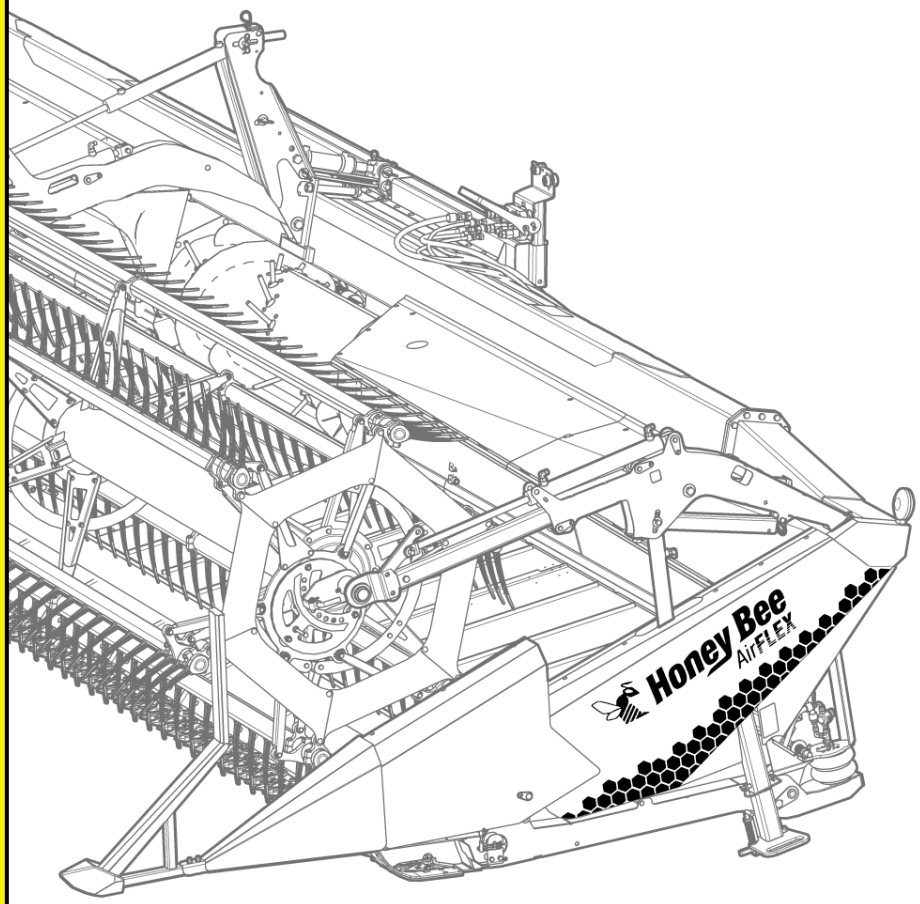
# 2016

# AirFLEX

## FLEX Header
## Operator Manual




Honey Bee

Revision 2.1 P/N: 94858

This Page Intentionally Left Blank

# AirFLEX 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: _____ Serial #: _____

Check Completed By: _____ Signature: _____

Dealer Name: _____ 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:

___Set front reel bats to operational position (reinstalled from transport position). - *page 27*

___Remove reel tie-downs installed from factory.

___Install crop dividers & extensions and secure in place.- *page 27*

___Check draper tension as per decal on back panel. Adjust if necessary. - *page 100*

___Lower knife drive to operating position. - *page 27* Ensure the belt is properly seated, aligned & tensioned on pulley. - *page 95*

___Walk around the header, checking belts, bolts and shields to ensure everything is tight and in good working order.

___Install Automatix harness on the combine, note if the electrical system is positively or negatively switched, hook up the battery leads accordingly. - *page 32*

___Install Automatix control panel in combine cab & connect to electrical harness. - *page 32*

___Unlock the transport cart and draw bar, lift header with the combine then remove the cart and draw bar. - *page 29*

___Attach multicoupler and electrical connection(s) - *page 30*

___Attach the drive shafts to the left and right hand sides of the combine feeder house. - page 31

___Check the clearance between the feed auger drum, stripper plate and feeder house. - *page 43*

___Check feed auger finger timing, ensure adjustment arm is in middle hole with fingers in fully forward position. - *page 43*

___Set combine type via automatix control panel - *page 41*

___Set the faceplate angle using adjustment bolts on the combine's feeder house (if possible) and a 4-4.5" measure from ground to lowest point at the rear of the shoe/paddle. - *page 39*

___Set header to rigid mode, ensure all tabs on flex sensing rod are in proper position. - *page 47* and *page 114*

___Set reel finger pitch to a starting point of 5. - *page 48*

___Ensure reel fingers clear cutter bar by minimum of 1 1/2". Adjust reel height if necessary. - *page 48*

___Set Auto Header Height pararmeters in combine control panel (Combine and Sensitivity Settings) - *page 40*

___Calibrate header height control and speed sensors on Automatix control panel - *page 35*

___Calibrate combine (possibly in FLEX and RIGID mode) - *See quick start laminate*

___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

___Red draw bar holder and tie-down bracket removed from header. - *page 29*

___Ensure Optional equipment as per sales order is installed and functioning.

## Before Transporting:

___Tilt cylinder retracted. - *page 47*

___Knife drive lifted to transport position. - *page 27*

___Header in rigid mode (air system pressurized to 90 psi). - *page 47*

___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 84*

___Automatix display and electrical harness, dividers, extensions & accessories securely stored.

___Warning lights, decals, reflectors & signs all legible and in place. - *page 20*

___Front reel fingers dropped into transport position. - *page 85*

___Drive shafts in storage position. - *page 89*

___Center sensors in storage position. - *page 85*

This Page Intentionally Left Blank

## IMPORTANT!

This manual covers the AirFLEX header ONLY.

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.

Original Instructions



Patents: 7,470,180 - 2,572,274 - 8,833,048 - All other patents pending.

This Page Intentionally Left Blank

# 1 - 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.

This Page Intentionally Left Blank

# Table of Contents

# 2 - 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.

Measurements in this manual are given in the worldwide standard of metric as well as U.S.A. unit equivalents. 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.

## 2.1 - Directions

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

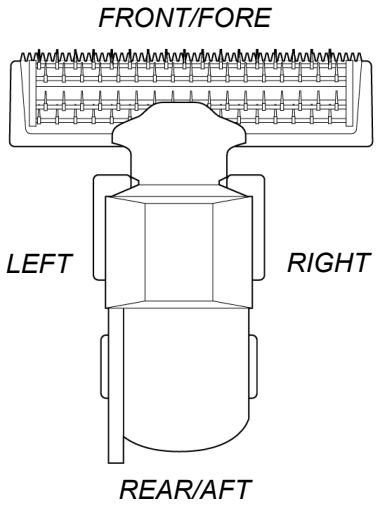



*Fig. 1 - Reference directions*

## 2.2 - 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 AirFLEX 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 AirFLEX Header.

This warranty shall not apply to any AirFLEX 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.

## 2.3 - Specifications

### 2.3.1 - Dimensions & Specifications

| Model | 225 | 230 | 236 | 240 | 245 | 250 |
|---|---|---|---|---|---|---|
| **Size** | 25ft (7.62m) | 30ft (9.14 m) | 36ft. (10.97 m) | 40ft. (12.19 m) | 45ft. (13.72 m) | 50ft (15.24 m) |
| **Header Weight - Operating Configuration** | 5955 lbs 2701 kg | 6444 lbs 2923 kg | 6860 lbs 3112 kg | 7628 lbs 3460 kg | 8016 lbs 3636 kg | 8404 lbs 3812 kg |
| **Header Weight - Transport Configuration** | 6740 lbs 3057 kg | 7229 lbs 3279 kg | 7645 lbs 3468 kg | 8413 lbs 3816 kg | 8801 lbs 3992 kg | 9189 lbs 4168 kg |
| **Optional Transport Package** | 785 lbs 356 kg | | | | | |
| **Cutting System** | Mechanically driven knife drive with SCH sections. 9” (22.9 cm) of FLEX. | | | | | |
| **Drapers** | Mechanically driven with high performance 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** | Heavy duty road transport with electric brakes | | | | | |
| **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. | | | | | | |

## 2.4 - Header Identification Number

The AirFLEX Header 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.

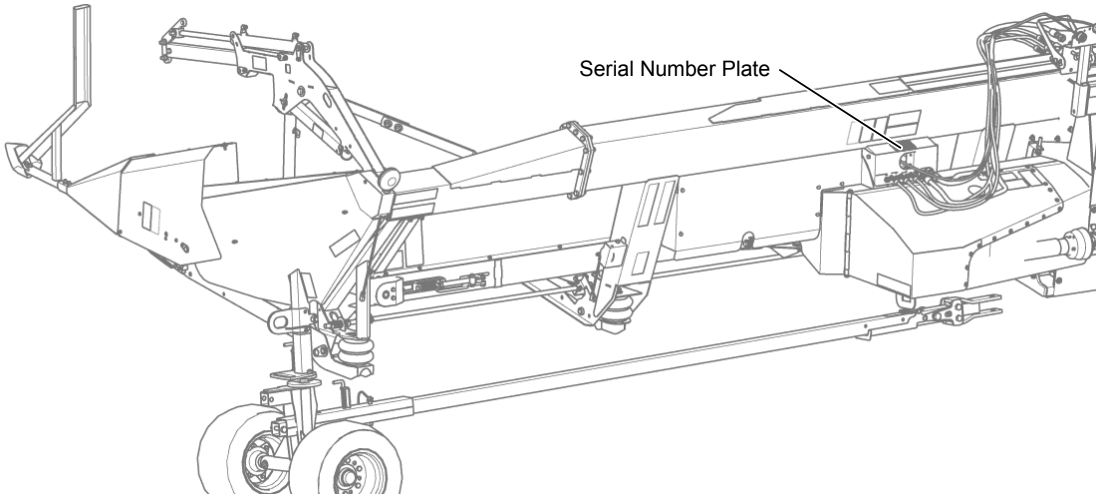



*Fig. 2 - Serial number plate location*

# 3 - Safety

## 3.1 - 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.

## 3.2 - 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.

## 3.3 - Read and Understand Instructions and Warnings

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

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

Only allow trained individuals to operate the AirFLEX Header. Failure to comply can result in injury and/or equipment damage.

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

## 3.4 - 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.

## 3.5 - In Case of Emergency

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

## 3.6 - High Pressure Spray

**IMPORTANT!**

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

## 3.7 - 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.

## 3.8 - 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.

## 3.9 - 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.

## 3.10 - 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 25 mph (40 kph) when transporting the header on the optional transport package.

## 3.11 - Using Correct Torque Values

**IMPORTANT!**

It is extremely important that you use the correct torque values when servicing your AirFLEX header. Failure to follow the torque recommendations on page 129 can result in equipment damage.

## 3.12 - 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.

## 3.13 - Safety Feature & 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 & safety feature list on the following pages for assistance.

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

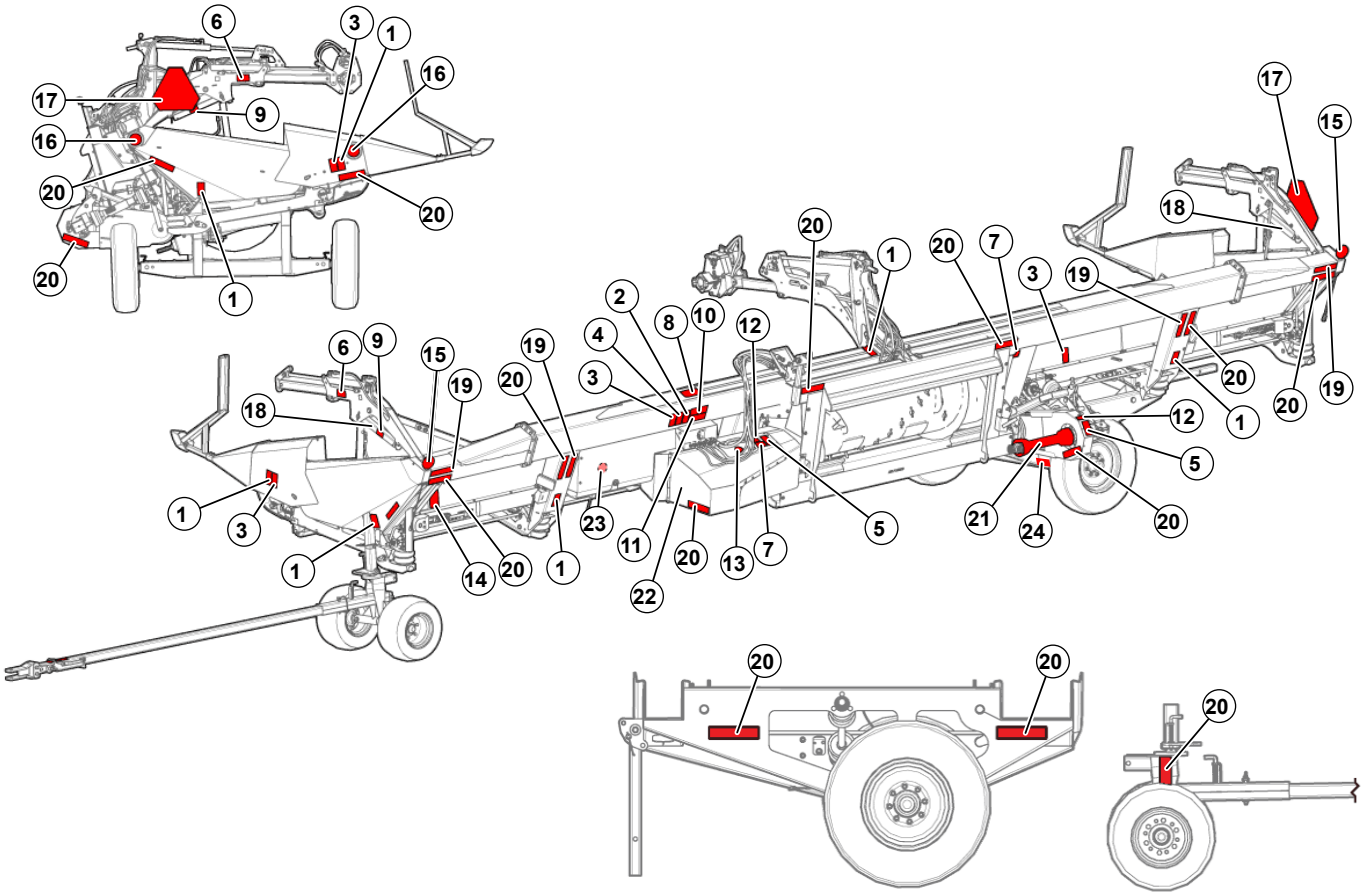


*Fig. 3 - Decal & Safety Feature Locations*


Fig. 4 - Pinch Points

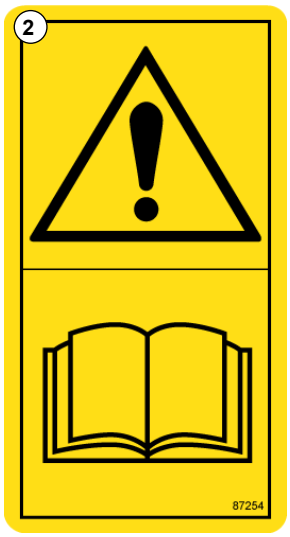



Fig. 5 - Read the Manual


Fig. 6 - Keep your Distance

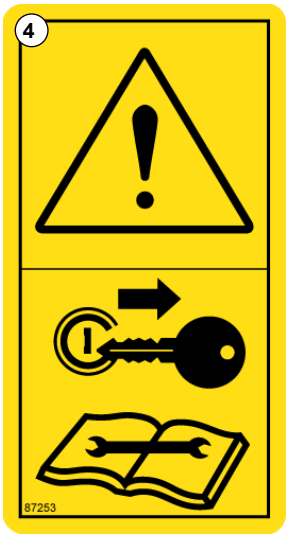



Fig. 7 - Turn off Engine when Servicing


Fig. 8 - Turn off Engine when Servicing Reel


Fig. 9 - Keep Clear of Rotating Drive Shaft


Fig. 10 - Keep Clear of Drive Belts


Fig. 11 - Not a Step - Falling Hazard

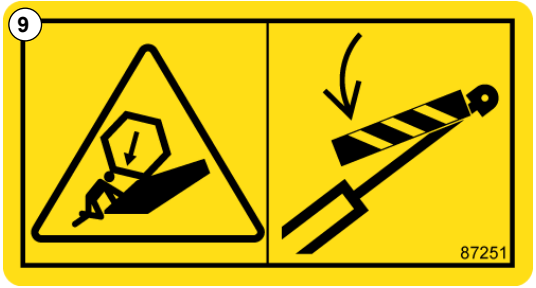



Fig. 12 - Engage Reel Stop Before Servicing

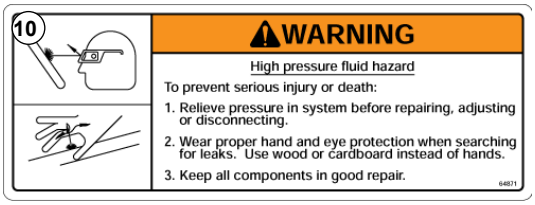



*Fig. 13 - High Pressure Fluid Hazard*

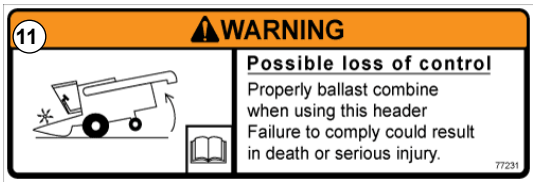



*Fig. 14 - Properly Ballast Combine*

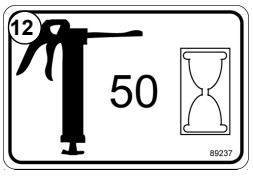



*Fig. 15 - Lubricate Every 50 Hours*


*Fig. 16 - Do Not Step Here*


*Fig. 18 - Do Not Spray*

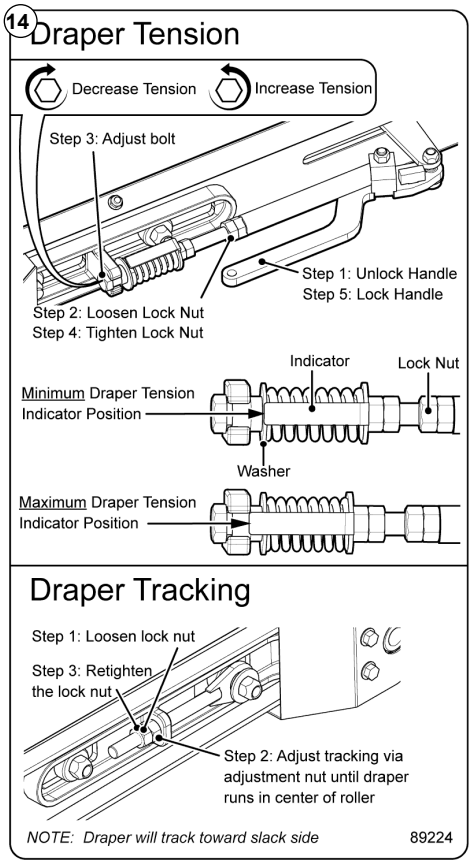



*Fig. 17 - Draper Tension & Tracking*

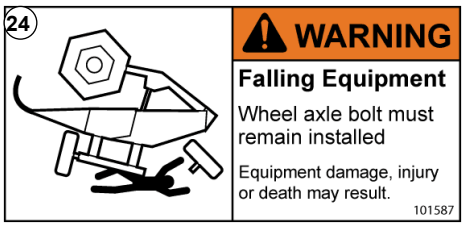



*Fig. 19 - Do not remove axle bolt*

15 - Warning Lamp

16 - Transport Warning Lamp

17 - Transport Reflector

18 - Reel Arm Safety Stop

19 - Red Reflector Strip

20 - Yellow Reflector Strip

21 - Drive Shaft Shield

22 - Side Shield

# 4 - Equipment Overview

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

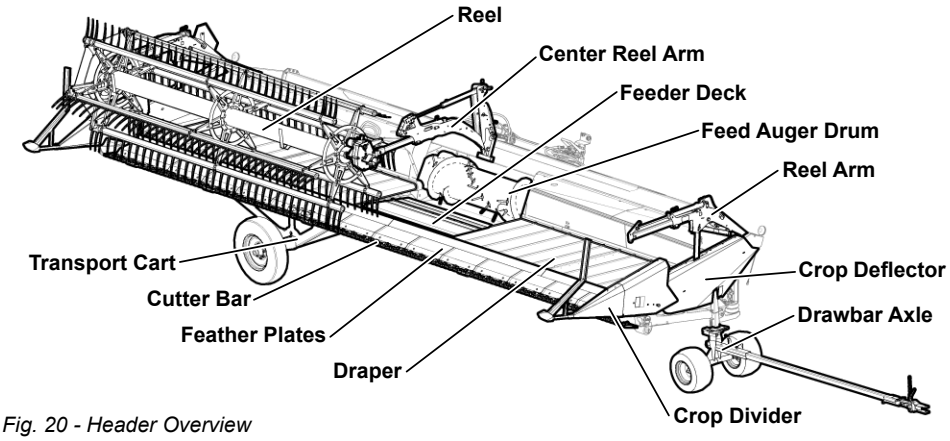



*Fig. 20 - Header Overview*

## 4.1 - Flexible Cutter Bar

The AirFLEX cutter bar has up to 9” (23 cm) of flex, allowing it to hug uneven ground in order to maximize crop harvest.

The AirFLEX sensor system keeps the cutter bar in position with little/no lateral movement and very little contact with the ground resulting in reduced UHMW wear.

The system performs very well in wet ground conditions and does not ‘push mud’.

The AirFLEX cutter bar can also be “locked up”; i.e. made to function as a rigid table. (See section 10.5 on page 62 for details)

## 4.2 - Automatic Header Height Control (HHC)

The AirFLEX’s Header Height system relays the table’s proximity to the ground to the combine. This allows the combine to adjust feeder house height and tilt (if equipped), to maintain cutter bar clearance from ground in RIGID mode, or maintain float in FLEX mode.

## 4.3 - Optional Transport Package

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

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

## 4.4 - 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.

## 4.5 - Interchangeable Combine Adapters

The AirFLEX is designed to be easily adaptable to fit all major brands of combine. Faceplates, multi couplers, PTO shafts, and adjustable auger strippers are available for JD, CNH, LEXION, and AGCO combines.

## 4.6 - FLEX Mode

When in FLEX mode, the cutter bar on the header will become Flexible and will automatically follow the contours of the land. Sensing the location of each paddle and reacting to the highest one on each side of the header, the cutter bar can FLEX up and down with a range of approximately 9” (23 cm).

This mode of operation is ideal for low lying crops.

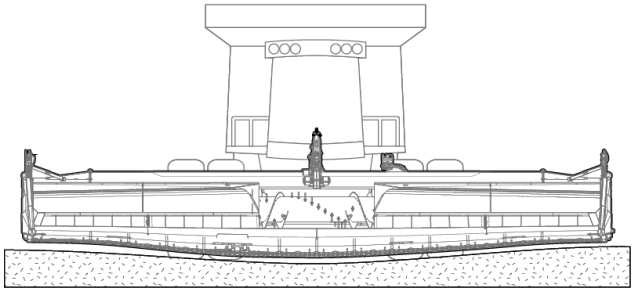


*Fig. 21 - FLEX Mode*

## 4.7 - RIGID Mode

When in RIGID mode, the cutter bar becomes locked with no vertical Flexibility possible. The system will sense the ground height via the crop divider sensors and lower limit sensors located under the header. The AirFLEX works like a regular header in this mode.

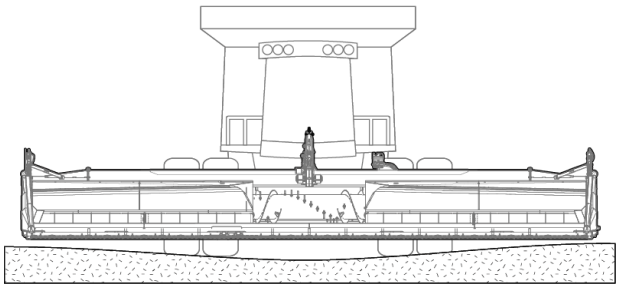


*Fig. 22 - RIGID Mode*

## 4.8 - Automatix Calibration and Operation

Pre-read the Automatix calibration procedure and ensure you understand the process before operating your equipment. See section 7 on page 35for details.

# 5 - Before First Use and Pre-Season Inspection

## 5.1 - Combine Specific Header Modifications

**IMPORTANT!**

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

### 5.1.1 - 2016 or Newer JD Combines

If installing the AirFLEX on a 2016 or newer John Deer Combine, a check valve must be installed on the AirFLEX to ensure proper operation. Follow the instructions in section 15.6 on page 127 prior to mounting the AirFLEX header.

### 5.1.2 - Combines with 'Bang-Bang' style directional control valves.

If installing the AirFLEX 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 15.5 on page 126 prior to mounting the AirFLEX header.

### 5.1.3 - Gleaner/Massey Ferguson/ Challenger Combines

If installing the AirFLEX on an Gleaner, Massey Ferguson, or Challenger combine, ensure that the proper bezel configuration is installed on the feederhouse prior to mounting the AirFLEX header to the combine. See section 15.1 on page 121 for details.

## 5.2 - 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, feeder house etc.).

### Cutting System

Ensure the knife drive is in its operational position. (See section 6.2)

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. 193 and Fig. 194 on page 105)

### Drive Belts

Ensure drive belts are undamaged, properly aligned & tensioned. See section "13.2 - Drive Belt Tension" on page 94 for details.

### Drapers

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 13.4 on page 100 for details.

### Crop Dividers

Ensure the crop dividers are properly installed & free from material buildup. (See Fig. 26 on page 27)

### 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 and undamaged. Replace if necessary. Clean away material buildup.

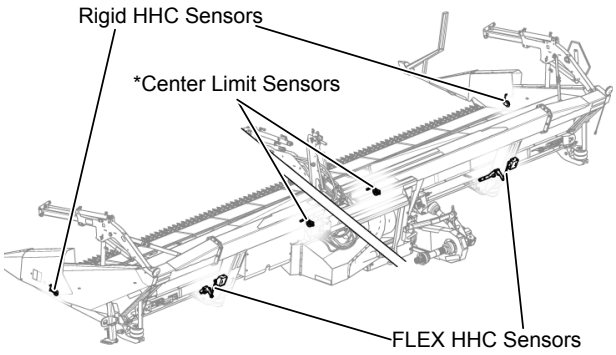



*Fig. 23 - AirFLEX HHC Sensor Locations*

**An additional two center limit sensors may be optionally installed on the remaining struts.*

## Support Straps

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.

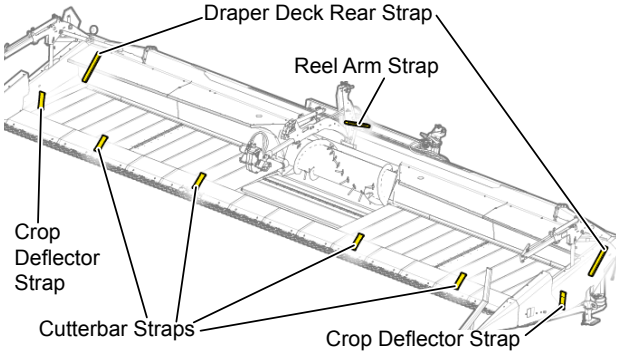



*Fig. 24 - AirFLEX Support Strap Locations*

## Combine Feeder house

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

## Header Feed Auger

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. See section 13.9 on page 111 for details.

## Hydraulic Tilt Cylinder Position

Inspect the hydraulic tilt cylinder to ensure it is in the correct position for your combine. See section 13.10 on page 113 for details.

## Reel

Ensure the reel bats are in their operational position.

## Multicoupler

Thoroughly inspect the connection faces on the header and the combine sides of 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.

## Lubrication

Check fluid levels on all gearboxes.

Apply grease where needed as outlined in section 13.18 on page 116 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.

# 6 - Mounting the Header to the Combine

## 6.1 - 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 AirFLEX.

Tilt the feeder house front plate to an angle that allows easy hookup to the header. If the feeder house is tilted forward, the front of the header may dig into the ground when the table is lifted.

## 6.2 - AirFLEX Preparation

1. Park the AirFLEX on flat, hard, level ground.
2. 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.

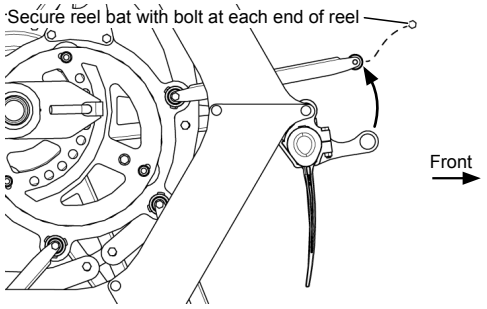



*Fig. 25 - Raise reel fingers to operation position*

3. Install the crop dividers, and crop divider extensions (or divider pipes) 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.

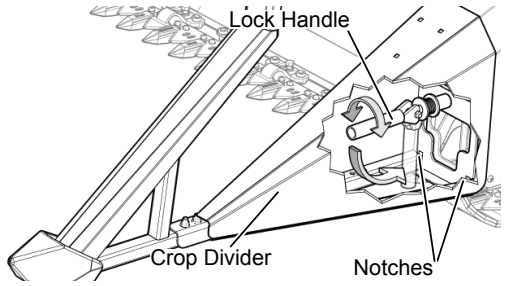



*Fig. 26 - Install Crop Divider*

4. Lock each divider in place by rotating the handle 90 degrees and pulling it down.

**NOTE:**

If the lock handle becomes loose, you can add an additional washer to improve handle performance as shown in section 13.8.1 on page 110.

## 6.3 - Knife Drive Position

Located to the right of the feeder house, the knife drive must be lowered from its transport position to its combine specific operational position.

1. Determine which hole is applicable to your combine make/model.

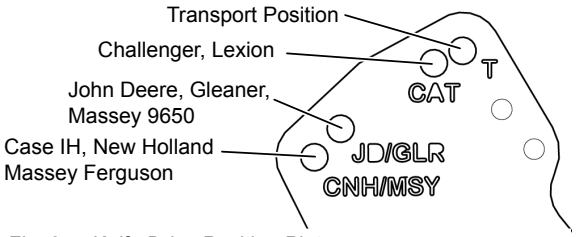



*Fig. 27 - Knife Drive Position Plate*

2. Loosen the five indicated bolts to allow the knife drive shields to shift when it is lowered into operating position.

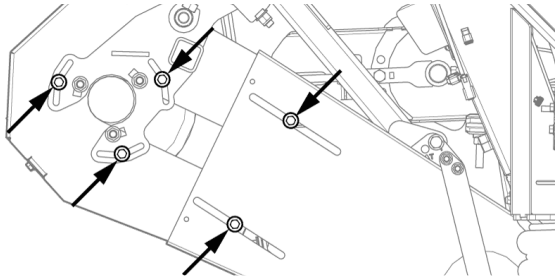


*Fig. 28 - Loosen bolts to allow shields to shift.*

3. Remove the indicated bolt, lower the knife drive to the appropriate position for your combine then reinstall the bolt.

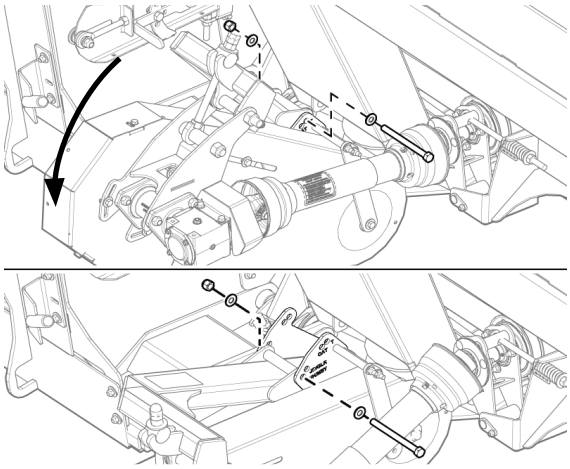


*Fig. 29 - Lower Knife Drive to Operational Position*

4. Ensure the drive belts are aligned and seated in the pulley groves. Set the belt tension as outlined in section 13.2.5 on page 95.

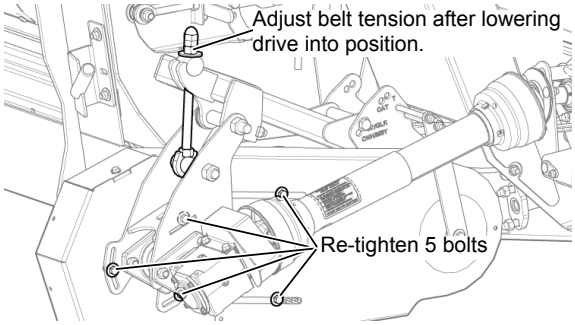



*Fig. 30 - Adjust belt tension and re-tighten shields*

5. Re-tighten the 5 shield bolts that were loosened in a previous step.

## 6.4 - Mounting The AirFLEX

**NOTE:**

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

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.

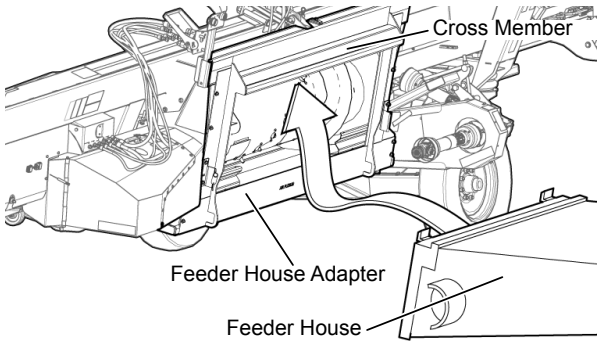



*Fig. 31 - Insert Feeder House into Adapter Plate*

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 13.9 on page 111 for details).

**NOTE:**

If the transport cart is not present, proceed to section 6.6 on page 30.

## 6.5 - If the Optional Transport Package is Purchased

**IMPORTANT!**

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

1. Remove the red hold-down on the draw bar mounting bracket and 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.

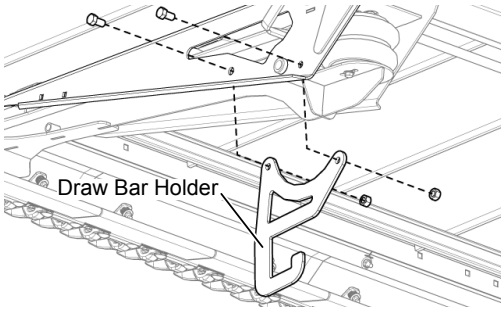



*Fig. 32 - Remove Draw Bar Holder*

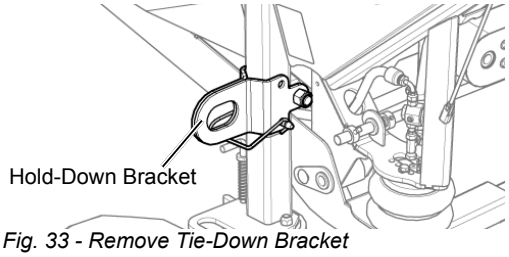



*Fig. 33 - Remove Tie-Down Bracket*

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.

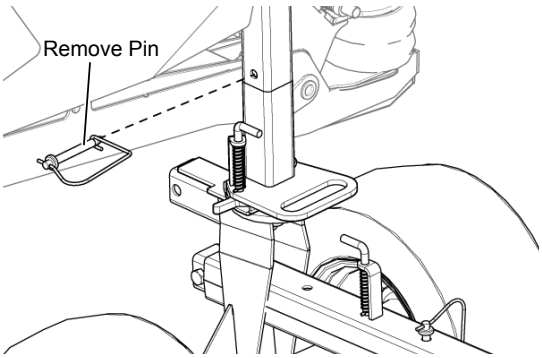



*Fig. 34 - Remove Draw Bar Axle Pin*

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.

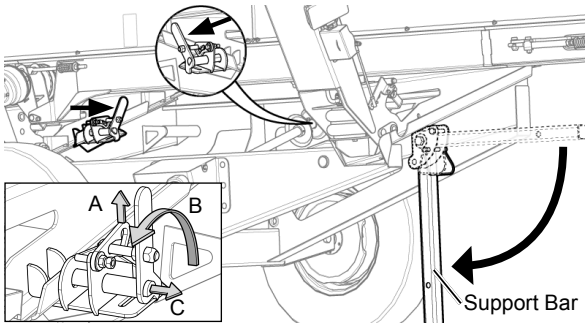



*Fig. 35 - Unlock Transport & Lower Support Bar*

5. Slightly raise the header with the combine, lower the transport support bar and lock in place with its pin.
6. Use the hand crank on the transport cart to lower it to the ground via its straps. Disconnect the straps from the header.

### 6.5.1 - Optional Draw Bar & 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.

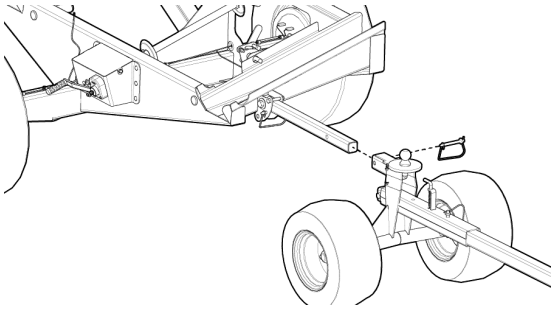


*Fig. 36 - Transport Storage Position*

**WARNING!**

Do not exceed 25 mph (40 kph) when towing the transport cart.

## 6.6 - Mounting the AirFLEX (continued)

3. 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, raise feeder house completely and lower the feeder house safety stop onto hydraulic cylinder rod. Shut OFF engine, set parking brake, and remove the key before exiting the cab.

4. With the Header in the fully raised position insert all lock pins and/or header adapter locking bolts as described in your Combine owner's manual.

**WARNING!**

Ensure all locks are properly installed before proceeding.

## 6.7 - Hydraulic & Electrical connections

Connect the Hydraulic Multicoupler, Automatix Electrical Harness and the Combine Electrical Harness to the header as shown below.

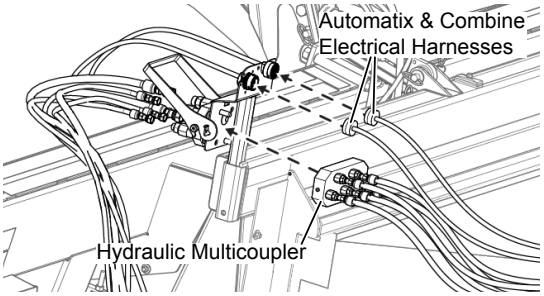



*Fig. 37 - Connect Multicoupler & Electrical Harnesses*

**NOTE:**

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

## 6.8 - 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!

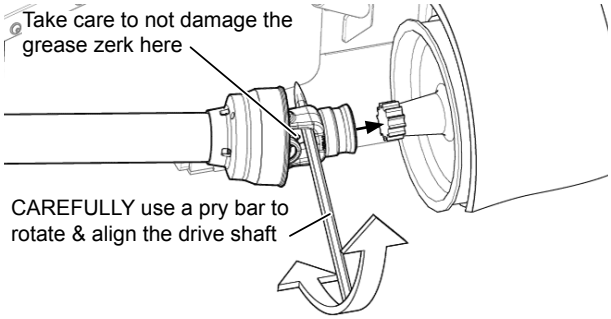



*Fig. 38 - Connect Drive Shafts (both sides of feeder house)*

**NOTE:**

To connect the PTO drive line, grab the collar and pull it back before pushing the PTO onto the shaft. It will click as the collar snaps into place.

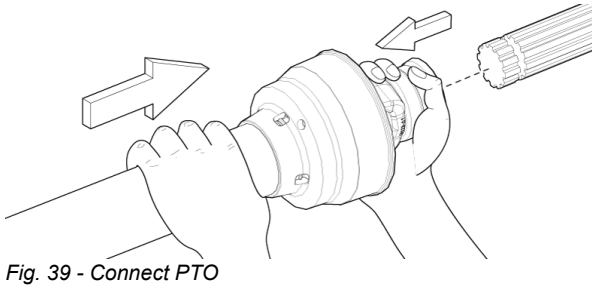


*Fig. 39 - Connect PTO*

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

**WARNING!**

Ensure drive shields are in place.

**IMPORTANT!**

The drive shaft should not be hooked up at too steep of an angle to avoid over-stressing the shaft.

### 6.8.1 - Drive Shaft Troubleshooting

If the drive shaft appears too long to install on the right side of the feeder house then you may need to tilt the header to the left or right using the combine's lateral tilt function. This will allow enough room to hook up the drive shaft.

Ensure the knife drive is in the correct position as described in section 6.3 on page 27.

Refer to section 15.8 on page 130 for a list of the correct drive shaft lengths to verify the drive shaft being used is the correct one.

**IMPORTANT!**

NEVER cut your drive shaft to make it fit.

## 6.9 - Automatix Installation

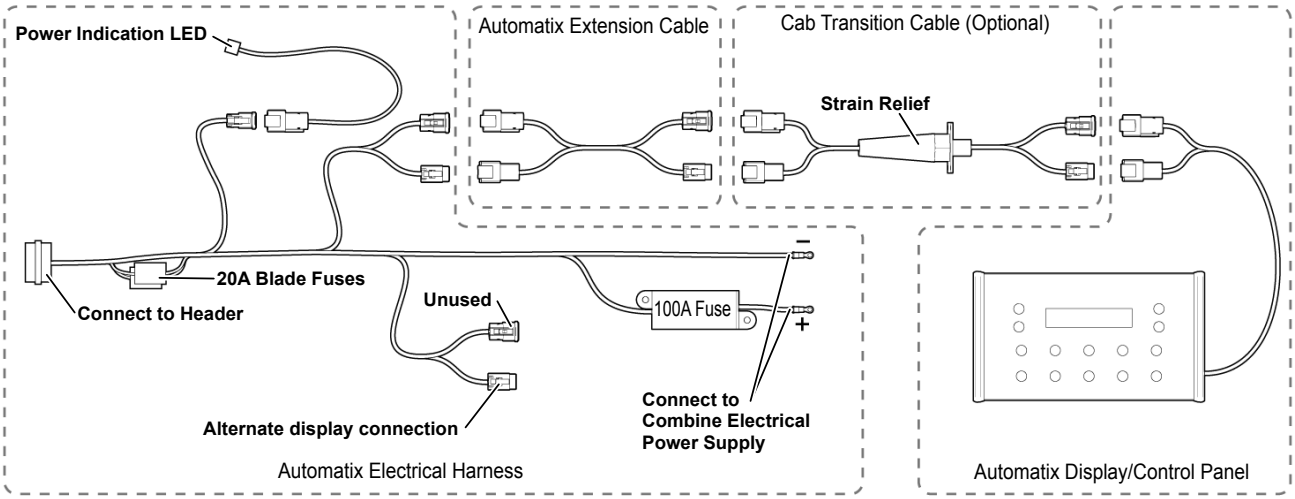



*Fig. 42 - Automatix Control Panel & Electrical Harnesses*

The Automatix control panel is used to control the various header functions. It must be connected to the combine's electrical system and mounted in the cab.

1. Connect the Main Automatix Harness to the header.

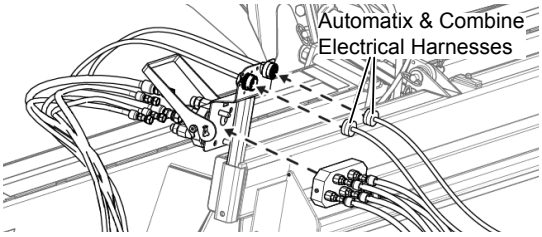



*Fig. 40 - Connect Multicoupler & Electrical Harnesses*

2. If using a combine equipped with `Bang-Bang` style directional hydraulic valves, install the BeeBox as described on page 126.
3. Connect one end of the Automatix Extension Cable to the Main Automatix Harness.
4. Route the Automatix Extension Cable as close to the combine cab as possible, keep in mind where you want the cable to enter the cab while routing.
5. Route the optional Combine Cab Transition Cable into the cab of the combine. Use the strain relief to protect the cable as it enters the cab.
6. Using either the provided suction cups or the RAM industries ball, mount the Automatix control panel inside the cab in an easily viewable and accessible location.

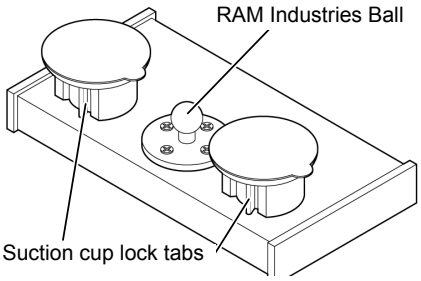



*Fig. 41 - Automatix Display Mounting*

**NOTE:**

If using the suction cups, ensure everything is clean and dust free prior to installation. The suction cups can only be installed on a flat window.

**IMPORTANT!**

The RAM Industries ball must not be removed from the Automatix control panel. Removing the ball will result in damage to the system.

7. Connect the Automatix Combine Cab Transition Cable to the Control Panel.

**IMPORTANT!**

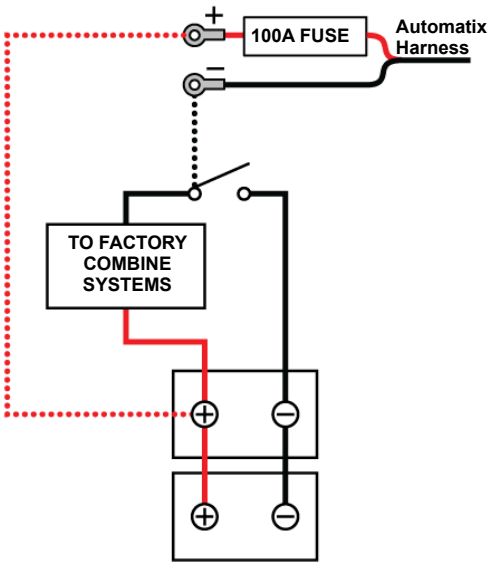
When routing cables around the combine, always ensure that there are no high temperature or moving parts that might damage or interfere with the cable. To prevent equipment damage, always secure cables with zip ties or cable hold-downs.

8. Route the two power connectors on the automatix electrical harness to the combine's electrical power supply. Connect the power lines to the battery using the following rules:
   - Both of the Automatix power cables must not be connected directly to the battery. Always ensure that the circuit can be interrupted with a switch in order to prevent the battery from discharging during storage.
   - Connect the un-switched automatix power wire to the same battery to which the master switch is connected. This ensures the Automatix system will not be subjected to more than 12 volts. Some combines have battery relays that combine voltage to 24 volts. Anything over 12 volts can damage the system. If in doubt, use a multimeter to check the voltage.
   - Most modern combines use a positive switched system but some older combines use a negative switched system. Please inspect the combine to verify which system it uses as the connection points will differ.

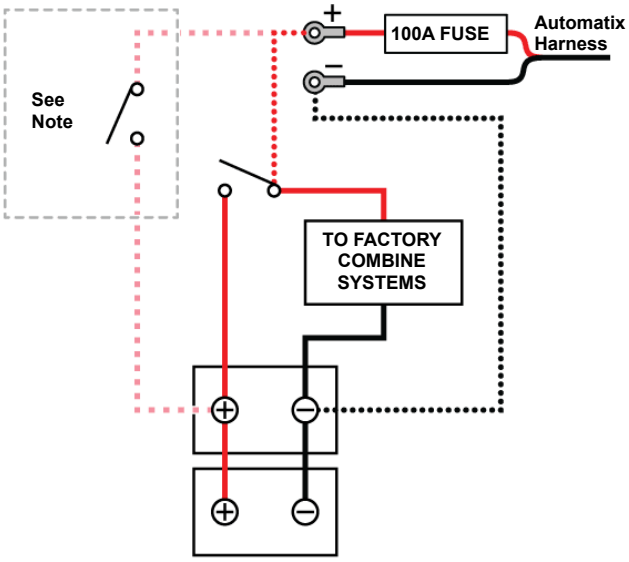
**NOTE:**

The battery master switch can be difficult to access on Gleaner combines. It may be required to install a second power switch for the automatix power connection. Use a positive switched connection.

**12V Negative Switched Battery System**




**12V Positive Switched Battery System**



## 6.10 - 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.
- □ Knife Drive Assembly lowered from transport position into operation position.
- □ Drive lines (PTO) connected to left and right sides of combine feeder house.
- □ Reel fingers in operational position.
- □ Optional Draw bar front axle and Transport cart removed and stored.
- □ Red draw bar storage bracket and hold-down removed (if applicable).
- □ All safety shields and decals in place and undamaged.
- □ Automatix display installed in combine cab.
- □ Automatix power harness properly connected to combine’s electrical supply.
- □ Hydraulics and air lines inspected for damage or leaks.

# 7 - Calibration & Initial Setup

Calibration/Initialization must be performed upon the first use of your header and after major equipment modifications or repairs.

## 7.1 - Header Height Sensor Calibration

**NOTE:**

If the calibration is performed while the header is in FLEX cutting mode, both the FLEX and RIGID sensors are calibrated.

If the calibration is performed while the header is in RIGID cutting mode, only the RIGID sensors are calibrated. If the header is in RIGID Vertical Shear mode, only the center sensors are calibrated.

This calibration is required when:

- The header is used for the first time
- If divider extensions are adjusted or changed
- If you change combines.
- If the header height sensor are serviced.

When the header height calibration is performed, combine header height calibration must also be done (See 7.2.5 on page 40).

The calibration process must be completed without skipping any steps.

1. Select H/H Calibration via the main menu on the Automatix control panel.


2. CAL ALL SENSORS. This screen is simply a confirmation of which header height sensors will be calibrated.
   - If in RIGID mode prior to calibration, only the RIGID sensors will get calibrated.
   - If in FLEX mode prior to calibration, both the RIGID and FLEX sensors get calibrated.


3. CTR SENSOR DWN. Unlock and let down the center sensor.

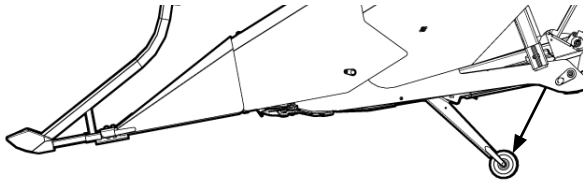


*Fig. 43 - Lower center sensor(s)*


4. DIVIDERS TIGHT. The crop dividers must be tightly secured prior to calibration. Loose dividers will cause inaccurate readings.

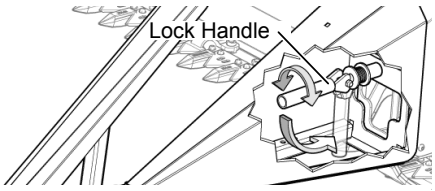



*Fig. 44 - Ensure crop dividers are tight*


5. DIVIDERS LEVEL. Use lateral tilt to adjust the header until the divider tips are touching the ground evenly. This ensures that the dividers are moving up/down at the same rate and simulates level ground.

6. TILT FORWARD. Tilt the table fully forward using the hydraulic tilt cylinder. Do not change the combine faceplate angle.


7. LOWER HEADER. Lower the header until the FLEX cutter bar is pushed all the way up. If the table tilts back, you have pushed too far. Once you have achieved the lowered position, wait a few seconds before selecting the check mark.


8. RAISE HEADER. Raise the header until the crop divider tips are about 2 feet off the ground. This ensures that the center sensor is also off the ground. Once you have achieved the raised position, wait a few seconds for the header to stop bouncing, before selecting the check mark.

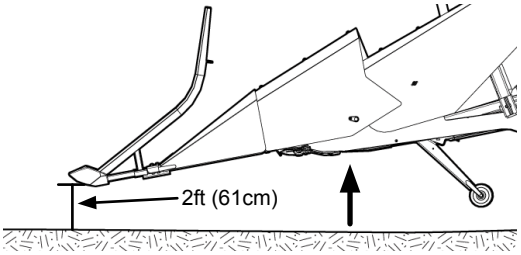


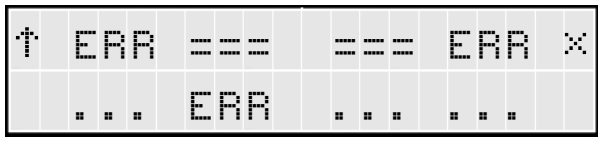

*Fig. 45 - Raise Header*


9. If successful, your Automatix display will read “Calibration Done!”. Select the check mark to view raw sensor voltages, X to exit.



### 7.1.1 - Header Height Calibration Warnings

This screen will show if at least one of the header height sensors calibration failed. This can be caused by something limiting the physical range of motion of a sensor or by a faulty sensor. If any of the voltages are not changing enough (they must change by a minimum of 1.5 volts), then a physical look at the sensors and linkages will be required.


The calibration results screen indicates which sensors were calibrated and if any problems are encountered.

**cal** - The sensor was successfully calibrated

**ERR/DNM** - The sensor did not move enough. Readings are valid, but the range of motion was not enough.

**ERR/MIS** - The required sensor readings are missing or below system threshold.

**===** - Indicates the sensor was ignored during calibration.

**...** - Optional sensor not found

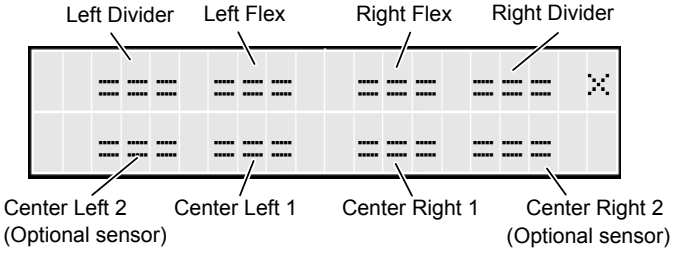



*Fig. 46 - Sensor identification*

See section 15.3 on page 124 for sensor locations.

### 7.1.2 - Speed Sensor Calibration

This calibrates the draper, knife, and reel speed, then relates them to the combine PTO speed so that the system can tell if a belt is slipping. When calibrated, the system will give warning if a belt is loose.

Before you start calibration, ensure the drapers and belts are properly adjusted.

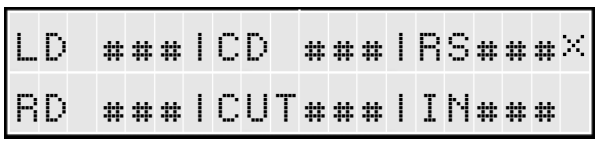
1. Select ‘Speed Calibration’ via the main menu on the Automatix display.


2. DRAPERS TIGHT: set your deck hardware to correct physical setting and “check mark”.


3. BELTS TIGHT: adjust your knife drive belt for correct physical tension. Check cog belts and pulleys and “check mark”.


4. RUN TOP SPEED: set throttle to maximum setting and wait for top speed and “check mark”.

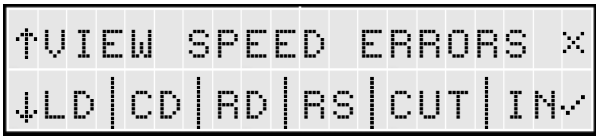

When properly completed, the display will read “Calibration Done!”.

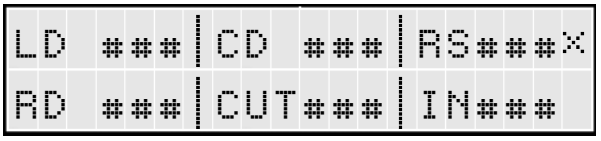

### 7.1.3 - Speed Sensor Calibration Failure

If the display reads “Calibration Fail!”, it indicates that one or more of the header speed sensors did not register the correct speed. Failure results in a screen that shows which sensor failed, and the speeds (in RPM) that the system sees.


The screen shown below displays a list of sensors (bottom row) that did not return appropriate values.




The screen shown below displays the actual speeds (in RPM) returned by the sensors.




- An incorrect speed indicates a gap adjustment is required. See section 13.17 on page 115 for speed sensor locations & adjustment instructions.
- No speed indication indicates a bad wire or sensor.

## 7.2 - Combine Calibration

Combine calibration must be performed with the AirFLEX in FLEX mode, with the header tilted forward using the hydraulic tilt cylinder.

**NOTE:**

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

**IMPORTANT!**

Manually 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.

### 7.2.1 - 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.

The required PTO speed for optimal header operation will vary between different makes of combine, the best way to determine the optimal feeder house PTO speed is via the header knife speed. The combine PTO speed is optimal when the knife speed is 550 rpm.

The knife speed can be viewed on the sensor info screen, accessible by pressing the 'INFO' button twice button on the automatix control panel.

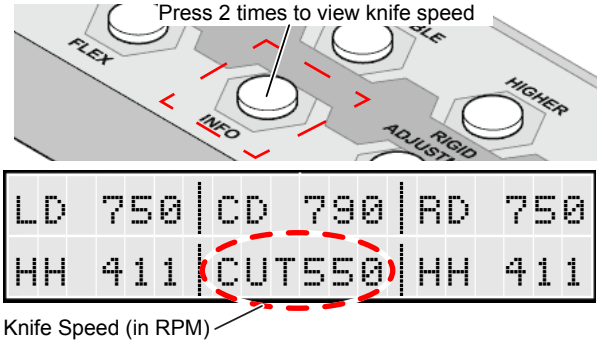



*Fig. 47 - View knife speed*

**IMPORTANT!**

Never exceed a knife speed of 565 rpm.

### 7.2.2 - 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. Set the header to FLEX mode.
2. Fully retract the hydraulic tilt cylinder.
3. Lower the table until the cutter bar is fully pushed up.

**IMPORTANT!**

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

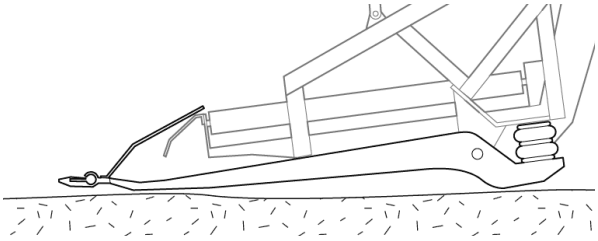


*Fig. 48 - Cutterbar pushed up*

4. Slowly raise the table until 2” (2 bars) show on the FLEX Header Height Live View on the Automatix display.

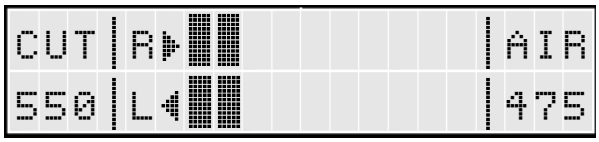



*Fig. 49 - FLEX Live View - 2 bars (2” of travel) showing.*

**WARNING!**

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

5. Measure the height of the ‘heel’ of the cutter bar paddle from the ground. It should be approximately 4” (10 cm).
   - If the paddle ‘heel’ is more than 4” (10 cm) above the ground, then the tilt is too steep and the cutter bar guards will dig into the ground.
   - If the paddle ‘heel’ is less than 4” (10 cm) above the ground, then the angle is too shallow and the rear of the paddle will drag on the ground.

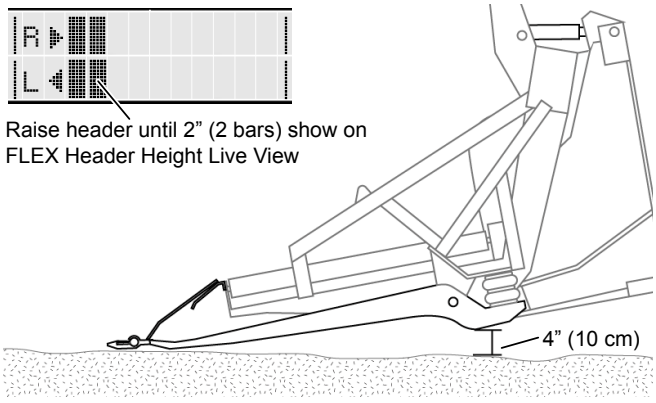



*Fig. 50 - Optimal Feeder House Angle*

6. Adjust the feeder house angle as necessary and re-test the angle as outlined in the previous steps.

**NOTE:**

25 ft Airflex have low-profile paddles installed and require a different measurement to obtain the optimal feeder house angle. Measure down to the ground from the midpoint between the rear of the paddle and the pivot point. There should be an 8” (20 cm) space when at the optimal feeder house angle.

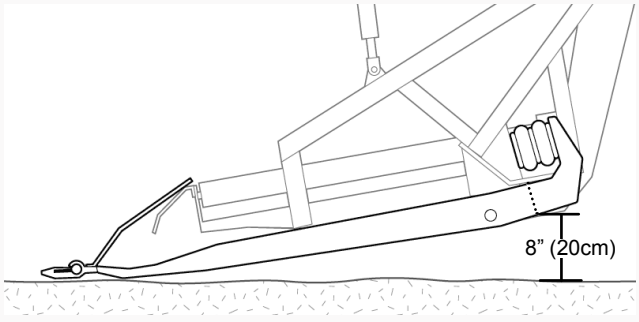



*Fig. 51 - Optimal Feeder House Angle for 25 ft AirFLEX*

### 7.2.3 - Float

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 AirFLEX header height control system. Disable the combine's float system prior to operating the AirFLEX header or damage to your equipment may result.

One exception is Pressure Float (may be called by a different name, depending on combine brand). Pressure float momentarily turns on float when there is upward pressure on the bottom of the cutter bar. The value should be set low (about 30 psi). This can protect the cutter bar from being bent if the header height is not reacting quickly enough to terrain changes.

### 7.2.4 - Hydraulic Header Raise and Drop Rates

**Raise Rate:** Set your combine's raise rate so it takes 6 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.

### 7.2.5 - Combine header height calibration

While the header is in FLEX mode, 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.

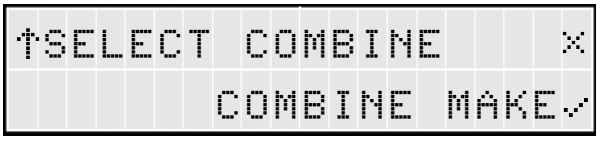
### 7.2.6 - Combine Header Height/Tilt Sensitivity

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.

### 7.2.7 - Other Combine Settings

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

## 7.3 - Combine Make Selection




Select your make of combine via the last menu item in the automatix main menu.

To change the combine brand, select the check mark so the brand starts flashing.

Press the up and down arrows until your combine brand appears.

When satisfied, select the check mark again to lock in your selection.

If the combine make name has an asterisks (*) next to it, this indicates the settings for the header have been modified in the automatix service menu. The can be reset to defaults and the * can be cleared by reselecting your combine on this screen.

# 7.4 - Reel Calibration

## 7.4.1 - Reel Finger Timing Adjustment

It may be necessary to adjust reel height after adjusting finger timing to maintain a 1 1/2” (3.8 cm) clearance from the cutter bar/feather plates.

- **Finger Recommendations in Down Crops** - Position finger angle so that the fingers lift the crop, but not so much as to carry crop around reel.
- **Finger Recommendations For Standing Crops** Position finger angle so that there is minimal disturbance to the crop when entering; helping the crop onto the belt.

See section 9.3.1 on page 48 for details.

## 7.4.2 - Reel Finger Clearance

**IMPORTANT!**

Maintain a minimum of 1 1/2” (3.8 cm) of clearance between the reel fingers and cutter bar/feather. This clearance must be set while the header is in Rigid mode.

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.

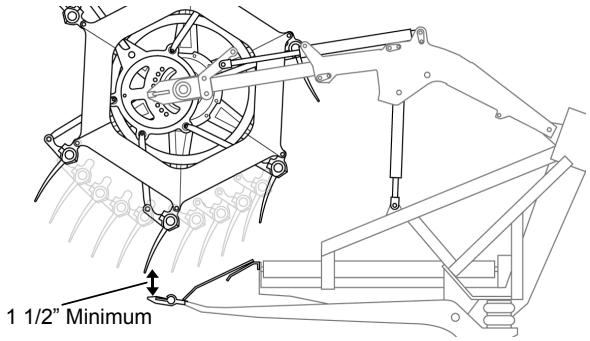



*Fig. 52 - Reel Finger Clearance*

## 7.4.3 - 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. With the header in rigid mode, ensure the reel maintains a distance of 1 1/8” (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.

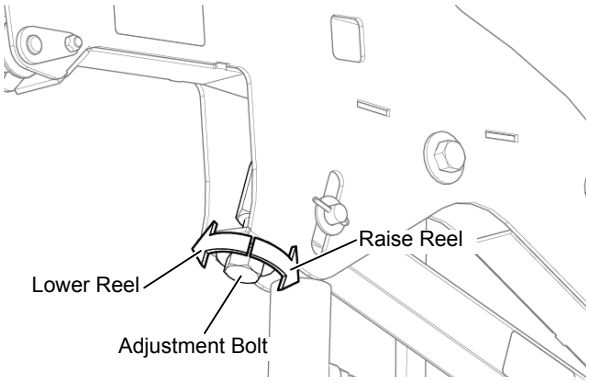



*Fig. 53 - Reel Height Adjustment Bolt*

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

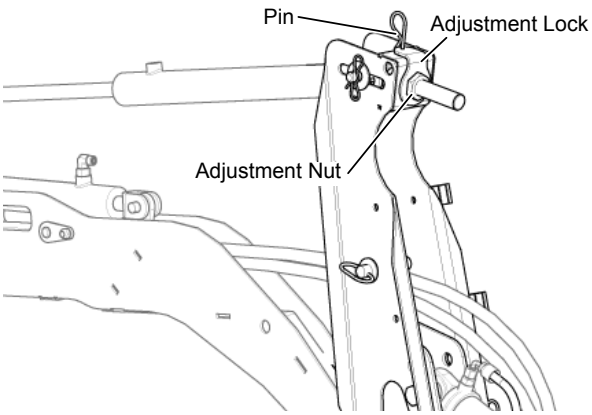



*Fig. 54 - Center Reel Arm Height Adjustment*

## 7.5 - Knife Hold-Down Clearance

**NOTE:**

In tough conditions, reduce clearance to optimize cutting performance. Only tighten as needed as knife life is affected. Minimum hold-down to section clearance is 0.3 mm (0.012 in.).

Knife Hold-Down to cutting section clearance should be: 0.5 mm (0.020 in.). Generally, this is not critical. However too tight can reduce knife lifespan.

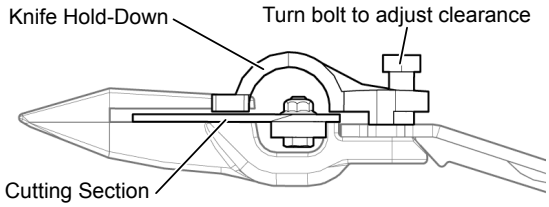



*Fig. 55 - Adjust hold-down clearance to cutting section*

## 7.6 - Feed Auger Finger Timing

Adjusting finger timing is critical in achieving proper material flow from the draper center feed belt to the combine feeder house.

For most crop conditions, operate feed drum with the fingers fully extended towards the front of the header (finger timing handle in middle position). If crop material is being pulled up behind the feed drum or excessive grain is being threshed, reduce finger timing (move the handle down).

When harvesting dry high volume crops move the finger timing up by one notch to move the fingers down and towards the rear to prevent material bunching in front of the feed drum or material appearing to go over the feed drum. Continue making adjustments until the crop flows under the feed drum smoothly

**IMPORTANT!**

The two stop bolts must be adjusted to prevent the feed auger fingers from contacting anything unintentionally. This distance to the top stop bolt (A) must be less than the distance between the top fingers and the upper tube (B).

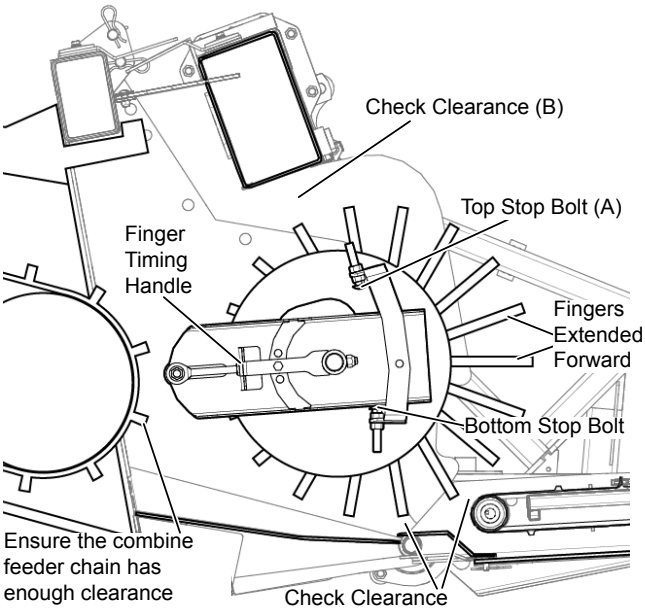



*Fig. 56 - Feed Auger Drum Clearances*

See section 13.9 on page 111 in this manual for specifics on accomplishing feed auger adjustments.

## 7.7 - Check for Problems

Run platform at half speed for a few minutes. 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.

# 8 - Daily Inspection

## 8.1 - Safety & Protective Shields

Check all safety shields and ensure they are securely in place. Tighten all loose hardware.

## 8.2 - Dividers

Crop dividers must be properly installed. The crop divider extensions (or divider pipes) must be installed on the dividers. There are three positions for the standard divider (See section 13.8 on page 110 for details).

**⚠ WARNING!**

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

## 8.3 - Air Hoses

Inspect air hoses, air fittings, and air bags for damage or leaks (see section 13.16 on page 115 for details).

- The air tank is located to the left of the feeder house area.
- There is an air bag located at the rear of each strut.

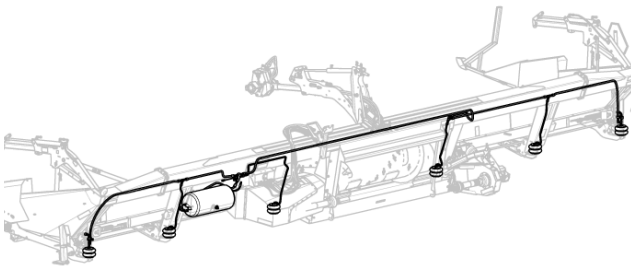


*Fig. 57 - AirFLEX Air System*

## 8.4 - Knife Guards & Sections

Inspect the cutter bar. Replace broken guards and cutting sections. See section 13.6 on page 105 for details.

## 8.5 - FLEX Header Height Control Sensors

Inspect and adjust the FLEX header height sensor bar as outlined in section 13.15 on page 114.

## 8.6 - 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. Ensure there is enough clearance around the feed auger. See section 13.9 on page 111 for details.

## 8.7 - Drapers

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

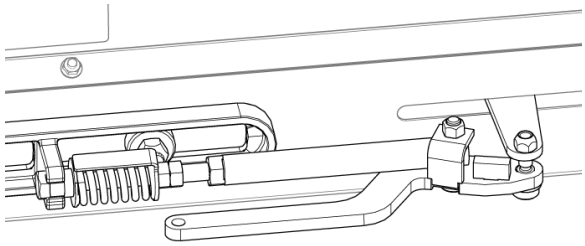


*Fig. 58 - Draper Tension Handle Correct Position*

## 8.8 - Belts

Ensure drive belts are properly aligned and tensioned. See section 13.2 on page 94 for details.

## 8.9 - Lubrication

The knife heads must be greased at four locations every 10 hours of operation, it is recommend that you apply grease every day prior to operating the equipment. See section 13.18 on page 116 for lubrication details & other lubrication points.

This Page Intentionally Left Blank

# 9 - 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 AirFLEX 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 AirFLEX, **it is EXTREMELY important to grease the knife head bearings every 10 hours** (or every day of operation). Failure to do so will drastically shorten the lifespan of the knife head bearings. See 13.18 on page 116 for detials.

## 9.1 - Cutting mode selection

The AirFLEX Header has two modes of operation; Flex Mode and Rigid Mode. It is important to select the correct cutting mode for your crops and terrain.

**Flex Mode:** The cutter bar will 'flex' to follow uneven terrain, ideal when cutting on the ground.

**Rigid Mode:** The cutter bar becomes 'rigid' and the header will behave like a standard rigid header.

These modes of operation can be selected via the 'RIGID' & 'FLEX' buttons on the Automatix control panel.

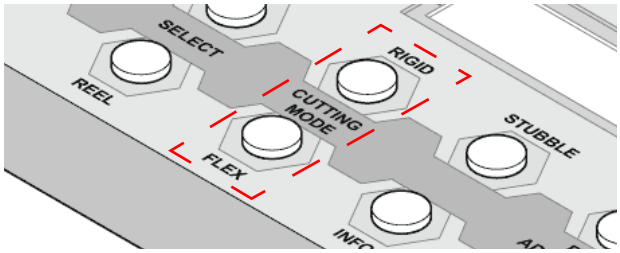



*Fig. 59 - Cutting Mode Selection*

**NOTE:**

The cutting mode cannot be changed while the header is operating. You must first stop the knife before switching between modes.

Transitioning from Rigid to Flex entails dumping air from the tank, taking about 60 seconds. Transitioning from Flex to Rigid requires the onboard compressor to run until the system is pressurized to the Rigid pre-set and requires up to 15 minutes.

## 9.2 - Hydraulic Header Tilt

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

- In Flex mode, the tilt cylinder should be fully retracted.
- In Rigid mode, the tilt cylinder should be fully extended.

Header tilt is controlled by first pushing the 'TILT' button on the Automatix control panel, then using the combine's reel fore/aft controls to tilt the header.

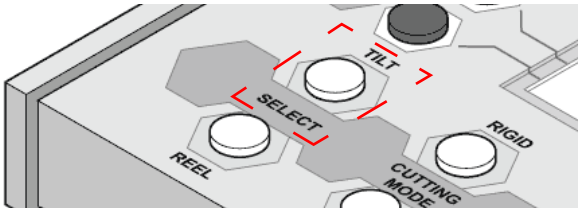



*Fig. 60 - Header Tilt - Select function of combine fore/aft controls*

The controls default back to reel fore/aft control after 20 seconds. Push the 'REEL' button on the Automatix control panel to skip this wait time.

The tilt indicator is located next to the hydraulic tilt cylinder.

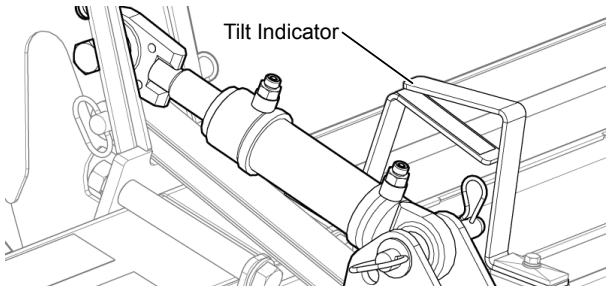



*Fig. 61 - Hydraulic Tilt Cylinder & Indicator*

## 9.3 - Reel Settings & Controls

The reel on the AirFLEX 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.

**IMPORTANT!**

Ensure the reel fingers clear the cutter bar by a minimum of 1 1/2" (3.8 cm). See 13.5 on page 103.

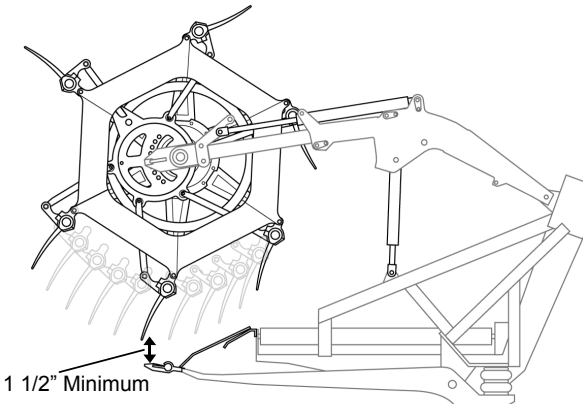



*Fig. 62 - Reel Finger Clearance*

Refer to section 7.4 on page 42 for reel adjustment details.

### 9.3.1 - 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.

**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.

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

**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. Pull and rotate lock pin to one side so it is disengaged from reel.
2. Lift the handle up for less aggressive finger pitch.

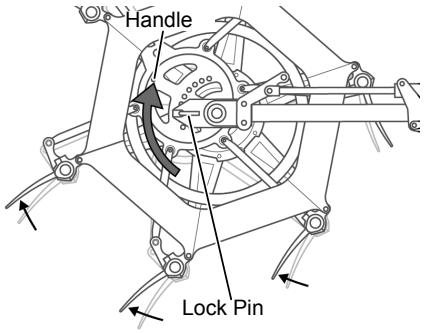



*Fig. 63 - Less Aggressive Finger Pitch*

3. Lower the handle for more aggressive finger pitch.

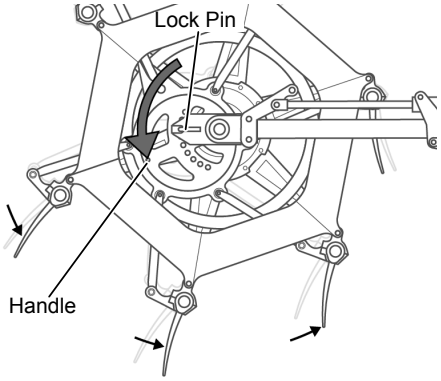



*Fig. 64 - More Aggressive Finger Pitch*

**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)).

**IMPORTANT!**

Reel finger to cutter bar clearance must be determined while the header is in rigid mode so the knife is in its highest position.

Setting the clearance while the header is in flex mode will result in reel finger damage.

### 9.3.2 - 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.

For details on setting the minimum reel height, see section 13.5.2 on page 103.

**IMPORTANT!**

It is important that a reel clearance of 1 1/2” from the cutter bar has been set with the header in rigid mode prior to attempting to operate the hydraulic reel height and fore/aft controls, or the reel fingers may become damaged.

### 9.3.3 - 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.

Set reel speed slightly faster than ground speed.

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

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

## 9.4 - Knife, Feed Auger Drum and Draper Speed.

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

## 9.5 - Crop Dividers

Adjust divider extensions for best header height performance based on current cutting height or use divider pipes when extendable dividers interfere with crop.

There are three types of crop divider extensions.

### 9.5.1 - Crop Divider Pipe Extension:

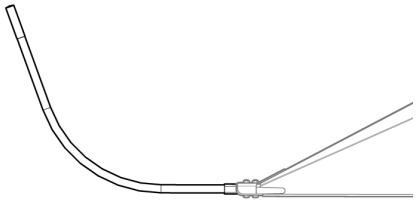


*Fig. 65 - Crop Divider Pipe Extension*

Limited to use with matted or tangled crops in Flex cutting mode only. The pipes must skim on top of the crops, they should never touch the ground.

**IMPORTANT!**

Do not use the crop divider extension pipes in rigid cutting mode.

### 9.5.2 - Crop Divider Snub Extension:

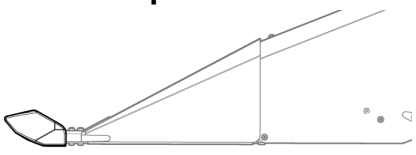


*Fig. 66 - Crop Divider Snub Extension*

The crop divider snub extension is used primarily in Flex cutting mode when harvesting soybeans or when it is desirable to reduce divider contact with the crop.

See section 13.8 on page 110 for details on installing & adjusting the dividers.

### 9.5.3 - Crop Divider Extension:

The crop divider extension has three possible positions.

When cutting at 10” or lower, the divider can be fully retracted.

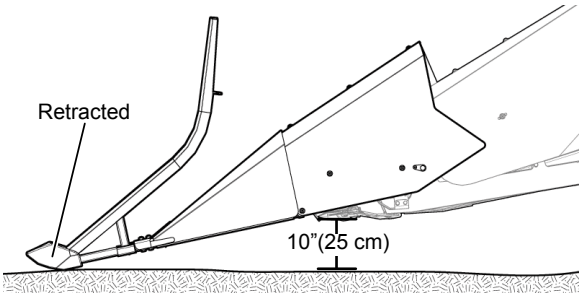



*Fig. 67 - Crop Divider Extension Retracted*

When cutting at 18” above the ground, the divider must be fully extended in order for header height control to function.

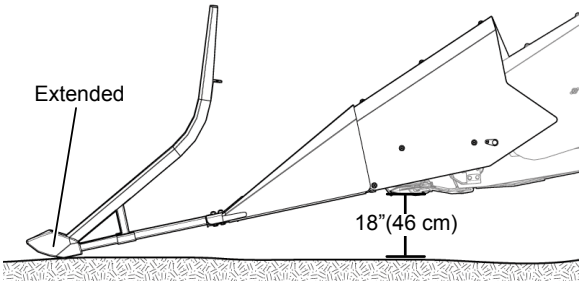



*Fig. 68 - Crop Divider Extension Extended*

Adjust the divider float so it feels just heavy enough to skim along the ground without being lifted up by crops or stubble.

## 9.6 - Operating in Flex Mode

In Flex cutting mode, the cutter bar flexes to follow the contour of the ground. This cutting mode is best suited for low or tangled crops.

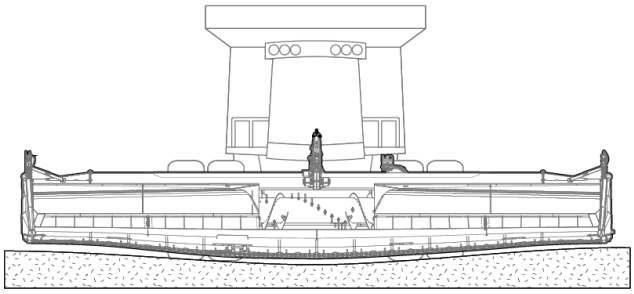


*Fig. 69 - FLEX Mode*

1. Before activating FLEX mode, tilt the header back by retracting the hydraulic tilt cylinder.

**IMPORTANT!**

FLEX mode will not work properly if the header is tilted forward.

2. First ensure the knife is not running.
3. Ensure the center limit sensors are in their raised and locked position.

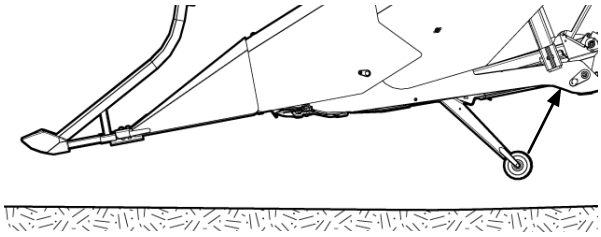


*Fig. 70 - Raise & lock center sensor(s)*

4. Press the Flex button on the Automatix control panel.

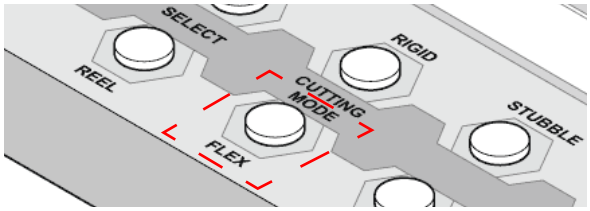



*Fig. 71 - Select FLEX mode*

### 9.6.1 - Flex Air Pressure

In Flex mode, the system air pressure can range between 25 PSI and 80 PSI.

To maximize Flex platform performance, operate at pressures within the following recommended ranges:

- **Lower than 42 psi** for terraces.
- **42-45 PSI** for firm/fast ground conditions.
- **46-49 PSI** for normal ground conditions.
- **50-60 PSI** for soft/sticky/wet/slow ground conditions.
- **Higher than 60 PSI** in severe rocky conditions.

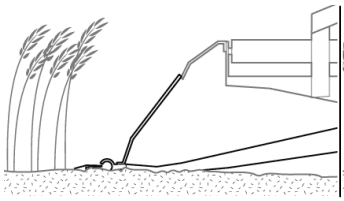


*Fig. 72 - FLEX Air Pressure Too Low, Guards Digging Ground*

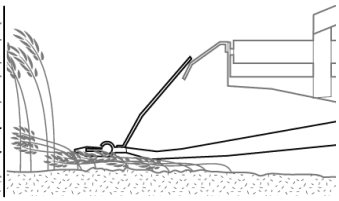


*Fig. 73 - FLEX Air Pressure Too High, Riding On Top of Crop*

You can adjust the 'weight' of the cutter bar via the 'HIGHER' and 'LOWER' buttons on the Automatix control panel.

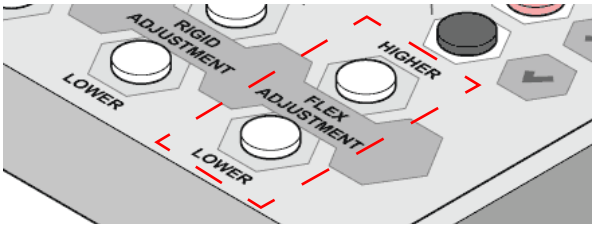



*Fig. 74 - Flex air pressure adjustment*

- The 'HIGHER' button adds air, making the cutter bar lighter.
- The 'LOWER' button removes air and makes the cutter bar heavier.

Adjust as necessary to prevent the cutter bar from hanging up (normally seen on the ends).

See section 10.7.8 on page 68 for details on setting the default Flex PSI.

The Cut Set Point should be ~1-2 inches above ground (1-2 bars on the automatix display).

**NOTE:**

The Automatix system does not display the decimal point, 460 on the display actually represents 46.0 PSI.

**IMPORTANT!**

Pressures listed are recommended. Depending on field conditions, an operator may be required to operate above or below recommended pressure.

### 9.6.2 - Divider settings

See section 9.5 on page 50 for recommendations on when/how to use the various crop dividers.

See section 13.8 on page 110 for details on adjusting the dividers.

### 9.6.3 - Reel settings

When using the Flex cutting mode, you generally want the reel fingers to be pitched more aggressively in order to help pick up crops. See section 13.5 on page 103 for details.

Reel speed should be set approximately 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.

### 9.6.4 - Ground speed

The AirFLEX Header can often be run at faster ground speeds than other similar sized headers.

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

Adjust air pressure to work at operating speed and ground moisture. Wetter conditions require more pressure for a lighter cutter bar.

The speed at which the combine can raise the table in response to changes in terrain may limit ground speed.

# 9.7 - FLEX Operating Screens

## 9.7.1 - FLEX Mode Live View

The live view is displayed on the automatix screen during normal operation in FLEX mode. The number of bars shown on the display indicate how much further the cutter bar can be pushed up. Each bar represents 1" (2.5 cm), half a bar represents 1/2" (1.27 cm). A total of 9" (22.86 cm) of motion is possible for the cutter bar when in FLEX mode.

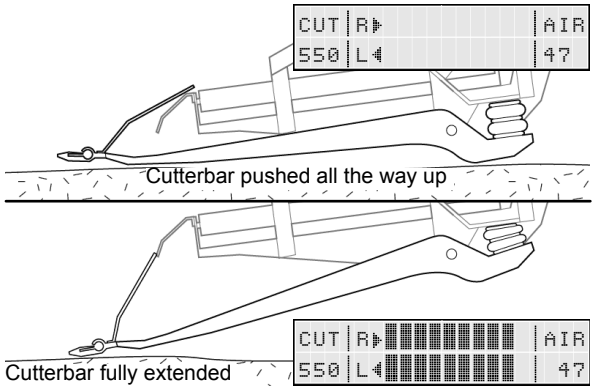



*Fig. 75 - FLEX Live View - full range of travel*

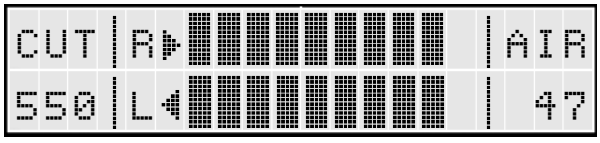



*Fig. 76 - FLEX Live View - 9" of travel available*

When in FLEX mode, adjust the table to a set point of 1 ½" - 2". This will result in having 1 ½" – 2" of upwards motion remaining before the auto header height system lifts the table.

This set point allows 7" – 7 ½" of down motion available for the cutter bar to drop into depressions, without having to lower the table.

This setting is extremely important for optimal AirFLEX performance. If the set point is too high, then the cutter bar will not follow the terrain properly.

## 9.7.2 - FLEX Mode Live View - Warning

When the cutter bar is running while fully pushed up with no remaining travel, there will be no bars remaining on the display..

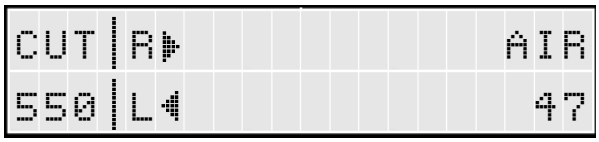



*Fig. 77 - FLEX Live View- Warning - Cutter bar at highest limit*

This usually indicates that the auto header height is not turned on or the set point is too low.

The set point must be high enough to leave some sensor range of up travel to trigger the lift command. If your set point is placed where the FLEX cutter bar is fully compressed, then the auto header height system will NEVER lift.

## 9.7.3 - Air Pressure Setting for Cutter Bar Ground Pressure

When in FLEX mode, access this screen by pressing one of the 'FLEX ADJUSTMENT' buttons.

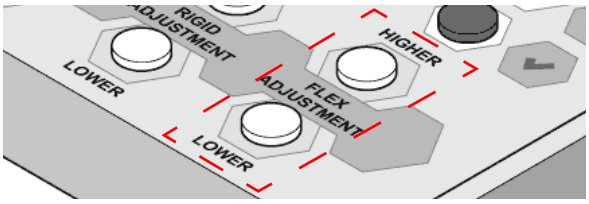



*Fig. 78 - Cutter Bar FLEX Float Adjustment*

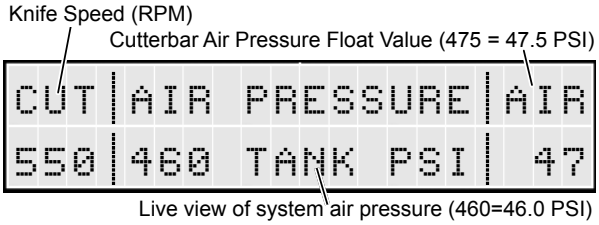



*Fig. 79 - Air Pressure Setting*

In FLEX mode, the normal range is from 25 PSI up to 80 PSI. A higher pressure results in a RIGID cutter bar, which will reduce the FLEX performance. The 'HIGHER' button adds air, making the cutter bar lighter on the ground. The 'LOWER' button removes air from the system, making the cutter bar heavier. Lighter is better in most cases. Adjust as necessary to prevent the cutter bar from dragging or hanging up (dragging is normally seen on the ends).

## 9.8 - Operating in Rigid Mode

In Rigid mode, the cutter bar is inflexible and will not follow ground contours. The header will be automatically raised or lowered based on the input from the crop divider and center limit sensors.

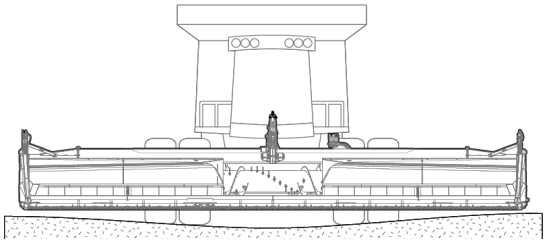


*Fig. 80 - RIGID Mode*

**IMPORTANT!**

Automatic header height must be enabled and the header should be tilted forward by extending the hydraulic tilt cylinder when in Rigid mode.

### 9.8.1 - To select Rigid mode:

**WARNING!**

To prevent injury, fully raise the header, shut OFF the engine, set parking brake, and remove the key before exiting the cab. Set the combine feeder house safety locks.

1. Release and lower the center limit sensor(s) located under the header on the sides of the struts.

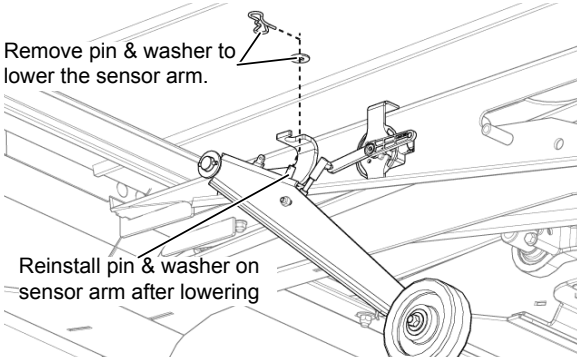



*Fig. 81 - Lower both center sensor arms*

2. Push the RIGID button on the automatix display.

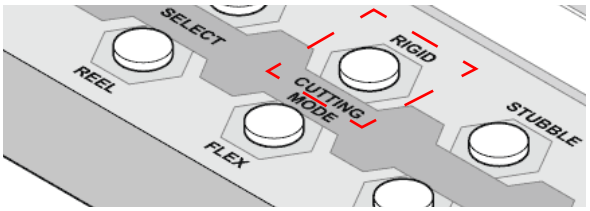



*Fig. 82 - Select RIGID mode*

**NOTE:**

When operating in Rigid mode, the system air pressure is 90 PSI. It can take up to 15 minutes to transition from Flex to Rigid mode.

### 9.8.2 - Rigid Mode Tilt Selection

**IMPORTANT!**

When operating your header in rigid mode, it is important to tell the automatix system if the header is tilted forward or backward. This will ensure that the automatic header height control system works properly

Use the ‘Rigid Adjustment’ buttons to indicate the table tilt orientation.

- Press ‘Higher’ to indicate that the header is tilted forward (out)
- Press ‘Lower’ to indicate the header is tilted backward (in)

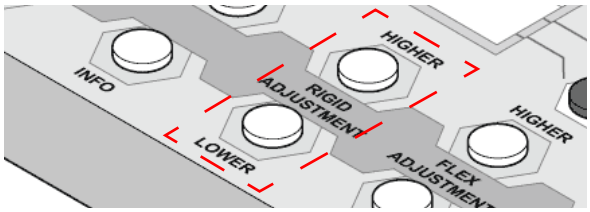



*Fig. 83 - Center Limit Adjustment*

### 9.8.3 - Divider settings

See section 9.5 on page 50 for recommendations on when/how to use the various crop dividers.

See section 13.8 on page 110 for details on adjusting the dividers..

### 9.8.4 - Reel settings

When using Rigid mode, the reel fingers should be pitched less aggressively in order to assist with gently pulling crops towards the cutter bar.

See section 13.5 on page 103 for details.

Reel speed should be set approximately 10% 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.

### 9.8.5 - Ground speed

Adjust ground speed according to the terrain, crop yield and combine capacity. The speed at which the combine can raise the table in response to terrain may limit ground speed.

# 9.9 - RIGID Operating Screens

## 9.9.1 - RIGID Mode Live View

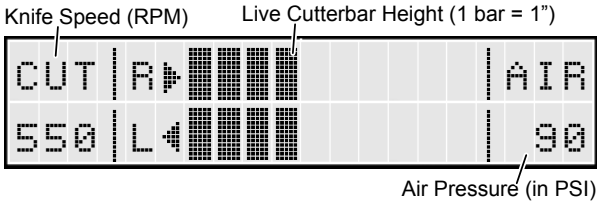



*Fig. 84 - RIGID Header Height Live View*

The Rigid mode live view is displayed on the automatix screen during rigid operation. The middle display area shows a live view of the cutter bar height above ground and is determined by all valid & calibrated center and divider sensors. This is useful for determining and setting the cut height set point.

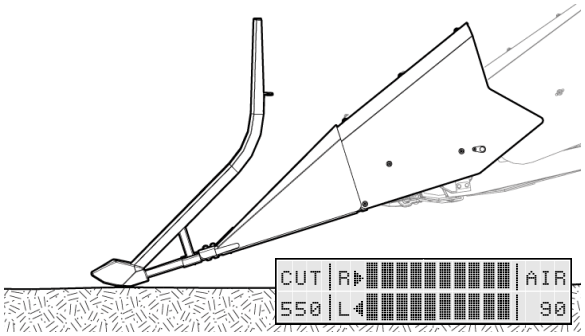



*Fig. 85 - Full range of travel available*

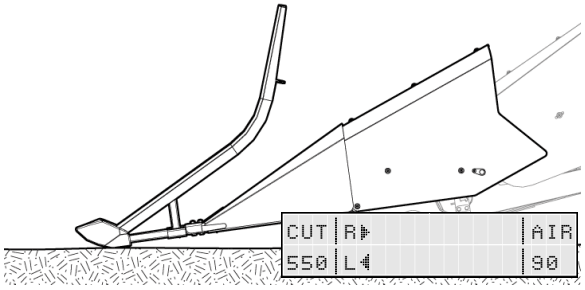



*Fig. 86 - Header all the way down, no travel available*

## 9.9.2 - Rigid Vertical Shear Mode Live View

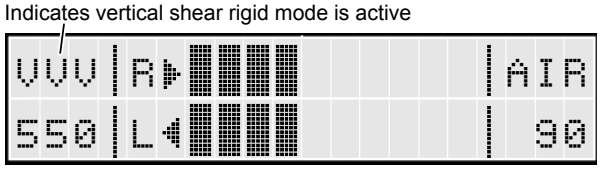



*Fig. 87 - RIGID Vertical Shear Mode Live View*

## 9.9.3 - Rigid Mode Live View - Warning

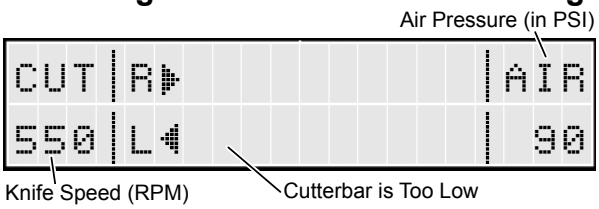



*Fig. 88 - RIGID - Header Height - Warning Screen*

If the dividers get pushed all the way up (resulting in the cutter bar running on the ground), then no bars will be visible on the screen. This is a high wear situation and should be avoided but will not stop the header from functioning.

## 9.9.4 - Rigid Mode - Table Tilt Selection

**IMPORTANT!**

When operating your header in rigid mode, it is extremely important to tell the automatix system if you are running the header tilted forward or tilted backward. This will ensure that the automatic header height control system will work properly

Use the 'Rigid Adjustment' buttons to indicate the table tilt orientation.

- Press 'Higher' to indicate that the header is tilted forward (out)
- Press 'Lower' to indicate the header is tilted backward (in)

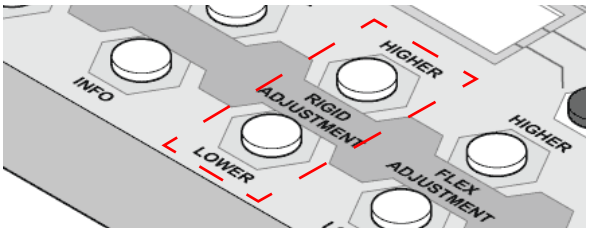



*Fig. 89 - Header Tilt Selection - Rigid Mode*

## 9.10 - Reverse Operation

When the combine feeder house is reversed, the drapers, knife and feed auger drum run backwards to assist with unplugging. Please keep in mind that the reel will only reverse if the combine supports reverse oil flow direction via the multicoupler.

**⚠ 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.

## 9.11 - Feed Auger Drum Settings

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

See section 13.9 on page 111 for details on adjusting the feed auger.

## 9.12 - 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: 6 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.

## 9.13 - Feed Auger & Center Draper Stop Warning Lamp

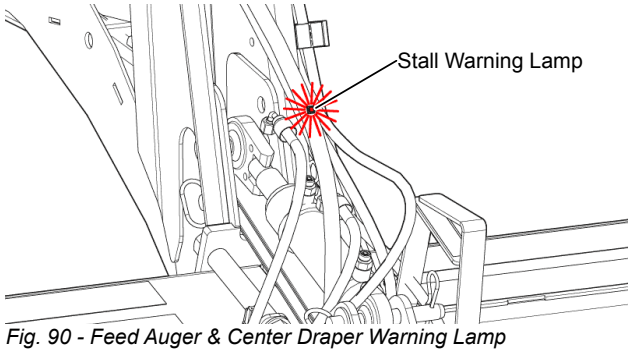



*Fig. 90 - Feed Auger & Center Draper Warning Lamp*

If the feed auger or center draper become stopped or jammed, the stop warning lamp will illuminate. The lamp is located on the center reel tower above the tilt cylinder so it is in the operator's view at all times.

If the stall warning lamp ever illuminates, immediately stop the combine and address the problem in order to prevent equipment damage.

See section 4.8 on page 24 for info on calibrating the speed sensor.

**⚠ WARNING!**

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

# 9.14 - General Crop Specific Productivity

## Harvesting Standing Cereal Crop

Harvest in **RIGID** cutting mode. 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.

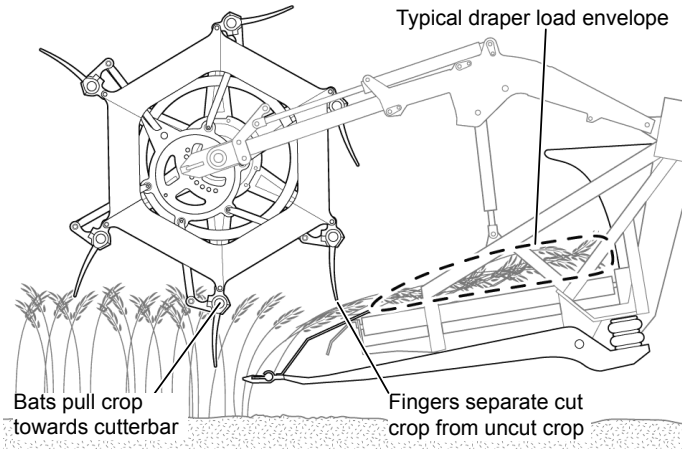



*Fig. 91 - Optimal Cereal Harvesting*

## Harvesting Pulse Crops

Harvest in **FLEX** mode. 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)

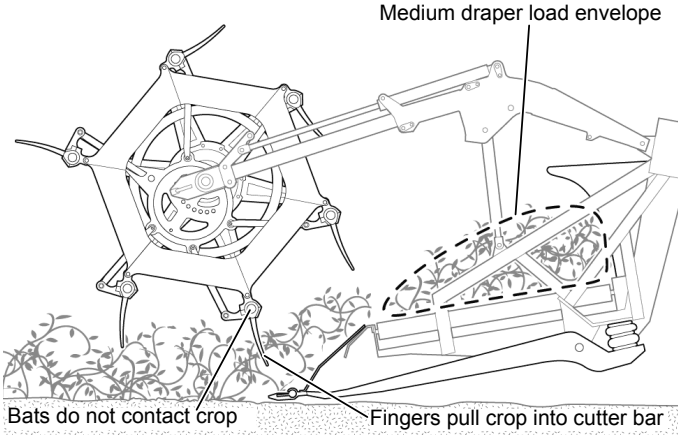



*Fig. 92 - Optimal Pulse Crop Harvesting*

## Harvesting Bushy Crops

Harvest in **RIGID** cutting mode. 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.

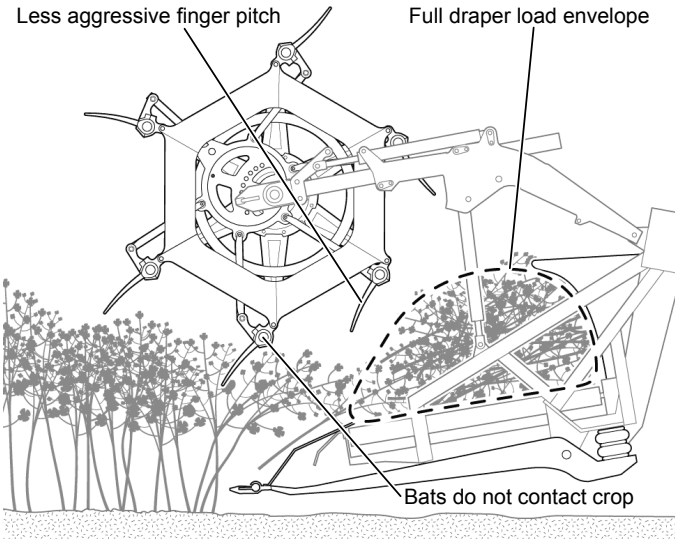



*Fig. 93 - Optimal Bushy Crop Harvesting*

## 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 Soybeans

When harvesting soybeans, set AirFLEX pressure for crop conditions:

- **Dry conditions:** lower pressure/heavier cutter bar
- **Wet conditions:** higher pressure/lighter cutter bar

## 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.

## 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.

Lower the air pressure [increasing cutter bar weight] to prevent cutter bar riding on top of down crop.

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

Raise your FLEX cut height to 6 inches. This tilts the guards down to ensure they enter under the crop. In this case the header height will have more headroom to work with and protect the cutter bar from damage.

**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 feather 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).

This Page Intentionally Left Blank

# 10 - Automatix System

The two bottom rows of buttons are used for sending commands to the Automatix system and provide access to harvesting settings used in the field. The upper four buttons are used for navigating the automatix menu system. The Red button will always exit out of your current screen.

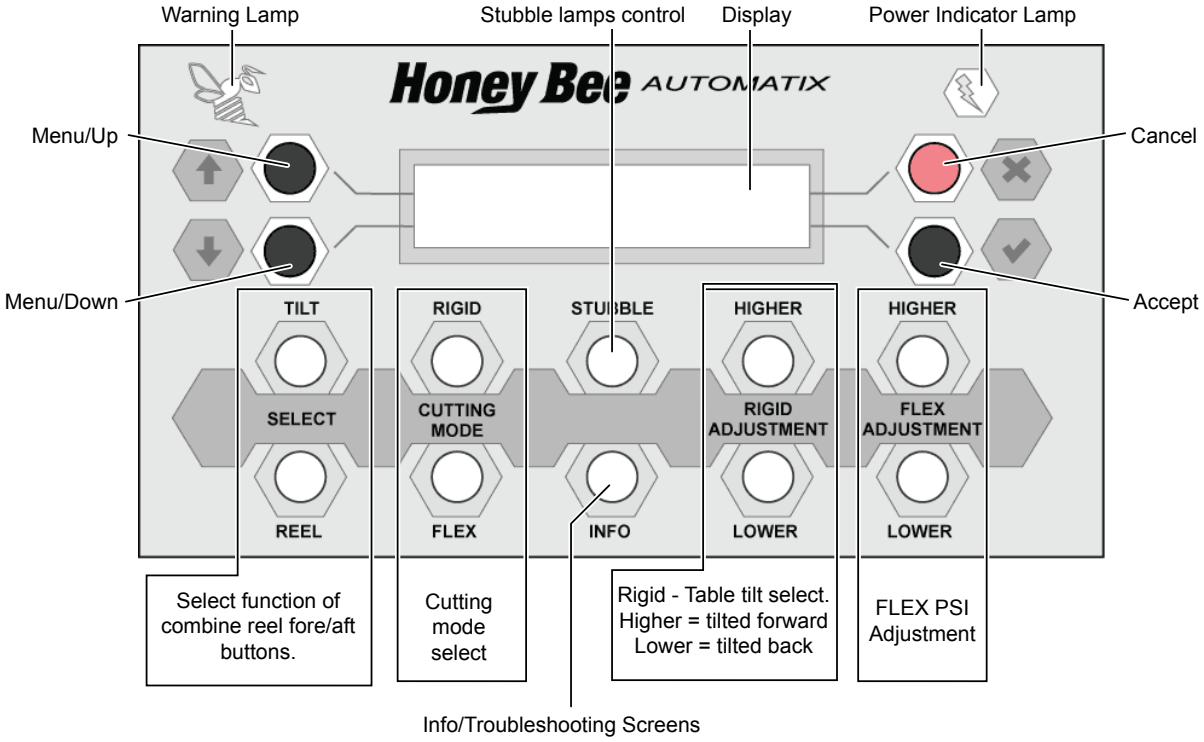
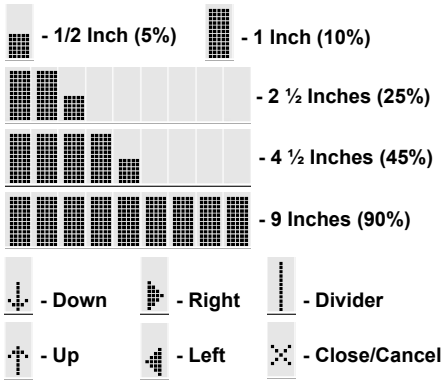



*Fig. 94 - Automatix Control Panel*

## 10.1 - Screen Icons

The Automatix system uses icons to provide easy to understand information at a glance.




## 10.2 - Power Indicator Lamp

**Power Lamp On:**
Automatix is receiving power.

**Power Lamp Off:**
Automatix is not receiving power.

**Power Lamp Flashing:**
Automatix has lost communication with the header.

## 10.3 - Warning Indicator Lamp

**Yellow Warning Lamp:**
System is operating normally.

**Flashing Red Warning Lamp:**
Unacknowledged error.

**Solid Red Warning Lamp:**
Acknowledged but unresolved error.

## 10.4 - Navigating the Automatix System

Use the four buttons located around the Automatix display to navigate the menus. The illustration below shows the relationship between the buttons and the icons shown on the screen.

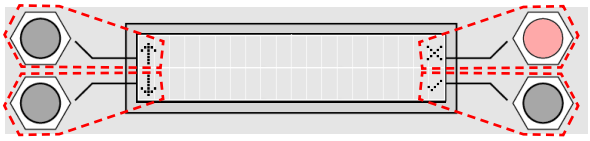


*Fig. 95 - Menu Buttons & Display Screen*

## 10.5 - Cutting Mode Selection

The Honey Bee AirFLEX has 2 modes of operation: FLEX and RIGID. These modes are selected by pressing the FLEX or RIGID buttons on the Automatix Control Panel.

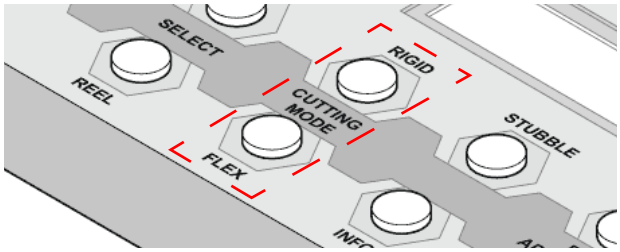



*Fig. 96 - Cutting Mode Selection*

The transition from RIGID to FLEX entails dumping air from the system, down to the FLEX pre-set pressure (Initially set at factory to 47 psi). This is a quick operation, taking about 60 seconds.

The transition from FLEX to RIGID entails running the onboard compressor (automatically done) until the air system pressurizes to the RIGID pre-set (about 90 PSI). The compressor takes longer to fill the system, and requires up to 15 minutes. The MODE cannot be changed while the header is in operation. This change can only be made when the knife RPM is zero (the display is in the standby state showing CUT HRS).

## 10.6 - Stubble Lights

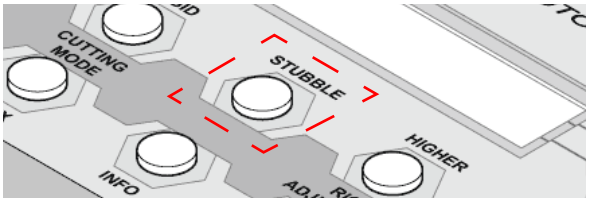



*Fig. 97 - Cutter Bar FLEX Float Adjustment*

This button controls the stubble lights. The stubble lights are mounted on the rear of the header to illuminate the ground so the operator can see the stubble.

This button does not impact anything on the control panel.

The stubble button backlight indicates the stubble lights current mode of operation:

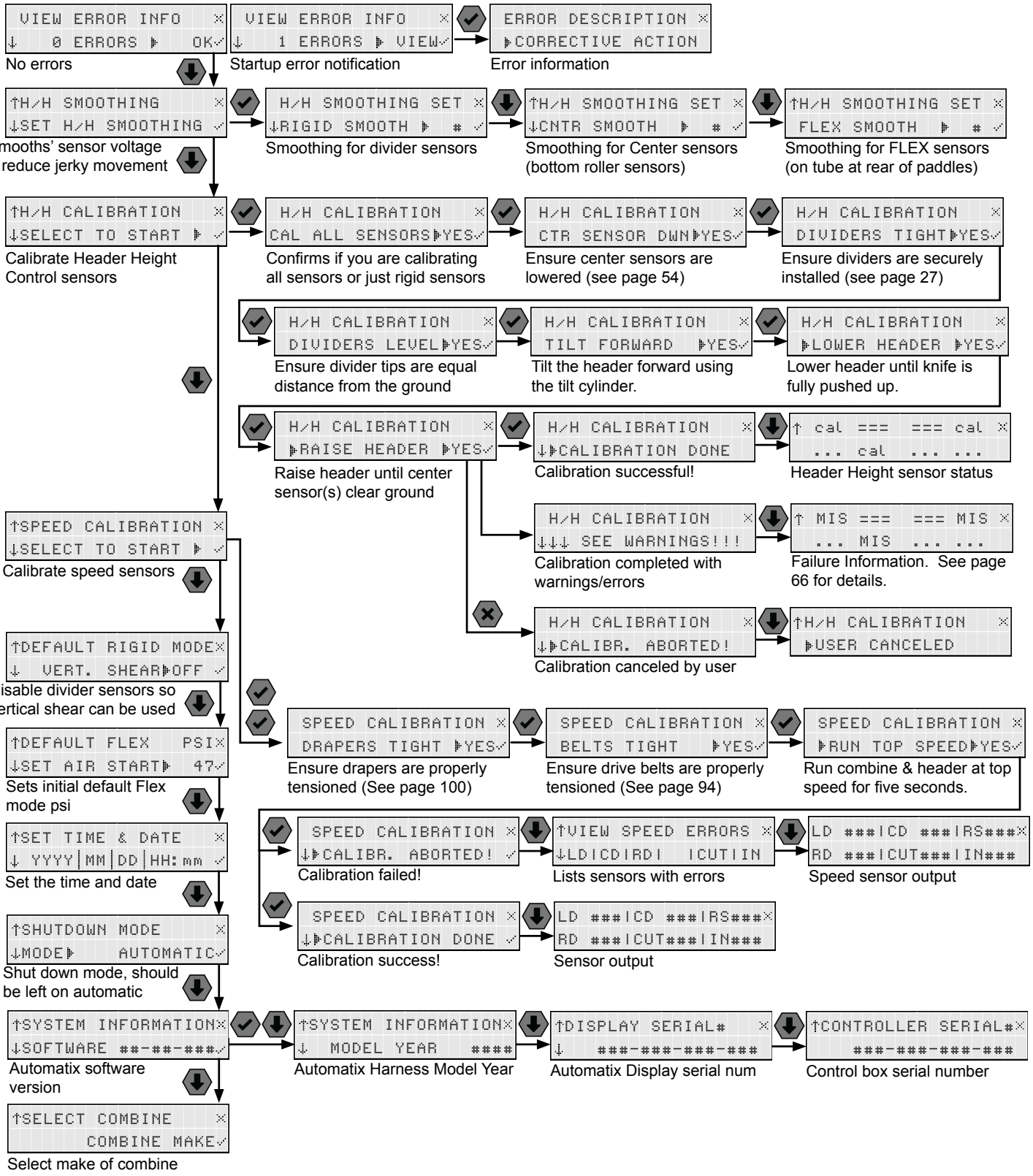
**On** - Stubble lights are on

**Off** - Stubble lights are off

**Slow blinking** - Stubble lights are on automatic and will automatically turn on when it is dark.

These three modes of operation can be cycled by pushing the stubble button.

## 10.7 - Automatix Main Menu



### 10.7.1 - Errors

There are 2 types of errors: Warnings & Failures.

**Warnings** indicate items that need your immediate attention such as a slipping draper. A warning will clear after displaying for 30 seconds.

**Failures** indicate that equipment has stopped functioning (such as a jammed/stopped draper) and must be addressed immediately. A failure must be manually acknowledged via the check mark button.

When an error is encountered, it will appear on the Automatix display. Pressing the check mark button will acknowledge the error and return to the main operating screen. To review the error in detail, select the 'VIEW ERROR INFO' screen via the main menu. If the error is corrected, it will no longer be visible on the screen.

The Bee Indicator Light and alert sounds will notify you of errors.

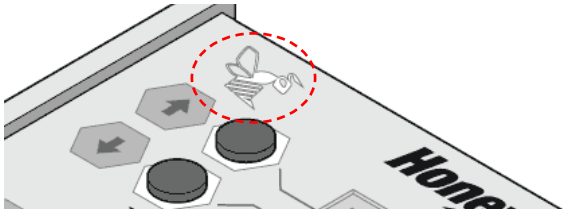


*Fig. 98 - Bee Indicator Light*

**Yellow Bee Indicator Light** = System is operating normally.

**Flashing Red Bee Indicator** = Unacknowledged errors are present.

**Solid Red Bee Indicator** = Error has been acknowledged but the cause has not been corrected.

Press any black button to enter the menu and view the error details.


Entering the menu, presents you with the ERROR menu item (first in list). This screen will indicate if errors are present, and how many there are (if any). Below is a summary of Warnings and Failures that the system is aware of. The 4 categories of errors are: header height, draper speeds, knife speed, air pressure issues. See sections 10.12 on page 77 and 10.13 on page 78

### 10.7.2 - Smoothing


The smoothing function provides the ability to reduce hunting (primarily in RIGID mode) while using a higher sensitivity setting on the combine header height system. The recommended settings are 3 in RIGID, 3 in CENTER and 0 (zero) in FLEX. These are the factory default settings. The smoothing function averages the changes in header height voltage over time. The larger the number, the longer the time.

### 10.7.3 - Header Height Sensor Calibration

**NOTE:**

If the calibration is performed while the header is in FLEX cutting mode, both the FLEX and RIGID sensors are calibrated.

If the calibration is performed while the header is in RIGID cutting mode, only the RIGID sensors are calibrated. If the header is in RIGID Vertical Shear mode, only the center sensors are calibrated.

This calibration is required when:

- The header is used for the first time
- If divider extensions are adjusted or changed
- If you change combines.
- If the header height sensor are serviced.

When the header height calibration is performed, combine header height calibration must also be done (See 7.2.5 on page 40).

The calibration process must be completed without skipping any steps.

1. Select H/H Calibration via the main menu on the Automatix control panel.


2. CAL ALL SENSORS. This screen is simply a confirmation of which header height sensors will be calibrated.
   - If in RIGID mode prior to calibration, only the RIGID sensors will get calibrated.
   - If in FLEX mode prior to calibration, both the RIGID and FLEX sensors get calibrated.


3. CTR SENSOR DWN. Unlock and let down the center sensor.

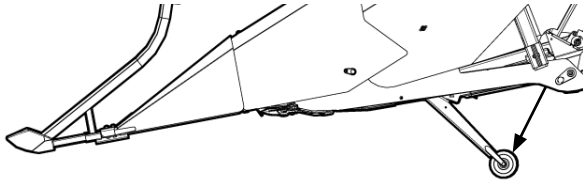


*Fig. 99 - Lower center sensor(s)*


4. DIVIDERS TIGHT. The crop dividers must be tightly secured prior to calibration. Loose dividers will cause inaccurate readings.

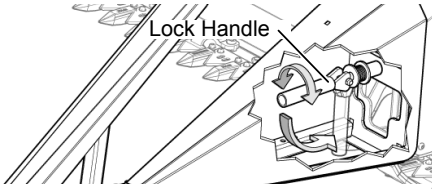



*Fig. 100 - Ensure crop dividers are tight*


5. DIVIDERS LEVEL. Use lateral tilt to adjust the header until the divider tips are touching the ground evenly. This ensures that the dividers are moving up/down at the same rate and simulates level ground.


6. TILT FORWARD. Tilt the table fully forward using the hydraulic tilt cylinder. Do not change the combine faceplate angle.


7. LOWER HEADER. Lower the header until the FLEX cutter bar is pushed all the way up. If the table tilts back, you have pushed too far. Once you have achieved the lowered position, wait a few seconds before selecting the check mark.

8. RAISE HEADER. Raise the header until the crop divider tips are about 2 feet off the ground. This ensures that the center sensor is also off the ground. Once you have achieved the raised position, wait a few seconds for the header to stop bouncing, before selecting the check mark.

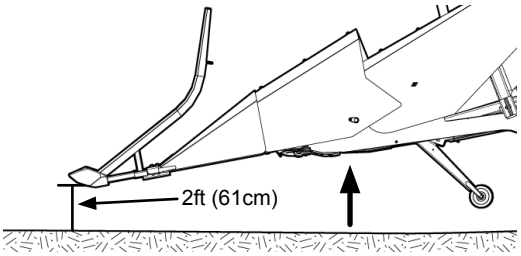
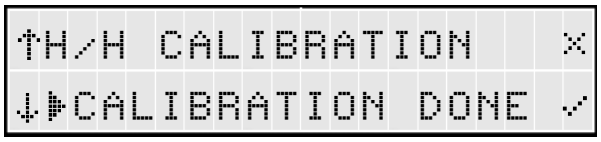



*Fig. 101 - Raise Header*

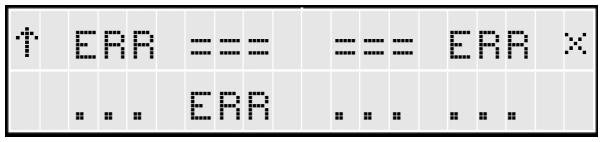

9. If successful, your Automatix display will read “Calibration Done!”. Select the check mark to view raw sensor voltages, X to exit.





## 10.7.4 - Header Height Calibration Warnings

This screen will show if at least one of the header height sensors calibration failed. This can be caused by something limiting the physical range of motion of a sensor or by a faulty sensor. If any of the voltages are not changing enough (they must change by a minimum of 1.5 volts), then a physical look at the sensors and linkages will be required.


The calibration results screen indicates which sensors were calibrated and if any problems are encountered.

**cal** - The sensor was successfully calibrated

**ERR/DNM** - The sensor did not move enough. Readings are valid, but the range of motion was not enough.

**ERR/MIS** - The required sensor readings are missing or below system threshold.

**===** - Indicates the sensor was ignored during calibration.

**...** - Optional sensor not found

**e-L, e-H, eL-, eLH, eH-, eHL, eHH -** Indicates the header height sensor linkages require adjustment.

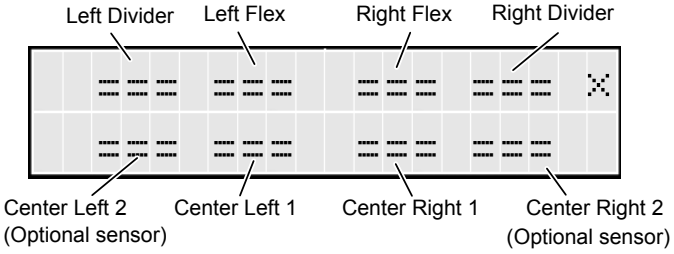



*Fig. 102 - Sensor identification*

See section 15.3 on page 124 for sensor locations.

### 10.7.5 - Speed Sensor Calibration

This calibrates the draper, knife, and reel speed, then relates them to the combine PTO speed so that the system can tell if a belt is slipping. When calibrated, the system will give warning if a belt is loose.

Before you start calibration, ensure the drapers and belts are properly adjusted.

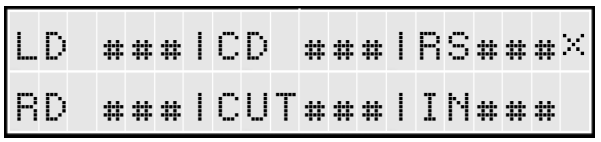
1. Select 'Speed Calibration' via the main menu on the Automatix display.


2. DRAPERS TIGHT: set your deck hardware to correct physical setting and "check mark".


3. BELTS TIGHT: adjust your knife drive belt for correct physical tension. Check cog belts and pulleys and "check mark".


4. RUN TOP SPEED: set throttle to maximum setting and wait for top speed and "check mark".

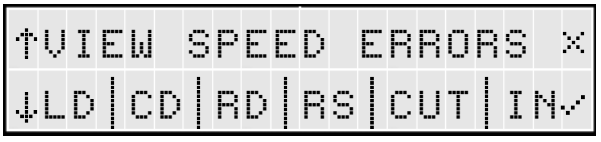

When properly completed, the display will read "Calibration Done!".

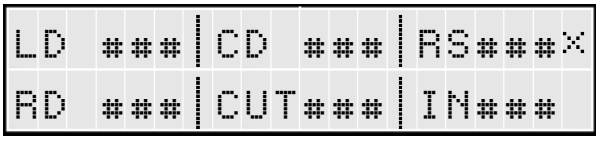

### 10.7.6 - Speed Sensor Calibration Failure

If the display reads "Calibration Fail!", it indicates that one or more of the header speed sensors did not register the correct speed. Failure results in a screen that shows which sensor failed, and the speeds (in RPM) that the system sees.


The screen shown below displays a list of sensors (bottom row) that did not return appropriate values.




The screen shown below displays the actual speeds (in RPM) returned by the sensors.




- An incorrect speed indicates a gap adjustment is required. See section 13.17 on page 115 for speed sensor locations & adjustment instructions.
- No speed indication indicates a bad wire or sensor.

### 10.7.7 - Default RIGID Mode (Vertical Shear)

When operating the header with a vertical shear option, the end divider header height sensors must be disabled in order to avoid Automatix errors. The two options on this screen are:


**ON** - Vertical Shear mode enabled, ,end divider sensors become disabled.

**OFF** - For normal RIGID cutting mode without vertical shear installed, header height sensors work as usual.

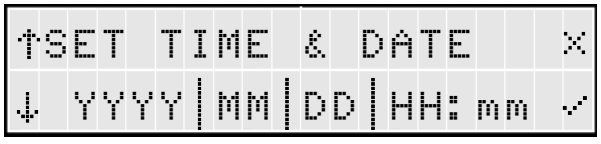
### 10.7.8 - Default FLEX PSI

The default air pressure is the value that will be used when you change from RIGID to FLEX mode. However, if you have been in FLEX mode and changed this to another value via the HIGHER and LOWER buttons, then the last value used will be active. When the combine is restarted, the default value will be used again.

The decimal is not displayed: 475 = 47.5 PSI.


### 10.7.9 - Time and Date

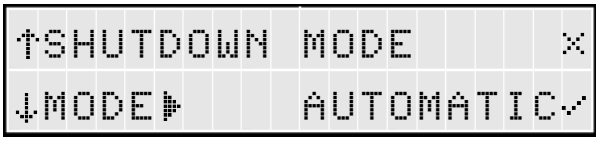
Time and date are set at the factory for Honey Bee's time zone. If operating in another time zone, adjust this to reflect your local time.



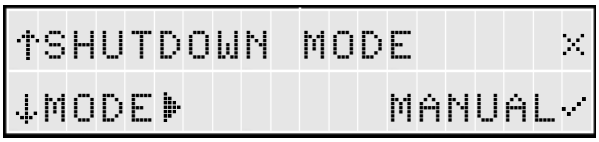

### 10.7.10 - Shut Down Mode

There are two shutdown modes which can be accessed via the main menu:

**Automatic Mode (Default):** In automatic mode, the Automatix system will monitor the combine's output voltage. When the voltage changes from approximately 14 volts (supplied via the alternator while the combine is running) to about 12 volts (supplied via the battery when the combine is shut down), the system will wait for 30 minutes then shut itself off.




**Manual Mode:** In manual mode, the automatix system will still power on with the combine, but to turn it off, you must hold down the red menu button, then release it when the power indicator lamp starts to flash.



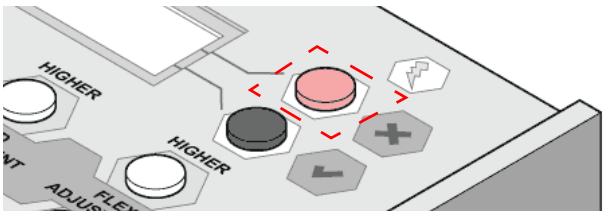
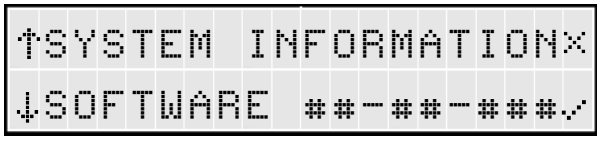




*Fig. 103 - Red Menu Button*

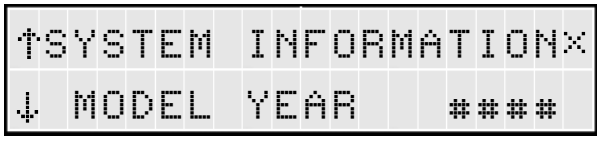
### 10.7.11 - Software & Hardware Version information.

These screens are used to show the version and serial numbers for various AirFLEX components and software. These can be useful when ordering or troubleshooting components.

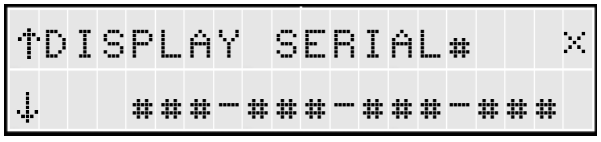
The Software screen shows the Automatix software version.



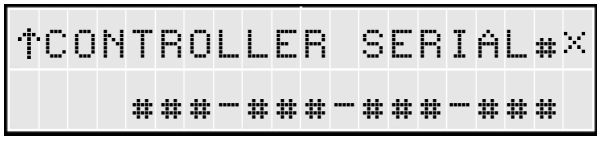

The Model Year screen shows the main automatix electrical harness version. This will be useful to service personnel to determine what features are installed.




The Display Serial screen shows the Automatix display box serial number. This will be useful to service personnel to determine what features are installed.

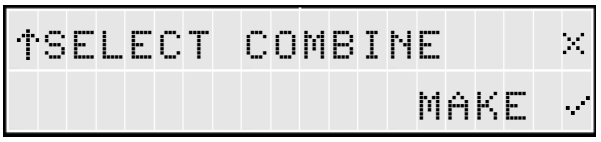



The fourth screen shows the serial number for the Automatix control box (located on the header).




### 10.7.12 - Config. Info (combine selection)

The configuration screen allows you to select the make of combine to be used with the AirFLEX.




To change the combine brand, select the check mark so the brand starts flashing.

Press the up and down arrows until your combine brand appears.

When satisfied, select the check mark again to lock in your selection.

**NOTE:**

If an asterisks (*) is visible next to the combine name, it indicates the combine settings have been modified via the System Menu. The settings can be reset to defaults by re-selecting the combine make.

## 10.8 - Automatix System Menu

The Automatix system menu is used for making modifications to various advanced system settings. Most equipment operators will never need to access these settings

To access this menu hold the 'up' and 'down' buttons next to the Automatix display until the menu appears.

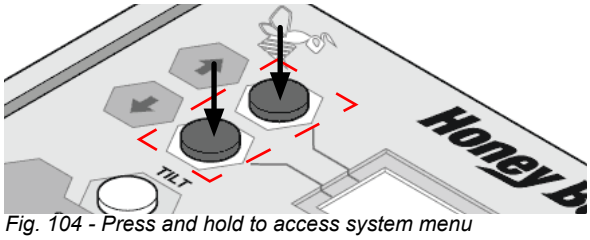
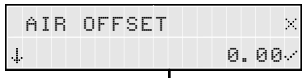
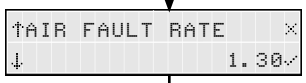


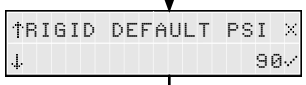

*Fig. 104 - Press and hold to access system menu*




If the actual air tank PSI does not match the display, use this to offset the display values to match. *(i.e. Tank is 20 psi, display shows 30 psi, enter -10 as the value to make the display match the tank)*

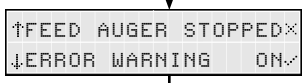



Error threshold for air compressor, the number represents the minimum psi increase over 30 seconds. 1.3 is the default value when using 90 psi in rigid mode. If higher psi is required for rigid mode, this value must be lowered. If the fill rate drops below this value, errors will occur.

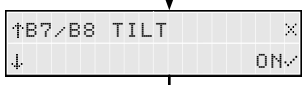



The rigid default psi. May need to be increased if optional cutter bar addons are present. Acceptable values range from 90 to 115 psi. NOTE: Higher psi will require longer compressor time to achieve.

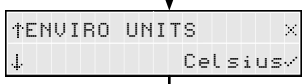

**ON** = Show side draper speed warnings, **OFF** = Do not show side draper speed warnings. Brand new drapers can be prone to slipping for the first week or two, it may be desirable to **TEMPORARILY** disable the warnings during the break-in period.



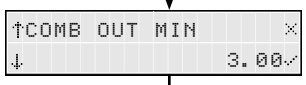

This setting should only be disabled if there is no feed auger sensor present.
IN ALL OTHER SITUATIONS FEED AUGER WARNINGS MUST NOT BE DISABLED.



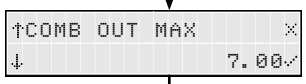

Determines the function of the 'RIGID ADJUSTMENT' 'HIGHER' and 'LOWER' buttons.
**ON** = Use buttons for picking tilted forward or tilted backward rigid mode.
**OFF** = Use buttons for rigid mode air psi adjustment (90-115 psi)



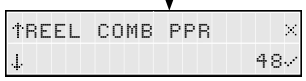

Used for picking the temperature units of measurement on the standby screen.




Adjusts header height sensor output voltage **lower limit** for non-standard combines.
Only for use with combines not listed in the combine selection screen on the main menu.
Reset values by picking a pre-defined combine in the main menu combine selection screen.




Adjusts header height sensor output voltage **upper limit** for non-standard combines.
Only for use with combines not listed in the combine selection screen on the main menu.
Reset values by picking a pre-defined combine in the main menu combine selection screen.




Adjusts header reel speed output pulses per rotation for non-standard combines, this mimics the function of a tone wheel.
Only for use with combines not listed in the combine selection screen on the main menu.
Reset values by picking a pre-defined combine in the main menu combine selection screen.

*NOTE: These values should only be adjusted under the direction of a qualified service technician if the combine make can not be found on the main menu combine selection screen. If any of these values are modified, a '*' will be displayed next to the combine make name on the startup screen.*

## 10.9 - Information Screens

The Automatix information screens are useful for monitoring equipment and crop conditions while harvesting. Some of this information can also be useful for troubleshooting purposes. To access the information screens, press the info button. Every time the button is pressed, the system will cycle to the next information screen.

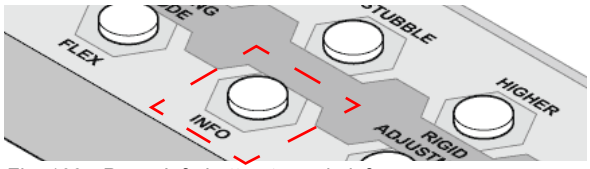
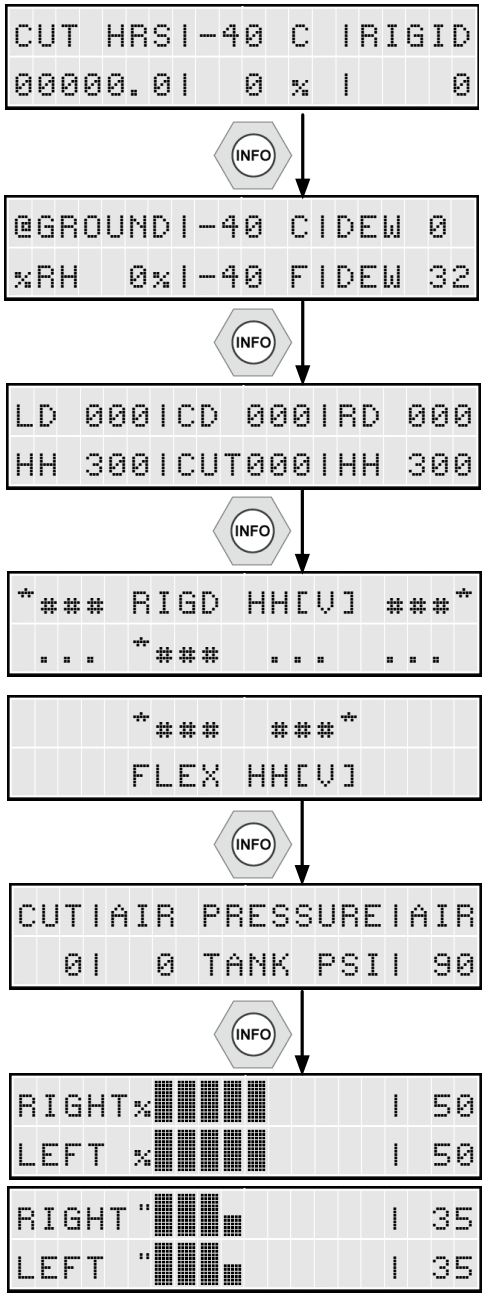



*Fig. 109 - Press Info button to cycle info screens*




Standby Screen. Shows total hours in operation (useful for maintenance scheduling), temperature, current cutting mode and air pressure.

Ground-level environmental data (sensor located on bottom-rear of frame strut) Shows temperature in C and F, Dewpoint in C and F, and Relative Humidity percentage.

LD = Left Draper Speed (RPM)
CD = Center Draper Speed (RPM)
RD = Right Draper Speed (RPM)
HH = The corrected header height values relayed to the combine. These values should match those on the combine display.
CUT = Knife Speed (RPM)

This screen displays the raw sensor voltages for Rigid and in Flex modes.
The screen shows a different layout depending on which cutting mode is activated.
The asterisks (*) indicates a sensor that is not calibrated (and therefore ignored).
See section 15.3 on page 124 for details on which sensors are represented by which sections on the screen.

This screen shows the Knife Speed in RPM (CUT), the current air tank pressure (AIR PRESSURE TANK PSI), and the current cutting mode pressure set point in PSI (AIR)

This screen shows how much movement downward is left before the header height sensors reach their limit.
In RIGID mode, this is shown as a percentage, with 0% indicating the header has reached its lowest limit. Each bar on the display represents 10%. 50% is shown in the example to the left.
In FLEX mode, this is shown in inches, with each bar on the display representing one inch. 3.5” is shown in the example to the left.

### 10.9.1 - Standby Screen

The Standby Screen is shown when the unit is powered up but the knife is not running. This screen shows useful information such as:

**Cut Hours -** The total time that the knife has been running.

**Temperature & Relative Humidity -** Measured from about 2 feet above ground.

**Cutting Mode & Pressure -** Displays the cutting mode (RIGID or FLEX) and the current air pressure.

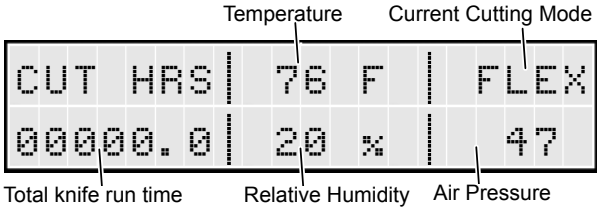



*Fig. 105 - Standby Screen*

### 10.9.2 - Ground Environmental Data

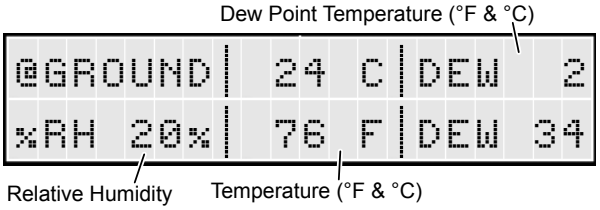



*Fig. 106 - Info Screen - Environmental*

This screen shows the relative humidity, temperature and dew point to give you an indication of crop condition. This is facilitated by having the sensors located about 2 feet off the ground (about mid strut).

Take note of the values here when the crop is getting tough, and later you can predict harvesting conditions. Relative humidity and temperature are the most consistent measure of this.

### 10.9.3 - Speeds and Corrected Auto Header Height Values

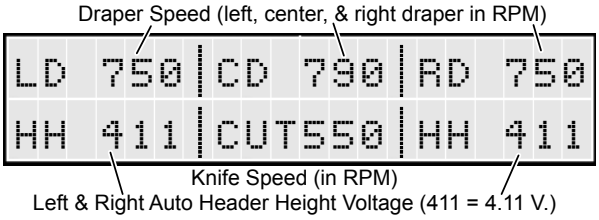



*Fig. 107 - Info Screen - Environmental*

This screen shows the draper speeds, knife speed, and auto header height voltages that the AUTOMATIX system sends to the combine.

The auto header height voltages (HH) are not the raw values of the sensors, but are the conditioned outputs from the Automatix controller that are being fed to the combine. This range varies from brand to brand and model to model. The Raw sensor voltage range is generally fixed, so AUTOMATIX does this conversion.

**NOTE:**

The displayed HH values are not showing the decimal point: 411 = 4.11 volts.

### 10.9.4 - Raw Auto Header height Voltages

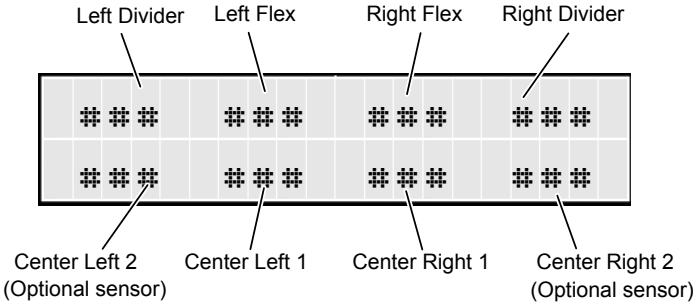
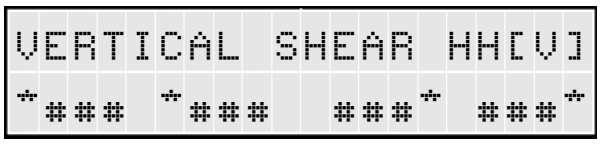



*Fig. 108 - Info Screen - Raw Header Height Voltages*

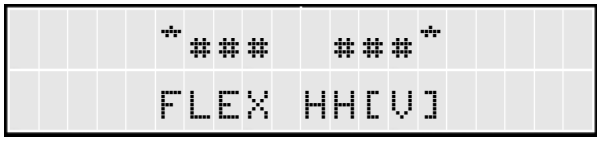
These screens show the raw auto header height sensor voltages.

**RIGID** mode uses the floating dividers at the ends of the table to sense header height. These are the primary auto header height sensors in RIGID mode. The center sensor does not output to the combine, instead, it will affect the values of the end sensors if the terrain in the middle zone of the table is rising more than at the ends.


**RIGID - VERTICAL SHEAR** mode disables the floating divider sensors on the ends and only uses the center sensors located underneath the header.




**FLEX** sensors are mounted on the middle left and right struts, and are linked to each paddle by a rock shaft and linkages. This allows the entire cutter bar to impact the auto header height voltages for left and right, when operating in FLEX cutting mode.




**NOTE:**

The displayed HH values are not showing the decimal point: 396 = 3.96 volts.

The * indicates a sensor that is not calibrated and thus ignored by the system. The required sensors depend on the harness model year.

### 10.9.5 - Air Tank PSI vs Cutting Mode Pressure Setpoint

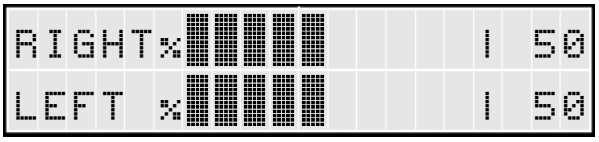

This screen shows the Knife Speed in RPM (CUT), the current air tank pressure (AIR PRESSURE TANK PSI), and the current cutting mode pressure set point in PSI (AIR)

This screen is useful for comparing the actual air tank PSI and the target PSI for the selected cutting mode when transitioning between cutting modes to ensure the system is pressurizing properly.

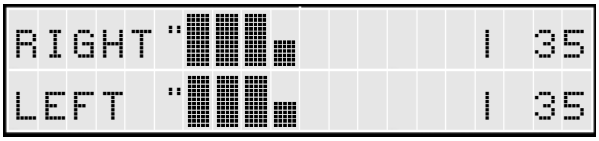
### 10.9.6 - Header Height Values

This screen shows how much movement downward is left before the header height sensors reach their limit.

In RIGID mode, this is shown as a percentage, with 0% indicating the header has reached its lowest limit. Each bar on the display represents 10%.




In FLEX mode, this is shown in inches, with each bar on the display representing one inch.




This screen is useful for setting the correct combine feeder house angle without the need to run the knife system.

# 10.10 - FLEX Operating Screens

## 10.10.1 - FLEX Mode Live View

The live view is displayed on the automatix screen during normal operation in FLEX mode. The number of bars shown on the display indicate how much further the cutter bar can be pushed up. Each bar represents 1" (2.5 cm), half a bar represents 1/2" (1.27 cm). A total of 9" (22.86 cm) of motion is possible for the cutter bar when in FLEX mode.

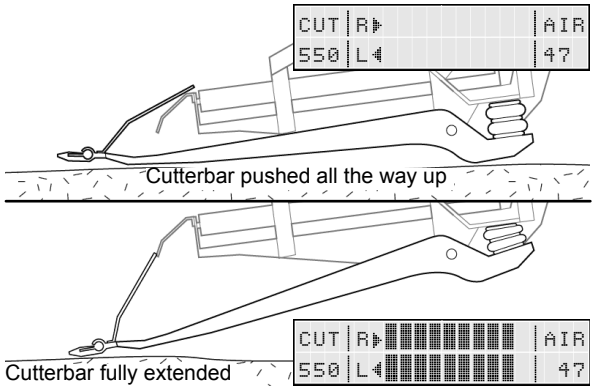



*Fig. 110 - FLEX Live View - full range of travel*

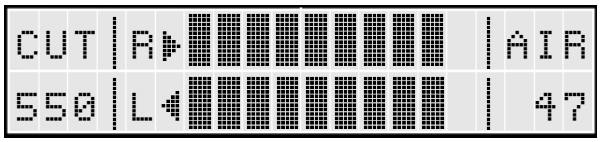



*Fig. 111 - FLEX Live View - 9" of travel available*

When in FLEX mode, adjust the table to a set point of 1 ½" - 2". This will result in having 1 ½" – 2" of upwards motion remaining before the auto header height system lifts the table.

This set point allows 7" – 7 ½" of down motion available for the cutter bar to drop into depressions, without having to lower the table.

This setting is extremely important for optimal AirFLEX performance. If the set point is too high, then the cutter bar will not follow the terrain properly.

## 10.10.2 - FLEX Mode Live View - Warning

When the cutter bar is running while fully pushed up with no remaining travel, there will be no bars remaining on the display..

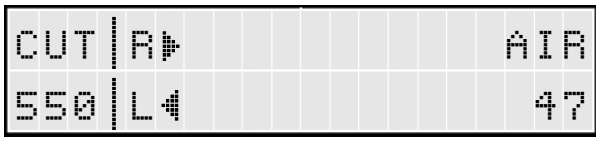



*Fig. 112 - FLEX Live View- Warning - Cutter bar at highest limit*

This usually indicates that the auto header height is not turned on or the set point is too low.

The set point must be high enough to leave some sensor range of up travel to trigger the lift command. If your set point is placed where the FLEX cutter bar is fully compressed, then the auto header height system will NEVER lift.

## 10.10.3 - Air Pressure Setting for Cutter Bar Ground Pressure

When in FLEX mode, access this screen by pressing one of the 'FLEX ADJUSTMENT' buttons.

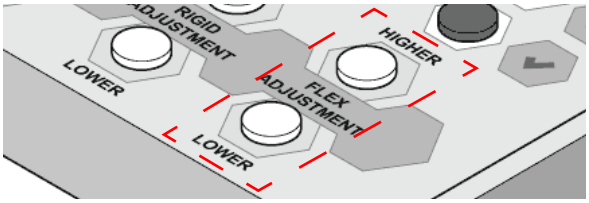



*Fig. 113 - Cutter Bar FLEX Float Adjustment*

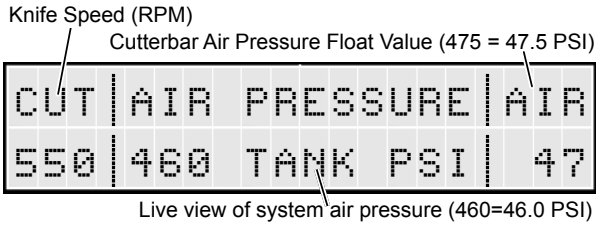



*Fig. 114 - Air Pressure Setting*

In FLEX mode, the normal range is from 25 PSI up to 80 PSI. A higher pressure results in a RIGID cutter bar, which will reduce the FLEX performance. The 'HIGHER' button adds air, making the cutter bar lighter on the ground. The 'LOWER' button removes air from the system, making the cutter bar heavier. Lighter is better in most cases. Adjust as necessary to prevent the cutter bar from dragging or hanging up (dragging is normally seen on the ends).

# 10.11 - RIGID Operating Screens

## 10.11.1 - RIGID Mode Live View

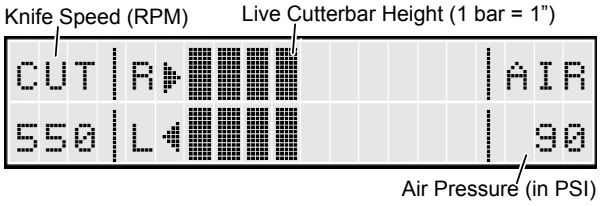



*Fig. 115 - RIGID Header Height Live View*

The Rigid mode live view is displayed on the automatix screen during rigid operation. The middle display area shows a live view of the cutter bar height above ground and is determined by all valid & calibrated center and divider sensors. This is useful for determining and setting the cut height set point.

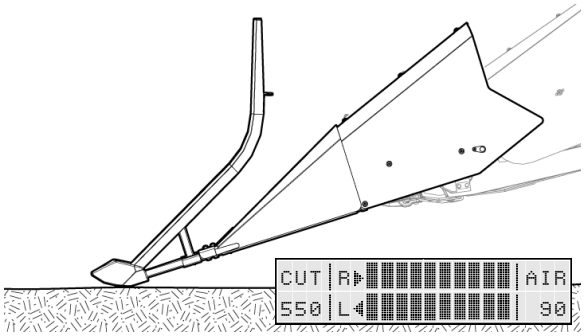



*Fig. 116 - Full range of travel available*

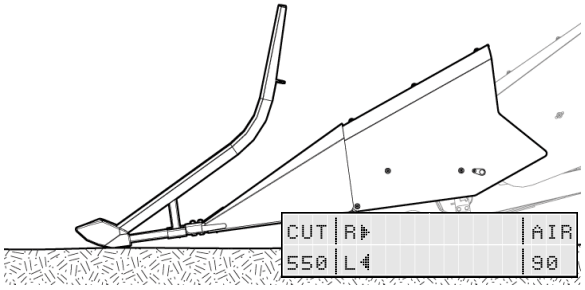



*Fig. 117 - Header all the way down, no travel available*

## 10.11.2 - Rigid Vertical Shear Mode Live View

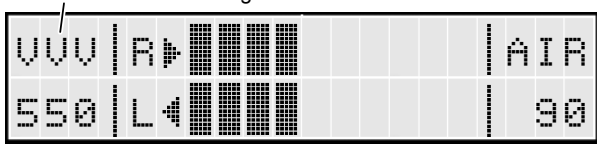



*Fig. 118 - RIGID Vertical Shear Mode Live View*

## 10.11.3 - Rigid Mode Live View - Warning

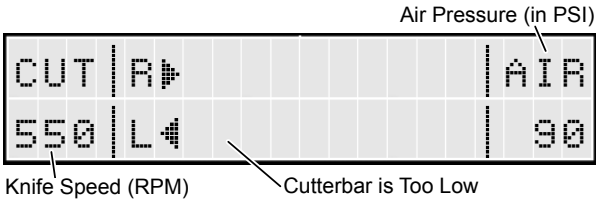



*Fig. 119 - RIGID - Header Height - Warning Screen*

If the dividers get pushed all the way up (resulting in the cutter bar running on the ground), then no bars will be visible on the screen. This is a high wear situation and should be avoided but will not stop the header from functioning.

## 10.11.4 - Rigid Mode - Table Tilt Selection

**IMPORTANT!**

When operating your header in rigid mode, it is extremely important to tell the automatix system if you are running the header tilted forward or tilted backward. This will ensure that the automatic header height control system will work properly

Use the 'Rigid Adjustment' buttons to indicate the table tilt orientation.

- Press 'Higher' to indicate that the header is tilted forward (out)
- Press 'Lower' to indicate the header is tilted backward (in)

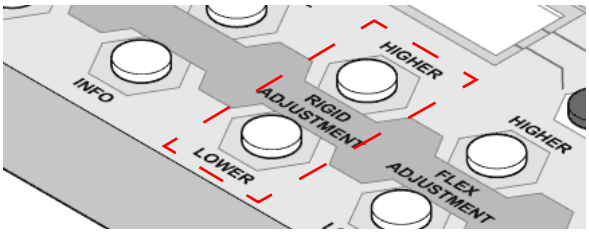


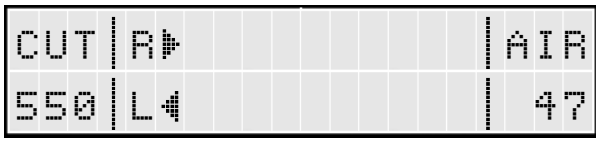

*Fig. 120 - Header Tilt Selection - Rigid Mode*

## 10.12 - Error Screens

The error screens warn that something is wrong but it can be fixed.

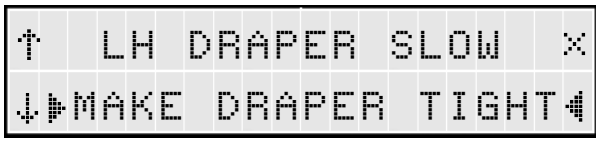
### 10.12.1 - Header is Running Low

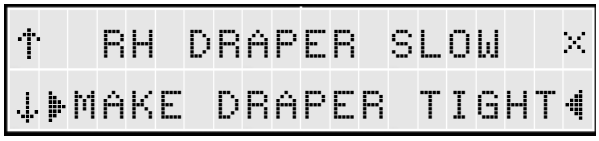
- The header height values have been at minimum for a short time and set point may need to be raised. Adjust and evaluate.

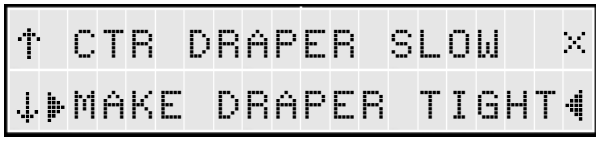



### 10.12.2 - Drapers are Running Slow

- The draper speed values have been lower than as calibrated for a short time and the draper tension may need to be tightened. Adjust and evaluate.

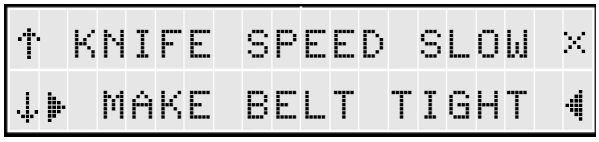


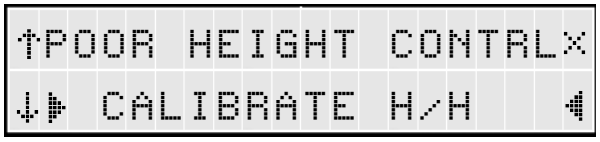

### 10.12.3 - Knife Speed is Slow

- The knife speed value has been lower than as calibrated for a short time and the belt tension may need to be tightened. Adjust and evaluate.



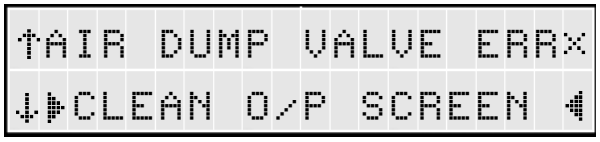

### 10.12.4 - Poor Header Height Control

- An uncalibrated sensor has a valid voltage (the header has an optional sensor installed that could be used if it is calibrated.
- A required sensor is uncalibrated.




### 10.12.5 - Air Pressurizing Slowly

- The air system is not filling or releasing air at the rate expected. Air compressor inlet or dump valve outlet may be plugged. Clean and evaluate. May be cause by incorrect fill rate set for Rigid PSI Settings.

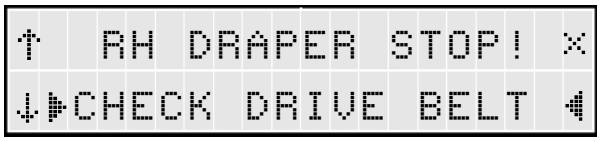



## 10.13 - Failure Screens

Failure screens indicate failure of a critical system that likely needs repair or adjustment.

### 10.13.1 - Drapers Have Stopped

- The draper speed values have gone to zero. A draper drive belt may be broken or a draper is jammed. Stop and investigate.



### 10.13.2 - Knife Has Stopped

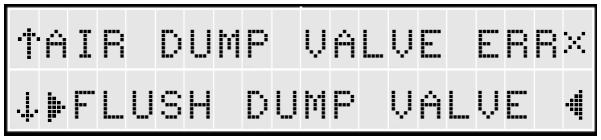
- The knife speed value has gone to zero. The knife drive belt may be broken or knife is jammed. Stop and investigate.


### 10.13.3 - HH Sensor Failure

- A calibrated sensor (optional or required) has an invalid voltage (no voltage, voltage too high, or voltage too low)


### 10.13.4 - Air Pressure Failure

- The air system is not filling or releasing air at the rate expected. Air compressor may be overheated due to continuous running because of an air leak. Evaluate and tighten hoses at leak. If dump valve is not releasing air, there may be a damaged wire. Evaluate and repair as needed. May be cause by incorrect fill rate set for Rigid PSI Settings.

# 11 - Troubleshooting

## 11.1 - 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 13.5.6 on page 104). |
| | 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 |

## 11.2 - 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 9.10 on page 57) |
| | Material is jammed in the draper cleanout or rock trap. | Clean out the rock trap and the draper cleanout. (See section 13.11 on page 113) |
| **Drapers are slipping** | Draper tension too loose. | Adjust draper tension (13.4.1 on page 100) |

## 11.3 - 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 to steep, preventing crop from being pushed onto draper. | Use tilt adjuster at center of platform to adjust angle of cutterbar. |
| | FLEX Cut Set Point set too high (more than 2”). | Decrease the Cut Set Point |
| **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 SERVICE section). |
| | Loose bolts on knife drive paddle | Tighten all fittings on the knife drive paddle. |

## 11.4 - 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. |
| | Incorrect setting of knife hold downs. | See SERVICE section for adjustments. |
| **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. |

## 11.5 - 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 AirFLEX header height works best with the float accumulator turned OFF. |
| | Combine Header Height sensitivity too high | Decrease Combine Header Height sensitivity, 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). |

### 11.5.1 - 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 9.3 on page 48) |
| | 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 |
| | | Add air pressure to paddles |
| | | Lower the reel make finger timing more aggressive |
| | Combine feed house angle not correct. | Set the correct combine feeder house angle (see 7.2.2 on page 39) |
| **Hydraulic Leak Detected At Multi-Coupler** | Leaking O-ring. | See your dealer. |
| **System is not keeping air pressure while AirFLEX is running** | Air is leaking or compressor is not running properly | Check air lines, air bags and air fittings for leaks. |
| **Crop Dividers are riding up on top of the crop** | Improper adjustment of the crop divider | Adjust the crop divider float settings to be 'heavier' as outlined in "13.8 - Dividers" on page 110 |
| **FLEX mode PSI setting is not 'remembered' when restarting the combine** | You probably only set the operating PSI (shutting down the equipment reverts this value to the default) | Set the default FLEX PSI via the main automatix menu (see section 10.7 on page 63. |

# 12 - Header Transport & Storage

## 12.1 - Read before Transporting

There may be regulations restricting transport of heavy equipment on in your area. Be aware of local regulations before transporting.

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 and raise the knife drive assembly into it's transport position as outlined in this section of the manual.

**⚠ WARNING!**

Do not exceed 25 mph (40 kph) 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!

## 12.2 - 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.

## 12.3 - Prepare the AirFLEX for Transport on Cart or Trailer

1. Remove the crop dividers by pulling the handle up into the horizontal position and rotating it 90 degrees to release the divider.

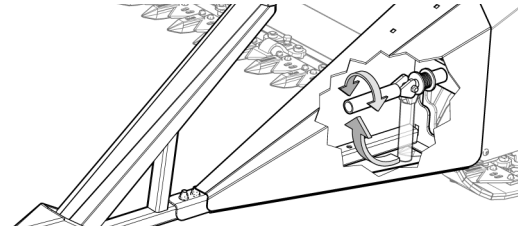


*Fig. 121 - Remove Crop Dividers*

**WARNING!**

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

**NOTE:**

Some units may have a 'flower' style handle that must be unscrewed to remove the divider.

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

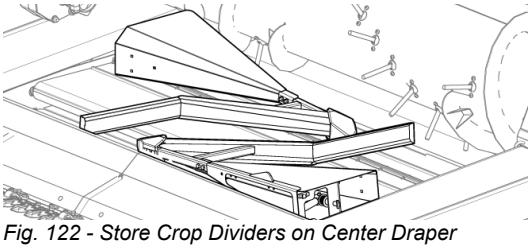


*Fig. 122 - Store Crop Dividers on Center Draper*

3. Completely lower and retract the reel arms.
4. 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.

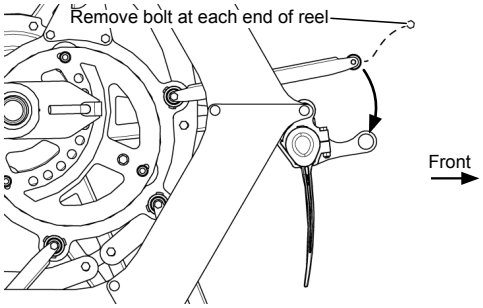



*Fig. 123 - Drop Reel Fingers for Transport*

5. Raise the center limit sensors to their storage positions.

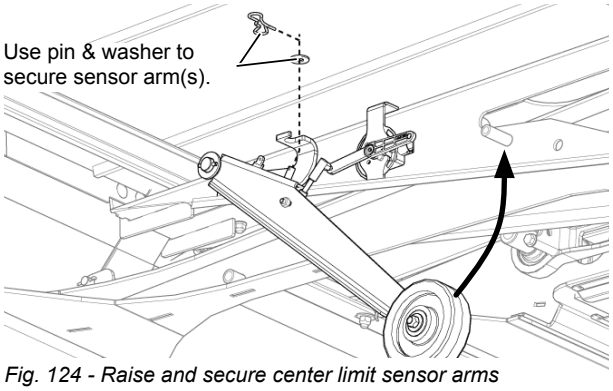



*Fig. 124 - Raise and secure center limit sensor arms*

## 12.3.1 - Place Knife Drive in Transport Position

If a maximum width of 8 ft (2.44 m) is required when transporting equipment in your area, the knife drive must be placed in its storage position.

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

1. Loosen the bolt securing the strap to the shield and remove the other two bolts securing the safety shield.

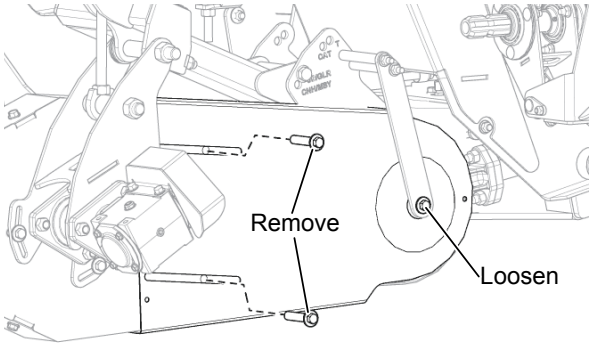



*Fig. 125 - Remove/Loosen the indicated bolts*

2. Remove the 5 indicated bolts that secure the rear-most shield in place.

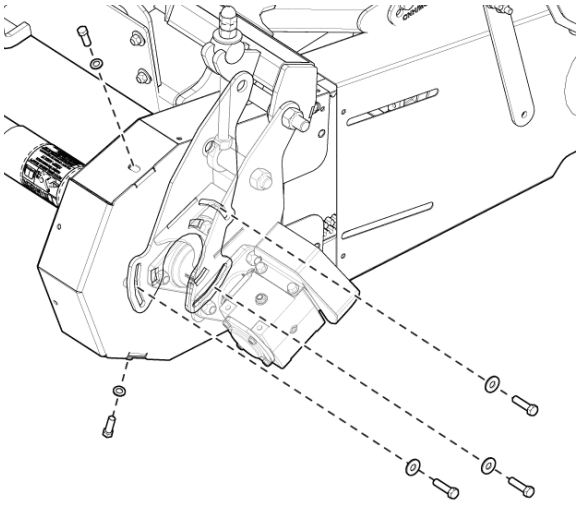


*Fig. 126 - Remove indicated bolts*

3. Slide the rear safety shield away from the knife drive assembly.

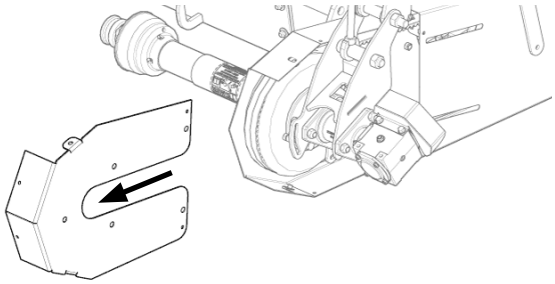


*Fig. 127 - Remove rear shield*

4. Remove the four indicated bolts in order to disconnect the drive shaft. These bolts hold the pulley in place, so must be re-installed immediately after removing the driveshaft.

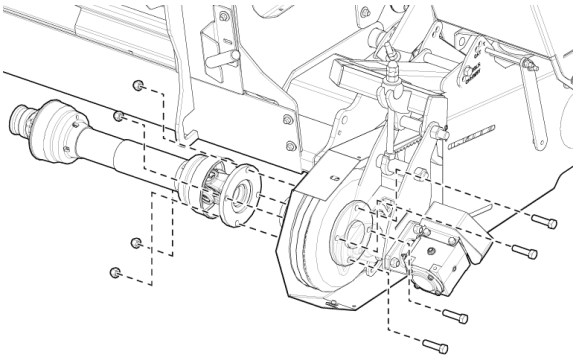


*Fig. 128 - Remove drive shaft*

5. Remove the final shield from the knife drive assembly.

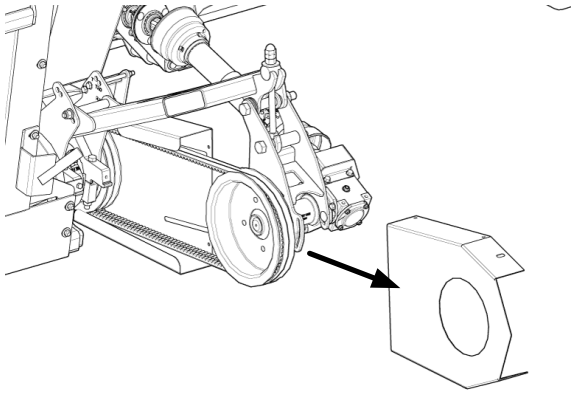


*Fig. 129 - Remove remaining shield*

6. Remove the bolt securing the knife drive in its operating position, lift the knife drive up until the hole is aligned with the transport position ('T' hole), then resecure the bolt.

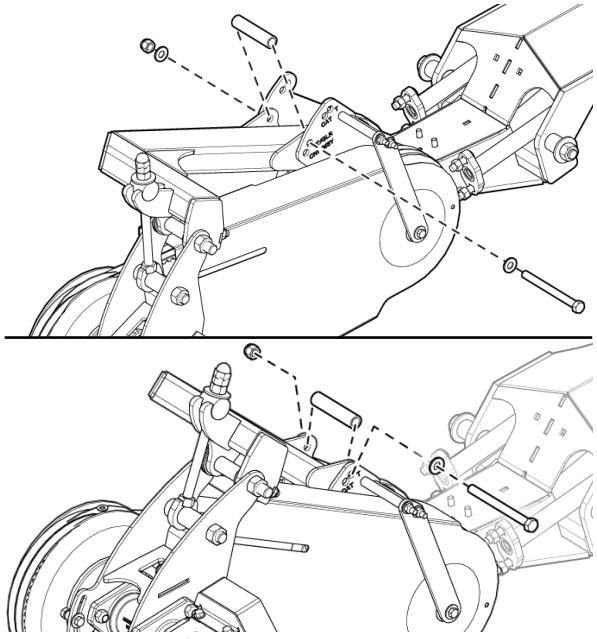


*Fig. 130 - Raise knife drive into transport ('T') position*

7. Loosen the nuts holding the cylindrical spacer in place, lift and move the cylindrical spacer down below it's holder as shown below.

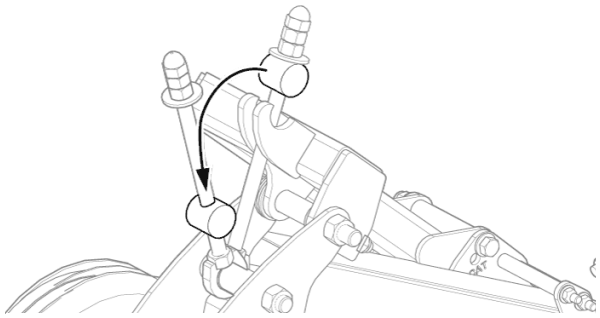


*Fig. 131 - Move cylindrical spacer down.*

8. Pull the eye-bolt all the way back towards the rear of the holder and tighten the nuts and washer down on top of the rear of the holder as shown. This will allow the arm below to rotate down.

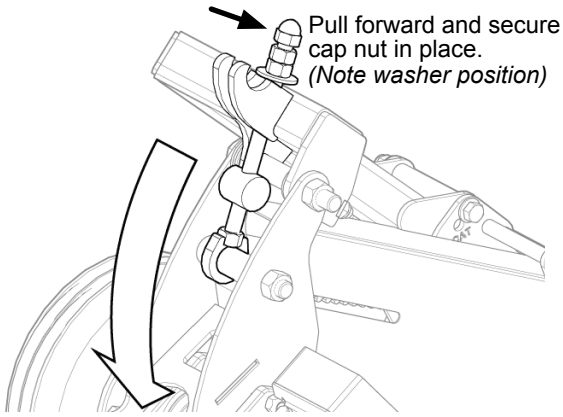



*Fig. 132 - Secure cap nut/washer to allow arm to swing down*

9. Resecure the bolt holding the final shield to the strap, then zip tie the shield to the bracket as shown below. Use zip ties to secure all other loose components such as drive shafts.

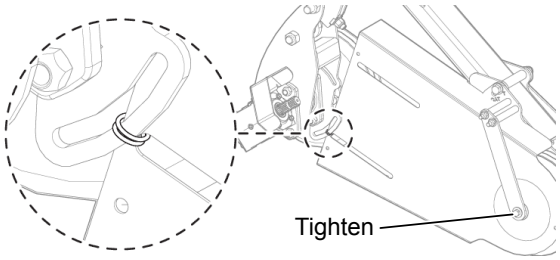



*Fig. 133 - Zip tie shield to bracket*

## 12.4 - Transport Using Optional Transport Cart

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

1. Ensure the header is in RIGID mode with the air system fully pressurized to 90 psi.
2. Completely lower and retract the reel.
3. Tilt the header backward by fully retracting the tilt cylinder.
4. 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.

5. Roll the transport into position under the header.
6. Attach the 4 straps to the struts on the underside of the header.
7. 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.

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

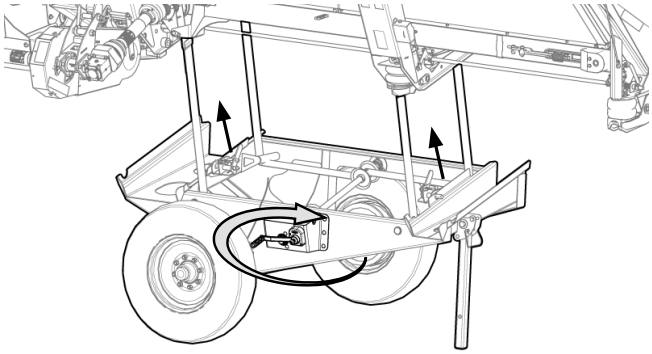


*Fig. 134 - Install Header Transport Cart*

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

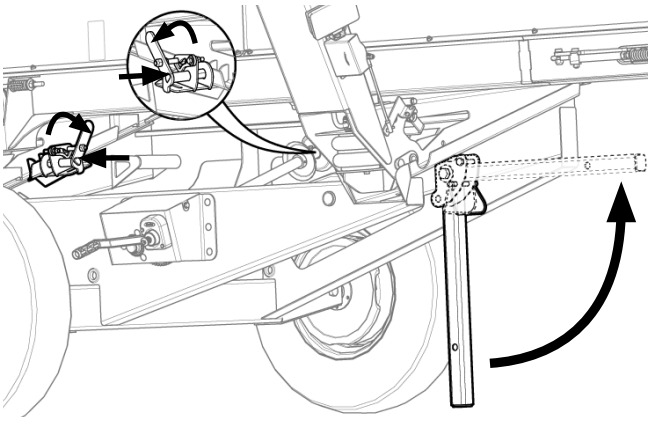


*Fig. 135 - Lock Transport Cart to Header*

10. Connect the transport's electrical line to the header.
11. Remove all locks, pins/bolts which hold Auger Adapter to the Feeder House of Combine.
12. Roll the drawbar under the drawbar mount, pull the pin to lower the draw bar mount onto the draw bar axle.

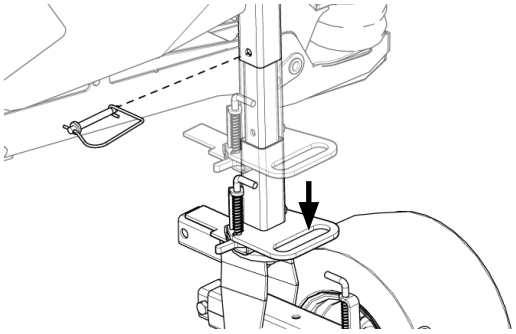


*Fig. 136 - Lower draw bar bracket onto draw bar axle*

13. Restart the combine and completely lower header to the ground.
14. 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.

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

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

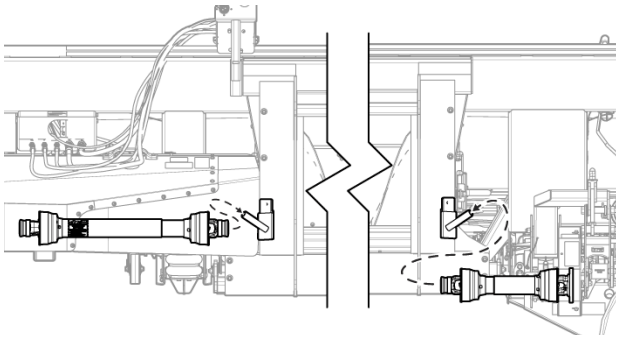


*Fig. 137 - Drive shaft storage positions*

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

**NOTE:**

If transporting the header with installed transport cart on a flatbed trailer, the remaining steps and proceed to section 12.5.1 on page 90.

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

### 12.4.1 - Trailer Brake Settings

Before towing the AirFLEX on the optional transport cart, ensure you set the electric brake controller sensitivity in the truck's cab.

### 12.4.2 - Off-Road Transportation

When transporting the AirFLEX 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.

### 12.4.3 - On-Road Transportation

Do not exceed the speed of 25 mph (40 kph) while transporting the header on public roads. Always follow local regulations.

## 12.5 - Transporting on Flatbed Trailer

**IMPORTANT!**

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

### 12.5.1 - With Optional Transport Package

Prior to following the steps in this section, ensure that you have followed the steps in section 12.4 on page 88.

**IMPORTANT!**

When transporting your equipment via flatbed trailer, you must use the provided hold-down brackets with your header in order to avoid damaging the equipment.

1. Ensure the draw bar axle hold-down bracket is in place.

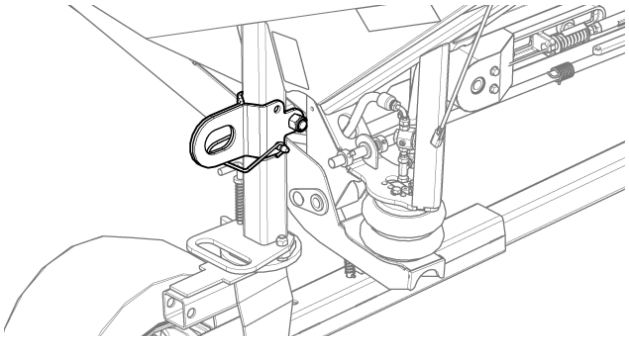


*Fig. 138 - Check for draw bar axle hold-down*

2. 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.

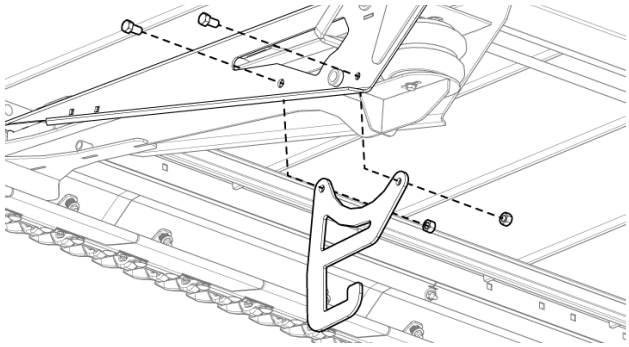


*Fig. 139 - Draw bar holder*

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

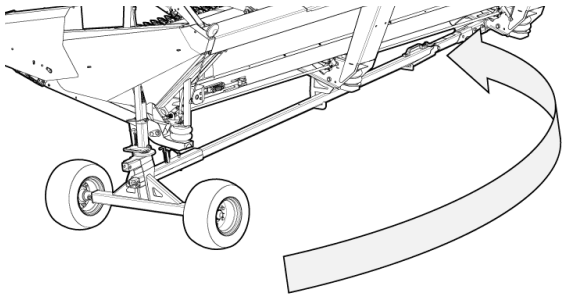


*Fig. 140 - Swing Draw Bar into Storage Position on Holder.*

4. 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.

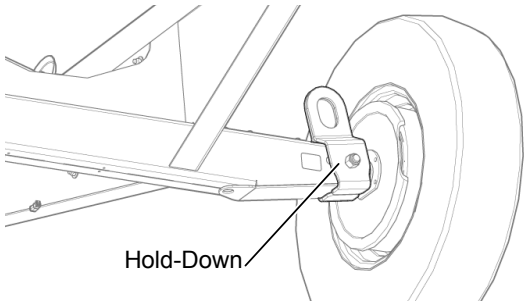



*Fig. 141 - Ensure axle hold-downs are installed*

5. 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.

### 12.5.2 - Without Optional Transport Package

1. Ensure the header is in RIGID mode with the air system fully pressurized to 90 psi.
2. Completely lower and retract the reel.
3. 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.

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

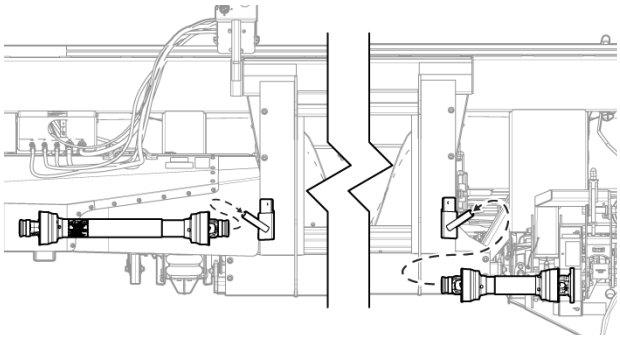


*Fig. 142 - Drive shaft storage positions*

5. Disconnect hydraulic coupler and place in storage position.
6. Disconnect electrical cable & place in storage position.
7. Place two wood blocks on the flatbed trailer where the header subframe will be sitting.
8. 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.

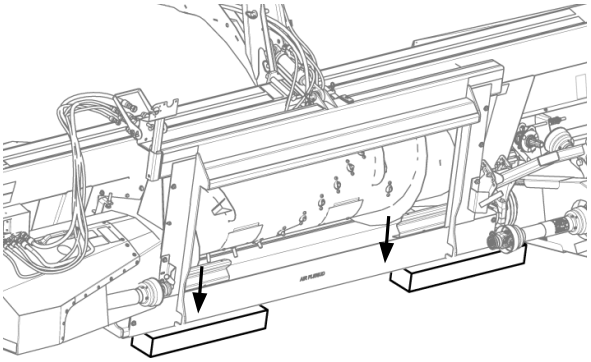


*Fig. 143 - Lower Header onto Blocks*

**WARNING!**

Use safe lifting procedures or serious injury may result.

9. 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.

## 12.6 - 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. Raise the center limit sensors to their storage positions.

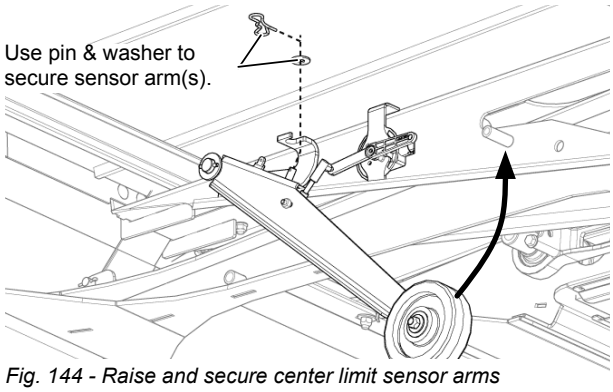



*Fig. 144 - Raise and secure center limit sensor arms*

4. Start the combine, fully retract the hydraulic tilt cylinder, lower and retract the reel.
5. Remove pins and locks holding feeder house to header.
6. Gently lower the header down onto the blocks.

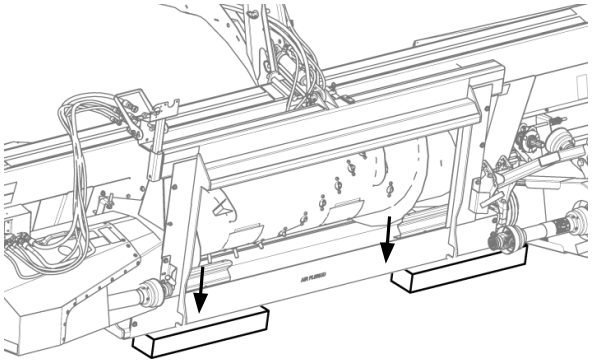


*Fig. 145 - Lower Header onto Blocks*

**WARNING!**

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

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

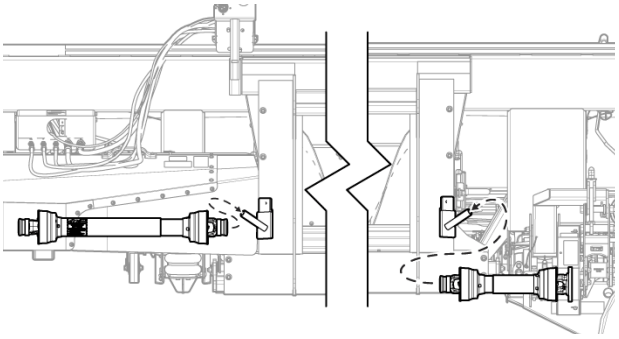


*Fig. 146 - Drive shaft storage positions*

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

## 12.7 - End of Season Storage

- ☐ Lower platform onto safety stops or blocks.
- ☐ Open side shields (see section 13.13 on page 114) and clean all chaff and debris.
- ☐ Loosen tension on side draper belts (See section 13.4.1 on page 100).
- ☐ 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 13.4.5 on page 102). Reinstall belt loosely.
- ☐ Check fluid levels on all gearboxes.
- ☐ Apply grease where needed as outlined in section 13.18 on page 116 of this manual.
- ☐ Completely lower and retract the reel.
- ☐ Raise the center sensor into it's storage position.
- ☐ Paint all parts where paint is worn or chipped.
- ☐ Close side shields.
- ☐ If possible, shelter header in a dry place.

# 13 - Regular Service & Adjustment

## 13.1 - 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 129) Apply thread lock compound when necessary.

## 13.2 - Drive Belt 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.

### 13.2.1 - Feed Auger Drive Belt Tension

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

Refer to the illustration below for details on tensioning & aligning the feed auger drive belt.

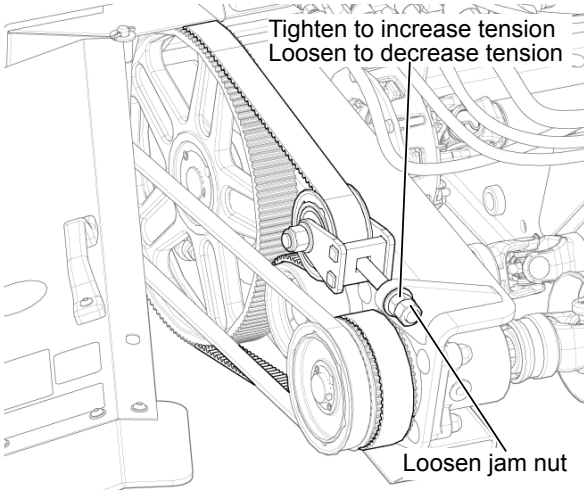



*Fig. 148 - Feed Auger Drive Belt Tension Adjustment*

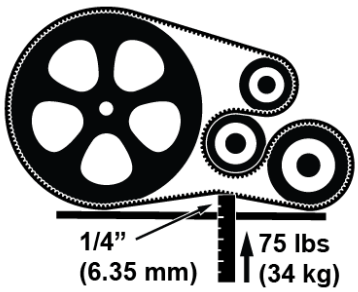



*Fig. 149 - Feed Auger Belt Tension Measure*

### 13.2.2 - Left Draper Drive Belt Tension

The left draper has two different drive belts, The tension adjusters are shown in the illustration below. The tensioner bolt should be adjusted so the tension gauge is in line with the washer.

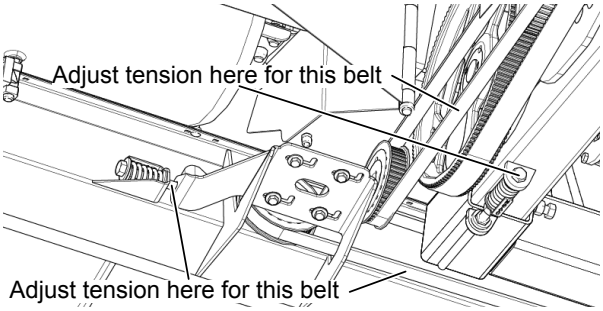



*Fig. 150 - Left Draper Drive Belt Tensioner*

If adjusting the 1st left hand draper drive belt, you will need to loosen the two lock bolts prior to adjustment. Remember to retighten the bolts when the belt is properly tensioned.

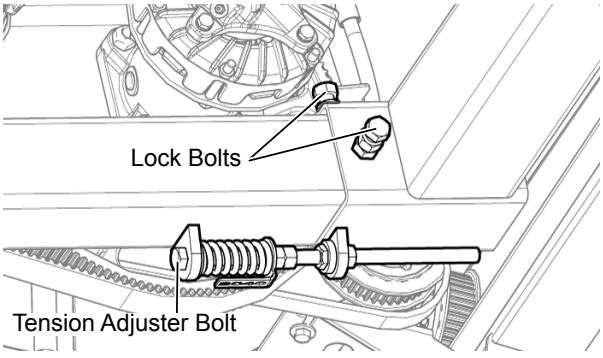



*Fig. 151 - Left Draper 1st Drive Belt Tension Lock Bolts*

### 13.2.3 - Center Draper Drive Belt Tension

The center draper drive belt (and tension adjuster) are located between the left side of the subframe and the strut next to it. To adjust the drive belt tension, loosen the jam nut, turn the bolt until desired tension is reached (indicator flush with washer) then retighten the jam nut.

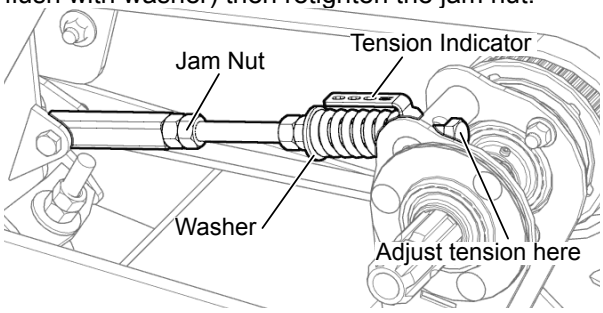



*Fig. 152 - Center Draper Drive Belt Tensioner*

### 13.2.4 - Right Draper Drive Belt Tension

The right draper drive belt tension adjuster is located to the right of the subframe where the drive shaft meets the header as shown below. The tensioner should be adjusted so the tension gauge is in line with the washer as shown.

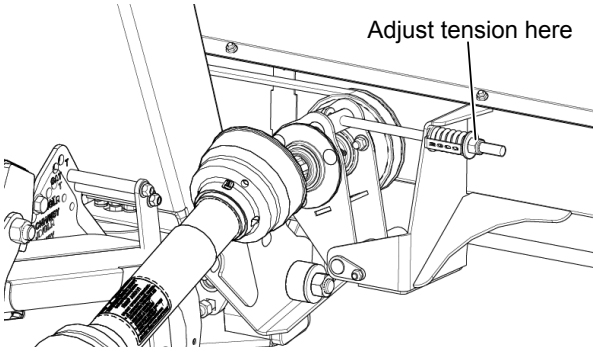



*Fig. 153 - Right Draper Drive Belt Tensioner*

### 13.2.5 - Knife Drive Belt Tension

1. Loosen the five indicated bolts.

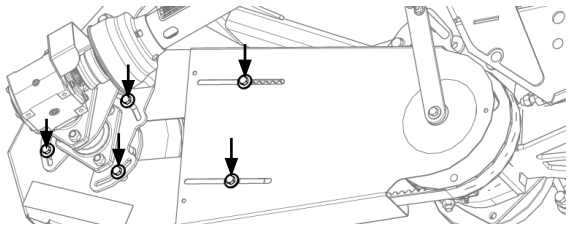


*Fig. 154 - Loosen bolts*

2. Remove the acorn nut and loosen the jam nut from the tension adjustment rod.
3. Loosen the pivot nut to allow the assembly to move.
4. The knife belt should deflect by about 1/4” (6.4 mm) when pushing on it with 75 lbs (34 kg) of force.

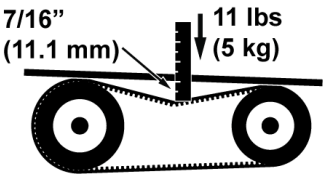



*Fig. 155 - Knife Belt Tension Measure*

- To increase belt tension, tighten the tension adjustment nut.
- To decrease belt tension, loosen the tension adjustment nut.

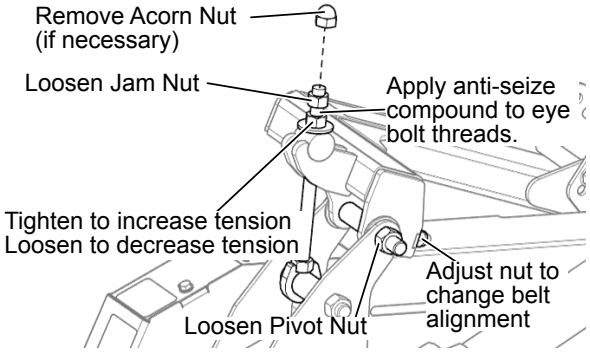



*Fig. 156 - Knife Drive Belt Tension Adjustment*

5. When tensioned, retighten the acorn nut, jam nut, pivot nut and the five nuts. Use anti-seize compound on eye bolt.
6. If the knife belt is not tracking in the center of the roller, you can adjust its alignment via the nut indicated above..

## 13.3 - 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.

### 13.3.1 - Knife Drive Belt Replacement

Replacing the knife drive belts can be a time consuming and difficult process. Two people may be required to remove some of the shields.

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

1. Loosen or remove the strap and remove the other two bolts securing the indicated safety shield in place.

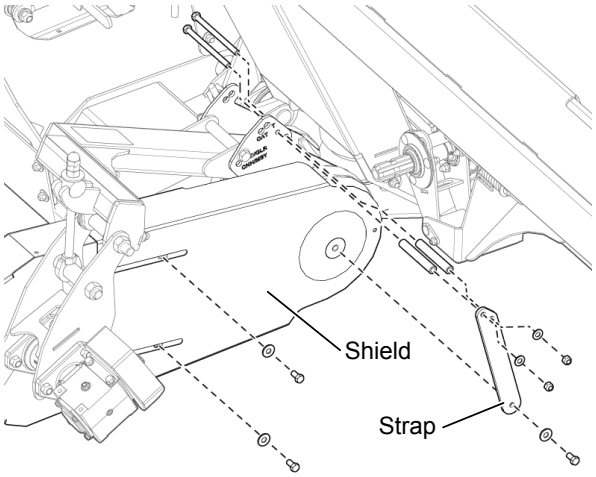



*Fig. 157 - Remove indicated bolts and strap*

**IMPORTANT!**

It can be difficult to shift this shield, take care to ensure it does not become jammed in place.

2. Slide the indicated shield forward to relieve pressure on remaining shields.

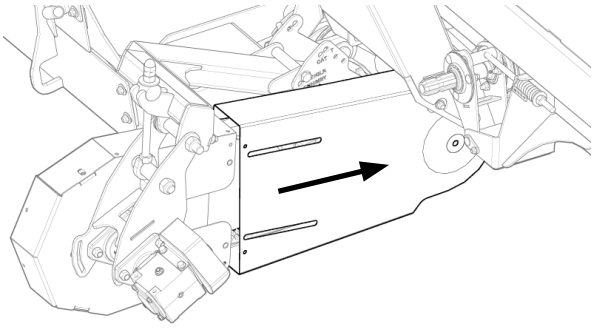


*Fig. 158 - Slide indicated shield forward*

3. Remove the 5 indicated bolts that secure the rear-most shield in place.

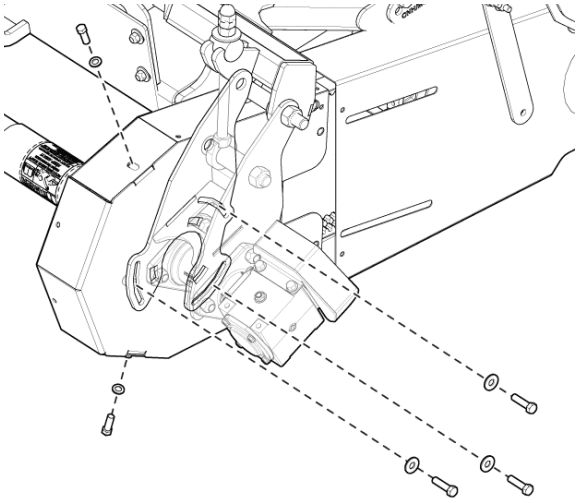


*Fig. 159 - Remove indicated bolts*

4. Slide the rear safety shield away from the knife drive assembly.

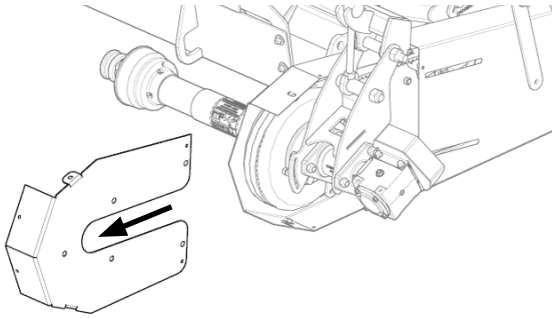


*Fig. 160 - Remove rear shield*

5. Remove the four indicated bolts in order to disconnect the drive shaft.

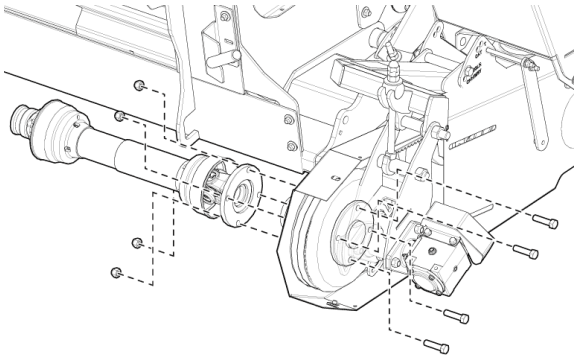


*Fig. 161 - Remove drive shaft*

6. Loosen the belt tension by backing off the pivot nut and loosening the nuts on the eye bolt as shown.

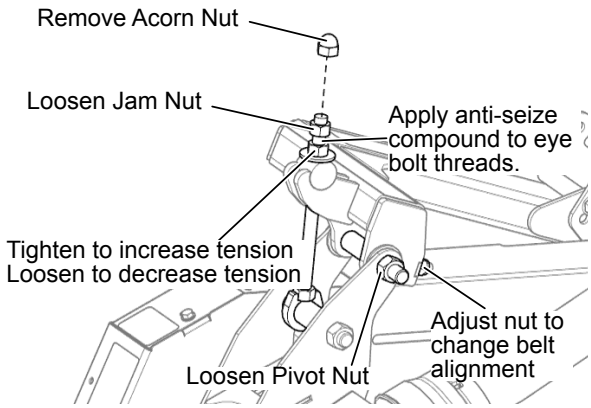



*Fig. 162 - Release knife belt tension*

7. Disconnect the pitman arm from the flywheel to allow the belt to be removed.

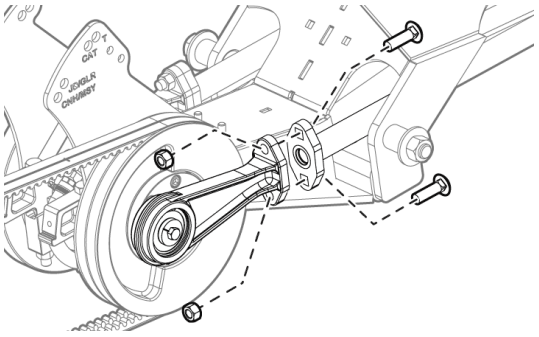


*Fig. 163 - Disconnect pitman arm*

8. Remove the remaining shield and replace the drive belt. Ensure the new belt is properly seated on the v-guide.

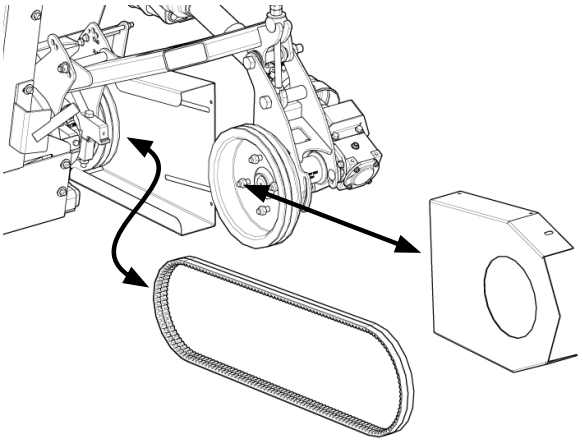


*Fig. 164 - Replace knife drive belts*

9. Reinstall the pitman arm, safety shields, strap and drive shaft by performing the removal process in reverse. See 15.7 on page 129 for torque recommendations.

10. Ensure the new knife belt is properly tensioned by following the directions section 13.2.5 on page 95. All fittings must be properly re-tightened after this procedure is complete.

## 13.3.2 - Feed Auger Belt Replacement

1. Open the side shield as described in section 13.13 on page 114.

2. Remove the first left draper drive belt as described in section 13.3.3 on page 98.

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.

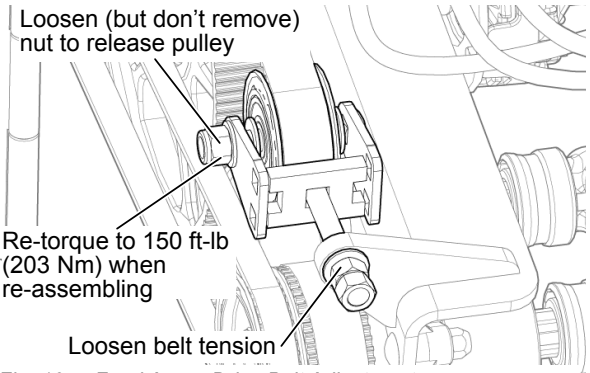



*Fig. 165 - Feed Auger Drive Belt Adjustment*

**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. See Fig. 149 on page 94 for belt orientation.
6. Reinstall the first draper belt.
7. Reinstall the pulley and ensure the tension is properly adjusted for both belts as described in section 13.2 on page 94.

### 13.3.3 - First Left Draper Drive Belt 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.

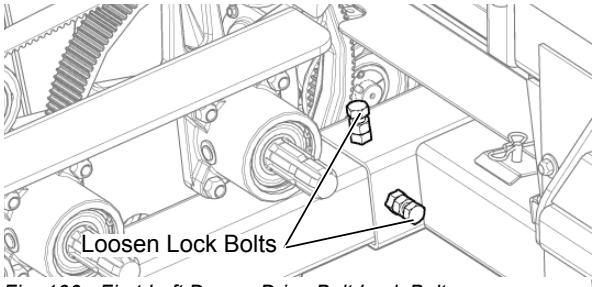



*Fig. 166 - First Left Draper Drive Belt Lock Bolts*

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

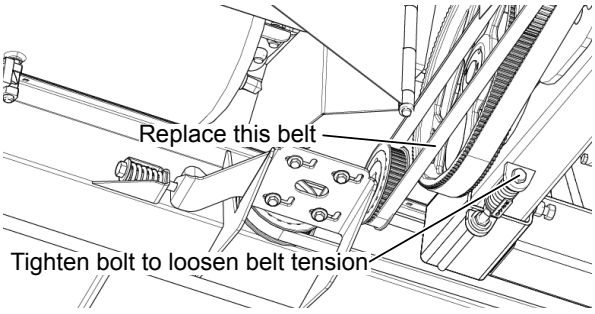



*Fig. 167 - Remove the First Left Draper Belt*

3. Install the new belt on the pulleys and then loosen the tension bolt (shown in precious step) to re-tension the belt. Ensure the belt tension is properly set as described in section 13.2.2 on page 94.
4. Retighten the two lock bolts.

### 13.3.4 - Second Left Draper Drive Belt 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

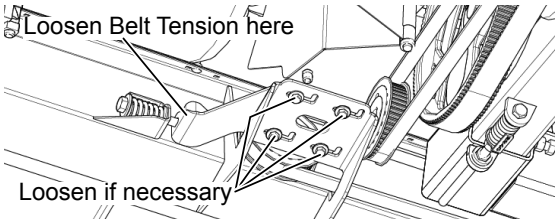



*Fig. 168 - Left Draper Drive Belt Loosen Tension*

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

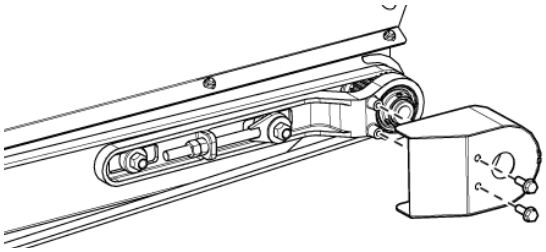


*Fig. 169 - Remove left draper drive belt cover*

4. Install the new belt and reinstall the cover.
5. Ensure the belt tension is properly set as described in section 13.2.2 on page 94.

### 13.3.5 - Right Draper Drive Belt Replacement

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. Disconnect the right hand draper pto shaft from the draper pulley assembly.
3. Release some tension from the belt via the tension adjuster.

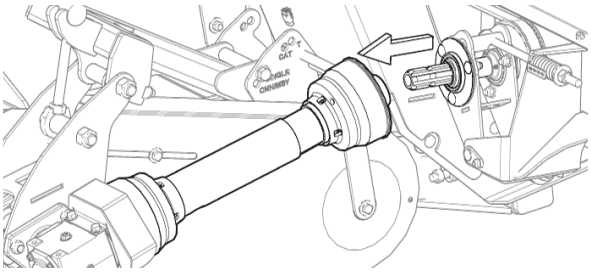


*Fig. 170 - Disconnect pto shaft from draper pulley*

4. Remove the pin securing the draper pulley assembly.

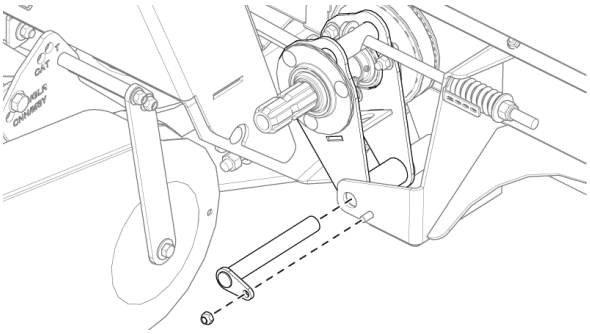


*Fig. 171 - Remove Pin from Draper Pulley Assembly*

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

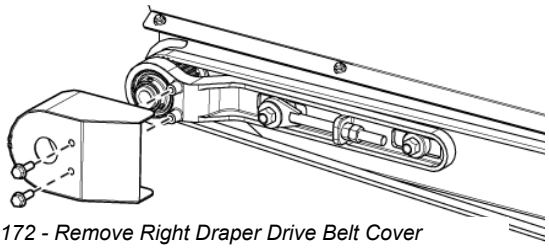


*Fig. 172 - Remove Right Draper Drive Belt Cover*

6. Install the new belt and reinstall the cover.
7. Re secure the belt tension assembly with the pin that you had previously removed.
8. Ensure the belt tension is properly set as described in section 13.2.4 on page 95.

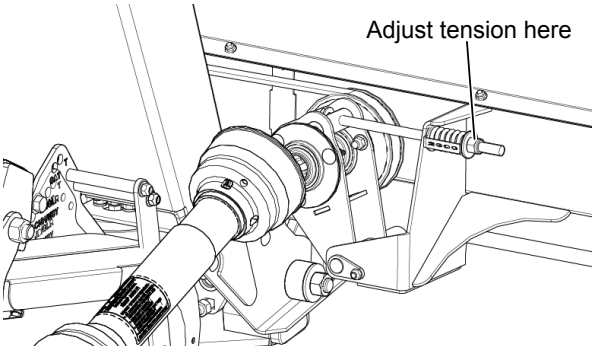



*Fig. 173 - Right Draper Drive Belt Tensioner*

9. Re-secure the pto to the draper pulley assembly.

### 13.3.6 - Center Draper Drive Belt Replacement

To replace the center draper drive belt, loosen off the jam nut, turn the adjuster bolt clockwise to reduce belt tension until the belt can be removed from its rollers. Install the new drive belt and tension it as described in section 13.2.3 on page 95.

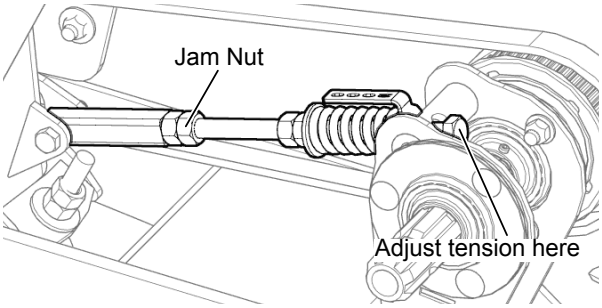



*Fig. 174 - Center Draper Drive Belt Tensioner*

# 13.4 - Drapers

## 13.4.1 - 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.

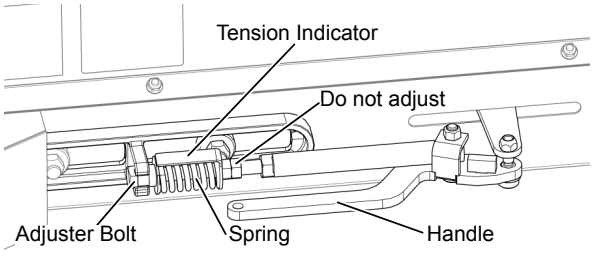



*Fig. 175 - Draper Tension Adjustment*

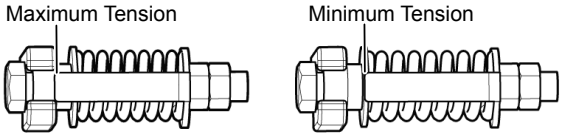



*Fig. 176 - Tension Indicator Position*

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

## 13.4.2 - 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.

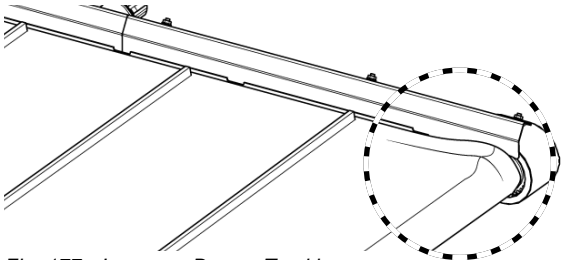


*Fig. 177 - Improper Draper Tracking*

2. The drive roller must be at exactly 90 degrees to the draper frame.
3. If adjustment is required, first release the draper belt tension handle shown in Fig. 175.
4. Loosen the lock nut and reposition the drive roller via the adjustment nut. Re-engage the draper tension handle.

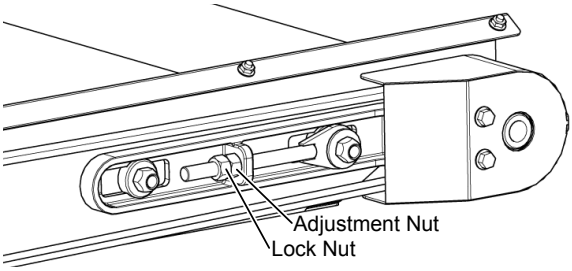



*Fig. 178 - Center Draper Tension Adjustment*

5. Once satisfied with drive roller alignment, re-tension the draper drive belt as described in section 13.3.

### 13.4.3 - 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.

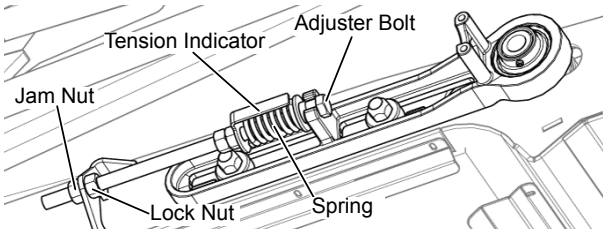



*Fig. 179 - Center Draper Tension Adjustment*

### 13.4.4 - 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.

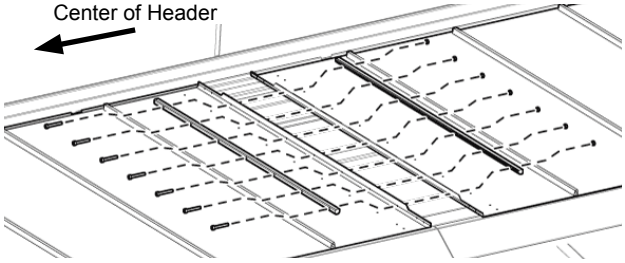



*Fig. 180 - Installing Draper Connector Bar*

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.

## 13.4.5 - 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.

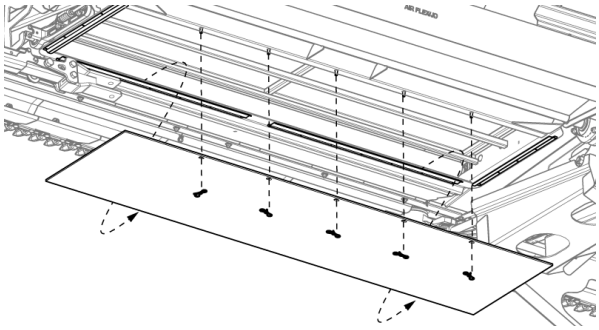


*Fig. 181 - Remove Center Draper Cleanout Panel*

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

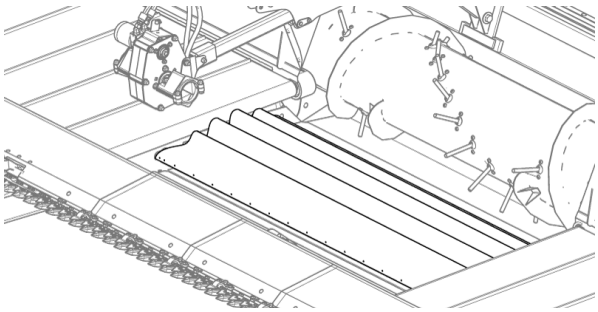


*Fig. 182 - Unroll new draper onto center deck*

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.

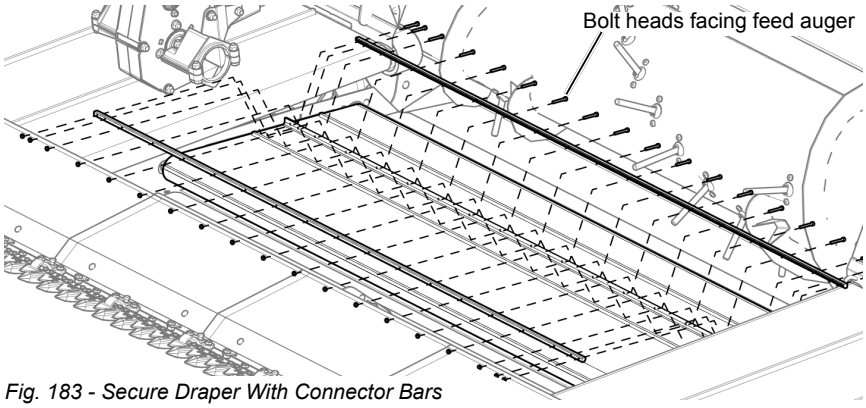



*Fig. 183 - Secure Draper With Connector Bars*

# 13.5 - Reel

## 13.5.1 - 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.

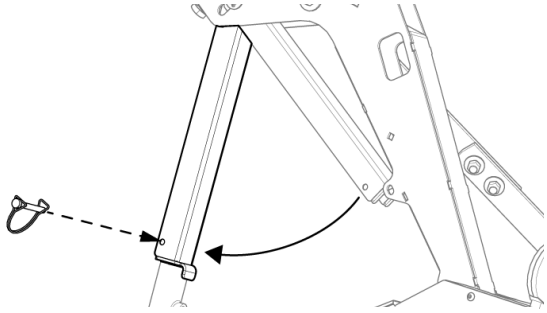


*Fig. 184 - Reel Arm Safety Stop*

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

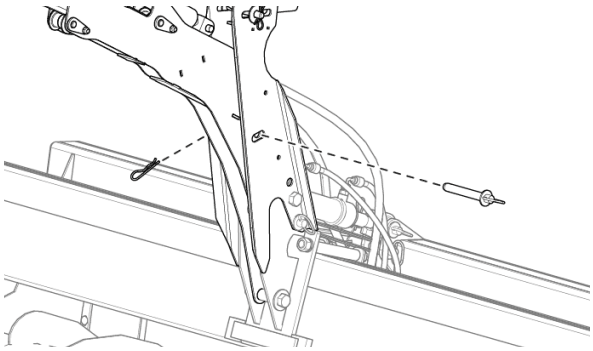


*Fig. 185 - Center Reel Arm Lock Pin*

## 13.5.2 - 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. Set the header to Rigid mode and wait for the knife to become fully rigid (up to 15 minutes).
2. Fully lower table. Fully lower reel.
3. Adjust finger pitch so the tips of the reel fingers are as close to the cutter bar as possible. See section 9.3.1 on page 48 for details on adjusting finger pitch.
4. Position reel fingers as close to cutterbar & feather plates as possible, using fore/aft cylinders.
5. 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.

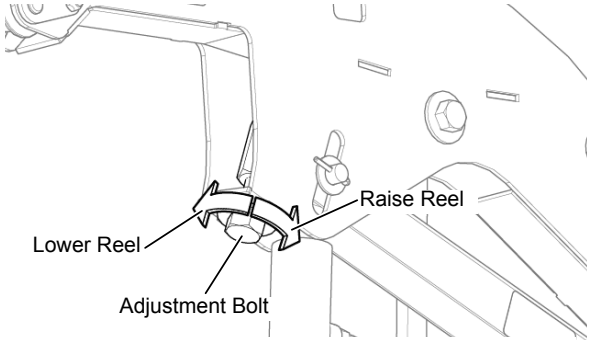



*Fig. 186 - Reel Height Adjustment Bolt*

6. 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.

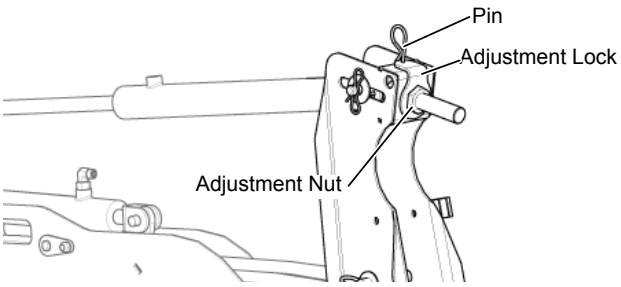



*Fig. 187 - Center Reel Arm Height Adjustment*

**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.

### 13.5.3 - Reel Finger Replacement

**⚠ WARNING!**

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

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

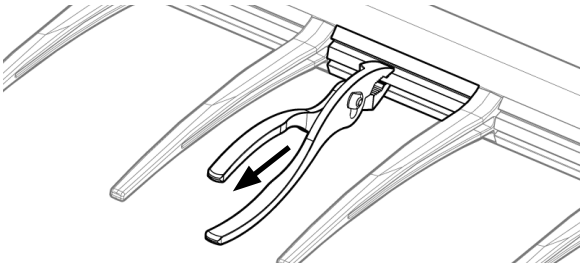


*Fig. 188 - Remove reel finger spacer*

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

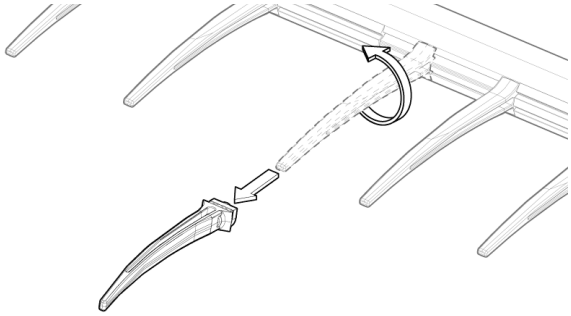


*Fig. 189 - Twist clock-wise and pull to remove finger*

3. Simply reverse the above procedure to install the new reel finger.

### 13.5.4 - Automatic Reel Speed

The reel speed sensor is calibrated for various combines. Additional calibrations can be added via software updates.

Generally, auto reel speed only works when auto header height is active.

**NOTE:**

Normally, this automatic control will not work if ground speed is less than 1 km/h (0.62 mph). When driving the header slowly through a down and lodged crop, temporarily 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.

### 13.5.5 - Reel Speed Sensor Adjustment

The reel speed sensor (and all other speed sensors) need to be adjusted so that the face of the sensor is touching the rotating trigger, and then unscrew 1.5 turns (1 turn = 1mm). On the reel speed sensor, the rotating trigger is the teeth on the small reel drive gear. This is adjustable externally without any disassembly requirements. When adjusting the speed sensors, unplug the connecting wire so that the body of the sensor can spin in or out to its required position without twisting the wire. When done, tighten the jam nut and reconnect the wire. A ¾" wrench is required for the speed sensor jam nuts.

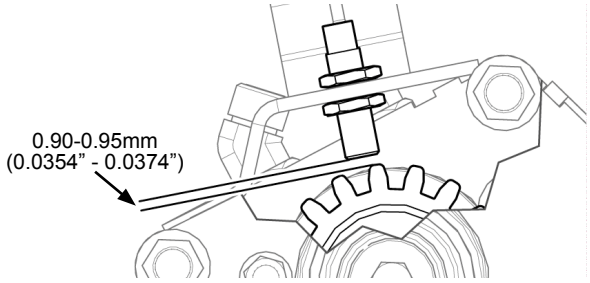



*Fig. 190 - Reel Speed Sensor Adjustment*

### 13.5.6 - Rephasing Reel Cylinders

If cylinders become unevenly extended then retract the cylinders and hold the cylinder retract switch for a few seconds to remove air from the system.

# 13.6 - Knife

## 13.6.1 - Knife Drive Component Torque Recommendations

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

*NOTE: Apply red loctite to threaded bolts unless otherwise specified*

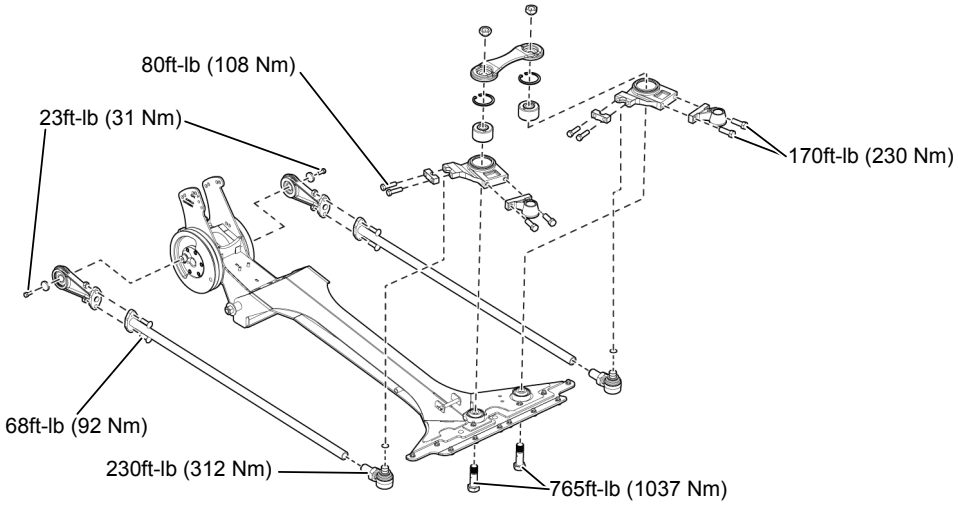



*Fig. 191 - Knife Drive Torque Recommendations (see 15.7 on page 129 for details)*

## 13.6.2 - 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 long bolt or rod through the alignment hole of the two flywheels to keep them aligned with each other.

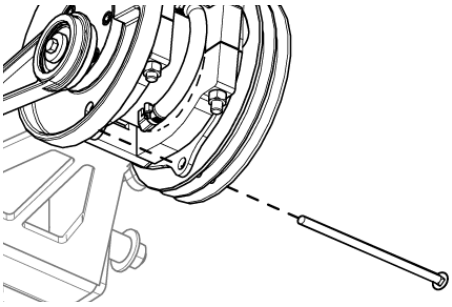


*Fig. 192 - Align Drive Plates with a Bolt*

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.

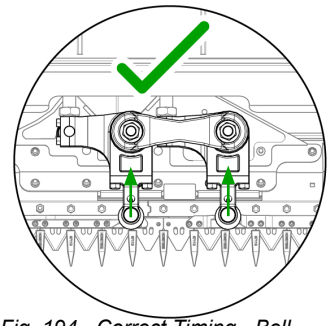


*Fig. 194 - Correct Timing - Bell Cranks Aligned*

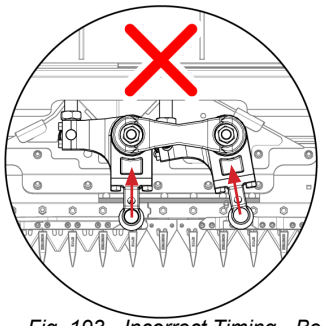


*Fig. 193 - Incorrect Timing - Bell Cranks Not Aligned*

6. Loosen the drive arm jam nuts

*(Continued on following page)*

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

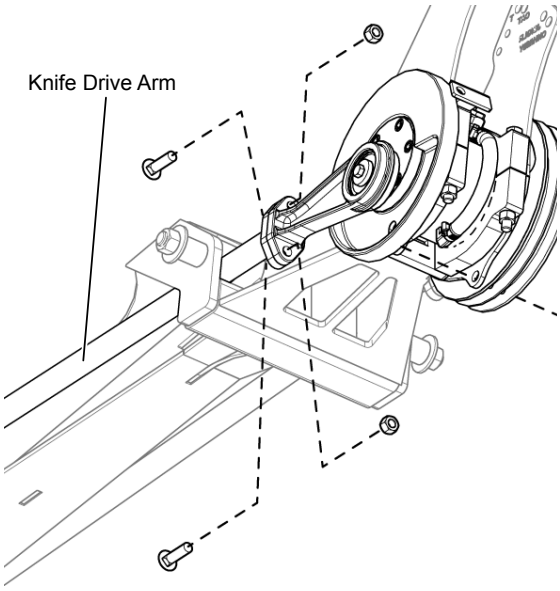



*Fig. 195 - Disconnect both Knife Drive Arms*

8. Adjust the knife drive arm length until the bell cranks and cutting sections are aligned. Screw/unscrew until tight.
9. Re-attach the knife drive arms to the flywheels when satisfied with alignment.
10. Re-torque everything.
11. Remove the bolt/rod that was inserted in the alignment hole on the flywheels.
12. Reinstall the safety shields & ensure the knife belt is properly tensioned.

**IMPORTANT!**

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

### 13.6.3 - 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.

### 13.6.4 - 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 top of knife sections and top of guard slot. Binding can be caused by bent/misaligned guards or a bent cutterbar.
- 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.

### 13.6.5 - 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.

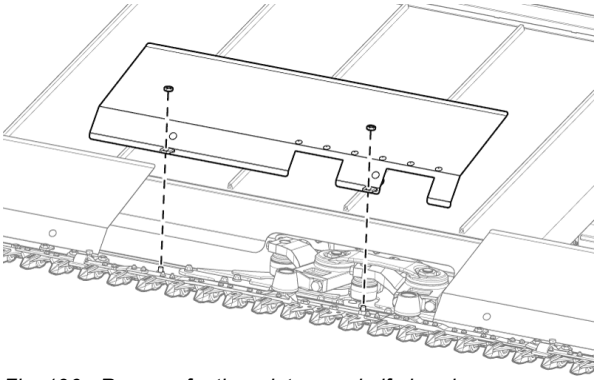


*Fig. 196 - Remove feather plate over knife bearings*

### *13.6.5.1 - Removing the Right Hand Knife*

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

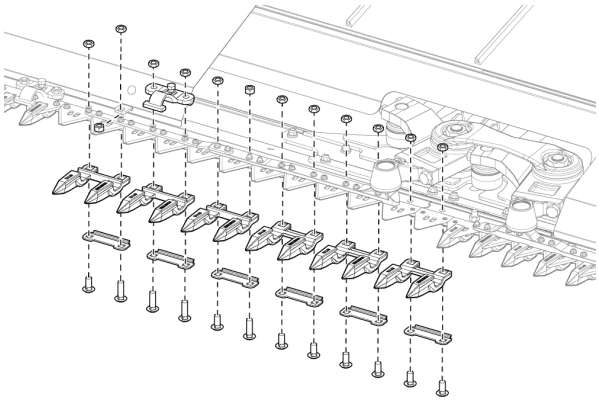


*Fig. 197 - Remove guards around right hand knife head*

2. Before removing the bearing housing from the knife head, unscrew and remove the grease zerk.

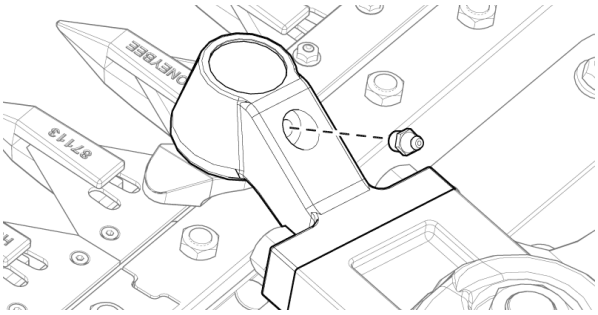


*Fig. 198 - Remove grease zerk*

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

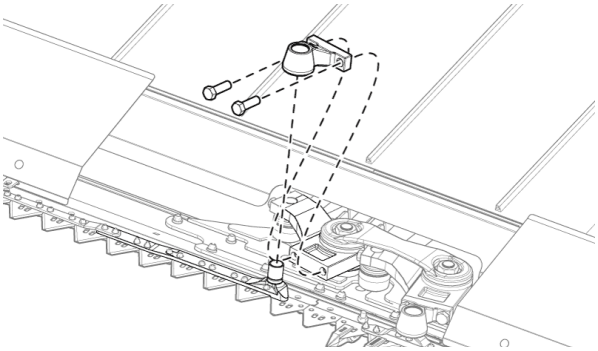


*Fig. 199 - Remove bearing housing from right hand knife head*

**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.

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

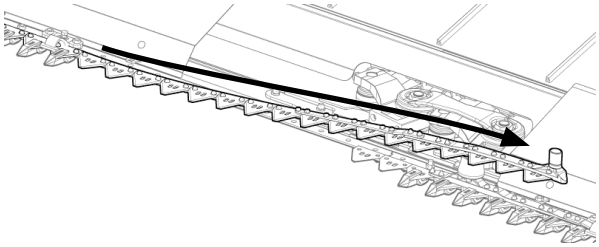


*Fig. 200 - Lift and pull out the right-hand knife*

**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.

### 13.6.5.2 - Removing the Left-Hand Knife

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

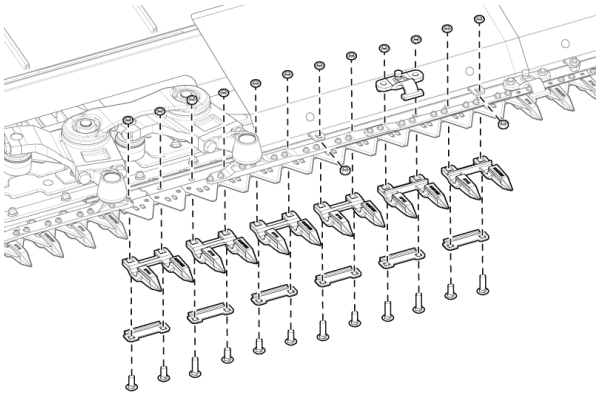


*Fig. 201 - Remove guards around the left hand knife head*

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

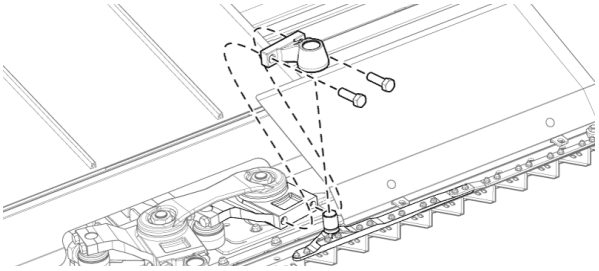


*Fig. 202 - Remove left hand knife head bearing*

**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.

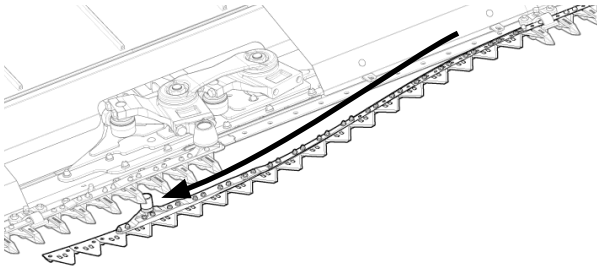


*Fig. 203 - Lower and pull out the left hand knife*

### 13.6.5.3 - 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.

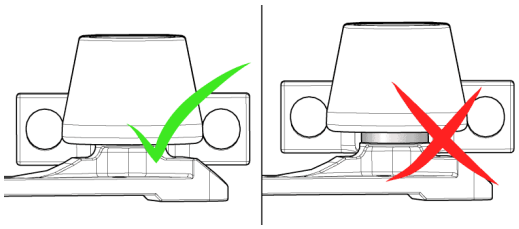


*Fig. 204 - Ensure bearing is properly seated*

5. Bolt the bearing housing in place and reinstall the grease zerk.
6. Use a grease gun to add grease to the bearing housing via the zerk until excess grease oozes out.
7. Reinstall the 4 to 6 guards
8. Reinstall feather plate section above the knife heads.

**IMPORTANT!**

Lubricate the knife head as described in section 13.18 on page 116.

### 13.6.6 - 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 nuts from the knife section.
2. Remove and discard knife 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.

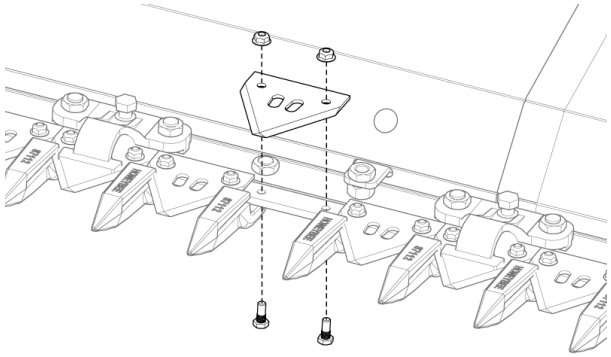


*Fig. 205 - Replace Knife Section*

## 13.7 - 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. One or more of these problems may have been the cause of the failure.

### 13.7.1 - Connector Bar

The connector bar is installed on the top of the knife back. The connector bar has six bolt holes in the bar. The knife back is punched with holes to accommodate the sickle sections and the holes are slightly tapered from the bottom.

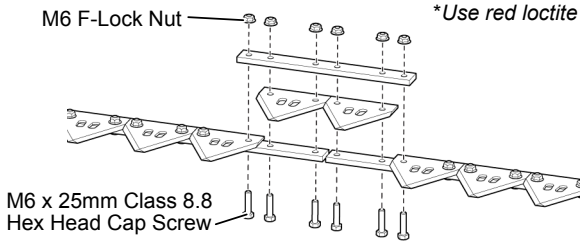



*Fig. 206 - Connector Bar*

Knife sections must be installed on the top side of the knife back (the side with the SCH Logo).

**NOTE:**

When ordering a connector bar, request part number 100779.

# 13.8 - Dividers

## 13.8.1 - Divider Handle

Over time, the crop divider removal handle may become difficult to use. If this occurs, install one extra washer behind the handle as shown below. This will compensate for any 'slack' in the handle.


*Fig. 207 - Add washer to tighten loose handle*

## 13.8.2 - Crop Divider Extension

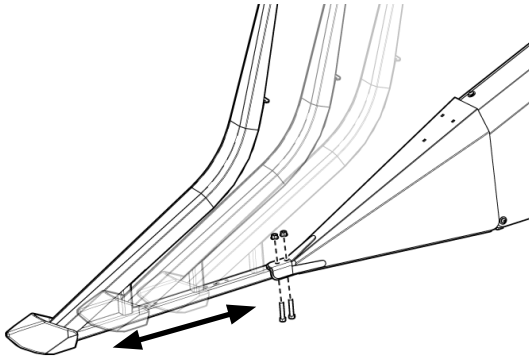


*Fig. 208 - Crop Divider Extension - 3 Possible Positions*

**To adjust the crop divider extension position:**
Remove the two bolts securing the extension, slide it in or out to the desired position then resecure with the two bolts.

## 13.8.3 - Crop Divider Pipe Extension

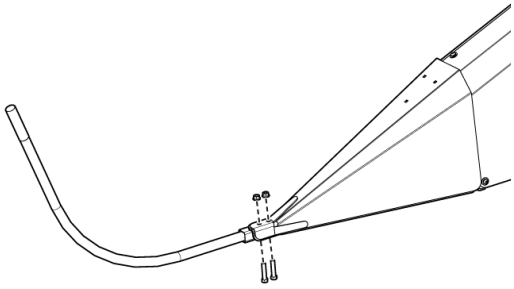


*Fig. 209 - Crop Divider Pipe Extension*

No adjustments are possible for the pipe extension.

## 13.8.4 - Crop Divider Snub Extension

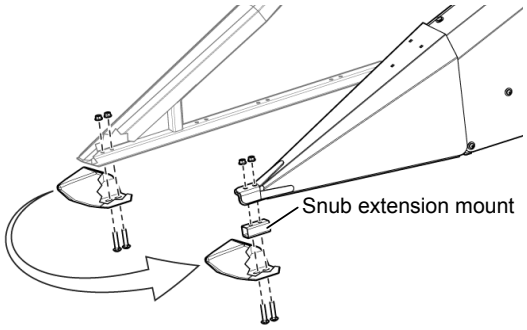



*Fig. 210 - Crop Divider Snub Extension*

**To install the crop divider extension:**

1. Remove the currently installed divider extensions.
2. Remove the nose cone from the divider extensions, set carriage bolt and nut aside for the next step.
3. Using the snub extension mount, secure the nose cone to the end of the crop divider using the carriage bolts from the previous step.

### 13.8.5 - Divider Spring Float Setting

The divider float should be set so it takes about 15 lbs (6.8 kg) of force to lift the divider. If no divider is installed, it should also take 15 lbs (6.8 kg) to pull the base down (see below).

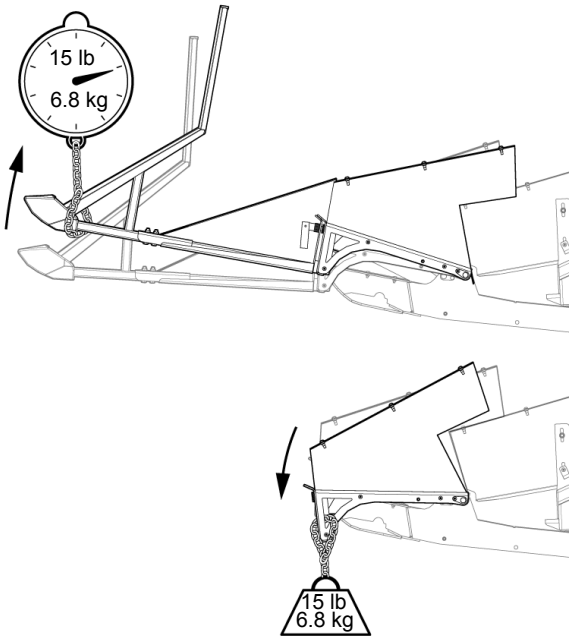



*Fig. 211 - Divider Spring Float Adjustment*

The recommend 'weight' of the divider will vary by crop conditions and will need to be adjusted for your application. See section 13.11 on page 113 for details on proper divider usage.

To adjust the float, simply remove the divider cover, release the lock plate from the bolt head and:

- Tighten the bolt to increase float (make the divider lighter)
- Loosen the bolt to decrease float (make the divider heavier)

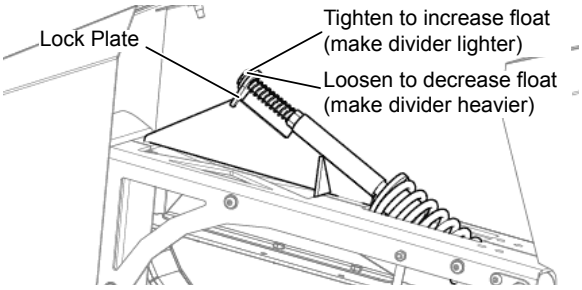



*Fig. 212 - Divider Spring Float Adjustment*

## 13.9 - Feed Auger

### 13.9.1 - 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 down to move the fingers up and toward the rear of the header.
   - 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.

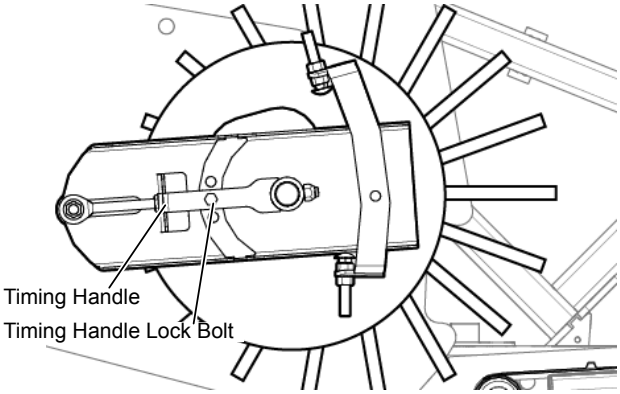



*Fig. 213 - Feed Auger Drum Clearances*

**IMPORTANT!**

After adjusting finger timing, ensure that the auger fingers will not contact anything unintentionally during operation. Failure to allow proper finger clearance will result in equipment damage.

### 13.9.2 - 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.

**IMPORTANT!**

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

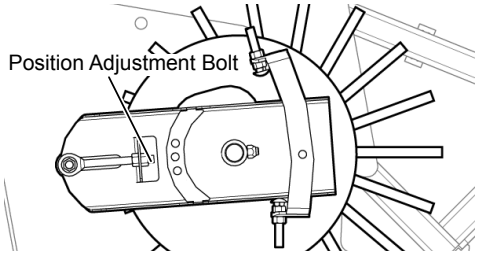



*Fig. 214 - Feed Auger Drum Position*

### 13.9.3 - 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.

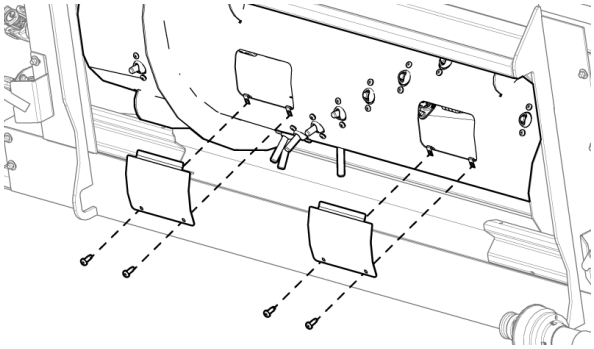


*Fig. 215 - Feed Auger Drum Interior Access*

### 13.9.4 - 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.

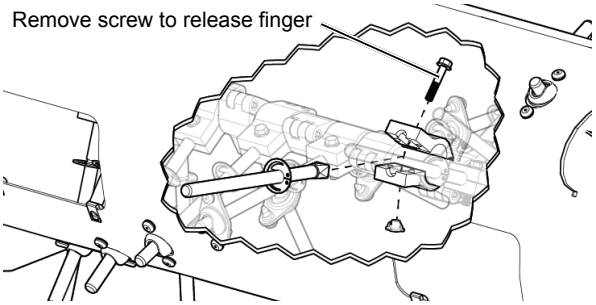



*Fig. 216 - Replace Feed Auger Fingers*

### 13.9.5 - 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 13.9.4 on page 112.

Reinstall the finger along with the new guide.

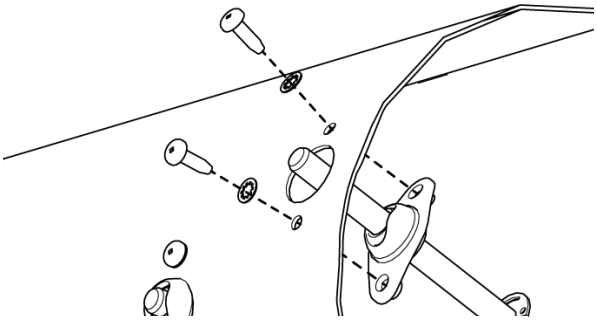


*Fig. 217 - Replace Feed Auger Finger Guide*

## 13.10 - Hydraulic Tilt Cylinder

There are two possible positions for the hydraulic tilt cylinder. The tilt cylinder should be set to the correct position for your combine from the factory, but if a different combine is ever used, you may need to adjust the position.

**Position #1** Is used with combines that do not have an adjustable feeder house (the feeder house can't tilt forward and backward).

**Position #2** is used with combines that do have an adjustable feeder house (the feeder house can tilt forward and backward).

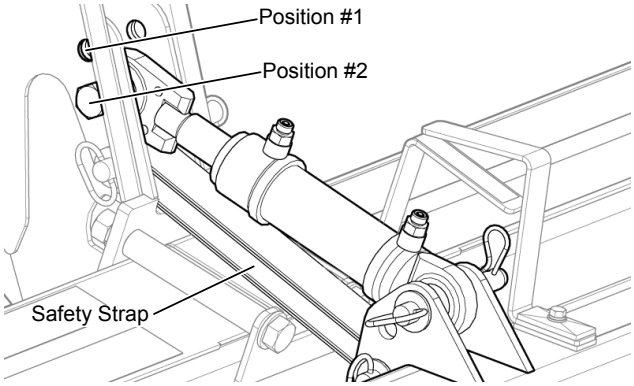



*Fig. 218 - Hydraulic Tilt Cylinder (position #2 shown)*

**WARNING!**

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

### 13.10.1 - Reposition the Hydraulic Tilt Cylinder

1. With the header mounted on the combine, slowly lower the header down onto the ground until you see some slack on the tilt cylinder.

**WARNING!**

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

2. Remove the bolt securing the tilt cylinder to the header frame (do not remove the pin securing the cylinder to the sub frame)
3. Reposition the cylinder to the appropriate hole and reinstall the bolt.

## 13.11 - 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.

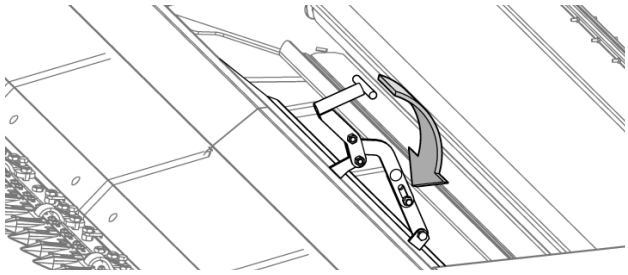


*Fig. 219 - Open Rock Trap at Center Draper*

**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 groves 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.

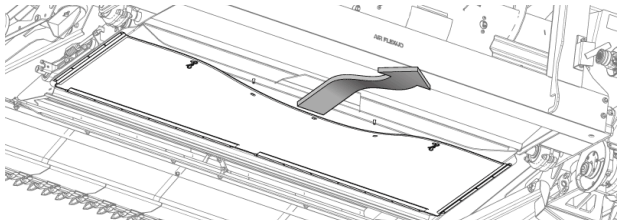


*Fig. 220 - Open Center Cleanout to Remove Debris*

## 13.12 - Permanent Bushings

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

See section 15.2 on page 123 for bushing locations.

## 13.13 - 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.

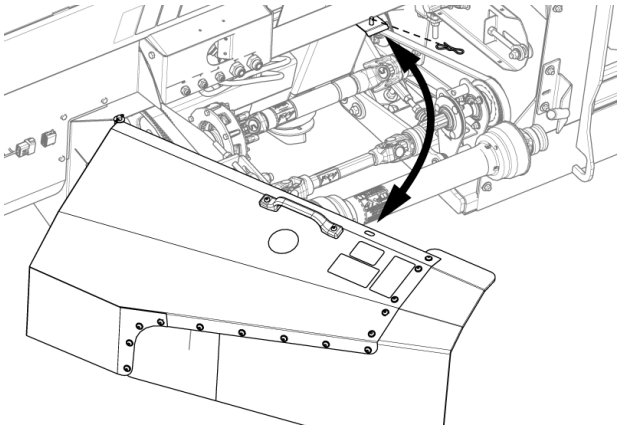


*Fig. 221 - Open Side Shield*

## 13.14 - PTO (Drive Shaft)

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

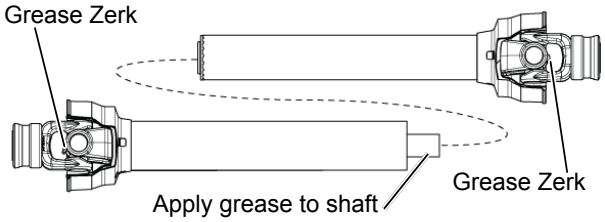



*Fig. 222 - Drive Shaft Grease Points*

**IMPORTANT!**

There is one extra grease zerk on the clutch of the feed drum drive shaft that must also be lubricated.

## 13.15 - FLEX Header Height Control Sensor Bar Alignment

After transport or long periods of operation, you may need to adjust the FLEX HHC sensor arms and sensor bar.

First ensure the header is in RIGID mode, mounted on the combine and raised from the ground.

From the factory, the sensor contacts should be contacting their respective rollers.

If necessary, the sensor contacts at each end (A and F) can be adjusted so they are touching the roller. The remaining four contacts (B, C, D, E) can be spaced approximately 0.07” (1.8 mm) away from the roller. This allows the outer ends to react first.

The design of the contacts may vary.

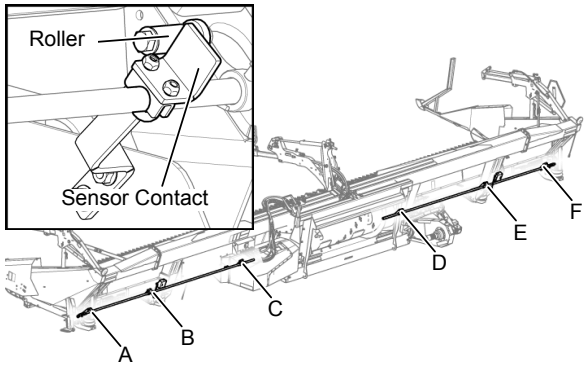



*Fig. 223 - FLEX HHC sensor contact positions*

Ensure that the Sensor Bar sensors are all oriented so the sensor arm and sensor wire are both pointing in the same direction as shown in the illustration below.

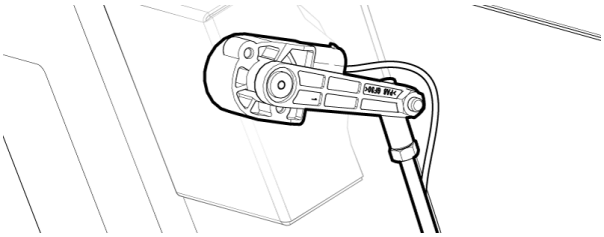


*Fig. 224 - HHC Sensor Alignment*

## 13.16 - Checking for Air Leaks

If the AirFLEX air system does not maintain pressure, there may be an air leak. To check for leaks, fill a spray bottle with soapy water and spray the following locations while watching for air bubbles. Replace all leaking fittings.

Check the fittings on the air tank and air manifold located just to the left of the feeder house.

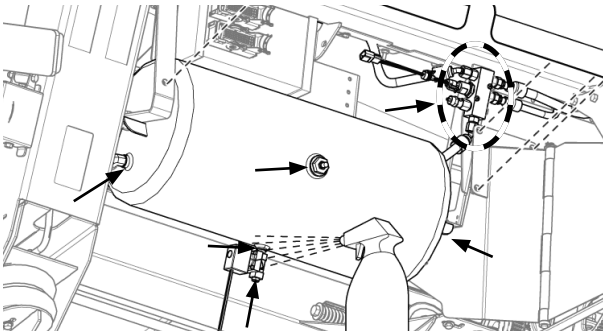


*Fig. 225 - Check Air Tank for Leaks*

Check the 'T' fittings located on the front of each strut (between the struts and the draper back panels)

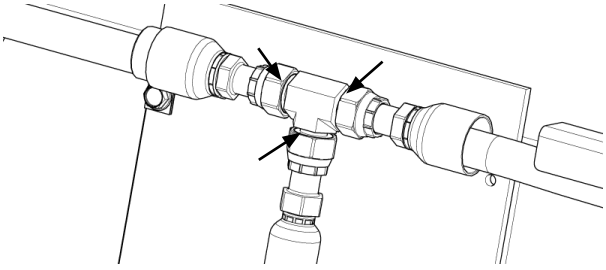


*Fig. 226 - Check T Fittings On Front Side of Struts for Leaks*

Check the airbag fittings located at the bottom rear of each strut.

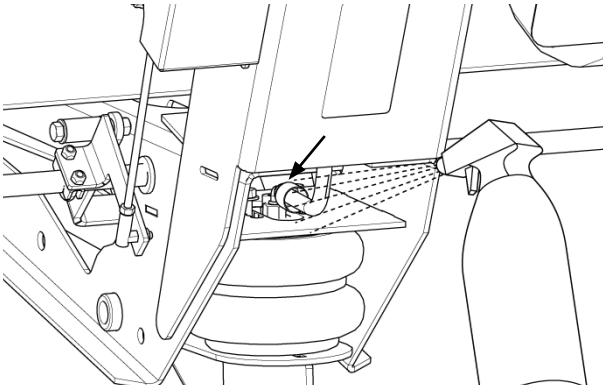


*Fig. 227 - Check Airbag Fittings for Leaks*

## 13.17 - 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.

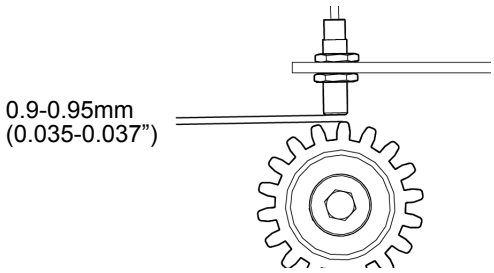



*Fig. 228 - Speed Sensor Spacing*

See section 13.17 on page 115 for speed sensor locations.

# 13.18 - Lubrication

## 13.18.1 - Grease

It is extremely important that you are aware of ALL lubrication points on the header.

There are 4 grease points on the front knife assembly that must be greased every 10 hours (typically: daily).

The rest of the grease points are on the drive line shafts (5) and yokes (10), lubricated every 50 hours (typically: weekly).

There are no grease points on the reel system.

The only other grease points are the transport wheel bearings, that should be repacked once a year if used on roads.

Use grease based on NLGI consistency numbers and expected air temperature range during service interval.

The following grease is recommended: 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. EP = Extreme Pressure fortified, which is desirable.

**IMPORTANT!**

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

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

## 13.18.2 - Alternative and Synthetic Lubricants

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual. Consult your dealer to obtain information and recommendations.

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.

## 13.18.3 - Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants. Dirty lubricant = grinding paste!

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.

## 13.18.4 - 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.

## 13.18.5 - Reel Lubrication

**IMPORTANT!**

Do NOT add grease to the zerks on each end of the main reel tube. There are plastic bushings inside this assembly and the grease will shorten their lifespan.

## 13.18.6 - Lubrication Interval Chart

| | | 10 Hours | 50 Hours | 200 Hours |
|---|---|---|---|---|
| **A** | Grease knife head bearings @ zerk (top side) x2<br>**NOTE:** Pump grease into the zerks until the old grease is purged out of the bottom of the bearing. This may take 4-5 pumps. Add grease slowly to allow the old grease to purge. | • | | |
| **B** | Grease knife bell crank bearings @ zerk (bottom side) x2<br>**NOTE:** Pump grease into the zerks until the old grease is purged out of the bearing. This may take 6-7 pumps. Add grease slowly to allow the old grease to purge. | • | | |
| **C** | Lubricate Drive Shaft Yokes @ zerk (1 per cross kit = 10) | | • | |
| **D** | Lubricate Telescoping Drive Shafts (5 shafts) | | • | |
| **E** | Check Main Knife Bearing housing Oil Level | | • | |
| **F** | Check RH Side Draper Gearbox Oil Level | | • | |
| **G** | Check LH Side Draper Gearbox Oil Level | | • | |

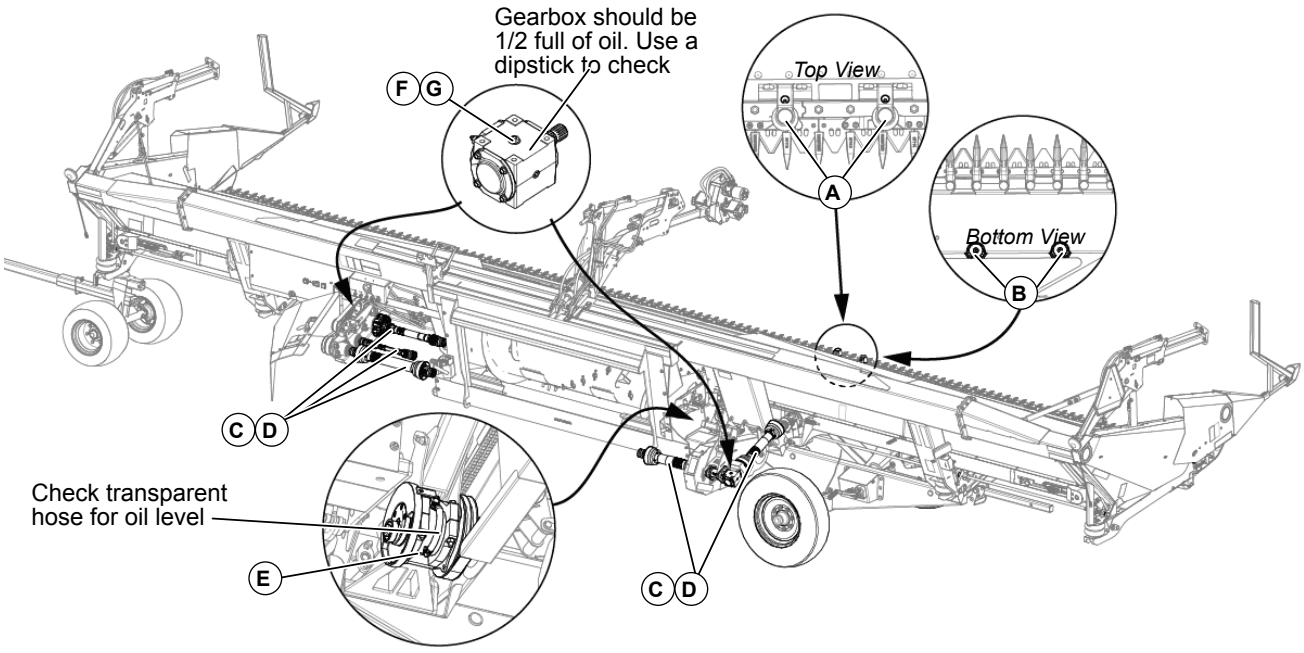



*Fig. 229 - Lubrication Locations*

All other rotating elements on this product use sealed bearings and IGUS permanent bushings (not shown). These must be replaced if worn. They are designed with a multi-year service life, but may require occasional replacement due to uneven wear. Typically, loose = worn. Consult your dealer to obtain specific information and recommendations.

**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. When checking oil levels, always clean area around plugs before removal. Always tighten plugs securely.

# 14 - 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<br>(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*

Informational Videos can be found here:

*http://www.honeybee.ca/videos-airFLEX.php*

This Page Intentionally Left Blank

# 15 - Appendix

## 15.1 - 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, 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 | |

### 15.1.1 - 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.

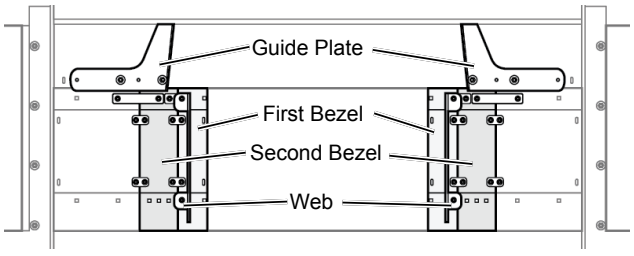



*Fig. 230 - AGCO Bezels*

| Configuration | Components Used | Notes |
|---|---|---|
| Layout #1 | 1,2,3,4 | The guide plates, (#1) are positioned using the innermost holes, as seen in the main diagram. |
| Layout #2 | 1,2,3,4 | The guide plates, (#1) are moved outward exposing one hole on the inner side. |
| Layout #3 | 3,4 | The guide plates, (#1) and the first bezel (#2) are removed. Reposition the web so that the vertical portion is midway on the remaining bezel. |
| Layout #4 | 4 | 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 | 4 | 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 | 1,2,3,4 | 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. |

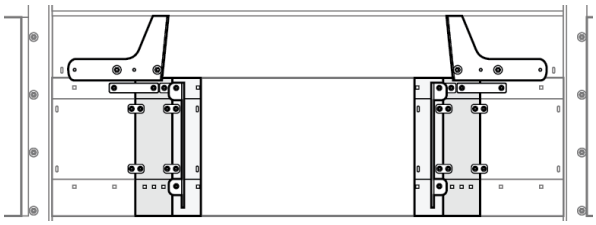


*Fig. 231 - AGCO Bezel - Layout 1*

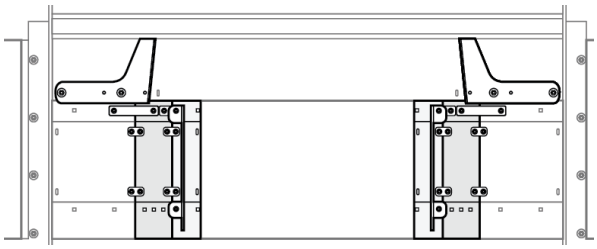


*Fig. 232 - AGCO Bezel - Layout 2*

*Fig. 233 - AGCO Bezel - Layout 3*

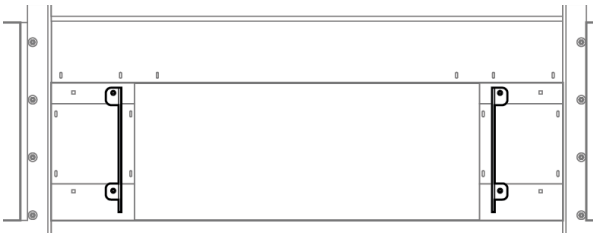


*Fig. 234 - AGCO Bezel - Layout 4*

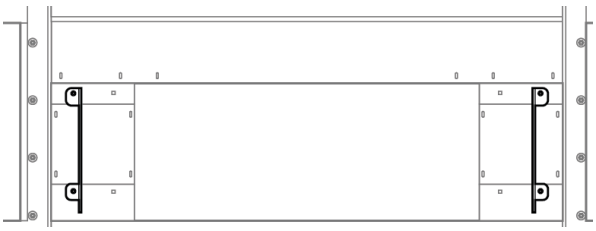


*Fig. 235 - AGCO Bezel - Layout 5*

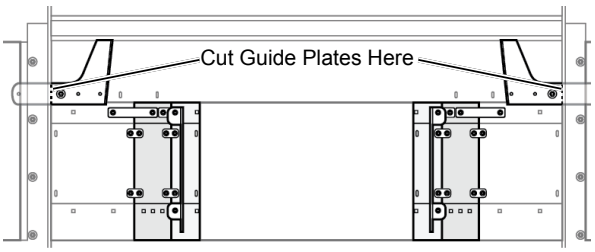



*Fig. 236 - AGCO Bezel - Layout 6*

## 15.2 - 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** | Paddle Rear Pivot | 12 |
| **B** | End Paddle Crop Divider Pivot | 4 |
| **C** | Center Reel Arm | 8 |
| **D** | Center Draper Drive Belt Pivot Pulley | 2 |
| **E** | RH Draper Drive Belt Pivot Pulley | 2 |
| **F** | Header Height Control Sensor Bar | 6 |

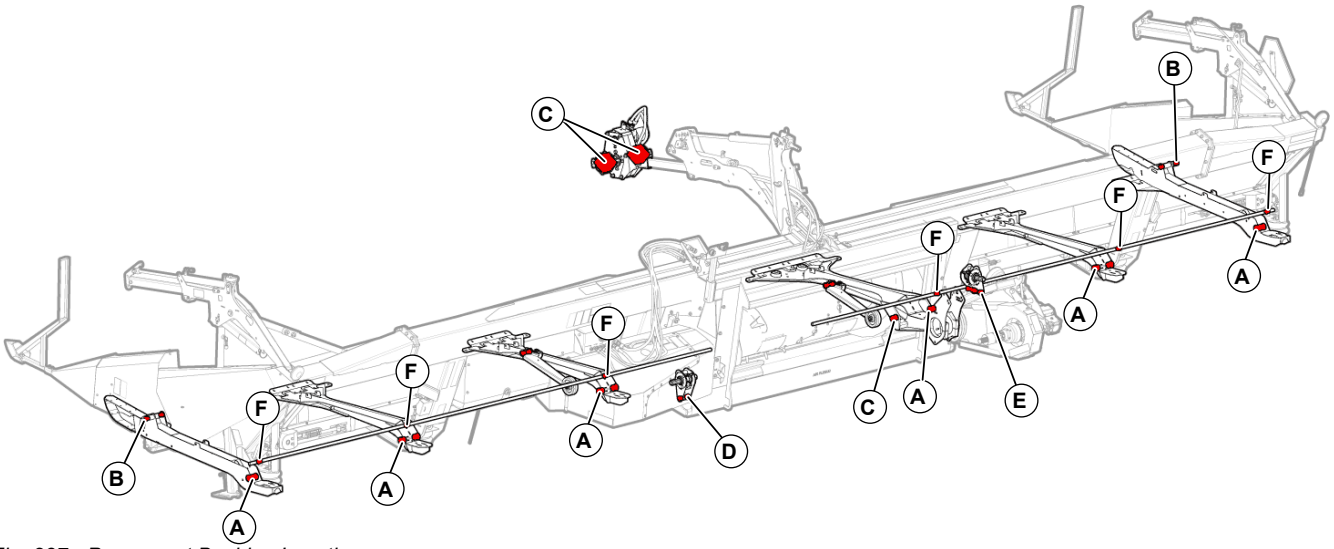



*Fig. 237 - Permanent Bushing Locations*

## 15.3 - Header Height Control Sensor Locations

There are a number of sensors used in the header height control system. They are illustrated below for service purposes. The sensors are identified as Rigid Mode sensors or Flex Mode sensors and are used in Rigid or Flex cutting mode respectively..

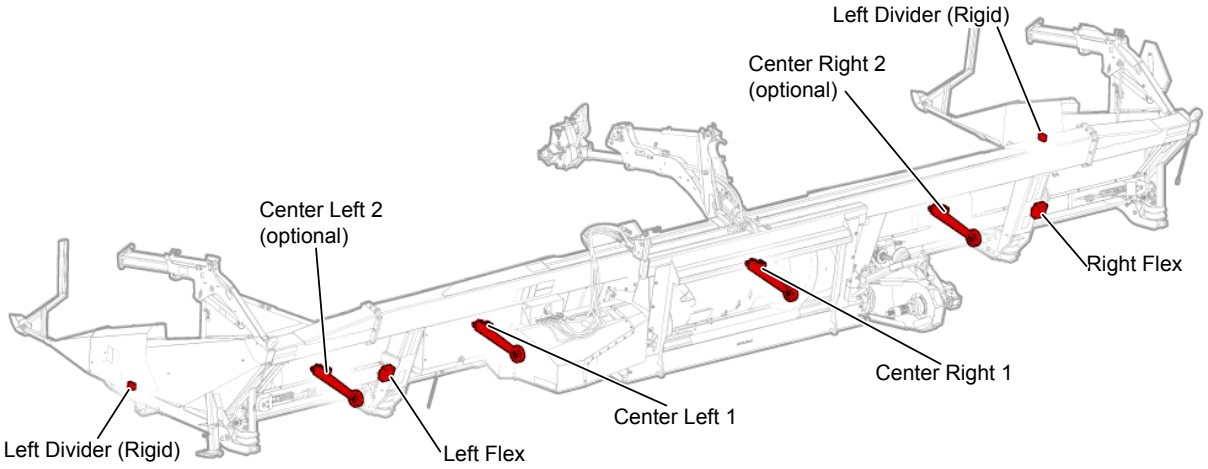



*Fig. 238 - Header Height Control Sensor Locations*

### 15.3.1 - Automatix Display Sensor Identification

In the header height info screen and after the header height calibration process, the Automatix system will show the raw sensor output of the various header height sensors on the header. Refer to the image below to determine which section of the display refers to which sensor.

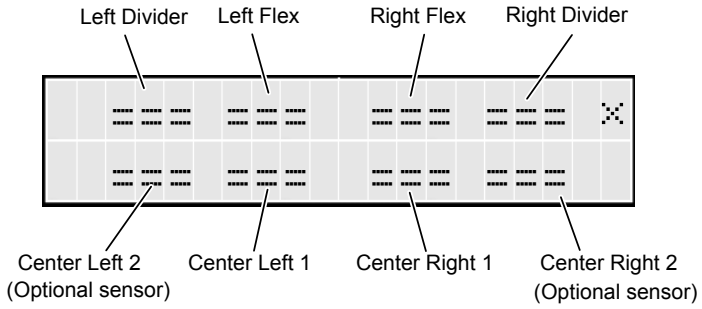



*Fig. 239 - Automatix Screen HHC Sensor Identification*

## 15.4 - Speed Sensor Locations

All speed sensors on the header operate by 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 13.17 on page 115 for details.

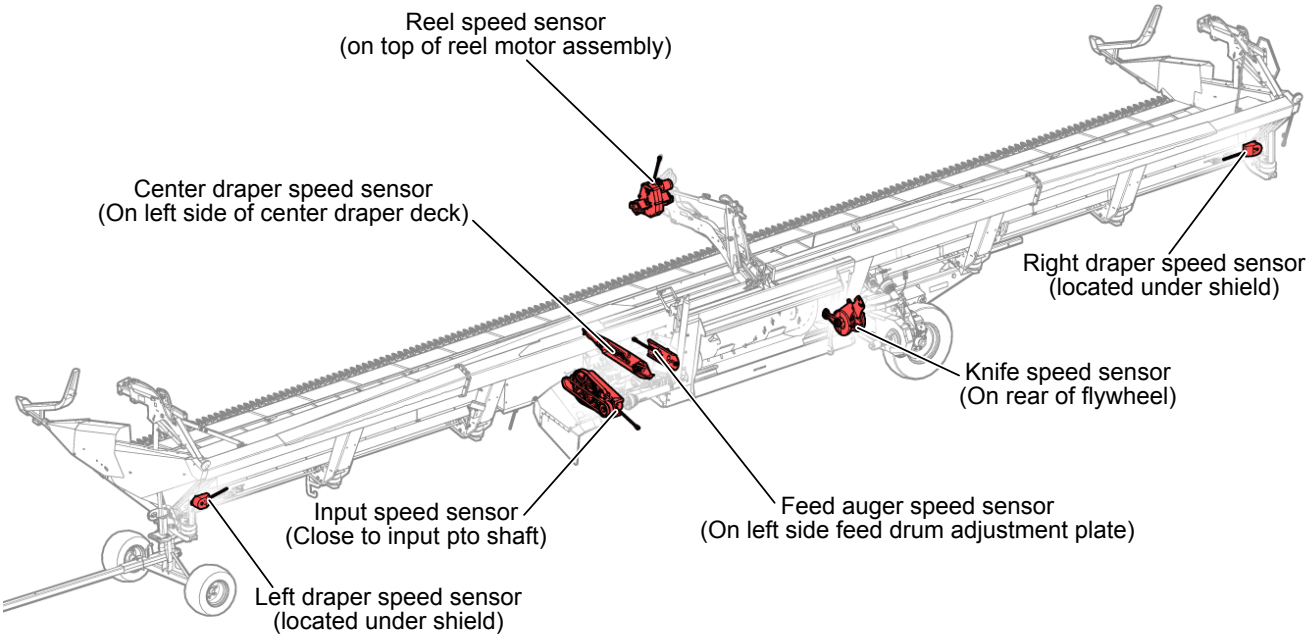



*Fig. 240 - Speed Sensor Locations*

### 15.4.1 - Automatix Display Sensor Identification

In the speed sensor info screen and after the speed sensor calibration process, the Automatix system will display the speed sensor output (in RPM). Refer to the image below to assist in identifying the sensor readouts.

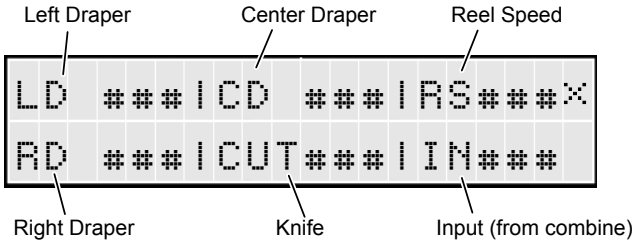



*Fig. 241 - Automatix Screen Speed Sensor Identification*

## 15.5 - 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 BeeBox should be installed next to the combine’s Valve Controller.

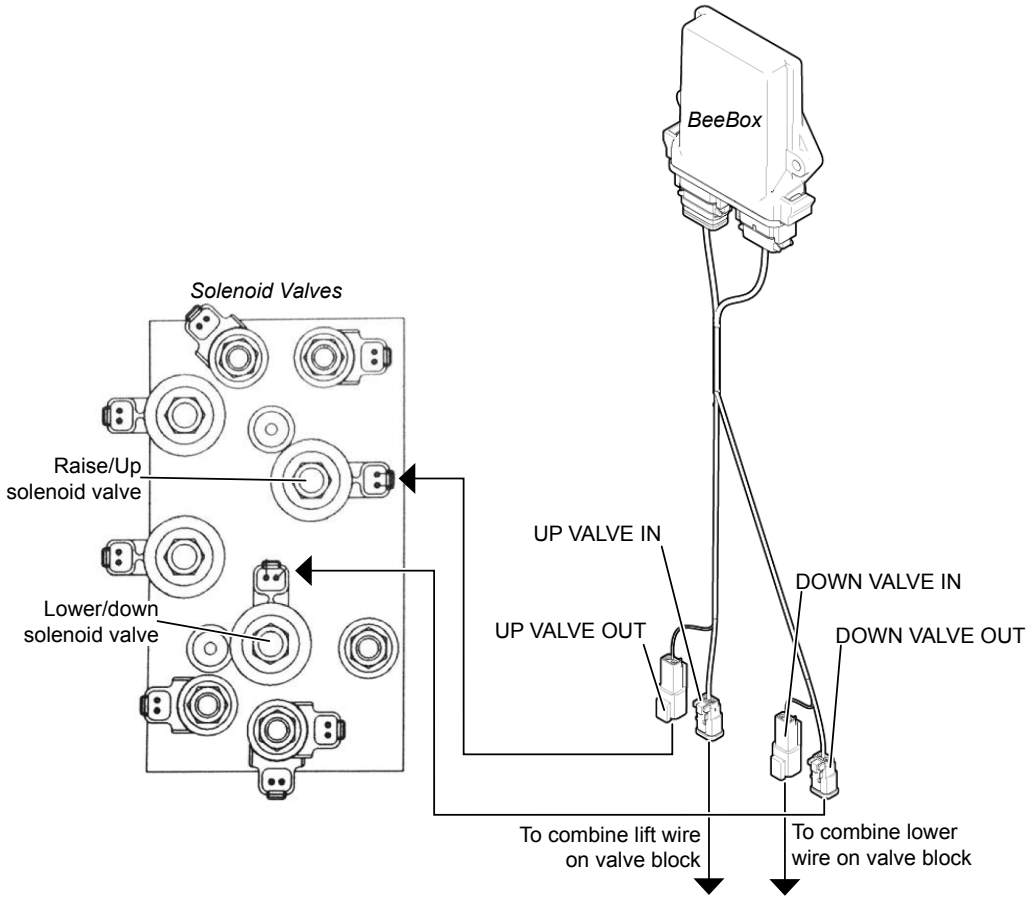



*Fig. 242 - BeeBox - For ‘Bang-Bang’ Style Control Valve Combines*

## 15.6 - 2016 or later JD Combine Check valve Kit

Starting for 2016 models, John Deere combines require a check valve (Comatrol #11175532) to be added to the AirFLEX reel fore/aft hydraulic circuit in order to prevent unexpected movements of the fore/aft system.

**⚠ WARNING!**

Prior to starting this procedure, ensure the AirFLEX hydraulic system not pressurized and is disconnected from the combine system.

**IMPORTANT!**

These instructions only apply to AirFLEX units to be mounted on John Deere 2016 or later Combines.

1. Ensure that Check Valve kit contains the following parts:
   - 2x - 101258 - HH04 21 4FFX-4FFX TCVR
   - 2x - 19499 - Bolt 3/8 x 1 UNC GR5
   - 2x - 19504 - Bolt 3/8 x 2 1/4 UNC GR5
   - 2x - 19902 - Nut 3/8 UNC F/Lock
   - 1x - 201168 - Check Valve Bracket
   - 2x - 28048 - Nipple 4MF-6MB
   - 2x - 28060 - Elbow SW 4MF-4FFX-90
   - 2x - 28061 - Elbow 4MF-6MB-90
   - 1x - 28805 - Dual Check Valve - Comatrol
2. Connect the two 4MF-6MB nipples to the front of the check valve block, then connect the two 4MF-6MB-90 elbows to the rear ports on the check valve block. Connect the two 4MF-4FFX-90 elbows to the 4MF-6MB-90 elbows.

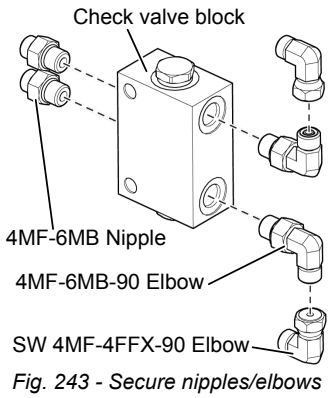



*Fig. 243 - Secure nipples/elbows*

3. Secure the Comatrol check valve block to the mounting bracket using two 3/8”x2 1/4” bolts and two 3/8 UNC F/Lock Nuts.

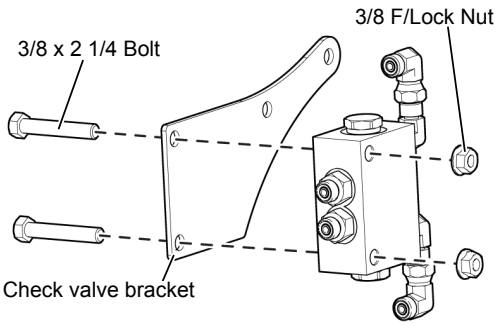



*Fig. 244 - Secure check valve to bracket*

4. Using two 3/8”x1” bolts and the pre-existing nuts, secure the assembled check valve block to the side of the hydraulic manifold bracket located just to the left of the subframe.

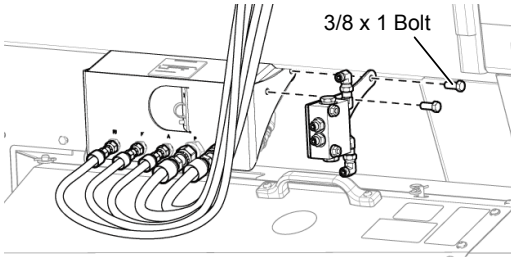



*Fig. 245 - Install check valve block onto manifold*

5. Disconnect the hose from the ‘F’ port on the hydraulic manifold and connect it to the bottom-front port of the check valve block.

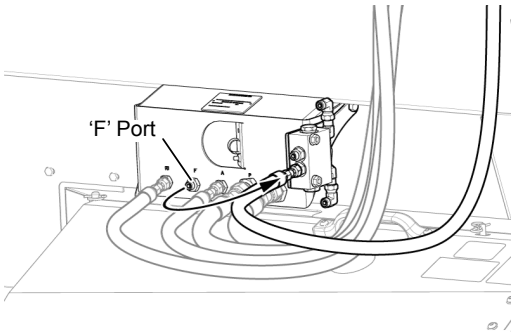



*Fig. 246 - Move hose from ‘F’ port to bottom port*

6. Disconnect the hose from the ‘A’ port on the hydraulic manifold and connect it to the top-front port on the check valve block.

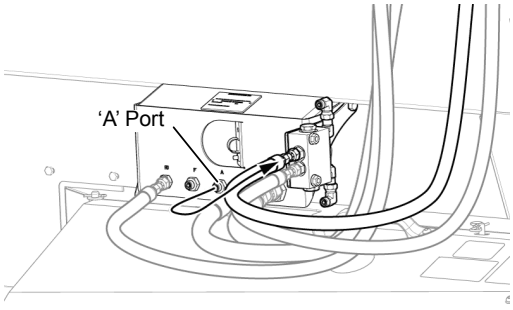



*Fig. 247 - Secure check valve to bracket*

7. Using one of the provided HH04 21” 4FFX-4FFX hoses, connect the top elbow on the check valve to the ‘A’ port on the hydraulic manifold.

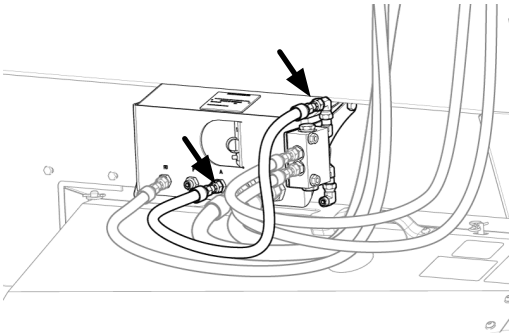


*Fig. 248 - Connect bottom port to ‘A port on manifold*

8. Using one of the provided HH04 21” 4FFX-4FFX hoses, connect the bottom elbow on the check valve to the ‘F’ port on the hydraulic manifold.

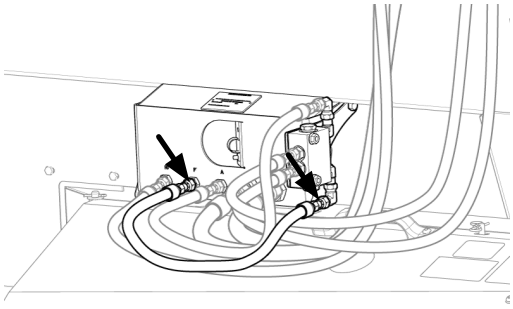


*Fig. 249 - Connect bottom port to ‘F’ port on manifold*

**IMPORTANT!**

Ensure all fittings are tight prior to running the header.

## 15.7 - Recommended Torque Values (ft-lb)

| 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 |

## 15.8 - Drive Shaft Lengths

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

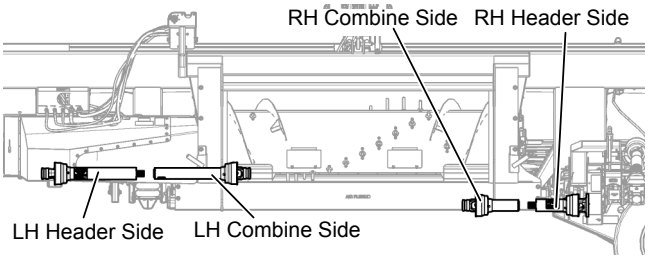



*Fig. 250 - Drive Shaft Identification*

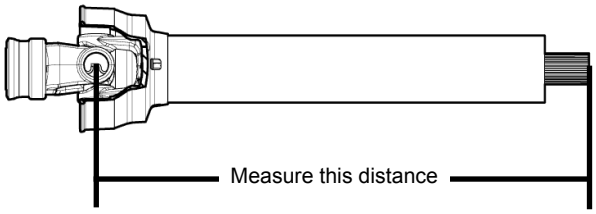



*Fig. 251 - Drive Shaft Measurement*

| | LH Header Side | | LH Combine Side | | RH Combine Side | | RH Header Side | |
|---|---|---|---|---|---|---|---|---|
| | **in.** | **cm.** | **in.** | **cm.** | **in.** | **cm.** | **in.** | **cm.** |
| **JD 60/70/S SERIES** | 22.13 | 562.1 | 20.63 | 524 | 10.38 | 263.7 | 12 | 304.8 |
| **CASE IH AF 5088, 6088, 7088, 7120, 8120, 9120, 7230, 8230, 9230, 5130, 5140, 6130, 6140, 7130, 7140** | 22.13 | 562.1 | 20.63 | 524 | 11.25 | 285.8 | 12 | 304.8 |
| **NH CR 9040, 9060, 9065, 6090, 7090, 8080** | 22.13 | 562.1 | 20.63 | 524 | 15.5 | 393.7 | 12 | 304.8 |
| **NH CR 9070, 9080, 9090, 8090 CX 8070, 8080, 8090** | 22.13 | 562.1 | 20.63 | 524 | 11.25 | 285.8 | 12 | 304.8 |
| **CLAAS LEXION 600/700 SERIES** | 22.13 | 562.1 | 20.63 | 524 | 17 | 431.8 | 12 | 304.8 |
| **MASSEY 9790, 9795, 9895** (07 & newer)**, 9540, 9560. CHALLENGER 540C** (07 & newer). **GLEANER A76, A86** | 18.13 | 460.5 | 16.63 | 422.4 | 9.5 | 241.3 | 10.13 | 257.3 |
| **GLEANER R66, R76, S67, S77, S68, S78, S88** | 22.13 | 562.1 | 20.63 | 524 | 17.13 | 435.1 | 12 | 304.8 |

## 15.9 - Knife Drive Position Plate - Combine Makes and Models

| Plate Hole | Make/Model |
|---|---|
| JD/GLR | JD 60/70/S SERIES<br>GLEANER A76, A86, R66, R76, S67, S77, S68, S78, S88<br>Massey 9650 |
| CNH/MSY | CASE IH AF 5088, 6088, 7088, 7120, 8120, 9120, 7230, 8230, 9230, 5130, 5140, 6130, 6140, 7130, 7140<br>NH CR 9040, 9060, 9065, 6090, 7090, 8080, 9070, 9080, 9090, 8090, CX 8070, 8080, 8090<br>MASSEY 9790, 9540, 9560, 9795, 9895 (07 & newer). |
| CAT | LEXION/CLAAS 600/700 SERIES<br>CHALLENGER 540C (07 & newer). |
| T | Place knife drive in this position when transporting equipment only. |

# 16 - Generic Quick Start

## COMBINE H/H SETTINGS

- Set feeder house face plate to correct angle
- Set Header Height sensitivity as high as possible while still preventing hunting for both lift and lateral tilt.
- Header Height Raise Rate should be ~6 seconds.
- Header Height drop rate should be a fast as necessary without causing ground impact (~7 seconds).
- Calibrate Header Height (Combine specific)

## FLEX

- Air pressure set between 25 and 80 PSI.
- Tilt table all the way back (Tilt cylinder retracted and cutterbar at correct cut angle)
- Cutting Height Set Point should be ~1-2 inches above ground

## RIGID

- Air pressure ~90 PSI (full cutterbar lock up)
- Tilt table all the way forward (Tilt cylinder extended, cutterbar at correct cut angle)
- Set point on center alarm adjusted to within 1/2 - 1/3 of overall cut height (minimum 3 inches).

## LODGED/DOWN CROP:

- Reel fully extended and lowered so fingers pick up crop below the cutter bar.  Note: High finger wear will result from this configuration.
- Before extending the reel, ensure there is a minimum of 1 1/2” (3.8 cm) clearance to the cutterbar when the reel is positioned above it.
- Cam adjusted to: more aggressive = adjustment handle down to holes 6 or 7.

## BUSHY/RIPE CROP:

- Reel retracted and positioned so that the fingers clean the knife.  Keep a minimum clearance of 1 1/2” (3.8 cm) between the reel and the cutter bar..
- Cam adjusted to: less aggressive = adjustment handle up to holes 3 or 4.

## NORMAL CROP:

- Reel positioned directly above cutter bar with fingers low enough to clear the cutter bar. Keep a minimum clearance of 1 1/2” (3.8 cm) between the reel and the cutter bar.
- Cam adjusted to: middle position = adjustment handle in middle position at hole 5.

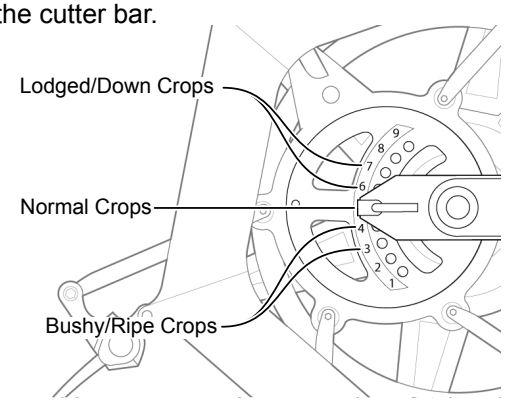



*Fig. 252 - Optimal Finger Pitch Settings*

Honey Bee

Harvest Faster

# 2016 AirFLEX Operator Manual

Honey Bee Manufacturing Ltd.

P.O. Box 120
Frontier SK
S0N 0W0

Tel: (306) 296-2297
Fax: (306) 296-2165

www.honeybee.ca
E-mail: info@honeybee.ca

Revision 2.1 P/N: 94858