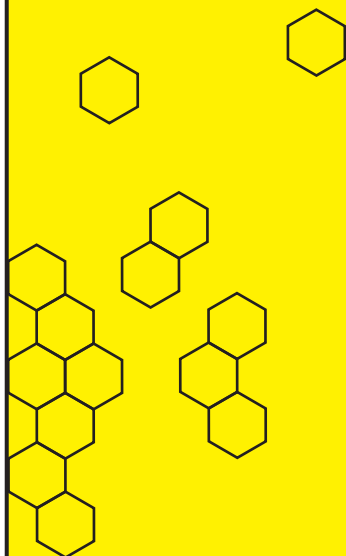
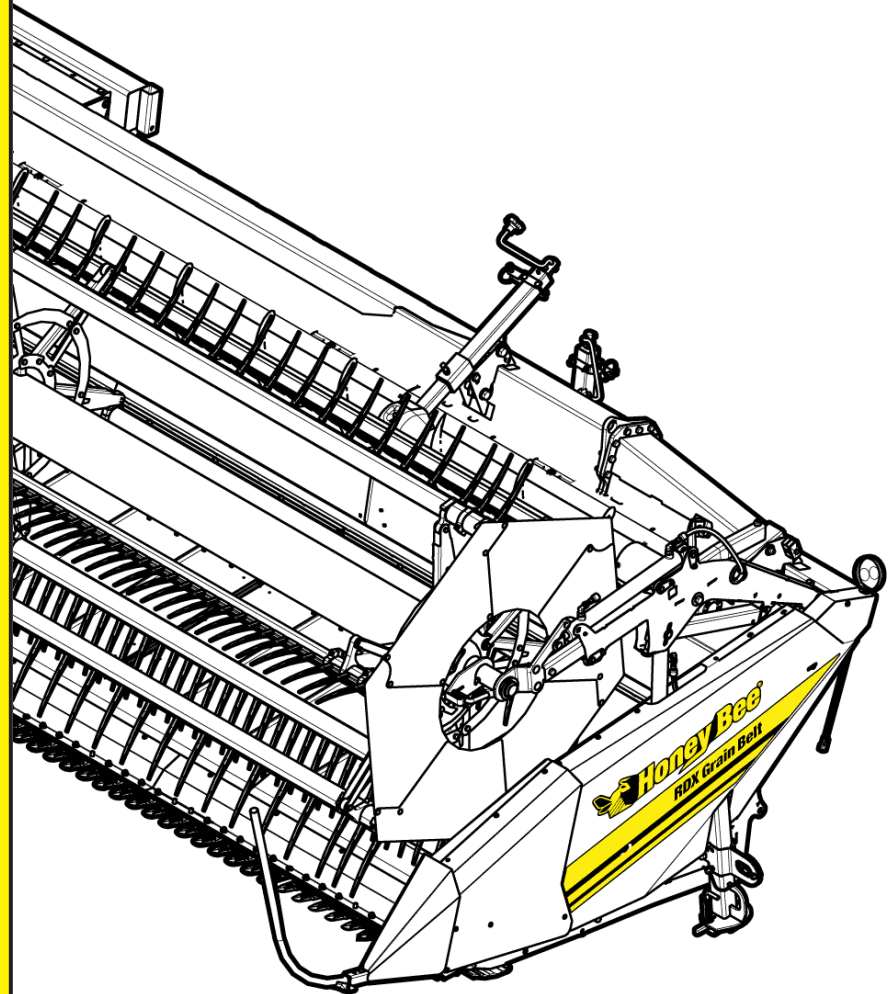


2022

RDX Grain Belt

Header Operator Manual



1 - RDX Grain Belt Header Pre Delivery Inspection

TO THE DEALER: *This form must be completed and returned to Honey Bee Manufacturing Ltd. along with the Warranty Registration Form. (please print)*

Model: _____
Check Completed By: _____
Dealer Name: _____

Serial #: _____
Signature: _____
Date: _____

As soon as you receive this machine, inspect it thoroughly to be certain that it is in good order and complete. Finish a pre-delivery inspection, paying special attention to the steps listed below, prior to delivery to the customer. Indicate with a tick mark in the left-hand column when correct/complete.

Refer to the page numbers listed below in the operator manual for detailed instructions.

Upon Receipt of Header:

- ☐ Red draw bar holder and tie-down bracket removed from header. - *page 36*
- ☐ Set front reel bats to operational position (reinstalled from transport position). - *page 35*
- ☐ Remove reel tie-downs installed from factory.
- ☐ Install crop dividers. - *page 35*
- ☐ Check draper tension as per decal on back panel. Adjust if necessary. - *page 88*
- ☐ Walk around the header, checking belts, bolts and shields to ensure everything is tight and in good working order.
- ☐ Unlock the transport cart and draw bar, lift header with the combine then remove the cart and draw bar. - *page 36*
- ☐ Attach multicoupler and electrical connection(s) - *page 39*
- ☐ Attach the drive shafts to the left and right hand sides of the combine feeder house. Ensure anti-rotation safety chains are connected and correctly adjusted. - *page 40*
- ☐ Check the clearance between the feed auger drum, stripper plate and feeder house. - *page 49*
- ☐ Check feed auger finger timing, ensure adjustment arm is in middle hole with fingers in fully forward position. - *page 49*
- ☐ Ensure the air pressure is set to the value recommended for your header size - *page 50*
- ☐ Set the faceplate angle using adjustment bolts on the combine's feeder house or combine feederhouse hydraulic fore/aft tilt (if possible) - *page 44*
- ☐ Set reel finger pitch to a starting point in the middle position (#5 on the standard reel and #3 on the Cam reel) - *page 60*
- ☐ Ensure reel fingers clear cutter bar by minimum of 1 1/2". Adjust reel height if necessary. (In order to fully extend RH reel lift cylinder the header reel must be running. - *page 47*
- ☐ Ensure the reel is centered on the header. - *page 48*
- ☐ Set Auto Header Height parameters in combine control panel (Combine and Sensitivity Settings)
- ☐ Calibrate combine
- ☐ Run header and fine tune drive belt to minimize vibration and get it running smoothly.
- ☐ Walk around the header while it is running to ensure everything is running smoothly
- ☐ If possible test in the field or lot and fine tune sensitivity settings if needed
- ☐ Ensure Optional equipment as per sales order is installed and functioning.

Before Transporting:

- ☐ Tilt cylinder retracted.
- ☐ Drive shafts in storage position. - *page 123*
- ☐ Ensure the air pressure is set to the value recommended for your header size - *page 50*
- ☐ Hydraulic & electrical connectors/lines in storage positions.
- ☐ Reel lowered, retracted, tied down and prevented from rotating.
- ☐ Transport cart & front draw bar axle properly installed. - *page 122*
- ☐ Cables, hoses, dividers, extensions & accessories securely stored.
- ☐ Warning lights, decals, reflectors & signs all legible and in place. - *page 25*
- ☐ Front reel fingers dropped into transport position. - *page 120*



2 - Copyright Information

Original Instructions

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Patents: <https://www.honeybee.ca/patents.php> all other patents pending.

| Document Revision History | | | |
|---------------------------|--------|----------|--|
| Revision | Author | Date | Description |
| 1.0 | AD | 08/12/20 | Document Created |
| 1.1 | AD | 09/05/20 | Corrected electrical schematic, updated skid shoe info, updated bushing info, replaced reel speed sensor image. |
| 1.2 | AD | 29/09/20 | Added vertical shear installation and maintenance info. |
| 1.3 | AD | 23/02/21 | Added feeder deck chain note Added dolly wheel hitch extension note Added New Holland 10V kit info Added driveshaft safety chain note Added new gauge wheel indicator illustration Updated reverse info to exclude cross auger |
| 1.4 | AD | 09/03/21 | Updated JD Check Valve Kit Added new air bag gauge wheel info Updated calibration instructions Added subframe air bag adjustment Updated hitch tie-down info Added center reel arm info to reel centering section Updated skid shoe info |

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3 - Products Covered & Important Information



IMPORTANT!

This manual covers the RDX Grain Belt header ONLY.



IMPORTANT!

Review the sections of this manual regarding adjustments, settings, leveling, and table height before attempting to operate this header.

Without proper adjustment, damage to the header may occur.



IMPORTANT!

Please wash this equipment after transporting!

Honey Bee Manufacturing will not be responsible for any paint deterioration resulting from salt or harsh chemical corrosion if this equipment is not properly washed after transport. Use a mild soap solution, then rinse thoroughly.

If this equipment is stored near salted roadways through the winter months, it should be cleaned each spring.



IMPORTANT!

If reading this as a digital document:

Please be aware that the table of contents and cross references within this document can be clicked to bring you directly to the contents they reference.

On most software, you can press CTRL+F to bring up a search box that allows you to find specific words or terms within the document.

4 - Purchase Information

Dealers Name: _____

Address: _____

Phone: () _____

Purchase Date: _____

Model: _____

Serial Number: _____

Delivery Date: _____

| Modification Record | |
|---------------------|--------------|
| Date | Modification |
| | |
| | |
| | |
| | |
| | |
| | |

Honey Bee Manufacturing Limited is continually striving to improve its products. We reserve the right to make improvements or changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

5 - Header Identification Number

The serial number plate is located directly on top of the hydraulic bulkhead as shown below. The letters and numbers stamped on the plate identify the header. Please have this serial number on hand when ordering replacement parts. If ever stolen, the serial number is needed for law enforcement to trace.

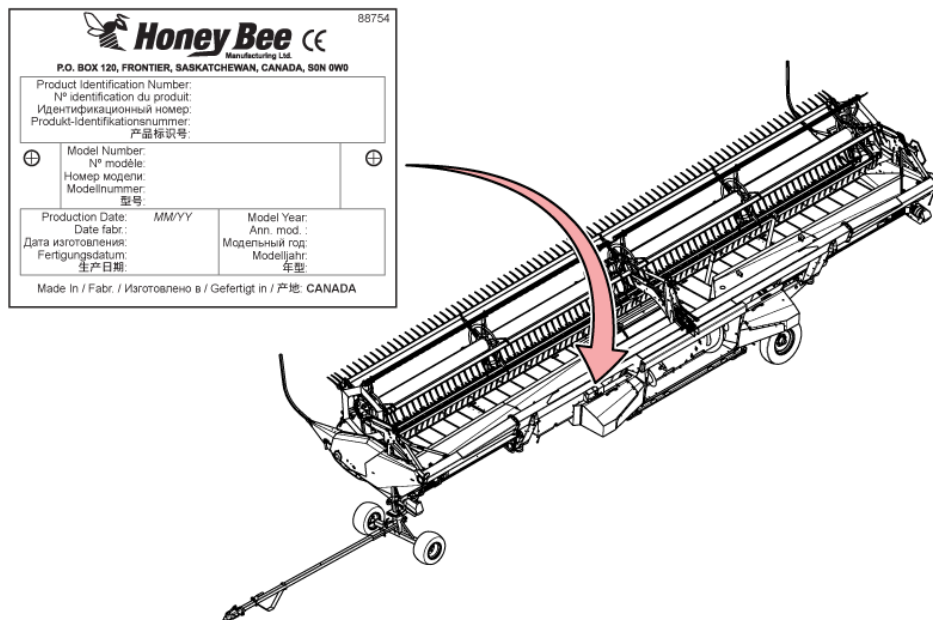


Fig. 1 - Serial number plate location

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6 - Introduction

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

This manual should be considered a permanent part of your header and should remain with the machine when you sell it.

Use only correct replacement parts and fasteners. Metric and inch fasteners require a specific metric or inch wrench.

All names given in this document for equipment components are those in use at the time of design.

Please write down your equipment serial numbers in the Specification section to help in tracing the header should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place away from the header.

6.1 - Directions

Right and left hand sides are determined by facing in the direction the implement will travel when going forward.

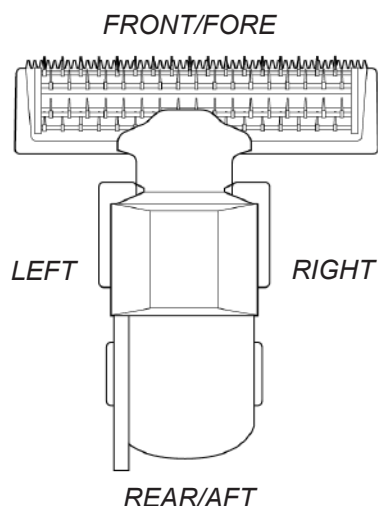


Fig. 2 - Reference directions

6.2 - Warranty

The warranty is provided as part of Honey Bee's support program for customers who operate and maintain their equipment as described in this manual.

Honey Bee Manufacturing Ltd. (Honey Bee) warrants your new Header to be free of defects in material and workmanship, under normal use and service. Obligations under this warranty shall extend for a period of 1 year (12 months) following the date of first use to the original purchaser and shall be limited to, at the option of Honey Bee, replacement or repair of any parts found, upon inspection by Honey Bee, to be defective.

Warranty Claims

The purchaser claiming under this warranty shall report a warranty claim to his Authorized Dealer. The dealer shall complete the claim, on the prescribed form online, for inspection by an authorized company representative. Warranty claims must be submitted online within 60 days of warranty expiration on the Honey Bee Manufacturing Ltd Claim Form (CFI).

Limitations of Liability

This warranty is expressly in lieu of all other warranties expressed or implied and all other obligations or liabilities on our part of any kind or character, including liabilities for alleged representations or negligence. We neither assume nor authorize any person to assume, on our behalf, any liability in connection with the subsequent sale of the Header.

This warranty shall not apply to any Header which has been altered outside the factory in a way that Honey Bee judges to affect its operation or reliability, or which has been subject to misuse, neglect, or accident.

Operator's Manual

The purchaser acknowledges having received training in the safe operation of the Header and that Honey Bee does not assume any liability resulting from the operation of the Header in any manner other than described in this manual.

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7 - Safety

7.1 - Recognize Safety Information



This is a safety-alert symbol. When you see this symbol, be alert to the potential for personal injury. Follow recommended precautions and safe operating practices.

7.2 - Understand Signal Words

The following are safety terms used around the equipment and throughout this manual. Please read and understand their descriptions.



DANGER!

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



WARNING!

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. 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 also be used to alert against unsafe practices.



IMPORTANT!

Warns of potential damage to the header if proper procedures are not followed.



NOTE:

Notifies you of important information to which you should pay attention.

7.3 - Read and Understand Instructions and Warnings

Please read and understand all warnings and safety information contained within this manual and the signs located on your equipment.

You may find additional safety information on after-market equipment not included in this manual.

Only allow trained individuals to operate the header.

Unauthorized equipment modifications can cause injury or equipment failure that is not covered under warranty.

7.4 - Protective Clothing



WARNING!

When working around running equipment, secure all loose items such as long hair, jewelry, or loose clothing are secured so they do not contact moving parts. Failure to do so will result in injury or death.

Wear hearing protection to protect against hearing damage.

Operating equipment safely requires your full attention, do not wear headphones while operating the header.

7.5 - In Case of Emergency



NOTE:

Keep a first aid kit and fire extinguisher with your header at all times. Keep phone numbers for emergency services near your telephone.

7.6 - High Pressure Spray



IMPORTANT!

Avoid spraying yourself, electronics or hydraulic connections with a pressure sprayer.

7.7 - Store the Header Safely

WARNING!

Ensure your header and all attachments are secured when not in use. Keep bystanders away from equipment and storage area. Failure to comply can result in injury or death.

7.8 - Safety Around Moving Parts

DANGER!

Never attempt to service your equipment while in operation. Always shut off the combine and wait for all moving parts to come to a complete stop before approaching the header.

Keep guards and shields in place at all times. Ensure that they are serviceable and installed correctly.

Cutterbar, auger, reel, drive shafts, and drapers cannot be completely shielded due to their function. Stay clear of these moving elements during operation.

7.9 - High-Pressure Hydraulics

DANGER!

High pressure hydraulic leaks can penetrate the skin causing serious injury. Always relieve pressure before disconnecting hydraulic lines and tighten all connections before applying pressure.

Hydraulic leaks can be extremely small and difficult to see. Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.

7.10 - Transporting the Header

IMPORTANT!

When transporting the header, frequently check for traffic from the rear, especially in turns. Always use headlights, flashing warning lights, and turn signals (when turning) day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order, replace if necessary.

Whenever possible avoid transporting the header on public roadways with header attached to the combine.

If combine must be transported with header attached, ensure all warning lights are operating, and reflective material is clean and visible.

Completely retract and lower the reel before transporting.

Use of a spotter or pilot vehicle is recommended on busy, narrow or hilly roads and when crossing bridges.

Drive at a speed safe for conditions.

Do not exceed 20 mph (32 km/h) when transporting the header on the optional transport package.

7.11 - Parking the header

WARNING!

When parking the header, ensure it is parked on firm level ground (0% grade). Parking on a slope can result in the header rolling away causing equipment damage or injury/death.

7.12 - Using Correct Torque Values

IMPORTANT!

It is extremely important that you use the correct torque values when servicing your header. Failure to follow the torque recommendations on page 138 can result in equipment damage.

7.13 - Practice Safe Maintenance



WARNING!

Before attempting to service your equipment, ensure that you fully understand any procedure that you are about to attempt.

Ensure all equipment is secured against sudden drops.

Keep the work area clean and dry.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove buildup of grease, oil, or debris.

If welding on the header, first disconnect battery ground cable (-). before making adjustments to electrical systems or welding on the header.

The header must be lowered to the ground before servicing. If the work requires that the header or reel be lifted, provide secure support. If left in a raised position, hydraulically supported devices can settle or drop suddenly.

Do not support the header on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a header that is supported only by a jack.

Do not attempt to clean drive belts or drapers with flammable cleaning solvents.

7.15 - Keep Equipment Clean



IMPORTANT!

Inspect and clean your equipment before every use. Clear away all material buildup. Pay special attention to all moving parts such as drive belts, drive shafts, and bearings. Failure to keep the equipment clean can result in fire.

7.14 - Fire Safety



WARNING!

Build up of chaff and crop debris near moving parts is a fire hazard. Check and clean these areas frequently. Before inspection or service, shut off engine, engage the parking break, remove the key and wait for all moving parts to come to a stop.

Keep a fire extinguisher with your equipment at all times and ensure the operator is educated in its operation.

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8 - Specifications

8.1 - Dimensions & Specifications

| Model | 25' | 30' | 36' | 40' | 45' | 50' |
|--|---|-----------------------|------------------------|------------------------|------------------------|------------------------|
| Total Width (excluding transport and reflectors) | 26.4 ft (8.05 m) | 31.4 ft (9.57 m) | 37.4 ft (11.40 m) | 41.4 ft (12.62 m) | 46.4 (14.14 m) | 51.4 (15.67 m) |
| Cutting Width | 25 1/4 ft (7.70 m) | 30 1/4 ft (9.22 m) | 36 1/4 ft (11.05 m) | 40 1/4 ft (12.27 m) | 45 1/4 ft (13.79 m) | 50 1/4 ft (15.32 m) |
| Header Weight* - Operating Configuration | 6199 lbs 2812 kg | 6771 lbs 3071 kg | 7450 lbs 3379 kg | 7916 lbs 3591 kg | 8489 lbs 3851 kg | 9062 lbs 4110 kg |
| Header Weight* - Transport Configuration | 6984 lbs 3168 kg | 7556 lbs 3427 kg | 8235 lbs 3735 kg | 8701 lbs 3947 kg | 9274 lbs 4207 kg | 9847 lbs 4466 kg |
| Optional Transport Package | 785 lbs 356 kg | | | | | |
| Optional Cross Auger | Hydraulically driven cross auger. | | | | | |
| Cutting System | Mechanically driven knife drive with SCH sections. | | | | | |
| Drapers | Mechanically driven with simple to use tensioning system. | | | | | |
| Draper Shield | A new patented system that directs the flow of crop to the center deck without the need for moving parts | | | | | |
| Reel | Hydraulically driven, with multiple crop settings and finger spacing options. Automatic reel speed control | | | | | |
| Transport | Optional heavy duty road transport with electric brakes Optional transport with no brakes (not for highway use). | | | | | |
| Record your equipment serial numbers below for reference in the event of service or theft. | | | | | | |
| Header Serial Number: | | | | | | |
| Reel Serial Number | | | | | | |
| These specifications are subject to change without notice or obligation. | | | | | | |
| *Note: The weights listed above are based on the most common equipment configuration. Additional installed options or aftermarket attachments will increase the weight listed above. | | | | | | |

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9 - Safety Decal Locations

Please take a moment to walk around your equipment and familiarize yourself with the safety decals and features on your equipment. Refer to the figure below and the decal list on the following pages for assistance.

Please ensure that you fully understand all safety warnings and instruction before operating this equipment.

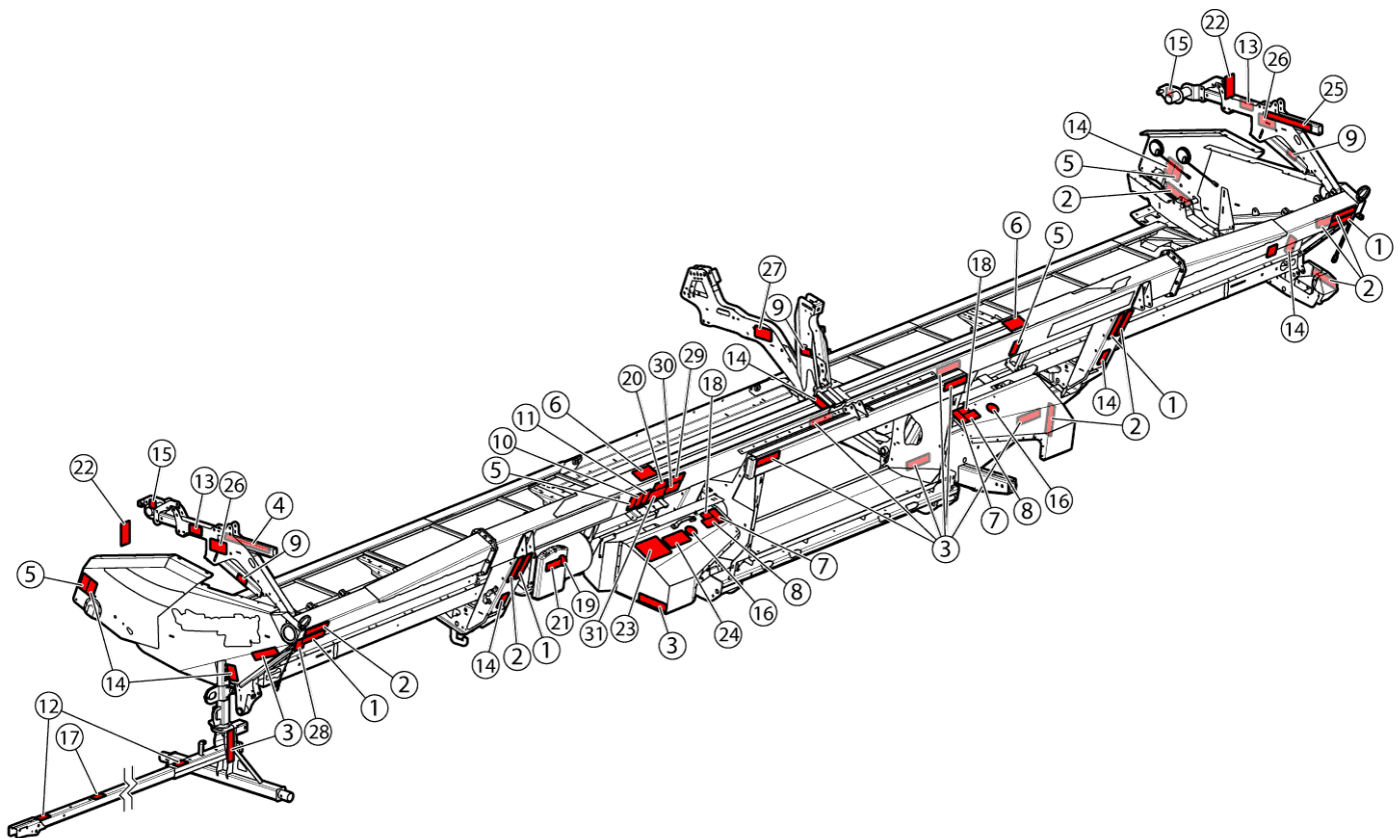


Fig. 3 - Decal Locations



Fig. 4 - Red/orange reflector - #27360



Fig. 5 - Red reflector - #28386



Fig. 6 - Yellow reflector - #28387

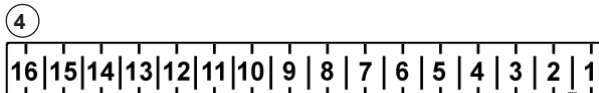


Fig. 7 - Left end reel fore/aft Indicator - #79017



Fig. 8 - Crush warning keep safe distance - #87233



Fig. 9 - Fall warning, do not step here - #87235



Fig. 10 - Rotating shaft warning do not touch - #87237



Fig. 11 - Entanglement warning do not touch - #87239

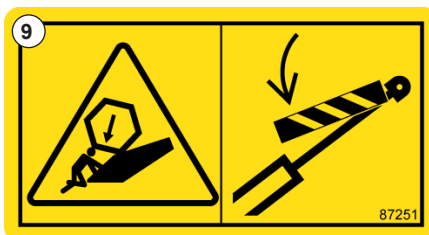


Fig. 12 - Reel drop warning, lock reel arm when servicing - #87251



Fig. 13 - Turn off equipment and read manual before servicing - #87253



Fig. 14 - Read manual before operating - #87254



Fig. 15 - Crash warning, do not exceed 32km/h (20 mph) - #87255



Fig. 16 - Rotating part warning turn off equipment and read manual before servicing - #87259



Fig. 17 - Pinch warning, keep away from moving parts - #87263

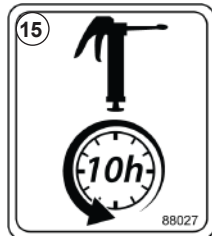


Fig. 18 - Grease every 10 hours - #88027



Fig. 19 - This is not a step
- #89214

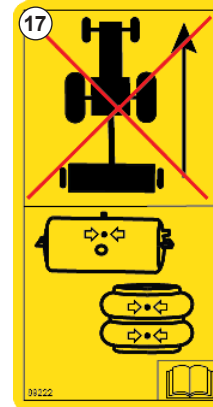


Fig. 20 - Ensure air system is fully pressurized before transporting - #89222

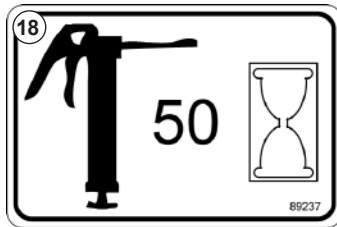
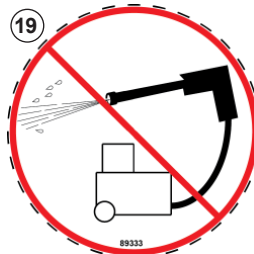


Fig. 21 - Grease every 50 hours
- #89237



*Fig. 22 - Do not pressure wash
this area - #89333*



Fig. 23 - Do not pressure wash this area - #89333



Fig. 24 - Operator manual location - #89237



Fig. 25 - Secure reel lines before operating - #102897

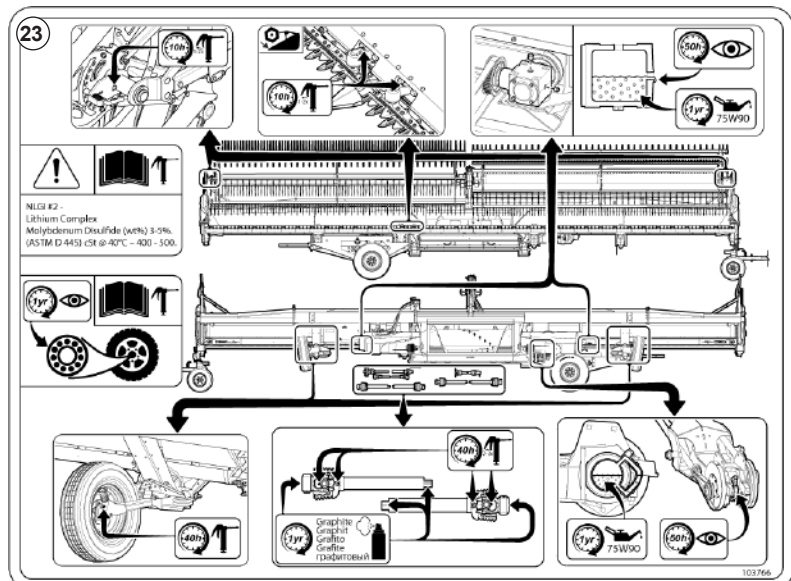


Fig. 26 - Basic lubrication instructions - #103766

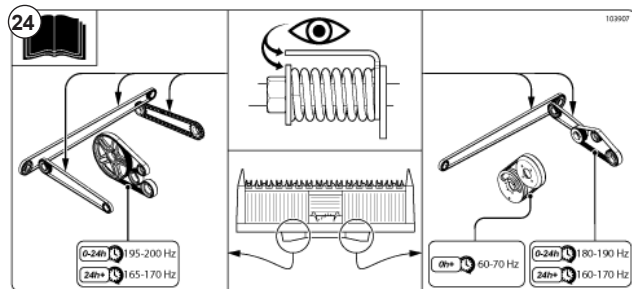


Fig. 27 - Basic belt tension instructions - #103907

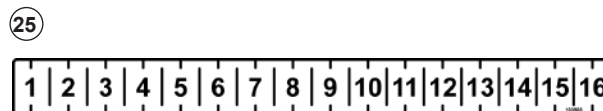


Fig. 28 - Right hand reel fore/aft indicator

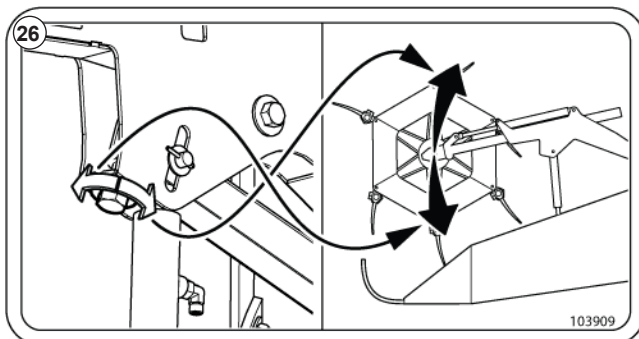


Fig. 29 - Left and right end reel arm height adjustment instructions - 103909

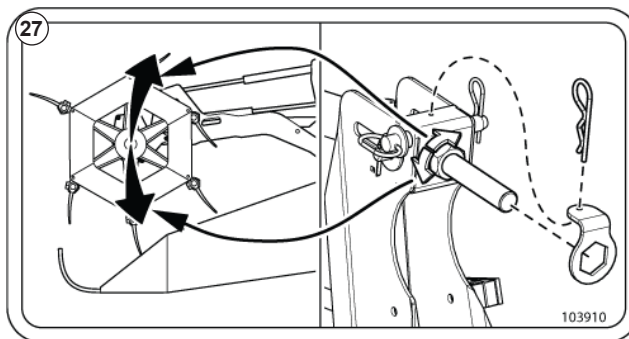


Fig. 30 - Centre reel arm height adjustment instructions - 103910

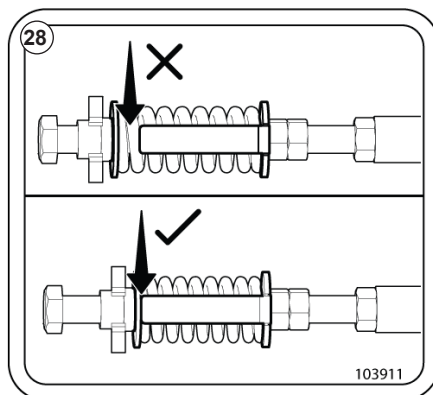
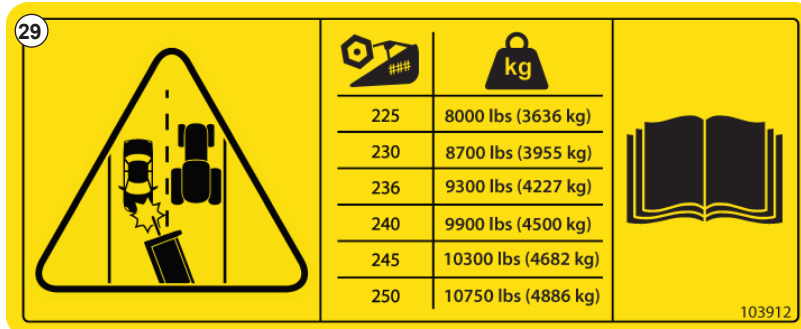


Fig. 31 - Draper tension instructions - 103911



| | kg |
|-----|---------------------|
| 225 | 8000 lbs (3636 kg) |
| 230 | 8700 lbs (3955 kg) |
| 236 | 9300 lbs (4227 kg) |
| 240 | 9900 lbs (4500 kg) |
| 245 | 10300 lbs (4682 kg) |
| 250 | 10750 lbs (4886 kg) |

Fig. 32 - Transport weight warning. Be aware of equipment weight and read manual before transporting - #103912

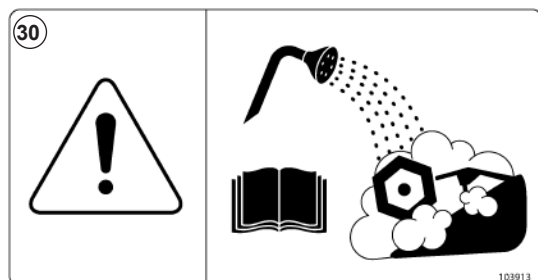


Fig. 33 - Wash equipment before use - #103913



Fig. 34 - Tip warning, ensure combine is properly ballasted prior to operating - #103914

10 - Equipment Overview

Please take a moment to familiarize yourself with the header, its components and modes of operation.

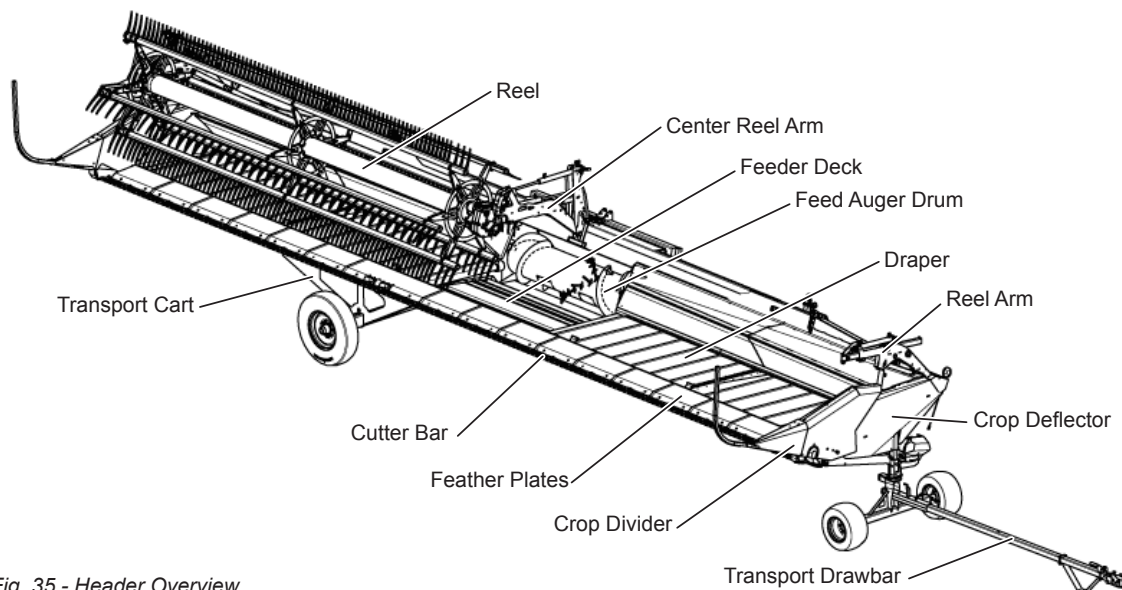


Fig. 35 - Header Overview

10.1 - Optional Transport Package

Featuring removable transport cart with minimal impact on balance, weight and function. The full transport can be safely removed and installed by a single person.

The transport is designed to be towed by a vehicle or combine when not on the header.

10.2 - Automatic Header Height Control (HHC)

The Header Height system relays the angle between the header and the subframe then relays it back to the combine. This allows the combine to adjust feeder house height and tilt (if equipped), to maintain cutter bar clearance from ground.



NOTE:

Your combine must be equipped with auto lateral tilt for the header to function properly with automatic header height control.

10.3 - Interchangeable Combine Adapters & Drive Pulleys

The header is designed to be easily adaptable to fit all major brands of combine. Faceplates, multi couplers, PTO shafts, drive pulleys and adjustable auger strippers are available for JD, CNH, LEXION, Versatile, Gleaner, Massey Ferguson, Rostselmash and Fendt Ideal combines.

10.4 - Drive System

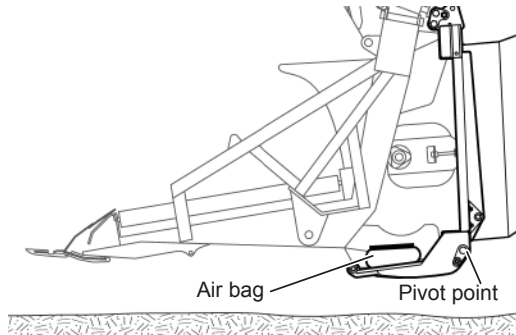
Most components on the header are mechanically driven, excluding the reel and its related functions (Fore/Aft, Reel Up/Down) and hydraulic header tilt.

There is no hydraulic pump or tank on the header. Hydraulic devices on table are powered using combine hydraulics.

The mechanical drive system is designed to synchronize knives in opposing motion to minimize vibration transferred to frame and combine.

10.5 - Suspended Subframe

The suspended subframe assists in smoothing out the motion of the table and senses when the entire header is pushed upwards by the cutter bar or gauge wheels. The suspended subframe sensors can be used in conjunction with auto header height control.



10.6 - Gauge Wheels

Gauge wheels work with the subframe suspension to help float the header. The gauge wheel air pressure must be manually filled via the port located on the strut above each gauge wheel.

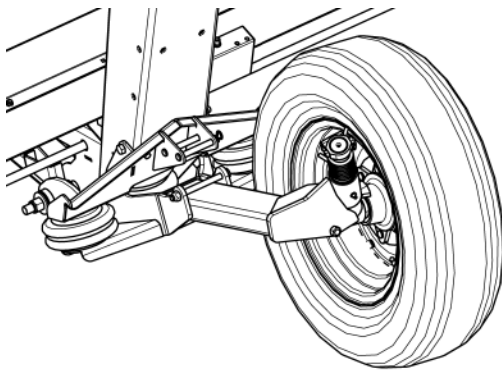


Fig. 36 - Gauge wheel

11 - Before First Use and Pre-Season Inspection

11.1 - Combine Specific Header Modifications



IMPORTANT!

Some combine configurations will require special modifications to the header prior to mounting. It is extremely important to read this section and follow all applicable steps prior to installing/operating the header.

11.1.1 - 2016 or Newer JD Combines

If installing the header on a 2016 or newer John Deere Combine, a check valve must be installed on the header to ensure proper operation. Follow the instructions in section 21.7 on page 137 prior to mounting the header.

11.1.2 - Combines with 'Bang-Bang' or 'Switching' style directional control valves.

If installing the header on a combine equipped with 'Bang-Bang' style directional control valves, the BeeBox should be installed to prevent header height 'hunting'. Follow instructions in section 21.6 on page 136 prior to mounting the header.

11.1.3 - Gleaner/Massey Ferguson/Challenger Combines

If installing the header on a Gleaner, Massey Ferguson, or Challenger combine, ensure that the proper bezel configuration is installed on the faceplate prior to mounting the header to the combine. See section 21.1 on page 128 for details.

11.2 - Header Inspection

Dirt & Material Build-up

Inspect the header for dirt, material buildup and obstructions then clean/clear as necessary (inside drapers, under side shields, around drive belts, feeder house etc.).

Cutting System

Inspect the cutting system for signs of damage, wear or material buildup.

Check for broken knife sections, guards & hold-downs.

Ensure knife timing is correct. (See Fig. 168 and Fig. 169 on page 97)

Drive Belts

Ensure drive belts are undamaged, cleaned, properly aligned and tensioned. See section 19.5 on page 77 for details.

Drapers

Check the three draper belts for damage, debris or uneven wear. Replace when required.

Ensure the draper belts are properly tensioned and that they are tracking properly. See section 19.5 on page 77 for details.

Crop Dividers

Ensure the crop dividers are properly installed & free from material buildup. (See Fig. 41 on page 35)

Gauge Wheels

Inspect the gauge wheels for material buildup and ensure the wheels are adequately inflated.

Safety Shields

Inspect the header and ensure all protective shields are in place. Replace all damaged or missing shields. Inspect the shields for missing/loose fittings.

Header Height Control Sensors

Ensure header height sensors are installed on the left and right sides of the subframe and undamaged. Replace if necessary. Clean away material buildup.

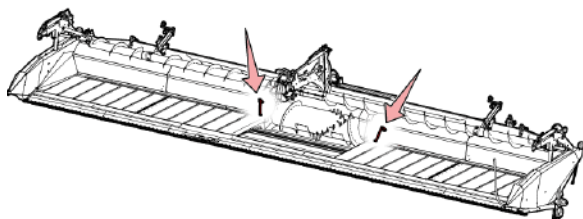


Fig. 37 - Header Height Control Sensor Locations

Support Straps

There are heavy-duty permanent fabric support straps located around the header, these straps allow added support while also allowing header to flex where needed. At the beginning of each season, inspect these straps for wear or damage.

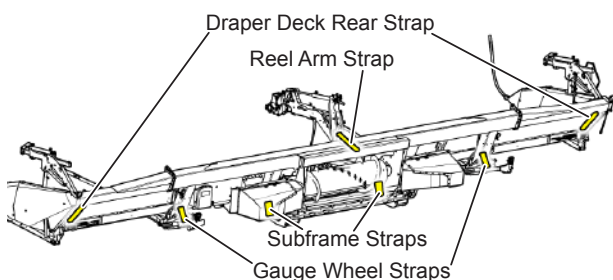


Fig. 38 - Support Strap Locations

Combine Feeder house

Inspect the combine feeder house for material buildup and clean as necessary.

Header Feed Auger

For initial setup ensure the feed auger drum is in its fully forward position & that it will not come into contact with any other parts of the equipment during operation. This can be adjusted later to suit the combine. See section 19.11 for details.

Reel

Ensure the reel bats are in their operational position.

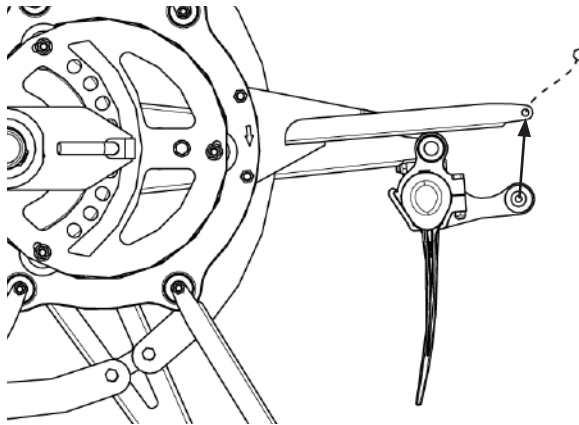


Fig. 39 - Raise reel bat to operational position

Multicoupler

Thoroughly inspect the connection faces on the header and the combine sides of the hydraulic multicoupler. Ensure the o-rings are in place and clean all debris from the fittings.

Inspect the hydraulic hoses and replace/repair as needed.

Verify the header is equipped with the appropriate multicoupler, drive shafts, drive pulleys and adapter plate for use with your combine model.

Lubrication

Check fluid levels on all gearboxes.

Apply grease where needed as outlined in section 19.20 on page 114 section of this manual.

Optional Transport Cart

Check the transport cart axle to ensure the wheel axle bolts are installed. If these bolts are removed, the wheels may fall off during transport.

Take Note

...of items that require attention after the header is connected to the combine as outlined in the combine operator's manual.

11.3 - Before First Use and Pre-Season Checklist

Combine Specific Header Modifications

- ☐ **2016 or newer JD Combines:** Install line lock kit as described in section 21.7 on page 137
- ☐ **Combines with 'Bang-Bang' style directional control valves:** Install the BeeBox as described in section 21.6 on page 136
- ☐ **Gleaner/Massey Ferguson/Challenger Combines:** Ensure correct bezel is installed as per section 21.1 on page 128 for details.
- ☐ Inspect the combine feeder house for material buildup and clean as necessary.
- ☐ Calibrate combine as per combine operator's manual

Header Checklist

- ☐ Inspect the header for dirt, buildup and obstructions then clean as necessary (inside drapers, under side shields, feeder house etc.).
- ☐ Inspect the cutting system for signs of damage, wear or material buildup.
- ☐ Ensure knife timing is correct. (See Fig. 168 and Fig. 169 on page 97)
- ☐ Ensure drive belts are undamaged, properly aligned & tensioned. See section 19.5 on page 77 for details.
- ☐ Inspect feeder draper deck drive chain and lubricate annually. See section 19.20.6 on page 114
- ☐ Check the three draper belts for damage or uneven wear. Replace when required.
- ☐ Ensure the draper belts are properly tensioned and that they are tracking properly. See section 19.7 on page 88.
- ☐ Ensure the crop dividers are properly installed & free from material buildup. (See Fig. 41 on page 35)
- ☐ Ensure all protective shields are in place. Replace all damaged or missing shields. Inspect the shields for missing/loose fittings.
- ☐ Ensure header height sensors are installed and undamaged. Replace if necessary. Clean away material buildup.
- ☐ There are a number of heavy-duty permanent fabric support straps located around the header, these straps allow added support while also allowing header to flex where needed. At the beginning of every season, inspect these straps for signs of wear or damage.
- ☐ Ensure the feed auger drum is in its fully forward position & that it will not come into contact with any parts of the header or combine during operation. See section 19.11 for details.
- ☐ Inspect the hydraulic tilt cylinder (if installed) or manual tilt link (if installed) to ensure it is in the correct position for your combine. See section 19.13 on page 110 for details.
- ☐ Ensure the reel bats are in their operational position.
- ☐ Thoroughly inspect the hydraulic multicoupler. Clean all debris from the fittings.
- ☐ Inspect the hydraulic hoses and replace/repair as needed.
- ☐ Verify the header is equipped with the appropriate multicoupler and adapter plate for use with your combine model.
- ☐ Check fluid levels on all gearboxes & apply grease where needed as outlined in section 19.20 on page 114 section of this manual.
- ☐ Ensure transport cart axle bolts are installed. If these bolts are removed, the wheels may fall off during transport.
- ☐ Ensure gauge wheels are lowered from their transport position to their operational position as outlined in 21.8 on page 138
- ☐ Take note of items which require attention after the header is connected to the combine as outlined in the combine operator's manual.

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12 - Mounting the Header to the Combine

12.1 - Combine Preparation

Follow all relevant instructions outlined in your combine operators manual prior to hooking up the header.

Check all locking mechanisms and/or lock pins on the Combine's Feeder House to ensure they are working properly and will not interfere with the initial mounting of the header.

If the combine has a hydraulic tilt faceplate, tilt the face plate to an angle that allows easy hookup to the header.



WARNING!

If the feeder house is tilted forward, the front of the header may dig into the ground when the table is lifted. If the feeder house is tilted too far back, the rear of the header may dig into the ground and damage to the header may occur.

4. Install the crop dividers, and crop divider pipes (or snub extensions) to the ends of the table by sliding the two notched tabs on the bottom rear of each divider onto the two slots at the bottom of the frame face.
5. Lock each divider in place securing the provided nuts, washers and bolts as shown below.

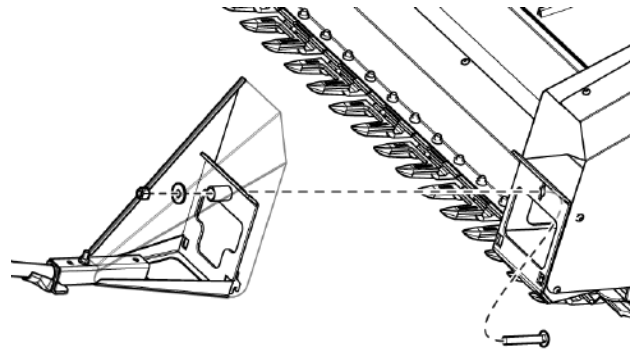


Fig. 41 - Install Crop Divider

12.2 - Header Preparation

1. Park the header on flat, hard, level ground.
2. Inspect the header and remove all tie-downs and wires used to secure the equipment during the shipping process.
3. Raise the front reel bats into operational position & secure each end to timing arms using a 5/16" x 1-1/2" UNC bolt and 5/16" UNC C-Lock nut.

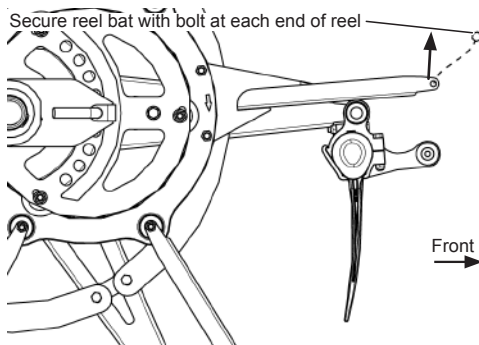


Fig. 40 - Raise reel fingers to operation position

12.3 - If Optional Transport Package is Installed



IMPORTANT!

Ensure the header rests on the ground to take the tension off the lock pins.

1. Remove the red draw bar holder that extends below one of the struts on the left side of the header. Place in a secure storage location.

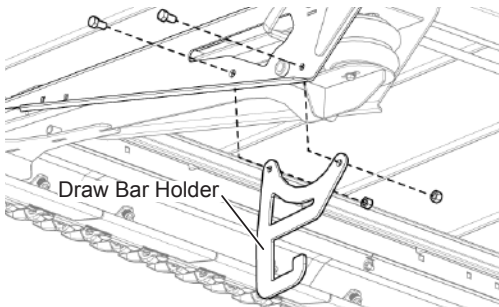


Fig. 42 - Remove Draw Bar Holder

2. Disconnect the header electrical cable from the draw bar axle.
3. Remove the pin securing the draw bar axle to the header frame. It will drop away when the header is lifted in a later step.

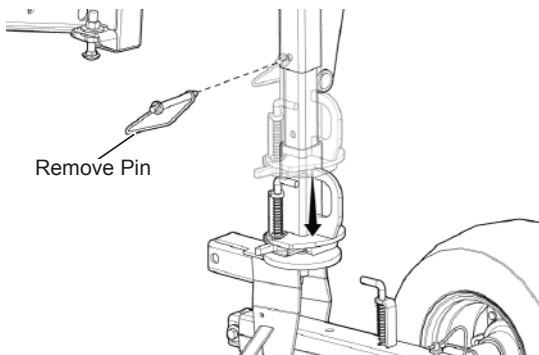


Fig. 43 - Remove Draw Bar Axle Pin

4. Release the two lock pins by first lifting up on the pin lock (A), then lift the handle back towards the rear of the header (B) then pull the lock pin out from between its lock ribs (C).

Disconnect the transport's electrical cable from the header.

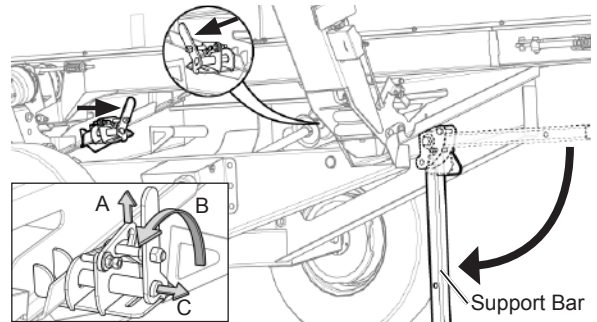


Fig. 44 - Unlock Transport & Lower Support Bar

5. Once the header is mounted to the combine and raised (see section 12.4), use the hand crank on the transport cart to lower it to the ground. Disconnect the straps.

12.3.1 - Transport Storage

The draw bar and transport can be hooked together and towed to a storage location.

1. Lock support bar in horizontal position.
2. Insert the support bar into the draw bar axle and lock in place with pin.

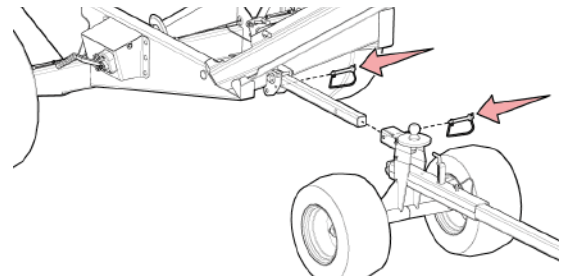


Fig. 45 - Transport Storage Position



WARNING!

Do not exceed 20 mph (32 km/h) when towing the transport cart. Always follow local regulations.



NOTE:

A dolly wheel hitch extension kit is available via the Honey Bee parts department. It extends the dolly wheel hitch by approximately 6 ft (1.83 m). The part number for the kit is G210306.

12.4 - Mounting the Header to Combine

NOTE:

If the optional transport package is installed, unlock the transport cart and disconnect the cart's lift straps prior to lifting the header (see section 20.6).

1. Position combine directly behind the Header with the Feeder House aligned as closely as possible, on center, with the Feeder House Adapter on the Header.
2. Lower the combine feeder house and slowly drive the Combine forward until the top of the Feeder House is able to cradle the top Cross Member of the Subframe on the Header.

IMPORTANT!

Ensure the combine feeder chain has a minimum of 1/2" clearance from the feed auger drum.

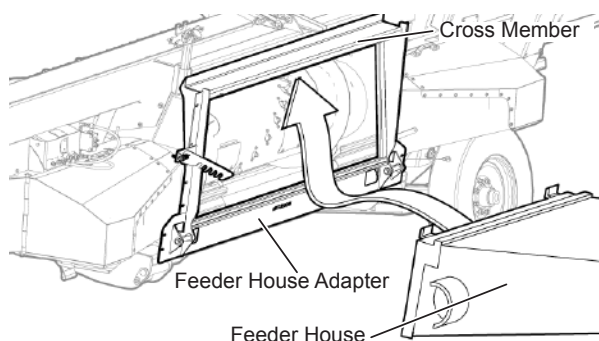


Fig. 46 - Insert Feeder House into Adapter Plate

3. Slowly raise the Feeder House until the it makes contact with the inside top of the Feeder House Adapter.
4. Check clearance and alignment of the Feeder House to the Feeder House Adapter, the Adapter Frame & the Feed Auger Drum. If required, adjust the Feed Auger Drum to a more forward position in the Adapter (See section 14.2 on page 49 for details).

5. Check feeder house alignment and clearances, start the engine and raise the Feeder House (and header) to its fully raised position.



IMPORTANT!

If Feeder House and the Feeder House Adapter ARE NOT properly aligned, repeat this section of the manual.



WARNING!

To prevent injury, shut OFF engine, set parking brake, and remove the key before exiting the cab. Engage the feeder house cylinder safety locks before approaching the header.

6. Secure the header by inserting all lock pins and/or header adapter locking bolts as described in your Combine owner's manual.



WARNING!

Ensure all locks are properly secured before proceeding.

12.5 - Forklift Unloading Attachment

If no transport cart was purchased with your header, you can order the forklift unloading frame. The unloading frame angles the header when on a transport trailer which keeps it within the regulation width required for highway transport. The frame must be removed before lifting the header with your combine.



WARNING!

To prevent sudden drops, ensure the combine feeder house is fully secured to the header and that the lifting frame is sitting on the ground before disconnecting it.

To remove the lifting frame:

1. Remove the fasteners from the locations shown in the illustration below.
2. Slowly lift the header with the combine. If the lifting frame moves, stop immediately and find the cause.

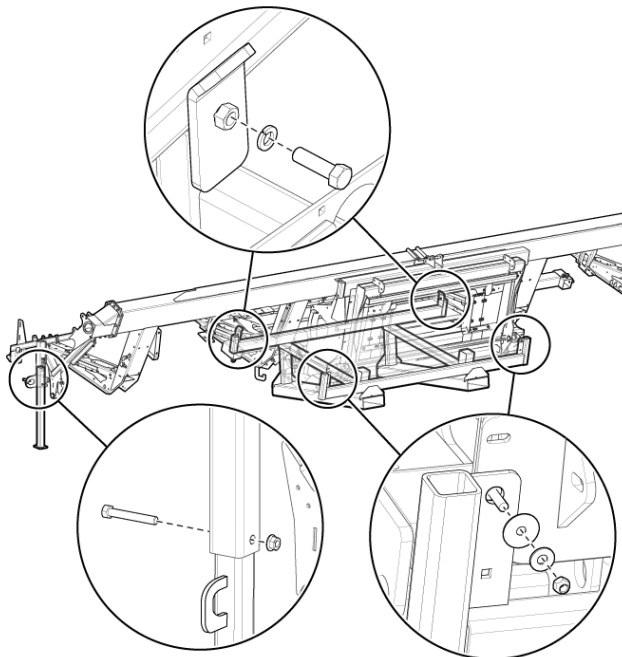


Fig. 47 - Disconnect lifting frame

12.6 - Hydraulic & Electrical connections

NOTE:

The multicoupler and harness design will vary between different combine makes.

1. Connect the combine electrical harness and hydraulic multicoupler to the header.

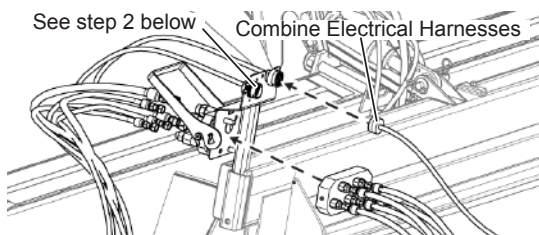


Fig. 48 - Connect Multicoupler & Electrical Harness

2. If the hydraulic tilt option was purchased, connect the hydraulic tilt switch box harness to the connector on the multicoupler (see Fig. 48 above). Route the switch box cable into the combine cab, taking care to keep the cable away from hot or moving parts. Secure the switch box in the cab with the provided suction cup.
If the manual tilt cylinder option was purchased, install the jumper on the connector on the multicoupler (see Fig. 48 above).

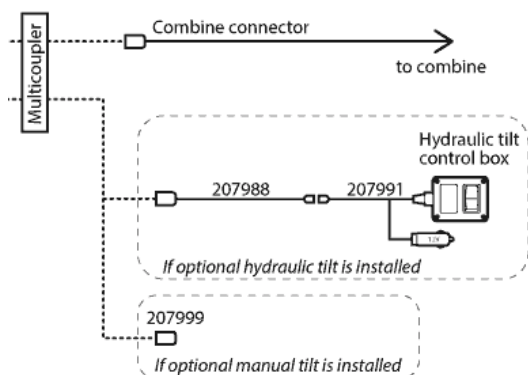


Fig. 49 - Multicoupler connections for tilt option

3. If using a combine (for example all Gleaner S8 and older combines) with 'Bang-Bang' style direction hydraulic valves, install the BeeBox as described on page 136.

NOTE:

Ensure everything is clean and dust free prior to installation using the suction cup. The suction cup can only be installed on a flat window.

IMPORTANT!

When routing cables around the combine, always ensure that there are no high temperature or moving parts that might damage or interfere with the cable. To prevent equipment damage, always secure cables with zip ties or cable hold-downs.

IMPORTANT!

Check and ensure the cables and hoses are not routed in areas where they may become pinched when adjusting the feeder house position.

NOTE:

If operating an older New Holland header with a 10 volt header height control system, the combine will require the 10 volt kit from HeadSight to make the system compatible with the Honey Bee header. You will require 1 x INSIGHT and 1 x QB0-NHCR-31C harness to be installed between the header and the combine adapter harness following the installation instructions from Headsight.

Please contact HeadSight for information on this system.

12.7 - Drive Shaft Hookup

1. Connect the telescoping drive shaft on the left side of the feeder house adapter and attach to feeder house drive shaft. Verify the quick attach collar is fully locked on drive shaft.



IMPORTANT!

A pry bar may be required to help align the drive shaft with the combine's output shaft. Do not damage the grease zerk!

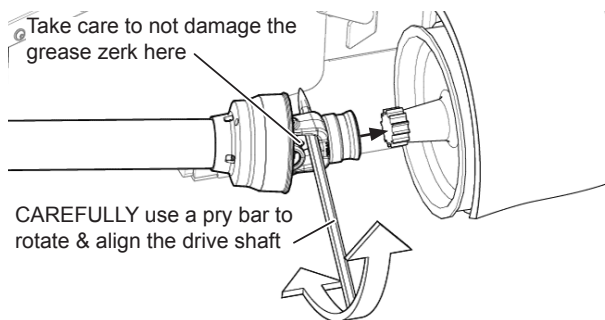


Fig. 50 - Connect Drive Shafts (both sides of feeder house)



NOTE:

To connect the PTO drive line, push the button on the collar and push the PTO onto the shaft. It will click as the collar snaps into place.

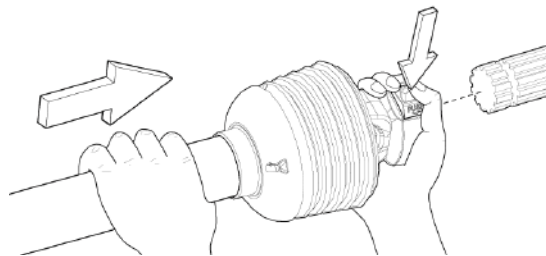


Fig. 51 - Connect PTO

2. Repeat these steps for the drive shaft on the right side of the feeder house.

3. Secure the drive shaft shields in place using their attached safety chains as shown below. This will prevent the shields from rotating and wearing out prematurely.

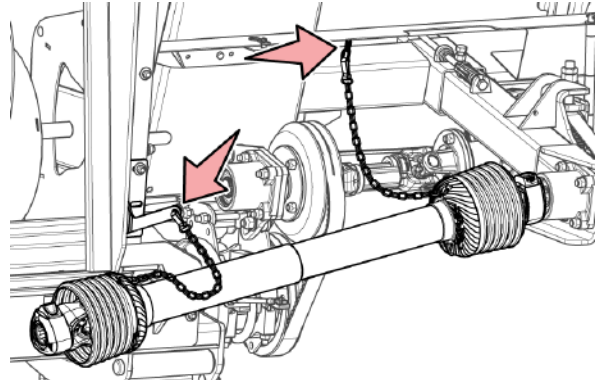


Fig. 52 - Secure drive shaft chains in place



WARNING!

Ensure drive shields are secured in place.



IMPORTANT!

Ensure the driveshaft safety chains are not too tight or too loose. If too tight, the driveshaft shield may become damaged. If too loose they will catch on rotating shafts. Alternate mount locations are available on the mount shields if needed.

12.8 - Gauge Wheels



WARNING!

Ensure the header is lowered to the ground so the gauge wheel support strap is slack, shut down the combine and engage the parking brake prior to servicing the gauge wheels.

Lower the gauge wheels from their transport position to their operational position:

1. Remove the pin holding the support strap in the transport position

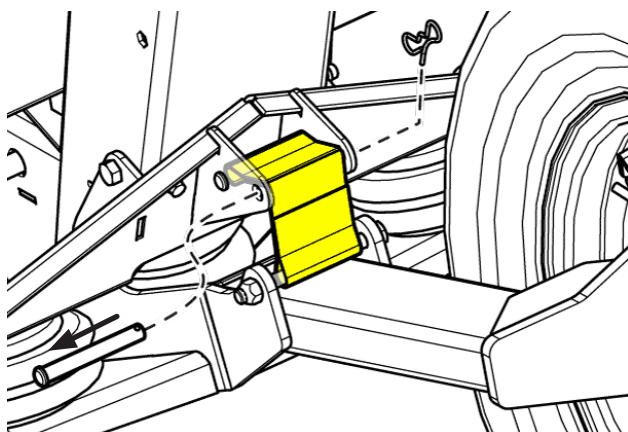


Fig. 53 - Support strap in transport position

2. Reinstall the pin once the strap has been move to the operational position.

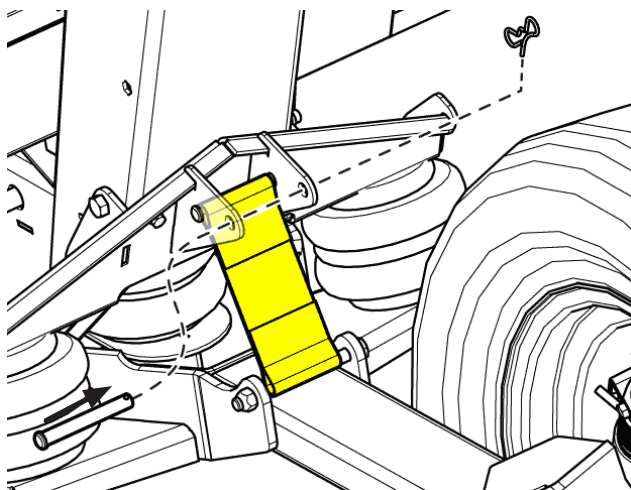


Fig. 54 - Support strap in operation position

12.9 - Mounting Checklist

- ☐ Combine feeder house securely connected to adapter plate on header with all locks in place.
- ☐ Electrical connection between header and combine in place.
- ☐ Hydraulic connection between header and combine in place.
- ☐ Drive shafts (PTO) connected to left and right sides of combine feeder house.
- ☐ Drive shaft covers are chained in place.
- ☐ Reel fingers in operational position.
- ☐ Optional Draw bar front axle and Transport cart removed and stored.
- ☐ If optional transport cart was used and optional skid shoes were purchased, one shoe must be installed on the strut to which the transport was attached (see section 14.6.1 on page 51).
- ☐ Red draw bar storage bracket and hold-down removed (if applicable).
- ☐ All safety shields and decals in place and undamaged.
- ☐ Hydraulic tilt control switch installed in combine cab (if purchased).
- ☐ Gauge wheels in their operational position.
- ☐ Hydraulics and air lines inspected for damage or leaks.

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13 - Combine Calibration

Combine calibration should be performed prior to operating your header for the first time.

NOTE:

Do not use header float (accumulator) functions with the header unless otherwise instructed.

IMPORTANT!

Adjusting tilt and height settings may deactivate automatic functions. Auto header height may need to be reactivated on some combines that don't allow manual adjustments while header height is engaged.

13.1 - Combine Feeder House Speed

IMPORTANT!

Machines equipped with a variable-belt drive feeder house are designed for use with a corn head or row-crop head. Using variable-belt drive at excessive speeds when the combine is equipped with a cutting platform can cause vibration and excessive wear to cutterbar parts.

If your combine's feeder house is configured to run at multiple speeds, ensure it is set to run at the 'Grain' speed.

Recommended Feeder House Output Speed

| | |
|--|-------------|
| New Holland / CASE IH | 575 RPM |
| CASE IH 2100-2500 | 540 RPM |
| CLAAS | 767 RPM |
| AGCO (Gleaner, Challenger, Massey Ferguson, Fendt) | 610-620 RPM |
| John Deere S/T Series | 490 RPM |
| John Deere 50/60/70 Series | 520 RPM |
| Rostselmash | 528 RPM |

IMPORTANT!

Do not exceed recommended RPM or knife drive failure may occur.

13.2 - Verify Header Height Sensor Voltage

Ensure the header height sensor voltages fall within the range outlined in section 14.3 on page 50. If necessary, adjust the sensor positions as outlined in section 19.17 on page 112.

13.3 - Combine Feeder House Angle

The Combine Feeder House must be tilted at a specific angle for optimal header operation. To set proper operation angle.

1. Fully retract the hydraulic tilt cylinder to tilt the header back.
2. Ensure the gauge wheels are in operational position and the left and right air systems are pressurised to 90psi. The air pressure gauge and fill port are located above the left and right gauge wheels on the rear of the header.

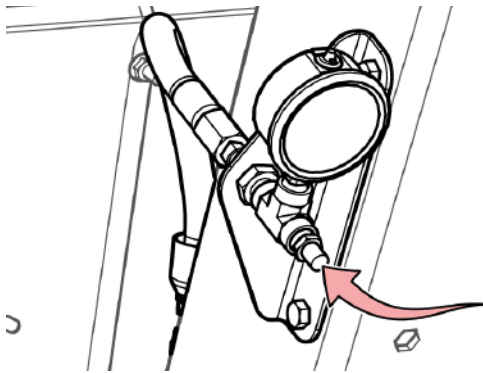


Fig. 55 - Air system port and gauge (left side shown)

3. Lower the table until the cutter bar just touches the ground.



IMPORTANT!

Do not lower the header too far. This will result in the entire table tilting backward and may damage the header.



WARNING!

Shut OFF engine, set parking brake, and remove the key before exiting the cab.

4. Measure down to the ground from the rear pin of the knife paddle. There should be an 6-7" (15.4 - 17.8 cm) space when at the optimal feeder house angle.

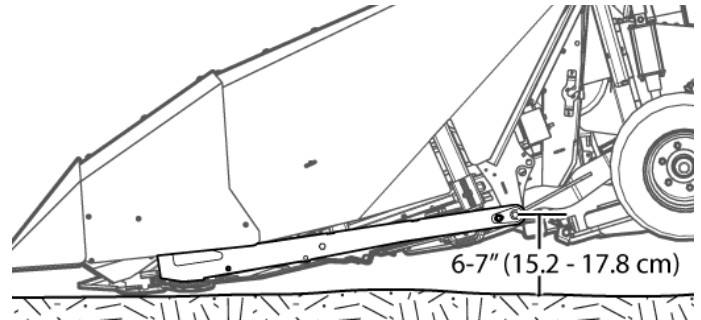


Fig. 56 - Optimal Feeder House Angle

- If the paddle 'heel' is more than 6-7" (15.2 - 17.8 cm) above the ground, the feeder house is tilted too far forward and the cutter bar guards will dig into the ground.
 - If the paddle 'heel' is less than 6-7" (15.4 - 17.8 cm) above the ground, the feeder house is not tilted forward enough and the rear of the paddle will drag on the ground.
5. Adjust the feeder house angle as necessary and re-test the angle as outlined in the previous steps. Tilt can be adjusted to suit ground conditions and habits of the operator.

13.4 - Float

For all combine makes except for New Holland and CaseIH, float interferes with proper automatic header height functionality and should be disabled on the combine (accumulators turned off).

Refer to your combine manual to see if your combine has the float option.



IMPORTANT!

Combine float systems will actively interfere with the auto header height control system. Disable the combine's float system prior to operating the header or damage to your equipment may result.

13.4.1 - CaseIH Pressure Float Override

Pressure float override momentarily turns on float when there is upward pressure on the bottom of the cutter bar. The value should be set approximately 50-60%. This can protect the cutter bar from being bent if the header height is not reacting quickly enough to terrain changes.

13.4.2 - New Holland Press. Override Threshold

The pressure override threshold should be set to the upper end of its range to about 250-300 PSI. If the auto header height control disengages unexpectedly, the override threshold can be raised even higher.



NOTE:

Do not use header float (accumulator) functions. The only known exception is Gleaner combines, where some accumulator float can be used after all calibrations are complete (~25% on).

13.5 - Combine Calibration Position

It may be useful to park the combine over a ditch in order to allow a larger space below the header. This will allow the header to go through its full range of motion.

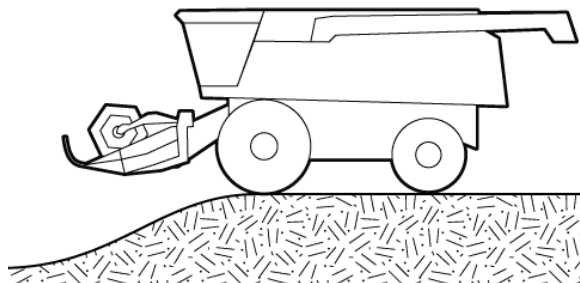


Fig. 57 - 2.0 V - 8 Bars

13.6 - Hydraulic Header Raise and Drop Rates

Raise Rate: Set your combine's raise rate so it takes 5 seconds to lift the header from the lowest position to the highest position.

Drop Rate: Set your combine's drop rate so it takes 7 seconds to lower the header from the highest position to the lowest position.

13.7 - Combine Header Height Calibration

- Make sure the header lateral tilt is level and the header and combine are sitting on a level surface.
- If Hydraulic tilt cylinder is installed ensure the tilt cylinder is fully retracted to tilt the header back.
- Raise the header off the ground and ensure the left and right air systems are pressured to 90 psi. The air pressure gauge and fill port are located above the left and right gauge wheels on the rear of the header.

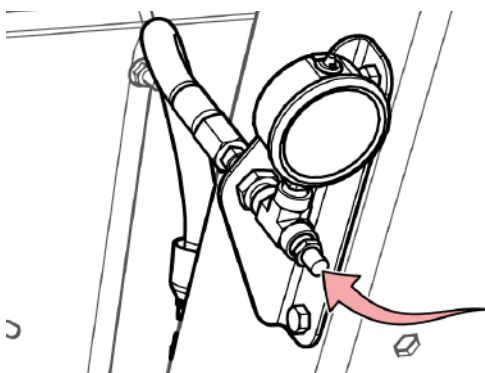


Fig. 58 - Air system port and gauge (left side shown)

- Lower the header until the dividers or cutterbar just touch the ground.
- Calibrate your combine's header height via the combine's controls. Please refer to your combine's operator manual for information on where these settings can be changed.

13.8 - Combine Header Height/Tilt Sensitivity

1. When first calibrating the header, slowly increase your header height sensitivity via the combine controls until the header starts hunting up and down.
2. Decrease the sensitivity by 10-20% until the header stops hunting.
3. When set properly, the header should not hunt when it is standing still.
4. Repeat these steps for header tilt sensitivity.

13.9 - Combine Calibration Validation

After combine calibration is performed, test that the combine is sensing and working properly.

1. Make sure the combine and header are running and at full idle.
2. Set a cutting height via the combine controls.
3. Lift the header straight up to the top and hit resume. Watch for correct and accurate positioning to setpoint. Once this is confirmed working, then:
 - Lift the header all the way up and TILT it over fully to one side and hit resume. Watch that low side stops pushing down and header levels off before going to final setpoint. If this is working then you are good to go.

13.10 - Other Combine Settings

Ensure all other combine settings (as outlined in your combine operator's manual) are properly configured before harvesting.

14 - Header Setup

14.1 - Reel Setup

14.1.1 - Reel Finger Timing Adjustment

Set the reel finger timing (angle) to a position suitable for your crop conditions. Always check finger clearance after adjusting timing.

See section 16.4.1 on page 60 for details.



IMPORTANT!

Make sure reel lift cylinders are properly phased and all the air is bled out of the cylinders before adjustment is made.

14.1.2 - Reel Height Adjustment (bottom limit based on finger timing)

Once finger timing has been determined, adjust the reel height via the reel height adjustment bolts. Ensure the reel maintains a distance of 1 1/2" (3.8 cm) from the cutter bar & feather plates.

Adjust the reel arms at the ends of the table first, then adjust the center reel arm. Multiple adjustments may be required.

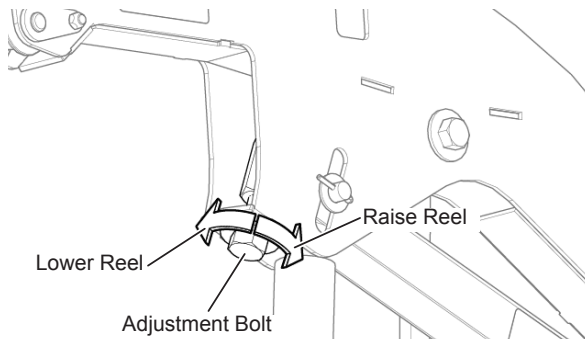


Fig. 59 - Reel Height Adjustment Bolt

To adjust the center reel arm height, release the indicated pin and adjustment lock, turn the adjustment nut to adjust the height, then re secure the lock and pin.

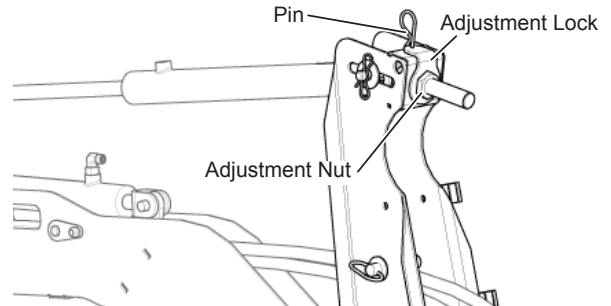


Fig. 60 - Center Reel Arm Height Adjustment



IMPORTANT!

Maintain a minimum of 1 1/2" (3.8 cm) of clearance between the reel fingers and cutter bar/feather.

If harvesting low or downed crops, you may reduce this clearance to 1" (3.8 cm) but will risk cutting the reel fingers in the cutter bar, this damage is not covered under warranty.

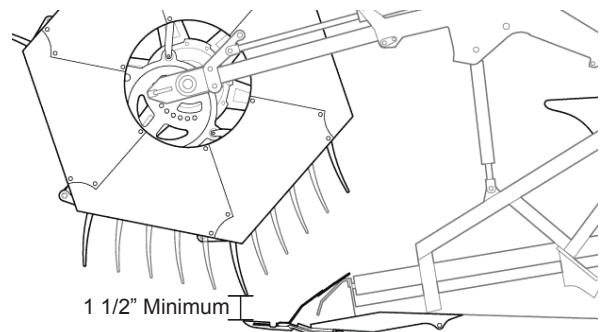


Fig. 61 - Reel Finger Clearance

14.1.3 - Reel Centering

Measure the distance between the left end of the reel and the left end of the header, then measure the distance between the right end of the reel and the right end of the header. The measurement should be equal on both ends, this ensures the reel is correctly centered on the header.

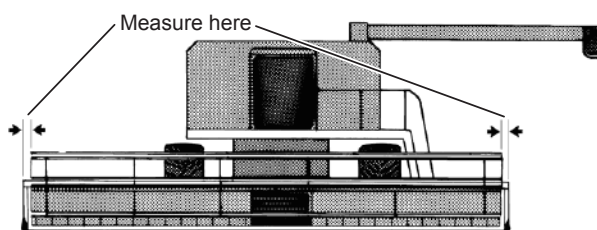


Fig. 62 - Reel centering



IMPORTANT!

Maintain a minimum of 1" (2.5 cm) of clearance between the end of the reel and the end of the header.

If adjustment is required:

1. Loosen the adjustment bolts on the reel arm brackets for the end reel arms and center reel arm.

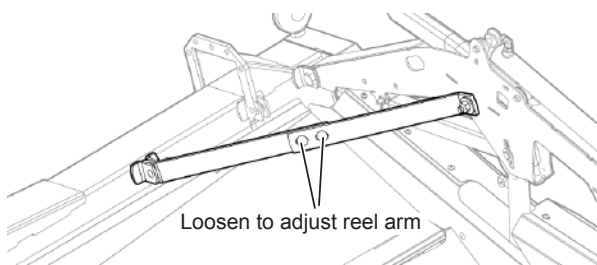


Fig. 63 - Reel centering - end reel arm bracket

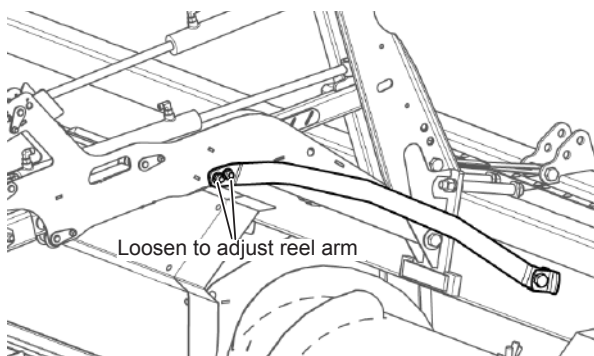


Fig. 64 - Reel centering - center reel arm bracket

2. Adjust the reel position to center it.
3. Re-tighten the bolts on the end reel arm braces
4. Once satisfied with the reel arm position, re-tighten the bolts on the center reel arm braces.

14.2 - Feed Auger Finger Timing

Adjusting finger timing is critical in achieving proper material flow from the center draper to the combine feeder house. The feed auger finger timing handle has two positions:

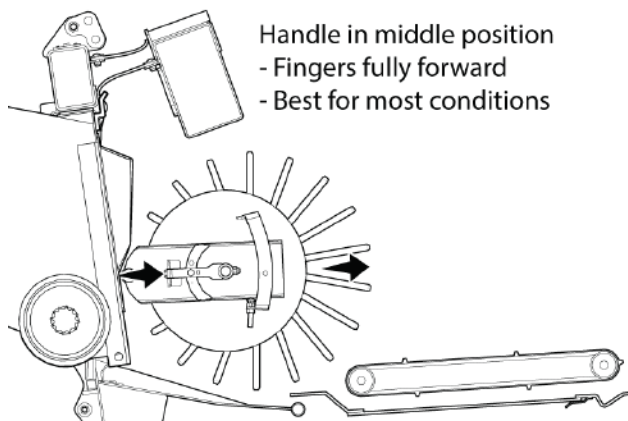


Fig. 65 - Feed auger drum fingers in middle position

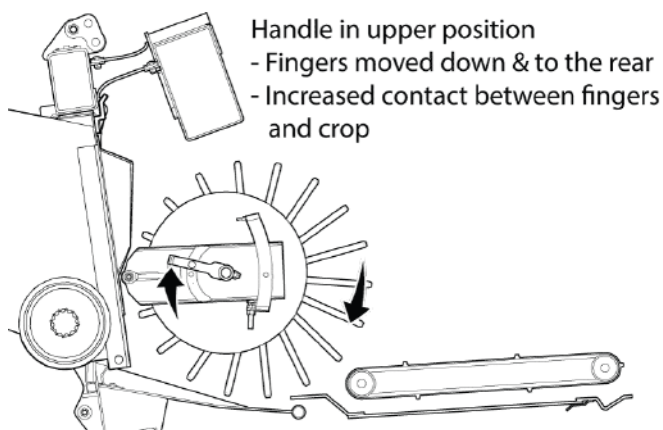


Fig. 66 - Feed auger drum fingers lowered

CAUTION!

Failure to secure the finger timing handle lock bolt will result in damaged equipment.

CAUTION!

Thoroughly check the clearance all the way around the feed auger drum.

Take special care to ensure the flighting on feed auger drum does not contact the combine feeder house.

All clearances must be re-checked after adjusting the hydraulic tilt cylinder.

IMPORTANT!

With the header and combine turned off, ensure the feed auger fingers do not contact the bottom of the upper tube by lifting the feed auger drum with a pry bar.

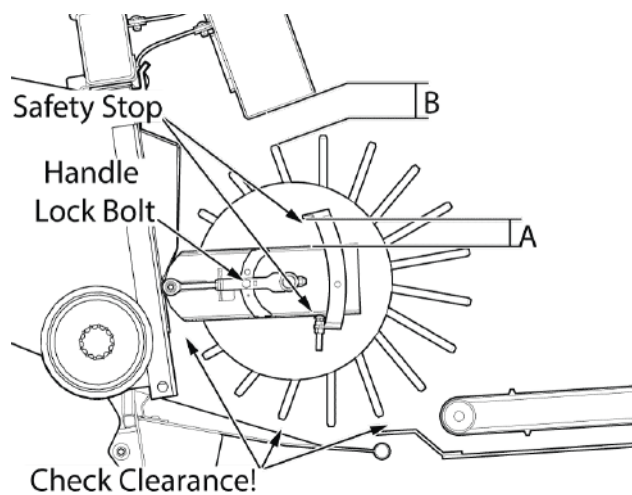


Fig. 67 - Feed Auger Drum Clearances

IMPORTANT!

The flighting of the feed auger drum should clear the face plate stripper plates by 1/2" (1.27 cm).

14.3 - Header Height Sensor Adjustment

In order for the header height system to function correctly, you must ensure the sensor voltages fall within the correct range.

With the header air system pressurized to 90 psi, the sensor voltages should range between 1.5 and 3.4 volts through the superframe sensor's full range of motion.

If the sensor voltages do not match the values listed above, see section 19.17 on page 112 for details on adjusting the header height sensors.

14.4 - Knife Hold-Down Clearance for Optional Standard Cutting System

Knife Hold-Down to cutting section clearance should be 0.5 mm (0.02 in.). Generally, this is not critical. However too tight can reduce knife lifespan.

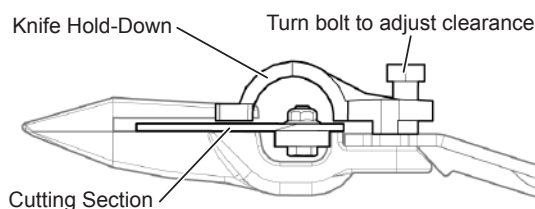


Fig. 68 - Adjust hold-down clearance to cutting section

See section 19.9.12 on page 105 for detailed hold-down adjustment.

NOTE:

If the knife hold-downs are too loose or too tight, the knife's lifespan will be shortened and cutting performance will be reduced. Check the hold-down clearance at least once a year.

14.5 - Check for Problems

Run platform for a few minutes.

WARNING!

Shut OFF engine, set parking brake, and remove the key before exiting the cab.

Check for overheating bearings and gearbox leaks.

Inspect in and around the drapers for foreign objects that may have been dislodged while running the header.

14.6 - Optional Components

14.6.1 - Skid Shoes

The optional skid shoes provide additional protection to the underside of the header while harvesting crops.

There are three possible positions for the skid shoes, this can be adjusted via the indicated bolt.

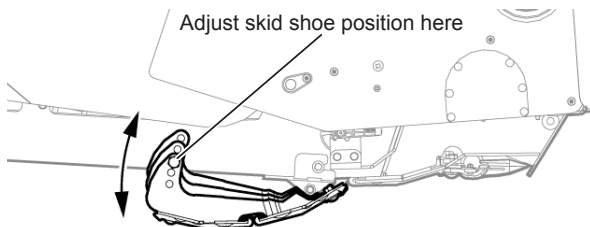


Fig. 69 - Skid shoes - 3 possible positions

For headers new from the factory with the optional transport cart installed, one skid shoe must be installed on the knife drive paddle once the transport cart is removed.

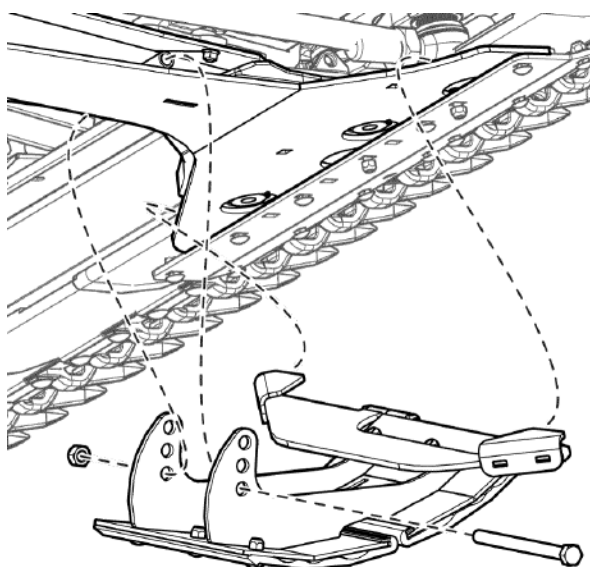


Fig. 70 - Skid shoe - install at transport cart location

NOTE:

Optional skid shoes are only used on the RDX header as an adjustable bottom stop when running in subframe header height sensing mode. Do not run full weight of header on the skid shoes at any time or they will wear out quickly.

NOTE:

The UHMW skid plates can be replaced if they wear out. See the Parts Book for replacement part numbers. Mounting holes will need to be drilled when replacing the UHMW.

14.6.2 - Transport cart

The transport cart is used to transport your header without the need for a special trailer. Honey Bee offers a braked and non-braked version of the cart (see section 20 on page 119 for details).



IMPORTANT!

Be aware of all local laws and regulations before transporting your equipment.

14.6.3 - Cross Auger

The optional cross auger should be adjusted so the flighting engages the crop to help move it towards the feeder deck opening.

The adjustment jacks are used to change how far the cross auger is extended. The lock bolts can be loosened to allow the angle of the cross auger to be adjusted. Always tighten the lock bolts after adjustment.

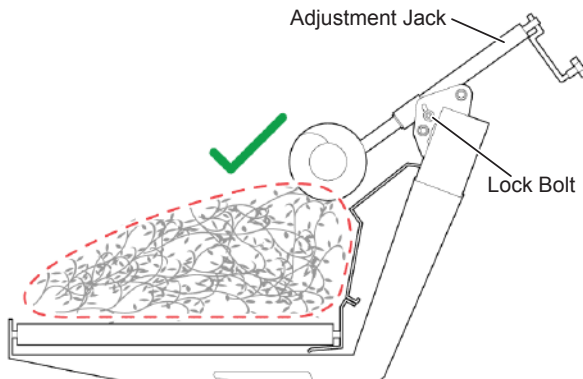


Fig. 71 - Adjust hold-down clearance to cutting section

The cross auger may contact the back panel if moved too close. Allow a minimum of 3/4" of space between the cross auger and back panel.

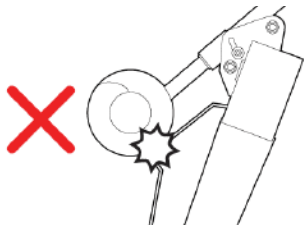


Fig. 72 - Cross auger impacting back panel

Too much space between the cross auger and the back panel will allow crops to wrap around the cross auger. This can be caused by over-extending the cross auger, or by over-adjusting the cross auger angle.

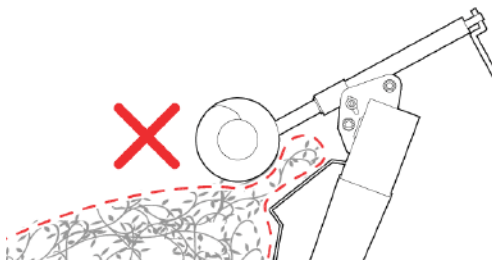


Fig. 73 - Crop wrapping around cross auger

The speed of the cross auger can be adjusted via the flow control located on side of the hydraulic manifold as shown below. There is a mechanical limiter to the flow control limiting the range from 1-4, with 1 being the slowest and 4 being the fastest.

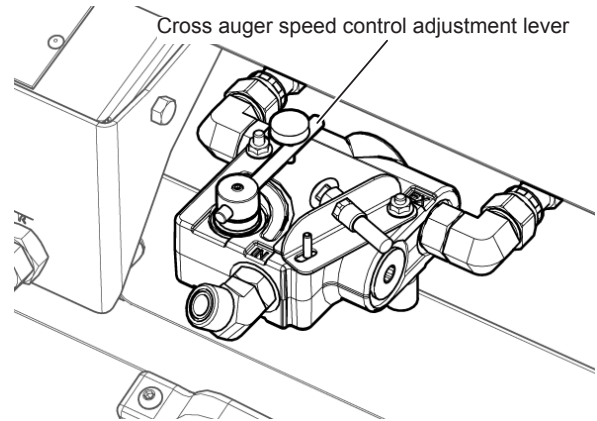


Fig. 74 - Cross auger flow/speed control

WARNING!

Do not bypass the mechanical speed limiter. Setting a speed higher than 4 can result in equipment damage or injury.

14.6.4 - Vertical Shear

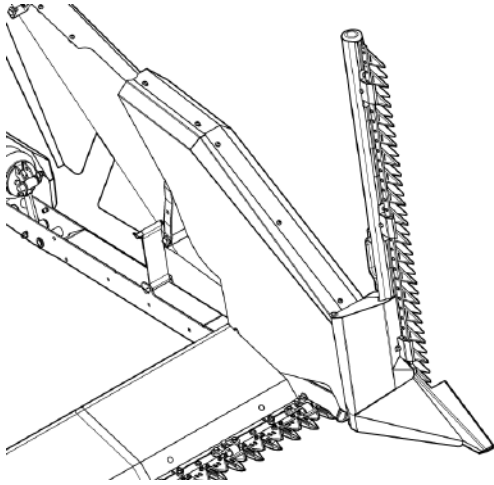


Fig. 75 - Vertical Shear

When harvesting lodged or tangled crops such as canola or peas, the vertical shear system cuts the crops at each end of the header to prevent tangling and increase harvest speed.

Only operate the vertical shears while cutting in off the ground. If the vertical shears are used while cutting close to the ground, damage can occur to the vertical shears and or the header.

If you wish to temporarily disable the vertical shears without uninstalling them, the drive head can be removed.

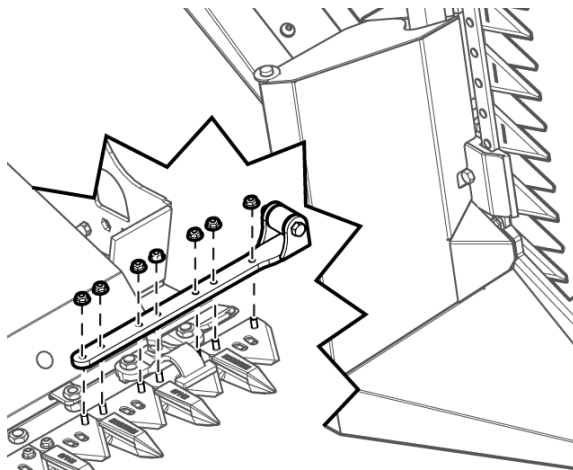


Fig. 76 - Remove vertical shear drive head.

14.6.5 - Vertical Shear Maintenance

Once a year:

- Inspect all drive bushings (7 locations) to make sure they rotate freely and are not worn out. Replace any loose or worn-out bushings.
- Inspect the guide blocks along the knife to ensure they exert a slight pressure against the knives to keep them together. Too much pressure causes excess wear, not enough pressure negatively impacts cutting performance. Pressure can be adjusted via the adjustment bolts (A). Replace any overly-worn or damaged guide blocks.
- Check the cutting sections for excess wear or damage (See section 19.9.8 on page 103 for details). Replace as needed.

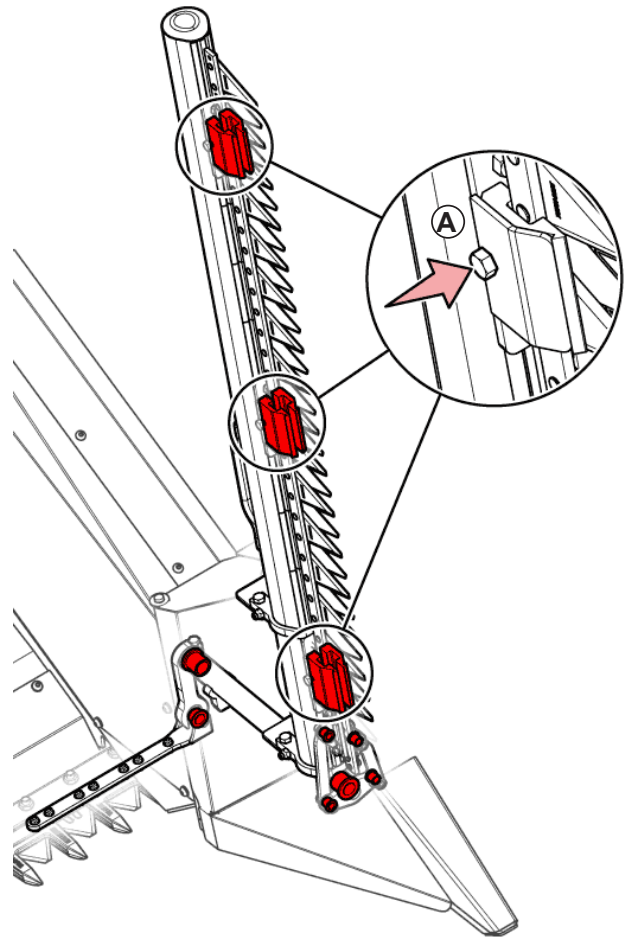


Fig. 77 - Vertical shear maintenance locations.

14.6.6 - Vertical Shear Installation

WARNING!

The vertical shears are heavy and have sharp knife sections on them. Please take care with lifting, handling and installing vertical shears on header. If header is attached to combine please make sure combine is shut off and all rotating elements have stopped before installing. Use cut resistant gloves when handling the shears and steel toe shoes/boots.

NOTE:

Only the left end of the header is shown in illustrations in this section, but all steps must be followed for the right end of the header as well.

Tools required:

- M10, 7/16", 1/2" and 3/4" wrenches and sockets.
- 3/8" or 1/4" Ratchet.
- Small ball-peen hammer.
- 7/32" Allen Head wrench or socket.
- Red 271 Loctite or equivalent thread locking compound.

1. Remove the crop dividers from the front of the header and place them in storage.

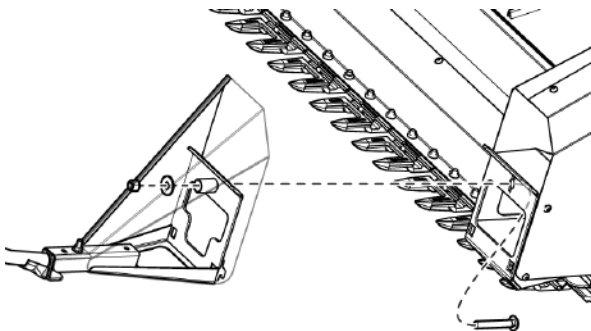


Fig. 78 - Remove dividers

2. Remove the end tin as shown below.

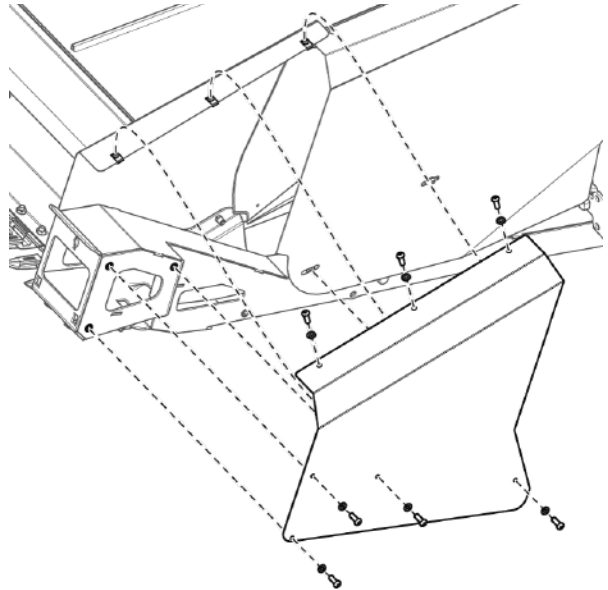


Fig. 79 - Remove end tin

3. Install the vertical shear knife head using M6x20mm bolts and the nuts from the cutter bar. Use loctite on the nuts and bolts.

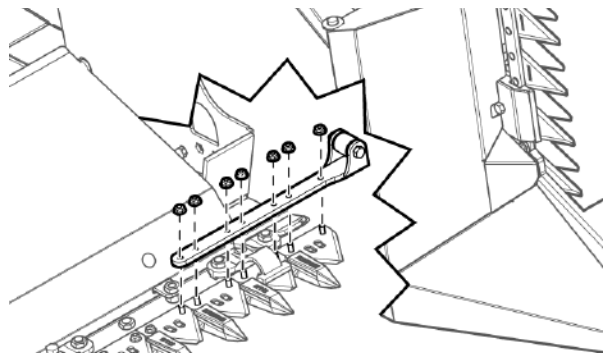


Fig. 80 - Install vertical shear knife head

4. Torque the bolt on the knife head to 21ft-lb and ensure the plastic bushing spins while the bolt does not.

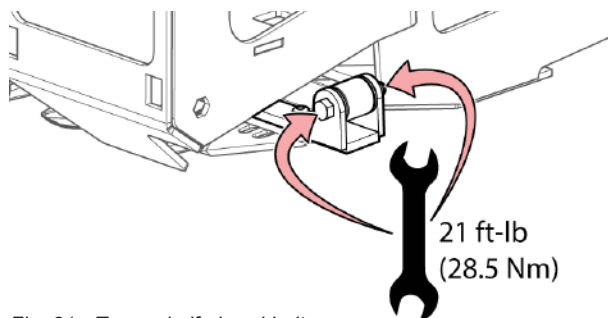


Fig. 81 - Torque knife head bolt

WARNING!

The vertical shears are heavy and have sharp knife sections on them. Please take care with lifting, handling and installing vertical shears on header. Wear heavy gloves when handling the sharp sections.

- When installing the vertical shears, pay attention to the orientation of the assembly. The vertical shear assemblies should swing open towards the center of the header.

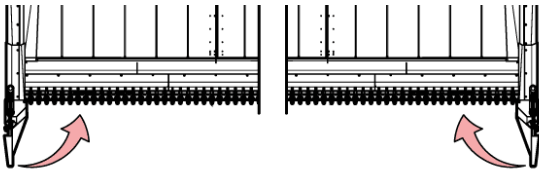


Fig. 82 - Vertical shear orientation

- Open the vertical shear assembly and lock in place with the bolt as shown below.

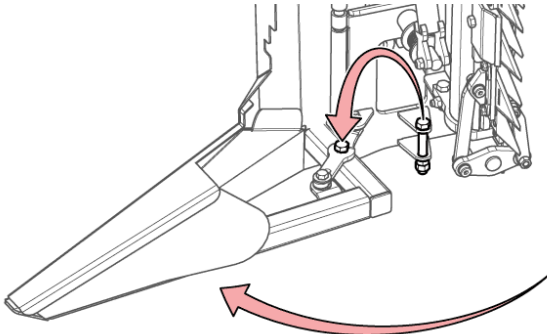


Fig. 83 - Lock open the vertical shear

- With two people lifting the vertical shear assembly, align the two lower tabs with the square holes and the handle tip with its opening then slide the assembly into place.

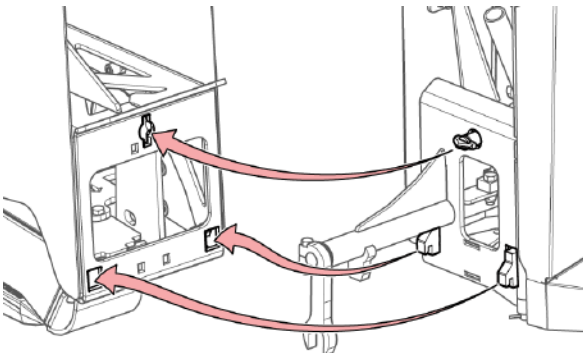


Fig. 84 - Mount the vertical shear assembly

- Ensure the tab fits into its hole and the actuator arm fits over the plastic bushing on the knife head.

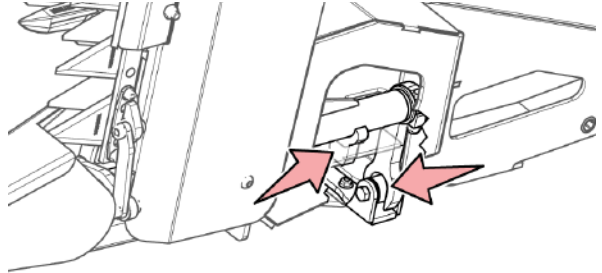


Fig. 85 - Align vertical shear knife assembly

- Turn the locking arm 90 degrees so it is facing upward and close the handle so it is locked in place.

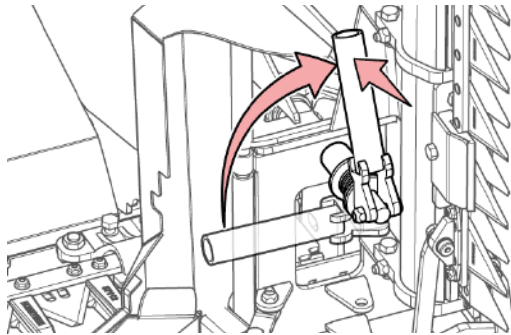


Fig. 86 - Secure vertical shear assembly with lock arm

- Close the vertical shear assembly and lock in place with the bolt as shown below.

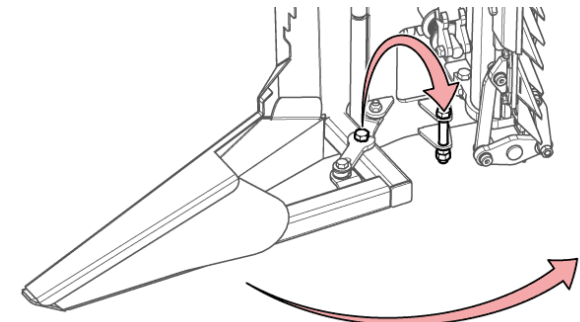


Fig. 87 - Close and secure vertical shear assembly

- Reinstall the end tin then repeat the installation process for the other end of the header.

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15 - Daily Inspection

15.1 - Safety & Protective Shields

Check all safety shields and ensure they are securely in place. Tighten all loose hardware. Clean out all crop debris.

15.2 - Dividers

Crop dividers must be properly installed. The crop divider tips/pipes must be installed on the dividers.

WARNING!

Crop dividers are heavy! To avoid strain or back injury, use lifting aids and proper lifting technique when moving the dividers.

15.3 - Air Hoses

Inspect air hoses, air fittings, and air bags for damage or leaks (see section 19.18 on page 112 for details).

- There is an air bag located at the rear left and right corners of the subframe.
- There are two air bags located on each gauge wheel

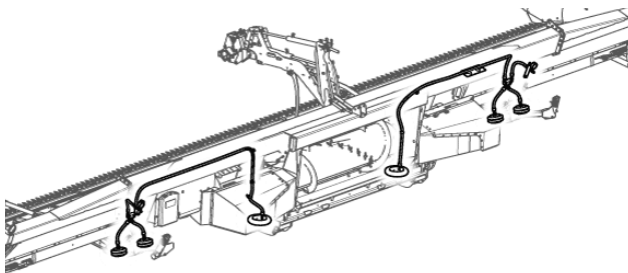


Fig. 88 - Air System

15.4 - Knife Guards & Sections

Inspect the cutter bar. Replace broken guards and cutting sections.

15.5 - Feed Auger

Ensure the finger timing on the feed auger drum is set to best handle the crop you are harvesting.

In most situations, you want both the drum and fingers in their fully forward position (without contacting anything). Ensure there is enough clearance around the feed auger. See Fig. 67 on page 49 for details.

15.6 - Drapers

Ensure that all drapers are tensioned and aligned. Make sure the tension handle for each draper is in the correct position.

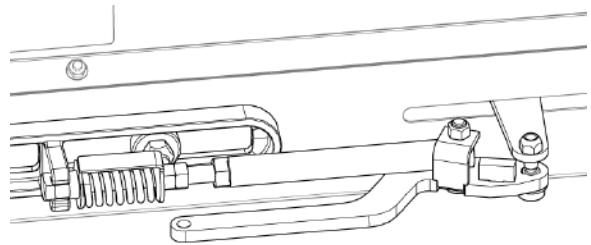


Fig. 89 - Draper Tension Handle Correct Position

15.7 - Belts

Ensure drive belts are properly aligned and tensioned. See section 19.5 on page 77 for details. Clear the belts of all debris & material buildup.

15.8 - Lubrication

The knife heads must be greased via their grease zerk every 10 hours of operation, it is recommend that you apply grease every day prior to operating the equipment. See section 19.20 on page 114 for lubrication details & other lubrication points.

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16 - Operation

IMPORTANT!

When cutting close to the ground, it is important to avoid over-lowering the combine feeder house as this may drive the cutterbar and center draper pan into the ground, causing damage.

IMPORTANT!

The header is designed to work with Automatic Header Height Control engaged. Do not disengage Automatic Header Height Control when operating the header or damage to your equipment will result.

IMPORTANT!

When operating the header, it is **EXTREMELY important to grease the knife head bearings every 10 hours** (or every day of operation). Failure to grease regularly will drastically shorten the lifespan of the knife head bearings. We recommend you use appropriate grease types, see section 19.20 on page 114 for details.

16.1 - Hydraulic Header Tilt

The header can be tilted forward or back using the hydraulic tilt cylinder.

Header tilt is controlled via the hydraulic tilt switch box which gets installed in the combine cab.

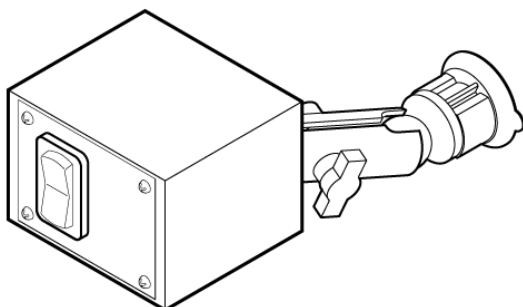


Fig. 90 - Header tilt switch box

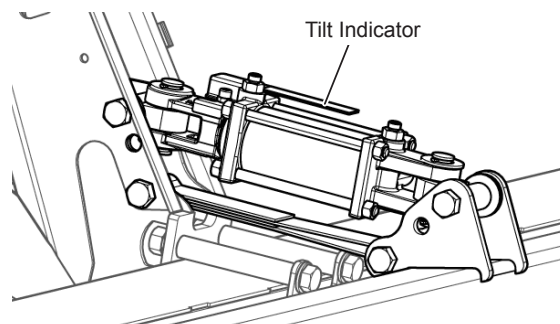


Fig. 91 - Hydraulic Tilt Cylinder & Indicator

IMPORTANT!

On CNH combines, the header tilt is controlled via the AUX switch located on the combine's multi-function handle. Refer to combine operators manual for instructions on how to enable/disable the aux controls if desired.

16.2 - Knife, Feed Auger Drum and Draper Speed.

On the header, the knife, feed auger drum and draper speeds are directly linked to the combine feeder house pto speed .

16.3 - Manual Header Tilt

If installed, the manual tilt cylinder can be rotated using the two handles to change the angle between the header and the subframe.

When adjusting the manual tilt cylinder do not exceed the range shown in the illustration below.

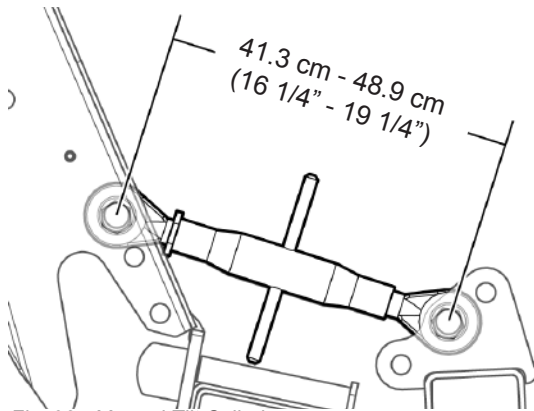


Fig. 92 - Manual Tilt Cylinder

WARNING!

To avoid serious injury, raise reel, engage reel lift safety stops, shut OFF engine, set parking brake, and remove key before exiting the cab.

DANGER!

DO NOT EXTEND THE TILT CYLINDER BEYOND 48.9 cm (19 1/4") OR THE HEADER WILL UNEXPECTEDLY DROP FROM THE SUBFRAME.

16.4 - Reel Settings & Controls

The reel on the header is designed to assist in separating cut crops from uncut crops then sweep them across the feather plates between the knife and the drapers in order to obtain a steady flow.

Reel configuration is extremely important for optimal header performance. The order of importance of these settings are:

- Finger Pitch
- Fore-Aft position.
- Reel Height
- Reel Speed.

NOTE:

See section 19.8 on page 92 for reel adjustment information

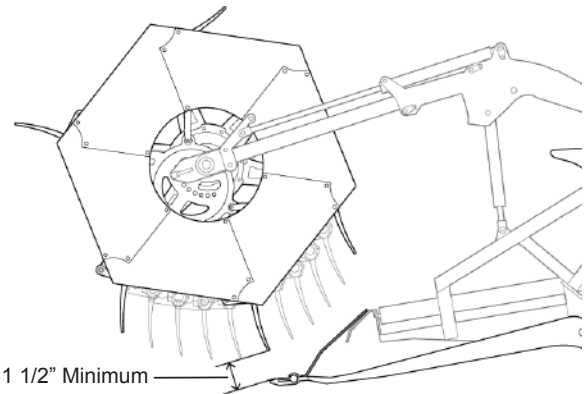


Fig. 93 - Reel Finger Clearance

16.4.1 - Finger Pickup Settings (Pitch)

Start by adjusting the finger pitch so fingers are perpendicular to the cutter bar.

For crops that are down or lodged, adjust fingers to be more aggressive, lifting the crop and dropping it onto the draper decks.

If the crop starts to wrap around reel, this indicates the need to adjust the fingers to a less aggressive setting and/or finger spacing (2 1/2", 5" or mixed spacing).

Adjust the fingers to suit your individual needs and make note of the best settings for each of the crop conditions you encounter.

WARNING!

To avoid serious injury, raise reel, engage reel lift safety stops, shut OFF engine, set parking brake, and remove key before exiting the cab.

IMPORTANT!

Maintain a minimum of 1 1/2" (3.8 cm) of clearance between the tips of the reel fingers and the cutter bar/feather plates. If harvesting low or downed crops, the clearance can be reduced to 1" but will run the risk of damaging the reel fingers which is not covered under warranty.

Reel to knife clearance must be readjusted whenever finger pitch is changed.

1. Firmly grasp the handle then pull and rotate lock pin to one side so it is disengaged from reel.

WARNING!

Failure to secure the handle when pulling the pin will result in the reel bats dropping suddenly.

2. Lift the handle up for less aggressive finger pitch.

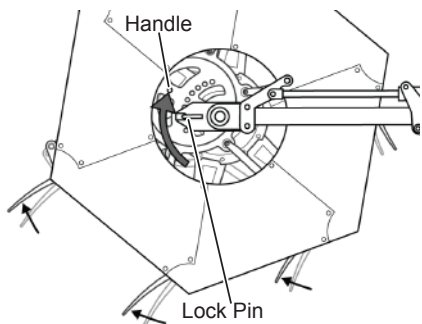


Fig. 94 - Less Aggressive Finger Pitch (HB Reel)

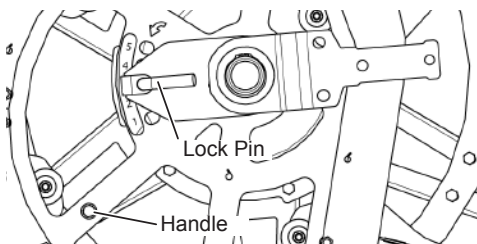


Fig. 95 - Cam Reel Adjustment

3. Lower the handle for more aggressive finger pitch.

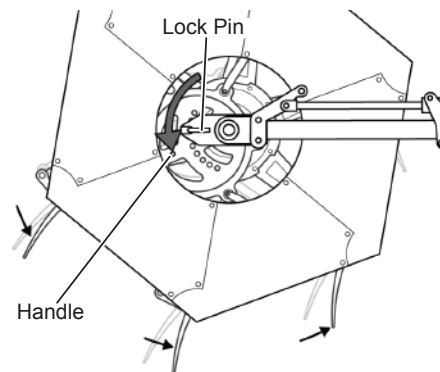


Fig. 96 - More Aggressive Finger Pitch

NOTE:

The finger pitch adjustment holes are numbered from 1 to 9, with 1 being the least aggressive setting and 9 being the most aggressive.

4. Once desired setup is obtained, re-engage the lock pin.
5. Repeat this process for the other end of the reel to ensure each side has identical finger pitch.
6. Readjust reel height and reel fore/aft in order to maintain a minimum safe knife clearance (1 1/2" (3.8 cm)).

16.4.2 - Hydraulic Reel Height and Fore/Aft Control

For general usage, the center of the reel should be positioned slightly behind the cutter bar.

For lodged or down crops, adjust reel so the center of the reel is ahead of cutter bar.

The reel height and fore/aft controls are located on the combine's controls. Please see your combine's operator manual for details.

16.4.3 - Reel Speed

The reel speed is controlled and viewed via the combine's control panel and display. Please see your combine's user manual for details.

The reel speed sensor outputs 48 pulses per rotation (PPR). You may have to calibrate your combine to match this value in order to get accurate readings, see section 19.8.3 on page 92 for details.

Set reel speed slightly faster than ground speed.

When traveling over 2 mph (3.2 km/h), the reel should move ~10% faster than ground speed.

When traveling under 2 mph (3.2 1), the reel should move ~20% faster than ground speed.

16.5 - Crop Dividers

Crop dividers help divide the crops at the left and right ends of the header in order to prevent crop tangling.

16.5.1 - Crop Divider Pipe

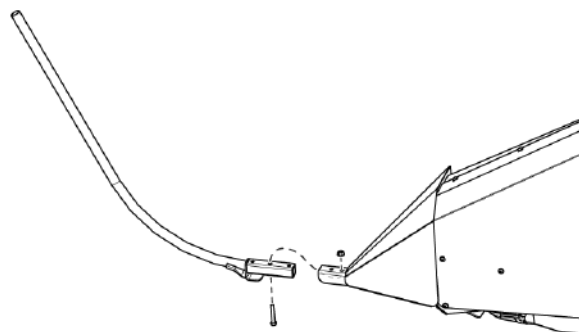


Fig. 97 - Crop Divider Pipe Extension

Typically used with matted or tangled crops but can be used in all crop types.

16.5.2 - Crop Divider Snub Extension

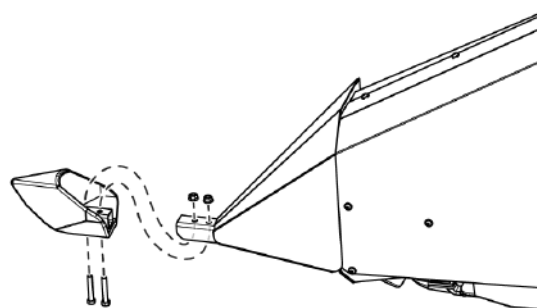


Fig. 98 - Crop Divider Snub Extension

The crop divider snub extension is used primarily when it is desirable to reduce divider contact with the crop.

16.6 - Operating Guidelines

Automatic header height control will raise or lower the header based on the input from the subframe sensors.

16.6.1 - Set Cut Height Using Subframe Sensors

1. Ensure the gauge wheel safety strap is in the operational position as outlined in 12.8 on page 41.
2. If hydraulic tilt cylinder is installed ensure the header is tilted all the way back (cylinder retracted). If manual tilt turnbuckle is installed do not adjust.
3. Confirm the air pressure for both the left and right ends is at the recommended value for the header size. The air pressure fill port and gauge are found above each of the gauge wheels.

| Header Size | Recommended PSI |
|-------------|-----------------|
| 25ft | 90 PSI |
| 30ft | 95 PSI |
| 36ft | 100 PSI |
| 40ft | 105 PSI |
| 45ft | 110 PSI |
| 50ft | 115 PSI |
| 60ft | 125 PSI |

4. Lower the header to your desired cut height and set the cut height setpoint via the combine controls. If your combine has the ability to set two or more cut height setpoints you adjust the header height and set your second cut height as well.
5. Save the header height setpoint via combine controls.



IMPORTANT!

If header is fully lifted and combine header height resume is pushed and header does not lower or lowers very slowly then air pressure is set too high. Lower air pressure and re-test.



NOTE:

If the header is unbalanced, causing the left or right end to run lower/higher than the other end, you can adjust the subframe airbag position as described in section 19.19 on page 113.

16.6.2 - Recommended Reel settings

The reel fingers should be pitched less aggressively in order to assist with gently pulling crops towards the cutter bar.

See section 19.8 on page 92 for details.

Reel speed should be set approximately 10-20% faster than the ground speed.

Always ensure the reel fingers have enough clearance (1 1/2" (3.8 cm)) from the cutter bar & feather plates.

16.6.3 - Recommended Ground speed

Adjust ground speed according to the terrain, crop yield and combine capacity.

16.7 - Reverse Operation

When the combine feeder house is reversed, the drapers, knife, reel and feed auger drum run backwards to assist with unplugging.



WARNING!

Do not reverse the mechanical system until all parts have come to a complete stop. Failure to do so WILL result in damage to the header.



NOTE:

Not all combines have the ability to reverse the reel.

16.8 - Feed Auger Drum Settings

Set the feeder house finger adjustment plate to the middle position (fingers extended fully forward).

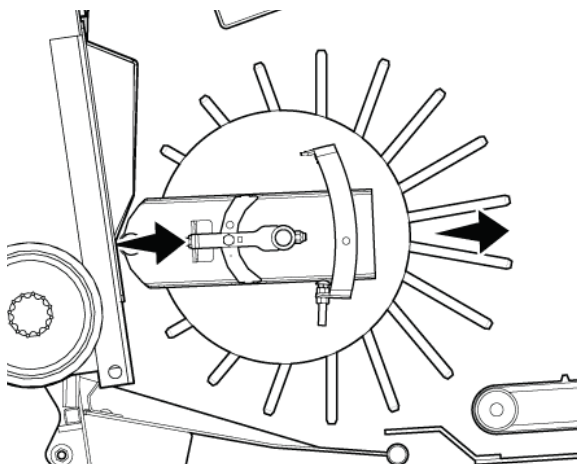


Fig. 99 - Feed auger fingers fully forward

See section 14.2 on page 49 for details on adjusting the feed auger.

16.9 - Combine Header Height Settings

When setting the Header Height sensitivity, increase the value until the header starts hunting then back off 10-20% for both lift and lateral tilt.

- Raise Rate: 5 seconds (bottom to top)
- Drop Rate: 7 seconds (top to bottom)

Ensure the Header Height system is calibrated on the header first, then on the Combine.

16.10 - General Crop Specific Productivity

Harvesting Standing Cereal Crop

Lower platform until cutterbar cuts below lowest grain heads or pods. For maximum combine efficiency, take in only as much crop material as necessary. Position the reel above the cutterbar & feather plates. Raise/lower the reel until the bats pull the crop toward the cutter bar and the fingers comb the cut crop across the feather plates.

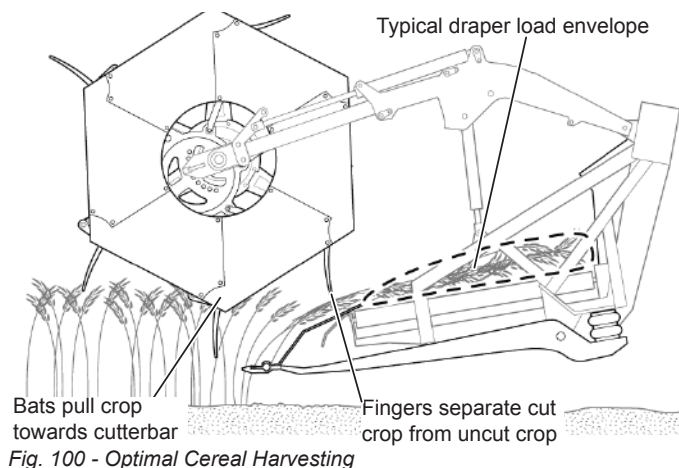


Fig. 100 - Optimal Cereal Harvesting

Harvesting Pulse Crops

Set the reel fingers to a more aggressive pitch. Position the reel in front of the cutter bar. Raise/lower the reel until the fingers lift the crop toward the cutterbar. The draper should be half-way filled (see illustration)

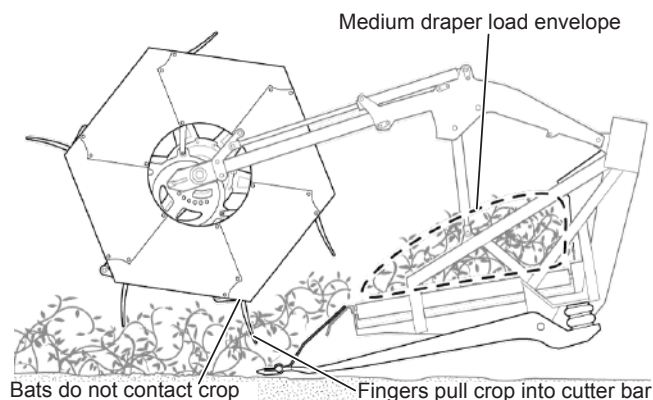


Fig. 101 - Optimal Pulse Crop Harvesting

Harvesting Bushy Crops

Lower the platform until cutterbar cuts below the material to be collected. For maximum efficiency, completely fill the drapers so the crop reaches just to the top of the draper shields (see the illustration below). Raise and retract the reel so it is slightly behind the cutter bar so it assists in separating the cut from the uncut crop. The reel bats should not contact the crop.

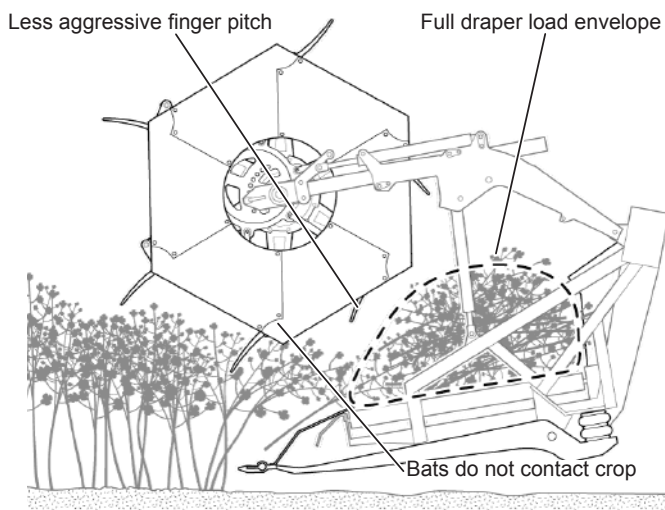


Fig. 102 - Optimal Bushy Crop Harvesting

Harvesting in Tough Feeding Crop Conditions

Move reel rearward to ensure cut, heavy crop is separated from uncut crops and transferred across the feather plates to the drapers.

Harvesting in Short, Thin Crops

Position reel low, above knife (approximately half way extended) and front area of draper, to assist crop onto drapers. The reel fingers should be directly above the cutter bar.

In thin crops, increase ground speed in order to increase crop volume to facilitate feeding.

Harvesting Sorghum

Set cutting height to cut off heads and no more stalk than necessary. Adjust reel low and rearward as much as possible to help move cut heads onto belts. Tilt the header back so the heads roll back.

Lodged/Downed Crops

Fully extend the reel toward the front of the header.

At full reel extension, the reel will pick up crop from below the cutter bar. Only use this reel position for downed crops as high finger wear will result.

The reel height should be set so the fingers have a minimum of 1 1/2" (3.8 cm) clearance from the cutter bar.

When picking up downed crops, the reel finger pitch should be adjusted to be more aggressive.



IMPORTANT!

It is very important that you check the reel finger clearance before operating the header in order to avoid cutting off the ends of the reel fingers.

Extreme Lodged/Downed Crops

Fully extend the tilt cylinder to angle the guards down.

If the cutter bar is still riding on top of crops:

Tilt the header forward to increase guard angle in order to pick up crop better.



IMPORTANT!

Increased wear will result on guards, knife sections, and knife head bearings. When running in this mode, grease the knife heads every 5 hours (not 10 hours). This method should only be used in extremely down crop on rolled land.

The feather plates will be quite steep in this mode, so set your reel to clean the top of the plates to assist crop onto the drapers. Set ground speed to ensure sufficient crop flow across the cutter bar to aid in feeding.

Bushy/Ripe Crops

The feed auger fingers should be extended fully forward or slightly upward to increase the ability of the drum to grab and pull in bulky crops.

Fully retract the reel towards the rear of the header.

When harvesting busy/ripe crops, the reel fingers should be adjusted to be less aggressive.

Easily Shelled Crops

The reel should be positioned so it has minimum contact with the crop in front of the cutter bar. Positioning the reel too far forward can result in shelled out crops dropping under the cutter bar.

Generally, the reel should be lined up to the middle of the feather plates to allow for knife clearing and good feeding with minimum losses.

Raise the reel so only the reel fingers engage the crop and not the reel bats.

Normal Crops

Position the reel to provide best crop flow with minimal interference. For grain crops, this is typically about 7" out (fingers in line with top of feather plate). For leaning or pulse crops, this is further forward at about 11" out (fingers in line with back of guards).

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17 - Troubleshooting

17.1 - Reel

| Symptom | Possible Cause | Solution |
|--|---|---|
| Reel Wrapping in Tangled and Weedy Conditions | Incorrect reel location. | Adjust reel forward and down. |
| | Reel speed too fast. | Slow reel until crop flows smoothly onto belts. |
| | Reel fingers not able to eject material properly. | Adjust reel timing to next more aggressive setting (lower number) |
| Reel Carrying Around Crops or Excessive Shattering of Grain Heads | Reel speed too fast. | Slow reel speed. Reel should turn slightly faster than ground speed. |
| | Reel height too low. | Raise reel height to reduce amount of straw gathered by reel. |
| | Pickup fingers pitched too much. | Reduce finger pitch by adjusting reel timing to next less aggressive setting (higher number) |
| | Pickup fingers too tightly spaced | Replace 2.5" spaced reel fingers with 5" spaced reel fingers (remove every 2nd finger). |
| Uneven Reel Height and Fore/Aft | Reel cylinders out of phase. | Rephase cylinders (see section 19.8.2 on page 92). Header reel must be running to fully rephase reel lift cylinders |
| | Reel stops not set to same height | Adjust reel stops. |
| Cutterbar Plugging or Slug Feeding | Reel speed too slow. | Increase reel speed. |
| | Reel too far forward | Retract reel |
| | Reel fingers too far from cutter bar | Lower Reel |

17.2 - Drapers

| Symptom | Possible Cause | Solution |
|------------------------------------|---|---|
| Draper Jams or Stops Moving | Material is lodged in the draper mechanism | Stop the combine, wait for all parts to come to a stop and reverse the mechanical systems (see section 16.7 on page 65) |
| | Material is jammed in the draper cleanout or rock trap. | Clean out the rock trap and the draper cleanout. (See page 111) |
| Drapers are slipping | Draper tension too loose. | Adjust draper tension (19.7.1 on page 88) |

17.3 - Cutting Platform

| Symptom | Possible Cause | Solution |
|---|---|---|
| Shattering of Grain Ahead of Cutterbar | Reel speed not matched to ground speed, causing crop to be overly disturbed before it is cut. | Adjust reel speed to match with ground speed so reel moves crop evenly. Reel should turn slightly faster than ground speed. |
| | Reel is positioned too low. | Raise reel. |
| | Reel speed too fast | Slow down ground speed so reel does not hit crop, causing it to shatter. |
| | Ground speed too slow for conditions of crop. | Increase ground speed so crop 'pressure' is increased, forcing more product onto the drapers. |
| | Reel too far forward | Position the reel above the cutter bar. |
| Cut Crop Building Up and Falling from Front of Cutterbar or Loss of Grain Heads at Cutterbar | Reel not adjusted low enough for good delivery of cut crop to belts. | Set reel low enough to sweep material from cutterbar. |
| | Ground speed too slow for crop conditions. | Increase ground speed so crop 'pressure' is increased, forcing more product onto the drapers. |
| | Reel too far forward. | Move reel closer to cutterbar. |
| | Cutterbar angle too steep, preventing crop from being pushed onto draper. | Use tilt adjuster at center of platform to adjust angle of cutterbar. |
| Ragged and Uneven Cutting of Crop | Knife dull. | Replace knife. |
| | Cutterbar plugged with material. | Adjust reel to sweep material off cutterbar. |
| | Knife sections damaged. | Replace damaged sections. |
| | Integral knife hold-downs adjusted loose. | Adjust hold-downs to recommended clearance. |
| Excessive Vibration of Cutting Parts | Feeder house lower shaft not at recommended speed. | Check basic speed of combine (see combine Operator's Manual). |
| | Variable speed feeder house is too fast. | Slow variable speed feeder house (see combine Operator's Manual). |
| | Knives not timed properly. | Adjust knife timing (see section 19.9.2 on page 97). |
| | Loose bolts on knife drive paddle | Tighten all fittings on the knife drive paddle. |

17.4 - Cutting Platform (continued)

| Symptom | Possible Cause | Solution |
|--|--|--|
| Excessive Knife Drive Loads or Inconsistent Cut Heights | Dull knife sections. | Replace knife sections. |
| | Dull knife guard edges. | Replace knife guards. |
| | Excess binding between top of knife sections and top of guard slots. | Inspect for bent guards, bent cutterbar, or improper position of guards. |
| Excessive Knife Drive Loads or Inconsistent Cut Heights | Dull knife sections. | Replace knife sections. |
| Crop is not feeding properly | Crop is not clearing the feather plates | Lower the reels, increase the speed of the power unit/reel, set reel finger timing to be more aggressive. Set reel fore/aft to clear feather plates. |

17.5 - Header Leveling

| Symptom | Possible Cause | Solution |
|--|---|---|
| Header is running crooked or unbalanced | Uneven weight distribution or misaligned sub frame air bags | Adjust subframe airbag as outlined in section 19.19 on page 113 |

17.6 - Active Header Height Control

| Symptom | Possible Cause | Solution |
|--|--|--|
| Active Header Control Will Not Operate | Manual raise or lower does not work. | See your combine dealer. |
| | Active header control not enabled. | Enable active header control mode that is desired as per combine procedures. |
| | Feeder house to header connector not connected or loose. | Connect properly. |
| | Header sensor not properly connected or damaged. | Connect or repair sensor. |
| | Header not correctly calibrated | Calibrate header height control on header first, then combine. |
| Active Header Control Lowers But Will Not Raise | Defective active header control card. | See your combine dealer. |
| Active Header Control Raises But Will Not Lower | Defective active header control card. | See your combine dealer. |
| System Cycles or Hunts | Accumulator on combine has incorrect setting. | The auto header height works best with the float accumulator turned OFF. |
| | Combine Header Height (or tilt) sensitivity too high | Decrease Combine Header Height sensitivity (or combine tilt sensitivity if the header hunts side to side), then if the problem continues increase combine smoothing. Re-calibrate the combine HHC. |
| System Fails Intermittently After Manually Raising Header Over Obstacle | System was deactivated. | Reactivate combine header height system. |
| Header Raises or Lowers Too Slow or Too Fast | Incorrect raise/drop rate adjustment. | Adjust raise/drop rate (see combine Operator's Manual). |

17.7 - Cross Auger

| Symptom | Possible Cause | Solution |
|----------------------------------|--|---|
| Crop wrapping around cross auger | Cross auger too far away from back panel | Move cross auger closer to back panel. See section 14.6.3 on page 52. |

17.8 - Miscellaneous

| Symptom | Possible Cause | Solution |
|--|---|--|
| Uneven or Bunched Feeding of Crop | Cut crop not being separated from uncut crop at cutter bar. | Adjust reel settings as described in 16.4 on page 60) |
| | Feeder house conveyor chain too loose. | Adjust tension (see combine Operator's Manual). |
| | Feed auger lower stops set too high. | Adjust lower stops downward. |
| | Feed auger belt drive too loose. | Adjust belt tension |
| | Draper tension is too loose | Increase draper tension |
| | Crop is bunching on feather plate | Adjust the reel |
| Header pushing dirt when tilted forward | Header angled too far forward | Tilt the header back |
| | Combine feed house angle not correct. | Set the correct combine feeder house angle (see 13.3 on page 44) |
| Hydraulic Leak Detected At Multi-Coupler | Leaking O-ring. | See your dealer. |
| System is not keeping air pressure while header is running | Air is leaking | Check air lines, air bags and air fittings for leaks. |

18 - Support

| General Information & Sales | |
|-----------------------------|---|
| E-Mail: | sales@honeybee.ca |
| Website: | http://www.honeybee.ca |
| Phone: | (306) 296-2297 |

| Parts & Service | |
|-----------------|--|
| Parts E-Mail: | parts@honeybee.ca |
| Service E-Mail: | service@honeybee.ca |
| Phone: | 1 (855) 330-2019 (Toll free in north america) |

| Your Local Dealership | |
|-----------------------|--|
| E-Mail: | |
| Phone: | |
| Notes: | |

Equipment manuals and service information can be found on our website:

<http://www.honeybee.ca>

19 - Service & Adjustment

WARNING!

The header contains many high speed mechanical components. If these components become damaged, it is extremely important that they be repaired as soon as possible. Running equipment with misaligned or damaged parts can cause additional damage to surrounding components, as well as increase the risk of fire.

19.1 - Fasteners

During operation, vibration can loosen fasteners on various components of your header. Parts with thinner metal such as safety shields tend to vibrate more than other parts, so particular care must be taken to ensure they are firmly secured.

Always ensure that all fasteners are torqued to the proper specifications (see page 138) Apply thread lock compound when necessary.

19.2 - Permanent Bushings

Inspect sealed bearings and permanent bushings every 200 hours of operation and replace as necessary.

See section 21.3 on page 133 for bushing locations.



IMPORTANT!

Only the main reel permanent bushing can be lubricated. Do not lubricate the other permanent bushings. These bushings are self-lubricating. Added grease will drastically shorten their lifespan.

19.3 - Speed Sensor Adjustment

The speed sensors on the header are adjusted to their optimal position in the factory but may require adjustment if they are replaced or serviced.

In order for the speed sensors to work properly, they must be 0.90-0.95mm (0.035-0.037 in.) away from the surface they are measuring.

For each sensor, 1 full rotation of the adjuster nut equals approximately 1 mm of travel, so to get the best distance, screw in the sensor until it is just touching its measuring surface then back it off 90-95% of a turn.

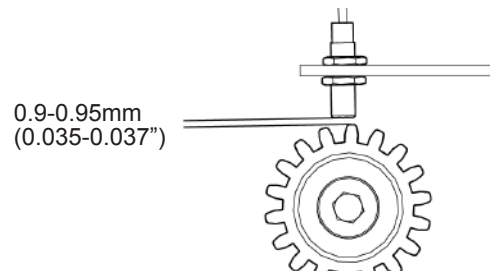


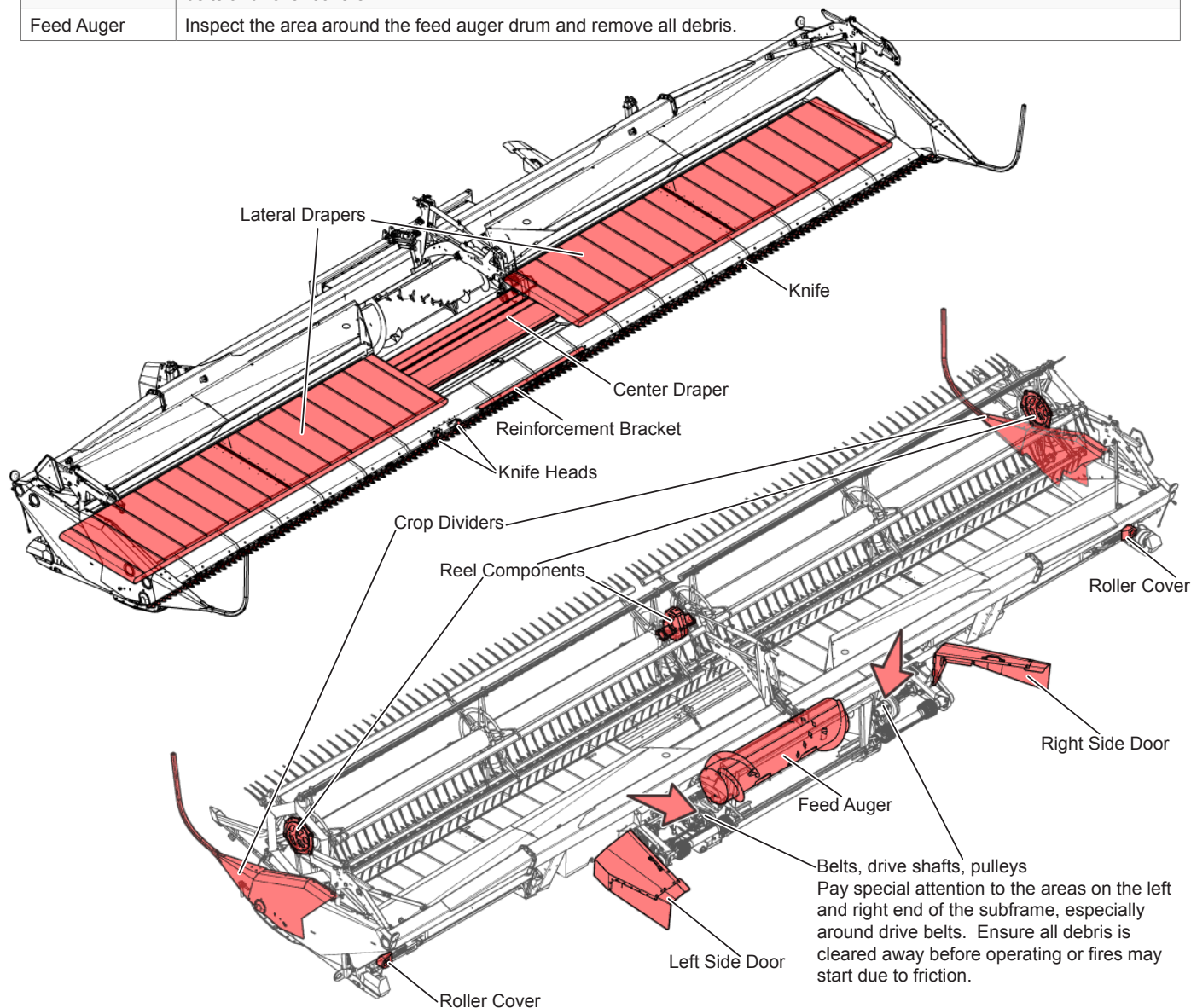
Fig. 103 - Speed Sensor Spacing

See section 21.5 on page 135 for speed sensor locations.

19.4 - Cleaning the Header

For optimal performance, inspect and clean the header every day prior to operation. Accumulation of debris will increase friction, reducing the lifetime of components and can possible cause fires.

| | |
|-----------------------|--|
| Lateral Drapers | Inspect the rollers and the space inside the draper canvas for material buildup and remove as necessary. |
| Center Draper | Check the rollers and the space inside the draper canvas for material buildup and remove as necessary. Remove all debris from the center rock trap and draper cleanout as shown in section 19.14 on page 111 |
| Crop Dividers | Ensure the area inside the crop dividers is clear of debris. |
| Knife | Inspect the knife for gummy buildup and clean with water or diesel as needed. |
| Reinforcement Bracket | There is a reinforcement bracket on the center of the cutter bar beneath the transition plates, crop material can accumulate in this location. Check and clear all debris from this area. |
| Knife Heads | Check the area around and behind the knife heads for material buildup and clean as necessary. |
| Reel | Ensure all moving parts on the reel are free of wrapped crop material and clean as necessary. |
| Roller Covers | Check the roller covers on the rear left and right hand ends of the header for material buildup and clean as needed. |
| Side Doors | Open both side doors and inspect all moving components within. Clean out all debris from the drive shafts, pulleys, drive belts and roller covers. |
| Feed Auger | Inspect the area around the feed auger drum and remove all debris. |



19.5 - Drive Belt/Chain Tension

All drive belts should have proper tension and alignment. If any belts appear to be damaged, they must be replaced and the cause of damage must be determined and rectified.

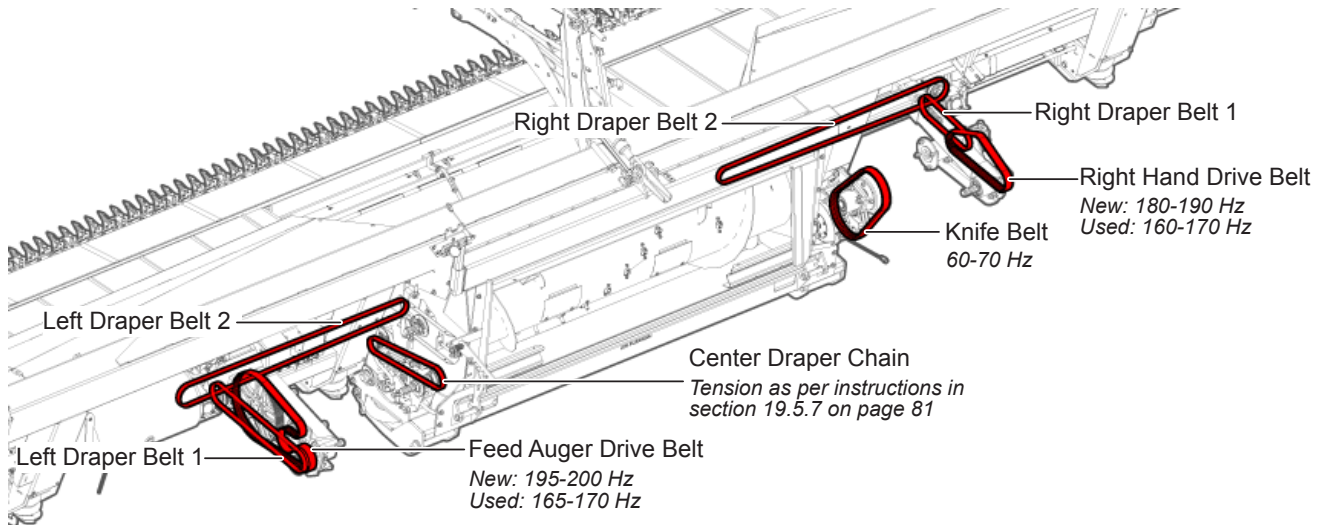


Fig. 104 - Drive Belt Locations

The belts shown above with a Hz measurement must be checked with a device that can measure sound frequency. Fortunately, most cell phones can use guitar tuner apps for this measurement.

The remaining belts are tensioned using a mechanical spring tensioner.

For both belt types, it is important that the tension is measured and adjusted after the header has been running for some time to ensure the belts have reached their operational temperature.

WARNING!

Before adjusting belt tension, shut off the combine, engage the parking brake and wait for all moving parts to come to a stop before approaching the header.

IMPORTANT!

Do not tension 'cold' belts as they may change size when heated during operation, resulting in incorrectly tensioned belts.

IMPORTANT!

Under-tensioned belts can slip, generating heat which will shorten the belt lifespan and damage cog pulleys!

Over-tensioning belts will result in belt stretching and reduced bearing lifespan.

If belt tension is adjusted, it is important to re-check the tension after a day of usage to ensure all adjustments are secure.

When adjusting belt tension, check the belt for fraying or cracks. Replace if necessary.

IMPORTANT!

Check the belt tension after the first 100 hours of operation.

19.5.1 - General Belt Tensioning Guide

1. If installing or replacing a belt, first install the belt using the instructions in section 19.6 on page 84.
2. Once installed, set the tension using one of the following:
 - **New Hz value** for new belts (see previous page)
 - **Used Hz value** for belts which have been used for 24+ hours (see previous page).
 - **Mechanical tension indicator**, the indicator should be aligned with the washer as shown below.

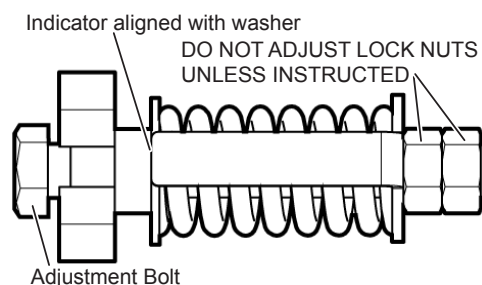


Fig. 105 - Tension Indicator Position

3. Return to the combine cab and run the header for a few revolutions.



WARNING!

Shut off the combine, engage the parking brake and wait for all moving parts to come to a stop before approaching the header.

4. Check the tension again to ensure it is still accurate, adjust as necessary.
5. IF a new belt was installed, check the tension again after 24 hours of operation to ensure it is within the range of the Used frequency listed on the previous page. Adjust as necessary.
6. Re-check the belt tension at least once a year.

19.5.2 - Using the Tension Indicators

The tension indicators vary slightly between belts, please see the following pages for belt-specific instructions.

1. Loosen the lock nut and/or bolts.
2. Turn the adjustment bolt (or nut in some situations) until the indicator is aligned with the end of the washer.
3. Re-tighten the lock mechanism.

19.5.3 - Tension Verification Using Smartphone App

Some of the belts in the header drive system require a tuner app for verifying belt tension.

Honey Bee recommends the following apps as they have been tested for accuracy. Take note of the app icon and developer name as there are multiple apps with similar names.

NOTE:

Using an app to measure belt frequency requires a quiet location in order to take accurate measurements.

Please note this is a 3rd party application which is not published by Honey Bee. The software may be removed or changed without notice, this is beyond Honey Bee's control.

19.5.3.1 - Apple Devices (iOS)



App Name: Fine Tuner

Developer Name: 9928189 Canada Inc.

Link: <http://www.finetunerapp.com>

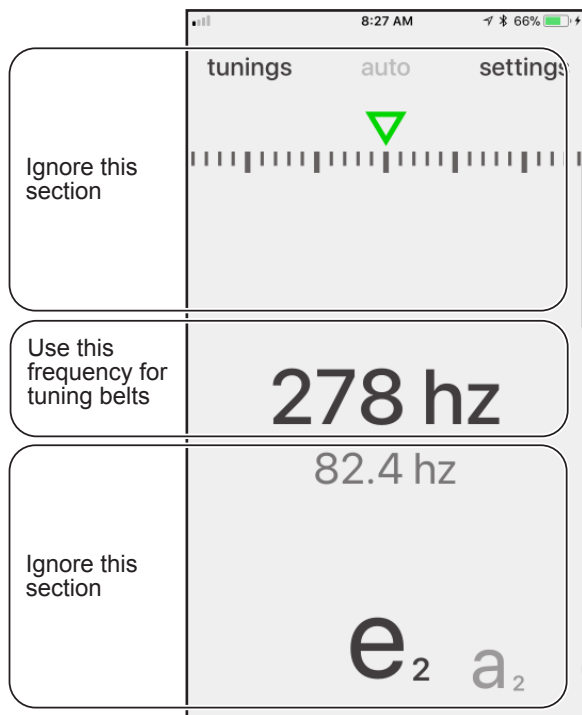


Fig. 106 - iOS - Fine Tuner app

19.5.3.2 - Android Devices



App Name: Tuner - gStrings Free

Developer Name: cohortor.org

Link: <https://play.google.com/store/apps/details?id=org.cohortor.gstrings>

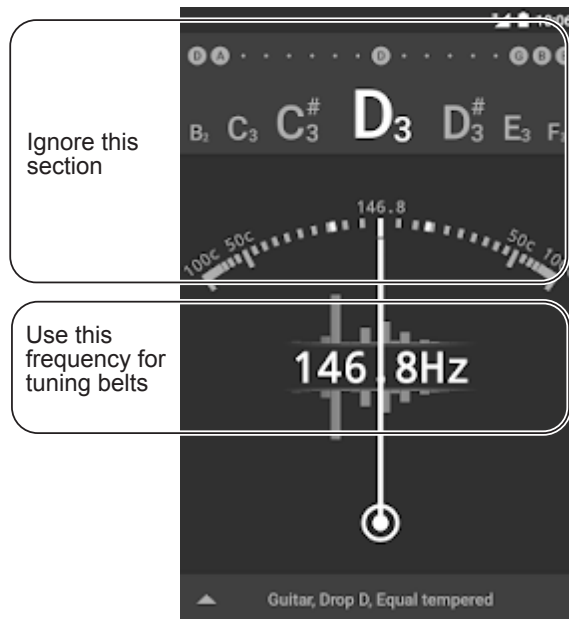


Fig. 107 - Android - Gstrings Tuner App

19.5.4 - Feed Auger Drive Belt Tension

The feed auger drive belt is located just to the left of the subframe.

1. Loosen the lock nut.
2. Adjust the tension, then re-tighten the lock nut.
3. Pluck the belt like a guitar string and measure with a tuner app to verify the belt frequency is correct:
 - New (0-24h): 195-200 Hz
 - Used (24h+): 165-170 Hz

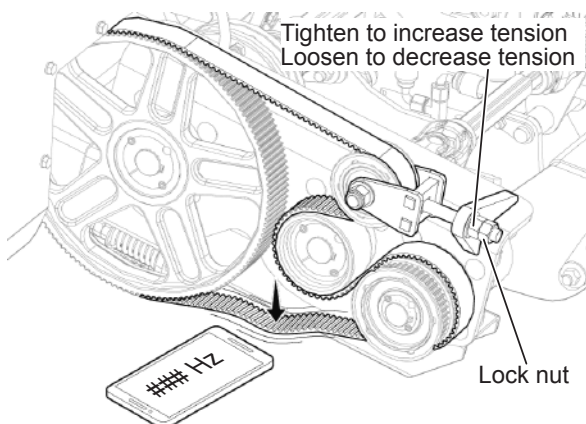


Fig. 108 - Feed Auger Drive Belt Tension Adjustment

19.5.5 - Left Draper Drive Belt 1 Tension

1. Loosen the two lock bolts and lock nut.
2. Adjust the belt tension with the adjustment bolt.
3. Retighten the lock nut and lock bolts when desired tension is achieved.

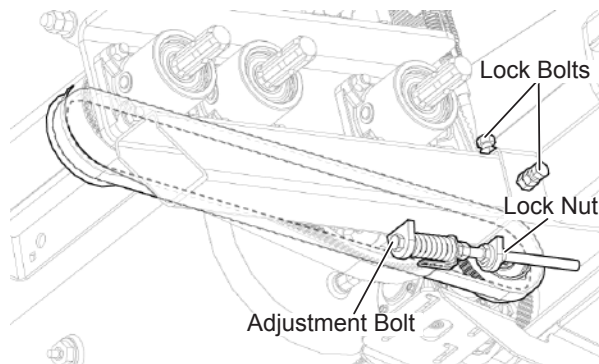


Fig. 109 - Left Draper Drive Belt 1 Tension Adjustment

19.5.6 - Left Draper Drive Belt 2 Tension

4. Loosen the four lock bolts on the bottom of the gearbox then loosen the lock nut.
5. Adjust the belt tension via the adjustment nut.
6. Retighten the lock nut and lock bolts when desired belt tension is reached.

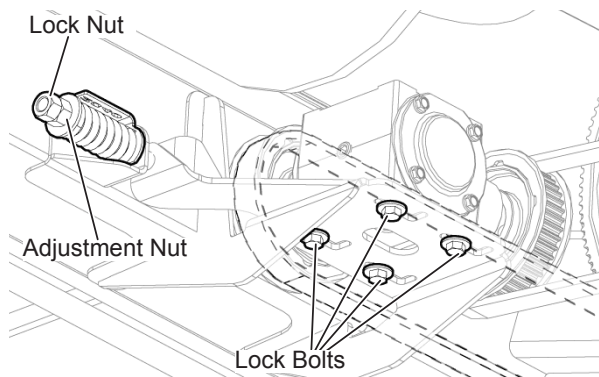


Fig. 110 - Left Draper Drive Belt 2 Tension Adjustment

19.5.7 - Center Draper Drive Chain Tension

The center draper drive chain is located on the left side of the feed auger drum enclosure, under the shield.

1. Loosen the lock nut.
2. Turn the adjustment nut until the spring indicator tip is flush with the washer.
3. Tighten the lock nut against the adjustment nut to lock it in place.

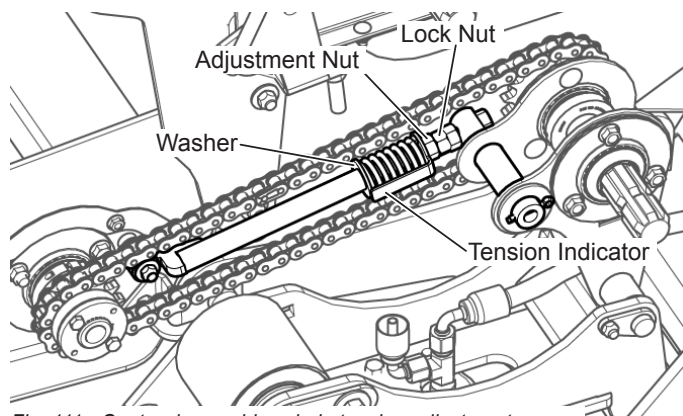


Fig. 111 - Center draper drive chain tension adjustment



IMPORTANT!

Re-check the center draper drive chain tension when the header is lifted off the ground by the combine and when the tilt cylinder is retracted as this may change the geometry of the center draper drive system.

19.5.8 - Right Hand Drive Belt Tension

1. Loosen the lock nut
2. Adjust the belt tension via the adjustment nut.
3. Retighten the lock nut when desired tension is reached.

Correct tension is achieved when the bottom section of belt vibrates at the frequency specified below when plucked. Use a tuner app to verify the frequency.

- New belts (0-24h) are properly tensioned when they vibrate at 180-190 Hz.
- Old/Used belts (24h+) are properly tensioned when they vibrate at 160-170 Hz.

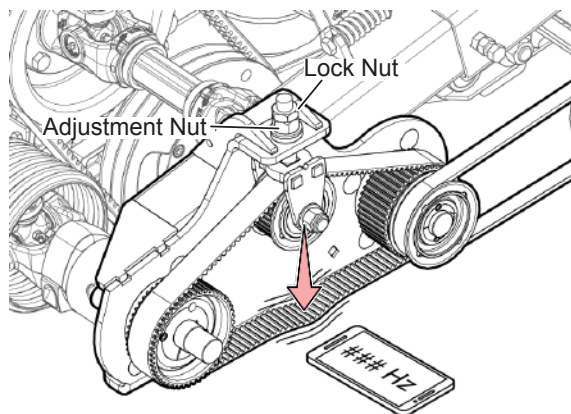


Fig. 112 - Right hand drive belt tension

19.5.9 - Right Hand Draper Drive Belt 1 Tension

1. Loosen the two lock bolts and lock nut
2. Adjust the belt tension via the adjustment bolt
3. Retighten the lock bolts and lock nut when desired tension is reached.

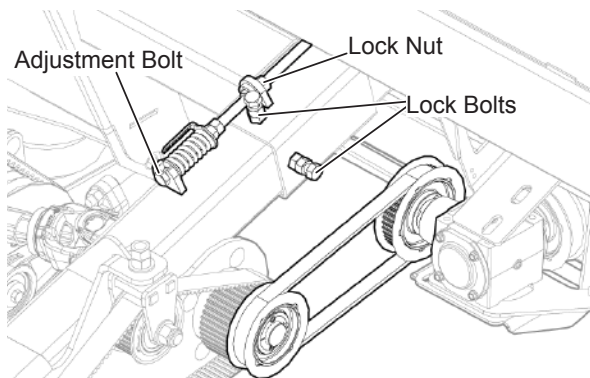


Fig. 113 - Right draper drive belt 1 tension adjustment

19.5.10 - Right Hand Draper Drive Belt 2 Tension

1. Loosen the four lock bolts on the underside of the gearbox.
2. Loosen the lock nut and adjust the belt tension via the adjustment nut.
3. When desired tension is reached, re-tighten the lock bolts.

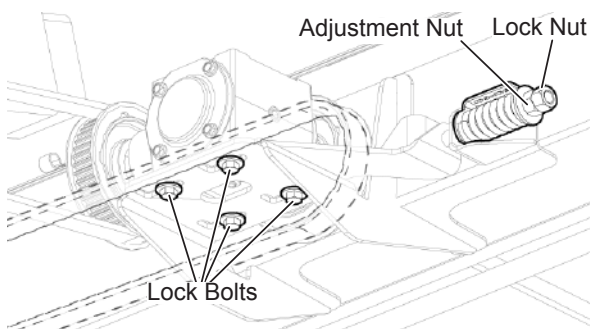


Fig. 114 - Right draper drive belt 2 tension adjustment

19.5.11 - Knife Drive Belt Tension

1. Slightly loosen the lock bolt and two lock nuts shown below. DO NOT remove them.

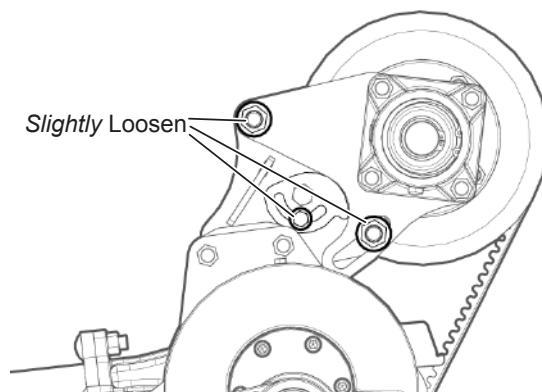


Fig. 115 - Knife Belt Tension - loosen lock nuts and bolt

2. While holding the lock bolt in place with one wrench, place a second wrench on the adjustment bolt and lift up with 180 ft/lb (244 Nm) of force. Ensure the lock bolt is tight.

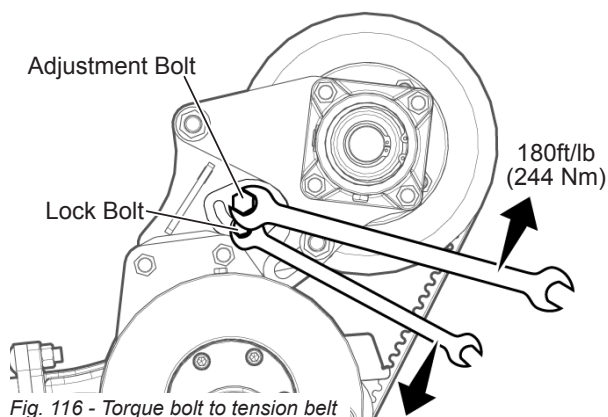


Fig. 116 - Torque bolt to tension belt

3. Re-tighten the two lock nuts.

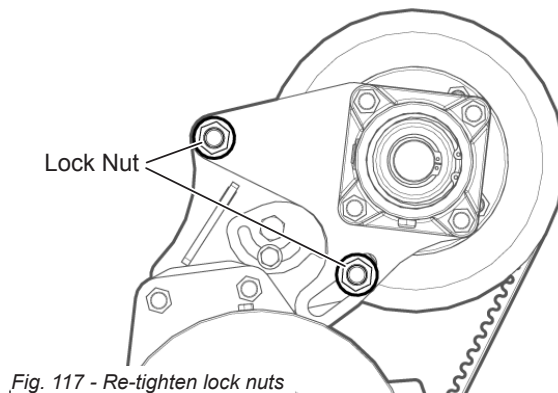


Fig. 117 - Re-tighten lock nuts

4. Correct tension is achieved when the belt vibrates at 60-70 Hz when plucked like a guitar string. Use a tuner smartphone app to verify the frequency. If the correct tension has not been achieved, repeat steps 1 through 4.

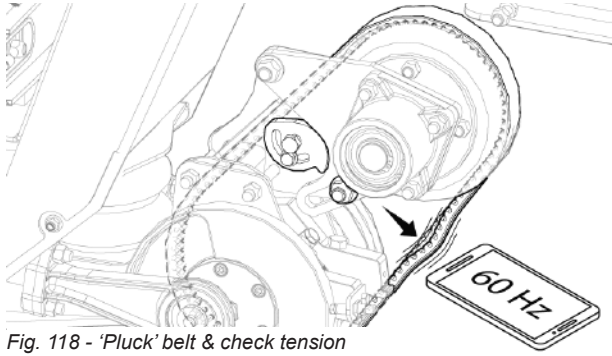


Fig. 118 - 'Pluck' belt & check tension

19.6 - Drive Belt Replacement



IMPORTANT!

When replacing or adjusting the drive belts, NEVER bend the belts beyond the diameter of the smallest pulley they will be installed on. Bending the belts too far will result in drastically reduced belt lifespan and possible equipment damage.

When replacing drive belts, check the pulleys for excessive tooth wear.

19.6.1 - Knife Drive Belt Replacement

Take note of which nuts, washers and bolts are used with which components when removing them to make the reassembly process easier.

1. Disconnect the pto driveshaft and right-hand pitman arm from the knife drive belt assembly.

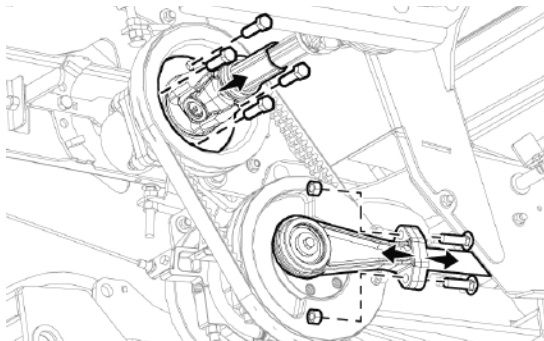


Fig. 119 - Disconnect pitman arm & PTO

2. Loosen the tension from the belt as shown below.

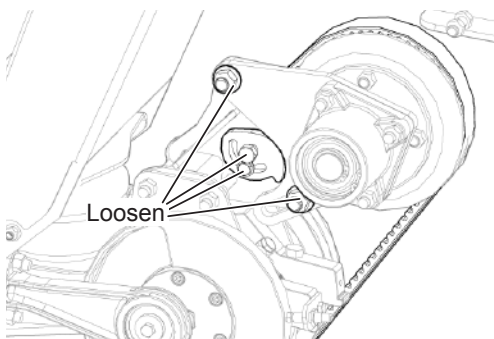


Fig. 120 - Loosen locking mechanisms

3. Remove the old belt and install the new belt.
4. Reinstall the pitman arm and drive shaft by performing the removal process in

reverse. See 21.8 on page 138 for torque recommendations.

5. Ensure the new knife belt is properly tensioned by following the directions section 19.5.11 on page 82. All fittings must be properly re-tightened after this procedure is complete.

19.6.2 - Feed Auger Belt Replacement

1. Open the side shield as described in section 19.15 on page 111.
2. Remove the left hand draper belt 1 as described in section 19.6.3 on page 85.
3. Loosen the feed auger belt tension by loosening the indicated bolt.
4. Loosen (but do not remove) the nut holding the tension pulley in place. This will release the pulley bracket allowing you to remove the draper belt.

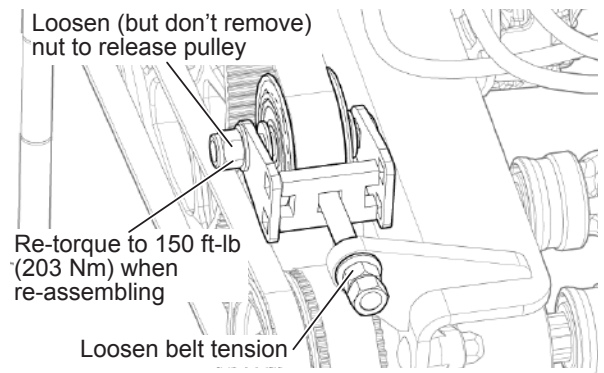


Fig. 121 - Feed auger drive belt adjustment



IMPORTANT!

If you completely disassemble the pulley, take note of the washers used on each side of the pulley to separate it from the bracket. The system will not function without these washers.

5. Take note of the belt orientation and how it is fed through the pulleys. Remove the old belt and install the new belt.
6. Reinstall the first draper belt.
7. Reinstall the pulley and ensure the tension is properly adjusted for both belts as described in section 19.5 on page 77.

19.6.3 - Left Draper Drive Belt 1 Replacement

The left hand draper uses two drive belts, the first belt runs parallel to the feed auger drive belt on the left of the sub frame.

1. Loosen the two lock bolts shown below.

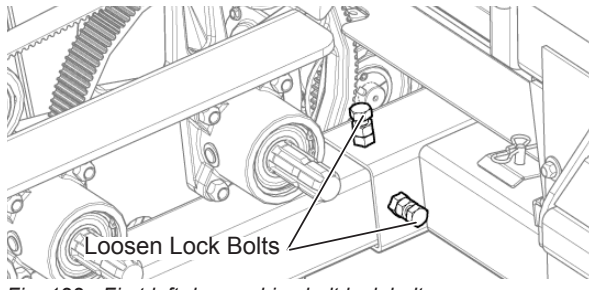


Fig. 122 - First left draper drive belt lock bolts

2. Loosen tension via the tension bolt to decrease belt tension to allow you to slide the old belt off the pulleys.

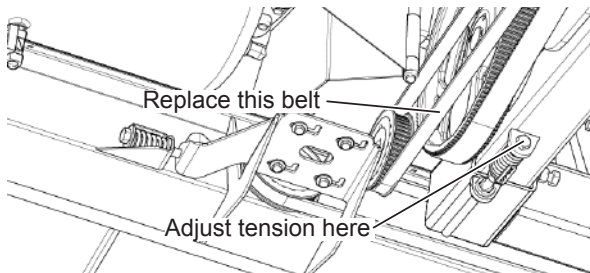


Fig. 123 - Remove the first left draper belt

3. Install the new belt on the pulleys and then re-tighten the belt tension. Ensure the belt tension is properly set as described in section 19.5.5 on page 80.
4. Retighten the two lock bolts.

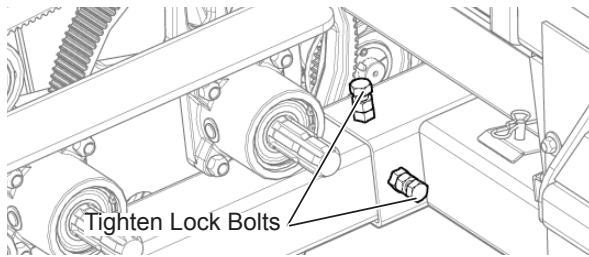


Fig. 124 - First left draper drive belt lock bolts



IMPORTANT!

It is critical that the belt is correctly tensioned and that the two lock bolts shown in Fig. 124 are securely tightened prior to operating the header.

19.6.4 - Left Draper Drive Belt 2 Replacement

The second left hand draper belt is located behind the feed auger belt assembly between the draper deck and the feed auger frame.

1. Before replacing this belt, fully extend the tilt cylinder (tilt the table forward) to allow more room for accessing belt hardware.



WARNING!

Lock the Feeder House in raised position as described in your Combine Owner's Manual. Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

2. Loosen the draper belt tension

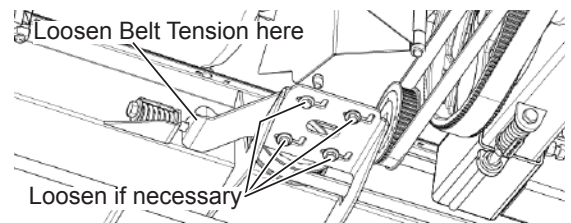


Fig. 125 - Left draper drive belt loosen tension

3. Remove the cover from the other end of the draper belt and remove the belt from the pulleys.

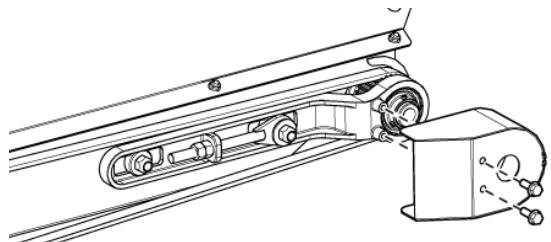


Fig. 126 - Remove left draper drive belt cover

4. Install the new belt and reinstall the cover.



IMPORTANT!

Ensure the cover shown above is installed before operating the header.

5. Ensure the belt tension is properly set as described in section 19.5.6 on page 80.

19.6.5 - Right Hand Drive Belt Replacement

1. Before replacing this belt, tilt the table forward to allow more room for accessing belt hardware.

WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

2. In order to replace the right-hand drive belt, you must first remove the right hand draper belt 1 as described in section 19.6.5.
3. Loosen the indicated lock nut, loosen the drive belt tension via the adjustment nut. Loosen but do not remove the pulley nut to release the belt.

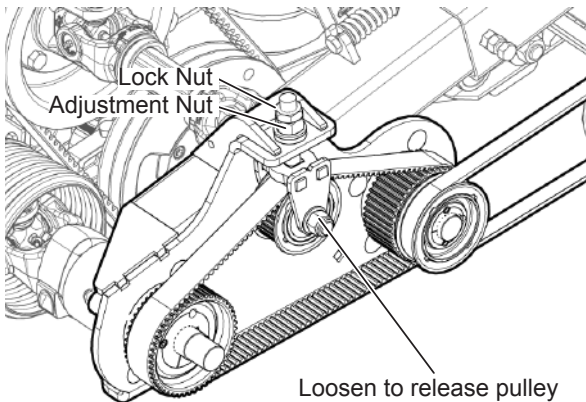


Fig. 127 - Right drive belt replacement

4. Replace and re-secure the drive belt then reinstall the right hand draper belt 1. Re-tension as outlined in section 19.5 on page 77.

19.6.6 - Center Draper Drive Chain Replacement

1. Loosen the tension on the chain by loosening the lock nut then loosening the adjustment nut.

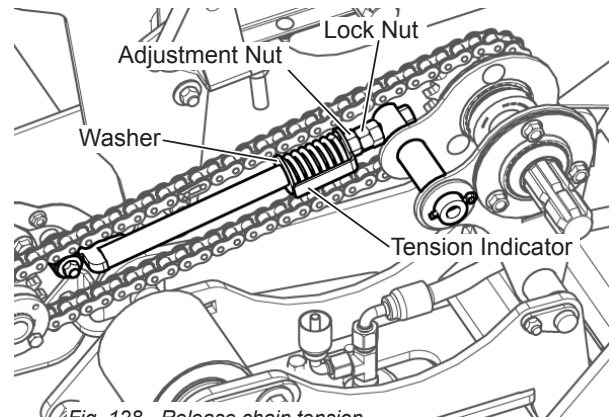


Fig. 128 - Release chain tension

2. Remove the old chain by disconnecting the master link as shown below.

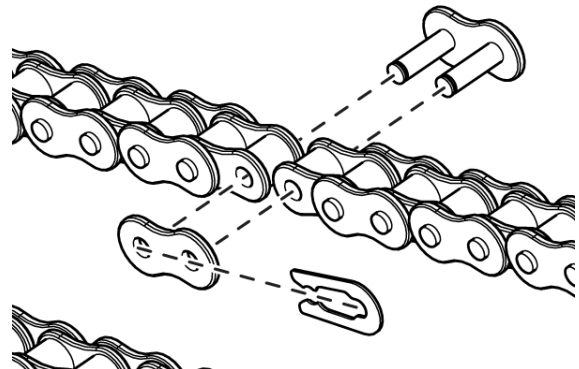


Fig. 129 - Disconnect chain master link

3. Install the new chain and secure with the master link. Re-tension as outlined in section 19.5.7 on page 81.



IMPORTANT!

Ensure the chain is lubricated as outlined in section 19.20 on page 114

19.6.7 - Right Hand Draper Belt 1 Replacement

1. Loosen the two lock bolts and lock nut then loosen the belt tension via the adjustment bolt.

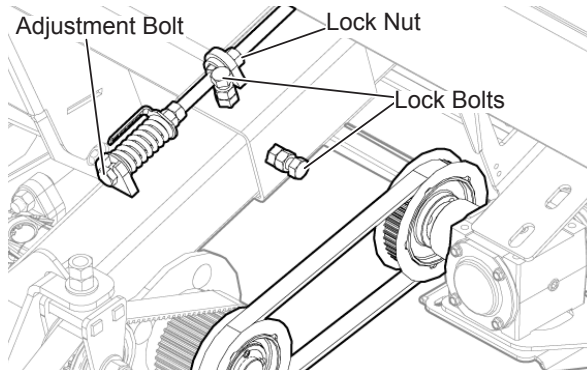


Fig. 130 - Remove RH draper belt 1 to access drive belt



IMPORTANT!

It is critical that the belt is correctly tensioned and that the two lock bolts shown in Fig. 130 are securely tightened prior to operating the header.

2. Install the new right hand draper belt 1 then re-tension both right hand draper belts as described in section 19.5 on page 77.

19.6.8 - Right Hand Draper Belt 2 Replacement

1. Loosen the tension by loosening the lock nut, adjustment nut and 4 lock bolts in order to allow the gearbox to shift along the 4 L shaped slots on the bottom.

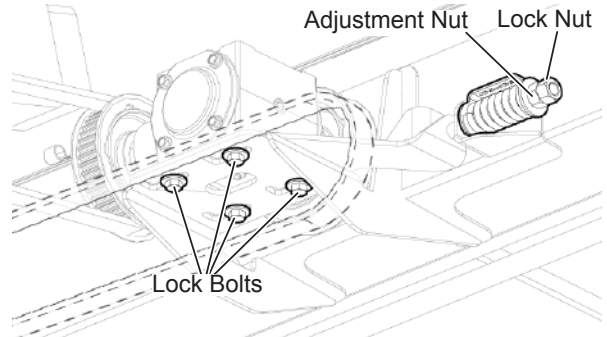


Fig. 131 - Right draper belt 2 tension adjustment

2. Slide the gearbox along the L slots to allow room for removing the belt.
3. Remove the old belt and install the new belt.
4. Move the gearbox back to its original position on the L slots then retighten the 4 lock bolts, lock nut and adjustment nut.
5. Readjust the belt tension as shown in section 19.5 on page 77.

19.7 - Drapers

19.7.1 - Side Draper Belt Tension

NOTE:

In wet or heavy crop conditions, additional belt tension is required to prevent belt slippage. Increase belt tension only when necessary as belt life, tracking, and drive components are affected.

Proper tension must be maintained on the draper to prevent slipping on the drive rollers. The draper tension is adjusted via the idler roller.

1. Engage the power unit drive with the engine at low idle.
2. Observe from the cab how drapers are tensioned.

WARNING!

Lower the header, raise the reel and engage cylinder locks. Shut down the engine before exiting the cab.

3. Take note of the tension indicator position against the spring.
4. Unlock the handle to release tension.
5. Turn the adjuster bolt until the indicator is aligned with the washer.
6. Lock the handle and tighten the lock nut.

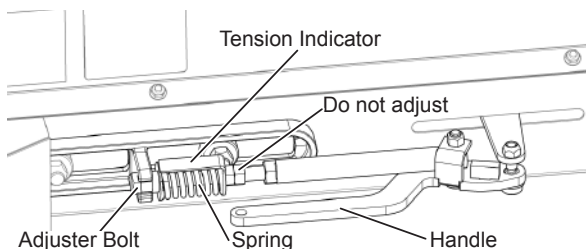


Fig. 132 - Draper Tension Adjustment

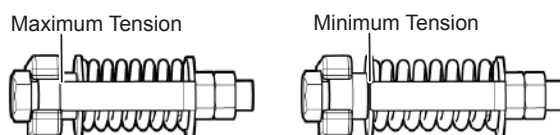


Fig. 133 - Tension Indicator Position

7. Restart the Combine and repeat the running test. Re-adjust as necessary.

19.7.2 - Side Draper Belt Tracking

If your draper drive roller is not properly aligned, the draper may start rubbing the side of its channel causing improper crop flow and equipment damage.

1. Inspect the draper for proper tracking. When not properly tracking, the draper will pile up against the edge of the draper channel.

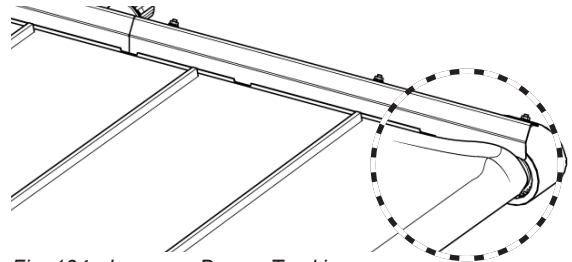


Fig. 134 - Improper Draper Tracking

2. The drive roller must be at exactly 90 degrees to the draper frame.

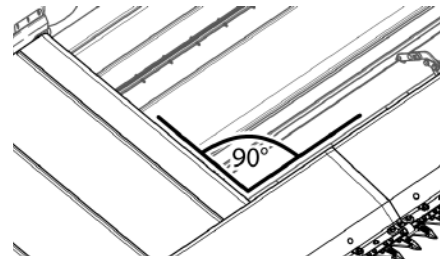


Fig. 135 - Draper tracking/alignment

3. If adjustment is required, first release the draper belt tension handle, then loosen the lock nut and reposition the drive roller via the adjustment nut. Re-engage the draper tension handle.

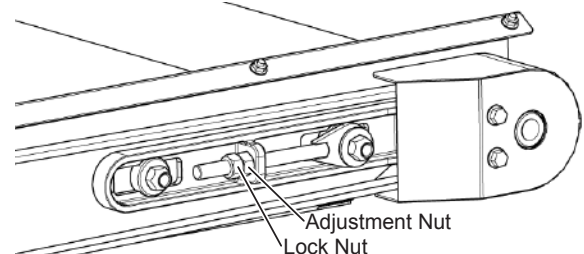


Fig. 136 - Center Draper Tension Adjustment

4. Once satisfied with drive roller alignment, re-tension the draper drive belt as described in section 19.5.

19.7.3 - Center Draper Belt Tension



WARNING!

When working under platform always lower hydraulic cylinder safety stop onto cylinder rod to prevent platform from lowering.



NOTE:

For difficult crops, additional belt tension may be required. Increase belt tension only if necessary as belt life, tracking, and drive are affected.

To tension the center draper:

1. Locate the two tensioners on each side of the center draper on the underside of the header.
2. Loosen the 1/2" UNC Jam Nut, hold the lock nut with a wrench to prevent it from moving and turn the adjuster bolt until the tension indicator is in line with the end of the spring. Retighten the jam nut.
3. Repeat the process for the adjuster bolt on the other side of the center draper.

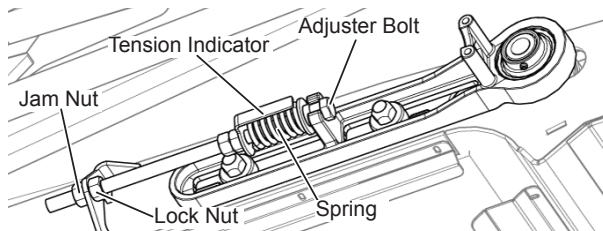


Fig. 137 - Center Draper Tension Adjustment

19.7.4 - Draper Installation

1. Make sure that the quick release lever is in the open position prior to installing the draper on the deck.
2. Place draper bundle on the top of deck runners, and unroll with the slats facing up. Be sure to align the v-guide with the notched side of the roller toward the rear end of the header.
3. Wrap draper around one of the rollers and feed draper into the bottom runner of the deck. The bottom runners will support the draper, and prevent it from hanging down.
4. Pull draper through bottom runner, and wrap around the other roller. Pull the ends of the draper together. Install a connector bar to close the joint.

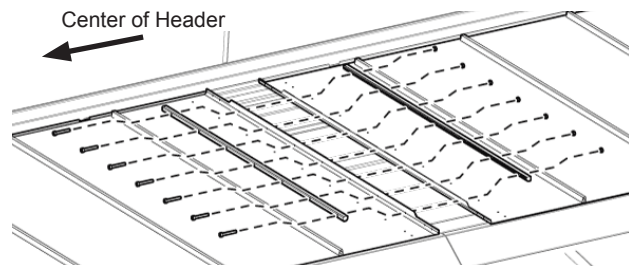


Fig. 138 - Installing Draper Connector Bar

5. The bolts for the connector bar should be installed with the bolt heads facing the center of the header. This helps prevent the crop being caught on the screws. Complete the installation by adjusting tension and tracking as described on the following pages.
6. Once the draper is installed on the draper deck, close the quick release lever (shown on following page) to apply tension to the draper.

19.7.5 - Draper Tensioner Setup

If the draper tensioner is ever disconnected, or if you suspect the tensioner has become misconfigured, and needs to be set up again, please follow these instructions:

1. Loosen the adjustment and lock nuts next to the spring indicator.

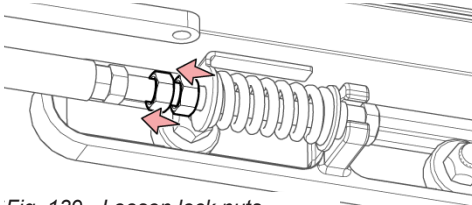


Fig. 139 - Loosen lock nuts

2. Push the indicator, spring, washer and ferrule tube up against the shoulder bracket as shown below. Ensure the ferrule tube is fully seated in the bracket.

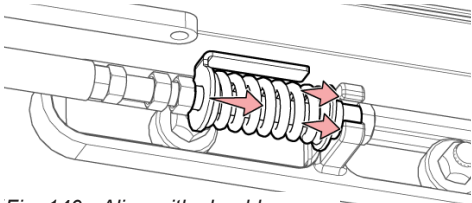


Fig. 140 - Align with shoulder

3. Tighten the first 1/2" nut until it JUST starts to compress the spring. Do not overtighten.

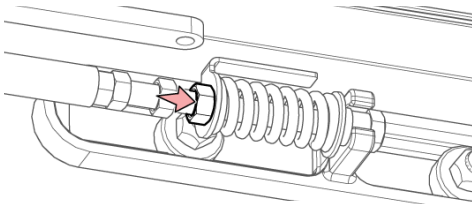


Fig. 141 - Tighten nut until snug

4. Tighten the lock nut up against the adjustment nut.

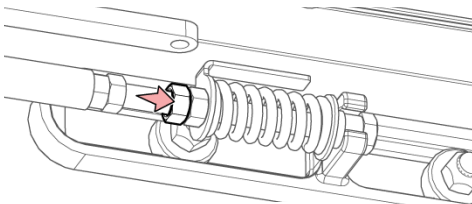


Fig. 142 - Tighten lock nut

5. Proceed to section 19.7.1 on page 88 to re-tension the draper.

19.7.6 - Remove & Install Center Draper Belt

1. When installing the center draper belt, you should first remove the bottom cleanout panel to allow access under the draper.

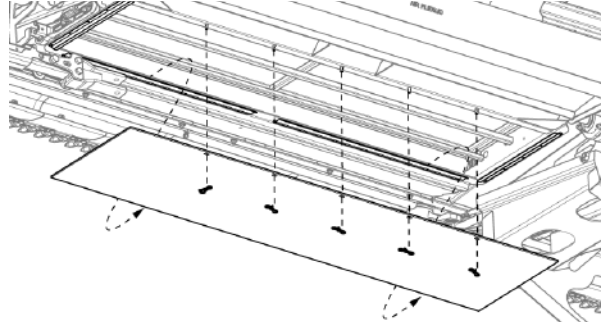


Fig. 143 - Remove Center Draper Cleanout Panel

2. Unpack and unroll the new draper on top of the center feed deck.

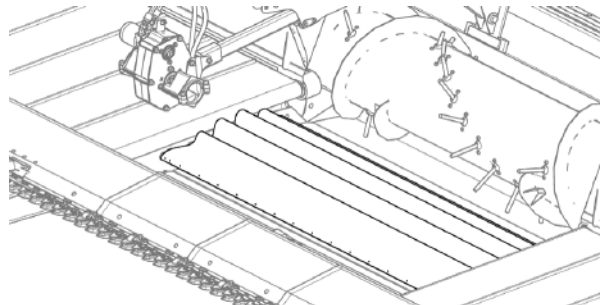


Fig. 144 - Unroll new draper onto center deck

3. Feed the draper around the rollers, under the center deck and back out the top.
4. Connect the ends of the draper together using the connector bars. Insert the bolts from the feed auger side of the center draper deck.

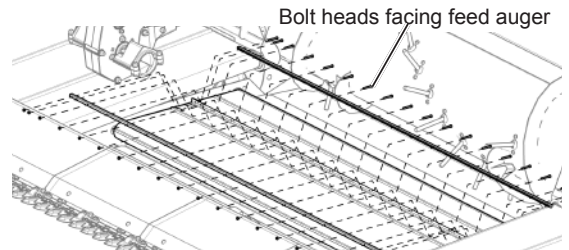


Fig. 145 - Secure Draper With Connector Bars

19.7.7 - Draper Splicing

Regular maintenance will extend the life of your draper. Tears in the draper can be caused by poor tracking, foreign materials, or from careless use. If only a portion of draper is damaged, a splice may be installed.

Before beginning this repair, you will need an additional connector bar set and a section of draper that is at least 2 1/2" longer than the piece to be removed.

NOTE:

If the damaged section is not near an existing connector bar, you will need 2 connector bar sets and a piece of draper 5" longer than the damaged piece.

1. Raise the header and install lift cylinder locks. (If this is too high for comfortable access, the table can be set on blocks or lowered to the ground.)
2. Raise the reel and place the locks on the lift cylinders to prevent the reel from falling.



WARNING!

Engage the park brake on the combine, shut the engine down, and wait for all moving parts to stop before leaving the cab.

3. Release the draper tension.
4. Remove draper connecting bar.
5. Correct the cause of the draper failure.
6. The draper should be cut midway between two slats to provide ample material for the new join. With a measuring tape, measure, and mark a line six inches from a slat on a good portion of the draper. Place a board directly under the line you have marked, to support the section you will be cutting. With a utility knife and a straight edge cut the draper along the marks. This cut must be accurate, and square, to assure that the draper will track properly. Repeat this step on the other side of the damaged area.
7. Lay the piece you have removed flat, and measure the width, then add 3 1/2 inches.

The total will be the length of material you require for the splice. (If you need two new connector bar sets, add 5".)

8. To mark the location for holes, measure 1" in from each edge to be joined, and mark a line parallel to the cut edges.
9. On each of these lines, measure 1-1/8" from the front edge of the draper, and make a mark for the first hole.

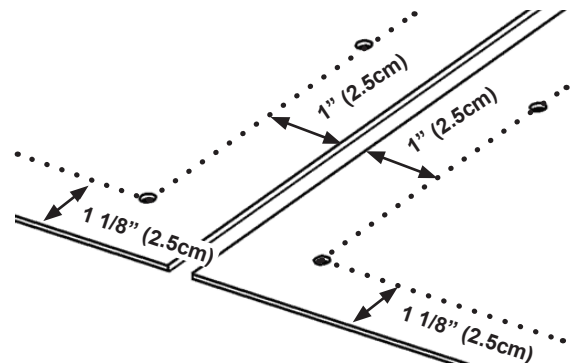


Fig. 146 - Draper Splice Hole Measurements

10. Drill 3/16" holes through each mark.
11. Place the backs of the draper together, lining up these drilled holes.
12. Place a connector bar on each side, line up the holes, and secure with a machine screw and nut.

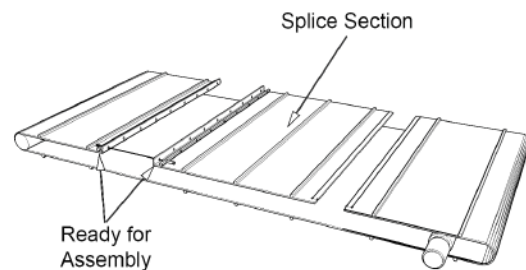


Fig. 147 - Draper Splice

13. Match up the edges of the draper and drill a hole at the opposite end on the 1" line, using the connector bar as a template. Insert a screw and secure in place. Drill the remaining holes through the holes in the connector bar, insert screws and secure.
14. Adjust draper tension. Trim all joins to 1/2" above connector bar.
15. Adjust tracking.

19.8 - Reel

19.8.1 - Set Reel Safety Stops

End reel arms: Raise reel completely and engage safety stops on reel lift cylinders at each end of the header. The stop must be snapped over cylinder with the lock pin.

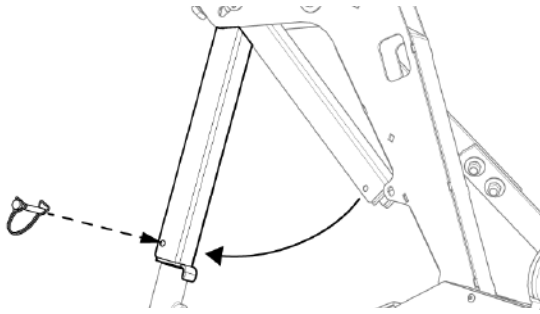


Fig. 148 - Reel Arm Safety Stop

Center reel arm: Pin reel arm in front of arm on center reel arm tower to hold it up mechanically.

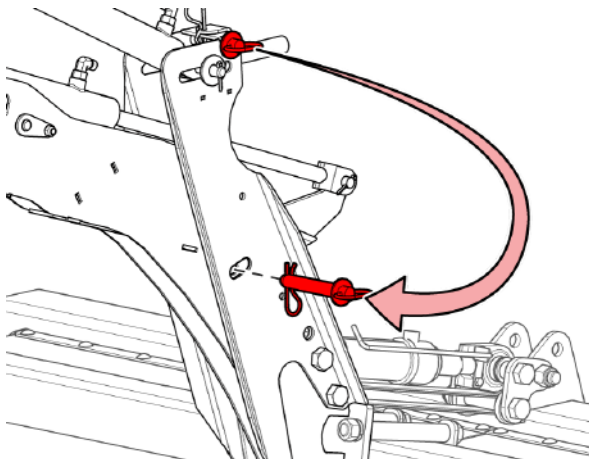


Fig. 149 - Center Reel Arm Lock Pin

19.8.2 - Rephasing Reel Cylinders

If cylinders become unevenly extended, retract the cylinders and hold the cylinder retract switch for a few seconds to remove air from the system, then fully raise the reel and hold to allow the rest of the cylinders to rephase.



IMPORTANT!

In order to fully extend RH reel lift cylinder the header reel must be running. Failure to run the header when you fully lift the reel will result in the RH reel lift cylinder only extending partially.

19.8.3 - Automatic Reel Speed

The reel speed sensor is calibrated for various combines. Additional calibrations can be added via software updates. Auto reel speed only works when auto header height is active.



NOTE:

Automatic control will not work if ground speed is less than 1 km/h (0.62 mph). When driving the header slowly through a lodged crop, shut off auto control and use manual speed controls.

It is recommended that the reel speed be set 10-20% faster than combine ground speed.

19.8.4 - Reel Speed Sensor Adjustment

The reel speed sensor (and all other speed sensors) must be adjusted so the face of the sensor is touching the rotating trigger, **then unscrew about 1 turn (1 turn = 1mm)**. The rotating trigger is the teeth on the small reel drive gear. This is adjustable externally with no disassembly required. When adjusting the speed sensors, unplug the connecting wire so the body of the sensor can spin in or out without twisting the wire. When done, tighten the jam nut with a 3/4" wrench and reconnect the wire.

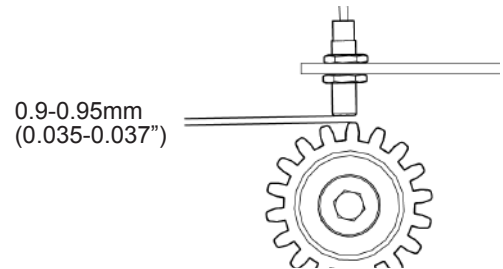


Fig. 150 - Speed Sensor Spacing

19.8.5 - Minimum Reel Height and Leveling Reel

Proper setting of minimum reel height will protect against unexpected reel movements that can place reel fingers in contact with cutterbar.

1. Fully lower table. Fully lower reel.
2. Adjust finger pitch so the tips of the reel fingers are as close to the cutter bar as possible with the adjustment ring at middle position (5 for HB reels, or 3 for the CAM reel). See section 16.4 on page 60 for details on adjusting finger pitch.

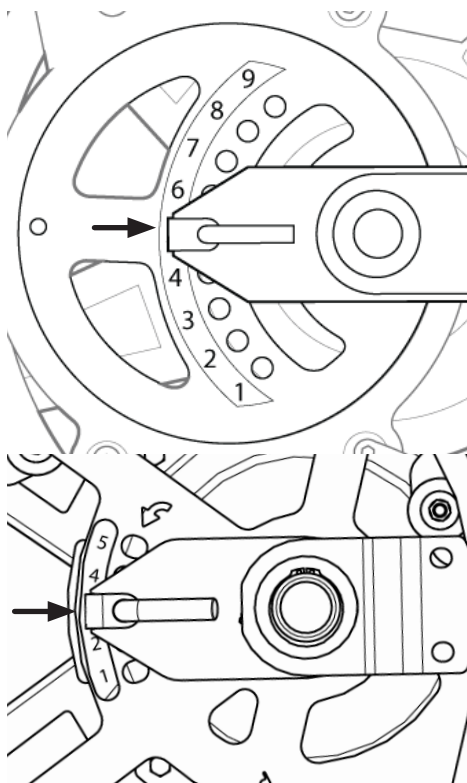


Fig. 151 - Reel finger pitch adjustment

3. Position reel fingers as close to cutterbar & feather plates as possible, using fore/aft cylinders.

4. Using a wrench to rotate the 3/4" UNC adjustment bolts on the left and right reel arms, raise or lower reel. Adjust each shaft so the clearance between the reel fingers and cutterbar is a minimum of 1 1/2" (3.8 cm) along full length of reel.

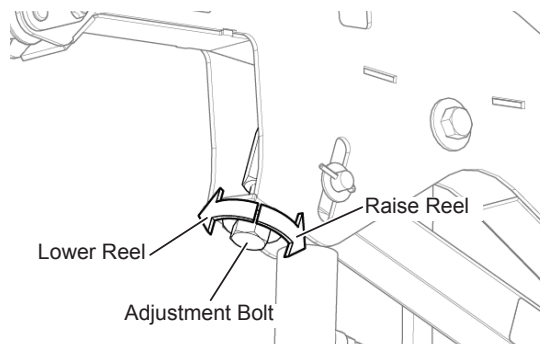


Fig. 152 - Reel Height Adjustment Bolt

5. Adjust the center reel arm height (if applicable) by removing the pin, releasing the lock and turning the 1" UNC adjustment nut as shown below.

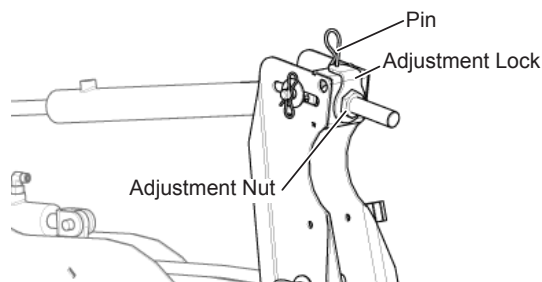


Fig. 153 - Center Reel Arm Height Adjustment



IMPORTANT!

Note that reel timing adjustments will change the reel finger-cutterbar clearance. The operator needs to be aware of finger clearance at all times.

19.8.6 - Reel Finger Replacement



WARNING!

To avoid serious injury, completely raise reel, shut OFF engine, set parking brake, and remove key. Engage reel lift safety stops,

1. Using a pair of slip-joint pliers, grab, squeeze and pull to remove the spacer next to the reel finger to be replaced.

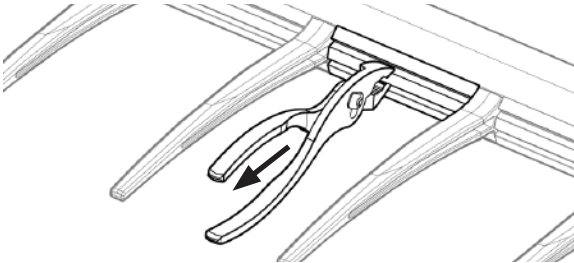


Fig. 154 - Remove reel finger spacer

2. Twist the reel finger counter-clockwise and pull to remove it from the channel.

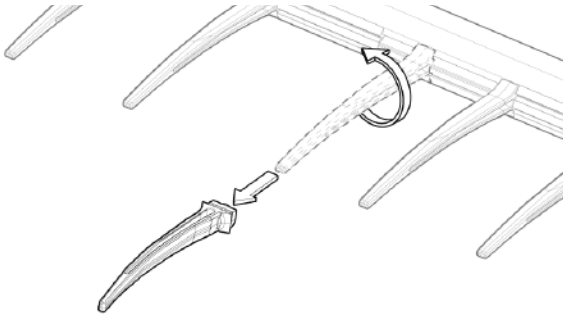


Fig. 155 - Twist clock-wise and pull to remove finger

3. Reverse the above procedure to install the new reel finger.



NOTE:

If multiple reel fingers are being replaced, only 1 spacer must be removed, the remaining spaces can be slid side to side while installing the fingers.



NOTE:

The spacers are not required to secure the reel fingers to the reel bat and may be left out if custom finger spacing is desired.

19.8.7 - Control Ring Rollers (HB Reel)

Before the beginning of each season, the reel rollers should be checked and adjusted if necessary to ensure the reel remains centered.

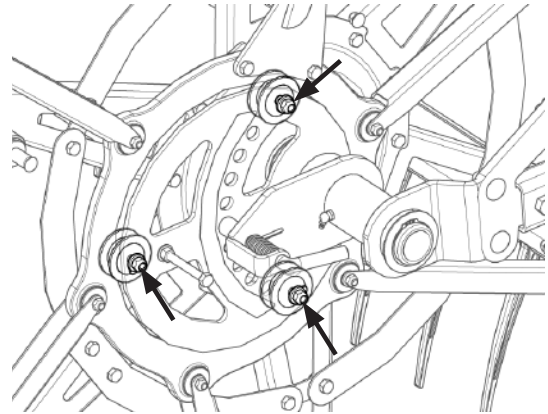


Fig. 156 - Reel control ring rollers



WARNING!

To avoid serious injury, completely raise reel, shut OFF engine, set parking brake, and remove key. Engage reel lift safety stops,

1. Rotate the reel until the rollers are at the tightest location. This will assure that the rollers will not bind as the reel turns.
2. Adjust the rollers by loosening up the mounting bolt on each roller (indicated by arrows in illustration)
3. Move all the rollers so they have light pressure on the inner diameter of the control ring.
4. Adjust all three rollers so they are in the same location in each of their slots.
5. Tighten the mounting bolts.
6. Roll the reel to make sure that there continues to be light pressure on the rollers.
7. Repeat for the other end of the reel.



NOTE:

If one roller must be adjusted then all the rollers must be adjusted to the same position in the slots.

19.8.8 - Combine PPR Settings for HB Reels

Different combine makes expect different reel speed sensor pulse per rotation (PPR) values. The Honey Bee reel speed sensor outputs 48 PPR. In order to obtain accurate reel speed values on the combine console, you must ensure your combine expects the correct PPR value.

19.8.8.1 - John Deere Combines

1. With the key switch turned on, select the main menu icon on the combine's display.



Fig. 161 - Menu Icon

2. Select the Message Center icon.



Fig. 162 - Message Center

3. Enable Technician Mode:

- Select the Addresses Icon



Fig. 163 - Addresses

- Hold down the check mark button on the combine's control panel for 30 seconds then release it.



Fig. 157 - Check Mark Button

- A 'T' should appear next to the device drop down box indicating that Technician Mode has been activated.

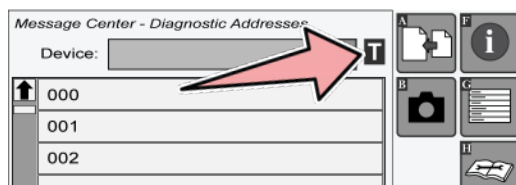


Fig. 158 - T Symbol

4. Select the drop down box, scroll down and select LC1.001.

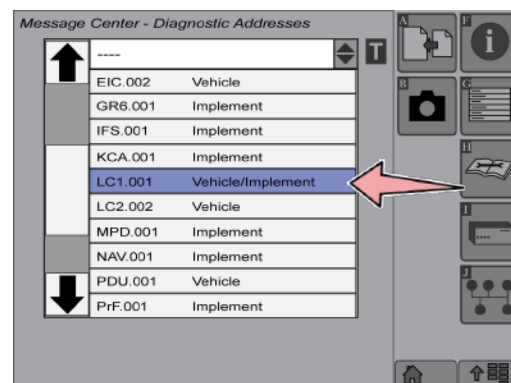


Fig. 159 - Select LC1.001 from dropdown box

5. Scroll down and select address 160.

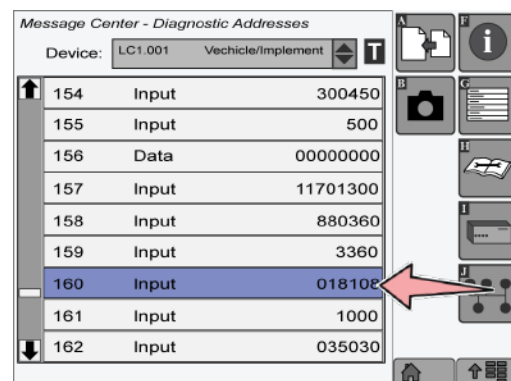


Fig. 160 - Select 160

6. The default value for address should now be displayed on the screen (**018108** or **11018108**). The **018** portion of this number represents the default PPR for your combine. Select the Accept icon.



Fig. 164 - Accept Icon

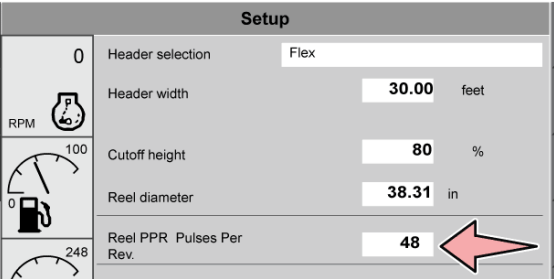
7. Replace the **018** section of the number with **048** to accurately reflect the Honey Bee Reel PPR. The number should now be **048108** or **11048108**. Press the Accept icon again to accept your changes.



Fig. 165 - Update with 48 ppr

19.8.8.2 - AGCO (Gleaner, Massey, Challenger)

Enter the value of 48 in the Reel PPR field on the combine setup screen.



| Setup | |
|-------|-----------------------------|
| 0 | Header selection Flex |
| RPM | Header width 30.00 feet |
| 100 | Cutoff height 80 % |
| 0 | Reel diameter 38.31 in |
| 248 | Reel PPR Pulses Per Rev. 48 |

Fig. 166 - Enter 48 for PPR on Setup Screen

19.8.8.3 - CNH & LEXION

No modifications are required

19.9 - Knife

19.9.1 - Knife Drive Component Torque Recommendations

When servicing the knife drive components, refer to the illustration below for recommended torque values.

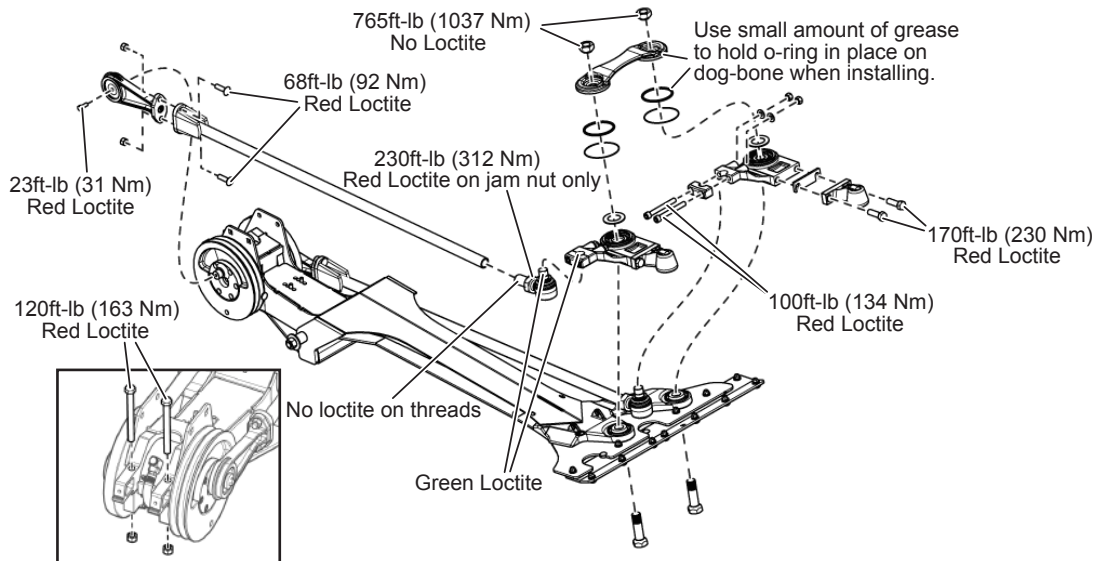


Fig. 170 - Knife Drive Torque Recommendations (see section 21.8 on page 138 for details)

19.9.2 - Set Cutterbar Knife Timing

WARNING!

Ensure the combine feeder house is full raised and all safety locks are secured in place. Failure to do so can result in injury or death.

1. Disconnect the drive shaft PTO from the knife drive system to allow you to move the knives freely while aligning.
2. Remove the shield covering the flywheel.
3. Run a 1/2" (1.27 cm) bolt or rod through the alignment hole of the two flywheels to keep them aligned with each other.

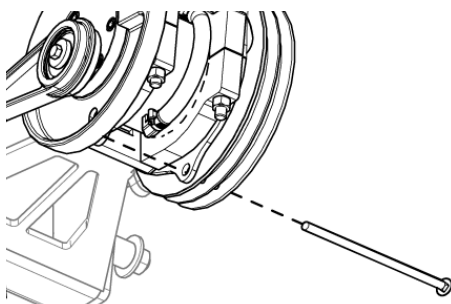


Fig. 167 - Align Drive Plates with a Bolt



IMPORTANT!

It is important to use a 1/2 inch bolt/rod to lock the timing without any slop. Too much 'wobble' will result in a bad timing adjustment.

4. Remove the feather plate from above the two knife heads on the cutter bar.
5. Check alignment of bell cranks and cutting sections to determine if timing adjustment is necessary.

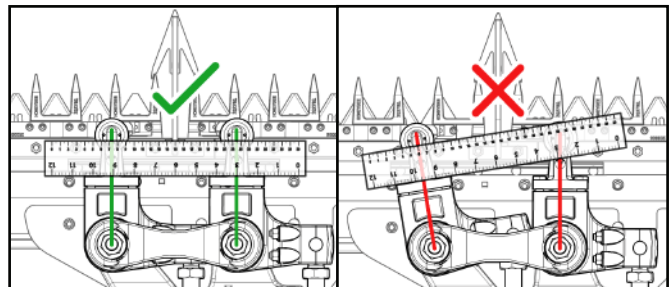


Fig. 169 - Correct Timing - bell cranks are parallel

Fig. 168 - Incorrect Timing - bell cranks are not parallel

6. Loosen the drive arm jam nuts

7. Disconnect the two knife drive arms from each of the two knife drive flywheels as illustrated.

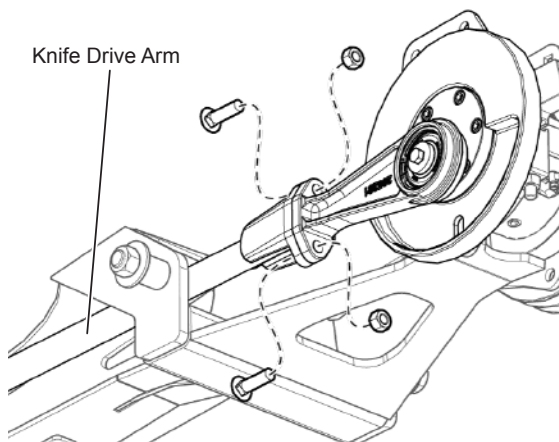


Fig. 171 - Disconnect both Knife Drive Arms

8. Adjust the knife drive arm length until the bell cranks and cutting sections are aligned. Screw/unscrew until tight.
9. Once aligned, tighten the right-hand arm 3 additional turns.

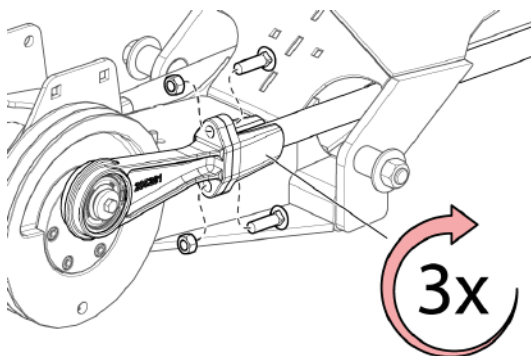


Fig. 172 - Tighten right hand knife drive arm 3 turns

10. Re-attach the knife drive arms to the flywheels.
11. Re-torque everything.
12. Remove the bolt/rod that was inserted in the alignment hole on the flywheels.
13. Reinstall the safety shields & ensure the knife belt is properly tensioned.

14. Run the header for a few minutes and observe the point between the left and right knife heads. Ensure the two knives do not contact each other during operation. If necessary, repeat steps 1 through 13.

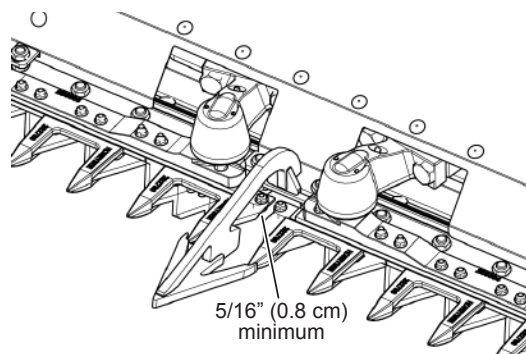


Fig. 173 - Check clearance (low profile cutting system shown)



IMPORTANT!

Remember to remove the rod or bolt that was temporarily installed in the flywheels to keep them aligned.



DANGER!

Keep yourself and bystanders away from moving parts! Failure to do so will result in injury or death.

19.9.3 - Installing Low Profile Guards

Take note of the low profile cutting system layout centered around the knife head. There are 10 spacers (5 on each side of the eagle beak), with wear plates installed along the remaining length of the cutter bar.

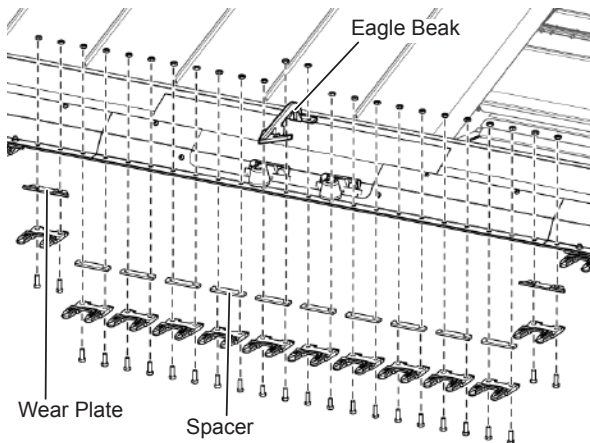


Fig. 174 - Low profile cutting system layout

When installing knife guards, insert a pry bar between the guard and the knifeback and apply pressure so the guard is forward as possible before tightening the guard nuts and bolts. Keep applying pressure to the pry bar while tightening so the knifeback has maximum space.

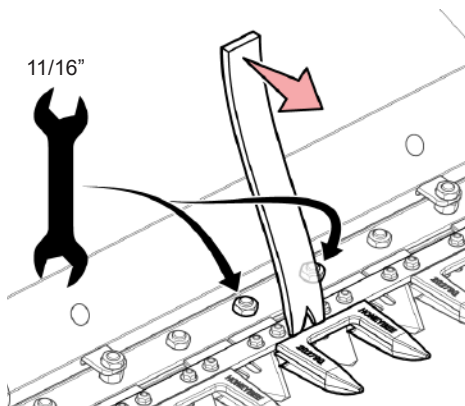


Fig. 175 - Pry guard forward when tightening

19.9.4 - Set knifehead bearing assembly fore/aft position

1. Disconnect the drive shaft PTO from the knife drive system to allow you to move the knives freely while aligning.
2. Remove the shield covering the flywheel.
3. Run a 1/2" (1.27 cm) bolt or rod through the alignment hole of the two flywheels to keep them aligned with each other.
4. Remove the feather plate from above the two knife heads on the cutter bar.
5. Install the bearing housing onto the knife.
6. Put Red (High Strength) Thread Locking Compound on gooseneck mounting bolts and loosely connect gooseneck to bell crank.
7. Start installing shims between the gooseneck and bell crank and watch for clearance between the knife assembly (knifeback on top) and guards. Install enough shims so that the clearance between the knife assembly (knifeback on top) and the center guards is roughly 1-32" to 1/16" (see image below).

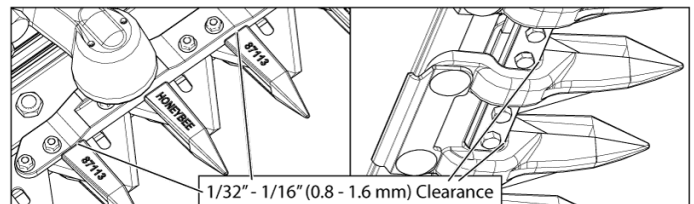


Fig. 176 - Knife Guard Clearances

8. Once fore/aft position of knife head bearing assembly is set, tighten mounting bolts to 170 ft-lbs.
9. To prevent binding between the left and right knife at the overlap and/or excessive wear caused by the sickle sections pressure onto the guards, check clearances between the sickle sections and the guards and also between the left hand and right hand knives at the overlap. If excessive pressure is found please readjust vertical position of knifehead bearing assemblies. Also over greasing of the knifehead bearings can cause excessive pressure as well. To relieve grease pressure in the knifehead bearings depress the check-ball in the grease fittings.

19.9.5 - Knife Section Service Kit

Service kits are available from your Honey Bee dealer to replace individual sections, or complete knife.

Kit contains all necessary hardware, sections and instructions.

19.9.6 - Cutterbar Maintenance

For optimal performance and durability of knife:

- Inspect for broken or improperly adjusted hold-downs.
- Inspect for dull or broken knife sections
- Inspect for dull, worn or broken guard cutting edges.
- Inspect for excessive binding between knife sections and guards. Binding can be caused by bent/misaligned guards components or organic build-up from high resin crops such as lentils..
- Inspect knife head and knife drive alignment with first guard slot to ensure binding is not present in these areas.
- Ensure cutting system turns freely by rotating the drive by hand (drive shaft removed). If system does not turn freely, repeat inspection.

19.9.7 - Replacing the Knife

WARNING!

Knife sections are sharp!

Wear protective gloves when handling knives.

Raise platform completely and engage feeder house safety stop. Raise reel completely and engage reel lift cylinder safety stops. Shut OFF engine, set parking brake, remove key.

1. In order to replace either the left or right hand knife, you must first remove the feather plate from above the knife head bearings.

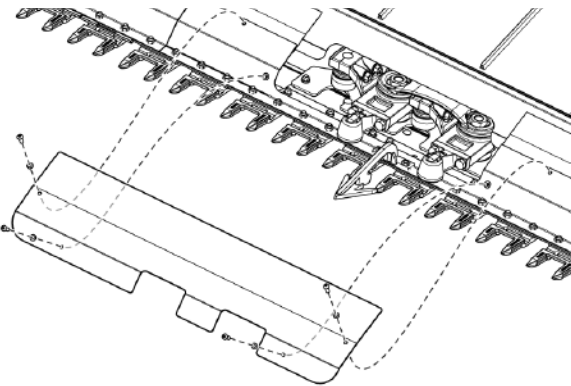


Fig. 177 - Remove feather plate over knife bearings

2. Remove the grease zerk from the bearing housing that you will be removing in the following sections (right or left)

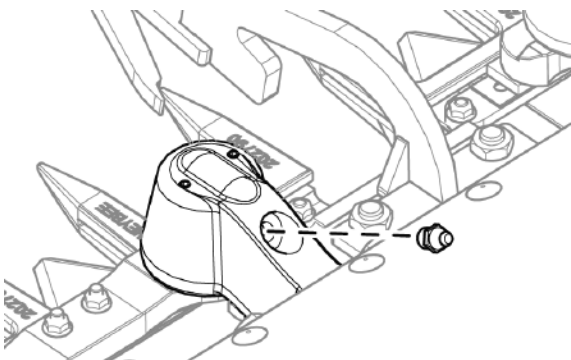


Fig. 178 - Temporarily remove grease zerk

19.9.7.1 - Removing the Right Hand Knife

1. Remove 4 to 6 guards from around the right hand knife head.

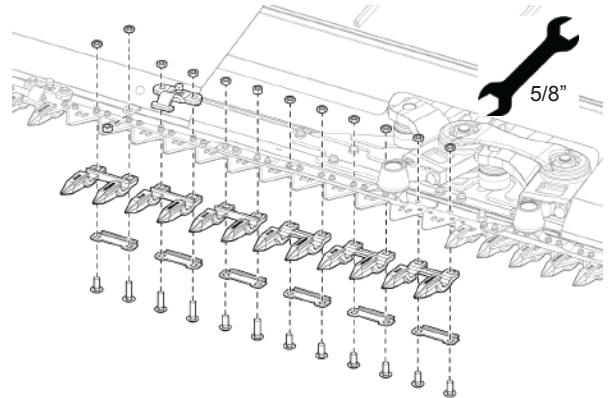


Fig. 179 - Remove guards around right hand knife head

2. Remove the bearing housing from the right hand knife head.

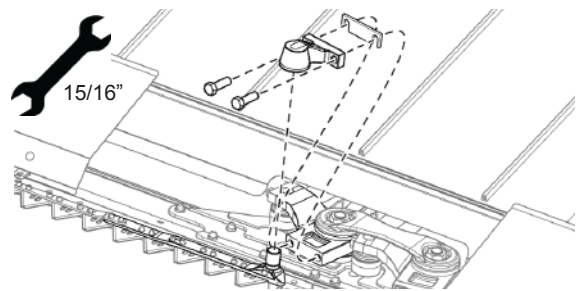


Fig. 180 - Remove bearing housing from right hand knife head

IMPORTANT!

There are a number of loose components within the knife head that you must take care to keep in place when reassembling. Take special precautions not to disturb the needle bearings within.

3. Wearing protective gloves, lift and pull knife head out from guards.

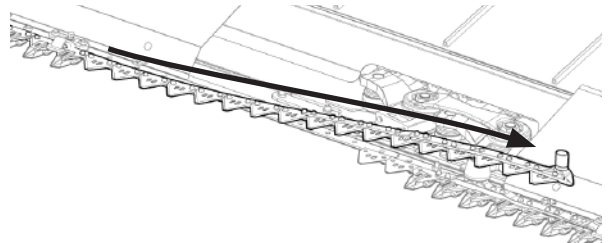


Fig. 181 - Lift and pull out the right-hand knife

NOTE:

It is easiest to lift the right-hand knife to remove it from the cutter bar but you may require a second person to help support the knife to prevent it from getting caught on the guards.

If performing this procedure alone, you may wish to lower the knife in order to pull it out of the cutter bar.

19.9.7.2 - Removing the Left-Hand Knife

1. Remove 4 to 6 guards from around the left hand knife head.

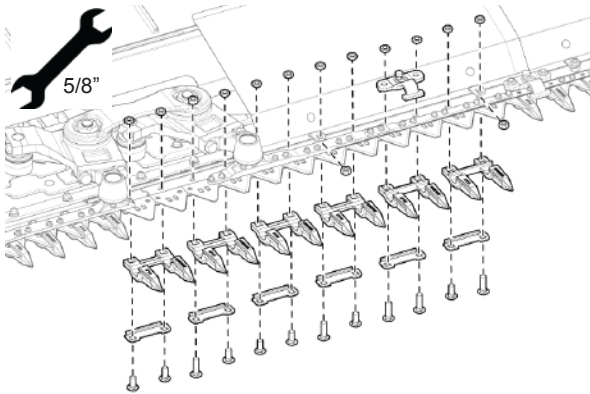


Fig. 182 - Remove guards around the left hand knife head

2. Remove the bearing housing from the left hand knife head.

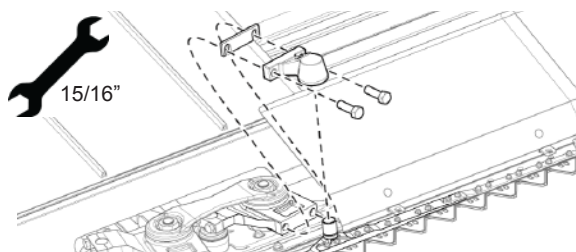


Fig. 183 - Remove left hand knife head bearing

IMPORTANT!

There are a number of loose components within the knife head that you must take care to keep in place when reassembling. Take special precautions not to disturb the needle bearings within.

3. Wearing protective gloves, lower and pull the knife head out from guards.

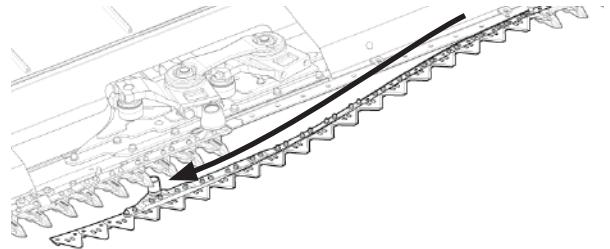


Fig. 184 - Lower and pull out the left hand knife

19.9.7.3 - Installing the new knife (left or right)

1. Slide the new knife into place.
2. Pack the bearing housing with grease, taking care not to dislodge the needle bearings.
3. Push the bearing housing back into place by hand only. Do not use a hammer or damage will result.
4. Check the bearing housing to ensure it is properly seated. When properly installed, the shiny bearing should not be visible below the housing.

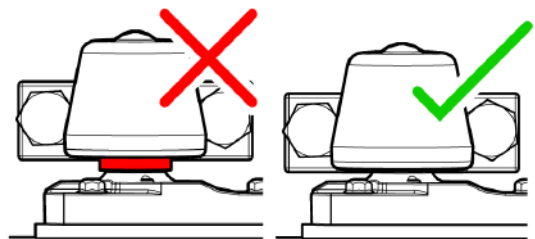


Fig. 185 - Ensure bearing is properly seated

5. Bolt the bearing housing in place and reinstall the grease zerk. Torque the two bolts to 170 ft-lb (230 Nm).
6. Reinstall the 4 to 6 guards
7. Reinstall feather plate section above the knife heads.

IMPORTANT!

Lubricate the knife head as described in section 19.20.10 on page 116.

19.9.8 - Inspect Knife Sections

WARNING!

Wear protective gloves when handling knives.

Raise platform completely and engage feeder house safety stop. Raise reel completely and engage safety stops on reel lift cylinders. Shut OFF engine, set parking brake, and remove key.

Periodically inspect the cutting sections for worn or bent cutting teeth and replace them if necessary. Worn or bent cutting teeth result in reduced cutting performance and increased power requirements.

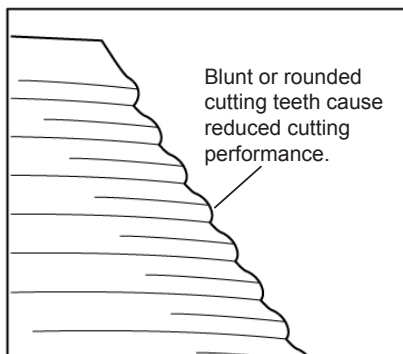
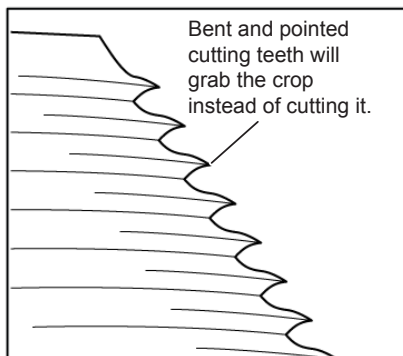
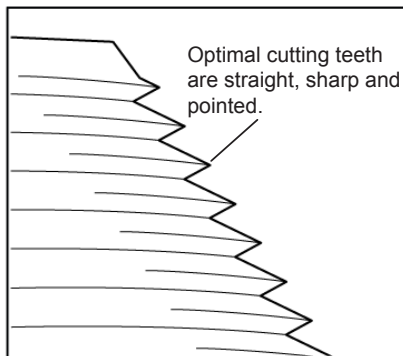


Fig. 186 - Cutting Section Wear

19.9.9 - Remove and Install Knife Sections

WARNING!

Wear protective gloves when handling knives.

Raise platform completely and engage feeder house safety stop. Raise reel completely and engage safety stops on reel lift cylinders. Shut OFF engine, set parking brake, and remove key.

Position knife so hold-downs and guard tangs do not inhibit section removal.

1. Remove the guard from over the knife section to be replaced

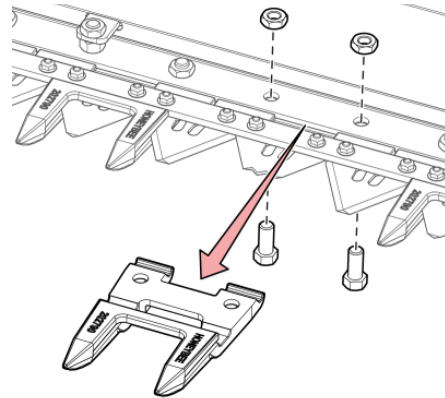


Fig. 187 - Remove guard

2. Remove the nuts from the damaged knife section and discard the section.
3. Replace any damaged cap screws, you may need to move the knife side to side to make the bolt holes accessible.
4. Install knife section and nuts.

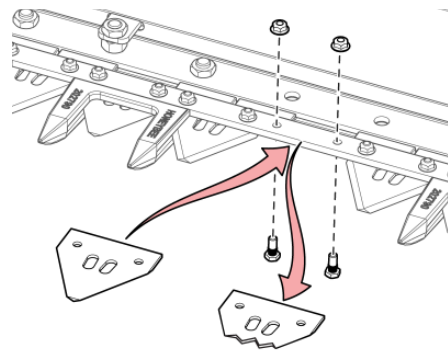


Fig. 188 - Replace cutting section

19.9.10 - Repair Broken Knife Back

If the knife breaks during use, repairs can usually be made with a connector bar. Most often the knife back will break across a sickle section bolt hole. To use the connector bar properly, the damaged section needs to be cut out and/or a section of knife removed.



IMPORTANT!

If the knife breaks close to the knife head, remove that section of knife, reconnect the knife head, and then add the new section to the far end of the knife where there is less mechanical stress. The join in the two knives must be located midway under a sickle section, not in the gap between two sickle sections.

When you encounter this type of break, inspect the knife for dull/damaged guards, and sections, and gummy build-up which might cause binding.

19.9.11 - Connector Bar

The connector bar is used to repair a broken knife back. The break should be cut out and ground smooth. A cutting section should bridge the break and the connector bar should be installed on the top of the knife back as shown below.

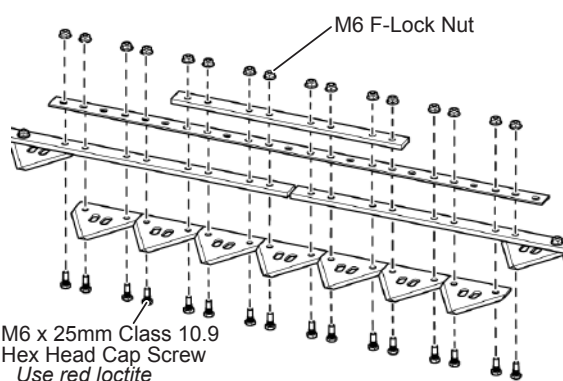


Fig. 189 - Connector Bar

Knife sections must be installed on the bottom side of the knife back.



NOTE:

If a knife repair kit is required, please reference part number 95132 when contacting our parts department.

19.9.12 - Knife Hold-Down Adjustments for the Standard Cutting System

1. Stroke the knife so the sickle sections are centered on the hold-downs.

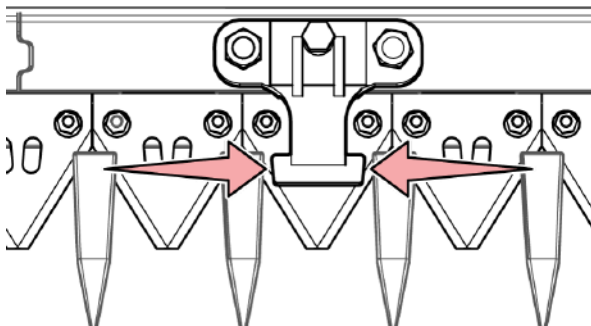


Fig. 190 - Align sickle section with hold-down

2. Push on the sickle section down against the guard and insert a 0.02" (0.5mm) feeler gauge between the hold-down and sickle section.

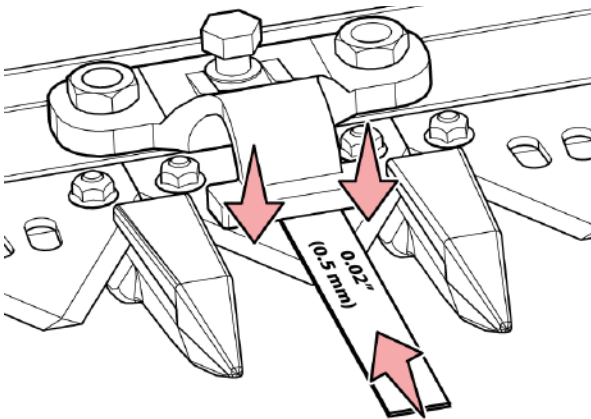


Fig. 191 - Push down section and insert gauge

3. If there is a large gap or the feeler gauge is easily inserted or if the gauge cannot fit, then the hold-down needs to be adjusted. When properly adjusted, the shim should be able to be inserted with light resistance while pushing the sickle section down against the guard.

4. Before adjusting, ensure the hold-down is as far forward as possible. Loosen the hold down bolts, pull the hold down forward and re-tighten to 49ft-lbs (66.4 Nm).

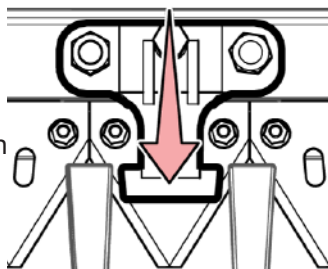


Fig. 193 - Hold-down forward

5. Adjust the hold-down by turning the hold-down adjustment bolt.

- Turn the bolt clockwise to lower the hold-down
- Turn the bolt counterclockwise to raise the hold-down.

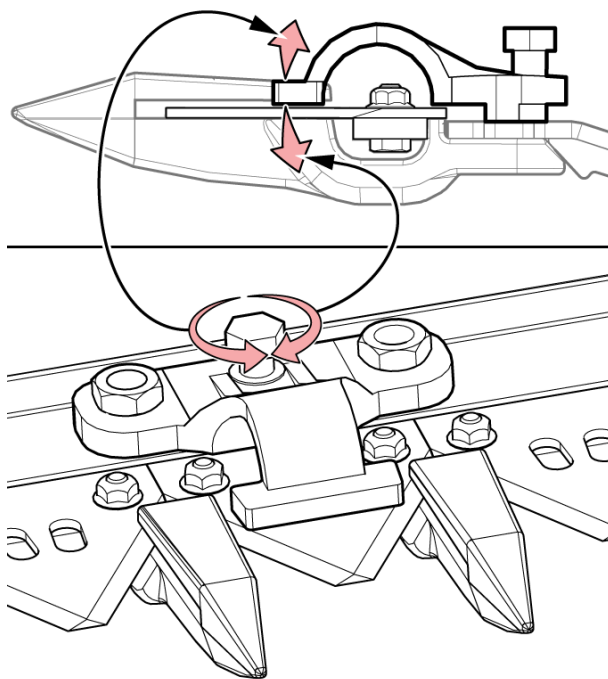


Fig. 192 - Hold-down adjustment

6. Repeat this process for all the hold-downs on the cutter bar.

NOTE:

If large adjustment is necessary, you may need to loosen the two mounting nuts which secure the hold-down to the cutter bar. If these nuts are loosened, they must be re-tightened to 49 ft-lbs (66.4 Nm).

19.9.13 - Knife Overlap Repair Kit for the Standard Cutting System

If the overlap section breaks on the left-hand knife, the overlap repair kit can be used to repair and reinforce the overlap section.

WARNING!

Wear protective gloves when handling knives.

Raise platform completely and engage feeder house safety stop. Raise reel completely and engage safety stops on reel lift cylinders. Shut OFF engine, set parking brake, and remove key.

1. Remove the five center overlap guards shown below.

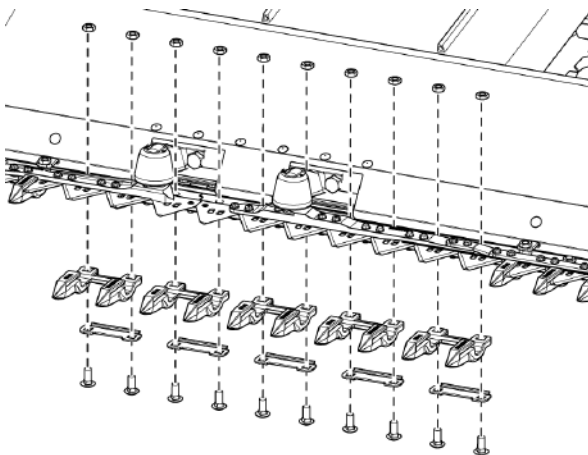


Fig. 194 - Remove 5 center overlap guards

2. Remove the original damaged overlap bar as shown below.

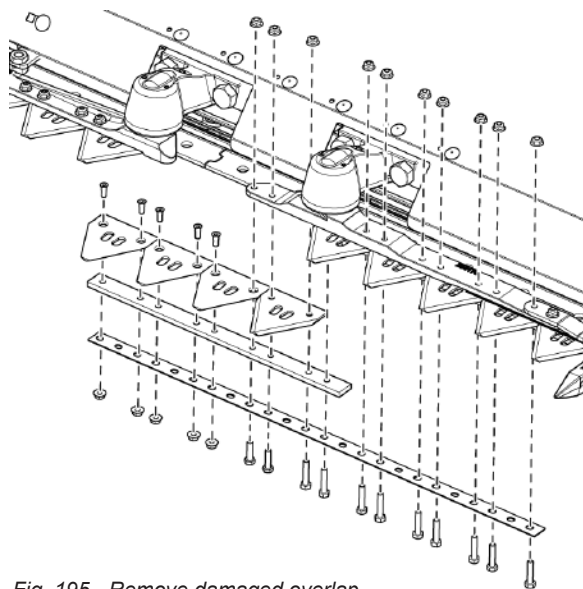


Fig. 195 - Remove damaged overlap

3. Install the new overlap bar by reversing the above procedure.



IMPORTANT!

Check the clearance between the nuts on the overlap section and the guards. If the nuts do not fit in the lower channel of the guard, they may need to be ground down to allow adequate clearance.

19.10 - Dividers

The dividers will lift the header when encountering rising terrain. This causes the end of the header to float up on the suspension and influence the subframe sensors for correct header height response.

19.10.1 - Crop Divider Pipe Extension

The crop divider pipe is used in most harvesting situations.

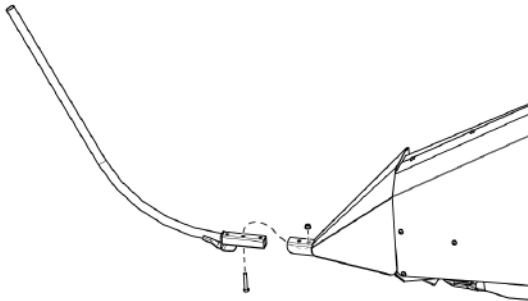


Fig. 196 - Crop Divider Pipe Extension

19.10.2 - Crop Divider Snub Extension

The crop divider snub extension is used when it is desired to limit contact between the dividers and the crops.

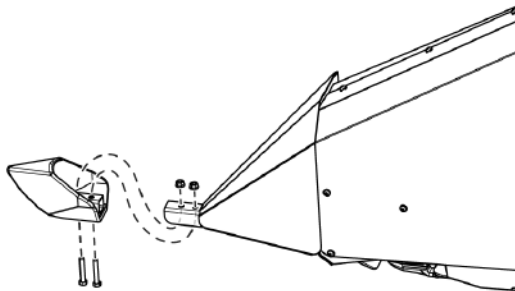


Fig. 197 - Crop Divider Snub Extension

19.11 - Feed Auger

19.11.1 - Finger Timing Adjustment

In most circumstances, the feed drum finger timing should be set so the fingers are fully extended at their most forward position (timing handle in middle hole as shown below)

To adjust the finger timing:

1. Remove the lock bolt.
2. Adjust the Feed drum finger timing handle as necessary:
 - Move the feed drum finger timing handle up to move the fingers down and toward the rear of the header.
3. Re-install the lock bolt.

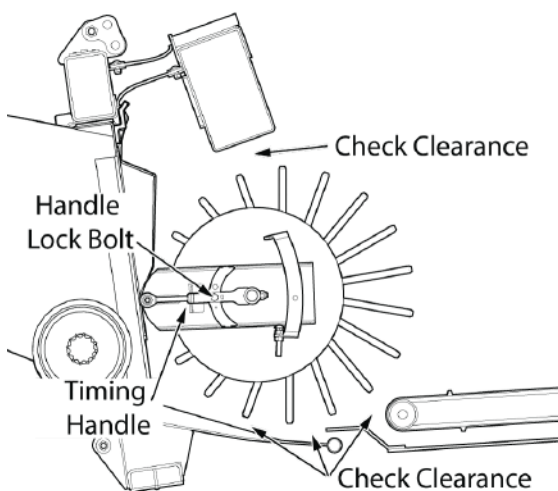


Fig. 198 - Feed Auger

IMPORTANT!

After adjusting finger timing, ensure that the auger fingers will not contact the underside of the upper tube or feed pan unintentionally during operation. Failure to allow proper finger clearance will result in equipment damage.

19.11.2 - Feed Auger Drum Position

To move the feed auger drum forward or backwards, simply adjust the indicated bolt on the left and right ends of the feed auger. The flighting of the feed auger drum should clear the face plate stripper plates by 1/2" (1.27 cm).



IMPORTANT!

Ensure that the Feed Auger fingers will not contact anything unintentionally during operation. Failure to do so WILL result in equipment damage.

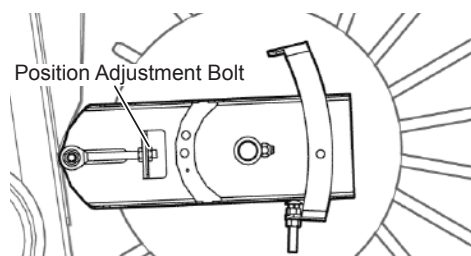


Fig. 199 - Feed Auger Drum Position

19.11.3 - Feed Auger Interior Access

To access the interior of the feed auger drum, rotate the drum until the access hatches are visible, remove the two 5/16" Torx screws holding each hatch in place, then pull the hatches away.

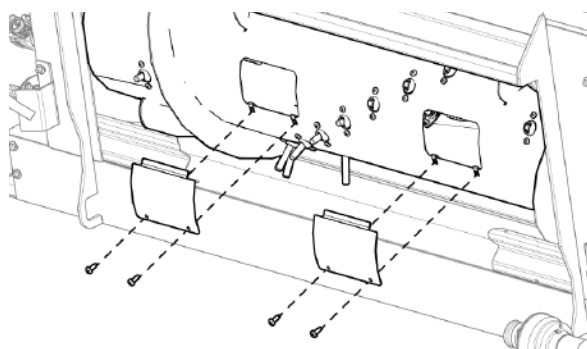


Fig. 200 - Feed Auger Drum Interior Access

19.11.4 - Remove and Install Feed Auger Fingers

Rotate the feed auger drum so the fingers are fully extended toward the front of the header. Open the access hatch and remove the indicated screw to release the finger to be replaced.

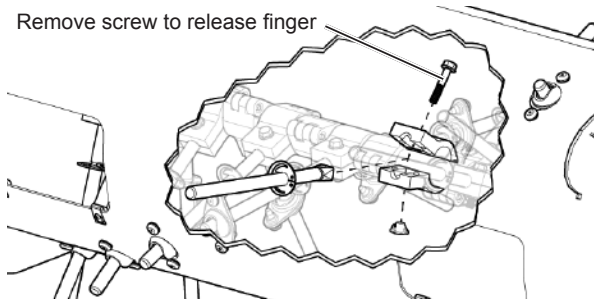


Fig. 201 - Replace Feed Auger Fingers

NOTE:

In some cases, rocks can push fingers into the drum. This can often be fixed by opening the access panel and prying the finger back into the finger guide.

19.11.5 - Remove and Install Feed Auger Finger Guides

Only attempt to replace the feed auger finger guides for fingers that are fully retracted into the feed auger drum.

Remove the two 5/16" Torx screws securing the finger guide.

Remove the finger as described in section 19.11.4 on page 109.

Reinstall the finger along with the new guide.

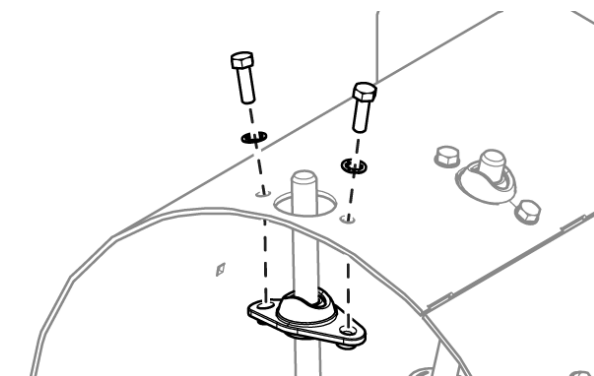


Fig. 202 - Replace Feed Auger Finger Guide

19.12 - Manual Header Tilt

The top link/tilt cylinder joins the header to the subframe and adjusts the forward angle of the table. This directly affects the angle of the cutter bar.

WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

Do not extend the tilt cylinder beyond 48.9 cm (19 1/4") or the header may suddenly drop causing injury or death.

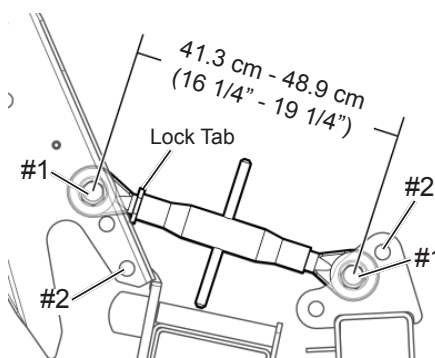


Fig. 203 - Top link details

To adjust the top link:

1. Loosen lock tab on top link.
2. Adjust the length of the top link
 - Turn top link clockwise to tilt header back
 - Turn counter-clockwise to tilt header forward.
3. Re-tighten lock tab once desired header angle has been reached.

19.13 - Optional Hydraulic Tilt Cylinder

The optimal tilt cylinder position is achieved when the cutterbar guards are parallel to the ground when the tilt cylinder is retracted. This allows safe operation in steep terrain while allowing you to tilt the header forward as needed for operation on flat terrain.

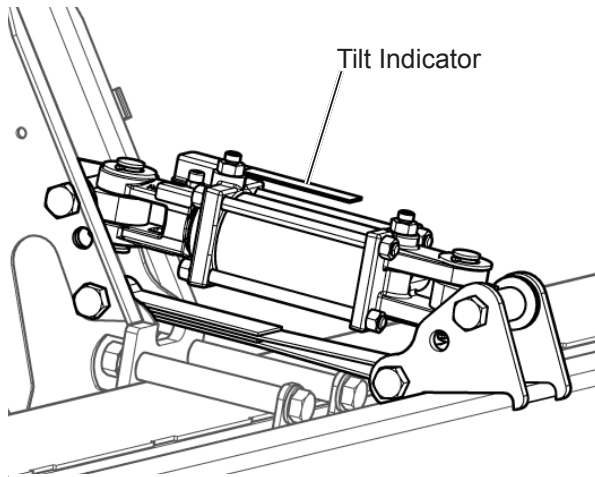


Fig. 204 - Hydraulic Tilt Cylinder



CAUTION!

Take note of the holes in which the tilt cylinder is mounted. Do not change the mounting position of the cylinder or damage to your equipment may result.



WARNING!

Ensure the safety strap is properly installed, and undamaged prior to disconnecting the tilt cylinder.

19.14 - Center Rock Trap and Draper Cleanout

The center deck features a rock trap behind the cutterbar. This is hinged at the front edge and held closed with a locked lever arm. To open the rock trap door, lift/push the T handle towards the center draper and the door will swing down/open. Clean out by pushing debris into the opening. When done, pull the T handle towards you and press down to lock it.

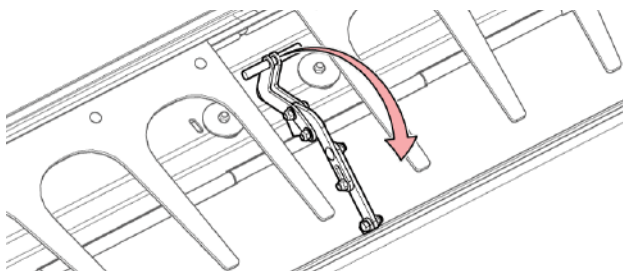


Fig. 205 - Open Rock Trap at Center Draper



IMPORTANT!

Always close the center rock trap door before operating the header.

The draper cleanout is located under the center deck draper. It is held in grooves on the side and front of the panel. The rear edge is held in place by a series of pins. For quick cleanout, remove only the center 3 pins, pull down the rear edge of the plastic and reach in to clean out debris. For a full inspection, all pins are removed and the plastic sheet pulled out to the rear. Ensure pins are loaded from front to back to prevent inadvertent removal by stubble, etc.

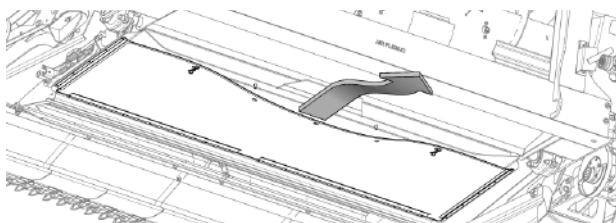


Fig. 206 - Open Center Cleanout to Remove Debris



NOTE:

The draper cleanout panel can be removed for harvesting most crops without negatively impacting header operation. Seed growers may want to leave it in place for slow speed harvesting.

19.15 - Open Side Shield

To gain access to the drive shafts and belts on the left side of the subframe, you must open the side shield. To open the side shield, simply remove the pin locking it in place, lift slightly and swing open.

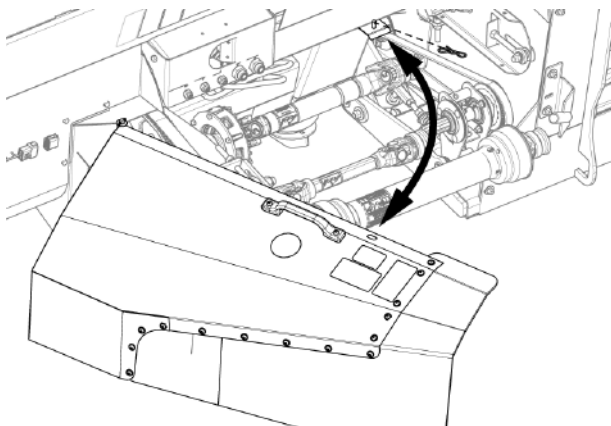


Fig. 207 - Open Side Shield

19.16 - Drive Shaft Lubrication

There are 3 points on each drive shaft that must be lubricated every 50 hours of operation.

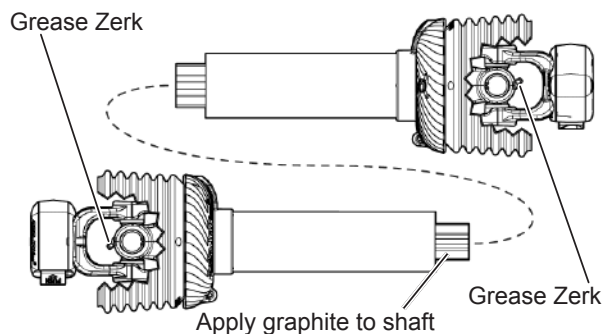


Fig. 208 - Drive shaft grease points

See section 19.20.10 on page 116 for more details.

19.17 - HHC Sensor Range

The sensor arm must not extend beyond its valid range of approximately 120° at the end of the sensor to which the wire connects. If the sensor arm extends beyond this range it will return invalid values which will prevent auto header height control from functioning.

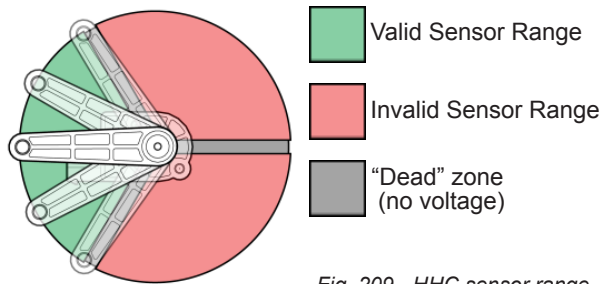


Fig. 209 - HHC sensor range

19.17.1 - Subframe Header Height Sensors

For the subframe sensors it is best to adjust with header attached to the combine and less than 90 psi in air system (this ensures the header is sitting hard on the subframe and the air bags are not inflated). The subframe sensors should return a voltage ranging between 1.5 and 3.4 volts through their full range of motion.

If necessary, the sensors can be adjusted to provide the correct voltage range.



WARNING!

Shut OFF the combine engine, set parking brake, and remove key before exiting the cab.

1. Locate the subframe sensors on the left and right ends of the subframe.

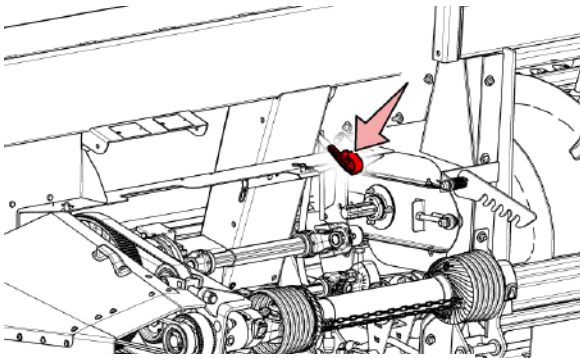


Fig. 210 - Subframe sensor location

2. Loosen the two bolts securing the sensor and slightly rotate the sensor body to adjust the output voltage. Re secure and check the sensor output via the combine display.

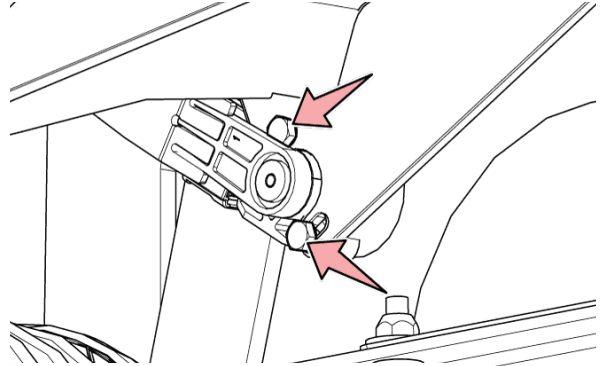


Fig. 211 - Subframe sensor adjustment

19.18 - Checking for Air Leaks

If the air system does not maintain pressure, there may be an air leak. To check for leaks, fill a spray bottle with soapy water and follow the air lines, spraying all fittings to check for air bubbles.

If any bubbles are found, replace the fitting.

19.19 - Subframe Air Bag Adjustment

If the header is running crooked or unbalanced the air bags on the subframe can be adjusted either fore or aft to level out the header:

To lift one side of the header, the air bag on the low side can be moved forward to help lift the frame.

The figure below shows the 6 available adjustment holes (Red arrows). The starting position for the air bags from the factory is shown by the blue arrows.

When adjusting the air bag position, you must adjust the bolt on both the top and bottom of the airbag.

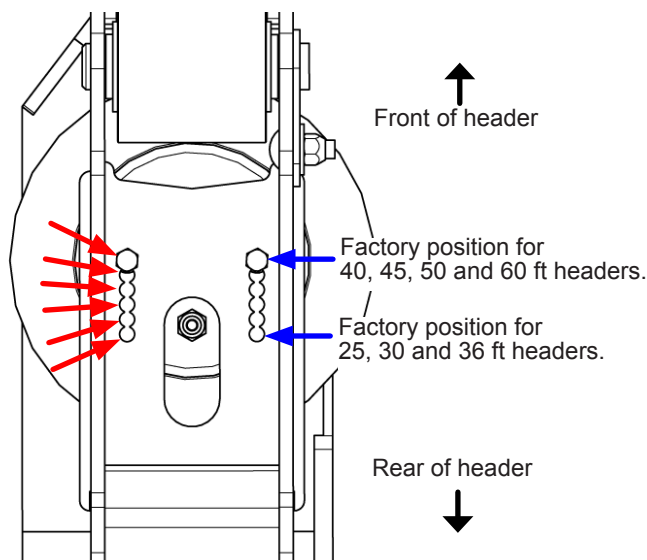


Fig. 212 - Subframe air bag positions (Top of airbag shown)

To adjust airbag positions:

1. Park the header on a firm, level surface.
2. Lower the header's air pressure to 0 psi.
3. Raise the header



WARNING!

Shut OFF the combine engine, set parking brake, and remove key before exiting the cab.

4. Engage the feeder house safety stops.



WARNING!

Hydraulic failure will result in sudden equipment drops. Always use mechanical safety stops when working under or around the header.

5. Loosen the bolts on the top and bottom of the subframe airbag to be adjusted.
6. Move the air bag to the appropriate position by hand and re-tighten the bolts.
7. Pressurize the header to an appropriate psi for your header width (see section 16.6.1 on page 63)
8. Check the balance of the header and repeat this procedure if additional adjustment is necessary.

19.20 - Lubrication

It is extremely important that you are aware of ALL lubrication points on the header (see page 114).



IMPORTANT!

Failure to use the grease specified in this manual can result in premature failure of knife head bearings.

If a grease fitting is missing, replace it immediately. Clean fittings thoroughly before using grease gun.

19.20.1 - Mixing of Lubricants

In general, avoid mixing different brands or types of oil. Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements.

Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

Consult your dealer to obtain specific information and recommendations.

19.20.2 - Reel Lubrication

The grease zerks on the left and right ends of the reel require 1-2 shots of grease every 10 hours of operation in order to avoid excess wear.

19.20.3 - Gearbox Lubrication

75W90 oil must be used when replacing the oil in the gearboxes.

19.20.4 - Alternative and Synthetic Lubricants

Conditions in certain areas may require lubricant recommendations different from those printed in this manual. Consult your dealer for more info.

Synthetic lubricants may be used if they meet the requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic lubricants.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

19.20.5 - Wheel Bearing Grease

Transport wheel bearings should be repacked once a year if used on roads. Use the following grease for the transport wheel bearings:

- NLGI Performance Classification GC-LB. GC-LB means bearing and chassis-load bearing. #2 EP GC-LB is the most common grade of automotive grease.



NOTE:

Old wheel bearing grease must be completely removed before repacking with new grease.

19.20.6 - Feeder Deck Drive Chain Lubrication

At the end of each harvest season, ensure the feeder deck drive chain is clear of debris then soak the chain in high quality chain lubricant.

19.20.7 - Knife Head Lubrication

Daily during operating season, add 1-2 pumps of grease to each knife head zerk. Excess grease pressure will shorten the knife lifespan, push down on the zerk ball to release excess pressure.

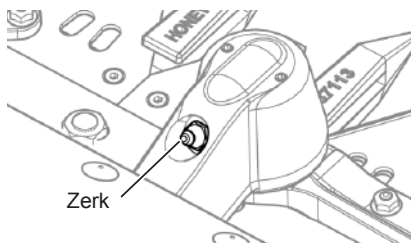


Fig. 213 - Knife head grease zerk

19.20.8 - Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used. Use clean containers to handle all lubricants.

Store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

19.20.9 - Grease Specifications

For all bearings on the header except for transport wheel bearing (includes knife head bearings, PTO shaft U-Joint bearings, gauge wheel grease points and cross auger U-Joint bearings) please use the following grease:

- Grease Specification: NLGI Grade #2
Thickener Type - Lithium Complex,
Molybdenum Disulfide (wt%) - 3-5%,
Viscosity of Oil (ASTM D 445) cSt @ 40C -
400 to 500

List of Recommended Grease:

- Mobil SCH XHP 462
- Shell Gadus S3 V460D 2
- Castrol Contractor Special 2
- Conoco Phillips 66 Megaplex XD3 or XD5
(both need to be NLGI 2 grade)
- Lucas Oil Heavy Duty Mining &
Construction Grease Product #10597,
10597, 10881 NLGI GCLB
- Petro Canada Precision XL3 Moly EP2
- Cat Extreme Application Grease - Desert
NLGI 2
- MyStik JT-60 Hi-Temp Grease with Moly -
Readily available at any Tractor and Supply
in USA.
- TOTAL CERAN XM 460 NLGI 2
- MAPO MFE Syngis Grease CS-2/502-S
- Eurol Grease CS-2/501
- Castrol Spheerol LCX 6002
- Castrol Castrol Spheerol EPLX
- SKF LGEM 2
- Castrol Molub-Alloy 860/460-2 ES



IMPORTANT!

Some types of grease thicken and are not compatible with others.

DO NOT MIX GREASE TYPES!

19.20.10 - Lubrication Location & Interval

| | Location | Lubricant | Quantity | Interval |
|----------|--|--|--------------------|-----------|
| A | Grease knife head bearings @ zerk (top side) x2 | We recommend that you use grease types specified on the previous page. | 1-2 shots | 10 hours |
| B | Reel Bearings | | 1-2 shots | 10 hours |
| C | PTO Drive shaft U-Joint grease zerks (2 on each end of shaft) | | 2-3 shots | 40 hours |
| D | Cross auger u-joint bearing @ zerk x2 | | 1-2 shots | 40 hours |
| E | Gauge wheels @ zerk | | 1-2 shots | 40 hours |
| F | Check main knife bearing housing oil level | 75W90 Oil | as needed | 50 hours |
| | Replace oil in main knife bearing (75W90) | 75W90 Oil | 0.20 L (half full) | 1 year |
| G | Check LH & RH draper gearbox oil level | 75W90 Oil | as needed | 50 hours |
| | Replace oil in LH & RH draper gearbox | 75W90 Oil | 0.50 L (half full) | 1 year |
| H | Telescoping drive shafts (5 shafts) | High quality graphite dry lubricant spray | coat shaft | 1 year |
| I | Transport wheels hub and spindle | High quality wheel bearing grease | re-pack | 1 year |
| J | Knife | water/diesel/oil | Soak | as needed |
| | Feeder deck (center draper) drive chain (on left side of deck) | High quality chain lube | Soak | 1 year |

All other rotating elements on this product use sealed bearings and permanent bushings (not shown). These must be replaced if worn. Typically, loose indicates the bearing is worn.



IMPORTANT!

To avoid equipment damage and system contamination, always clean grease fittings before and after lubrication. If a grease fitting is damaged or missing, replace it immediately. Always tighten plugs securely.

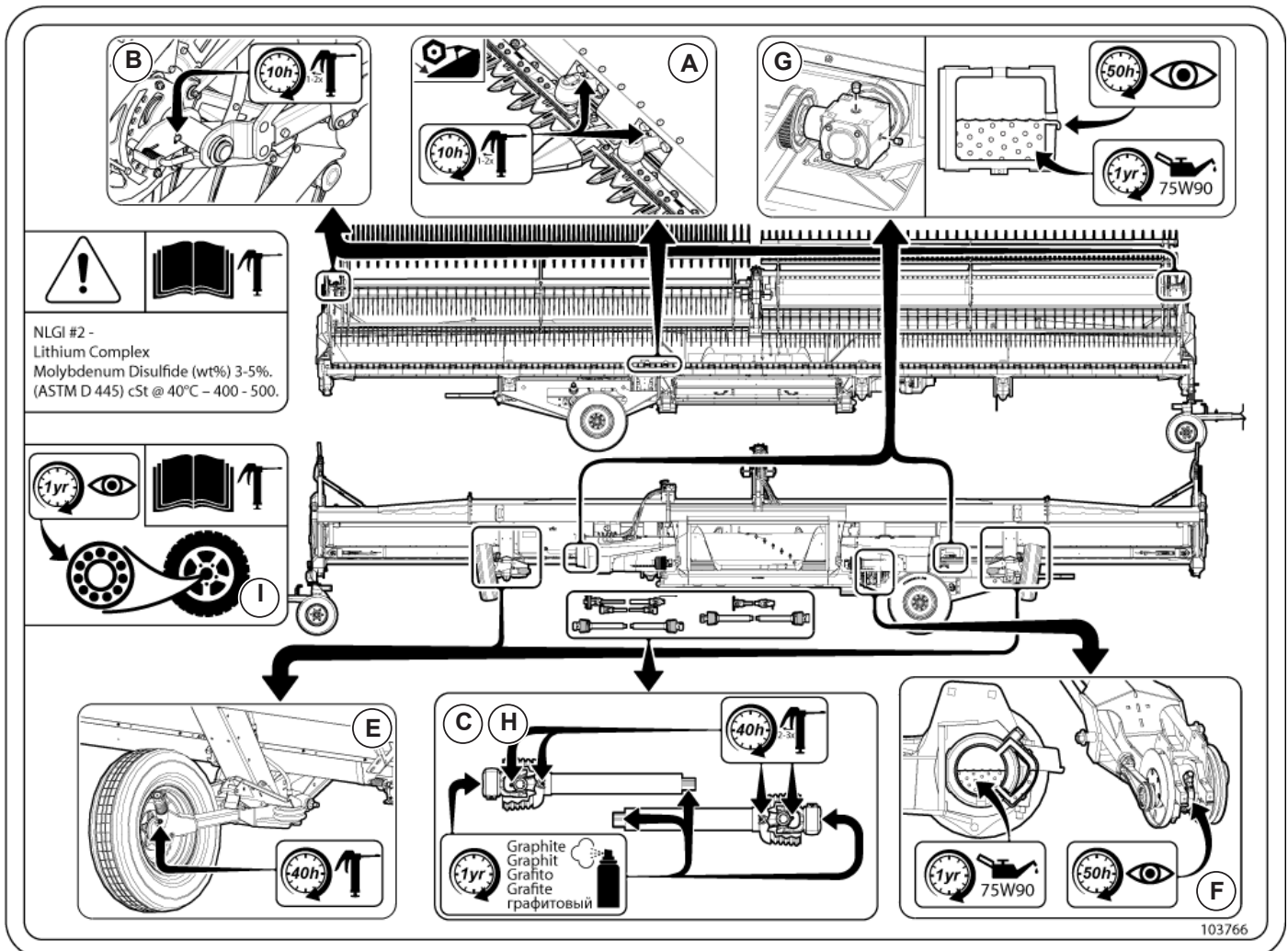


Fig. 214 - Lubrication Locations

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20 - Header Transport & Storage

20.1 - Read before Transporting

There may be regulations restricting transport of heavy equipment on in your area. Be aware of local regulations before transporting. Stop after your first 100km of travel, check the wheel bolts and re-torque if needed.

When transporting your header via trailer or transport cart, your local regulations may require a maximum equipment width of 8 ft. (2.44 m). To achieve this width, lower the front-most reel fingers into their transport position as outlined in this section of the manual.



WARNING!

Do not exceed 20 mph (32 km/h) when towing the header via transport cart. Excessive speeds can result in injury or equipment damage and may not be permitted by regulations in your area.

Do not transport header without wheel axle bolts installed!

20.3 - Towing Vehicle Requirements

Ensure the towing vehicle is capable of safely towing the header when using the transport cart.

The towing vehicle must meet the minimum mass requirements when pulling the header: Do not exceed the weights listed below.

| Header Width | Maximum Transport Weight | Minimum Towing Vehicle Weight |
|--------------|--------------------------|-------------------------------|
| 25ft | 8000 lbs (3636 kg) | 5333 lbs (2424 kg) |
| 30ft | 8700 lbs (3955 kg) | 5800 lbs (2636 kg) |
| 36ft | 9300 lbs (4227 kg) | 6200 lbs (2818 kg) |
| 40ft | 9900 lbs (4500 kg) | 6600 lbs (3000 kg) |
| 45ft | 10300 lbs (4682 kg) | 6867 lbs (3121 kg) |
| 50ft | 10750 lbs (4886 kg) | 7167 lbs (3257 kg) |

Ensure the towing vehicle brakes are capable of stopping in a safe distance when pulling the unbraked configuration of the header.

20.2 - Measurements for Flatbed Transport

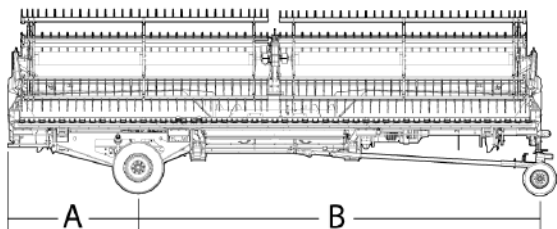


Fig. 215 - Transport Measurements

| Header Size | Distance A | | Distance B | |
|-------------|------------|--------|------------|--------|
| | Feet | Meters | Feet | Meters |
| 25ft | 6.4 | 1.96 | 19.6 | 5.99 |
| 30ft | 8.9 | 2.71 | 22.4 | 6.83 |
| 36ft | 11.8 | 3.59 | 25.6 | 7.81 |
| 40ft | 13.8 | 4.20 | 27.3 | 8.32 |
| 45ft | 16.4 | 5.00 | 29.9 | 9.12 |
| 50ft | 18.9 | 5.76 | 32.4 | 9.88 |
| 60ft | 23.9 | 7.28 | 37.4 | 11.4 |

20.4 - Transporting on Combine

WARNING!

Avoid transporting the header on the front of a combine on public roadways whenever possible. The extreme width of the header, combined with low visibility can pose danger to the equipment operator and the public.

- Reflective material must be clean and visible
- A spotter or pilot vehicle should be used when there is the possibility of encountering traffic.
- Drive at a speed that is safe for conditions.
- Completely raise platform and engage the feeder house safety stop.
- The reel must be completely retracted and at an appropriate height for maximum visibility.
- When transporting on public roads, flashing warning lights and tail lights on both sides provide warning to other vehicles. Warning lights are required when driving a combine on public roads.
- Operators should be aware of the assembled width of the Combine, and must check local regulations before transporting on public roadways.

NOTE:

Some combines disable auto header height functions when set to road mode and do not remember the settings when put back into field mode. Ensure auto header height and auto lateral tilt settings are enabled prior to operating the header again.

20.5 - Prepare the Header for Transport on Cart or Trailer

1. Retract the hydraulic tilt cylinder to tilt the header back.
2. Completely lower and retract the reel.
3. Lower the header to the ground to relieve tension from the gauge wheel support straps.

WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

4. Remove the crop dividers as shown below.

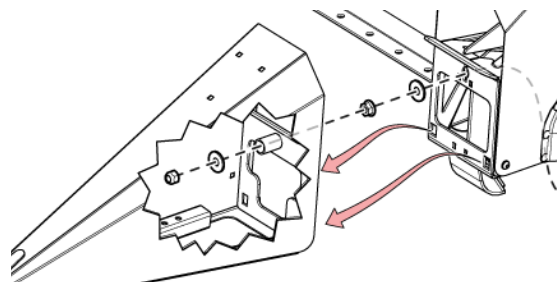


Fig. 216 - Remove Crop Dividers

WARNING!

Use lifting aids and proper lifting technique to avoid muscle strain or back injury.

5. Store the dividers on top of the center feed deck, take care not to damage the draper.

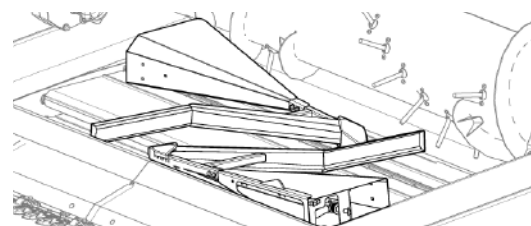


Fig. 217 - Store Crop Dividers on Center Draper

6. Lift the gauge wheel support straps into the transport position and secure with the pin as shown below.

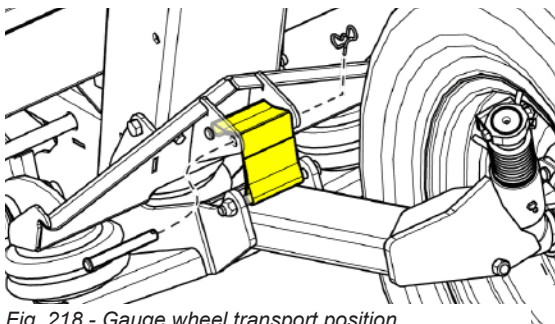


Fig. 218 - Gauge wheel transport position

7. Secure the reel in place to prevent it from rotating during transport.
8. At each end of the reel, remove the indicated bolt to allow you to drop down the header's front-most reel finger as shown below.

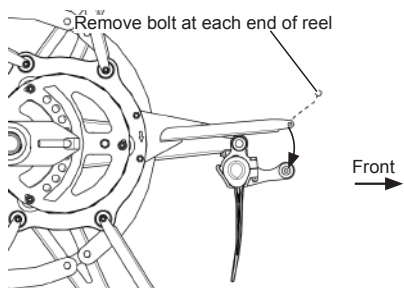


Fig. 219 - Drop Reel Fingers for Transport

9. If preparing for transport cart installation, the skid shoe on the knife drive paddle must be removed as shown below.

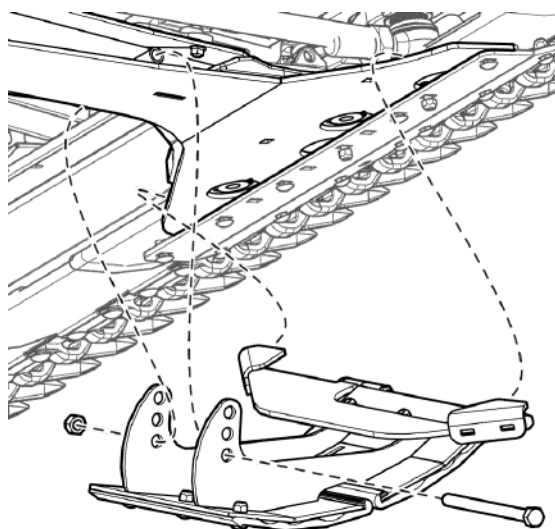


Fig. 220 - Remove knife drive paddle skid shoe

20.6 - Transport Using Optional Transport Cart

There are two components to the optional transport package: The draw bar axle and the transport cart.

1. Completely lower and retract the reel.
2. Tilt the header backward by fully retracting the tilt cylinder.
3. Raise the header.

WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab. Lock the Feeder House Lift Cylinders in raised position as described in your Combine Owner's Manual.

4. Roll the transport into position under the header.
5. Attach the 4 straps to the struts on the underside of the header.
6. Restart the combine and lower the header until it is one foot above the transport.

WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

7. Use the hand crank to raise the transport up into position.

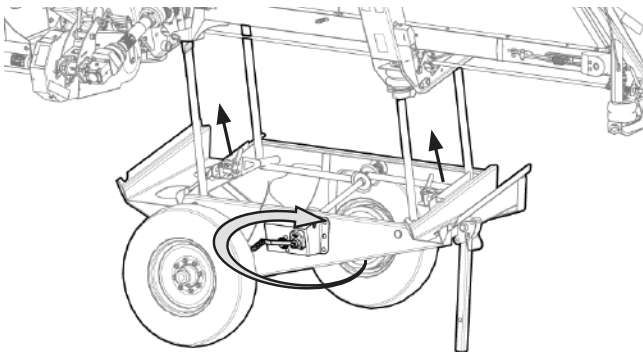


Fig. 221 - Install Header Transport Cart

8. Swing the transport support bar into its transport position, lock in place with its pin.

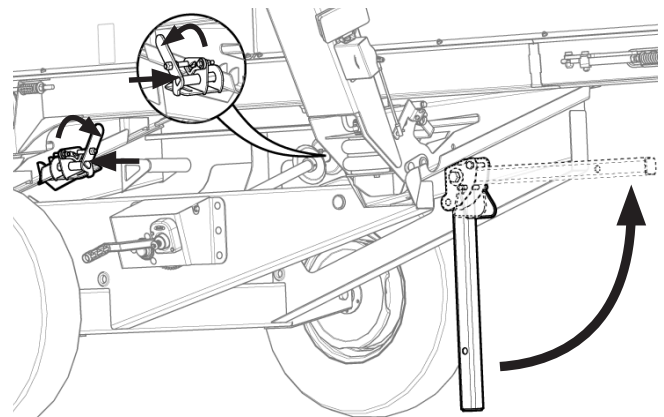


Fig. 222 - Lock Transport Cart to Header

9. Connect the transport's electrical line to the header.
10. Roll the drawbar under the drawbar mount, pull the pin to lower the draw bar mount onto the draw bar axle.

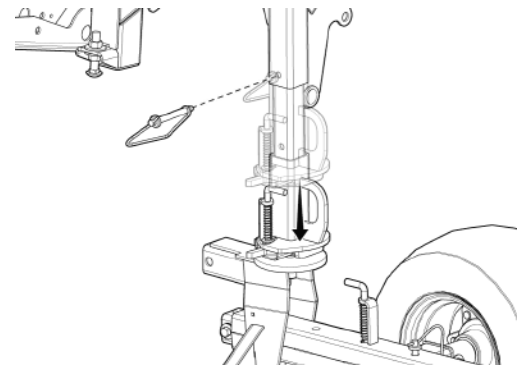


Fig. 223 - Lower draw bar bracket onto draw bar axle

11. Remove all locks, pins/bolts which hold Auger Adapter to the Feeder House of Combine.
12. Restart the combine and completely lower header to the ground.
13. Lock the transport cart in place via the two lock pins.

WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

14. Re-insert the pin to secure the draw bar axle in place.

15. Disconnect platform drive shafts from feeder house and place in storage positions. Ensure the drive shaft chains are hooked up and out of the way.

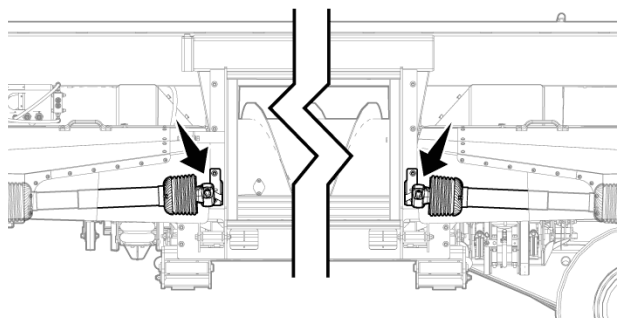


Fig. 224 - Drive shaft storage positions

16. Disconnect hydraulic coupler and place in storage position.
17. Disconnect electrical cable & place in storage position.



NOTE:

If transporting the header with installed transport cart on a flatbed trailer, skip the remaining steps and proceed to section 20.7.1 on page 124.

18. Restart the combine, lower the feeder house slightly and carefully back away.

20.6.1 - Trailer Brake Settings

Before towing the header on the optional transport cart, ensure you set the electric brake controller sensitivity in the truck's cab. This will prevent dragging brakes and overheating wheel hubs which can result in bearing and hub failure.

20.6.2 - Off-Road Transportation

When transporting the header in rough or off-road conditions, take extreme care to drive slowly with no sharp turns. Failure to do so can result in a roll over.

20.6.3 - On-Road Transportation

Do not exceed the speed of 20 mph (32 km/h) while transporting the header on public roads. Always follow local regulations.

20.6.4 - After Transporting

Inspect and clean the right hand drive area after transporting your equipment. Rocks and debris can be flung into the drive assembly during transport.



IMPORTANT!

If a tire blowout occurs on the left-hand rear transport wheel, inspect knife drive belts for damage before operating.

20.7 - Transporting on Flatbed Trailer



IMPORTANT!

A combine does not have the reach to lift the header onto a flatbed trailer without a side-loading ramp. Without a ramp, specialized lifting equipment is required for lifting the header.

20.7.1 - With Optional Transport Package

Prior to following the steps in this section, ensure that you have followed the steps in section 20.6 on page 122.



IMPORTANT!

When transporting your equipment via flatbed trailer, use the provided hold-down brackets with your header to avoid equipment damage.

1. Ensure the draw bar holder is in place, install if necessary. This bracket will interfere with normal header operation and must be removed after transport is complete.

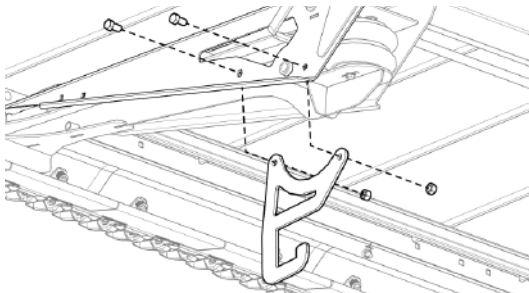


Fig. 225 - Draw bar holder

2. Swing the draw bar around and hook it onto the draw bar holder.

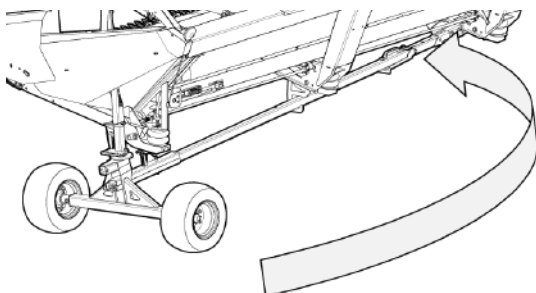


Fig. 226 - Swing Draw Bar into Storage Position

3. Inspect the axle on the header transport and ensure the indicated bracket is installed next to each wheel. This bracket should remain installed at all times.

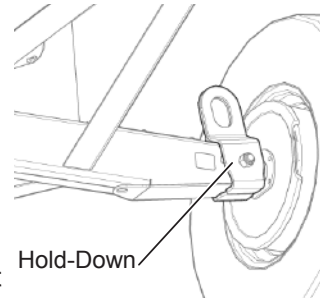


Fig. 227 - Axle Hold-Down

4. Lift the header onto the flatbed trailer and secure in place using the hold-down brackets previously mentioned. If additional strapping is required, ensure that only structural components are used to secure the header to the trailer. Strapping the header down via lightweight components such as the reel will result in equipment damage.



WARNING!

Use appropriate lifting equipment. Ensure the header is firmly secured. Keep bystanders away. Failure to follow instructions can result in equipment damage or death.

20.7.2 - Without Optional Transport Package

1. Completely lower and retract the reel.
2. Tilt the header backward by fully retracting the tilt cylinder.

WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab. Lock the Feeder House Lift Cylinders in raised position as described in your Combine Owner's Manual.

3. Disconnect platform drive shafts from feeder house and place in storage positions.

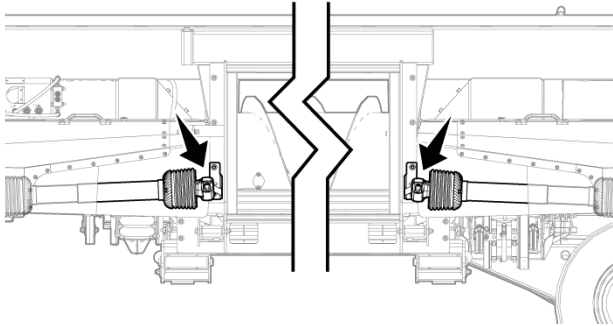


Fig. 228 - Drive shaft storage positions

4. Disconnect hydraulic coupler and place in storage position.
5. Disconnect electrical cable & place in storage position.
6. Place two wood blocks on the flatbed trailer where the header subframe will be sitting.

7. Use appropriate lifting equipment to raise the header and gently place it on the wood blocks on the flatbed trailer. A combine can only be used to lift the header if using a stable side-loading ramp.

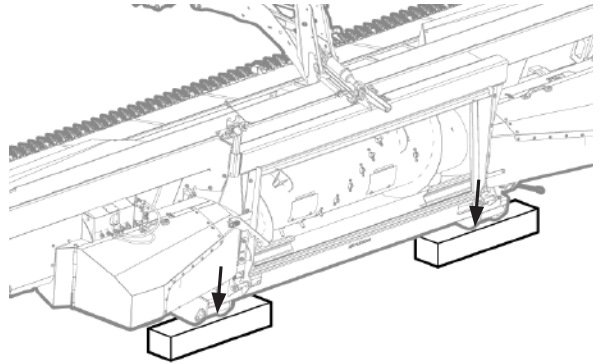


Fig. 229 - Lower Header onto Blocks

WARNING!

Use safe lifting procedures or serious injury may result.

8. Strap down the header using structural components only.

IMPORTANT!

When strapping the header to the flatbed trailer, ensure that only structural components are used to support the straps. Strapping the header down via lightweight components such as the reel will result in equipment damage.

IMPORTANT!

Ensure that all required standards and regulations are followed in regards to transporting heavy equipment on public roadways.

20.8 - Quick Dismount

The header can be lowered directly onto the ground for short or long term storage.



IMPORTANT!

If storing the header for long periods of time, ensure it is protected from the elements.

1. Ensure the ground is firm and level.
2. Place two wood blocks on the ground below the bottom strut of the subframe.
3. Start the combine, fully retract the hydraulic tilt cylinder, lower and retract the reel.
4. Remove pins and locks holding feeder house to header.
5. Gently lower the header down onto the blocks.

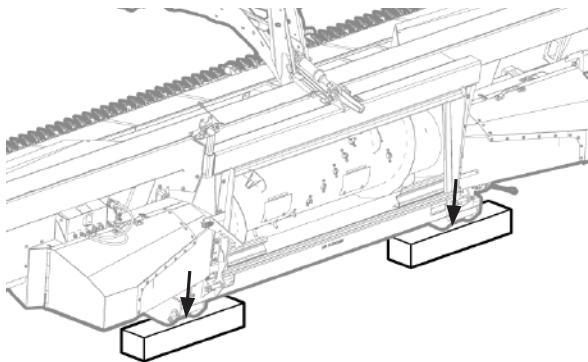


Fig. 230 - Lower Header onto Blocks



WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

6. Disconnect platform drive shafts from feeder house and place in storage positions.

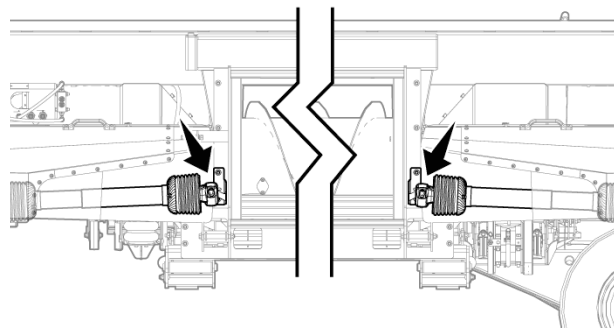


Fig. 231 - Drive shaft storage positions

7. Disconnect hydraulic coupler and place in storage position.
8. Disconnect electrical cable & place in storage position.
9. Restart the combine, lower feeder house slightly and back away.

20.9 - End of Season Storage

- ❑ Secure platform to transport cart or lower platform onto safety stops or blocks.
- ❑ Open side shields (see section 19.15 on page 111) and clean all chaff and debris.
- ❑ Loosen tension on side draper belts (See section 19.7.1 on page 88).
- ❑ Lift up on side drapers and power wash inside belts. Make sure to wash away all chaff and debris.



IMPORTANT!

Do not use high-pressure washer spray directly on electronics, bearings, decals, or any other sensitive areas. High-pressure water can remove seals, lubricants, decals, and damage electrical systems.

- ❑ Remove center draper belt and clean frame (see section 19.7.6 on page 90). Reinstall belt loosely.
- ❑ Check fluid levels on all gearboxes.
- ❑ Apply grease where needed as outlined in section 19.20 on page 114 of this manual.
- ❑ Completely lower and retract the reel.
- ❑ Paint all parts where paint is worn or chipped.
- ❑ Close side shields.
- ❑ If possible, shelter header in a dry place.

21 - Appendix

21.1 - AGCO Bezels

The AGCO style of auger adapter provides a series of bezel layouts. These adapters are needed to match your new header to the opening of the feeder house on your combine.

| Combine | Model | Lateral Tilt | Non Lateral Tilt | Note |
|-----------------|--|--------------|------------------|--|
| Gleaner | S67, S77, S68, S78, S88, S96, S97, S98, R76, R75, R66, R65, R72, R62 | Layout 2 | Layout 1 | 62/72 if equipped with removable indexing blocks. |
| | C62 | N/A | Layout 5 | Use 3/16 tab as spacer at top of web. |
| | A65, A66 | Layout 3 | Layout 3 | |
| | A75, A76, A85, A86 | Layout 4 | Layout 4 | Use 3/16 tab as spacer at top of web |
| Massey Ferguson | 9790, 9895, 9795, 9540, 9560, 9545, 9565 | Layout 4 | Layout 4 | Use 3/16 tab as spacer at top of web. |
| | 9690, 9520, 9685 | Layout 3 | Layout 3 | |
| | 8780 V | Layout 3 | Layout 3 | |
| | 8780 XP/W | Layout 3 | Layout 3 | |
| | 8570 | N/A | Layout 6 | Cut end off guides and drill new inner hole to place as shown. |
| | 8680 | N/A | Layout 5 | Use 3/16 tab as spacer at top of web |
| Challenger | 670, 680B, 540C, 560C, 540E, 560E | Layout 4 | Layout 4 | |
| | 660 | Layout 3 | Layout 3 | |
| Fendt | Ideal 7,8,9 | Layout 7 | Not available | |

21.1.1 - Configuring the AGCO Bezels

Refer to the following diagram to familiarize yourself with the key components:

- Guide Plate (includes a portion bent back at 90 degrees.)
- The First Bezel.
- The Second Bezel.
- Web (extends backward from the bezels at 90 degrees.)

In addition, there are long and short sections of flat-bar used to reinforce connections.

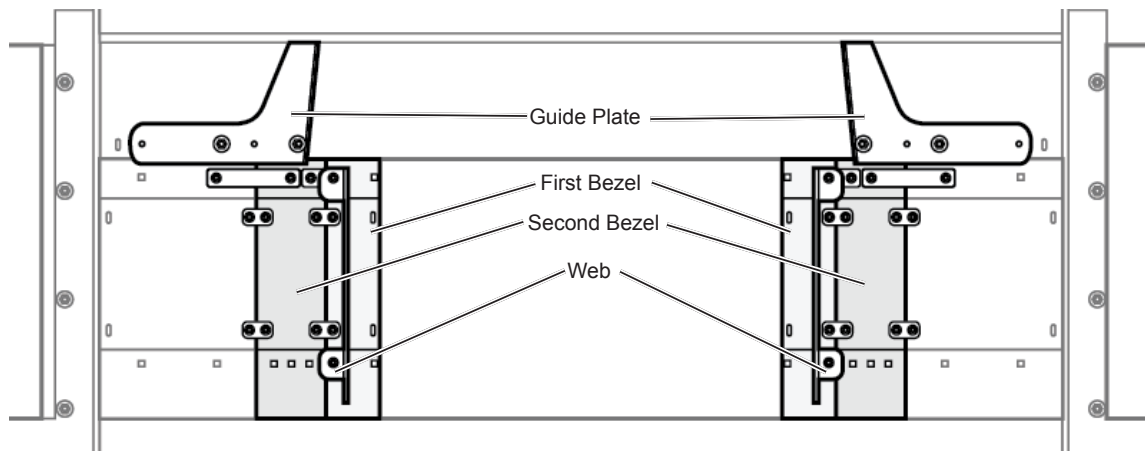


Fig. 232 - AGCO Bezels

| Configuration | Components Used | Notes |
|---------------|---|---|
| Layout #1 | Guide Plate First Bezel Second Bezel Web | The guide plates, (#1) are positioned using the innermost holes, as seen in the main diagram. |
| Layout #2 | Guide Plate First Bezel Second Bezel Web | The guide plates, (#1) are moved outward exposing one hole on the inner side. |
| Layout #3 | Second Bezel Web | The guide plates, and the first bezel are removed. Reposition the web so that the vertical portion is midway on the remaining bezel. |
| Layout #4 | Web | The web is positioned in the innermost top and bottom holes, with one short support bar, used as a spacer, at the top of each web. |
| Layout #5 | Web | The web is positioned in the outermost top and bottom holes, with one short support bar, used as a spacer, at the top of each web. |
| Layout #6 | Guide Plate First Bezel Second Bezel Web | The guide plate is positioned using the extreme outer holes, and the portion extending beyond the adapter's outer edge is trimmed off. All other components are as shown in the main diagram. |

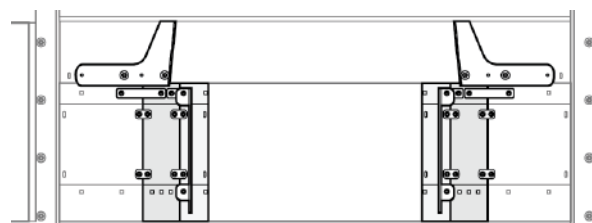


Fig. 233 - AGCO Bezel - Layout 1

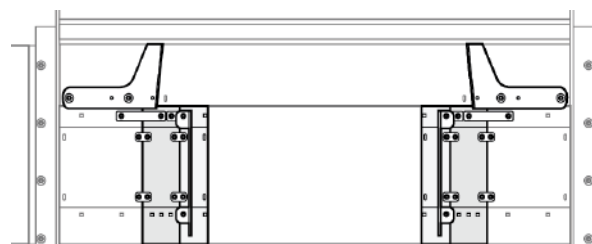


Fig. 234 - AGCO Bezel - Layout 2

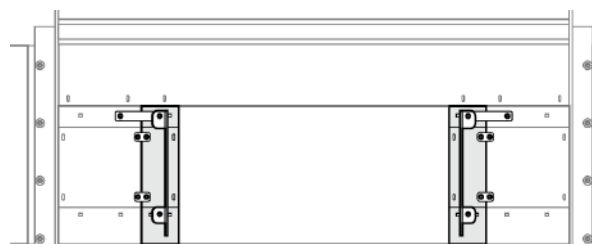


Fig. 235 - AGCO Bezel - Layout 3

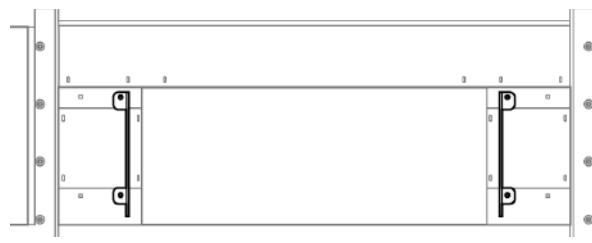


Fig. 236 - AGCO Bezel - Layout 4



Fig. 237 - AGCO Bezel - Layout 5

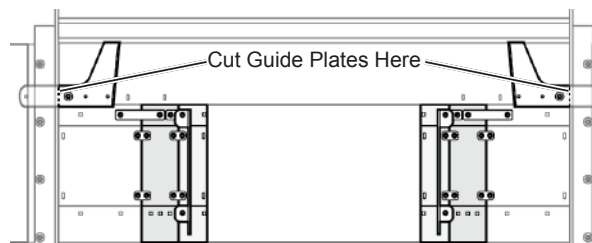


Fig. 238 - AGCO Bezel - Layout 6

| Configuration | Components Used | Notes |
|---------------|--|--|
| Layout #7 | Top Latch Hook Wedge Plate Lock Bracket Web | The web is positioned in the innermost top and bottom holes, with one short support bar, used as a spacer, at the top of each web. The Top Latch Hook, Wedge Plate and Lock Bracket are installed as well. |

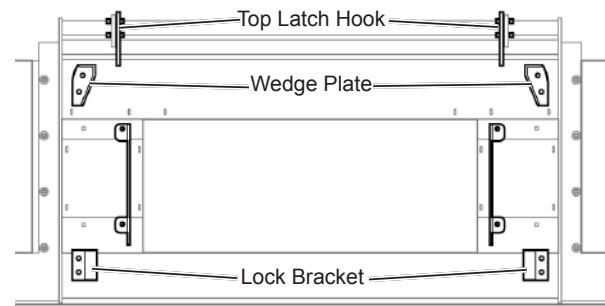


Fig. 239 - Bezel - Layout 7

21.2 - Stripper Plates for CNH and Lexion Combines

For CNH and Lexion combines, stripper plates are installed in the header feeder house opening to assist in directing crop flow into the combine feeder house. The correct stripper plates for your combine are installed in the factory, but if the header is used on a different combine, you must ensure the correct stripper plates are installed for your combine feederhouse type.

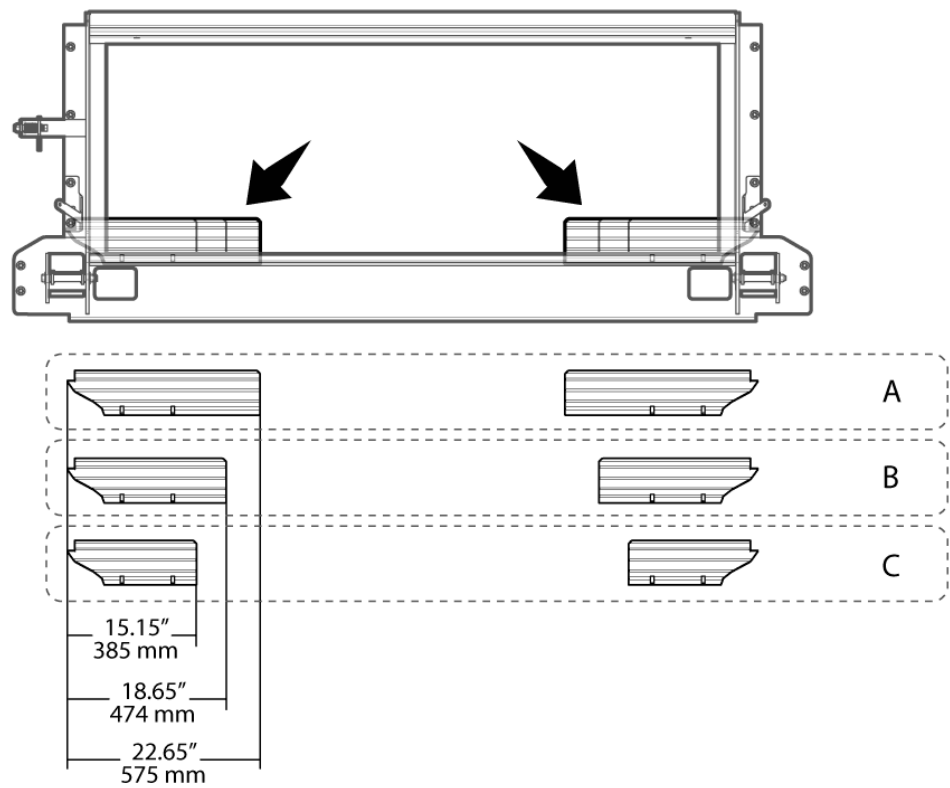


Fig. 240 - AGCO Bezel - Layout 2

| | CNH Combine | Lexion Combine | Stripper Plate Part # |
|---|---------------------|---------------------|-----------------------|
| A | Narrow Feeder House | N/A | G101055 |
| B | Mid Feeder House | Narrow Feeder House | G101053 |
| C | Wide Feeder House | Wide Feeder House | G101051 |

21.3 - Permanently Lubricated Bushing Locations

There are a number of permanently lubricated plastic bushings used throughout the header. These bushings should be inspected for abnormal wear or damage periodically (approximately every 200 hours of operation).

| | Bushing Location | Number of Bushings |
|----------|---------------------------------------|----------------------------------|
| A | Left & Right Reel Arm End | 2 |
| B | Center Draper Drive Chain Gear Pivot | 2 |
| C | All pivot points on the reel assembly | 25ft to 45ft - 140 50ft - 164 |
| D | Gauge Wheel Pivot | 4 |
| E | Subframe Pivot | 8 |

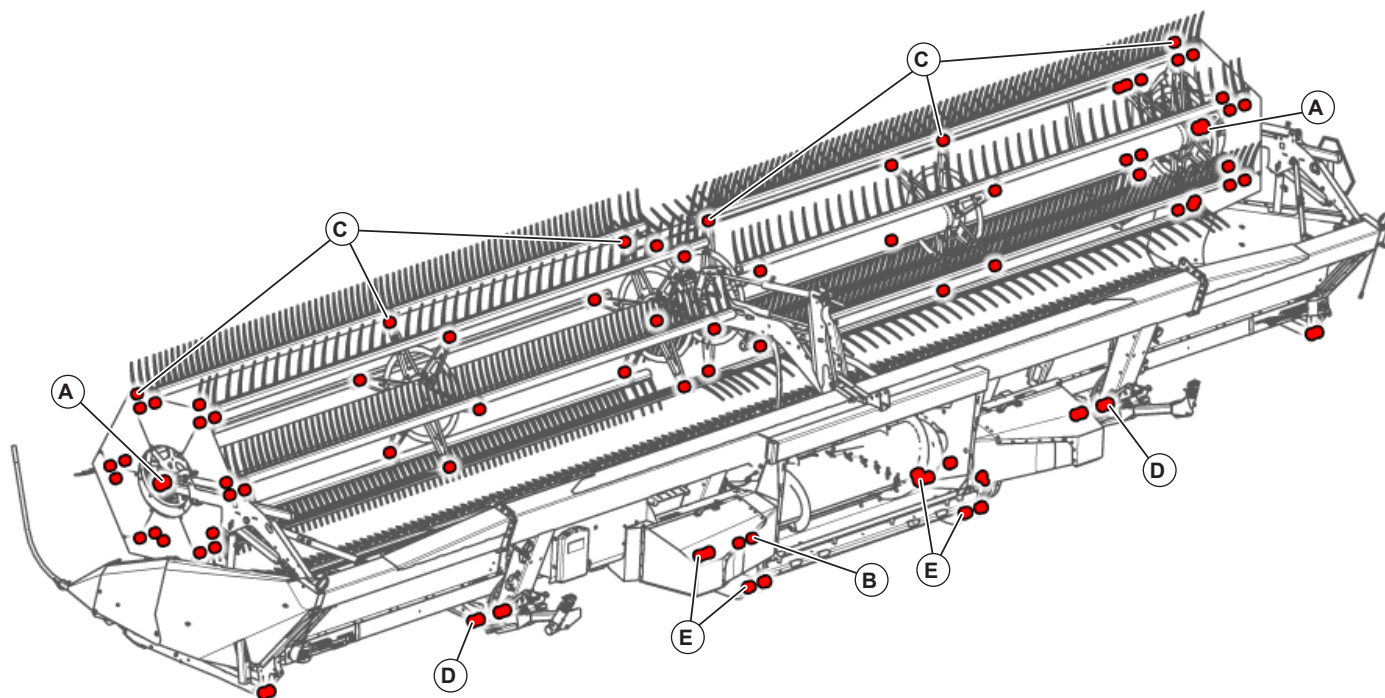


Fig. 241 - Permanent Bushing Locations

21.4 - Header Height Control Sensor Locations

The header height control sensors can be located on the left and right ends of the subframe, they detect the angle of the header in relation to the subframe.

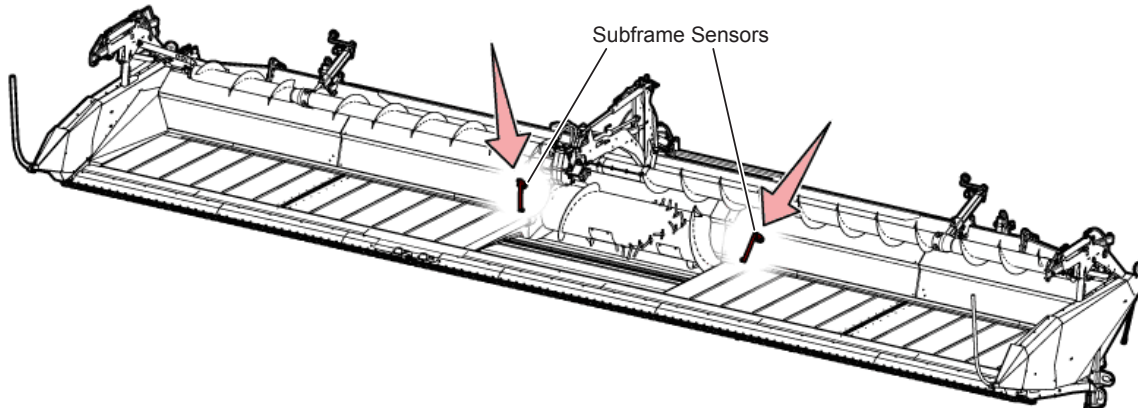


Fig. 242 - Header Height Control Sensor Locations

21.5 - Reel Speed Sensor Location

Speed sensors on the header operate by magnetically detecting a small bump or pit on a shaft, gear or flywheel while it is rotating. It is extremely important to ensure the speed sensors have optimal spacing from their detected surface, refer to section 19.3 on page 75 for details.

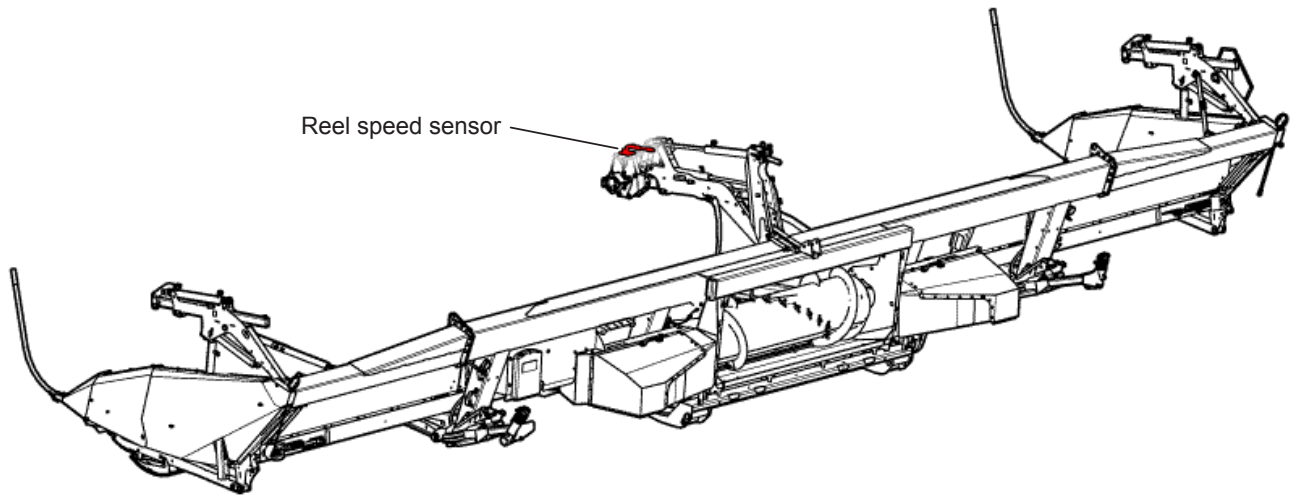


Fig. 243 - Speed Sensor Location

21.6 - Lift Valve Performance BeeBox

If using a combine equipped with 'Bang-Bang' style directional control valves, the BeeBox should be installed to prevent header height 'hunting' regardless of combine settings.

- The BeeBox is installed next to the combine's Hydraulic Valve Controller.
- The UP VALVE IN, and the UP VALVE OUT plugs must be connected to the input and output ports on of the UP Valve on the Valve Controller.
- The DOWN VALVE IN, and the DOWN VALVE OUT plugs must be connected to the input and output ports on the DOWN Valve on the Valve Controller.
- The POWER connector must be connected to the electrical harness. See section 12.6 on page 39 for harness information.
- The BeeBox should be installed next to the combine's Valve Controller.

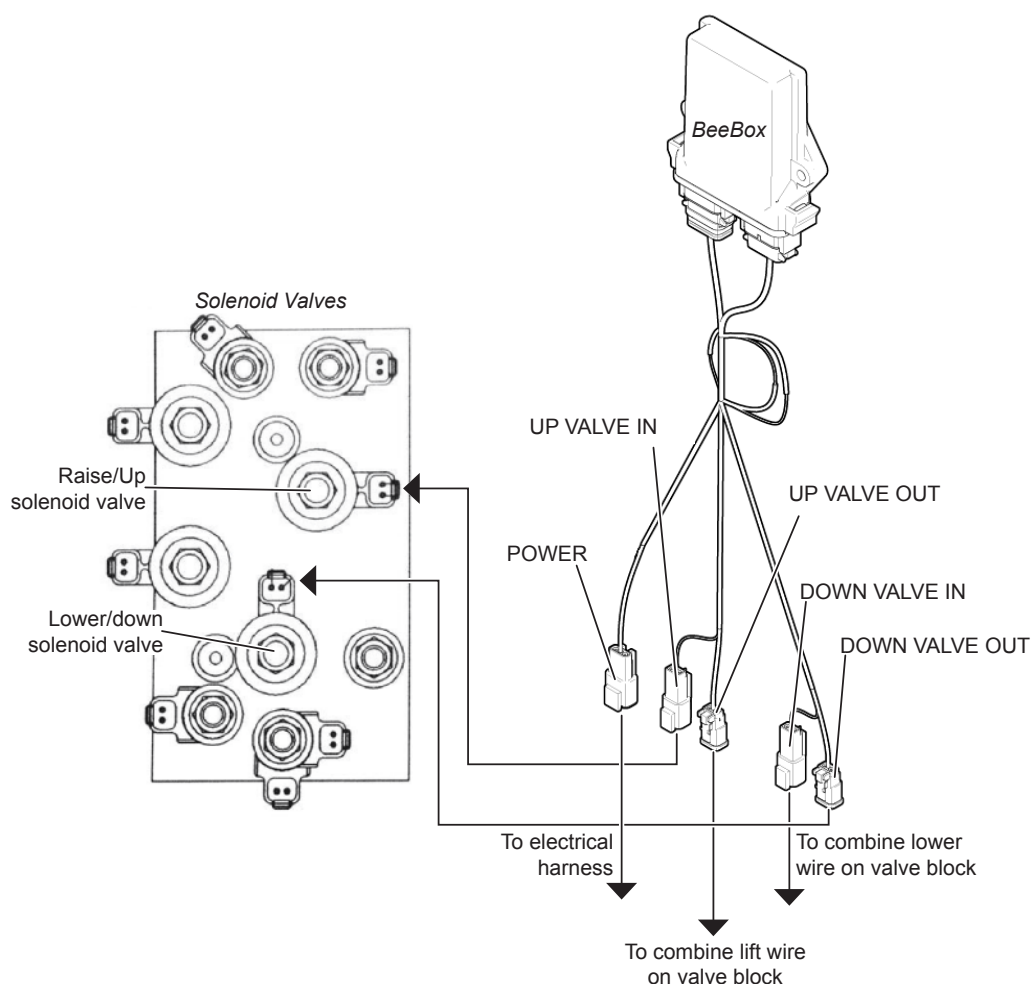


Fig. 244 - BeeBox - For 'Bang-Bang' Style Control Valve Combines

21.7 - 2016 or later JD Combine Check valve Kit

Starting for 2016 models, John Deere combines require a check valve (DANFOSS CP410-1-B-6S-0) to be added to the reel fore/aft hydraulic circuit in order to prevent unexpected movements of the fore/aft system.

If installed, the line lock is located on the left side of the hydraulic manifold on the header.

If operating a 2016 or newer combine and the line lock is not installed, please contact your dealer or Honey Bee customer service for assistance.

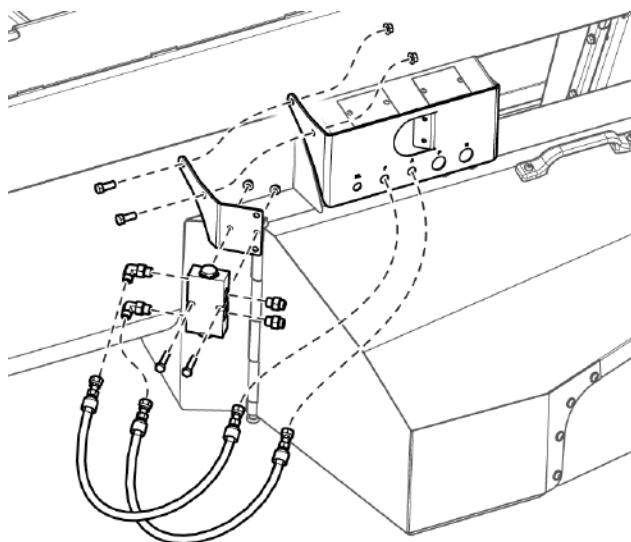


Fig. 245 - JD Check Valve kit



IMPORTANT!

This section only applies to units to be mounted on John Deere 2016 or later Combines.

21.8 - Recommended Torque Values (ft-lb)

Use the values listed below unless otherwise stated in this operator manual.

| Torque Values when using UNC nuts. | | | | | |
|------------------------------------|---------|------------|---------|------------|-------------|
| Bolt Size | Grade 5 | | Grade 8 | | Wrench Size |
| | Loctite | No Loctite | Loctite | No Loctite | |
| 1/4 | 6 | 8 | 9 | 12 | 7/16 |
| 5/16 | 13 | 17 | 18 | 25 | 1/2 |
| 3/8 | 23 | 31 | 35 | 44 | 9/16 |
| 7/16 | 35 | 49 | 55 | 70 | 5/8 |
| 1/2 | 55 | 75 | 80 | 107 | 3/4 |
| 9/16 | 80 | 109 | 110 | 154 | 13/16 |
| 5/8 | 110 | 150 | 170 | 212 | 15/16 |
| 3/4 | 200 | 266 | 280 | 376 | 1-1/8 |
| 7/8 | 320 | 429 | 460 | 606 | 1-3/8 |
| 1 | 480 | 644 | 680 | 909 | 1-1/2 |
| 1-1/8 | 600 | 794 | 960 | 1287 | 1-11/16 |
| 1-1/4 | 840 | 1120 | 1360 | 1875 | 1-7/8 |
| 1-3/8 | 1100 | 1469 | 1780 | 2382 | 2-1/16 |
| 1-1/2 | 1460 | 1950 | 2360 | 3161 | 2-1/4 |

| Torque Values when using C Lock Nuts | | | | | |
|--------------------------------------|---------|------------|---------|------------|-------------|
| Bolt Size | Grade 5 | | Grade 8 | | Wrench Size |
| | Loctite | No Loctite | Loctite | No Loctite | |
| 1/4 | 7.6 | 11.1 | 10 | 14.7 | 7/16 |
| 5/16 | 14.1 | 21.1 | 15.2 | 22.3 | 1/2 |
| 3/8 | 23 | 37 | 28 | 39 | 9/16 |
| 7/16 | 39 | 59 | 44 | 60 | 11/16 |
| 1/2 | 53 | 80 | 63 | 88 | 3/4 |
| 9/16 | 77 | 120 | 98 | 134 | 7/8 |
| 5/8 | 106 | 158 | 127 | 172 | 15/16 |
| 3/4 | 190 | 274 | 218 | 295 | 1 1/8 |
| 7/8 | n/a | n/a | 317 | 440 | 1 5/16 |
| 1 | n/a | n/a | 506 | 651 | 1 1/2 |

21.9 - Drive Shaft Lengths

The drive shaft lengths are measured from the coupler pivot point to the inner face of the shaft as shown below.

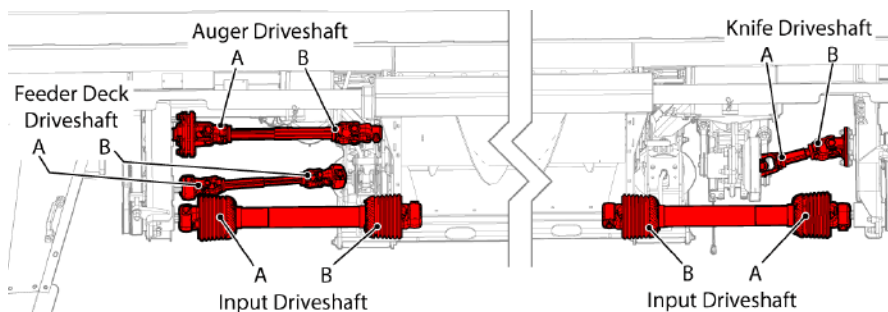


Fig. 246 - Drive Shaft Identification

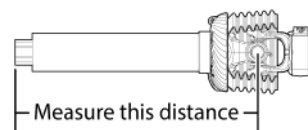
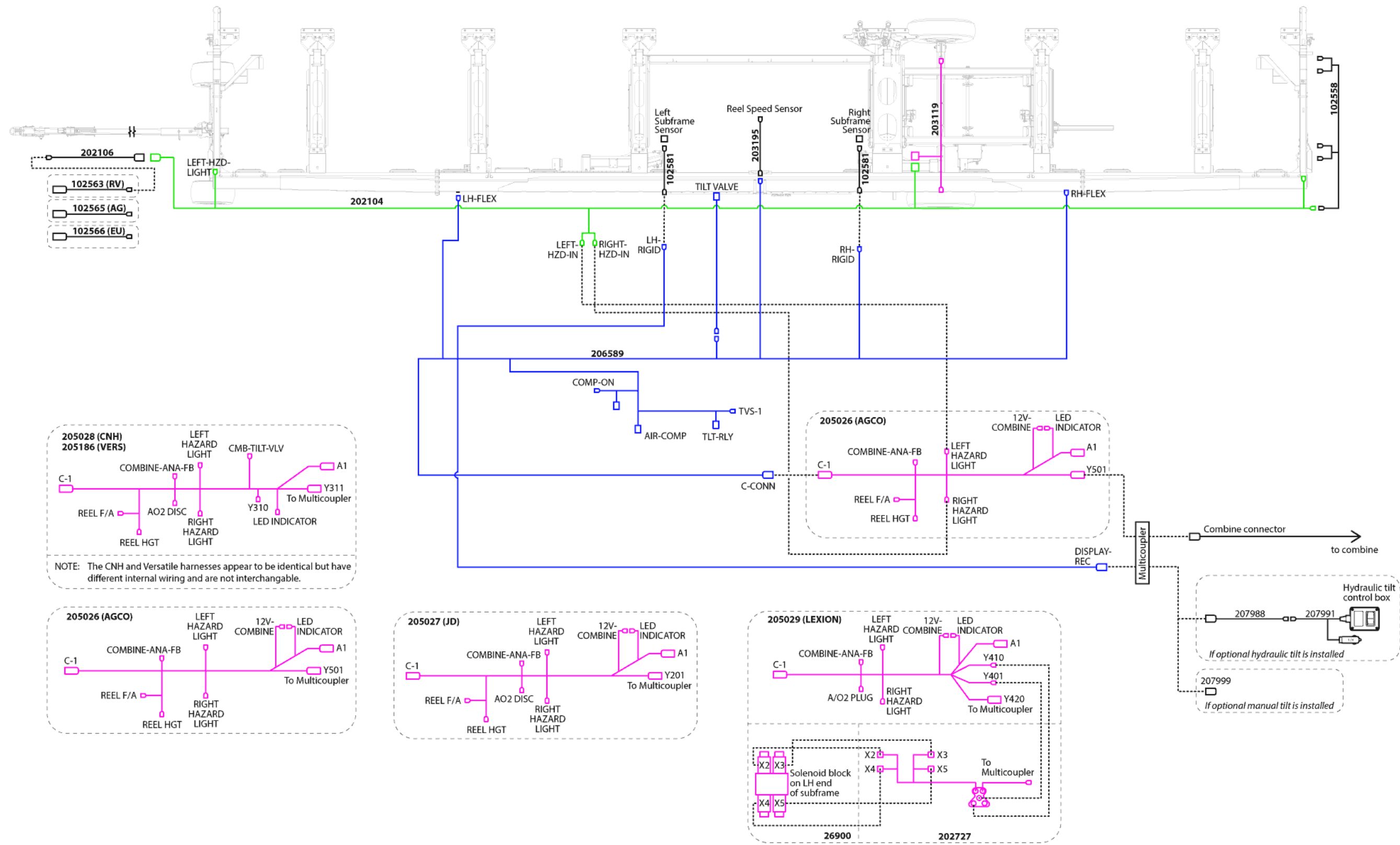


Fig. 247 - Shaft Measurement

| | Input Driveshaft | | Feeder Deck Driveshaft | | Auger Driveshaft | | Knife Driveshaft | |
|---|------------------|-------------------------------|------------------------|-------------------|--------------------|--------------------|-------------------|-------------------|
| | A | B | A | B | A | B | A | B |
| Massey | 427 mm (16.81") | 407 mm (16.02") 21 Spline | 233 mm (9.19") | 248 mm (9.78") | 369 mm (14.55") | 319 mm (12.58") | 180 mm (7.07") | 232 mm (9.15") |
| Gleaner | 547 mm (21.54") | 527 mm (20.75") 21 Spline | | | | | | |
| Lexion | 547 mm (21.54") | 527 mm (20.75") 21 Spline | | | | | | |
| John Deere | 496 mm (19.54") | 476 mm (18.75") 21 Spline* | | | | | | |
| CNH (2017+) | 547 mm (21.54") | 527 mm (20.75") 21 Spline | | | | | | |
| CNH (2016-) | 547 mm (21.54") | 527 mm (20.75") | | | | | | |
| CASE 2388 | 449 mm (17.66") | 589 mm (23.19") Hex | | | | | | |
| Rostselmash Acros 595+, RSM-161, Torum 750-765 | 547 mm (21.54") | 527 mm (20.75") 8 Spline | | | | | | |
| Rostselmash Torum 770-785 | 547mm (21.54") | 667 mm (26.26") 21 Spline | | | | | | |
| Fendt Ideal | 427 mm (16.81") | 527 mm (20.75") 20 Spline | | | | | | |
| Versatile | 547 mm (21.54") | 527 mm (20.75") 6 Spline | | | | | | |
| NOTE: All drive shafts are 6 spline unless otherwise specified | | | | | | | | |

21.10 - Electrical Layout



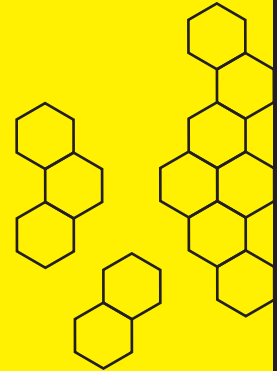


Honey Bee

Harvest Faster

2022 RDX Grain Belt

Header Operator Manual



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