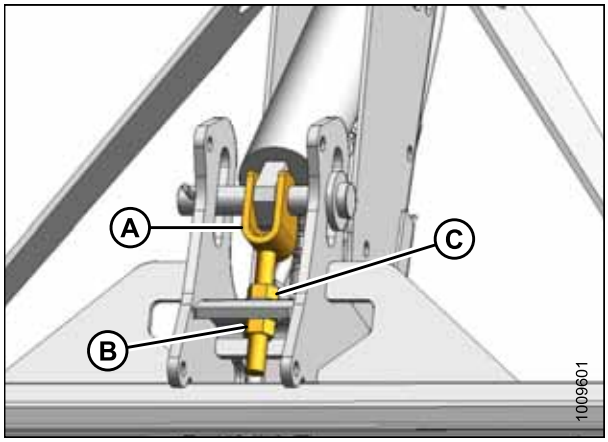


Figure 5.39: Underside of Center Arm

4. Check measurements and if necessary, repeat adjustment procedures.
5. Move reel back to ensure steel end fingers do not contact deflector shields.
6. If contact occurs, adjust reel upward to maintain clearance at all reel fore/aft positions. If contact can not be avoided after adjusting the reel, trim steel end fingers to obtain proper clearance.
7. Periodically check for evidence of contact, and adjust clearance as required.

5.13 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 the auger and the auger pan. Too little clearance may result in the fingers or flighting contacting and damaging the feed draper or pan when operating the header at certain angles. Look for evidence of contact when greasing the float module.

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

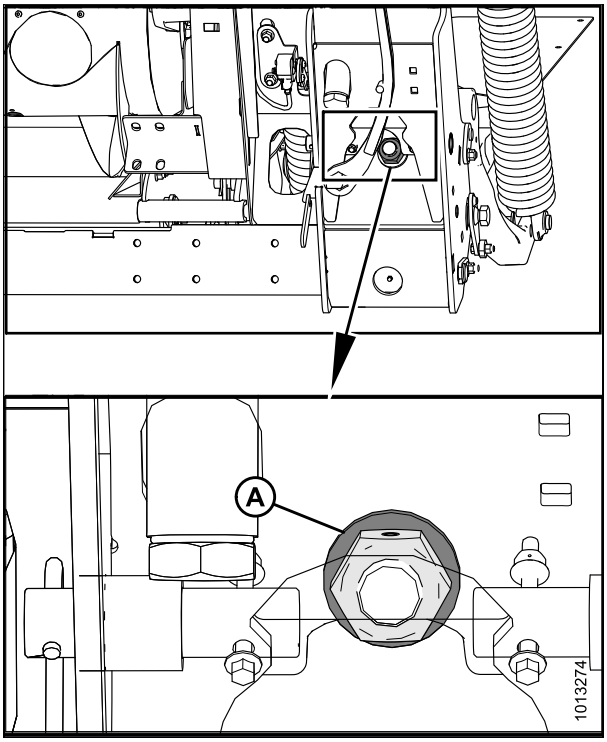


Figure 5.40: Float Lock

4. Before adjusting the auger to pan clearance, check the auger float position to determine how much clearance is required:

   - If the bolt head (A) is closest to the floating symbol (B), the auger is in the floating position.

CAUTION

Make sure the two bolts (A) are in the same location to prevent damage to the machine during operation.

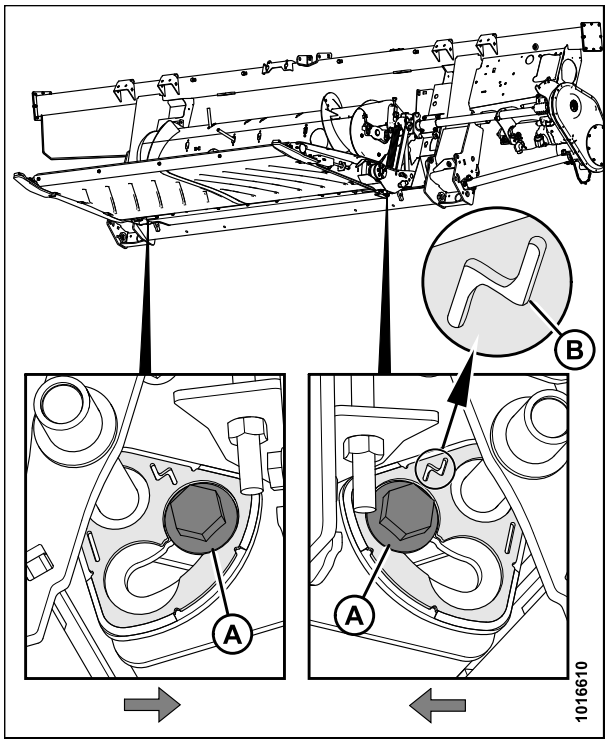


Figure 5.41: Floating Position

- If the bolt head (A) is closest to the fixed symbol (B), the auger is in the fixed position.

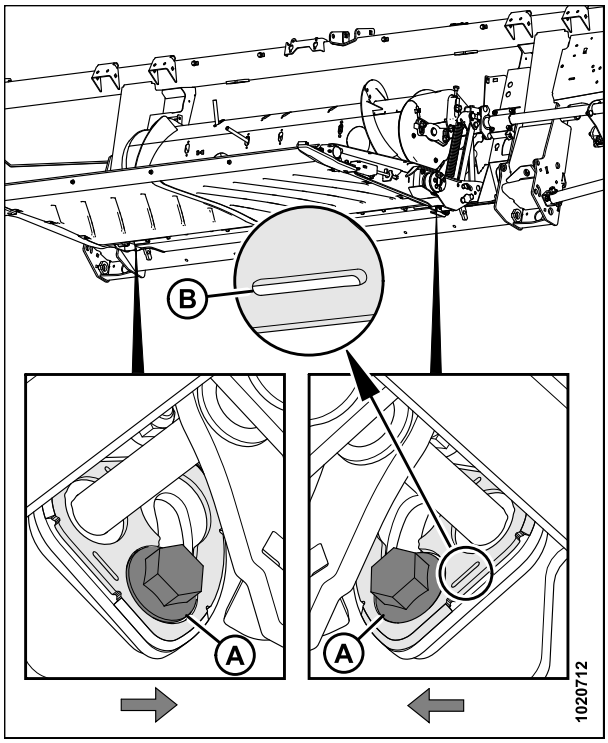


Figure 5.42: Fixed Position

5. Loosen two nuts (B).
6. Turn bolt (A) clockwise to increase clearance (C); turn bolt counterclockwise to decrease clearance.
   - If feed auger is in rigid position, set clearance to 22–26 mm (7/8–1.0 in.).
   - If feed auger is in floating position, set clearance to 11–15 mm (7/16–5/8 in.).

   NOTE:

   The clearance increases between 25–40 mm (1–1-1/2 in.) when the center-link is fully retracted.
7. Repeat Steps *5, page 133* and *6, page 133* for the opposite end of the auger.

   IMPORTANT:

   Adjusting one side of the auger can affect the other side so recheck both sides after final adjustment is made.
8. Tighten nuts (B) on both ends of the feed auger. Torque the nuts to 93–99 Nm (68–73 lbf·ft).

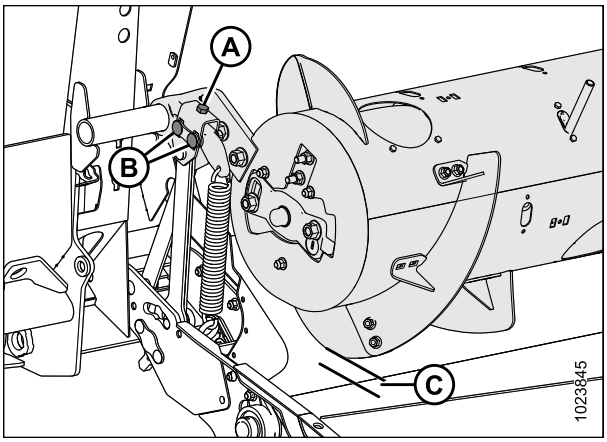


Figure 5.43: Auger Clearance

5.14 Adjusting 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.

1. Ensure the white indicator bar (A) is at the halfway point in the window.

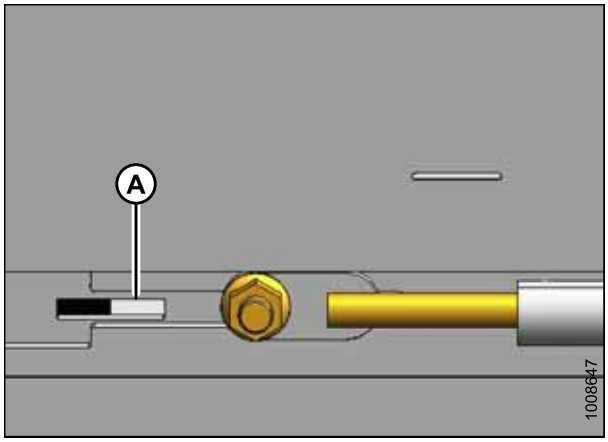


Figure 5.44: Left Side Tension Adjuster Shown – Right Side Opposite

WARNING

Check to be sure all bystanders have cleared the area.

2. Start the engine and fully raise the header.
3. Shut down the combine, and remove the key from the ignition.
4. Engage the header safety props.
5. Ensure the draper guide (the rubber track on the underside of the draper) is properly engaged in the groove (A) on the drive roller.

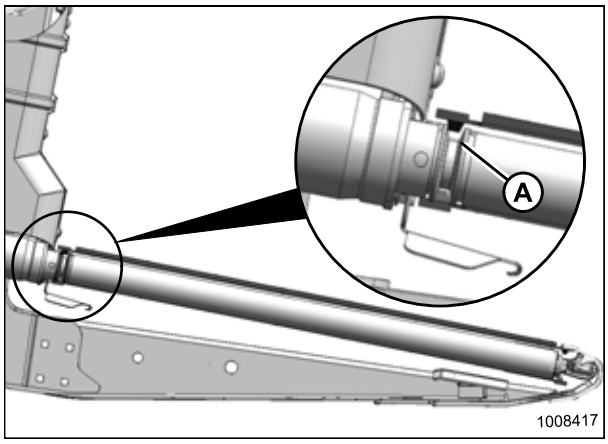


Figure 5.45: Drive Roller

6. Ensure the idler roller (A) is between the draper guides (B).

   NOTE:

   If adjustment is required, tension the drapers just enough to prevent slipping and to keep the draper from sagging below the cutterbar.

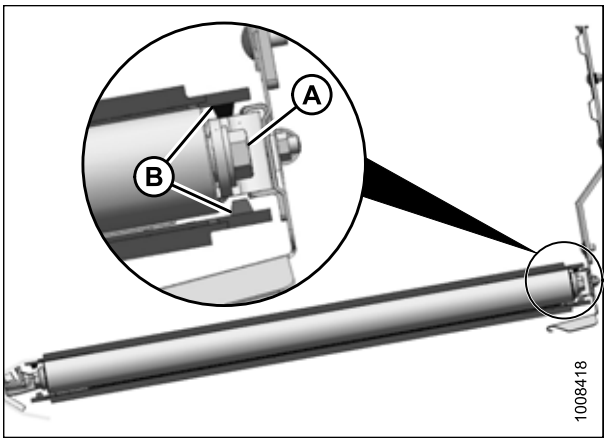


Figure 5.46: Idler Roller

   IMPORTANT:

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

7. To loosen the adjuster bolt (A), turn it counterclockwise. The white indicator bar (B) will move outboard in the direction of arrow (D) to indicate that the draper is loosening. Loosen until the white indicator bar is at the halfway point in the window.

8. To tighten the adjuster bolt (A), turn it clockwise. The white indicator bar (B) will move inboard in the direction of arrow (E) to indicate that the draper is tightening. Tighten until the white indicator bar is at the halfway point in the window.

   IMPORTANT:

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

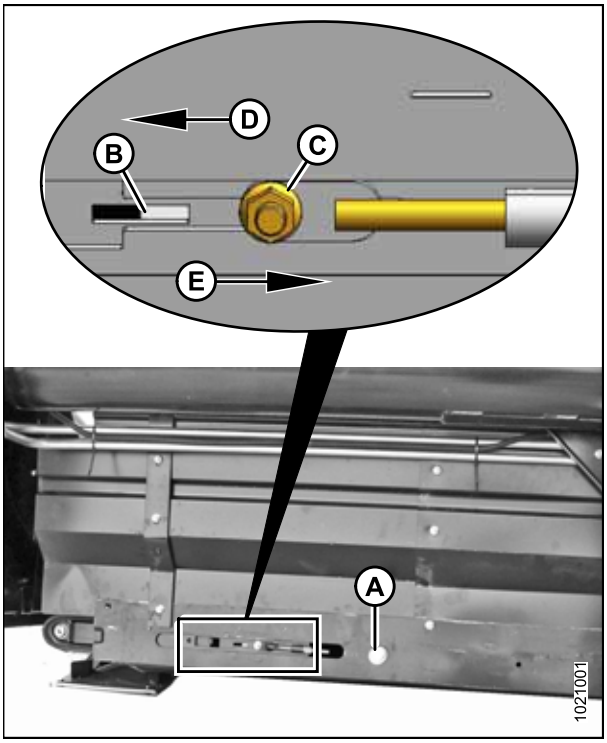


Figure 5.47: Left Side Tension Adjuster Shown – Right Side Opposite

5.15 Adjusting 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 to its full height, stop the engine, and remove key from the ignition.
2. Engage the header safety props.
3. Ensure the draper guide (rubber track on the underside of the draper) is properly engaged in the groove on the drive roller and the idler roller is between the guides.
4. Loosen jam nut (A) and turn bolt (B) clockwise to increase draper tension or counterclockwise to decrease draper tension.
5. Adjust the draper tension until the white indicator (C) is centered within the indicator window on the spring box.

   IMPORTANT:

   Adjust both sides equally.
6. Tighten jam nut (A).

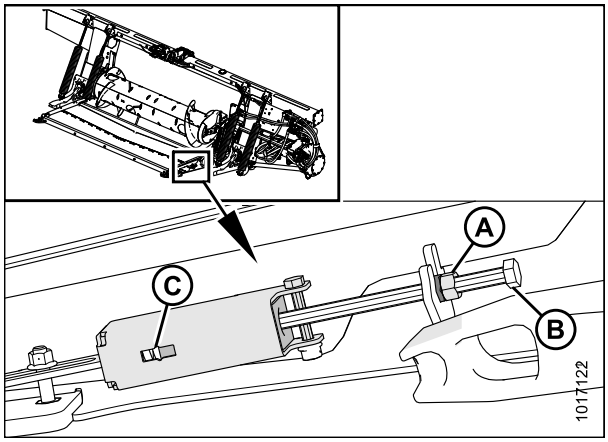


Figure 5.48: Tensioner

5.16 Checking and Adjusting Draper Seal

Maintain the deck height such that the draper runs just below the cutterbar.

IMPORTANT:

New factory-installed drapers are pressure and heat checked at the factory. The gap between the draper (A) and cutterbar (B) is set to 1–3 mm (1/32–1/8 in.). To prevent material from entering the drapers and cutterbar, you may need to decrease the deck clearance to 0 mm (0 in.) after an initial break-in period of approximately 50 hours.

1. Check deck height. Draper (A) should run just below cutterbar (B) with a gap of 1–3 mm (1/32–1/8 in.) between the top of deck front track and cutterbar.
   - If deck height is acceptable, skip the remaining steps and proceed to *5.17 Lubricating the Header, page 139*.
   - If deck height is **NOT** acceptable, adjust seal as described in the following steps:

   NOTE:

   Take measurement at deck supports (A) with the header in working position. There are between two and five supports per deck depending on header size.
2. Loosen tension on drapers. For instructions, refer to *5.14 Adjusting Draper Tension, page 134*.
3. Lift draper (A) up at front edge past cutterbar (B).

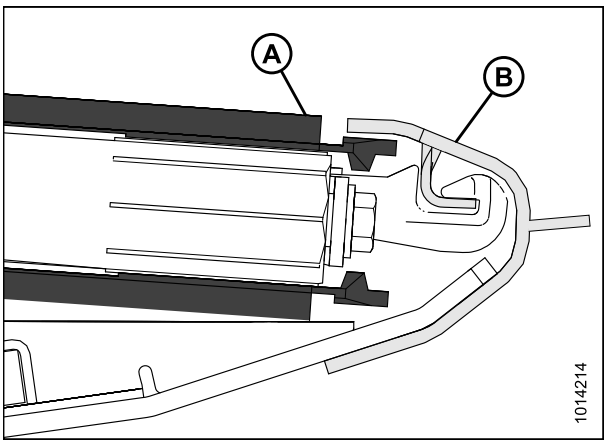


Figure 5.49: Draper/Cutterbar Gap

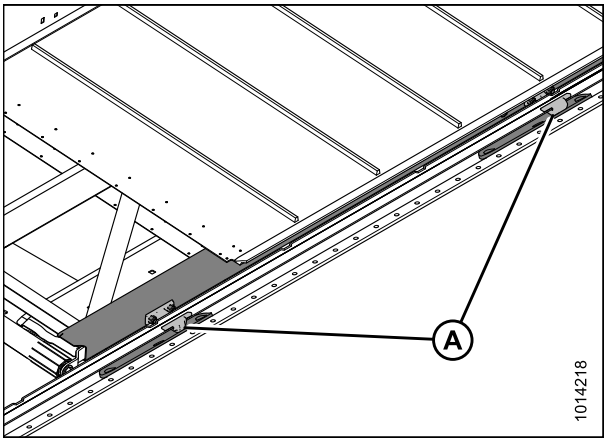


Figure 5.50: Draper Deck Supports

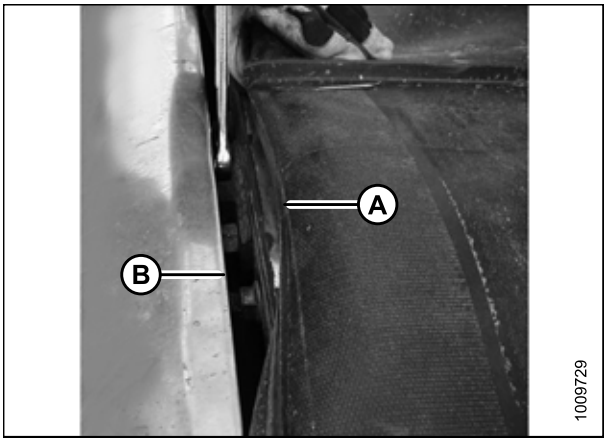


Figure 5.51: Draper and Cutterbar

4. Loosen two lock nuts (A) a half-turn on deck support (B).

   NOTE:

   Deck shown with draper removed.

5. Tap deck (C) to lower deck relative to supports and achieve the recommended setting. Tap support (B) using a punch to raise deck relative to supports.
6. Tighten deck support hardware (A).
7. Tension drapers. Refer to *5.14 Adjusting Draper Tension, page 134*.

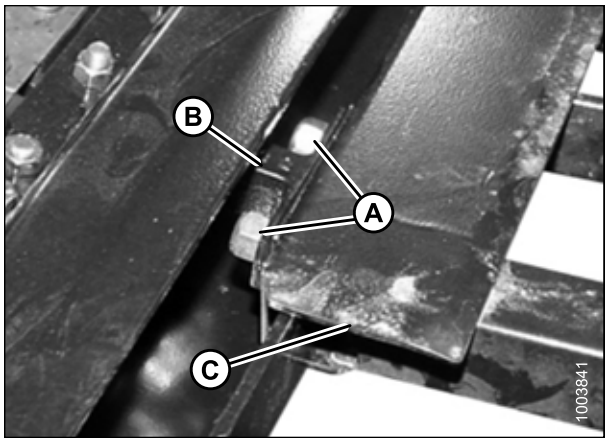


Figure 5.52: Draper Deck Supports

5.17 Lubricating the Header

Table 5.4 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
SAE multipurpose	High temperature, extreme pressure (EP) performance with 10% max molybdenum disulphide (NLGI Grade 2) lithium base	Driveline slip-joints

5.17.1 Greasing Procedure

Greasing points are identified on the machine by decals showing a grease gun and grease interval in hours of operation. Grease point layout decals are located on the header and on the right side of the float module.

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

   IMPORTANT:

   Use clean, high-temperature, extreme-pressure grease only.
2. Inject grease through fitting with grease gun until grease overflows fitting (except where noted).
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. Remove and thoroughly clean any fitting that will not take grease. Also clean lubricant passageway. Replace fitting if necessary.

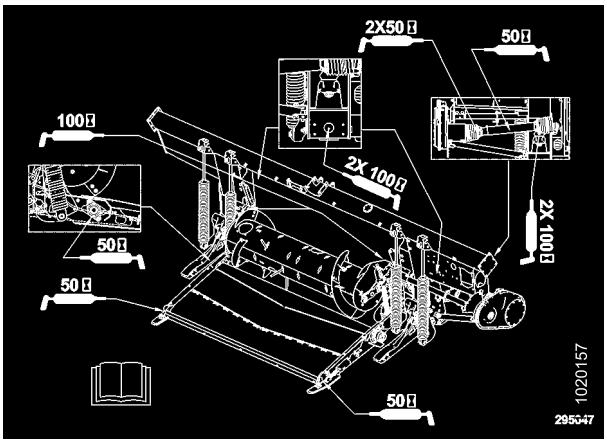


Figure 5.53: FM100 Grease Point Layout Decal

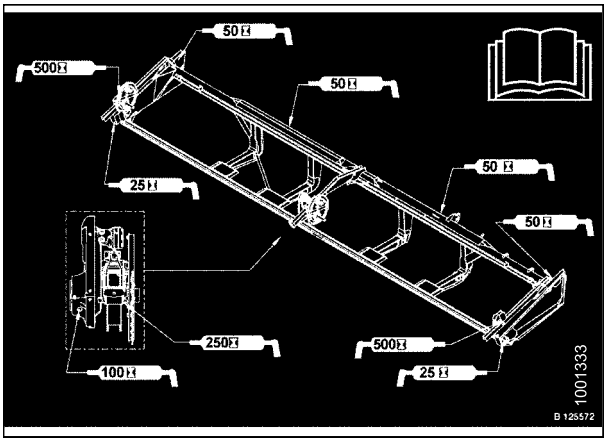


Figure 5.54: Double-Knife Header Grease Point Layout Decal

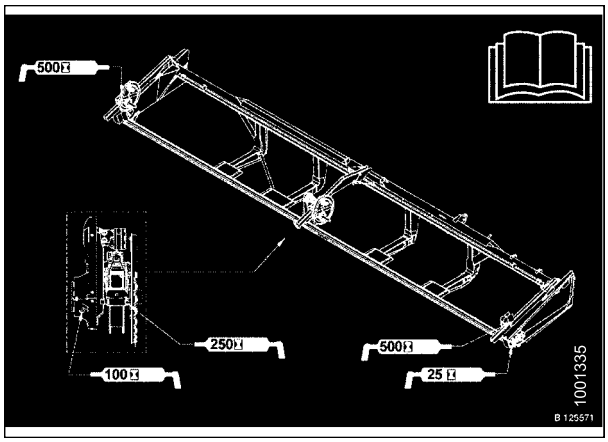


Figure 5.55: Single-Knife Header Grease Point Layout Decal

5.17.2 Lubrication Points

Knifehead

IMPORTANT:

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

- To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** overgrease the knifehead (A).
- Apply only 1–2 pumps of grease with a grease gun, or just until the knifehead starts to move away from the arm. Do **NOT** use an electric grease gun.
- If more than 6–8 pumps of the grease gun are required to fill the cavity, replace the 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.

NOTE:

Use high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base grease unless otherwise specified.

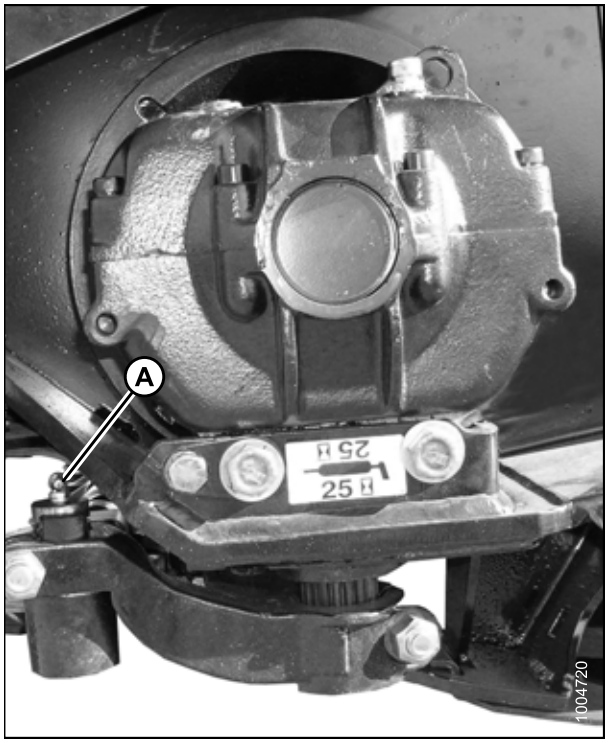
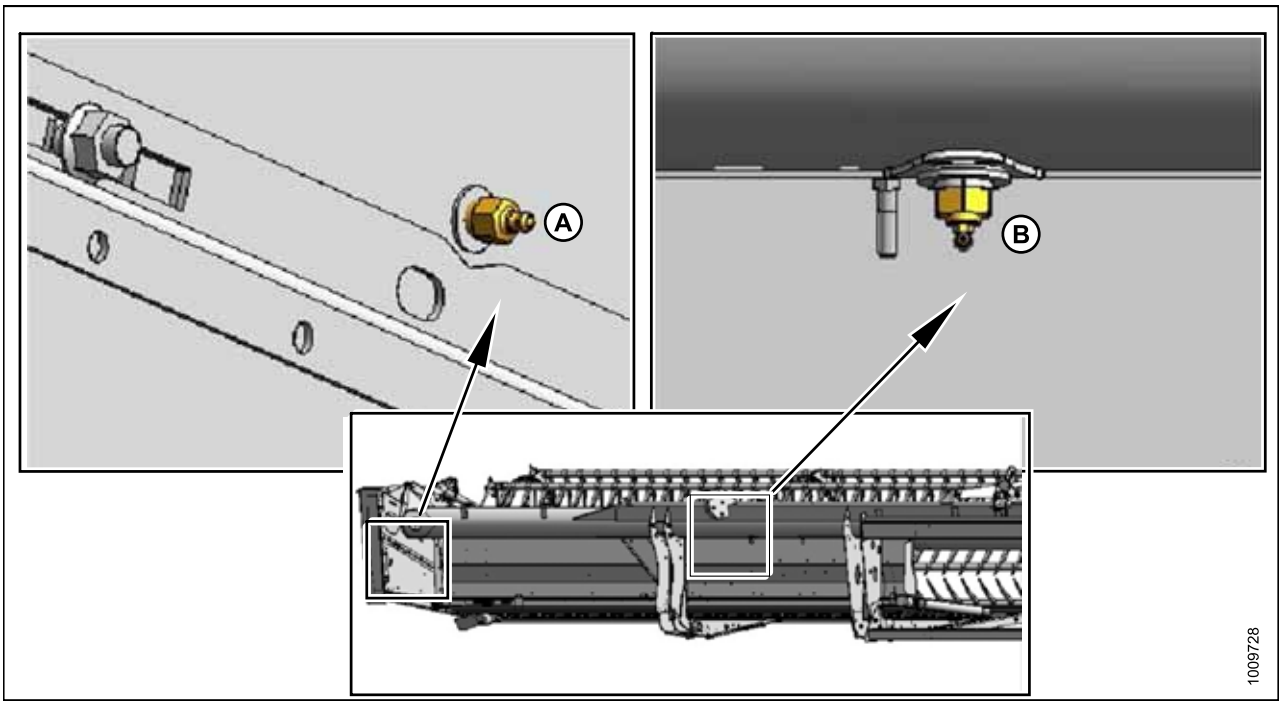


Figure 5.56: Knifehead

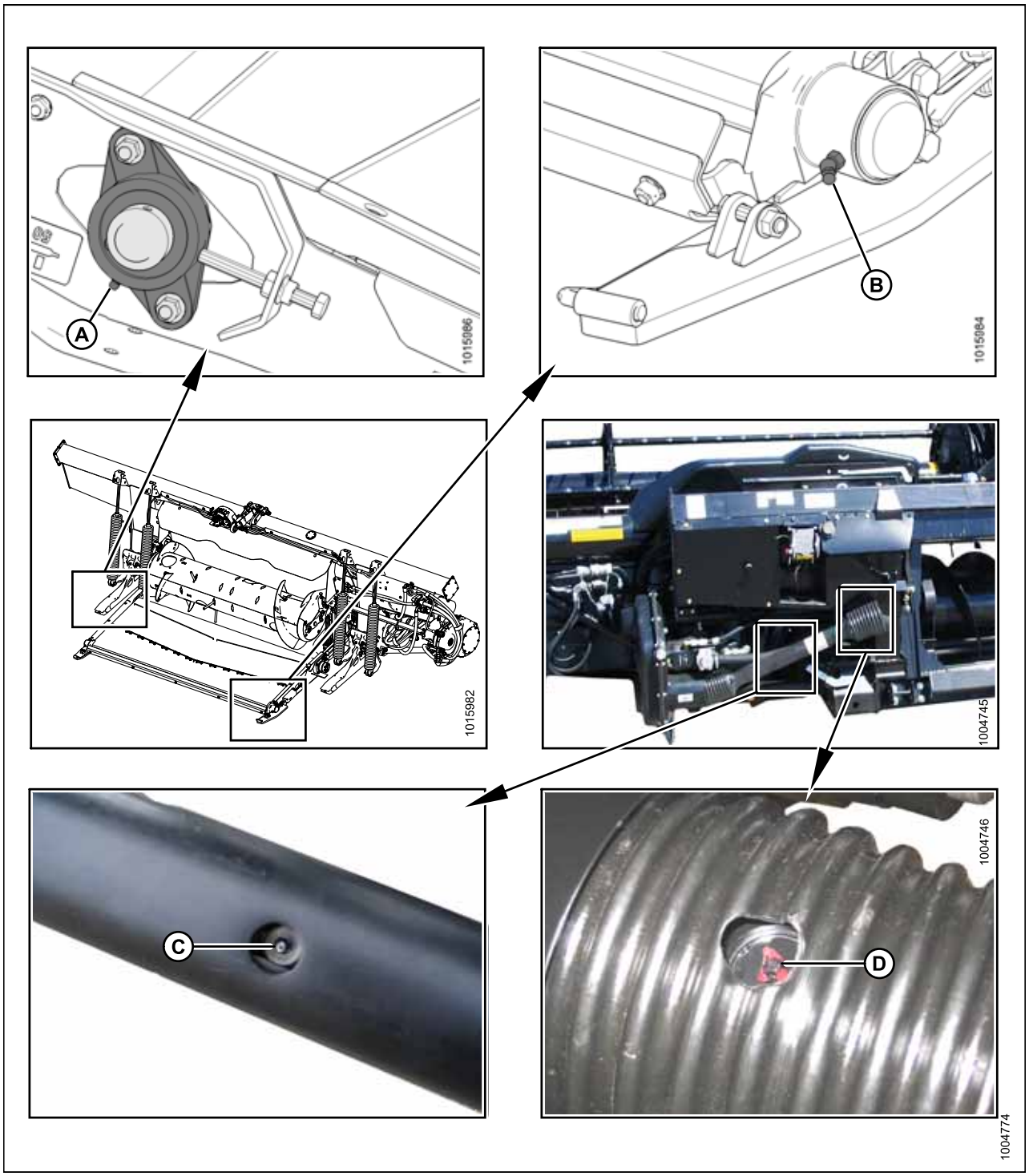
Single Knife – One Place **Double Knife – Two Places**

Figure 5.57: Knife Drive Bearing and Driveshaft (Double-Knife Timed Drive Only)



A - Knife Drive Bearing - Double-Knife Drive - (Both Sides) **B - Knife Driveshaft - Double-Knife Timed Drive (Both Sides) (15 Pumps Minimum)**

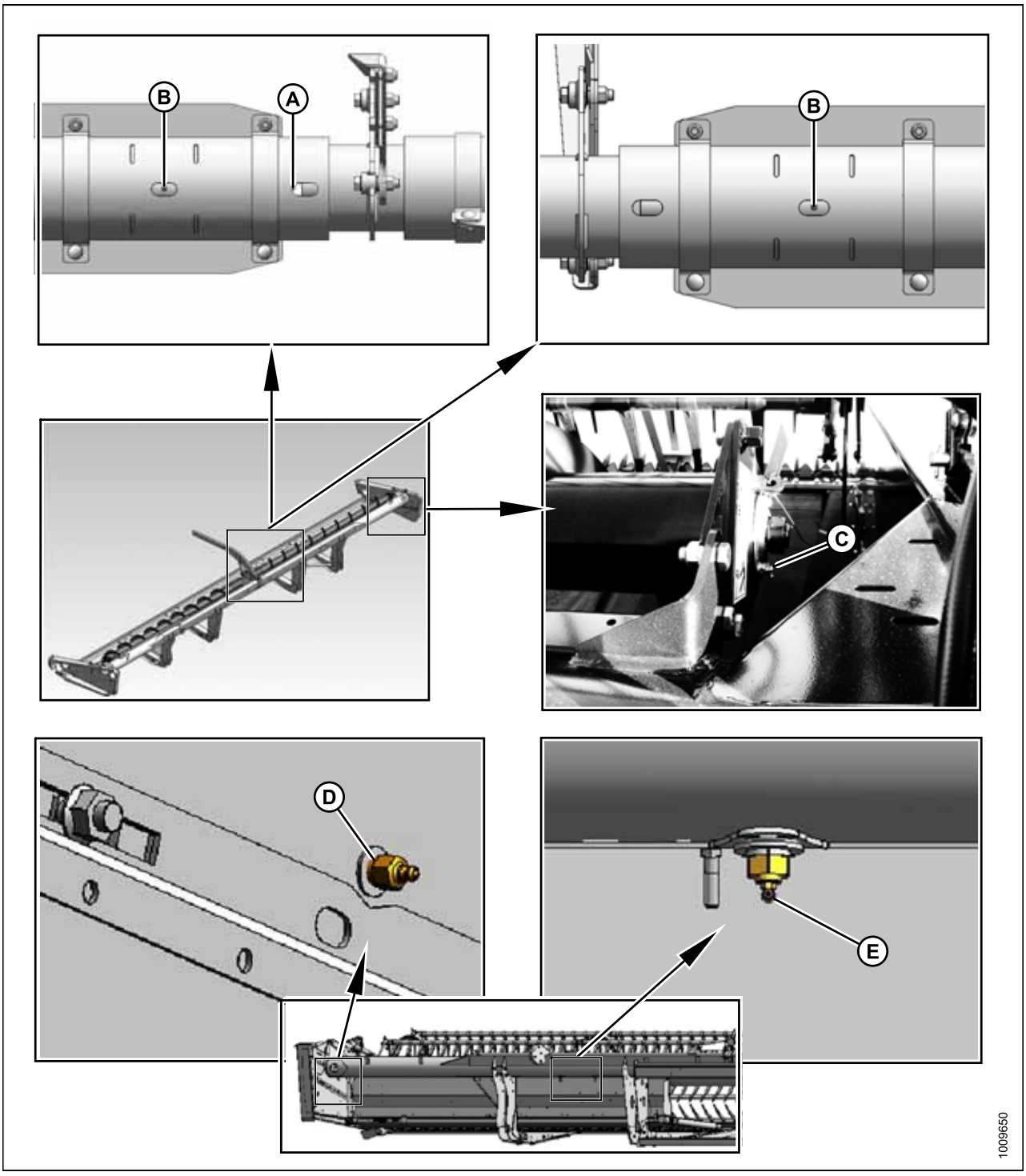
Figure 5.58: Drive Roller Bearing, Idler Roller, Slip Joint, and Driveline Universal



A - Drive Roller Bearing **B - Idler Roller - Both Sides** **C - Driveline Slip Joint**[7] **D - Driveline Universal (Two Places)**

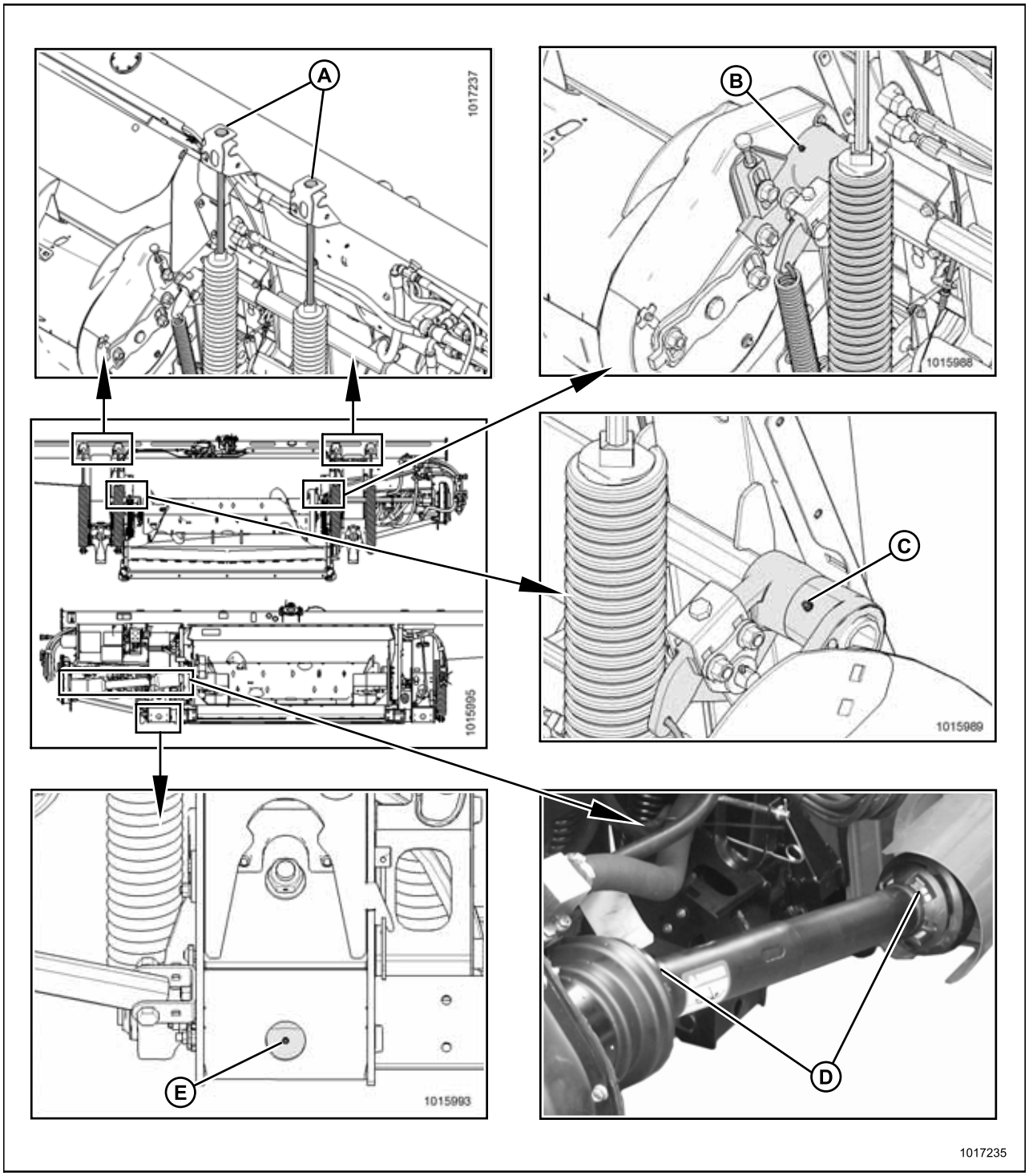
7. 10% moly grease is recommended for the driveline slip joint.

Figure 5.59: Upper Cross Auger (UCA) and Knife Drive (Double-Knife Timed Drive)



A - UCA - U-Joint **B - UCA - Drive Shafts (Two Places)** **C - UCA (One Place)**
D - Knife Drive Bearing - Double-Knife Timed Drive (Both Sides)
E - Knife Driveshaft - Double-Knife Timed Drive (Both Sides) 15 Pumps Minimum

Figure 5.60: Auger Pivot, Float Pivot, Driveline Guard, and Float Spring Tensioners

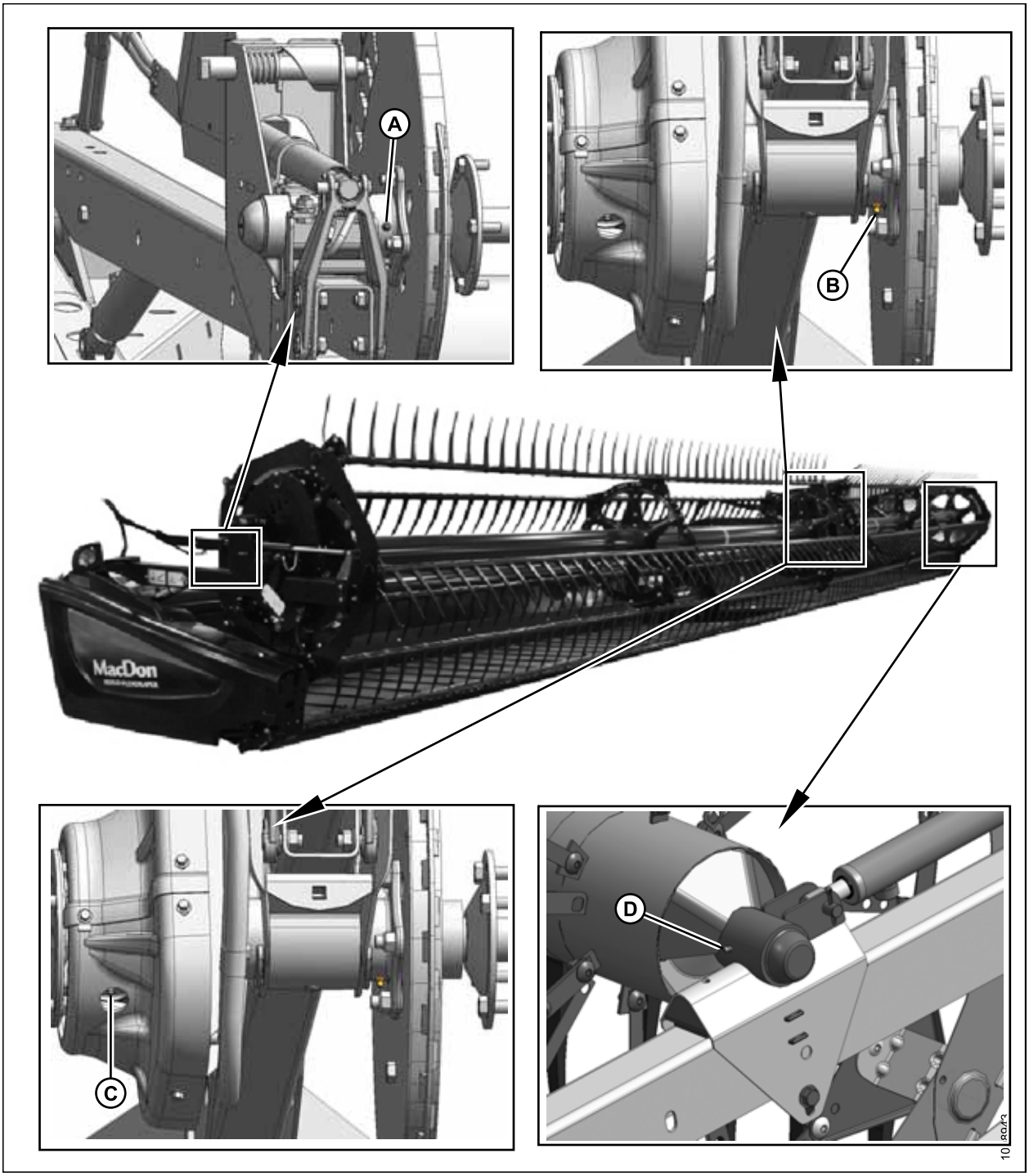


A - Float Spring Tensioner (Both Sides)
B - Auger Pivot
C - Auger Pivot
D - Driveline Guard (Two Places)
E - Float Pivot (Two Places)

IMPORTANT:

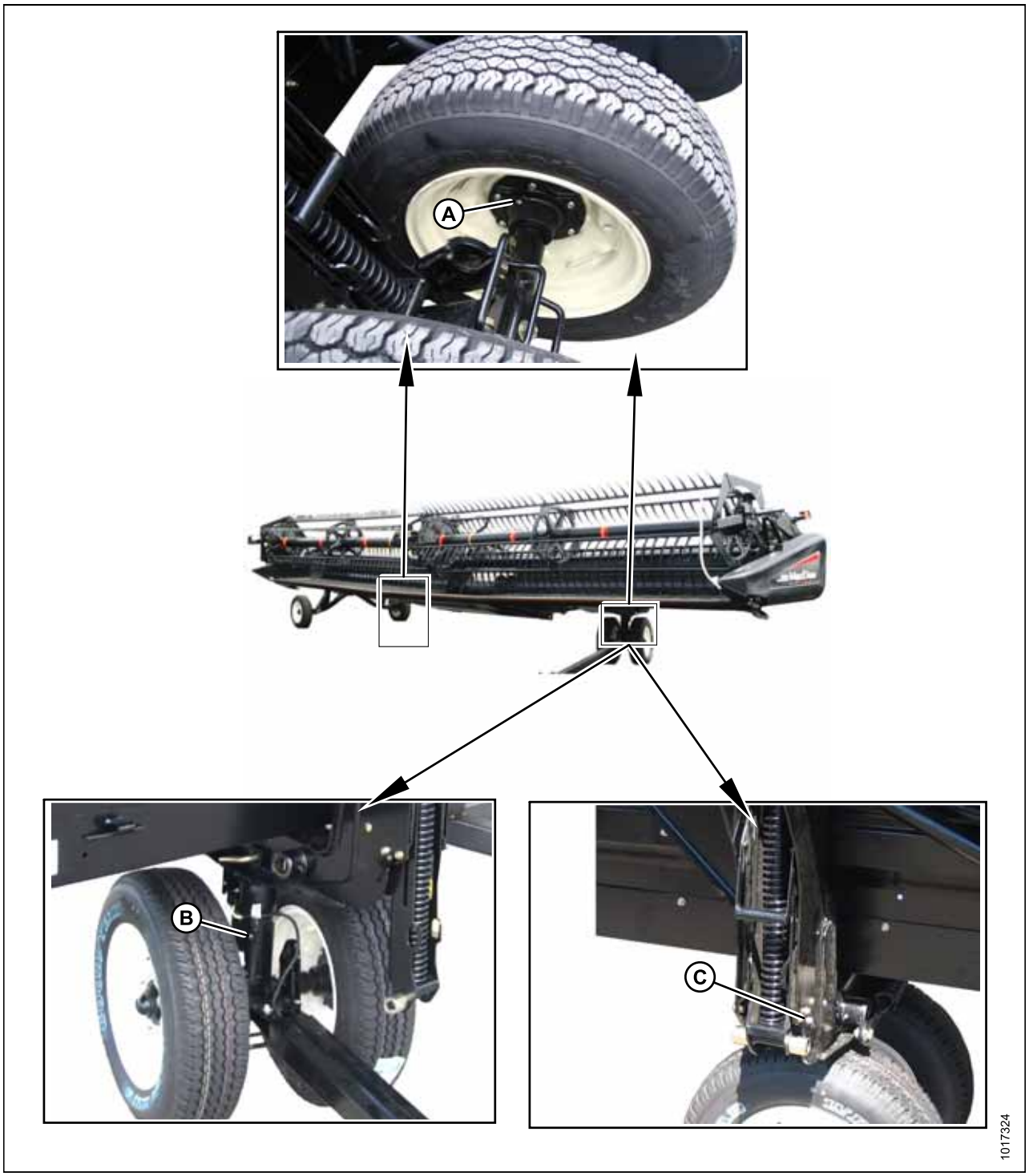
The reel U-joint (C) has an extended lubrication cross and bearing kit. Stop greasing when greasing becomes difficult or if U-joint stops taking grease. **OVERGREASING WILL DAMAGE U-JOINT.** Six to eight pumps is sufficient at first grease (factory). As U-joint wears and requires more than six pumps, grease the joint more often.

Figure 5.61: Reel Shaft Bearings



A - Reel Shaft Right Bearing (One Place)
B - Reel Center Bearing (One Place)
C - Reel U-joint (One Place)
D - Reel Shaft left Bearing (One Place)

Figure 5.62: Rear Wheel Axle, Wheel Bearings, Frame/Wheel Pivot, and Front Wheel Pivot



A - Wheel Bearings (Four Places)

B - Front Wheel Pivot (One Place)

C - Frame/Wheel Pivot (One Place) Both Sides

5.18 Checking and Adjusting Endshields

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

Checking the endshield:

1. Check gap (X) between front end of shields and header frame and compare to the values in Table *5.5, page 147*.

Table 5.5 Endshield Gap at Various Temperatures

Temperature in Degrees °C (°F)	Gap (X) mm (in.)
7 (45)	13–18 (1/2 – 23/32)
18 (65)	10–15 (3/8 – 19/32)
29 (85)	7–12 (9/32 – 15/32)
41 (105)	4–9 (5/32 – 11/32)

NOTE:

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

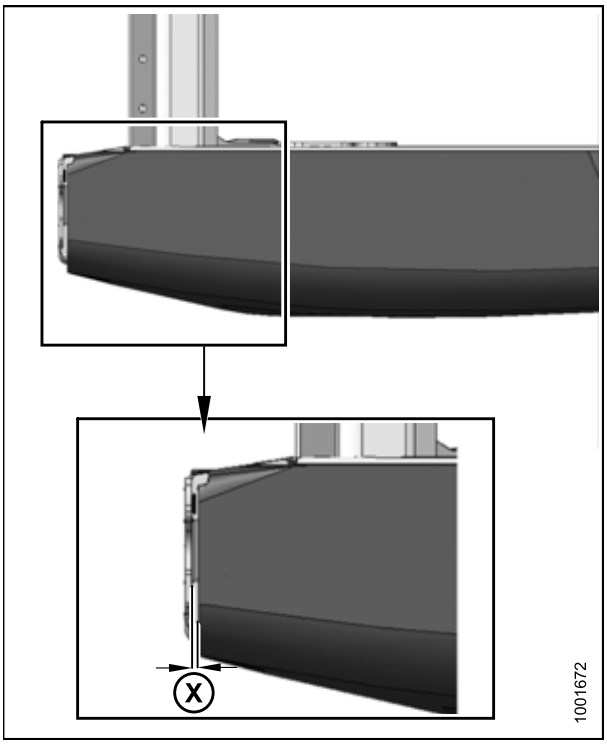


Figure 5.63: Gap between Endshield and Header Frame

Opening the endshield:

1. To unlock the shield, push the release lever (A) located on the backside of the endshield.
2. Pull endshield open using handle depression (B).

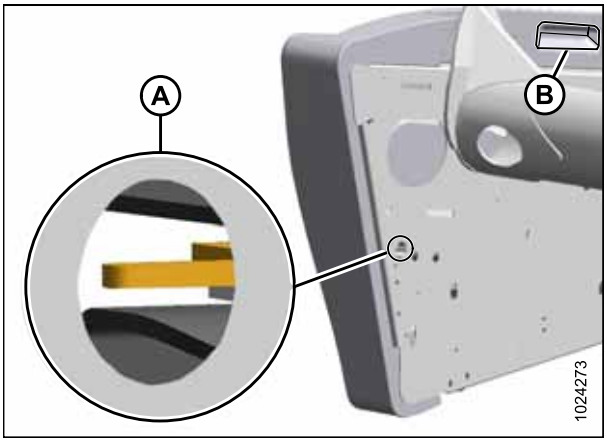


Figure 5.64: Left Endshield

3. Pull endshield at handle depression (A). Endshield is retained by a hinge tab (B) and will open in direction (C).

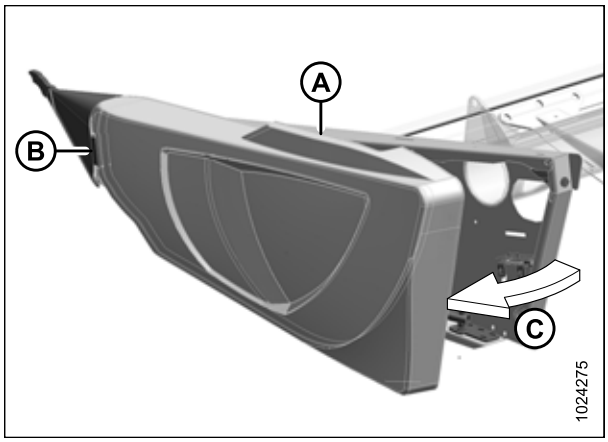


Figure 5.65: Left Endshield

4. Pull the endshield free of hinge tab (A) if additional clearance is required, and swing shield towards the rear of the header.
5. Engage safety catch (B) on hinge arm to secure the shield in fully-open position.

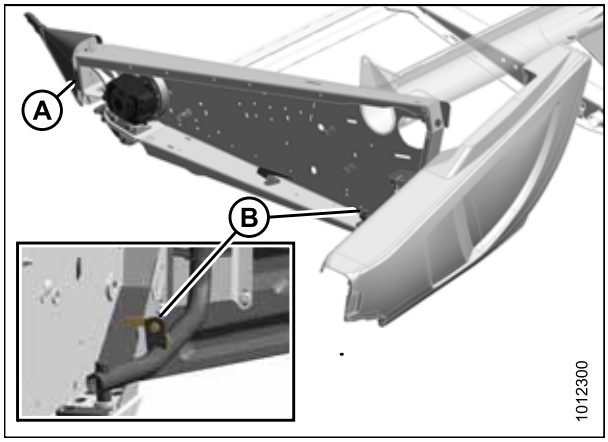


Figure 5.66: Left Endshield

Adjusting the endshield gap:

1. Loosen the four bolts (A) on the support tube bracket (B).

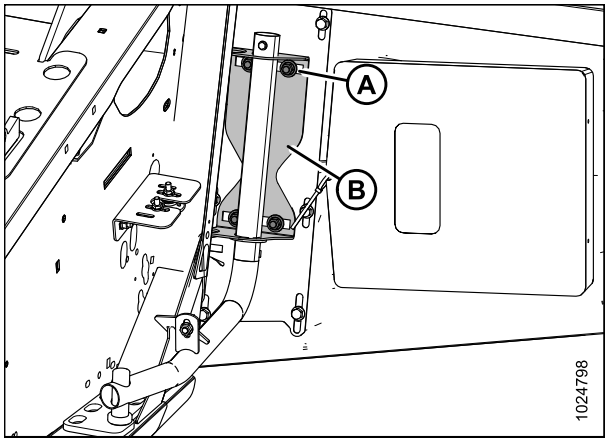


Figure 5.67: Left Endshield Support Tube

2. Loosen the three bolts (A) on latch assembly (B).
3. Adjust latch assembly (B) to achieve the desired gap between the front end of shield and header frame. Refer to Table *5.5, page 147* for recommended endshield gap at various temperatures.
4. Tighten the three bolts (A) on the latch assembly.

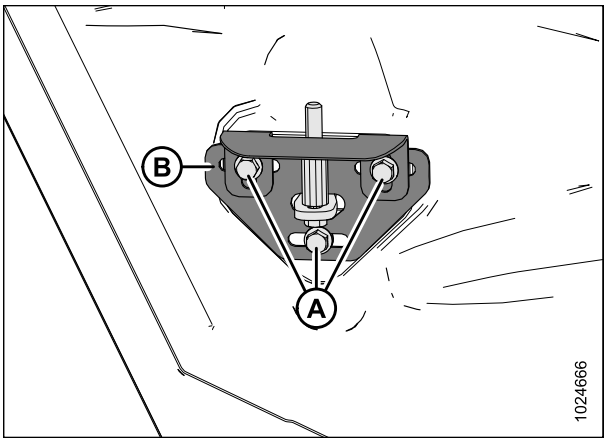


Figure 5.68: Left Endshield Latch Assembly

5. Tighten the four bolts (A) on the support tube bracket (B).
6. Close endshield.

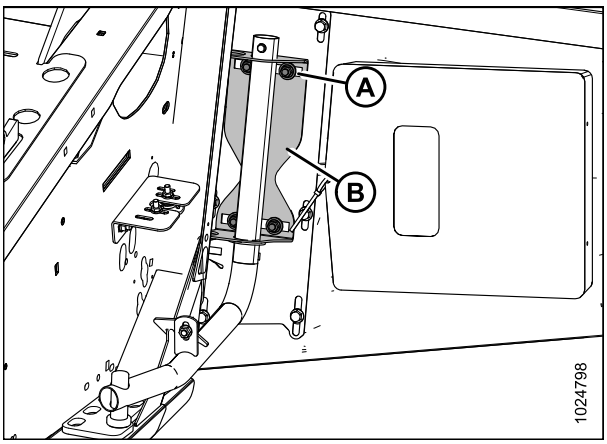


Figure 5.69: Left Endshield Support Tube

Closing the endshield:

1. Disengage lock (B) to allow endshield to move.
2. Insert front of endshield behind hinge tab (A) and into divider cone.

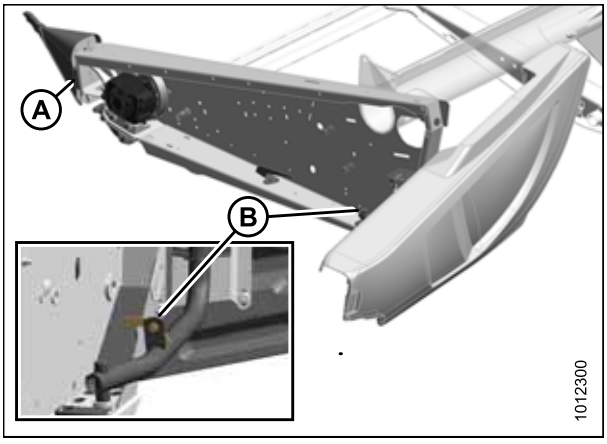


Figure 5.70: Left Endshield

3. Swing endshield in direction (A) into closed position. Engage lock with a firm push.
4. Verify that endshield is locked.

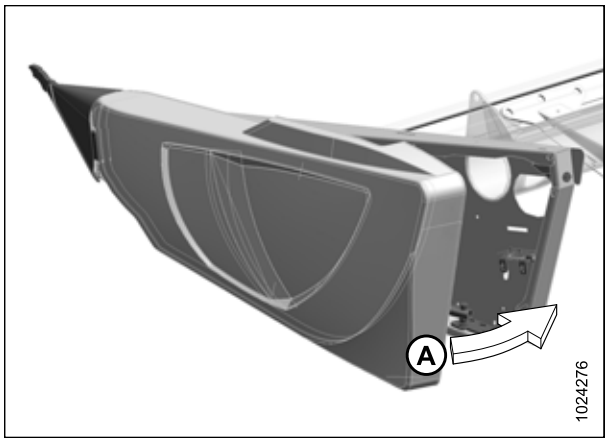


Figure 5.71: Left Endshield

5.19 Checking Manuals

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

1. Open the left endshield. Remove the cable tie on the manual case (A).
2. Close case and endshield.

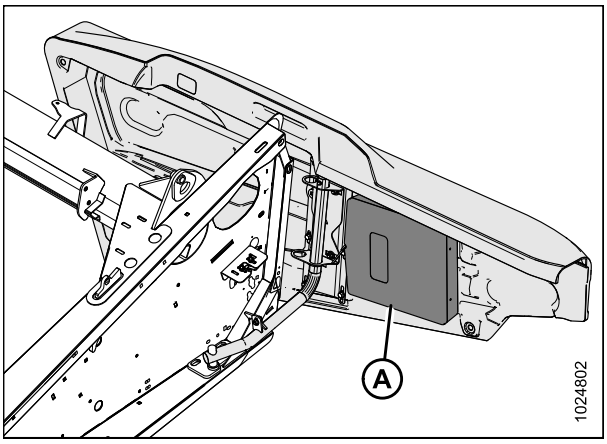


Figure 5.72: Manual Case

3. Confirm that the case contains the following manuals:
   - D1 Series Draper Header for Combines Operator's Manual
   - D1 Series Draper Header with FM100 Float Module Parts Catalog
4. Close case and endshield.

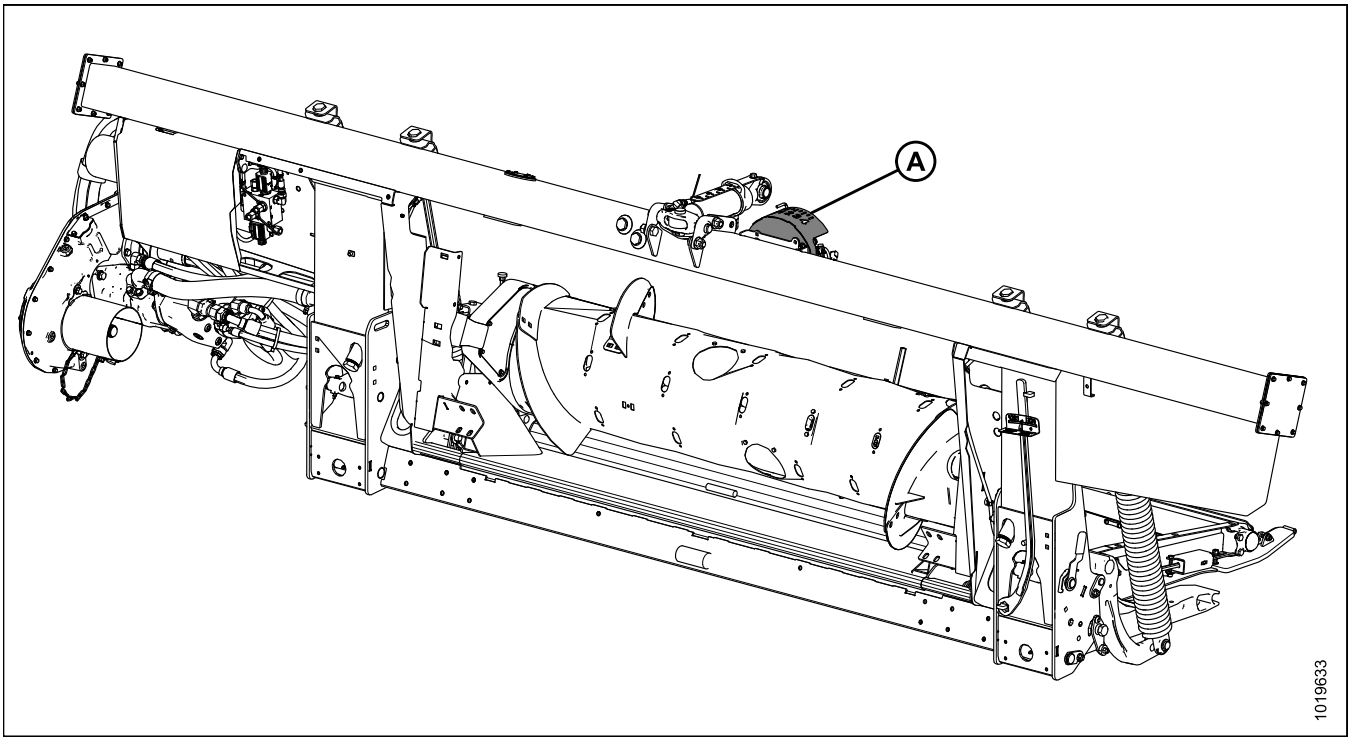
6 Setting up Auto Header Height Control

6.1 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 the float indicator box (A) on the FM100 Float Module. This sensor sends a signal to the combine allowing it to maintain a consistent cutting height and an optimum float as the header follows ground contours.

Figure 6.1: FM100 Float Module



FM100 Float Modules are factory-equipped for AHHC; however, before using the AHHC feature, you must do the following:

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

   For more information, refer to *6.1.2 Sensor Output Voltage Range – Combine Requirements, page 155*.

2. Prepare the combine to use the AHHC feature (applies only to some combine models—refer to the instructions for your combine).

3. Calibrate the AHHC system so that the combine can correctly interpret data from the height sensor on the float module (refer to the instructions for your combine).

   NOTE:

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

Refer to the following instructions for your specific combine model:

- *6.1.3 Case IH 5088/6088/7088 Combines, page 163*

6.1.1 Sensor Operation

The position sensors supplied with the auto header height control (AHHC) system are hall-effect sensors containing sealed connectors. Normal operating signal voltages for the sensors fall between 10% (0.5 VDC) and 90% (4.5 VDC). An increase in sensor voltage correlates to an increase in header height.

Sensor errors result in a 0 V signal, indicating a faulty sensor or incorrect supply voltage.

6.1.2 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 6.1 Combine Voltage Limits

Combine	Low Voltage Limit	High Voltage Limit	Range (Difference between High and Low Limits)
Challenger, Gleaner A, Massey Ferguson	0.5 V	4.5 V	2.5 V
Case IH 5088/6088/7088, 5130/6130/7130, 7010/8010, 7120/8120/9120, 7230/8230/9230, and 7240/8240/9240	0.5 V	4.5 V	2.5 V
Case IH 2588/2577	2.8 V	7.2 V	4.0 V
Gleaner R and S Series	0.5 V	4.5 V	2.5 V
John Deere 60, 70, S, and T Series	0.5 V	4.5 V	2.5 V
CLAAS 500/600/700 Series	0.5 V	4.5 V	2.5 V
New Holland CR/CX - 5 V system	0.7 V	4.3 V	2.5 V
New Holland CR/CX - 10 V system	2.8 V	7.2 V	4.1–4.4 V

NOTE:

Some combine models do not support checking sensor output voltage from the cab (early Case 23/2588 series, CLAAS 500/600/700 Series). For these models, check output voltage manually. Refer to *Manually Checking Voltage Range: One-Sensor System, page 156* or *Manually Checking Voltage Range: Two-Sensor System, page 158*.

10 Volt Adapter (MD #B6421) – New Holland Combines Only

New Holland combines with a 10 V system require the 10 V adapter (A) (MD #B6421) for proper calibration of the auto header height control (AHHC) feature.

If a 10 V New Holland combine does not have the adapter installed, the AHHC output will always read 0 V, regardless of sensor position.

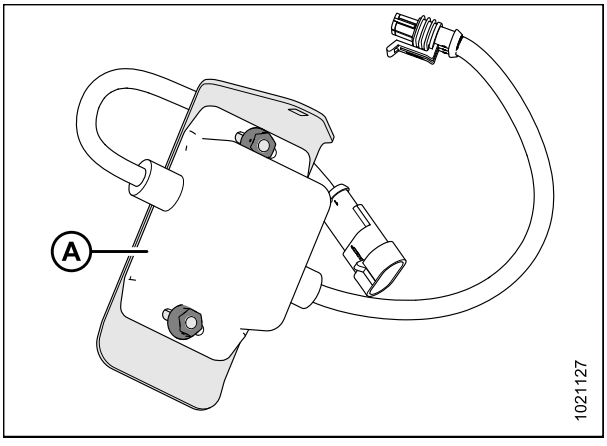


Figure 6.2: 10 V Adapter (MD #B6421)

Use a voltmeter to measure the voltage between Pin 1 (power) and Pin 2 (ground) wires at the AHHC sensor (A). This will determine whether the combine has a 5 V system or a 10 V system.

NOTE:

Combine key must be in ON position, but engine does not need to be running.

The three possible voltage readings are as follows:

- 0 V – combine key is in OFF position, or there is a faulty harness/bad connection
- 5 V – standard combine reading
- 10 V – 10 V combine reading; adapter (MD #276759) is required

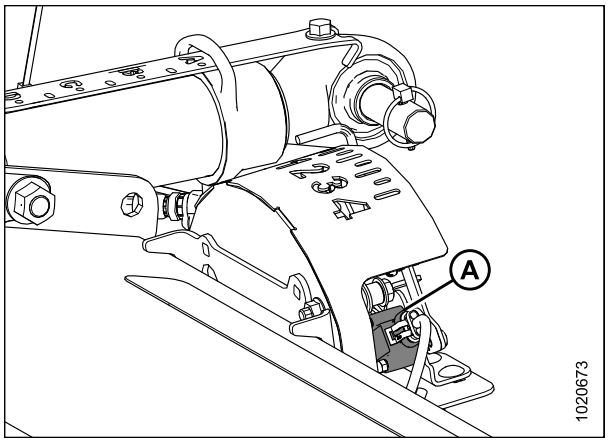


Figure 6.3: Float Indicator Box

Manually Checking Voltage Range: One-Sensor System

The one-sensor system is standard for the FM100 Float Module. If equipped with the optional two-sensor system, refer to *Manually Checking Voltage Range: Two-Sensor System, page 158*.

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

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

1. Extend guard angle fully; the header angle indicator should be at **D**.
2. Position the header 150 mm (6 in.) above the ground, and unlock the float.
3. Check that float lock linkage is on down stops (washer [A] cannot be moved) at both locations.

   NOTE:

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

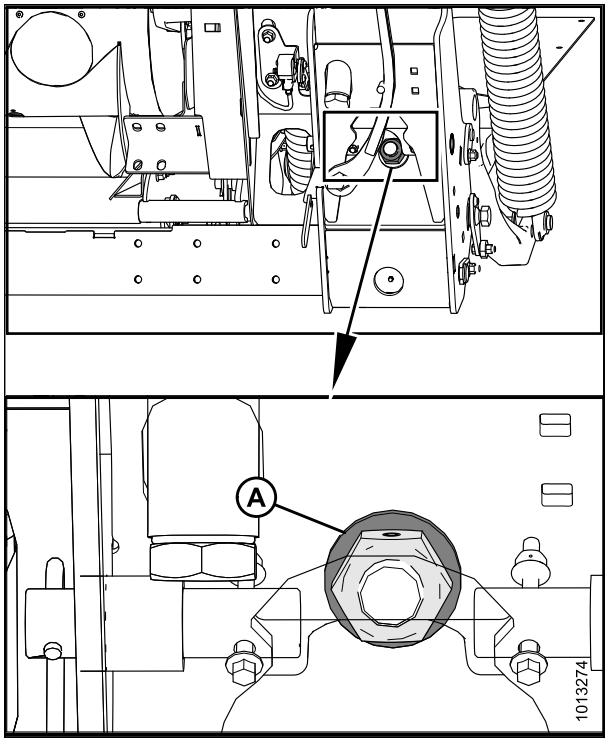


Figure 6.4: Down Stop Washer

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

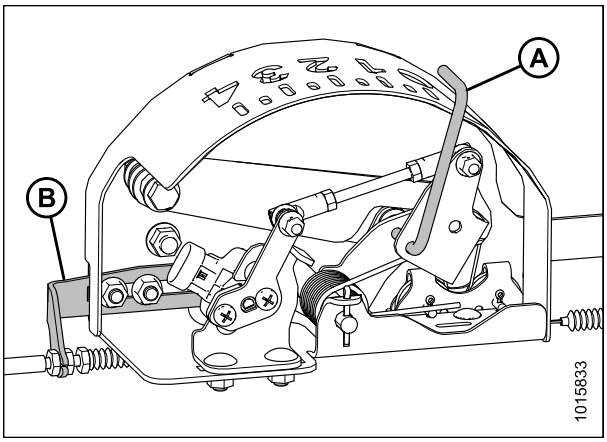


Figure 6.5: Float Indicator Box

5. Use a voltmeter (A) to measure the voltage between the ground (Pin 2) and signal (Pin 3) wires at the AHHC sensor in the float indicator box. Ensure it is at the high voltage limit for the combine. Refer to Table *6.1, page 155*.

   NOTE:

   The wiring harness connector must be attached to the sensor. Do **NOT** disconnect it.

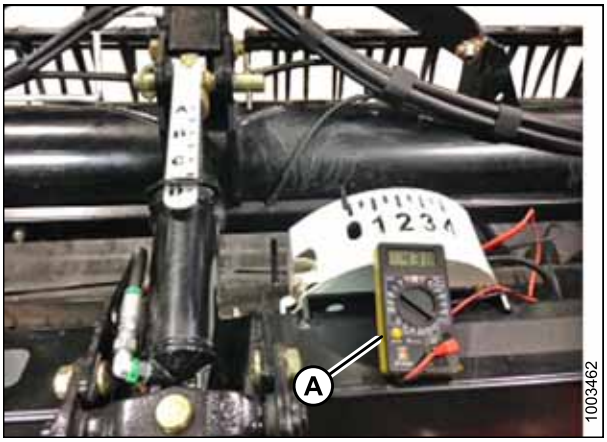


Figure 6.6: Measuring Voltage at Float Indicator Box

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

   NOTE:

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

7. Use a voltmeter (A) to measure the voltage between the ground and signal wires at the AHHC sensor in the float indicator box. It should be at the low voltage limit for the combine. Refer to Table *6.1, page 155*.

   NOTE:

   The wiring harness connector must be attached to the sensor. Do **NOT** disconnect it.

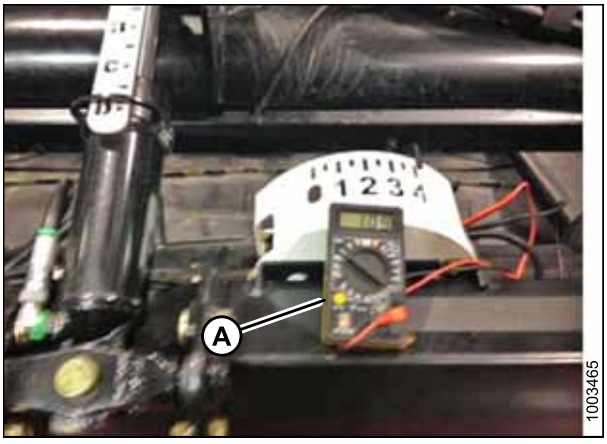


Figure 6.7: Measuring Voltage at Float Indicator Box

8. If the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient, adjust the voltage limits. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

Manually Checking Voltage Range: Two-Sensor System

FM100 Float Modules equipped with the optional two-sensor system have a left and right sensor located on the back frame of the float module.

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

1. Extend guard angle fully; the header angle indicator should be at **D**.
2. Position the header 150 mm (6 in.) above the ground, and unlock the float.
3. Check that float lock linkage is on down stops (washer [A] cannot be moved) at both locations.

   NOTE:

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

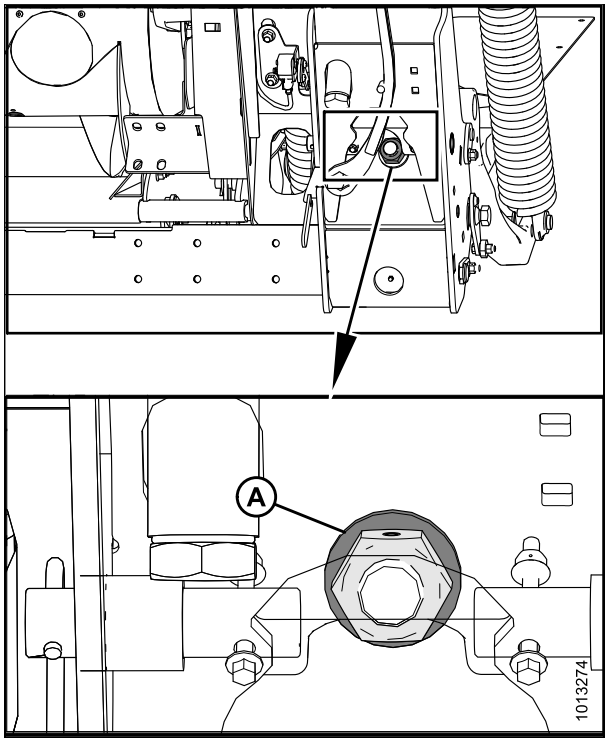


Figure 6.8: Down Stop Washer

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

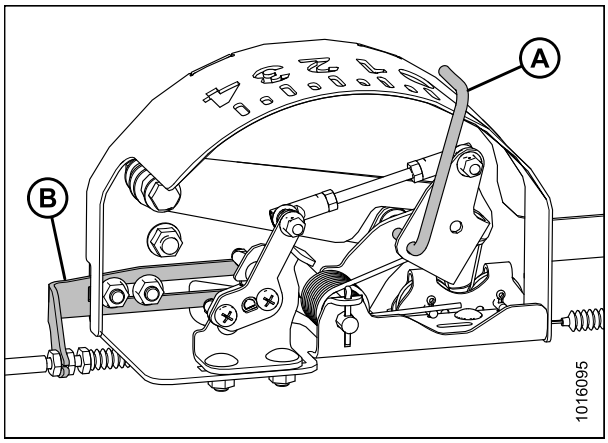


Figure 6.9: Float Indicator Box

5. Use a voltmeter to measure the voltage between the ground (Pin 2) and signal (Pin 3) wires of the AHHC sensor (A) at the back of the float module side frame. Ensure it is at the high voltage limit for the combine. Refer to Table *6.1, page 155*.

   NOTE:

   The wiring harness connector must be attached to the sensor. Do **NOT** disconnect it.

6. Repeat at the opposite side.

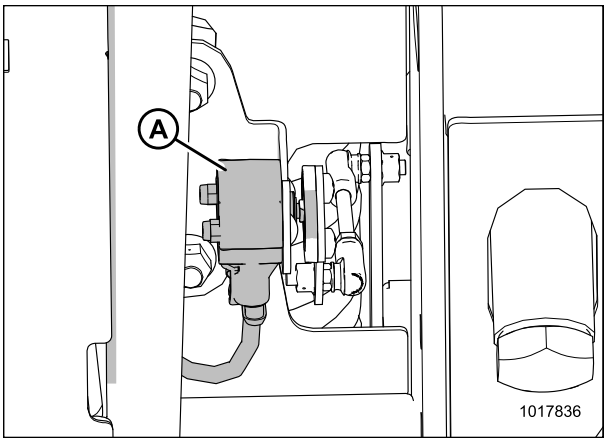


Figure 6.10: Optional Two-Sensor Kit – Right Sensor

7. Fully lower the combine feeder house, and float the header up off the down stops (float indicator [A] should be at 4, and the float module should be fully separated from the header).

   NOTE:

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

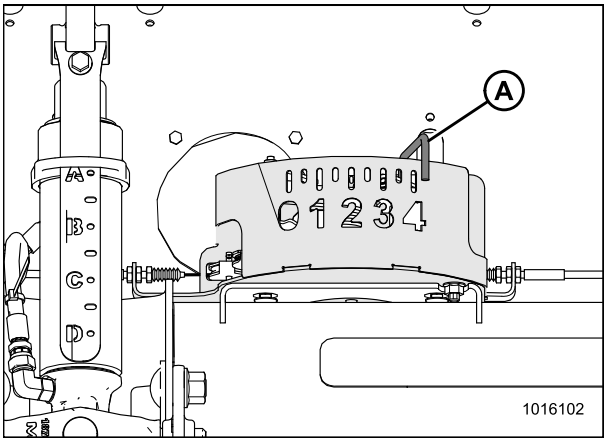


Figure 6.11: Float Indicator Box

8. Using a voltmeter, measure the voltage between the ground (Pin 2) and signal (Pin 3) wires of the AHHC sensor (A) at the back of the side frame. Ensure it is at the high voltage limit for the combine. Refer to Table *6.1, page 155*.

   NOTE:

   The wiring harness connector must be attached to the sensor. Do **NOT** disconnect it.

9. If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is insufficient, adjust the voltage limits. Refer to *Adjusting Voltage Limits: Two-Sensor System, page 161*.

10. Repeat at the opposite side.

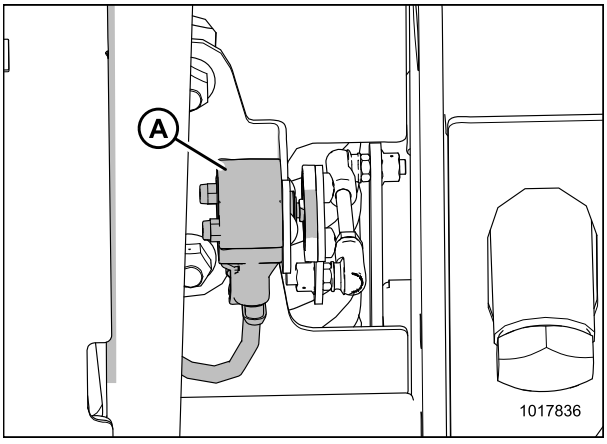


Figure 6.12: Optional Two-Sensor Kit – Right Sensor

Adjusting Voltage Limits: One-Sensor System

Follow this procedure if you have checked the voltage range (either manually or from the cab) and found that the sensor voltage is not within the low and high limits or that the range between the low and high limits is insufficient.

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. Follow these steps to adjust the upper voltage limit:
   a. Extend guard angle fully; the header angle indicator should be at **D**.
   b. Position header 152–254 mm (6–10 in.) above the ground; the float indicator should be at 0.
   c. Check the upper voltage limit using the combine display or voltmeter. Refer to Table *6.1, page 155*.
   d. Loosen sensor mounting nuts (A).
   e. Rotate sensor (B) counterclockwise to increase high voltage limit and clockwise to decrease it.
   f. Tighten sensor mounting nuts (A).

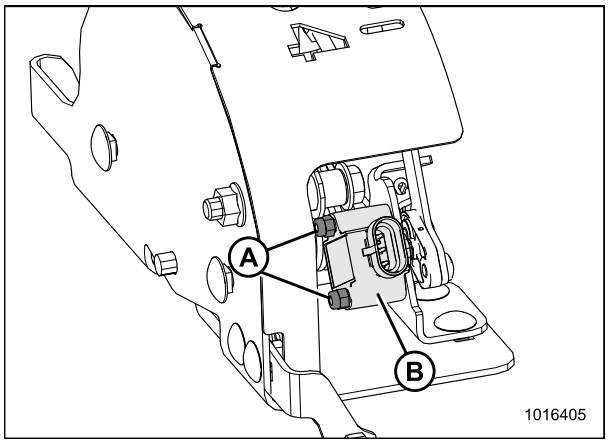


Figure 6.13: AHHC Sensor Assembly

2. Follow these steps to adjust the lower voltage limit:
   a. Extend guard angle fully; the header angle indicator should be at **D**.
   b. Fully lower header on the ground; the float indicator should be at 4.
   c. Check the lower voltage limit using the combine display or voltmeter. Refer to Table *6.1, page 155*.
   d. Loosen sensor mounting nuts (A).
   e. Rotate sensor (B) counterclockwise to increase low voltage limit and clockwise to decrease it.
   f. Tighten sensor mounting nuts (A).

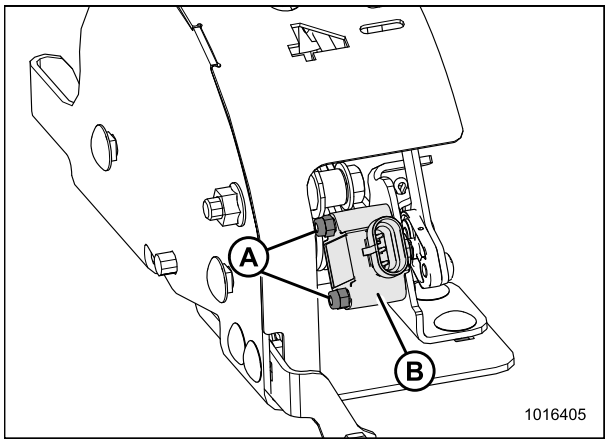


Figure 6.14: AHHC Sensor Assembly

3. After making adjustments, recheck both the upper and lower voltage limits to make sure they are within the required range according to Table *6.1, page 155*.

4. If unable to get the voltage within the required range, loosen mounting bolts (A) and shift sensor assembly (B) inboard as shown.

   NOTE:

   If sensor assembly is shifted right or left, it may be necessary to repeat Steps *1, page 160* and *2, page 160* to achieve the proper voltage limits.

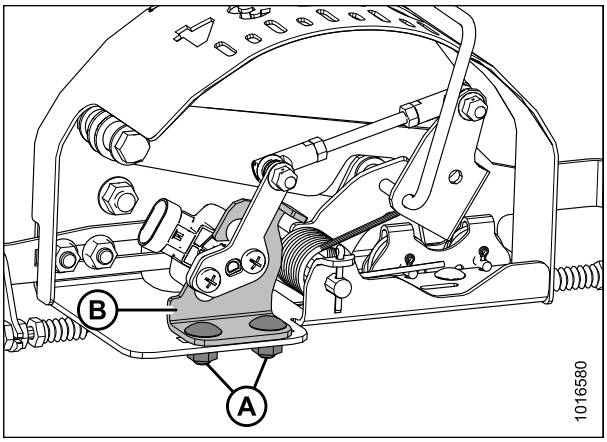


Figure 6.15: AHHC Sensor Assembly

Adjusting Voltage Limits: Two-Sensor System

Replacing the Auto Header Height Control (AHHC) Sensor (One-Sensor System)

CAUTION

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

1. Disconnect the wiring harness (A) from the existing sensor (B).
2. Remove the two screws (C) that secure the sensor (B) to the sensor arm (D).

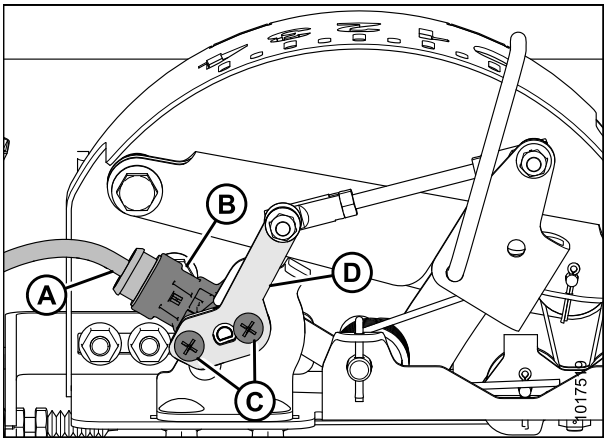


Figure 6.16: AHHC Sensor

3. Swing the sensor arm (A) upwards to gain access to the two bolts (B) securing the sensor (C) to the bracket (D).
4. Remove the two bolts and nuts (B) that secure the sensor (C) to the bracket (D).
5. Pull sensor (C) away from the bracket (D).

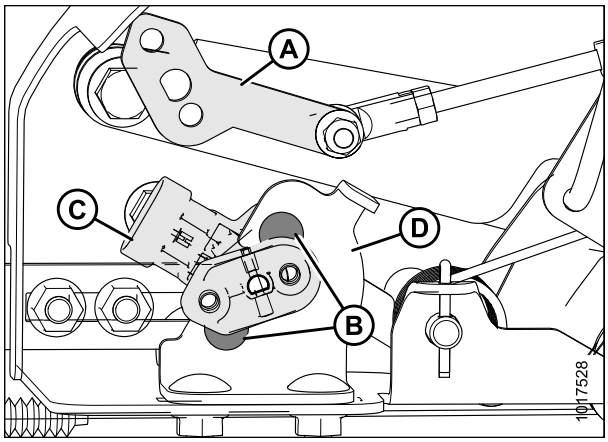


Figure 6.17: AHHC Sensor

IMPORTANT:

To avoid damaging the new sensor, install sensor as follows:

6. Position the new sensor (A) on the bracket (B).
7. Secure with two bolts (C) and nuts (D).

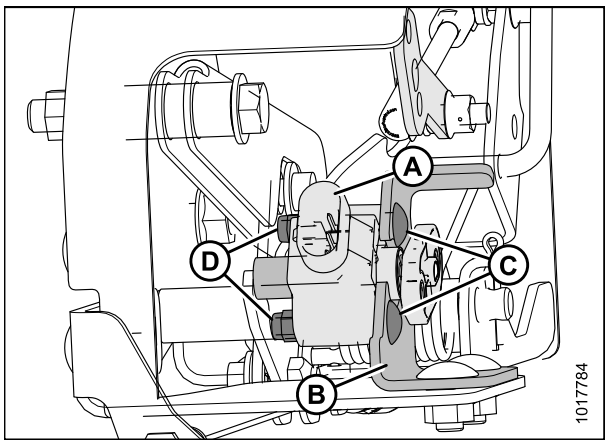


Figure 6.18: AHHC Sensor

8. Attach sensor arm (A) to the sensor (B) and secure with two screws (C).
9. Reconnect the wiring harness to the plug (B) on the sensor.
10. Check the voltage range of the new sensor, and adjust if necessary. Refer to:
    - *Manually Checking Voltage Range: One-Sensor System, page 156*
    - *Adjusting Voltage Limits: One-Sensor System, page 160*

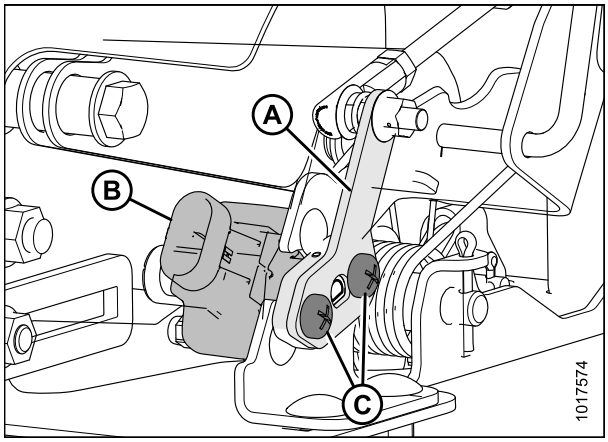


Figure 6.19: AHHC Sensor

6.1.3 Case IH 5088/6088/7088 Combines

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

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Ensure center-link is set to **D**.
2. Set the float on the header. Refer to operator's manual for instructions. Position fore-aft in mid span.
3. Start the combine engine, but do **NOT** have separator or feeder house engaged.
4. Locate HEADER CONTROL switch (A) on the right console, and set to HT (this is AHHC mode).

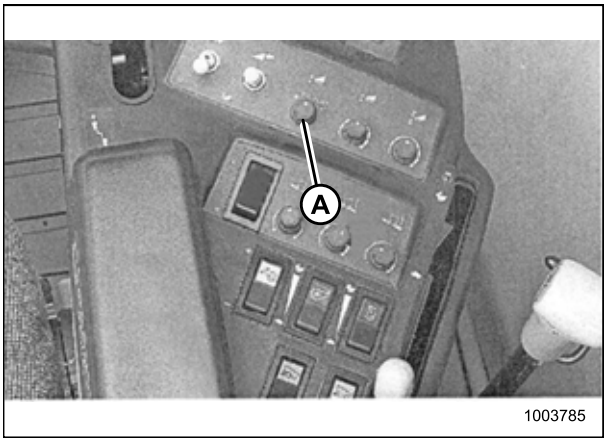


Figure 6.20: Right Console

5. Press the HEADER LOWER switch (A) on the control handle until the float module and header are fully lowered. You may need to hold the switch for several seconds.
6. Press the HEADER RAISE switch (A) on the control handle. The header should stop at about the halfway point. Continue holding the HEADER RAISE switch, and the header will rise until the feeder house reaches its upper limit. The AHHC system is now calibrated.

   NOTE:

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

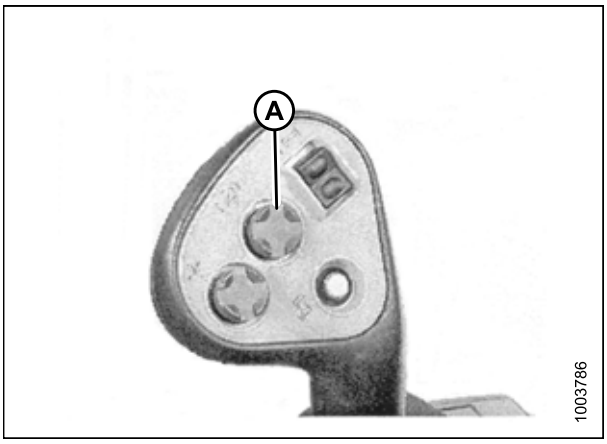


Figure 6.21: Control Handle (Case IH 2300/2500)

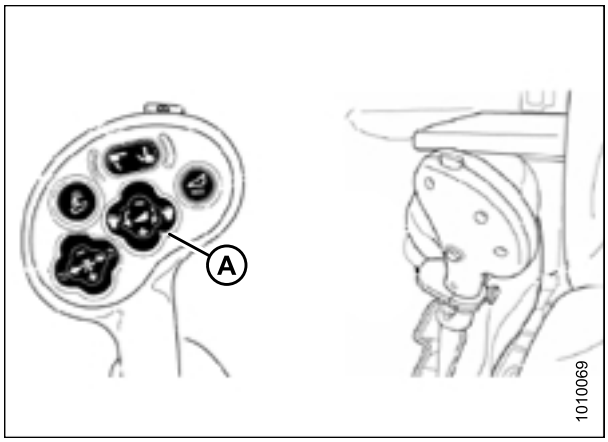


Figure 6.22: Control Handle (Case IH 5088/6088/7088)

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

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 the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Use the HEADER SETTINGS key (M) to display the HEADER SENSITIVITY CHANGE page as shown in Figure *6.24, page 165*.
2. Use the UP or DOWN keys (E) or (H) to adjust the highlighted item. The height sensitivity setting range is 0 (least sensitive) to 250 (most sensitive) in increments of 10.

   NOTE:

   Adjustments take effect immediately. Use the CANCEL key to return to the original settings.
3. Use the HEADER SETTINGS key (M) to highlight the next changeable item.
4. Use the ENTER key (D) to save changes and return to the monitor screen. If there are no changes, the screen will return to the monitor screen after 5 seconds.

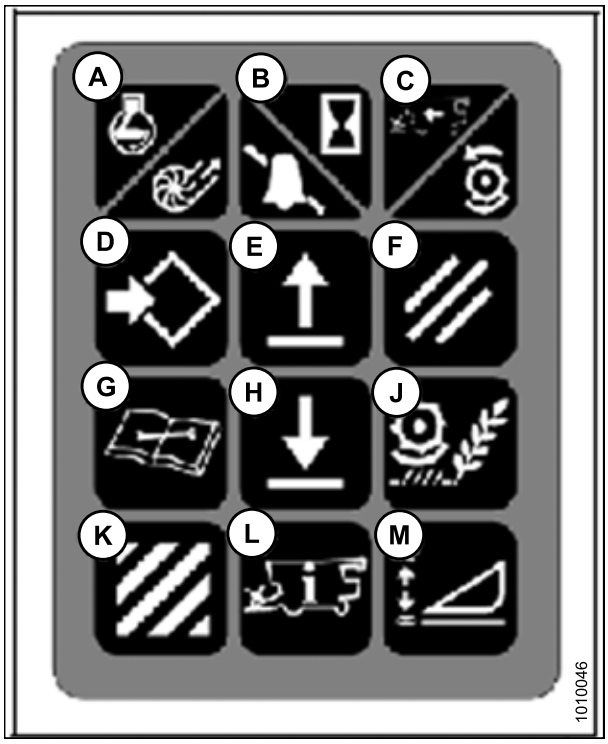


Figure 6.23: Combine Controls

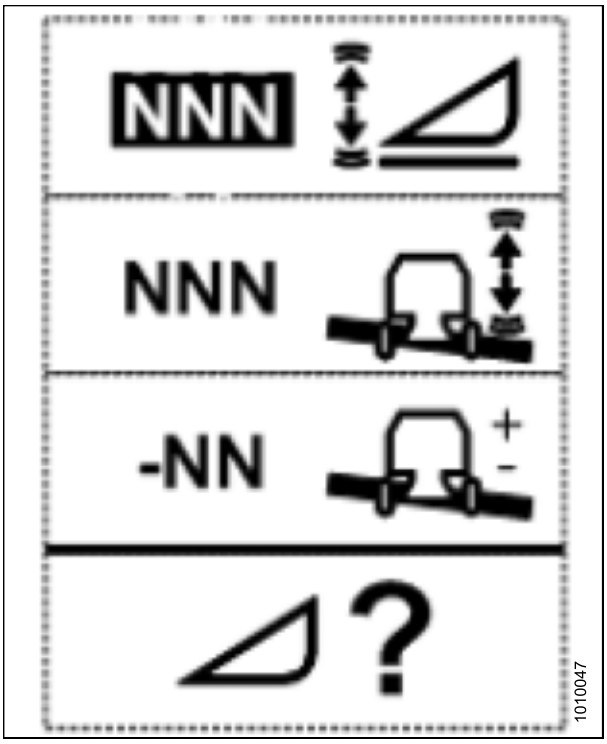


Figure 6.24: Height Sensitivity Change Page

6.1.4 Case IH 5130/6130/7130 and 5140/6140/7140 Mid-Range Combines

Setting up the Header on the Combine Display (Case IH 5130/6130/7130; 5140/6140/7140)

1. On the main page of the combine display, select TOOLBOX (A).

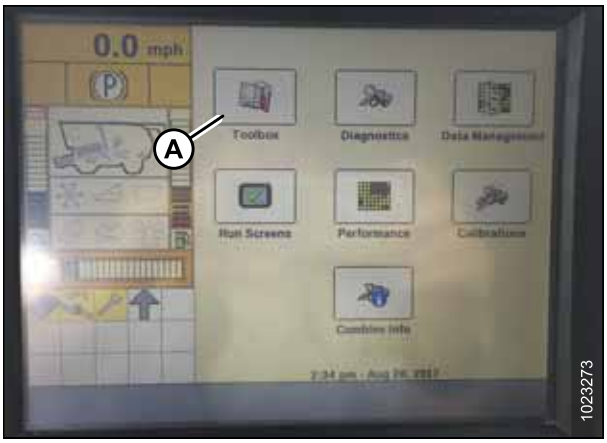


Figure 6.25: Case IH Combine Display

2. Select the HEAD 1 tab (A). The HEADER SETUP page displays.
3. From the CUTTING TYPE menu (B), select PLATFORM.

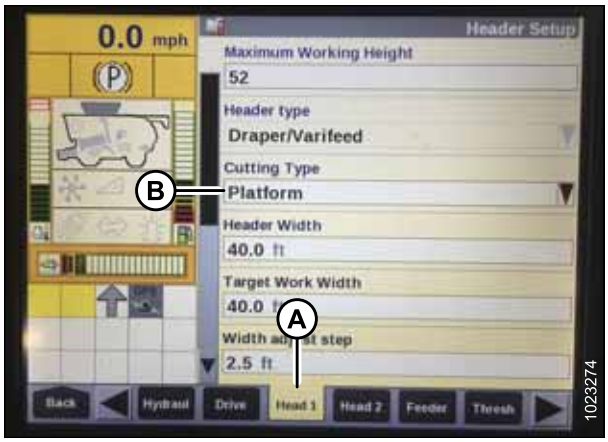


Figure 6.26: Case IH Combine Display

4. Select the HEAD 2 tab (A). The HEADER SETUP 2 page displays.
5. From the HEADER PRESSURE FLOAT menu (B), select NOT INSTALLED.
6. If you are operating a D1 Draper Header, from the DRAPER GRAIN HEADER STYLE menu (C), select RIGID 2000 SERIES.

   If you are operating an FD1 FlexDraper® Header, from the DRAPER GRAIN HEADER STYLE menu (C), select FLEX 2000 SERIES.

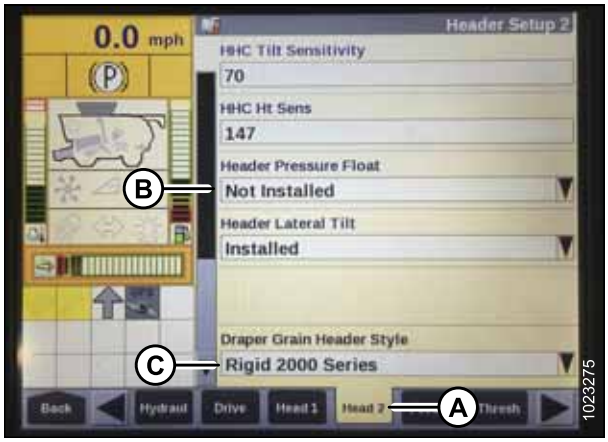


Figure 6.27: Case IH Combine Display

7. From the REEL DRIVE TYPE menu (A), select
   - 4 if you are using a standard 19-tooth drive sprocket
   - 5 if you are using an optional high-torque 14-tooth drive sprocket
   - 6 if you are using an optional high-torque 10-tooth drive sprocket

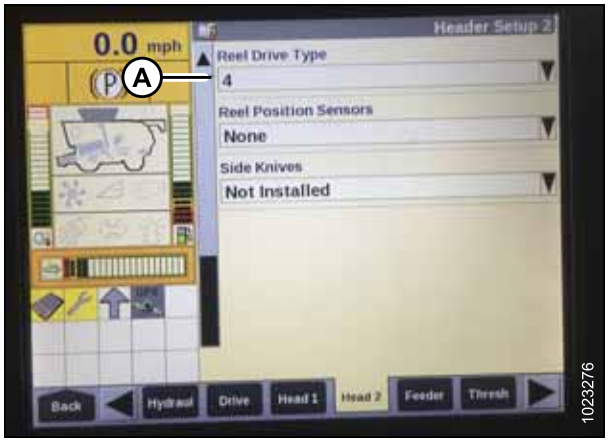


Figure 6.28: Case IH Combine Display

8. From the REEL HEIGHT SENSOR menu (A), select YES.

Figure 6.29: Case IH Combine Display

Checking Voltage Range from Combine Cab (Case IH 5130/6130/7130; 5140/6140/7140)

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

   NOTE:

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

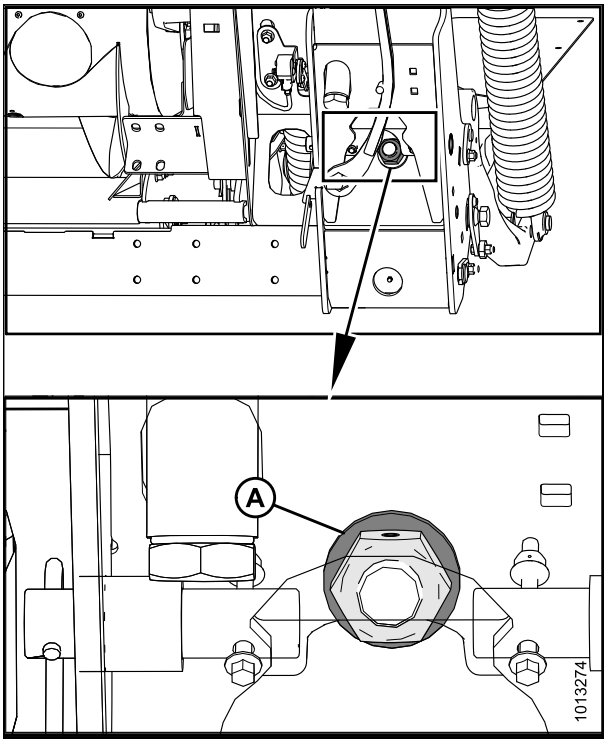


Figure 6.30: Float Lock

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

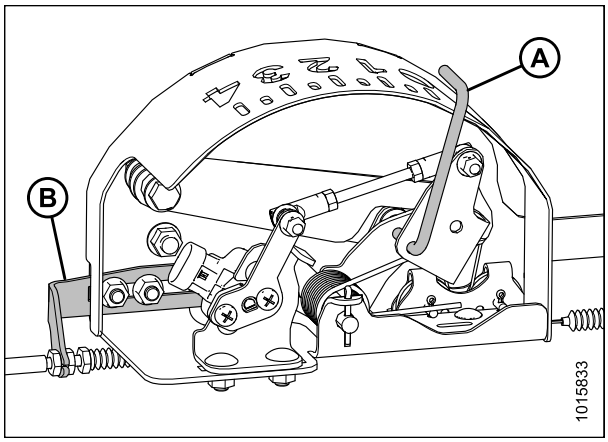


Figure 6.31: Float Indicator Box

5. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page opens.

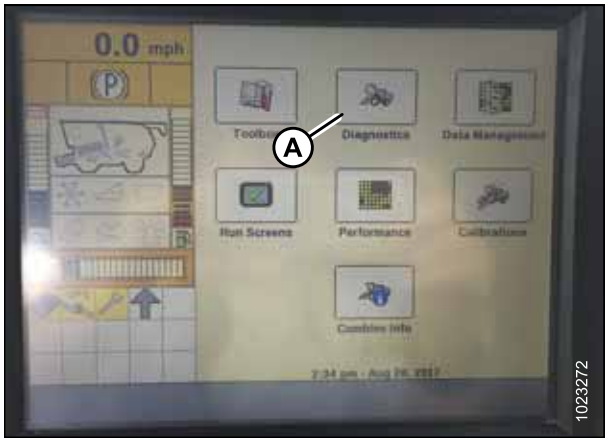


Figure 6.32: Case IH Combine Display

6. Select SETTINGS (A). The SETTINGS page opens.
7. From the GROUP menu, select HEADER (B).

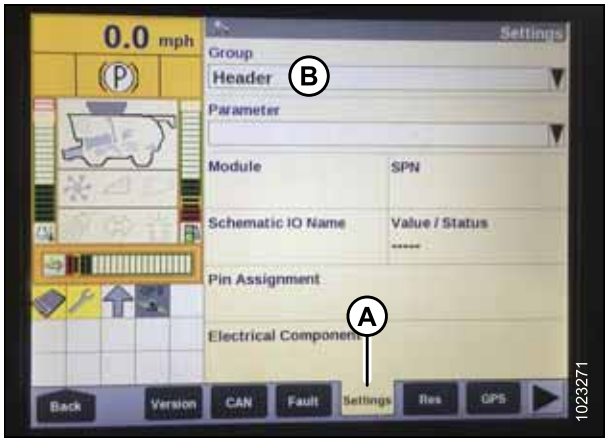


Figure 6.33: Case IH Combine Display

8. From the PARAMETER menu, select LEFT HEIGHT/TILT SENSOR (A).

Figure 6.34: Case IH Combine Display

9. The SETTINGS page updates to display the voltage in the VALUE/STATUS field (A). Lower the feeder house fully, and then raise it 305 mm (12 in.) off the ground to view the full range of voltage readings.
10. If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is insufficient, adjust the voltage limits. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

Figure 6.35: Case IH Combine Display

Calibrating Auto Header Height Control (Case IH 5130/6130/7130, 5140/6140/7140)

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:

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 the Auto Header Height Control (Case Combines with Version 28.00 or Higher Software), page 181*.

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 float module electrical and hydraulic connections are made.
3. Lower the combine feeder house all the way down (the feeder house will stop moving).
4. Hold the DOWN button for 10 seconds.

5. Push the RAISE button and hold it until the feeder house travels all the way up. It will stop 61 cm (2 ft.) above ground for 5 seconds, then it will resume lift. This is an indication that calibration is successful.

Setting Preset Cutting Height (Case 5130/6130/7130, 5140/6140/7140)

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.

NOTE:

The indicator (A) should be at position 0 (B) with the header 152 mm (6 in.) off the ground. If not, the float sensor output voltage should be checked. Refer to Step *4, page 157*. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

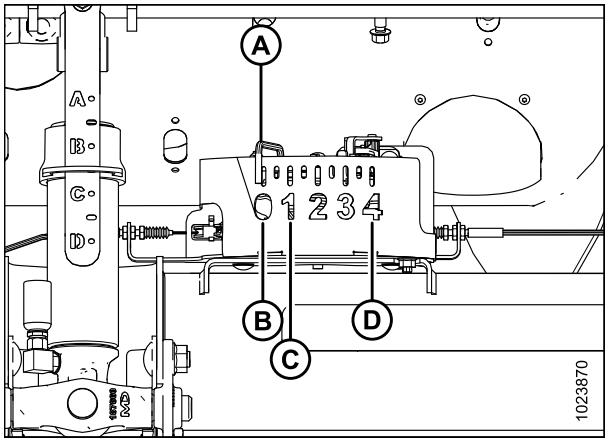


Figure 6.36: Float Indicator Box

1. Engage separator and header.
3. Manually raise or lower header to desired cutting height.
4. Press 1 on button (A). A yellow light next to the button will illuminate.

   NOTE:

   When setting presets, always set header position before setting reel position. If header and reel are set at the same time, the reel setting will not be saved.
5. Manually raise or lower reel to desired position.
6. Press 1 on button (A). A yellow light next to the button will illuminate.

Figure 6.37: Case Combine Console

7. Manually raise or lower header to a second desired cutting height.
8. Press 2 on button (A). A yellow light next to the button will illuminate.
9. Manually raise or lower reel to desired position.
10. Press 2 on button (A). A yellow light next to the button will illuminate.

Figure 6.38: Case Combine Console

Up and down arrows should now appear in the MANUAL HEIGHT box (A) on the RUN 1 page on the combine display. This indicates that the auto header height control (AHHC) is functioning.

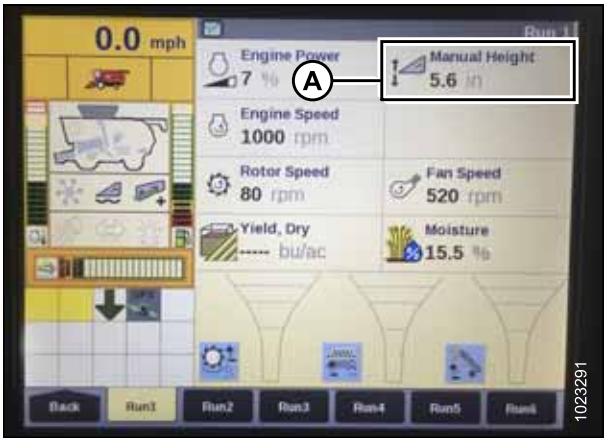


Figure 6.39: Case Combine Display – Run 1 Page

11. To enable the presets, activate AHHC button (A) to place the header on the ground. To enable the first present, tap the button once. To enable the second preset, tap the button twice.

    To lift the header to maximum working height, hold the SHIFT button on the back of the control handle while tapping AHHC button (A).

Figure 6.40: Case Combine Control Handle

12. The maximum working height can be adjusted on the HEADER SETUP page on the combine display. Enter the desired height in the MAXIMUM WORKING HEIGHT field (A).

Figure 6.41: Case Combine Display – Header Setup Page

13. If you need to change the position of one of the presets, you can fine tune this setting with button (A) on the combine console.

Figure 6.42: Case Combine Console

6.1.5 Case IH 7010/8010, 7120/8120/9120, 7230/8230/9230 and 7240/8240/9240 Combines

Checking Voltage Range from the Combine Cab (Case 8010)

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position the header 150 mm (6 in.) above the ground, and unlock the float.

2. Check that float lock linkage is on down stops (washer [A] cannot be moved) at both locations.

   NOTE:

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

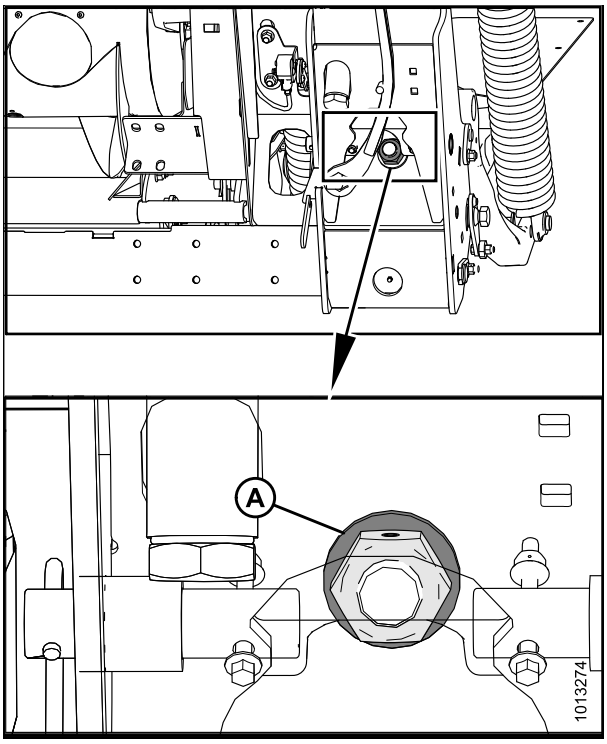


Figure 6.43: Float Lock

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

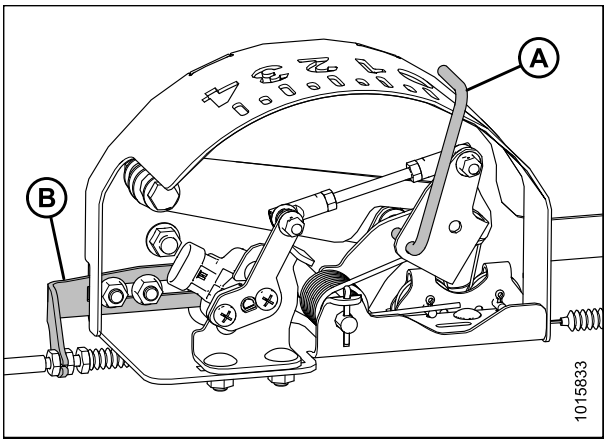


Figure 6.44: Float Indicator Box

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

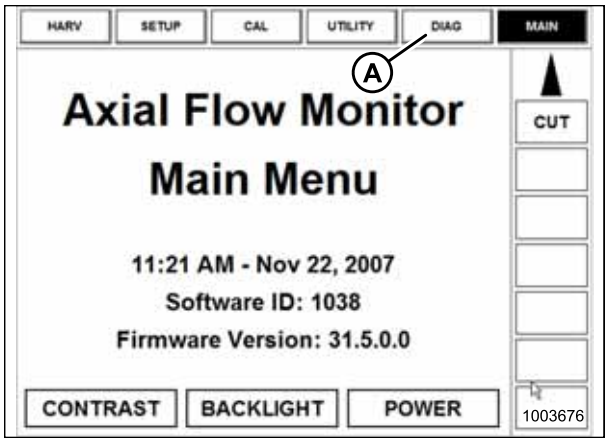


Figure 6.45: Case 8010 Combine Display

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

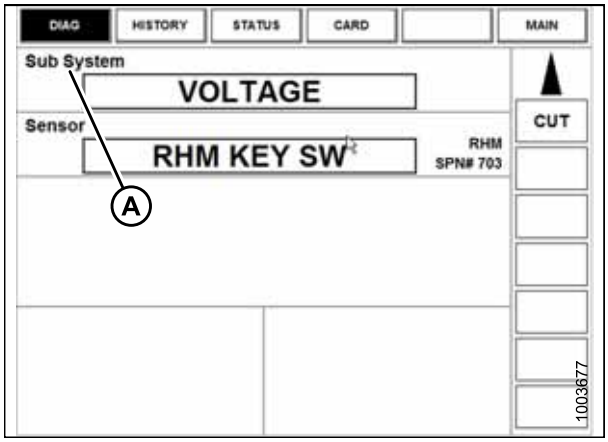


Figure 6.46: Case 8010 Combine Display

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

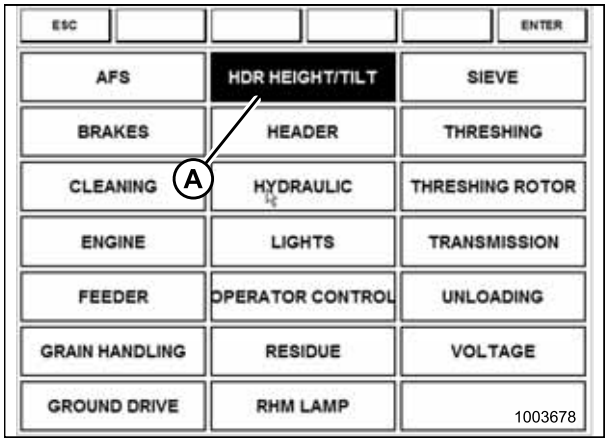


Figure 6.47: Case 8010 Combine Display

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

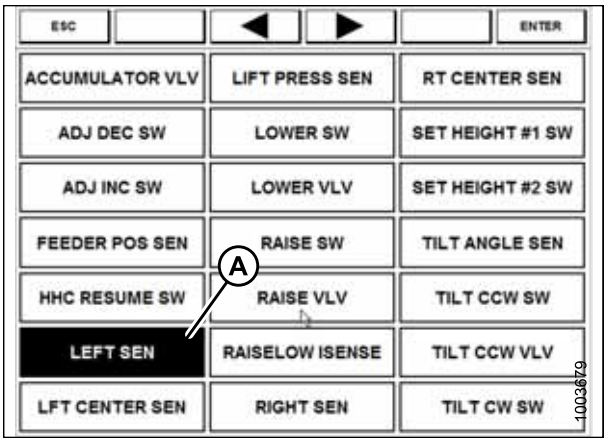


Figure 6.48: Case 8010 Combine Display

9. If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is insufficient, adjust the voltage limits. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

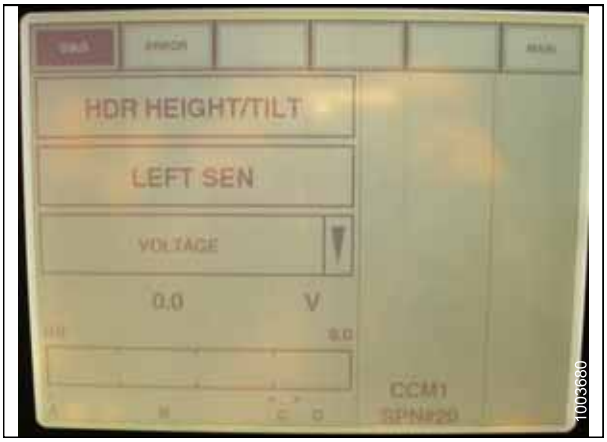


Figure 6.49: Case 8010 Combine Display

Setting Header Controls (Case 8010)

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

The reel fore/aft switches (A) also control header fore/aft tilt if header is equipped with the fore/aft tilt option. The switches can be configured to allow the Operator to swap between reel fore/aft and header fore/aft tilt.

To set the header controls, follow these steps:

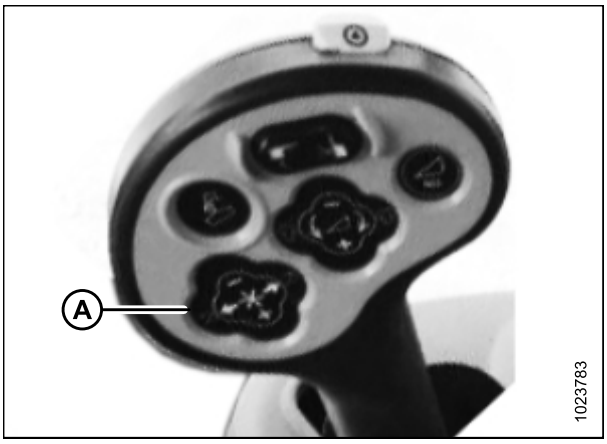


Figure 6.50: Case Combine Controls

1. To swap between reel fore/aft controls and header fore/aft tilt controls, go to the LAYOUT tab, select FORE/AFT CONTROL (A) from the legend, 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.

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

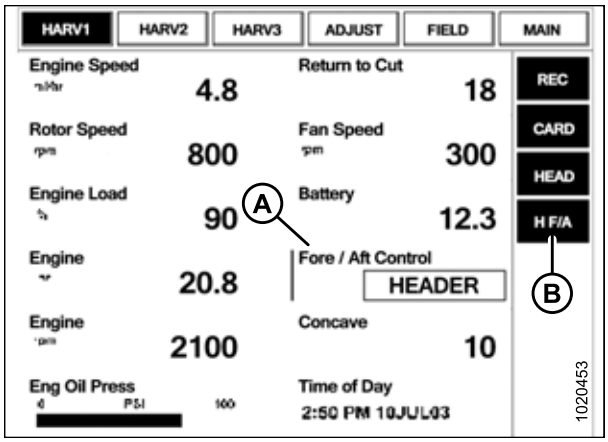


Figure 6.51: Case Combine Display

Checking Voltage Range from the Combine Cab (Case IH 7010/8010, 7120/8120/9120, 7230/8230/9230, 7240/8240/9240)

NOTE:

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

⚠ CAUTION

Check to be sure all bystanders have cleared the area.

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

   NOTE:

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

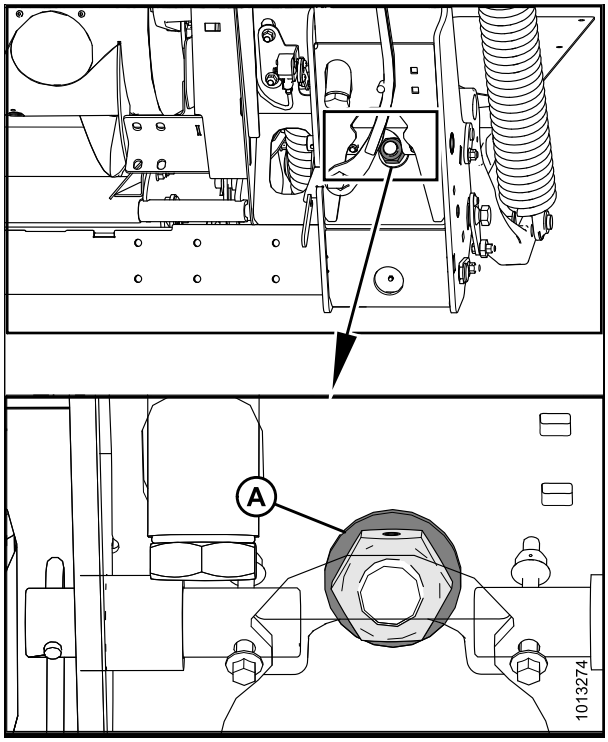


Figure 6.52: Float Lock

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

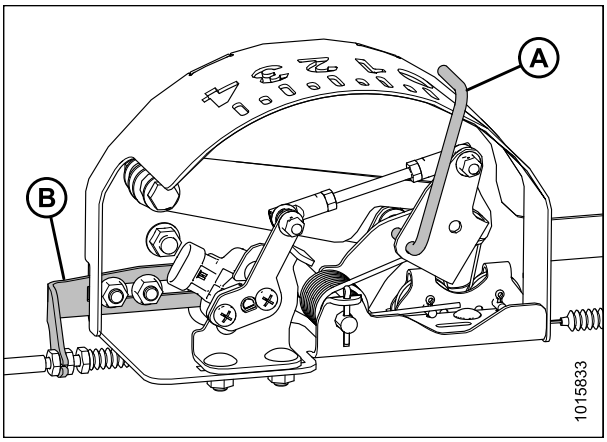


Figure 6.53: Float Indicator Box

4. Ensure header float is unlocked.
5. Select DIAGNOSTICS (A) on the MAIN page. The DIAGNOSTICS page opens.
6. Select SETTINGS. The SETTINGS page opens.

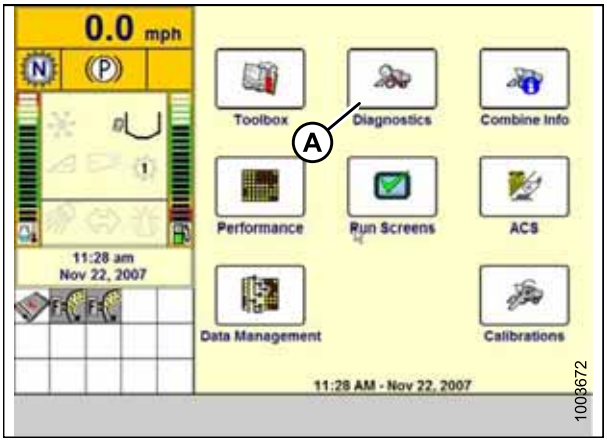


Figure 6.54: Case IH Combine Display

7. Select the GROUP arrow (A). The GROUP dialog box opens.

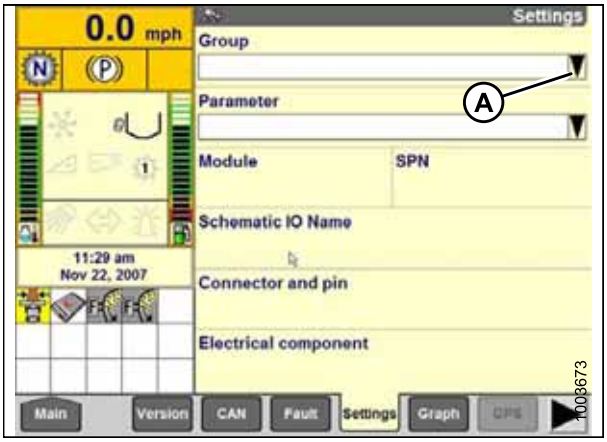


Figure 6.55: Case IH Combine Display

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

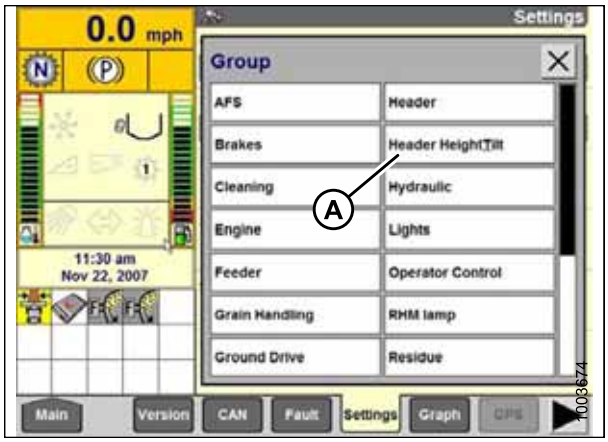


Figure 6.56: Case IH Combine Display

9. Select LEFT HEADER HEIGHT SEN (A), and then select the GRAPH button (B). The exact voltage is displayed at top of page. Raise and lower the header to see the full range of voltage readings.
10. If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is insufficient, adjust the voltage limits. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

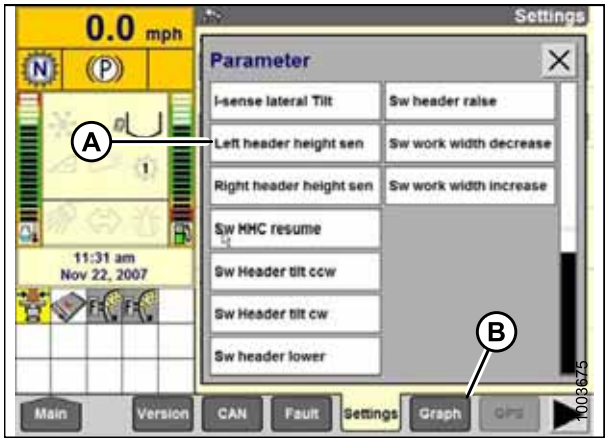


Figure 6.57: Case IH Combine Display

Calibrating the Auto Header Height Control (Case IH 7010/8010, 7120/8120/9120, 7230/8230/9230, 7240/8240/9240)

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

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 the Auto Header Height Control (Case Combines with Version 28.00 or Higher Software), page 181*.

NOTE:

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

1. Ensure center-link is set to **D**.
2. Ensure all header and float module electrical and hydraulic connections are made.
3. Select TOOLBOX on the MAIN page, and then select HEADER.

4. Set appropriate HEADER STYLE.

Figure 6.58: 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 6.59: Case IH Combine Display

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

Figure 6.60: Case IH Combine Display

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

Figure 6.61: Case IH Combine Display

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

    NOTE:

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

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

Figure 6.62: Case IH Combine Display

14. From the REEL HEIGHT SENSOR menu, select YES (A).

Figure 6.63: Case IH Combine Display

Calibrating the 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 the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.

NOTE:

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

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

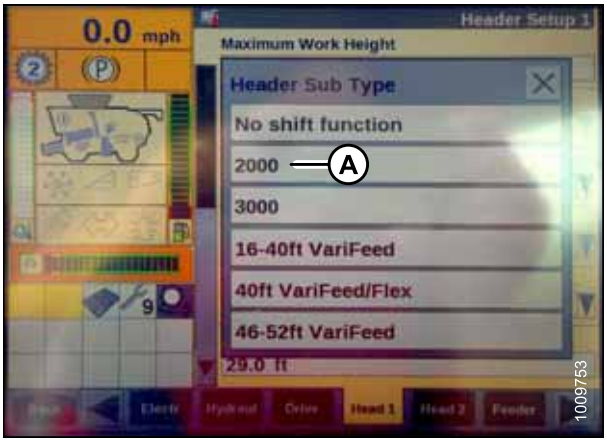


Figure 6.64: Case IH Combine Display

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

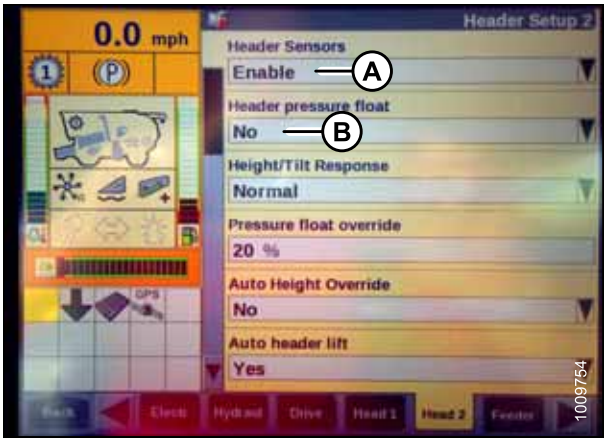


Figure 6.65: Case IH Combine Display

8. From the REEL HEIGHT SENSOR menu, select YES (A).

Figure 6.66: Case IH Combine Display

NOTE:

Icons (A) and (B) appear on the monitor only after engaging the separator and header, and then pressing HEADER RESUME button on the control panel.

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

NOTE:

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

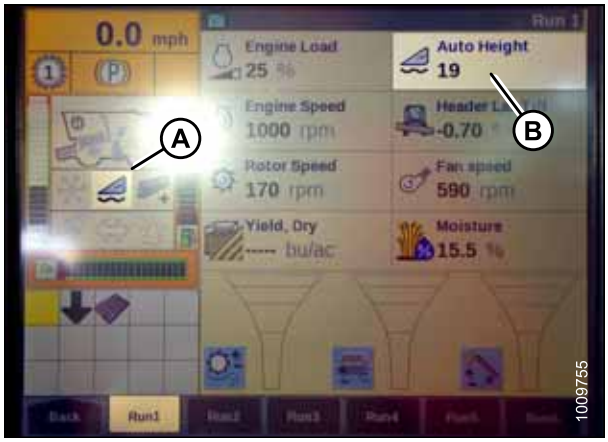


Figure 6.67: Case IH Combine Display

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

NOTE:

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

Figure 6.68: Case IH Combine Display

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

    NOTE:

    Pressing the ESC key during any of the steps or letting the system sit idle for more than 3 minutes will cause the calibration procedure to stop.

    NOTE:

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

Figure 6.69: Case IH Combine Display

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

    NOTE:

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

Checking Reel Height Sensor Voltages (Case IH)

NOTE:

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

1. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page opens.

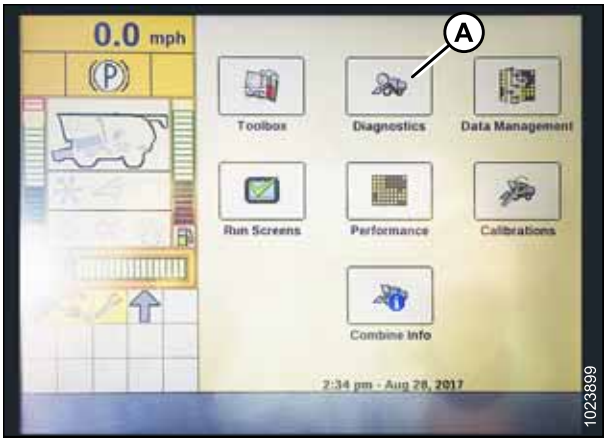


Figure 6.70: Case IH Combine Display

2. Select SETTINGS tab (A). The SETTINGS page opens.
3. From the GROUP menu, select HEADER (B).
4. From the PARAMETER menu, select REEL VERTICAL POSITION (C).

Figure 6.71: Case IH Combine Display

5. Select GRAPH tab (A). The REEL VERTICAL POSITION graph displays.
6. Lower the reel to view the high voltage (B). The voltage should be 4.1–4.5 V.
7. Raise the reel to view the low voltage (C). The voltage should be 0.5–0.9 V.
8. If either voltage is out of range, refer to *7 Checking and Adjusting Reel Height Sensor, page 253*.

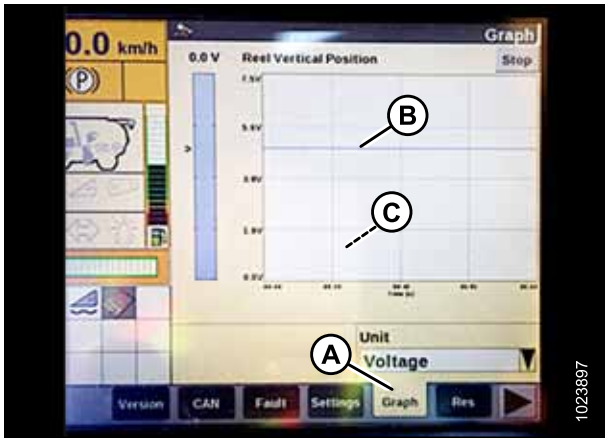


Figure 6.72: Case IH Combine Display

Setting Preset Cutting Height (Case 7010/8010, 7120/8120/9120, 7230/8230/9230, 7240/8240/9240)

To set the 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 the combine operator's manual for updates.

NOTE:

The indicator (A) should be at position 0 (B) with the header 152 mm (6 in.) off the ground. If not, the float sensor output voltage should be checked. Refer to Step *4, page 157*. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

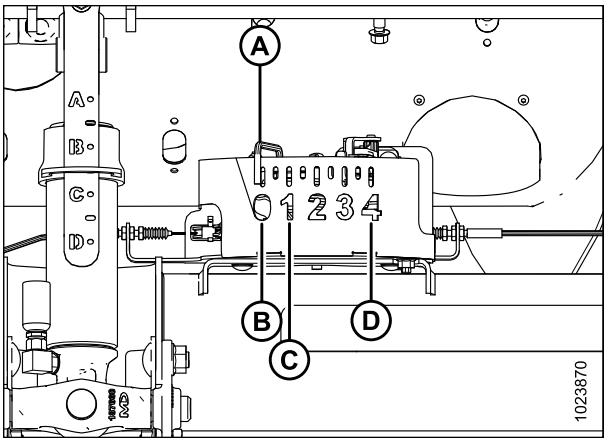


Figure 6.73: Float Indicator Box

1. Engage separator and header.
2. Manually raise or lower header to a desired cutting height.
3. Press SET #1 switch (A). The light (C) beside switch (A) will illuminate.

   NOTE:

   Use switch (E) for fine adjustments.

   NOTE:

   When setting presets, always set header position before setting reel position. If header and reel are set at the same time, the reel setting will not save.
4. Manually raise or lower reel to desired position.
5. Press SET #1 switch (A). The light (C) beside switch (A) will illuminate.
6. Manually raise or lower header to a second desired cutting height.
7. Press SET #2 switch (B). The light (D) beside switch (B) will illuminate.
8. Manually raise or lower reel to a second desired position.
9. Press SET #2 switch (B). The light (D) beside switch (B) will illuminate.

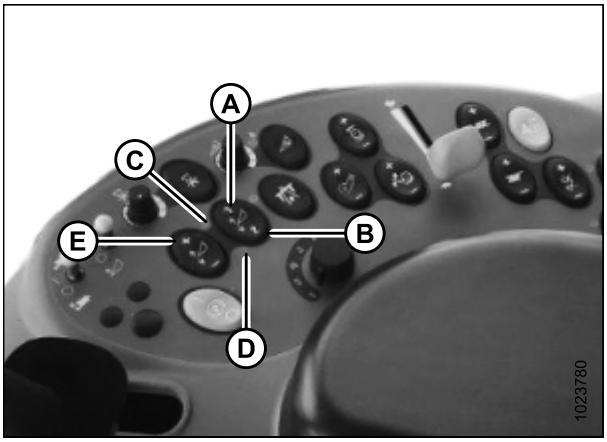


Figure 6.74: Case Combine Controls

10. To swap between set points, press HEADER RESUME (A).
11. To raise header at headlands, press and hold SHIFT button (B) at the back of the control handle and press HEADER RESUME switch (C). To lower header, press HEADER RESUME switch (C) once to return to header preset height.

    NOTE:

    Pressing the HEADER RAISE/LOWER switches (C) and (D) disengages AUTO HEIGHT mode. Press HEADER RESUME (A) to reengage.

Figure 6.75: Case Combine Controls

6.1.6 John Deere 60 Series Combines

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

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

1. Position the header 150 mm (6 in.) above the ground, and unlock the float.

2. Check that float lock linkage is on down stops (washer [A] cannot be moved) at both locations.

   NOTE:

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

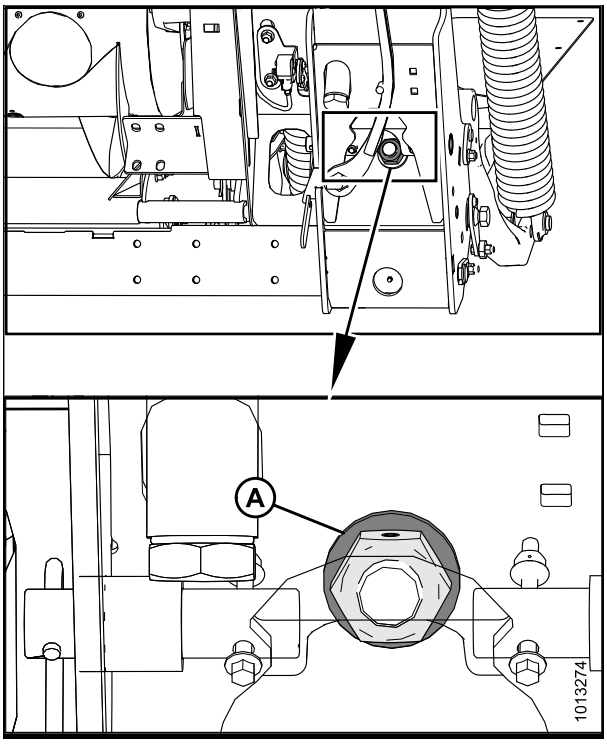


Figure 6.76: Float Lock

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

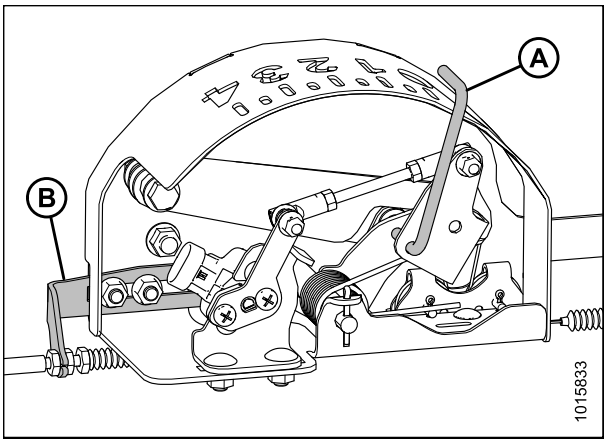
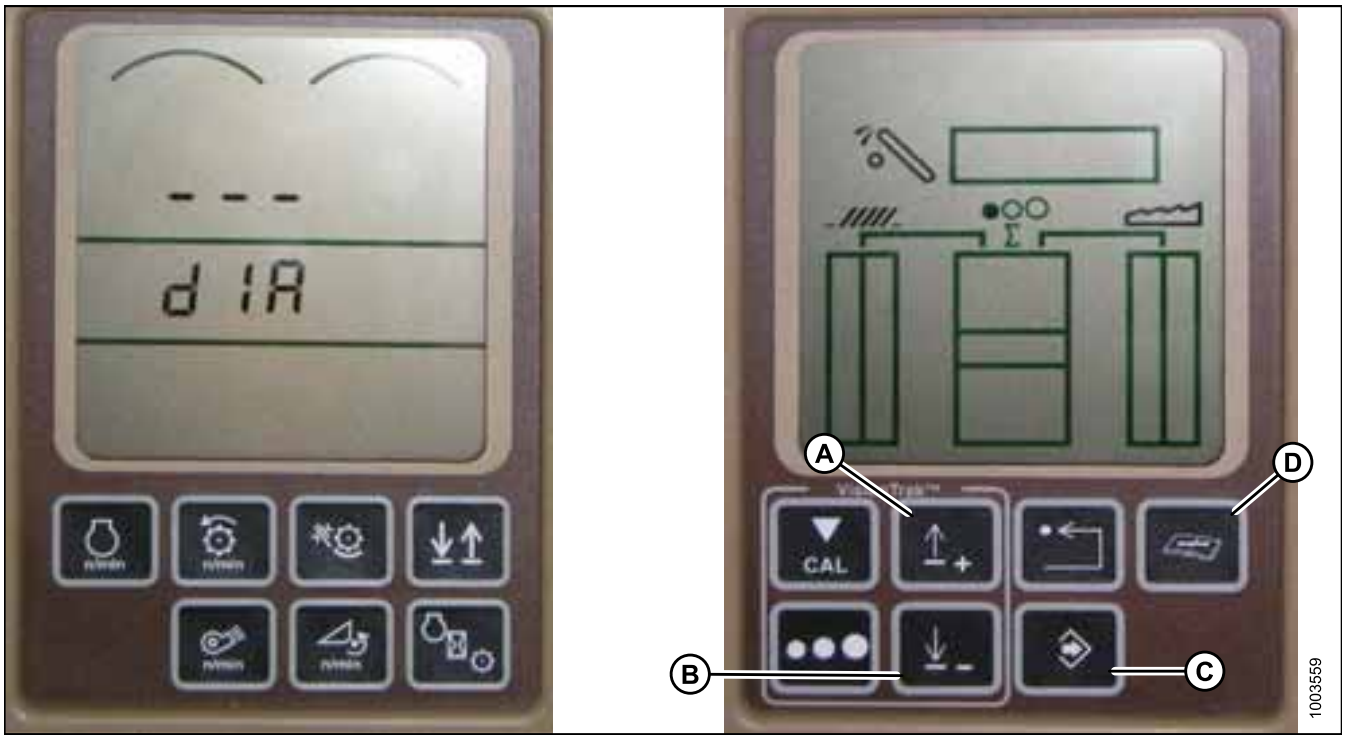


Figure 6.77: Float Indicator Box

Figure 6.78: John Deere Combine Display



4. Press the DIAGNOSTIC button (D) on the monitor—DIA appears on the monitor.
5. Press the UP button (A) until EO1 appears on the monitor—this is the header adjustments.
6. Press the ENTER button (C).
7. Press the UP (A) or DOWN button (B) until 24 is displayed on the top portion of the monitor—this is the voltage reading for the sensor.
8. Ensure header float is unlocked.
9. Start the combine, and fully lower feeder house to the ground.

   NOTE:

   You may need to hold the HEADER DOWN switch for a few seconds to ensure the feeder house is fully lowered.
10. Check the sensor reading on the monitor. The reading should be above 0.5 V.
11. Raise the header so it is just off the ground. The reading on the monitor should read below 4.5 V.
12. If the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient, refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

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

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

NOTE:

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

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 float.
3. Start the combine.
4. Press the DIAGNOSTIC button (A) on the monitor. DIA appears on the monitor.
5. Press the CAL button (B). DIA-CAL appears on the monitor.

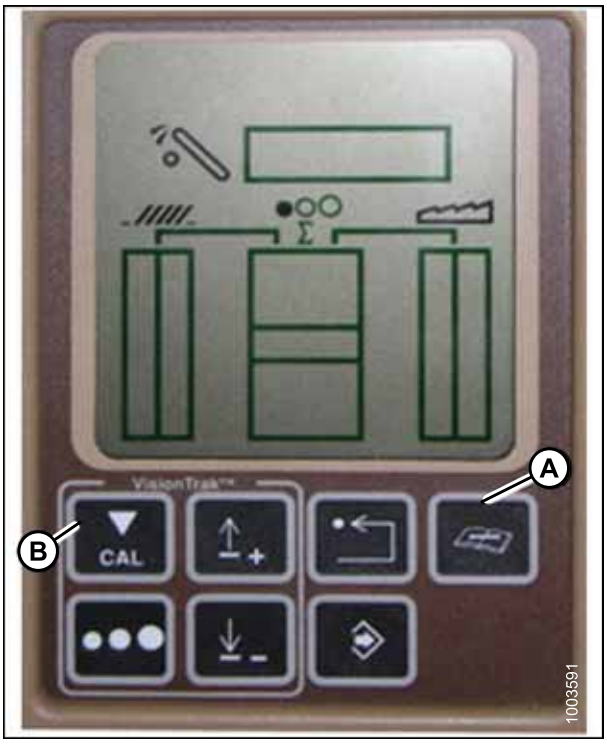


Figure 6.79: John Deere Combine Display

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

   NOTE:

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

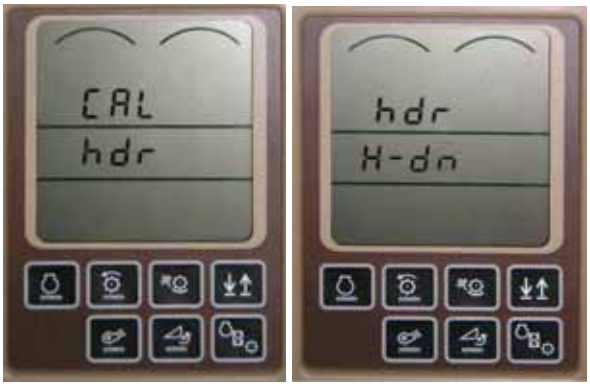


Figure 6.80: John Deere Combine Display

9. Press the CAL button (A) to save the calibration of the header. HDR H-UP appears on the monitor.
10. Raise the header 3 feet off the ground and press the CAL button (A). EOC appears on the monitor.
11. Press the ENTER button (B) to save the calibration of the header. Your AHHC is now calibrated.

    NOTE:

    If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to *Checking Voltage Range from the Combine Cab (John Deere 60 Series), page 186*.

    NOTE:

    After the calibration is complete, adjust combine operation settings to ensure proper field operation.

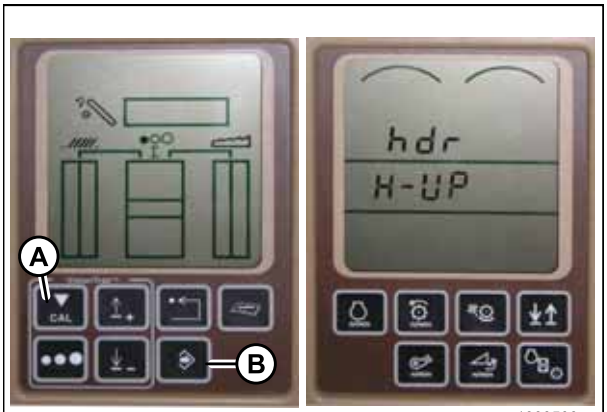


Figure 6.81: John Deere Combine Display

Turning the Accumulator Off (John Deere 60 Series)

The accumulator is a hydraulic device that cushions the shock of hydraulic fluid when installing a heavy header onto the combine.

NOTE:

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

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

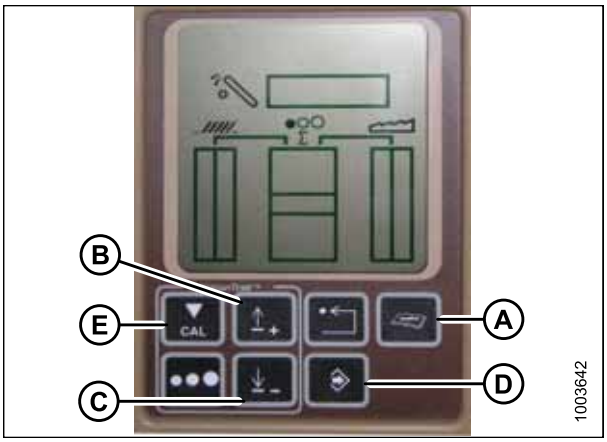


Figure 6.82: John Deere Combine Display

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

NOTE:

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

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

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

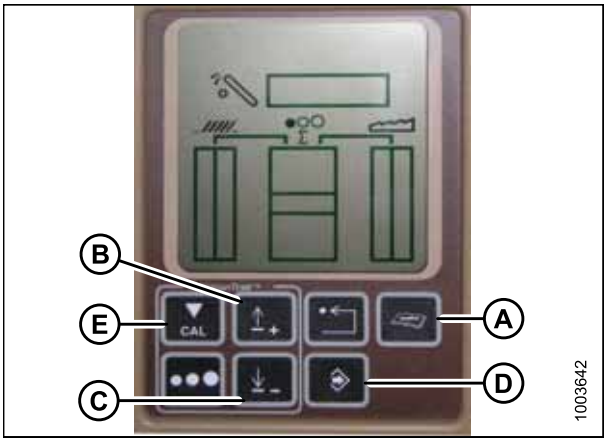


Figure 6.83: John Deere Combine Display

NOTE:

Do **NOT** use the active header float function (A) in combination with the MacDon auto header height control (AHHC)—the two systems will counteract one another. The header symbol (B) on the display should **NOT** have a wavy line under it and should appear exactly as shown on the Active Header Control Display in Figure *6.84, page 192*.

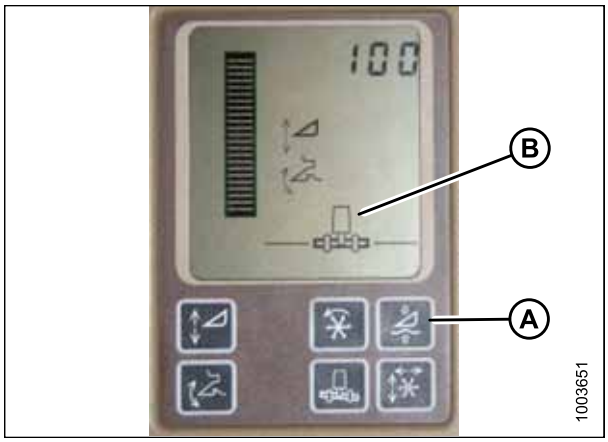


Figure 6.84: John Deere Combine Display

Setting the Sensitivity of the Auto Header Height Control (John Deere 60 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 the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

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

   NOTE:

   The lower the reading, the higher the sensitivity. Ideal operating range is typically between 50 and 80.
4. Press ENTER (D) to select 112 as the sensitivity setting (this will allow you to change the first digit of the number sequence).
5. Press UP (B) or DOWN (C) until the desired number is displayed, then press the CAL button (E). This will bring you to the second digit. Repeat this procedure until the desired setting is achieved.
6. Press ENTER (D) to save changes.

   NOTE:

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

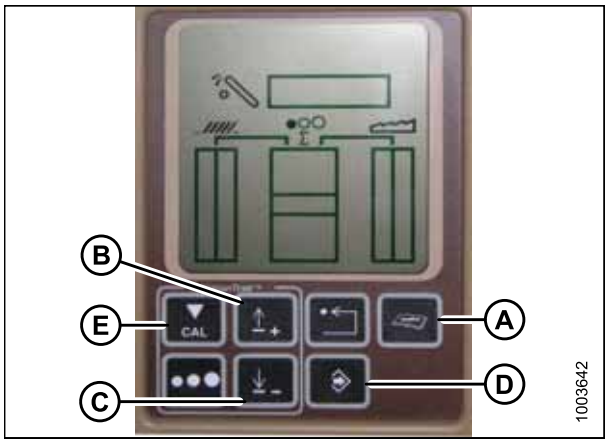


Figure 6.85: John Deere Combine Display

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

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

NOTE:

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

NOTE:

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

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

   NOTE:

   The default setting is 100. Ideal operating range is typically between 60 and 85.
4. Press ENTER (C) to select 114 as the fast drop rate (this will allow you to change the first digit of the number sequence).
5. Press UP (B) or DOWN (E) until the desired number is displayed, then press the CAL button (D). This will bring you to the second digit. Repeat this procedure until the desired setting is achieved.
6. Press ENTER (C) to save changes.

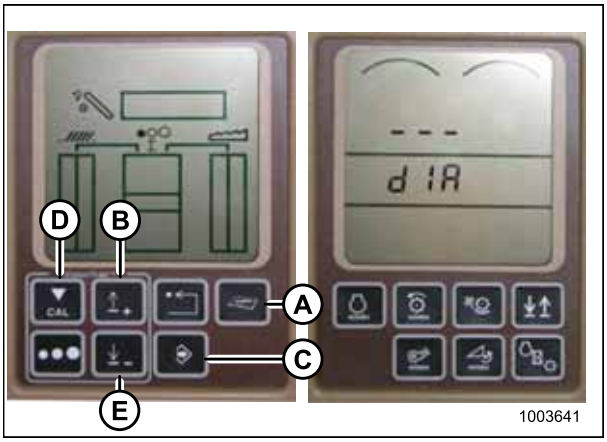


Figure 6.86: John Deere Combine Display

6.1.7 John Deere 70 Series Combines

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

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

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

   NOTE:

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

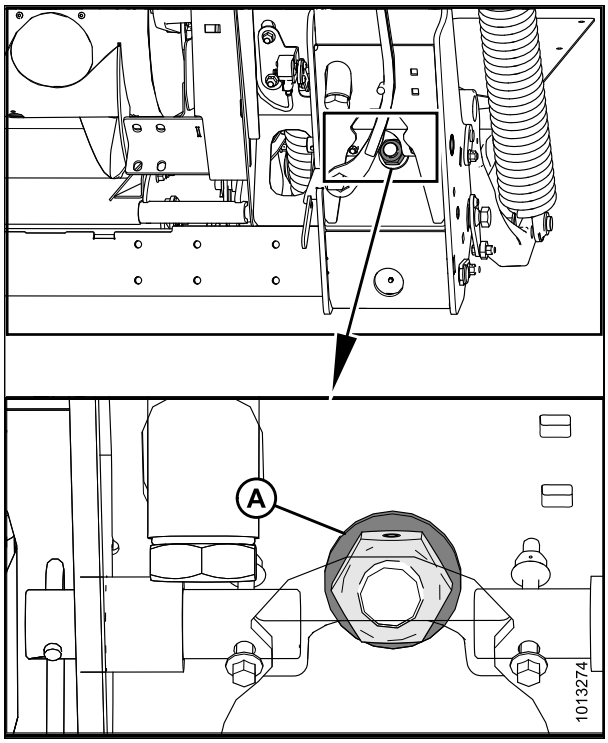


Figure 6.87: Float Lock

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

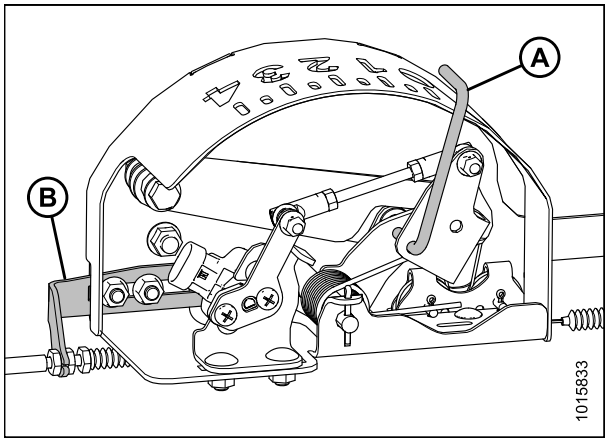


Figure 6.88: Float Indicator Box

4. Press the HOME PAGE button (A) on the main screen of the monitor.

Figure 6.89: John Deere Combine Display

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

Figure 6.90: John Deere Combine Display

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

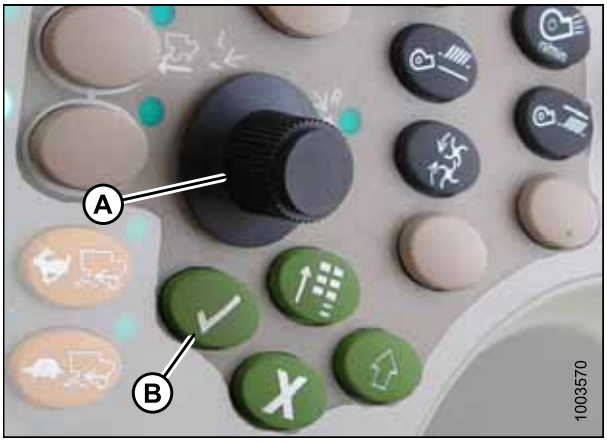


Figure 6.91: John Deere Combine Control Console

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

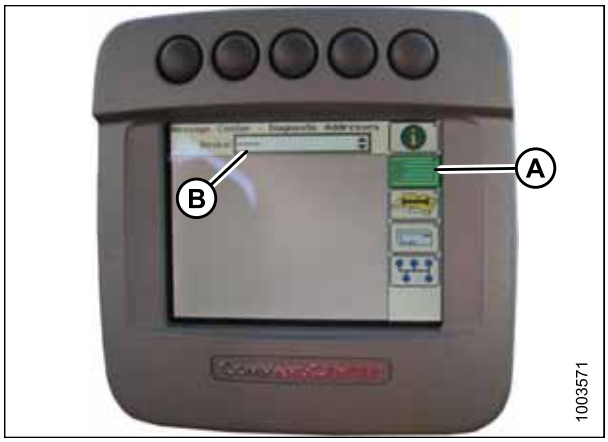


Figure 6.92: John Deere Combine Display

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

Figure 6.93: John Deere Combine Display

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

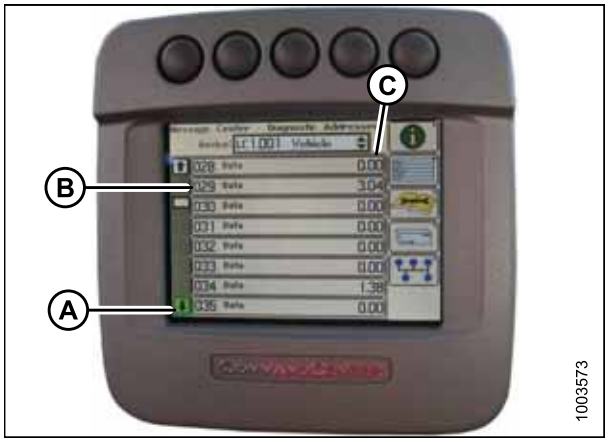


Figure 6.94: John Deere Combine Display

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

NOTE:

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

13. Check the sensor reading on the monitor.
14. Raise the header so it is just off the ground and recheck the sensor reading.
15. If the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient, refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

Calibrating Feeder House Speed (John Deere 70 Series)

The feeder house speed must be calibrated before you calibrate the auto header height control (AHHC) system. Refer to the combine operator's manual for instructions.

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

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

NOTE:

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

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

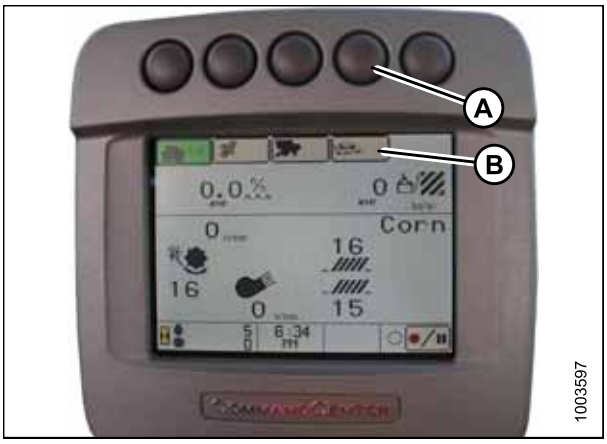


Figure 6.95: John Deere Combine Display

6. Select HEADER in box (A) by scrolling down to the box using the scroll knob, and then pressing the check mark button (knob and button are shown in Figure *6.97, page 198*).
7. Scroll down to the lower right icon that resembles an arrow in a diamond (B) and press the check mark button to select it.

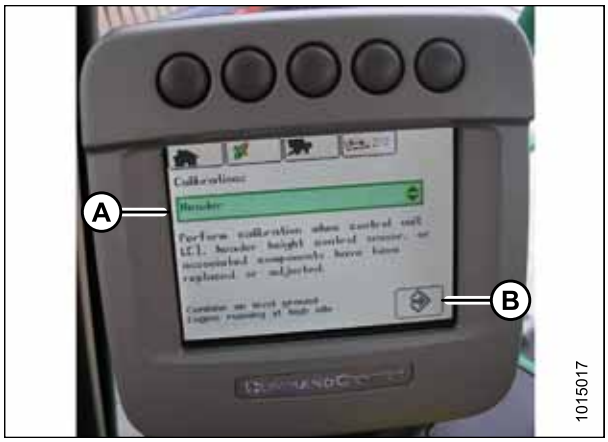


Figure 6.96: John Deere Combine Display

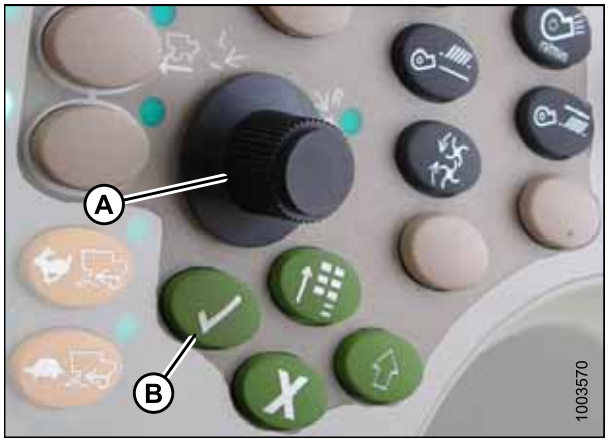


Figure 6.97: John Deere Combine Control Console
A - Scroll Knob **B - Check Mark Button**

8. Follow the steps listed on the monitor to perform the calibration.

   NOTE:

   If an error code appears on screen, the sensor is not in the correct working range. Refer to *Checking Voltage Range from the Combine Cab (John Deere S and T Series), page 201* to check and adjust the range.

Setting the Sensitivity of the Auto Header Height Control (John Deere 70 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 the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

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

   NOTE:

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

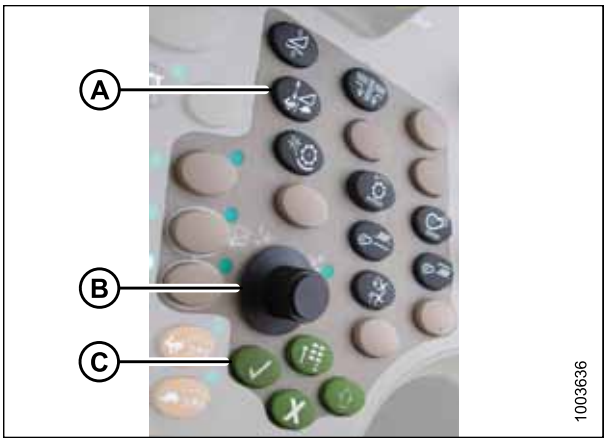


Figure 6.98: John Deere Combine Control Console

NOTE:

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

Figure 6.99: John Deere Combine Display

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

The weight of the header will dictate the rate at which the header can be raised or lowered during operation.

To manually adjust the header raise/lower rate, do the following steps:

NOTE:

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

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

NOTE:

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

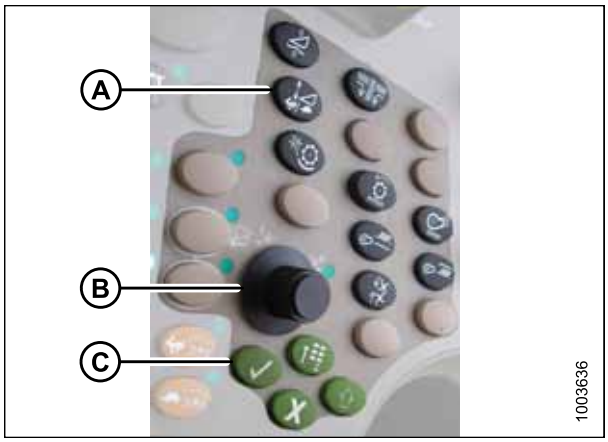


Figure 6.100: John Deere Combine Control Console

NOTE:

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

Figure 6.101: John Deere Combine Display

6.1.8 John Deere S and T Series Combines

Checking Voltage Range from the Combine Cab (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 the combine operator's manual for updates.

CAUTION

Check to be sure all bystanders have cleared the area.

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

   NOTE:

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

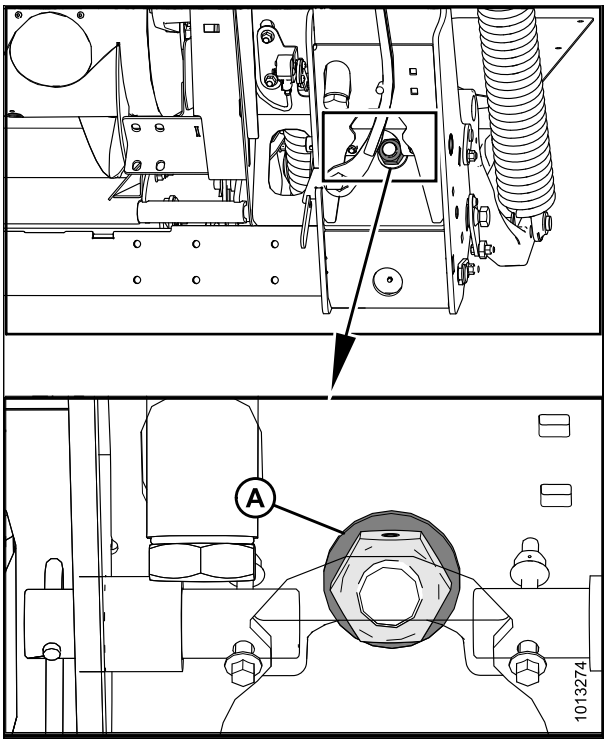


Figure 6.102: Float Lock

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

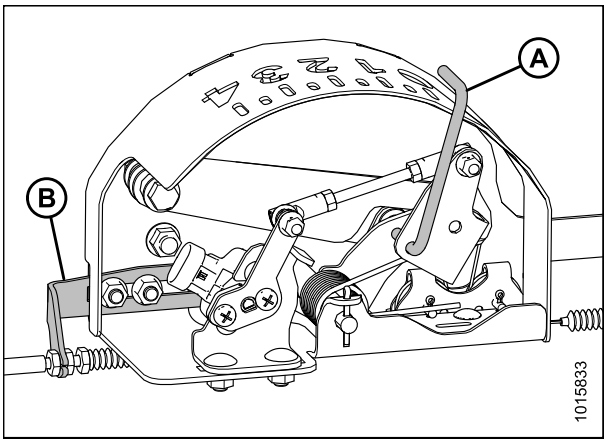


Figure 6.103: Float Indicator Box

4. Press the CALIBRATION icon (A) on the main screen of the monitor. The CALIBRATION screen appears.

Figure 6.104: John Deere Combine Display

5. Press the DIAGNOSTIC READINGS icon (A) on the CALIBRATION screen. The DIAGNOSTIC READINGS screen appears. This screen provides access to calibrations, header options, and diagnostic information.

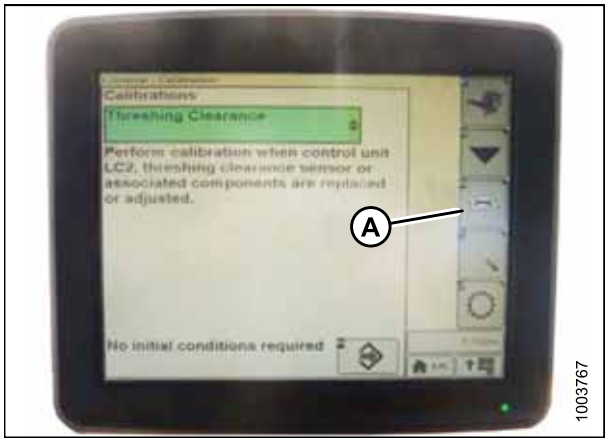


Figure 6.105: John Deere Combine Display

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

Figure 6.106: John Deere Combine Display

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

Figure 6.107: John Deere Combine Display

9. Press icon (A) until it reads Page 5 near the top of the screen and the following sensor readings appear:
   - LEFT HEADER HEIGHT
   - CENTER HEADER HEIGHT
   - RIGHT HEADER HEIGHT

   A reading is displayed for both left and right sensors. On the MacDon header, there may be one sensor located in the float indicator box (standard) or two sensors located at the back of the float module side frame (optional).

Figure 6.108: John Deere Combine Display

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

    NOTE:

    You may need to hold the HEADER DOWN switch for a few seconds to ensure the feeder house is fully lowered.
12. Check the sensor reading on the monitor.
13. If the sensor voltage is not within the low and high limits or if the range between the low and high limits is insufficient. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

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

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

NOTE:

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

1. Ensure center-link is set to **D**.
2. Rest header on down stops and unlock float.
3. Press the DIAGNOSTIC icon (A) on the main screen of the monitor. The CALIBRATION screen appears.

Figure 6.109: John Deere Combine Display

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

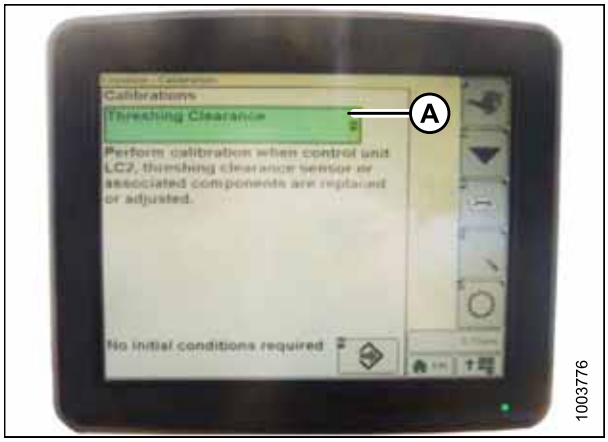


Figure 6.110: John Deere Combine Display

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

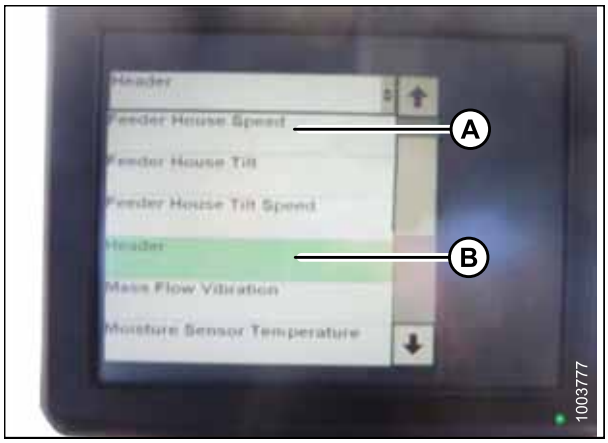


Figure 6.111: John Deere Combine Display

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

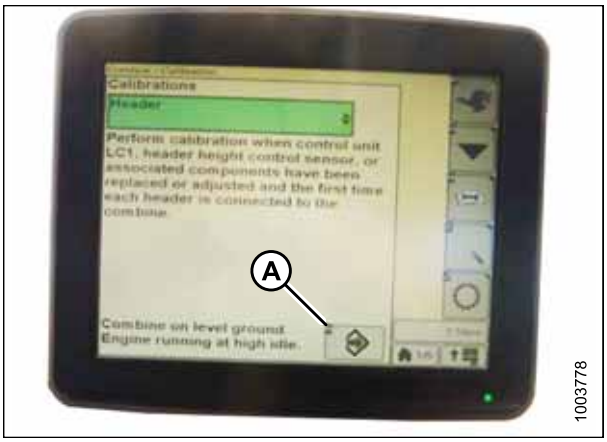


Figure 6.112: John Deere Combine Display

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

   NOTE:

   If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to *Checking Voltage Range from the Combine Cab (John Deere S and T Series), page 201*.

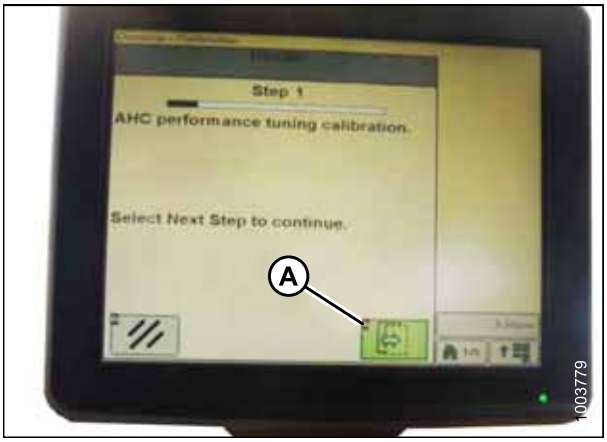


Figure 6.113: John Deere Combine Display

Setting the Sensitivity of the Auto Header Height Control (John Deere S and T 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 the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

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

Figure 6.114: John Deere Combine Command Center

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

   NOTE:

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

Figure 6.115: John Deere Combine Display

Adjusting the 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 the combine operator's manual for updates.

NOTE:

The indicator (A) should be at position 0 (B) with the header 152 mm (6 in.) off the ground. If not, the float sensor output voltage should be checked. Refer to Step *4, page 157*. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

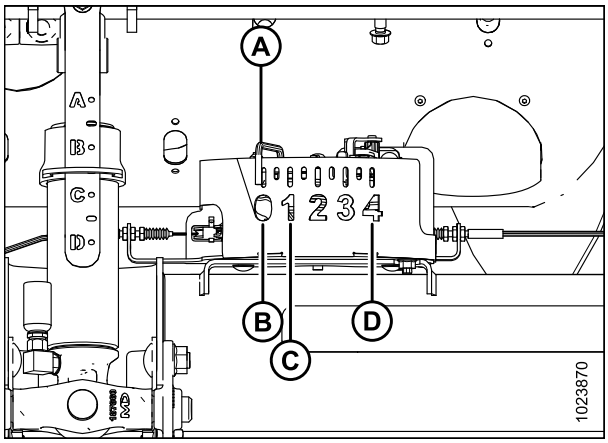


Figure 6.116: Float Indicator Box

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

Figure 6.117: John Deere Combine Command Center

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

   NOTE:

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

Figure 6.118: John Deere Combine Display

Setting Preset Cutting Height (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 the combine operator's manual for updates.

NOTE:

The indicator (A) should be at position 0 (B) with the header (152 mm [6 in.]) off the ground. If not, the float sensor output voltage should be checked. Refer to Step *4, page 157*. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

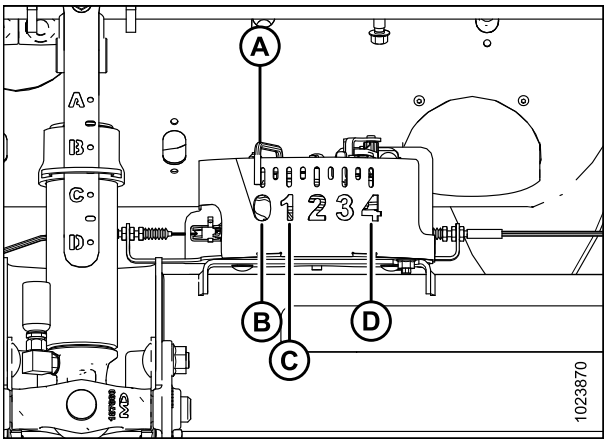


Figure 6.119: Float Indicator Box

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

Figure 6.120: Combine Display

2. Select the COMBINE – HEADER SETUP AHC icon (A). The COMBINE – HEADER SETUP AHC screen appears.

Figure 6.121: Combine Display

3. Select AUTO HEIGHT SENSING (A), RETURN TO CUT (B), and REEL POSITION (C) icons.

   NOTE:

   If REEL POSITION icon (C) cannot be selected (no check mark), the reel height sensor requires calibration. Refer to *Calibrating Reel Height Sensor (John Deere S and T Series), page 215*.

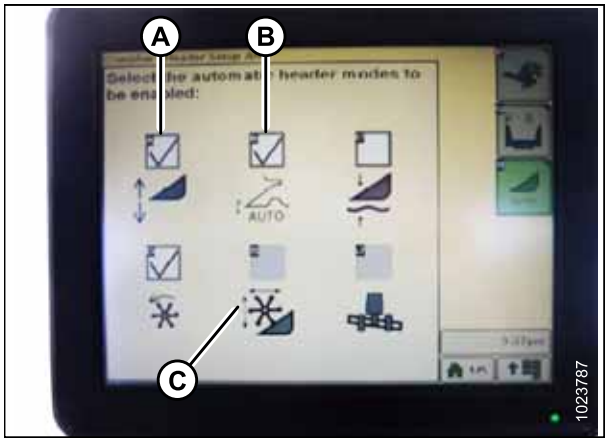


Figure 6.122: Combine Display

4. Engage the header.
5. Move header to desired position and use knob (A) to fine tune position.
6. Move reel to desired position.

Figure 6.123: Combine Control Console

7. Press and hold preset switch 2 (B) until 1 reel height icon flashes on monitor.
8. Repeat previous three steps for preset switch 3 (C).
9. Select an appropriate ground pressure setting. Use preset button 2 (B) on the control handle for a low ground pressure setting in muddy or soft soil conditions, and preset 3 (C) for a high ground pressure setting in firm soil conditions and a higher ground speed.

NOTE:

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

Figure 6.124: Control Handle Buttons

NOTE:

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

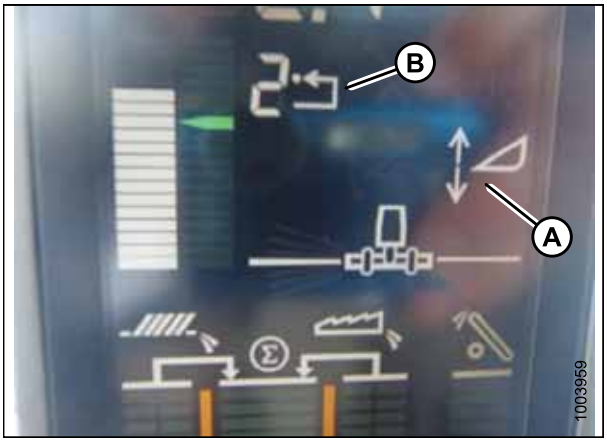


Figure 6.125: Combine Display

Calibrating Feeder House Fore-Aft Tilt Range (John Deere S and T Series)

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

This procedure applies only to model year 2015 and later John Deere S and T Series combines.

NOTE:

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

The feeder house fore/aft tilt is controlled by buttons (C) and (D) at the back of the control handle.

Figure 6.126: John Deere Control Handle

NOTE:

The feeder house fore/aft tilt controls can be changed to work with buttons E and F by pressing the control handle icon (A) and then selecting FEEDER HOUSE FORE/AFT TILT from the drop-down menu (B).

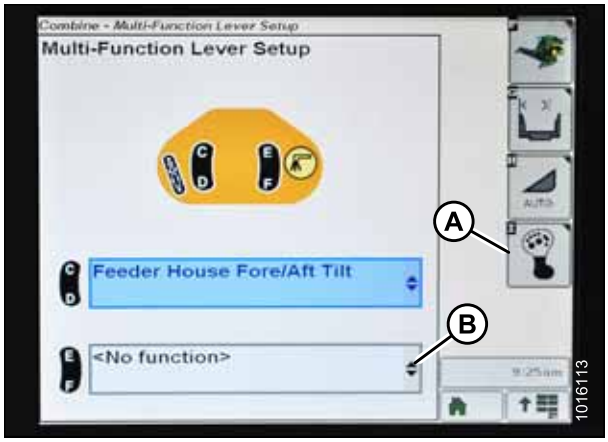


Figure 6.127: John Deere Combine Display

To calibrate the 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 float.

3. Press the DIAGNOSTIC icon (A) on the main screen of the monitor. The CALIBRATION screen displays.

Figure 6.128: John Deere Combine Display

4. Select the CALIBRATIONS drop-down menu (A) to view the list of calibration options.

Figure 6.129: John Deere Combine Display

5. Press the arrow (A) to cycle up through the calibration options and select FEEDER HOUSE FORE/AFT TILT RANGE.

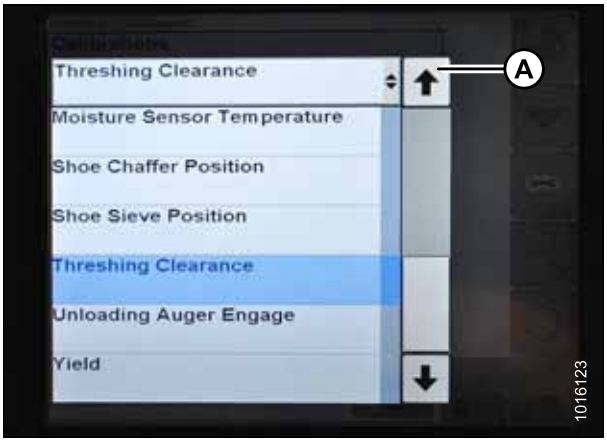


Figure 6.130: John Deere Combine Display

6. Press the ENTER icon (A).

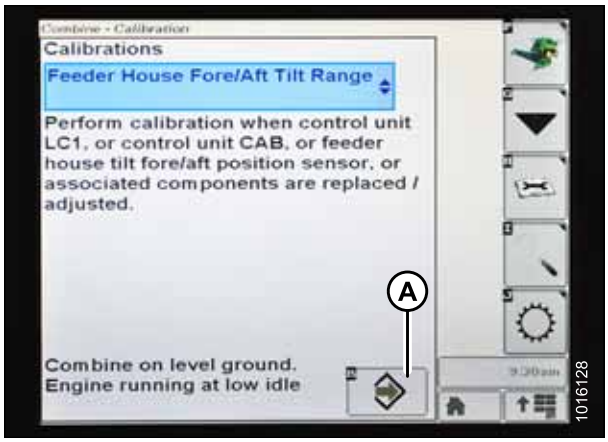


Figure 6.131: John Deere Combine Display

7. Follow the instructions that appear on the screen. As you proceed through the calibration process, the display will automatically update to show the next step.

   NOTE:

   If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to *Checking Voltage Range from the Combine Cab (John Deere S and T Series), page 201*.

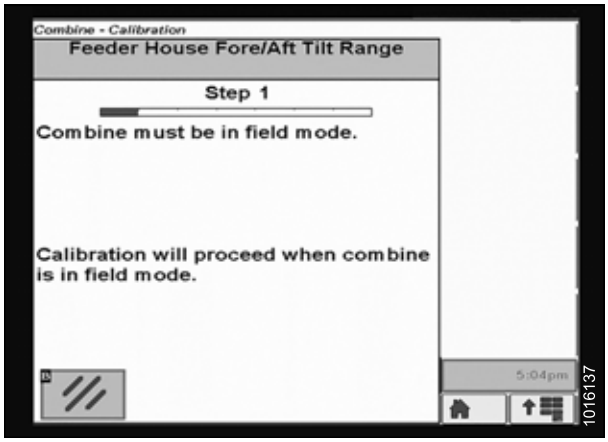


Figure 6.132: John Deere Combine Display

Checking Reel Height Sensor Voltages (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 the combine operator's manual for updates.

1. Press the CALIBRATION icon (A) on the main screen of the monitor. The CALIBRATION screen appears.

Figure 6.133: John Deere Combine Display

2. Press the DIAGNOSTIC READINGS icon (A) on the CALIBRATION screen. The DIAGNOSTIC READINGS screen appears. This screen provides access to calibrations, header options, and diagnostic information.

Figure 6.134: John Deere Combine Display

3. Select the drop-down menu (A) to view the list of calibration options.

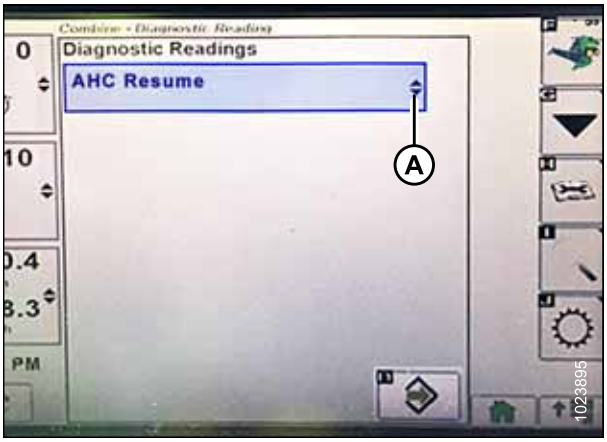


Figure 6.135: John Deere Combine Display

4. Scroll down and select REEL RESUME (A).

Figure 6.136: John Deere Combine Display

5. Press the ENTER icon (A). The REEL RESUME page displays.

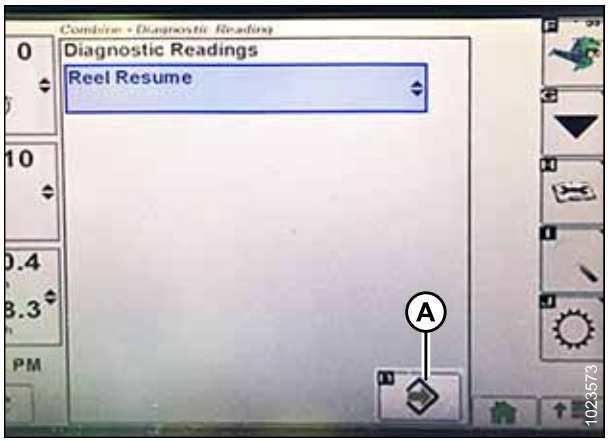


Figure 6.137: John Deere Combine Display

6. Press the NEXT PAGE icon (A) to cycle to page 3.
7. Lower the reel to view the low voltage (B) The voltage should be 0.5–0.9 V.

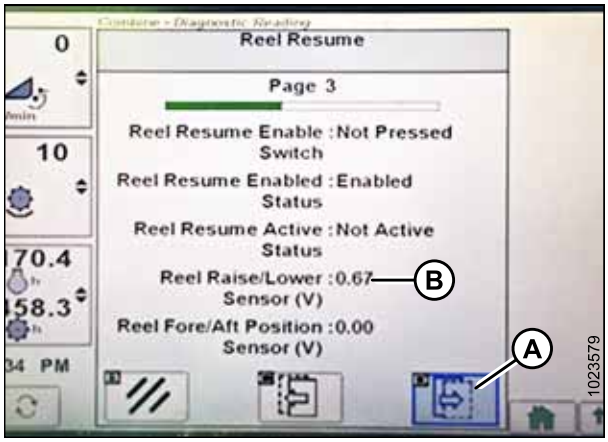


Figure 6.138: John Deere Combine Display

8. Raise the reel to view the high voltage (A). The voltage should be 4.1–4.5 V.
9. If either voltage is not within the correct range, refer to *7 Checking and Adjusting Reel Height Sensor, page 253*.

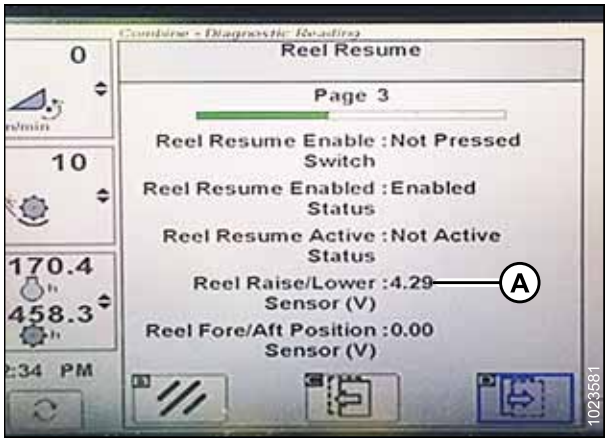


Figure 6.139: John Deere Combine Display

Calibrating Reel Height Sensor (John Deere S and T Series)

For best performance of the auto header height control (AHHC), perform this procedure with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.

This procedure applies only to model year 2015 and later John Deere S and T Series combines.

NOTE:

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

To calibrate reel height, follow these steps:

1. Ensure center-link is set to **D**.
2. Rest header on down stops and unlock float.
3. Press the DIAGNOSTIC icon (A) on the main screen of the monitor. The CALIBRATION screen displays.

Figure 6.140: John Deere Combine Display

4. Select the CALIBRATIONS drop-down menu (A) to view the list of calibration options.
5. Scroll through the list of options and select REEL POSITION.
6. Press the ENTER icon (B).

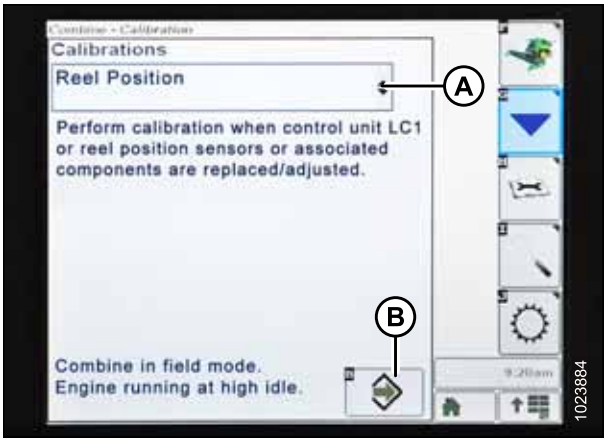


Figure 6.141: John Deere Combine Display

7. Follow the instructions that appear on the screen. As you proceed through the calibration process, the display will automatically update to show the next step. This calibration requires you to use the reel raise (A) and reel lower (B) switches on the control handle.

Figure 6.142: John Deere Control Handle

8. Press and hold REEL LOWER switch until reel is fully lowered. Continue holding REEL LOWER switch until prompted by the display.

Figure 6.143: John Deere Combine Display

9. Press and hold REEL RAISE switch until reel is fully raised. Continue holding REEL RAISE switch until prompted by the display.

Figure 6.144: John Deere Combine Display

10. When all steps have been completed, CALIBRATION COMPLETE message is displayed on the screen. Exit the CALIBRATION menu by pressing the ENTER icon (A).

    NOTE:

    If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to *Checking Reel Height Sensor Voltages (John Deere S and T Series), page 212*.

Figure 6.145: John Deere Combine Display

6.1.9 John Deere S7 Series Combines

Setting up Header (John Deere S7 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 the header button (A) on the panel below the display. The HEADER page opens.

Figure 6.146: John Deere S7 Display

2. Select the HEADER TYPE field (A). The HEADER DETAILS window opens.

Figure 6.147: John Deere S7 Display – Header Page

3. Verify correct header width is displayed under WIDTH.
4. To change header width, select field (A). The WIDTH window opens.

Figure 6.148: John Deere S7 Display – Header Details Window

5. Use the on-screen keypad to enter the correct header width, and then press OK.

Figure 6.149: John Deere S7 Display – Setting Header Width

6. Press window close button (A) in top right corner of the window to return to the HEADER page.

Figure 6.150: John Deere S7 Display – Header Details Window

7. The raise/lower speed, tilt speed, height sensitivity, and tilt sensitivity can all be adjusted from this page. Select the option (A) you would like to adjust. This example shows the raise/lower speed adjustment.

Figure 6.151: John Deere S7 Display – Header Page

8. Use the + and – buttons (A) to adjust the setting.
9. Press window close button in top right corner of the window to return to the HEADER page.

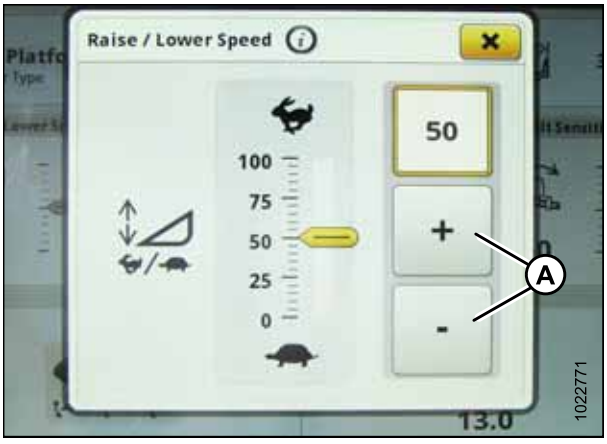


Figure 6.152: John Deere S7 Display – Raise/Lower Speed Adjustment

10. Select the AUTO CONTROL icons (A). The AUTO HEADER CONTROLS page opens.

Figure 6.153: John Deere S7 Display – Header Page

11. If the header has not been calibrated yet, an error icon will appear on the HEIGHT SENSING button (A). Select button (A) to view error message.

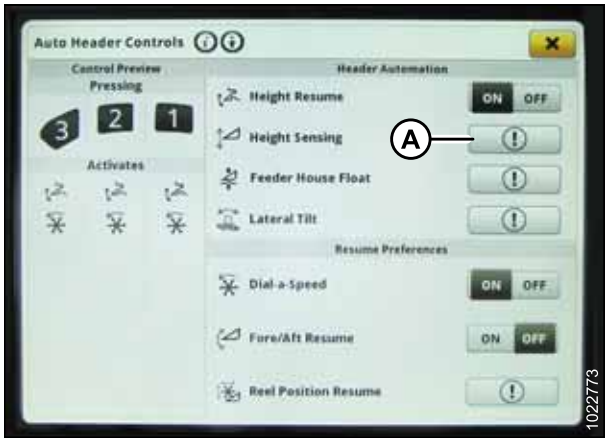


Figure 6.154: John Deere S7 Display – Auto Header Controls

12. Read error message and then press OK.
13. Proceed to *Checking Voltage Range from the Combine Cab (John Deere S7 Series), page 221*.

Figure 6.155: John Deere S7 Display – Height Sensing Error Message

Checking Voltage Range from the Combine Cab (John Deere S7 Series)

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

Combine	Low Voltage Limit	High Voltage Limit	Minimum Range
John Deere S7 Series	0.5 V	4.5 V	3.0 V

Check the sensor's output voltage range from combine cab according to instructions that follow.

NOTE:

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

CAUTION

Check to be sure all bystanders have cleared the area.

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

   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.

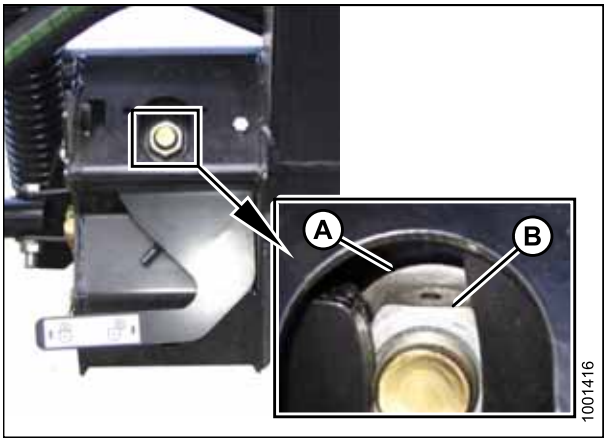


Figure 6.156: Float Lock

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

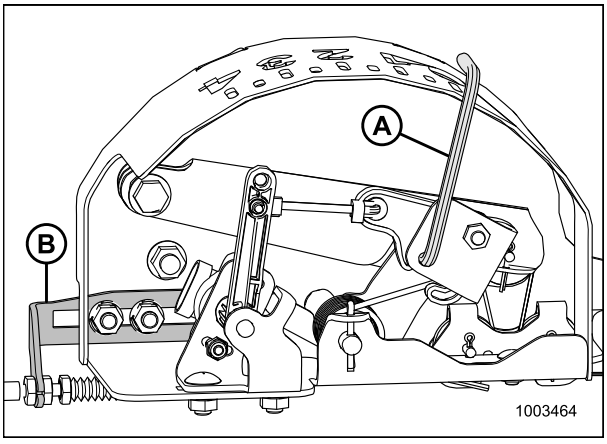


Figure 6.157: Float Indicator Box

4. On the HARVESTING page, select MENU icon (A) in the bottom right corner of the screen.

Figure 6.158: John Deere S7 Display – Harvesting Page

5. On the MENU page, select the SYSTEM tab (A). The MENU opens.
6. Select DIAGNOSTICS CENTER icon (B). The DIAGNOSTICS CENTER page opens.

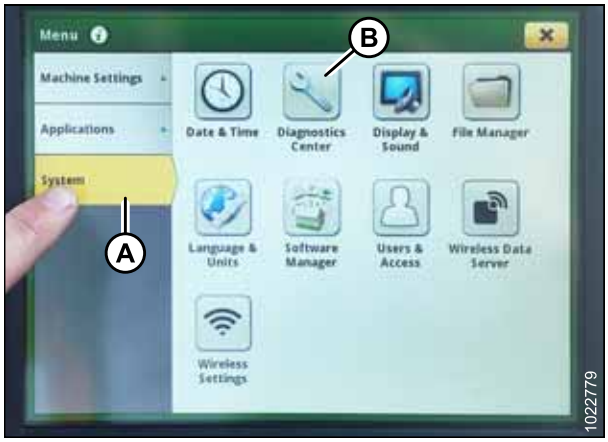


Figure 6.159: John Deere S7 Display – Menu

7. Select AHC - SENSING (A). The AHC - SENSING \DIAGNOSTICS page displays.

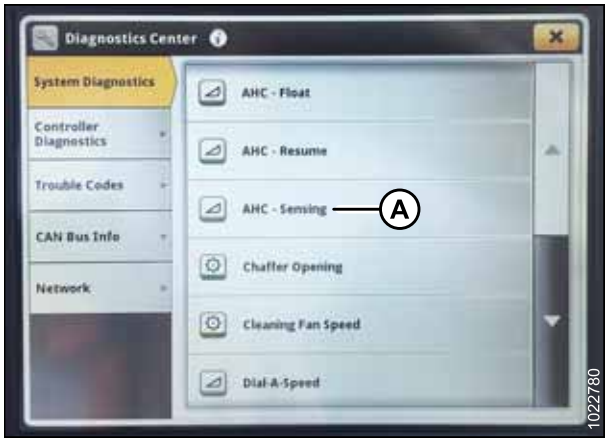


Figure 6.160: John Deere S7 Display – Diagnostics Center

8. Select SENSOR tab (A) to view sensor voltages. The center header height sensor voltage (B) must be between 0.5 and 4.5 V, with at least 3 V of variation between 0 and 4 on the float indicator box.

   NOTE:

   If the optional Auto Lateral Tilt AHHC kit is installed, the left and right header height sensors must also be in the same 0.5–4.5 V range.

9. If sensor voltage adjustment is required, refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

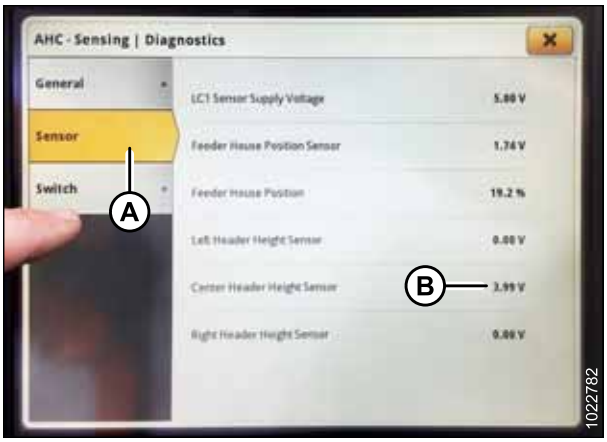


Figure 6.161: John Deere S7 Display – Checking Sensor Voltage

Calibrating Feeder House (John Deere S7 Series)

Feeder house calibration must be done before header calibration.

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. For instructions, refer to the header operator's manual.

NOTE:

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

1. Ensure center-link is set to **D**.
2. Rest header on down stops and unlock float.
3. On the HARVESTING page, select the MENU icon (A) in the bottom right corner of screen. The MENU opens.

Figure 6.162: John Deere S7 Display – Harvesting Page

4. Select the MACHINE SETTINGS tab (A).
5. Select the CALIBRATIONS & PROCEDURES icon (B). The CALIBRATIONS & PROCEDURES page displays.

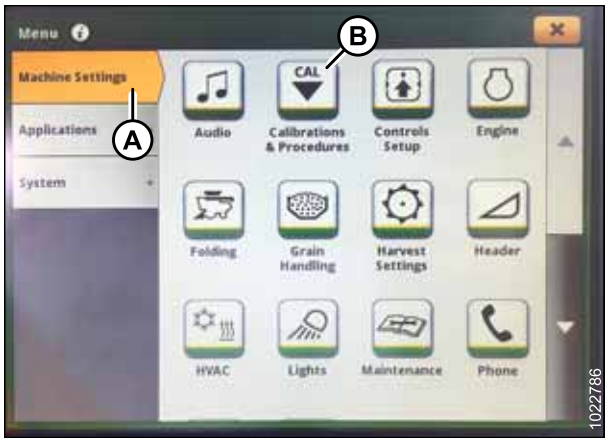


Figure 6.163: John Deere S7 Display – Machine Settings

6. Select HEADER tab (A).
7. Select FEEDER HOUSE RAISE SPEED CALIBRATION (B). The FH RAISE SPEED CALIBRATION page displays.

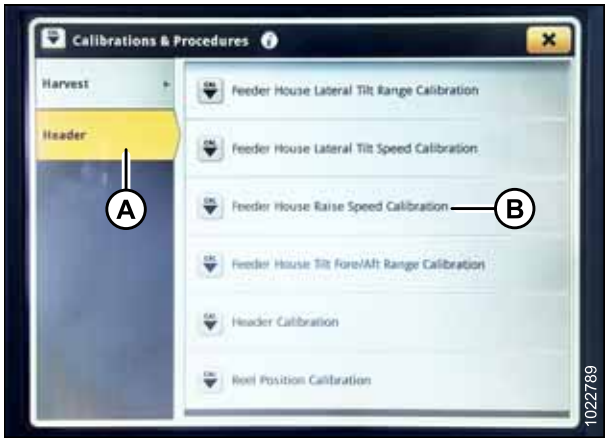


Figure 6.164: John Deere S7 Display – Calibrations and Procedures

8. Select CALIBRATE (A) at the bottom of the page. A calibration overview displays.

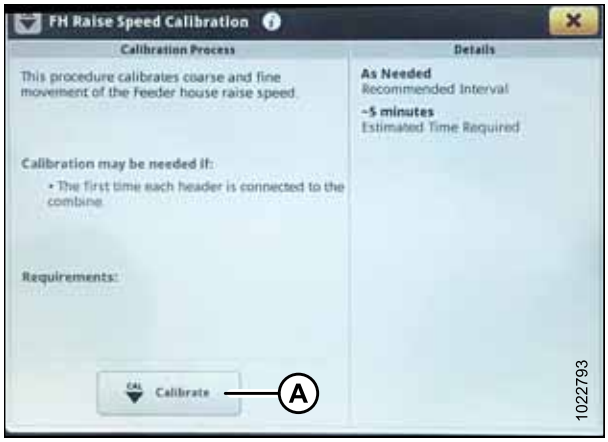


Figure 6.165: John Deere S7 Display – Feeder House Calibration

9. Read the calibration overview, and then press START.

Figure 6.166: John Deere S7 Display – Feeder House Calibration

10. Follow the instructions on the screen. As you proceed through the calibration process, the display will automatically update to show next step.

    NOTE:

    If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

Figure 6.167: John Deere S7 Display – Feeder House Calibration

11. When calibration is complete, select SAVE to confirm calibration.

Figure 6.168: John Deere S7 Display – Feeder House Calibration

Calibrating Header (John Deere S7 Series)

Feeder house calibration must be done before header calibration. If feeder house has not yet been calibrated, refer to *Calibrating Feeder House (John Deere S7 Series), page 223*.

For best performance of auto header height control (AHHC), perform these procedures with header at steepest angle. When setup and calibration are complete, adjust center-link back to desired header angle. For instructions, refer to Header Angle in the 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. Rest header on down stops and unlock float.
3. On the HARVESTING page, select the MENU icon (A) in the bottom right corner of screen. The MENU opens.

Figure 6.169: John Deere S7 Display – Harvesting Page

4. Select the MACHINE SETTINGS tab (A).
5. Select the CALIBRATIONS & PROCEDURES icon (B). The CALIBRATIONS & PROCEDURES page displays.

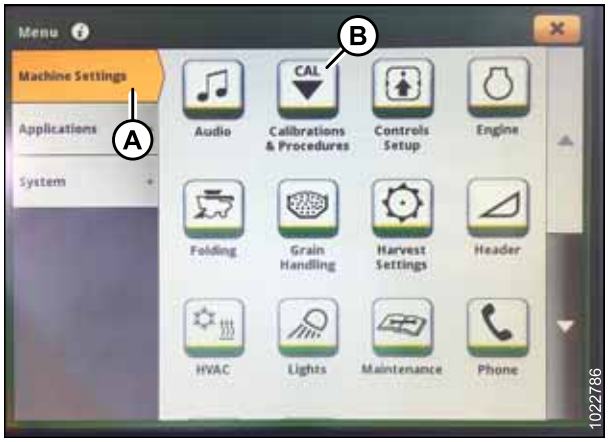


Figure 6.170: John Deere S7 Display – Machine Settings

6. Select HEADER tab (A).
7. Select HEADER CALIBRATION (B). The HEADER CALIBRATION page displays.

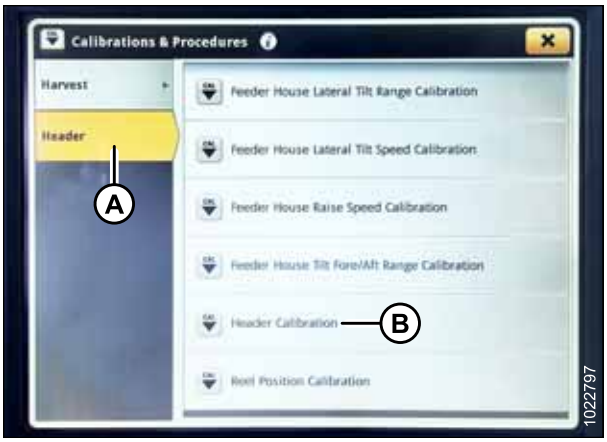


Figure 6.171: John Deere S7 Display – Calibrations and Procedures

8. Select CALIBRATE (A) at bottom of page. The calibration overview window opens.

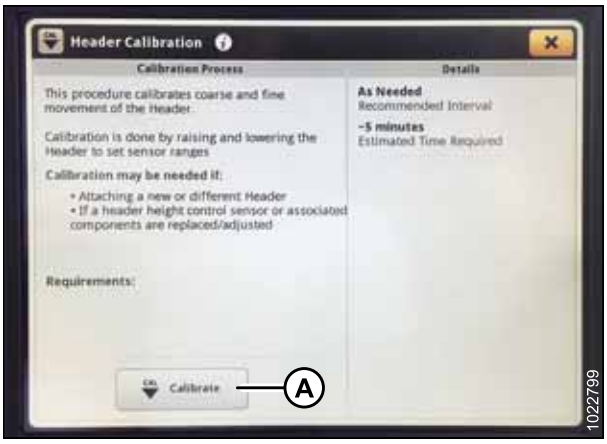


Figure 6.172: John Deere S7 Display – Header Calibration

9. Press button (A) on console to set engine to high idle.

Figure 6.173: John Deere S7 Console

10. Select START on calibration overview page.
11. 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 *Adjusting Voltage Limits: One-Sensor System, page 160*.

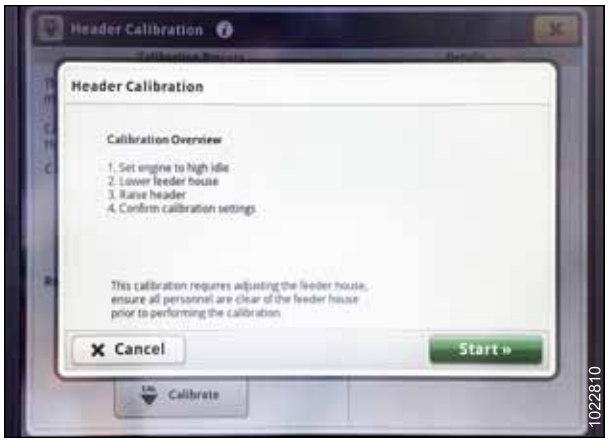


Figure 6.174: John Deere S7 Display – Header Calibration

12. When calibration is complete, select SAVE to confirm calibration.

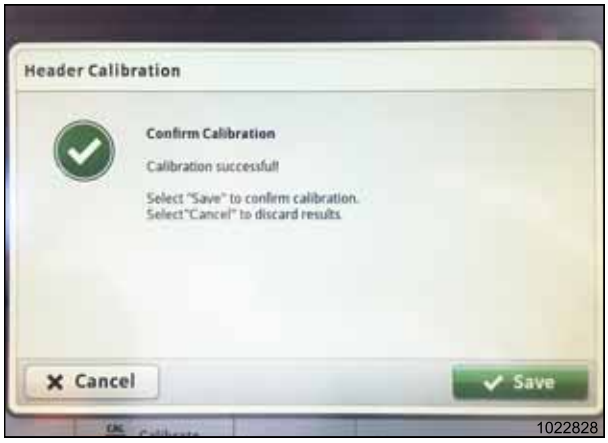


Figure 6.175: John Deere S7 Display – Header Calibration

6.1.10 New Holland Combines (CR/CX Series—Pre-2015 Model Year)

This section applies only to pre-2015 CR/CX models. For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

Checking Voltage Range from the Combine Cab (New Holland)

NOTE:

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

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

⚠ CAUTION

Check to be sure all bystanders have cleared the area.

1. Position the header 150 mm (6 in.) above the ground, and unlock the float.

2. Check that float lock linkage is on down stops (washer [A] cannot be moved) at both locations.

   NOTE:

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

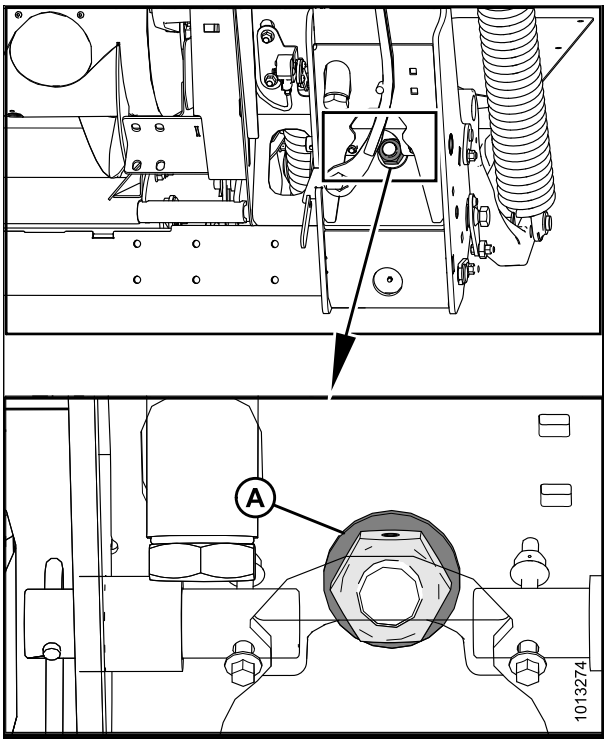


Figure 6.176: Float Lock

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

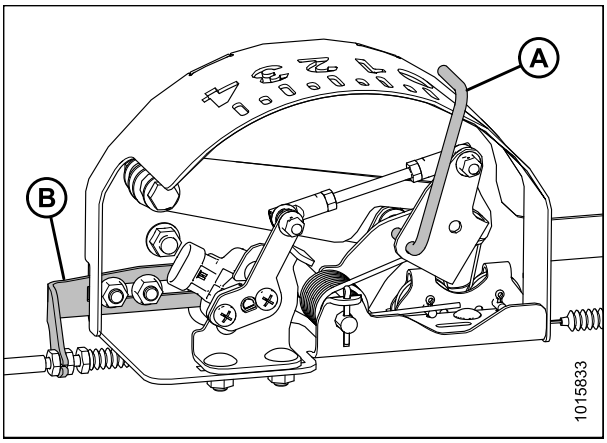


Figure 6.177: Float Indicator Box

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

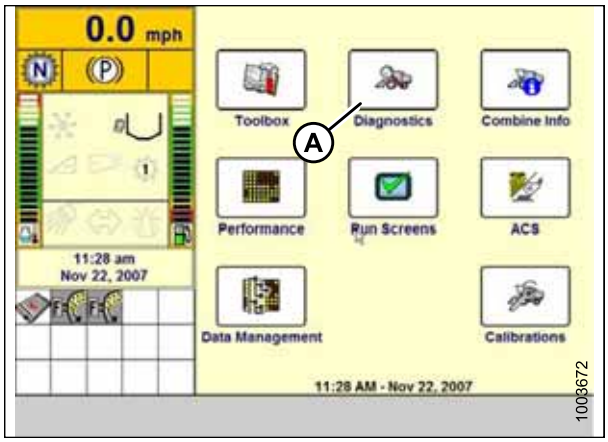


Figure 6.178: New Holland Combine Display

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

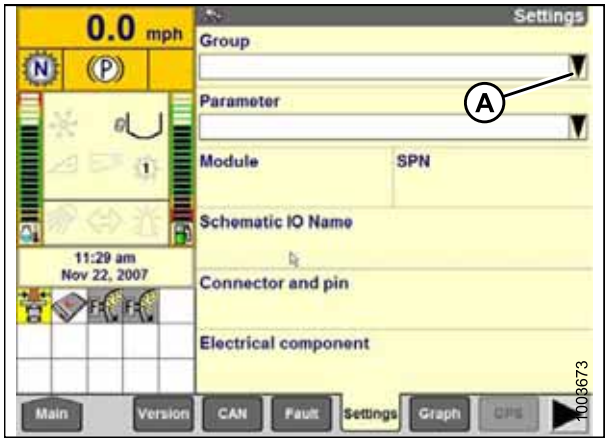


Figure 6.179: New Holland Combine Display

8. Select HEADER HEIGHT/TILT (A). The PARAMETER screen displays.

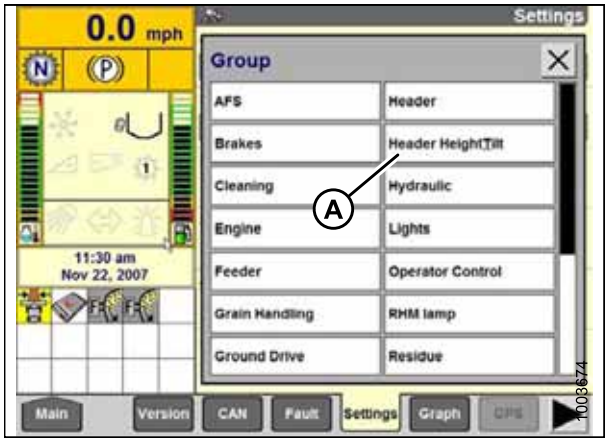


Figure 6.180: New Holland Combine Display

9. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage is displayed at the top of the screen.
10. Raise and lower the header to see the full range of voltage readings.
11. If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is insufficient, adjust the voltage limits. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

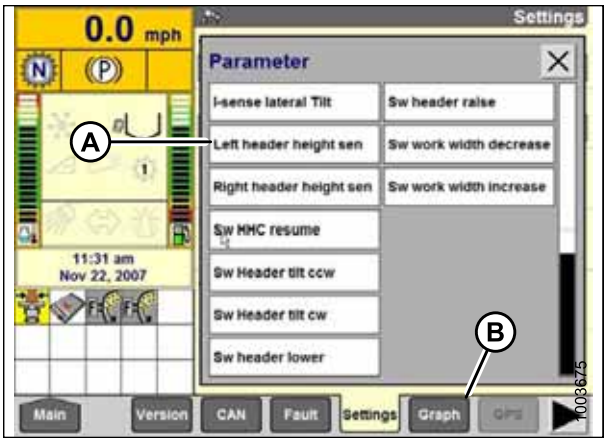


Figure 6.181: New Holland Combine Display

Setting up Auto Header Height Control (New Holland CR/CX Series)

NOTE:

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

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

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

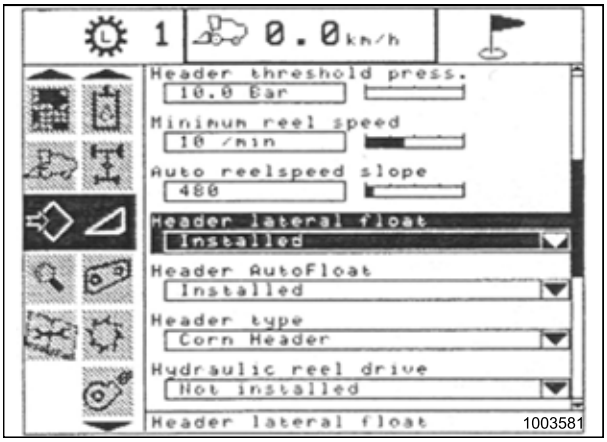


Figure 6.182: New Holland Combine Display

3. Select HEADER AUTOFLOAT, and press ENTER.
4. Use the up and down navigation keys to move between options, and select INSTALLED.

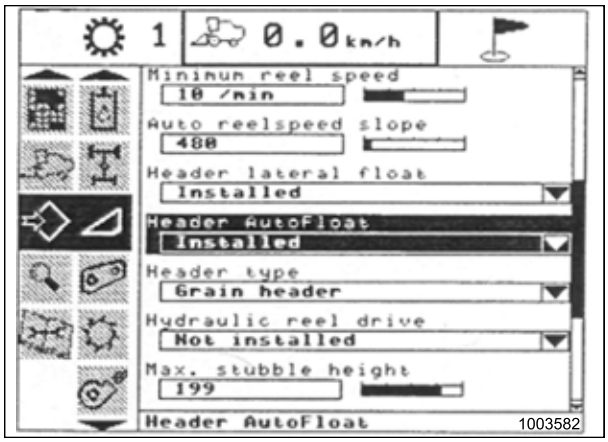


Figure 6.183: New Holland Combine Display

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

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

NOTE:

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

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

CAUTION

Check to be sure all bystanders have cleared the area.

Check the following conditions before starting the header calibration procedure:

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

To calibrate the AHHC, follow these steps:

1. Select CALIBRATION on the combine display, and press the RIGHT ARROW navigation key to enter the information box.

2. Select HEADER (A), and press ENTER. The CALIBRATION dialog box opens.

   NOTE:

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

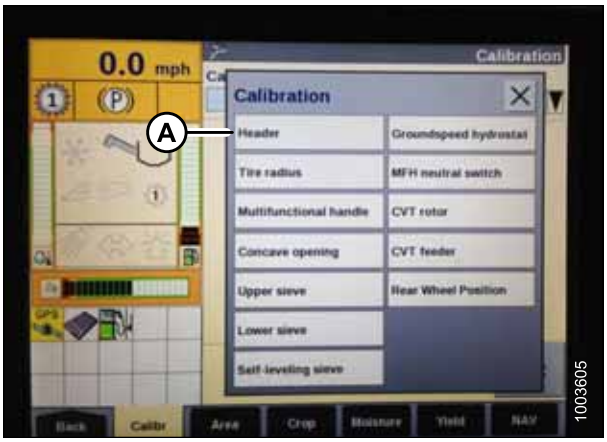


Figure 6.184: New Holland Combine Display

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

   NOTE:

   Pressing the ESC key during any of the steps or letting the system sit idle for more than 3 minutes will cause the calibration procedure to stop.

   NOTE:

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

Figure 6.185: New Holland Combine Display

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

   NOTE:

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

5. If the unit does not function properly, conduct the 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 the header to a height that will never be reached while cutting. The area counter will stop counting when the header is above the programmed height, and will begin counting when the header is below the programmed height.

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

IMPORTANT:

- If the value is set too low, area may NOT be counted since the header is sometimes raised above this threshold although the combine is still cutting.
- If the value is set too high, the area counter will keep counting even when the header is raised (but below this threshold) and the combine is no longer cutting crop.

CAUTION

Check to be sure all bystanders have cleared the area.

1. Select the MAXIMUM STUBBLE HEIGHT calibration dialog box. As you proceed through the calibration process, the display will automatically update to show the next step.

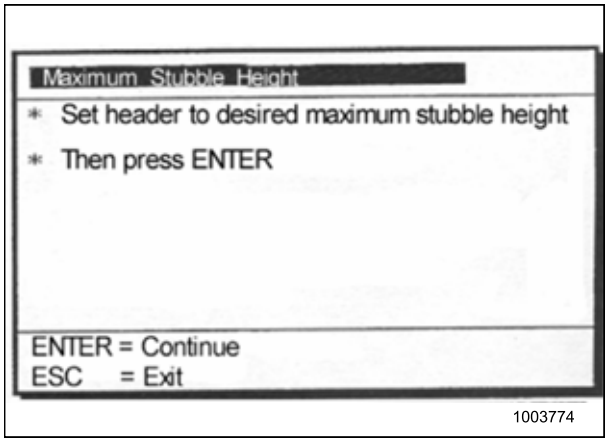


Figure 6.186: New Holland Calibration Dialog Box

2. Move header to the correct position using the header up or down control switch on the multifunction handle.
3. Press ENTER to continue. As you proceed through the calibration process, the display will automatically update to show the next step.
4. Press ENTER or ESC to close the calibration screen. The calibration is now complete.

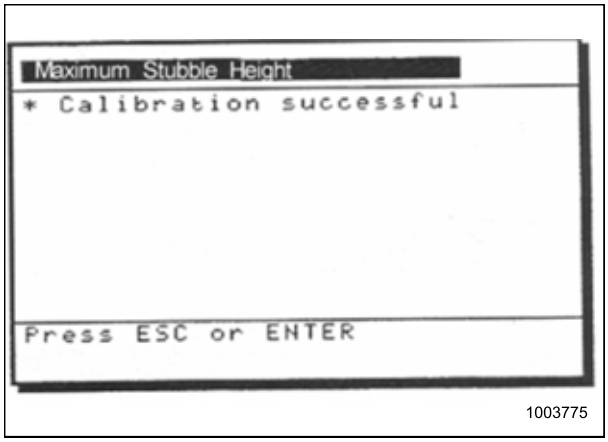


Figure 6.187: New Holland Calibration Dialog Box

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

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

NOTE:

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

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

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

   NOTE:

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

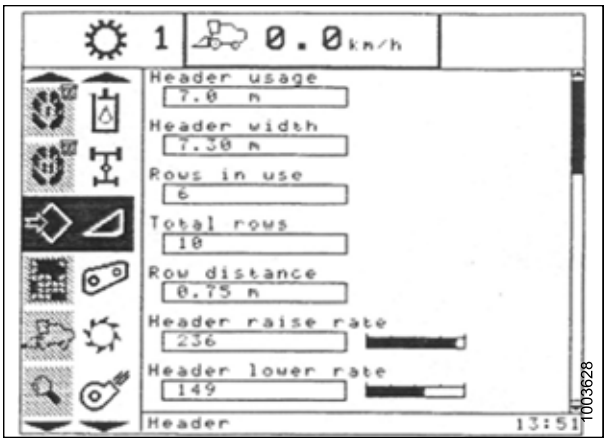


Figure 6.188: New Holland Combine Display

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

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

NOTE:

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

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

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

   NOTE:

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

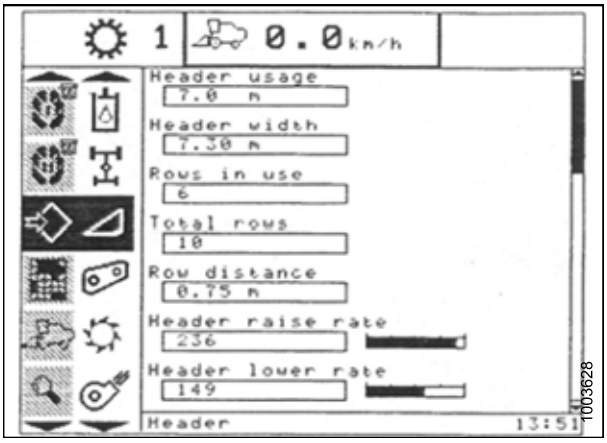


Figure 6.189: New Holland Combine Display

Setting the Sensitivity of the Auto Header Height Control (New Holland CR/CX 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 the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

CAUTION

Check to be sure all bystanders have cleared the area.

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

   NOTE:

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

Figure 6.190: New Holland Combine Display

Setting Preset Cutting Height (New Holland CR/CX Series)

To set the 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 the combine operator's manual for updates.

NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to *6.1.11 New Holland Combines (CR Series—Model Year 2015 and Later), page 238*.

NOTE:

The indicator (A) should be at position 0 (B) with the header (152 mm [6 in.]) off the ground. If not, the float sensor output voltage should be checked. Refer to Step *4, page 157*. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

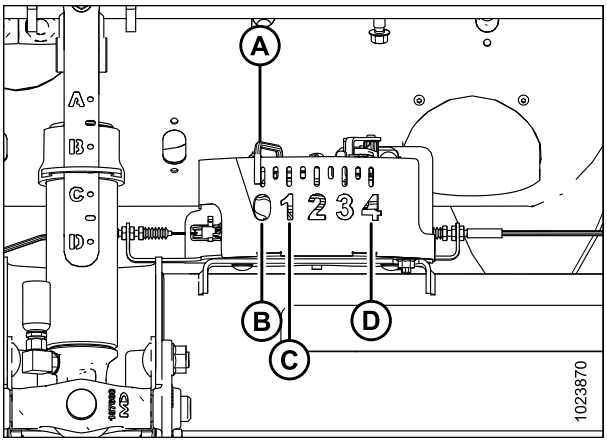


Figure 6.191: Float Indicator Box

1. Engage the threshing mechanism and the feeder with switches (A) and (B).
2. Set HEADER MEMORY rocker switch (D) in STUBBLE HEIGHT/AUTOFLOAT mode position (A) or (B).
3. Lower the header to the desired cutting height using the HEADER HEIGHT and HEADER LATERAL FLOAT momentary switch (C).
4. Lightly press AUTOMATIC HEADER HEIGHT CONTROL button (E) for a minimum of 2 seconds to store the height position. A beep will confirm the 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 the memorized header height set points while the combine is in use, use the HEADER HEIGHT AND HEADER LATERAL FLOAT rocker switch (C) (slow up/down) to raise or lower header to the desired value. Lightly press the AUTOMATIC HEADER HEIGHT CONTROL button (E) for a minimum of 2 seconds to store the new height position. A beep will confirm setting.

   NOTE:

   Fully pressing AUTOMATIC HEADER HEIGHT CONTROL button (E), will disengage float mode.

   NOTE:

   It is not necessary to press rocker switch (D) again after changing header height set point.

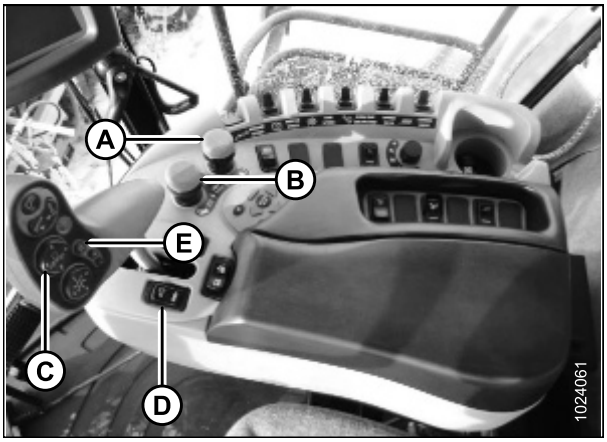


Figure 6.192: New Holland Combine Controls

6.1.11 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 pre-2015 New Holland combine models, refer to *6.1.10 New Holland Combines (CR/CX Series—Pre-2015 Model Year), page 228*.

Checking Voltage Range from the 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 the combine operator's manual for updates.

NOTE:

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 pre-2015 New Holland combine models, refer to *6.1.10 New Holland Combines (CR/CX Series—Pre-2015 Model Year), page 228*.

CAUTION

Check to be sure all bystanders have cleared the area.

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

   NOTE:

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

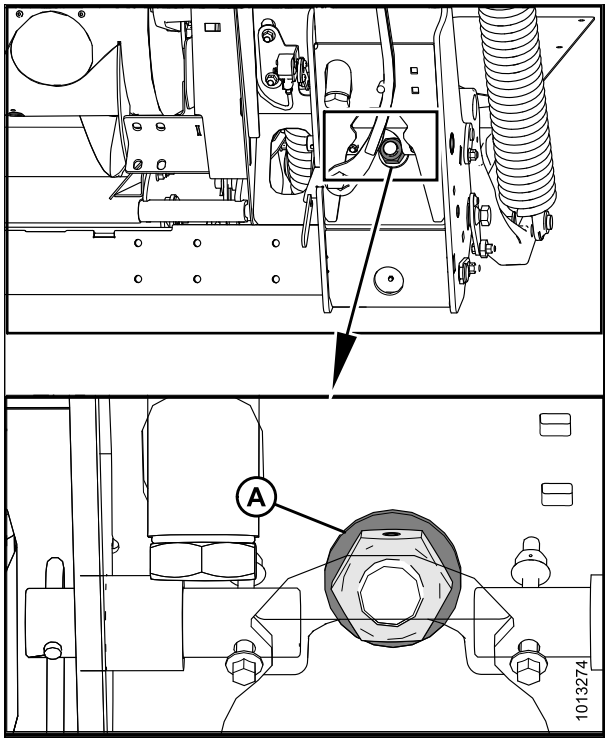


Figure 6.193: Float Lock

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

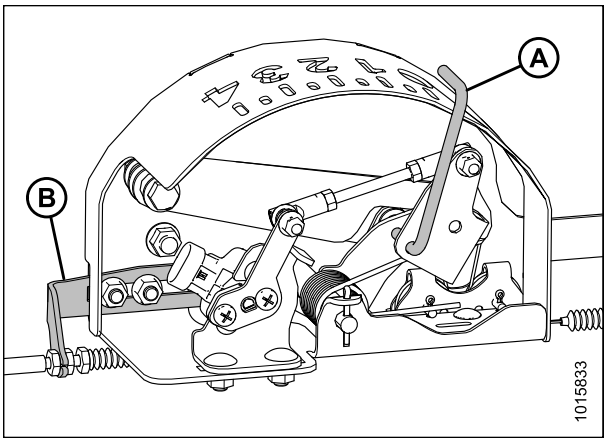


Figure 6.194: Float Indicator Box

5. Select DIAGNOSTICS (A) on the main screen. The DIAGNOSTICS screen displays.

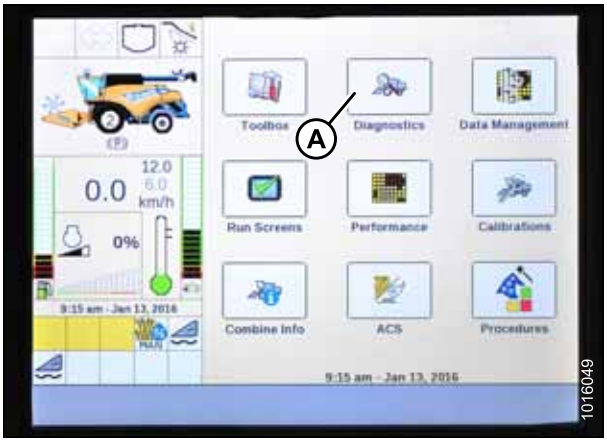


Figure 6.195: New Holland Combine Display

6. Select SETTINGS (A). The SETTINGS screen displays.

Figure 6.196: New Holland Combine Display

7. Select HEADER HEIGHT/TILT (A) from the GROUP drop-down menu.
8. Select HEADER HEIGHT SENS. L (B) from the PARAMETER drop-down menu.

Figure 6.197: New Holland Combine Display

9. Select GRAPH (A). The exact voltage (B) is displayed at the top of the screen.
10. Raise and lower the header to see the full range of voltage readings.
11. If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is insufficient, adjust the voltage limits. Refer to *Adjusting Voltage Limits: One-Sensor System, page 160*.

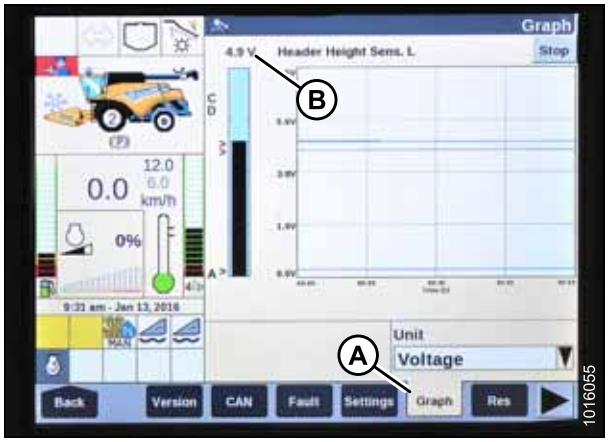


Figure 6.198: New Holland Combine Display

Setting up Auto Header Height Control (New Holland CR Series)

For best performance of the auto header height control (AHHC), perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle.

NOTE:

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

NOTE:

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 pre-2015 New Holland combine models, refer to *6.1.10 New Holland Combines (CR/CX Series—Pre-2015 Model Year), page 228*.

1. Ensure center-link is set to **D**.
2. Select TOOLBOX (A) on the main screen. The TOOLBOX screen displays.

Figure 6.199: New Holland Combine Display

3. Simultaneously press both the UNLOAD (A) and RESUME (B) buttons on the control handle.

   NOTE:

   Software in some New Holland combines may not allow you to change the header from FLEX to PLATFORM or the header type from DEFAULT to 80/90 at the main menu. This is now a dealer setting, and requires you to access the DEALER SETTING screen by pressing and holding both the UNLOAD and RESUME buttons on the control handle for approximately 10 seconds. The DEALER SETTING screen should appear and will allow you to change the header and header type settings.

Figure 6.200: New Holland Combine Controls

4. Select HEAD 1 (A). The HEADER SETUP 1 screen displays.
5. Select the CUTTING TYPE drop-down arrow (B) and change the CUTTING TYPE to PLATFORM (C).

Figure 6.201: New Holland Combine Display

6. Select the HEADER SUB TYPE drop-down arrow (A). The HEADER SUB TYPE dialog box displays.

Figure 6.202: New Holland Combine Display

7. Set HEADER SUB TYPE to 80/90 (A) for a New Holland combine.

Figure 6.203: New Holland Combine Display

8. Select HEAD 2 (A). The HEADER SETUP 2 screen displays.

Figure 6.204: New Holland Combine Display

9. Select the AUTOFLOAT drop-down arrow and set AUTOFLOAT to INSTALLED (A).
10. Select the AUTO HEADER LIFT drop-down arrow and set AUTO HEADER LIFT to INSTALLED (B).

    NOTE:

    With AUTO HEADER LIFT installed and AHHC engaged, the header will lift up automatically when you pull back on the control handle.
11. Set the values for MANUAL HHC RAISE RATE (C) and MANUAL HHC LOWER RATE (D) for best performance according to ground conditions.

Figure 6.205: New Holland Combine Display

12. Set the values for HHC HEIGHT SENSITIVITY (A) and HHC TILT SENSITIVITY (B) for best performance according to ground conditions.

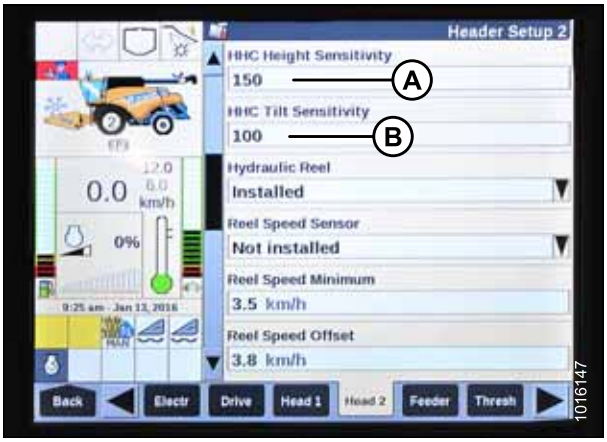


Figure 6.206: New Holland Combine Display

13. From the REEL HEIGHT SENSOR menu, select YES.

Figure 6.207: New Holland Combine Display

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

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

NOTE:

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

NOTE:

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 pre-2015 New Holland combine models, refer to *6.1.10 New Holland Combines (CR/CX Series—Pre-2015 Model Year), page 228*.

⚠ CAUTION

Check to be sure all bystanders have cleared the area.

Check the following conditions before starting the header calibration procedure:

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

To calibrate the AHHC, follow these steps:

1. Select CALIBRATIONS (A) on the main screen. The CALIBRATION screen displays.

Figure 6.208: New Holland Combine Display

2. Select the CALIBRATION drop-down arrow (A).

Figure 6.209: New Holland Combine Display

3. Select HEADER (A) from the list of calibration options.

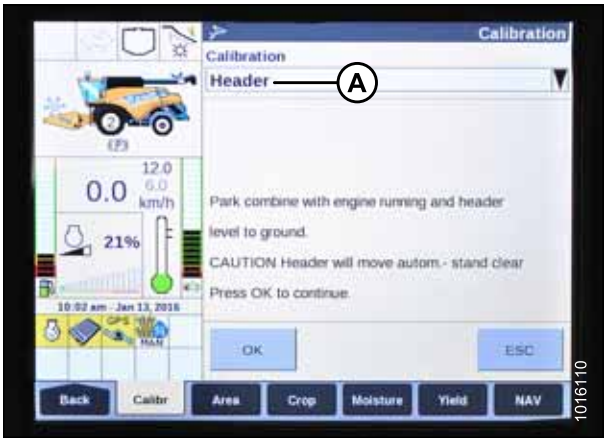


Figure 6.210: New Holland Combine Display

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

   NOTE:

   Pressing the ESC key during any of the steps or letting the system sit idle for more than 3 minutes will cause the calibration procedure to stop.

   NOTE:

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

Figure 6.211: New Holland Combine Display

5. When all steps have been completed, CALIBRATION COMPLETED message is displayed on the screen.

   NOTE:

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

Figure 6.212: New Holland Combine Display

Checking Reel Height Sensor Voltages (New Holland)

NOTE:

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

1. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page opens.

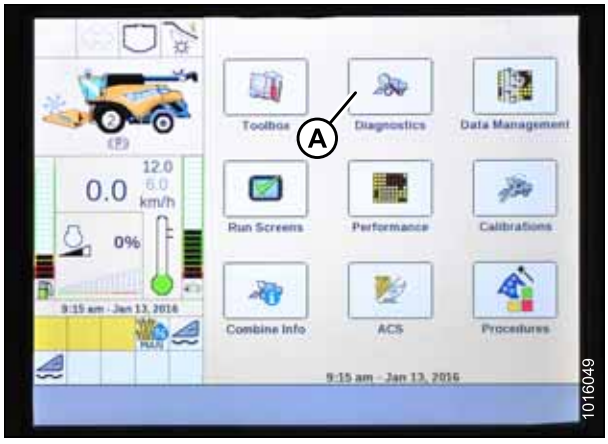


Figure 6.213: New Holland Combine Display

2. Select SETTINGS tab (A). The SETTINGS page opens.
3. From the GROUP menu (B), select HEADER.
4. From the PARAMETER menu (C), select REEL VERTICAL POSITION.

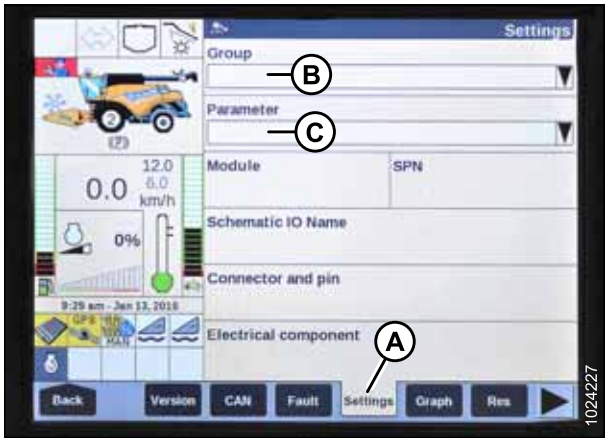


Figure 6.214: New Holland Combine Display

5. Select GRAPH tab (A). The REEL VERTICAL POSITION graph displays.
6. Lower the reel to view the high voltage (B). The voltage should be 4.1–4.5 V.
7. Raise the reel to view the low voltage (C). The voltage should be 0.5–0.9 V.
8. If either voltage is out of range, refer to *7 Checking and Adjusting Reel Height Sensor, page 253*.

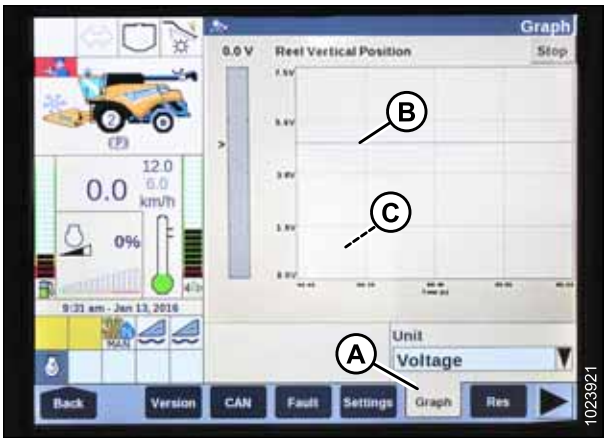


Figure 6.215: New Holland Combine Display

Setting Preset Cutting Height (New Holland CR Series – 2015 and Later)

NOTE:

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 pre-2015 New Holland combine models, refer to *6.1.10 New Holland Combines (CR/CX Series—Pre-2015 Model Year), page 228*.

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 the first two buttons (A) and (B). The third button (C) is not configured.

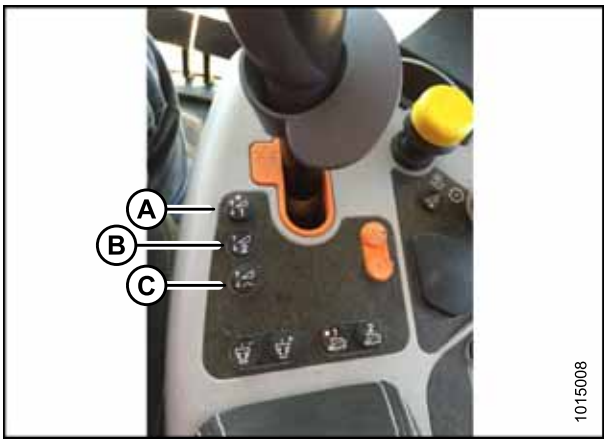


Figure 6.216: New Holland Combine Controls

CAUTION

Check to be sure all bystanders have cleared the area.

To set preset cutting height, follow these steps:

1. Engage separator and header.
2. Select preset button 1 (A). A yellow light on the button will illuminate.
3. Raise or lower the header to desired cutting height.

Figure 6.217: New Holland Combine Controls

4. Hold RESUME button (C) on multifunction handle to set the preset.

   NOTE:

   When setting presets, always set header position before setting reel position. If header and reel are set at the same time, the reel setting will not save.
5. Raise or lower the reel to desired position.
6. Hold RESUME button (C) on multifunction handle to set the preset.
7. Repeat Step *2, page 248* to Step *6, page 248*, using preset button 2.

Figure 6.218: New Holland Combine Multifunction Handle

8. Lower header to the ground.
9. Select RUN SCREENS (A) on the main screen.

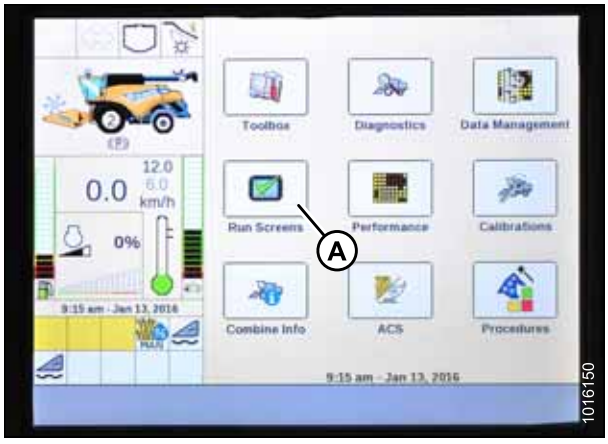


Figure 6.219: New Holland Combine Display

10. Select the RUN tab that shows MANUAL HEIGHT.

    NOTE:

    The MANUAL HEIGHT field may appear on any of the RUN tabs. When an auto height set point button is pressed, the display will change to AUTO HEIGHT (A).

11. Press one of the auto height preset buttons to select a preset cutting height.

Figure 6.220: New Holland Combine Display

Setting Maximum Work Height (New Holland CR Series)

NOTE:

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 pre-2015 New Holland combine models, refer to *6.1.10 New Holland Combines (CR/CX Series—Pre-2015 Model Year), page 228*.

1. Select TOOLBOX (A) on the main screen. The TOOLBOX screen displays.

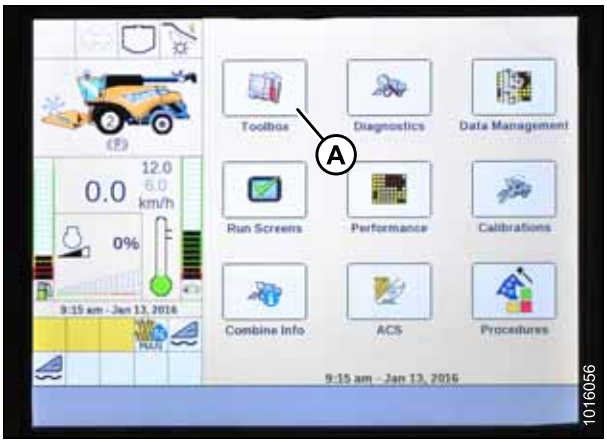


Figure 6.221: New Holland Combine Display

2. Select FEEDER (A). The FEEDER SETUP screen displays.
3. Select the MAXIMUM WORK HEIGHT field (B).

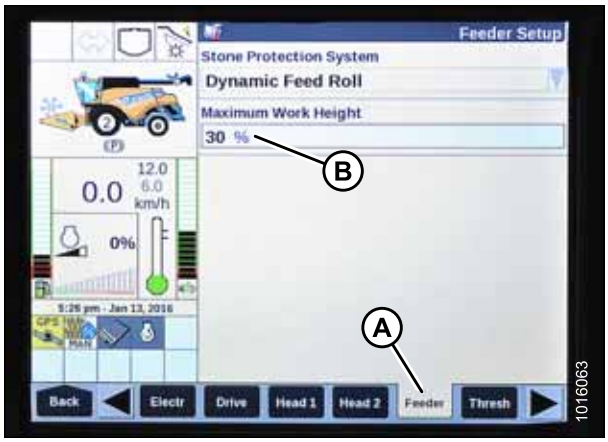


Figure 6.222: New Holland Combine Display

4. Set MAXIMUM WORK HEIGHT to desired value.
5. Press SET and then press ENTER.

Figure 6.223: New Holland Combine Display

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 the combine operator's manual for updates.

1. Simultaneously press the UNLOAD (A) and RESUME (B) buttons on the control handle.

Figure 6.224: New Holland Combine Controls

2. On the HEAD 1 screen, change the CUTTING TYPE from FLEX to PLATFORM as shown at location (A).

Figure 6.225: New Holland Combine Display

3. On the HEAD 2 screen, change HEADER SUB TYPE from DEFAULT to 80/90 as shown at location (A).

Figure 6.226: 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 the first two buttons (A) and (B). The third button down (C) is not configured.

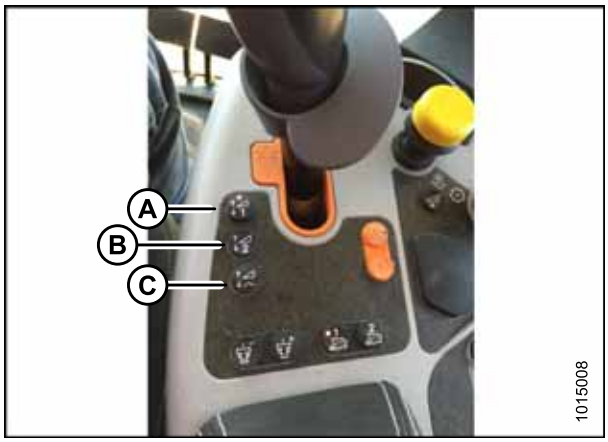


Figure 6.227: New Holland Combine Controls

7 Checking and Adjusting Reel Height Sensor

The output voltage range of the auto reel height sensor can be checked from inside the combine or manually at the sensor. For in-cab instructions, refer to the combine operator's manual. To check the voltage range manually, refer to the following procedure.

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.

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Ensure minimum reel height is properly set before adjusting reel height sensor. Refer to *5.12 Measuring and Adjusting Reel Clearance to Cutterbar, page 128*.

IMPORTANT:

To measure the output voltage of the reel height sensor, the combine engine needs to be running and supplying power to the sensor. Always engage the combine parking brake and stay away from the reel.

Table 7.1 Reel Height Sensor Voltage Limits

Combine Type	Voltage Range	
	X Voltage	Y Voltage
Case/New Holland	0.5–0.9 V	4.1–4.5 V
CLAAS	4.1–4.5 V	0.5–0.9 V
John Deere	4.1–4.5 V	0.5–0.9 V

NOTE:

For CLAAS combines: To avoid a collision of the reel with the cab, the machine is equipped with an automatic reel height limitation. Some CLAAS combines have an automatic shutoff feature that engages when the automatic reel height limitation is reached. When raising the header by more then 80 percent, the reel is automatically lowered. The automatic lowering of the reel can be manually overridden, and a warning will appear on the CEBIS terminal.

1. Engage the combine parking brake.
2. Start engine and lower reel fully.

3. Use the combine display or a voltmeter (if measuring the sensor manually) to measure voltage range **Y**. Refer to Table *7.1, page 253* for range requirements.
4. If using a voltmeter, measure the voltage between the ground (Pin 2 wire) and the signal (Pin 3 wire) at the reel height sensor (B).
5. Stop the engine and remove key.
6. Adjust length of threaded rod (A) to modify voltage range **Y**.
7. Repeat checking and adjusting until voltage range **Y** is within the range specified.

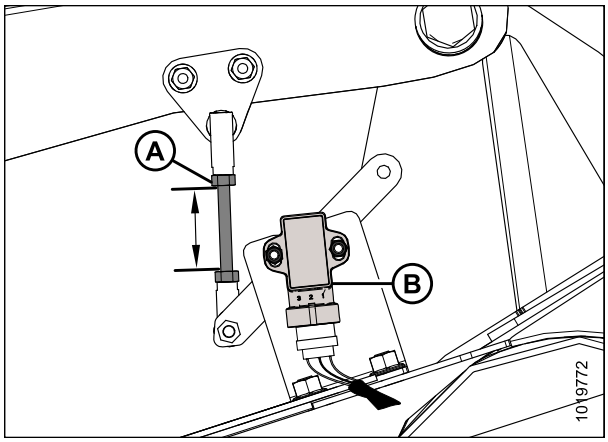


Figure 7.1: Reel Height Sensor – Right Reel Arm (Reel Down)

8. Start engine, and raise the reel fully.
9. Use the combine display or a voltmeter (if measuring the sensor manually), to measure voltage range **X**. Refer to Table *7.1, page 253* for range requirements.
10. If using a voltmeter, measure the voltage between the ground (Pin 2 wire) and the signal (Pin 3 wire) at the reel height sensor (A).
11. Stop the engine and remove key.
12. Loosen two M5 hex nuts (B) and rotate sensor (A) to achieve voltage range **X**.
13. Repeat checking and adjusting until voltage range **X** is within the range specified.
14. Start the engine and lower reel fully.
15. Recheck voltage range **Y** and ensure it is still within the range specified. Adjust if required.

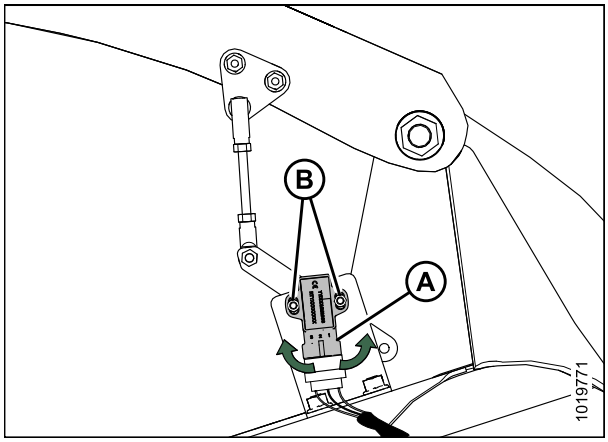


Figure 7.2: Reel Height Sensor – Right Reel Arm (Reel Up)

8 Running up Header

To run up the 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 locks.
2. Stop engine and remove key.
3. Lower plastic pan under float module and check for shipping materials/debris that may have fallen under float module 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.

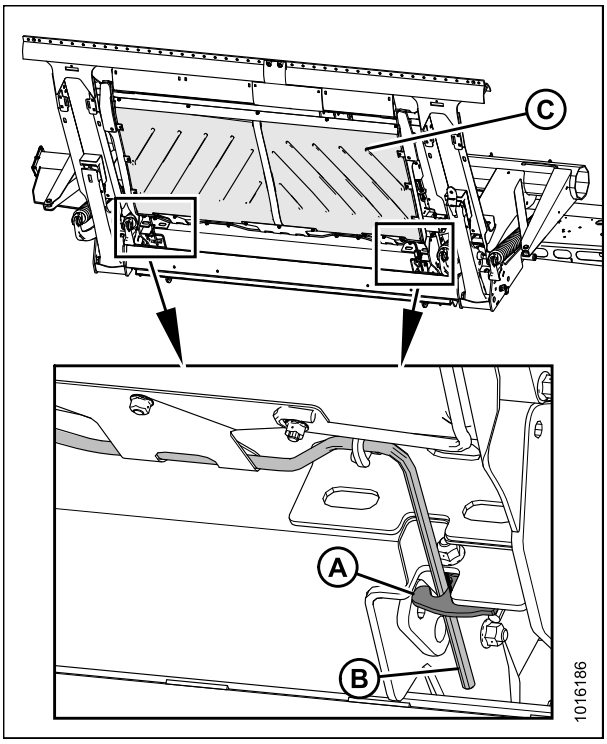


Figure 8.1: Float Module Plastic Pan

6. Check and remove debris from pan (A) and draper.

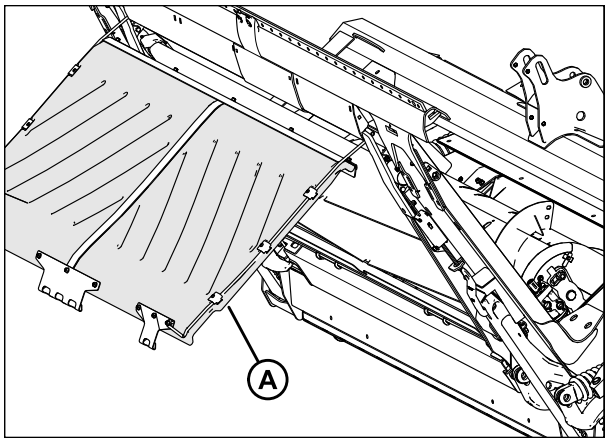


Figure 8.2: Float Module Plastic Pan

7. Raise pan and rotate handle (A) so that rod engages clips (B) on pan.

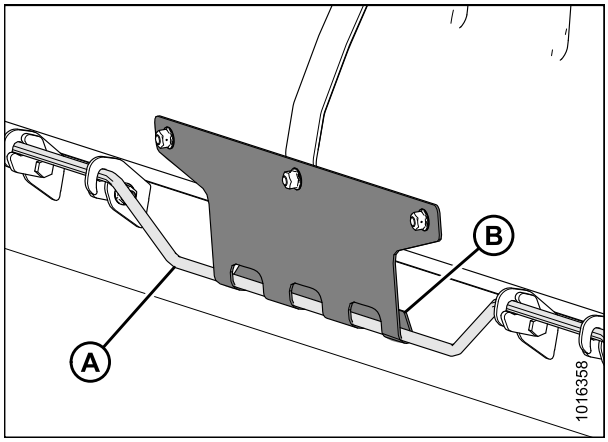


Figure 8.3: Clips Engaged

8. Push handle (B) into slot and secure it with latches (A).
9. Open left endshield.

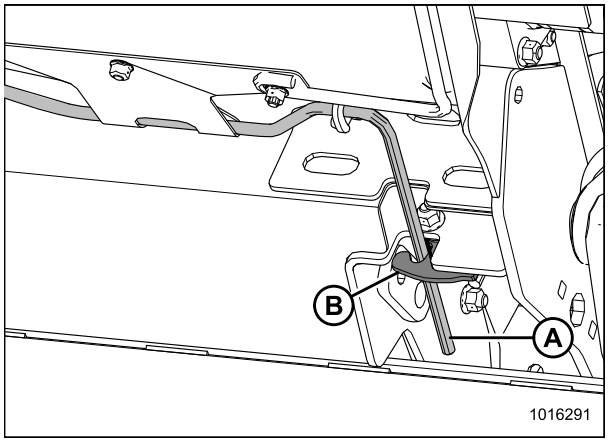


Figure 8.4: Latches Secured

10. Ensure flow control (A) is set to position 6.
11. 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.

12. Start combine and run the machine slowly for 5 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 the lines.

13. Run the machine at operating speed for 15 minutes. Listen for any unusual sounds or abnormal vibration.
14. Perform run-up check as listed on *Predelivery Checklist, page 275* (yellow sheet attached to this instruction) to ensure the machine is field-ready.

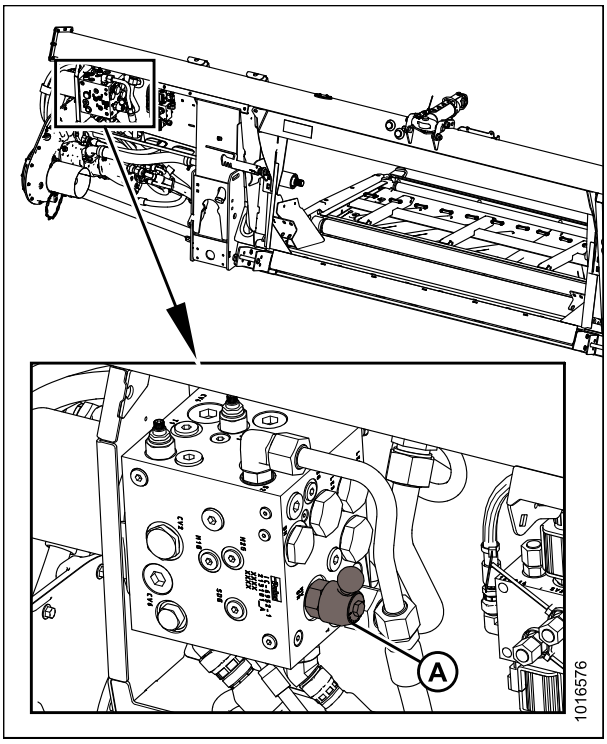


Figure 8.5: Flow Control

8.1 Performing Post Run-Up Adjustments

Stop engine and perform post run-up check as listed on the Predelivery Checklist (yellow sheet attached to this instruction *Predelivery Checklist, page 275*) 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 the run-up. Refer to the following:

- *8.1.1 Adjusting Knife, page 257*
- *8.1.2 Adjusting Knife Speed, page 259*

8.1.1 Adjusting Knife

WARNING

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

1. Stop engine and remove the 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 the gap. If not, adjust gap by loosening bolt and tapping knifehead (A) with a hammer. Retighten bolt.

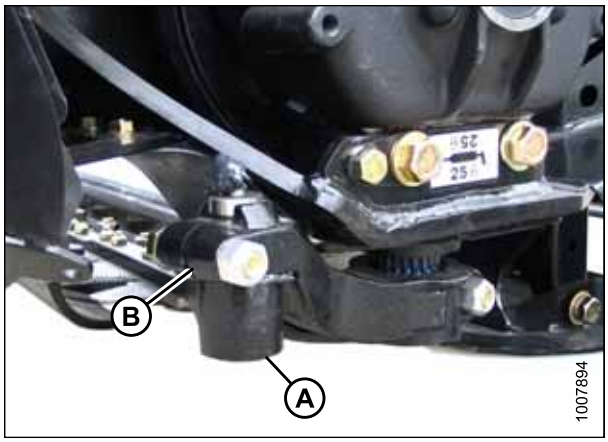


Figure 8.6: Knifehead and Pitman Arm

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 8.7: Straightening Tool – Upward Adjustment

5. Adjust guard tips downward by positioning tool as shown, and pushing down.

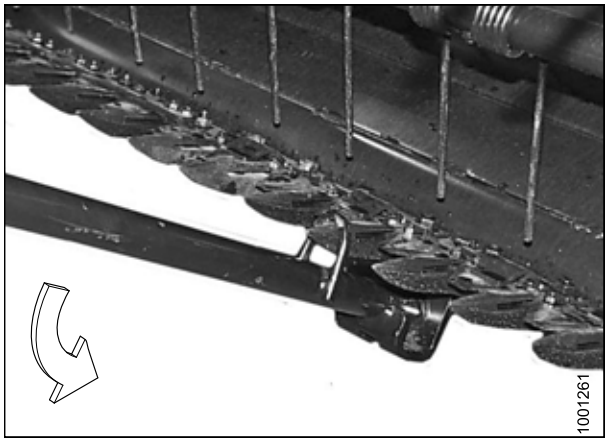


Figure 8.8: Straightening Tool – Downward Adjustment

8.1.2 Adjusting Knife Speed

The header knife drive is driven by the hydraulic pump mounted on the float module. 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

DANGER

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

IMPORTANT:

This is the **MINIMUM** speed setting for variable speed feeder houses. To avoid damage to the header, do **NOT** operate at speeds higher than the minimum speed settings.

1. Stop combine engine and remove key.
2. Push release lever (A) located on the backside of the endshield to unlock the shield.
3. Pull endshield open using handle depression (B).

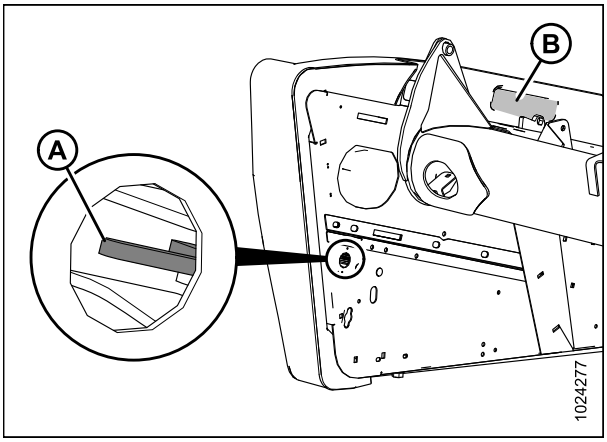


Figure 8.9: Endshield Latch Access

4. Pull endshield at handle depression (A). Endshield is retained by a hinge tab (B) and will open in direction (C).

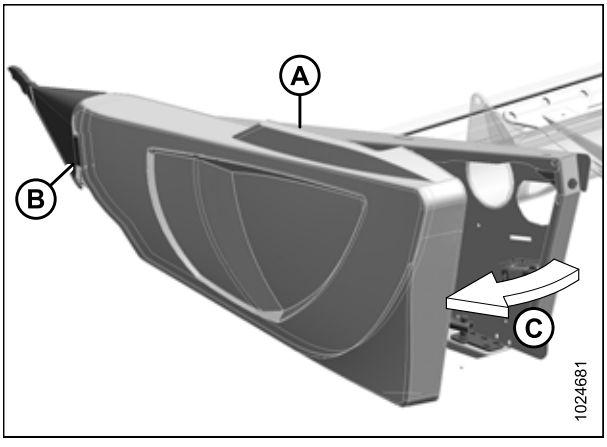


Figure 8.10: Left Endshield

5. Pull the endshield free of hinge tab (A) if additional clearance is required, and swing shield towards the rear of the header.
6. Engage safety catch (B) on hinge arm to secure the shield in fully-open position.

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.

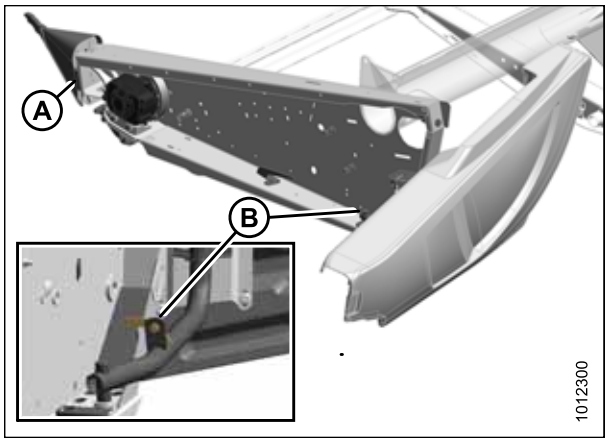


Figure 8.11: Left Endshield

7. Start engine, engage header drive, and run combine at operating rpm.
8. Check the rpm of knife drive box pulley (A) using a handheld tachometer.
9. Stop engine, remove key, and close endshield.

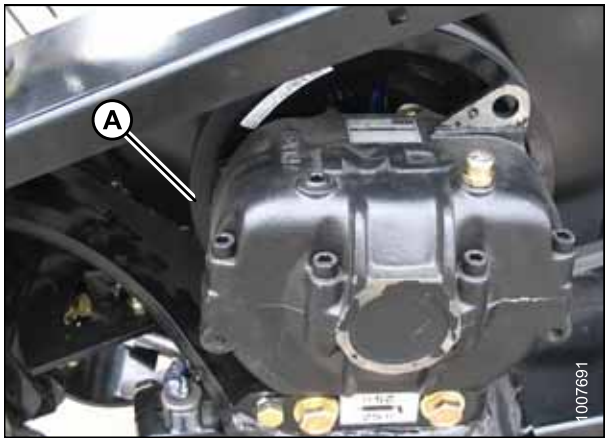


Figure 8.12: Knife Drive Box

10. Compare actual pulley rpm with values in the following chart:

Table 8.1 Recommended Knife Drive Speed (rpm)

Header Size	Recommended Knife Drive Speed Range (rpm)	
	Single Knife	Double Knife
6.1 m (20 ft.)	N/A	700–850
7.6 m (25 ft.)	600–725	
9.1 m (30 ft.)	600–700	600–750
10.7 m (35 ft.)	550–650	
12.2 m (40 ft.)	525–600	550–700
13.7 m (45 ft.)	N/A	

11. If adjustment to knife drive box pulley rpm is necessary, refer to the header technical manual.

9 Reference

9.1 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).

9.1.1 Metric Bolt Specifications

Table 9.1 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

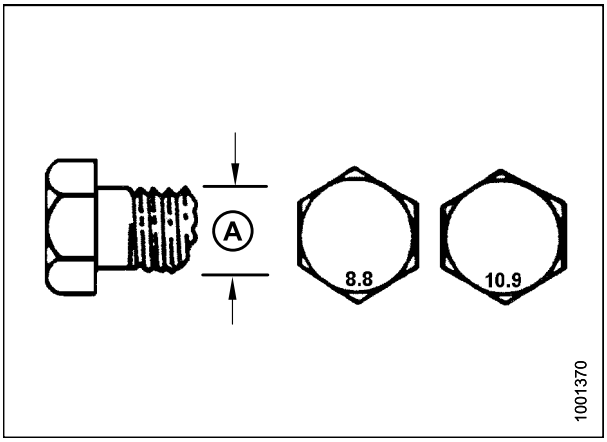


Figure 9.1: Bolt Grades

Table 9.2 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

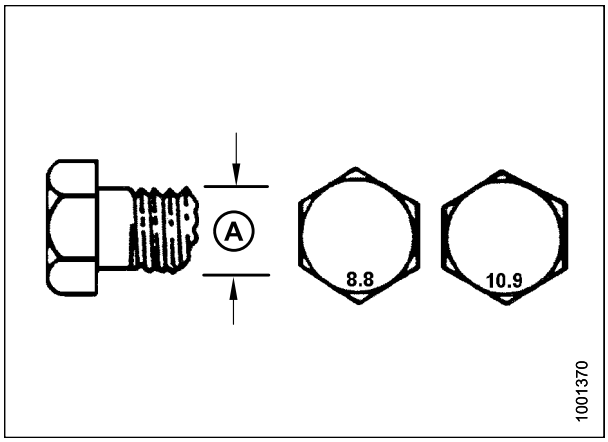


Figure 9.2: Bolt Grades

Table 9.3 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

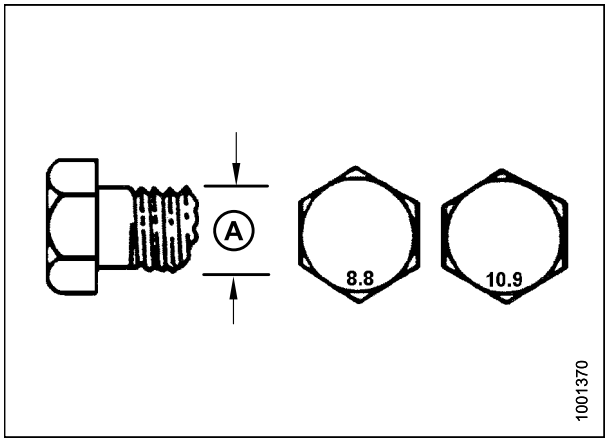


Figure 9.3: Bolt Grades

Table 9.4 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

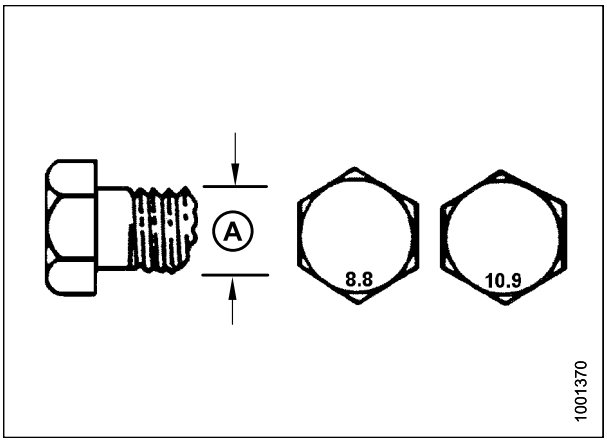


Figure 9.4: Bolt Grades

9.1.2 Metric Bolt Specifications Bolting into Cast Aluminum

Table 9.5 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	–	–	–	–

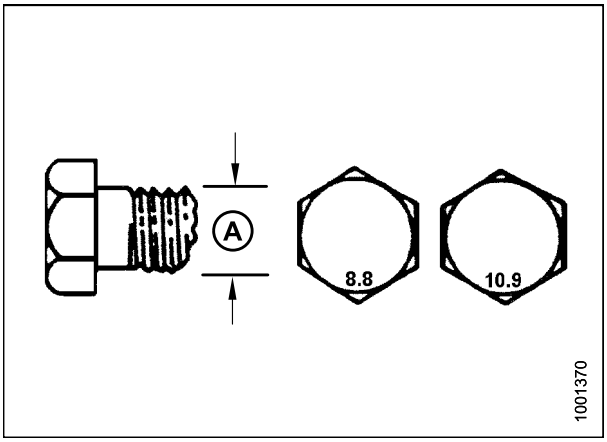


Figure 9.5: Bolt Grades

9.1.3 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 *9.6, page 264*.
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.

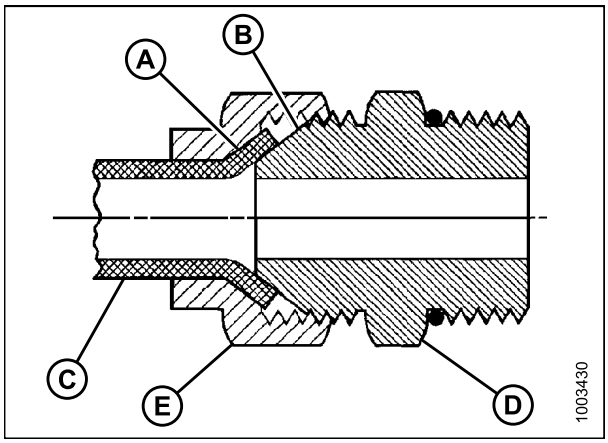


Figure 9.6: Hydraulic Fitting

Table 9.6 Flare-Type Hydraulic Tube Fittings

SAE Dash Size	Thread Size (in.)	Torque Value[8]		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
-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

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

9.1.4 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).

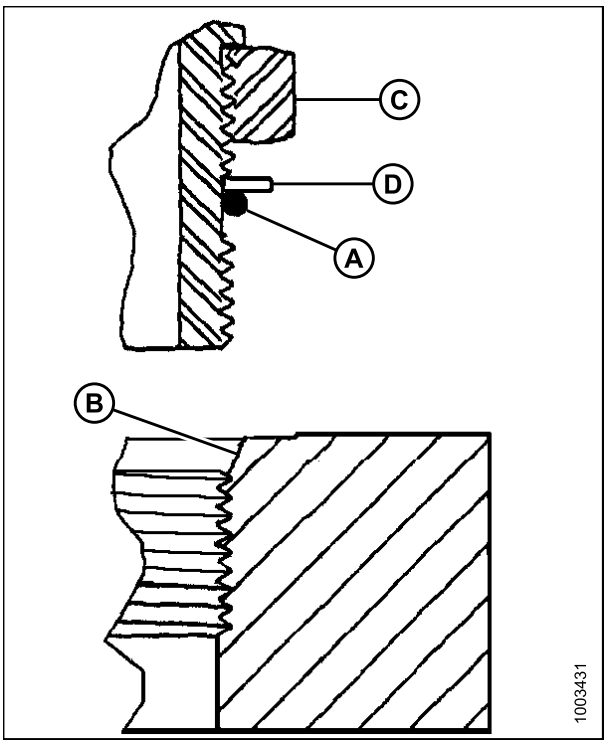


Figure 9.7: Hydraulic Fitting

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.

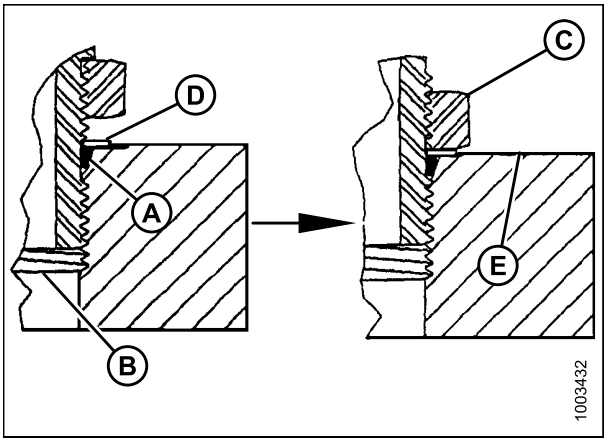


Figure 9.8: Hydraulic Fitting

Table 9.7 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value[9]	
		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

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

9.1.5 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 *9.8, page 267*.
6. Check final condition of fitting.

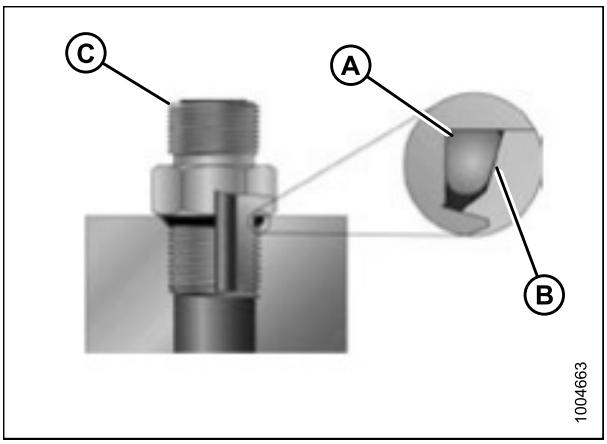


Figure 9.9: Hydraulic Fitting

Table 9.8 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value[10]	
		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

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

9.1.6 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 9.10: 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 *9.9, page 268*.

   NOTE:

   If applicable, hold hex on fitting body (E) to prevent rotation of fitting body and hose when tightening fitting nut (D).
6. Use three wrenches when assembling unions or joining two hoses together.
7. Check final condition of fitting.

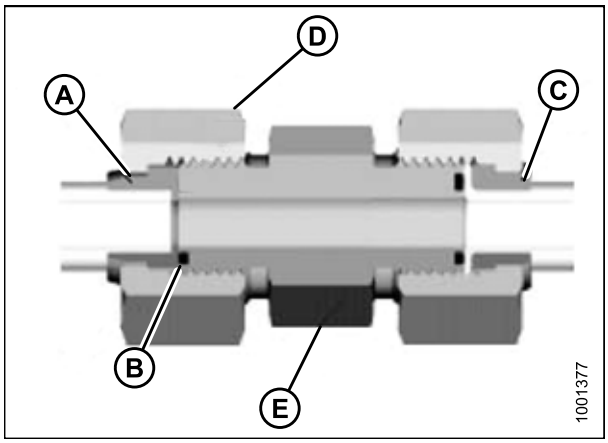


Figure 9.11: Hydraulic Fitting

Table 9.9 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value[11]	
			Nm	lbf·ft
-3	Note[12]	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note[12]	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

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

Table 9.9 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value[13]	
			Nm	lbf·ft
-14	Note[12]	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

9.1.7 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 *9.10, page 269*. Make sure that tube end of a shaped connector (typically 45º or 90º) 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 9.10 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

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

9.2 Lifting Equipment Requirements

The following topic describes the minimum equipment requirements for lifting headers.

CAUTION

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

CAUTION

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

NOTE:

When a header and float module are ordered together, they are shipped with the float module already installed in the header.

IMPORTANT:

Forklifts are normally rated for a load center 610 mm (24 in.) ahead of back end of the forks. To obtain the forklift capacity for a load center (A) at 1220 mm (48 in.) (B), check with your forklift distributor. The minimum fork length (C) is 1981 mm (78 in.).

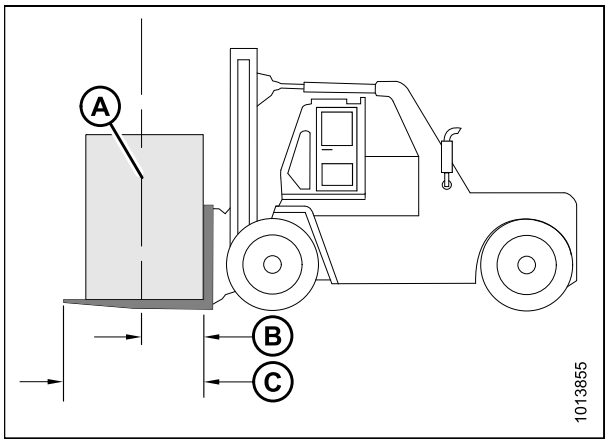


Figure 9.12: Minimum Lifting Capacity

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

Table 9.11 Lifting Chain Requirements

Type	Overhead lifting quality (1/2 in.)
Minimum Load	2270 kg (5000 lb.)

9.3 Conversion Chart

Table 9.12 Conversion Chart

Quantity	SI Units (Metric)		Factor	US Customary Units (Standard)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	hectare	ha	x 2.4710 =	acre	acres
Flow	liters per minute	L/min	x 0.2642 =	US gallons per minute	gpm
Force	Newton	N	x 0.2248 =	pound force	lbf
Length	millimeter	mm	x 0.0394 =	inch	in.
Length	meter	m	x 3.2808 =	foot	ft.
Power	kilowatt	kW	x 1.341 =	horsepower	hp
Pressure	kilopascal	kPa	x 0.145 =	pounds per square inch	psi
Pressure	megapascal	MPa	x 145.038 =	pounds per square inch	psi
Pressure	bar (Non-SI)	bar	x 14.5038 =	pounds per square inch	psi
Torque	Newton meter	Nm	x 0.7376 =	pound feet or foot pounds	lbf·ft
Torque	Newton meter	Nm	x 8.8507 =	pound inches or inch pounds	lbf·in
Temperature	degrees Celsius	ºC	(ºC x 1.8) + 32 =	degrees Fahrenheit	ºF
Velocity	meters per minute	m/min	x 3.2808 =	feet per minute	ft/min
Velocity	meters per second	m/s	x 3.2808 =	feet per second	ft/s
Velocity	kilometers per hour	km/h	x 0.6214 =	miles per hour	mph
Volume	liter	L	x 0.2642 =	US gallon	US gal
Volume	milliliter	ml	x 0.0338 =	ounce	oz.
Volume	cubic centimeter	cm^3 or cc	x 0.061 =	cubic inch	$in.^3$
Weight	kilogram	kg	x 2.2046 =	pound	lb.

9.4 Definitions

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

Term	Definition
AHHC	Automatic Header Height Control
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut
Center-link	A hydraulic cylinder link between header and machine used to change header angle
CGVW	Combined gross vehicle weight
DK	Double knife
DKD	Double-knife drive
DDD	Double-draper drive
DR	Double reel
D1 Series header	MacDon D120, D125, D130, D135, D140, or D145 combine draper header from D1 model number series
Export header	Header configuration typical outside North America
FFFT	Flats from finger tight
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
GSL	Ground speed lever
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
HDS	Hydraulic deck shift
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
Knife	A cutting device which uses a reciprocating cutter (also called a sickle)
MDS	Mechanical deck shift
n/a	Not applicable
Non-timed knife drive	Unsynchronized motion applied at cutterbar to two separately driven knives from a single hydraulic motor or two hydraulic motors

Term	Definition
NPT	National Pipe Thread: A style of fitting used for low pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit
Nut	An internally threaded fastener that is designed to be paired with a bolt
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)
rpm	Revolutions per minute
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
SDD	Single-draper drive
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time
spm	Strokes per minute
SR	Single reel
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)
TFFT	Turns from finger tight
Timed knife drive	Synchronized motion applied at cutterbar to two separately driven knives from a single hydraulic motor
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
Truck	A four-wheel highway/road vehicle weighing no less than 3400 kg (7500 lb.)
UCA	Upper cross auger
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

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 the Operator or the 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: **Float Module Serial Number:**

Table .13 D1 Series Draper Header / FM100 Float Module Predelivery Checklist – North America

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque.	*9.1 Torque Specifications, page 261*
	Check tire pressure (Transport/Stabilizer Option).	*5.2 Checking Tire Pressure: Transport and Stabilizer Wheels, page 109*
	Check wheel bolt torque (Transport/Stabilizer Option).	*5.3 Checking Wheel Bolt Torque, page 110*
	Check knife drive box breather position.	*5.4 Checking Knife Drive Box, page 111*
	Check knife drive box oil level.	*5.4 Checking Knife Drive Box, page 111*
	Check float module gearbox oil level.	*5.5 Checking Oil Level in Header Drive Gearbox, page 113*
	Check hydraulic reservoir oil level before and after run-up.	*5.6 Checking Oil Level in Hydraulic Reservoir, page 114*
	Check knife drive belt(s) tension.	*5.7 Checking Knife Drive Belt Tension, page 115*
	Check if reel is centered between header endsheets.	*5.9 Centering the Reel, page 120*
	Grease all bearings and drivelines.	*5.17 Lubricating the Header, page 139*
	Check side draper tension.	*5.14 Adjusting Draper Tension, page 134*
	Check draper seal.	*5.16 Checking and Adjusting Draper Seal, page 137*
	Check header float.	*5.10 Checking and Adjusting Header Float, page 122*
	Check reel tine to cutterbar clearance.	*5.12.1 Measuring Reel Clearance, page 128*
	Check auger flighting to feed pan clearance.	*5.13 Adjusting Auger to Pan Clearance, page 131*
	Check the knife hold-down adjustment.	*5.8 Checking Knife Hold-Downs, page 118*
	Check fitment of endshields.	*5.18 Checking and Adjusting Endshields, page 147*

Table .13 D1 Series Draper Header / FM100 Float Module Predelivery Checklist – North America (continued)

✓	Item	Reference
	Check skid shoes are evenly adjusted at a setting appropriate for first crop.	—
	Ensure feeder house variable speed is set to minimum.	—
	Ensure auto header height is calibrated and functioning correctly.	*6.1 Auto Header Height Control (AHHC), page 153*
Run-up procedure		*8 Running up Header, page 255*
	Check hydraulic hose and wiring harness routing for clearance when raising or lowering header and reel.	—
	Check lights are functional.	—
	Check knife speed.	*8.1.2 Adjusting Knife Speed, page 259*
Post run-up check. Stop engine.		*8.1 Performing Post Run-Up Adjustments, page 257*
	Check knife sections for discoloration caused by misalignment of components.	*8.1.1 Adjusting Knife, page 257*
	Check for hydraulic leaks.	—
	Check that the manual storage case contains all of the required manuals.	*5.19 Checking Manuals, page 151*

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