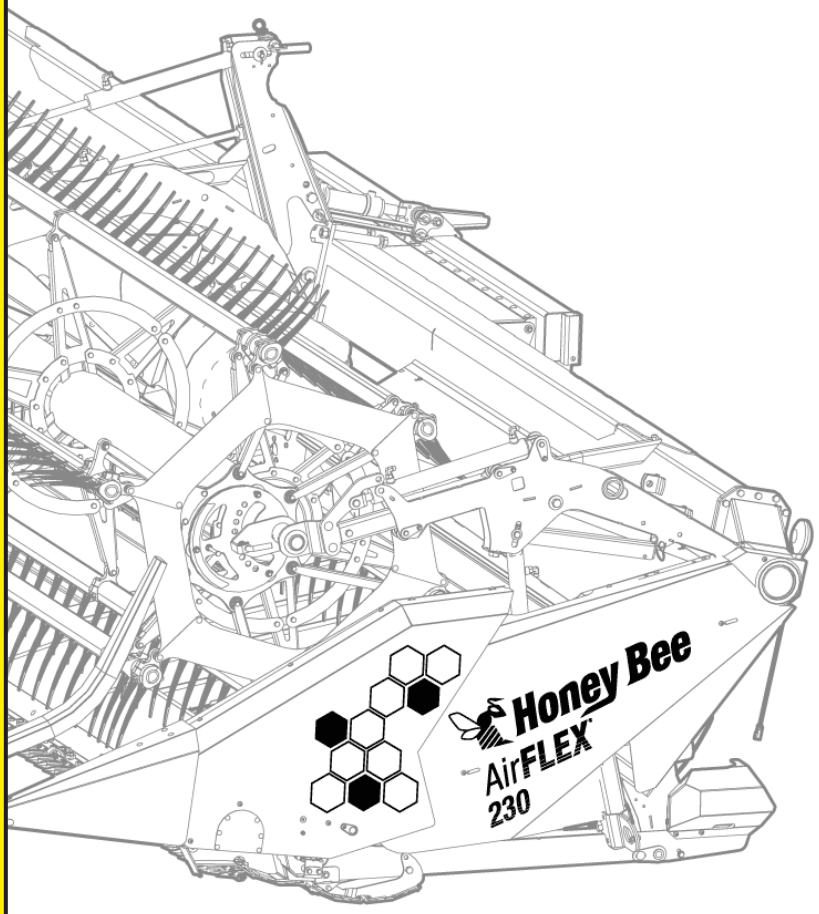
2017
And Earlier

- No Gauge Wheels
- Center drop-down sensors installed

AirFLEX

200 Series

FLEX Header
Calibration Guide



Honey Bee®

Revision 1.0

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Table of Contents

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1 - Calibration Guide

1.1 - Combine Feeder House Angle

The Combine Feeder House must be tilted at a specific angle for optimal header operation. With the header mounted to the combine as outlined in the operator manual:

1. Set the header to FLEX mode.

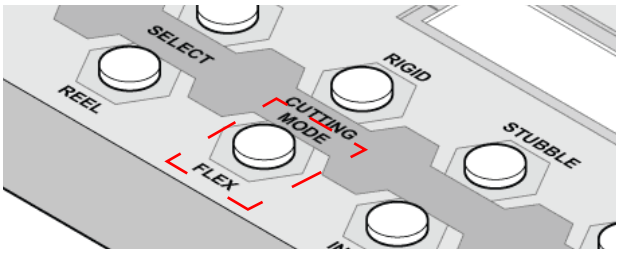


Fig. 1 - Select FLEX mode

2. Fully retract the hydraulic tilt cylinder.
3. Press the INFO button on the Automatix control panel until the header height informaiton is displayed.

4. Lower the table until the cutter bar is fully pushed up. The cutter bar is fully pushed up when there are no bars on the header height display.

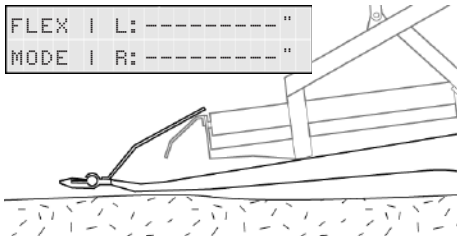
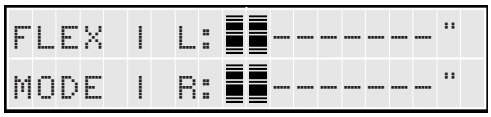


Fig. 2 - Cutterbar pushed up

IMPORTANT!

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

5. Slowly raise the header until 2” (2 bars) show on the display



WARNING!

Shut OFF engine, set parking brake, and remove the key and wait for all moving parts to stop before exiting the cab.

6. Measure down to the ground from the piviot pin on the end paddle. There should be an 8” (20 cm) space when at the optimal feeder house angle.
   - If the pivot point is more than 8” (20 cm) above the ground, the tilt is too steep and the cutter bar guards will dig into the ground.
   - If the pivot point is less than 8” (20 cm) above the ground, the angle is shallow and the rear of the paddle will drag on the ground.

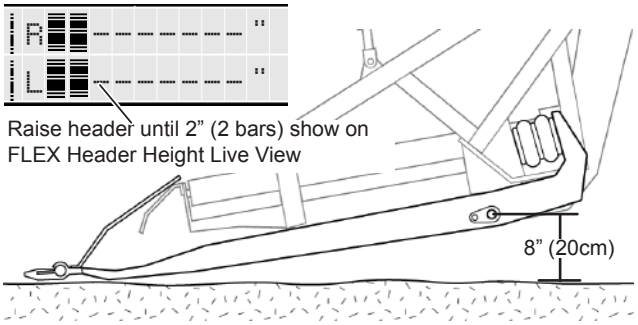


Fig. 3 - Optimal Feeder House Angle

7. Adjust the feeder house angle as necessary and re-test the angle as outlined in the previous steps. Tilt can be adjusted to suit ground conditions and habits of the operator.

1.2 - Header Specific settings on Combine.

The combine needs to be told what type and size of header is attached for correct operation. A generic flex header should be selected in the combine computer system as rigid settings may turn on an accumulator which can cause automatic header height issues. There are known combine specific settings (see quick reference guide), but generally they are:

- **Header type:** Combine specific, as specified in the Quick Reference Guide.
- **Header size:** Cutting width equals model number. E.g. 240 = 40 foot cutting width.
- **Overlap offset:** Typically a 6 inch overlap is set.
- Turn OFF any header specific settings that don't apply to the AirFLEX.
    - E.g. float accumulator OFF, VARIO automatics OFF, Auto faceplate tilt OFF…
- If using on CNH combine, you may want to setup up shift button for header tilt function now. At the same time, you will need to connect the multicoupler tilt wire, directly to the header tilt valve and unplug the AUTOMATIX wire from this function. Only one or the other should be connected. Test the header tilt function to confirm your connections and settings.

1.3 - Header Calibration

With the combine faceplate angle and header setting done, we can now calibrate the header. The header does NOT need to be running for this process, but all hydraulic and electrical connections need to be made, and the combine connection to the header LOCKED properly. The header calibration must be performed with the header tilt cylinder fully retracted (header tilted back), center sensors unlocked and lowered, and dividers installed. This initial calibration must be done in FLEX mode, so that all sensors get calibrated.

1. On the AUTOMATIX display, enter the calibration mode and follow the instructions.
2. When requested to lower the header make sure the knife is fully pushed up and stop at this point. Do not go any further..
3. You may have to put a wood block under the divider extensions to ensure that they deflect UP fully during the calibration. Check this when confirming previous step.

⚠ WARNING!

Shut OFF engine, set parking brake, and remove the key and wait for all moving parts to stop before exiting the cab.

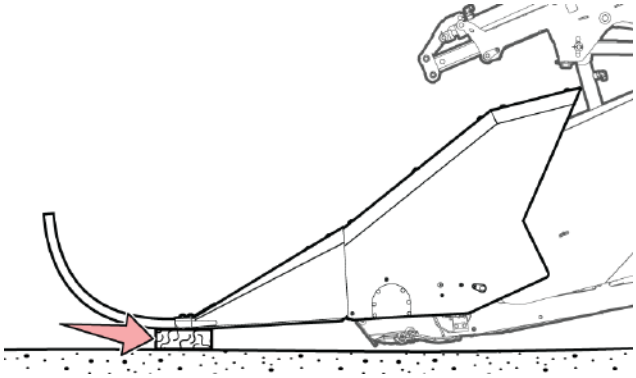


Fig. 4 - Use wood block to ensure full divider deflection

STOP IMPORTANT!

It is important to make sure that the divider sensor goes through the complete range of motion during calibration.

4. Lower the header fully down and then get out and lift the dividers up, to see the size of the block you will need. It is very important that the dividers get calibrated for their FULL range of motion.
   - Blocking will depend on the type and position of your divider extensions and whether or not you have skid shoes installed. Ideally, skid shoes are fully up or removed for FLEX cutting, unless it is desired to cut in FLEX mode at a pre-set height above the dirt.
5. When requested to raise the header 3 feet up, ensure the crop dividers are NOT touching at this point.
6. When done, you should see “Calibration Completed NORMALLY”. If not, troubleshoot and repeat.
7. Confirm the header calibration was completed sucessfully by looking at the 2nd INFO (press the info button twice) screen on the AUTOMATIX display. It shows the calibrated sensors in a range of 0 to 100 percent.

100	100	100	100%
100	100	100	100%

   - **Top row:** Left Divider, Left Flex, Right Flex, Right Divider
   - **Bottom row:** outer left center sensor, inner left center sensor, inner right center sensor, outer right center sensor.

NOTE:

Not all models have four center sensors. If four center drop down sensors are installed there will values in all four locations in the bottom row.

8. Lift and lower the header and confirm that all the values show the full range of 0 to 100 percent. If not, troubleshoot and repeat.

1.4 - Initial Combine Calibraiton

IMPORTANT!

Perform this step, only after sections 1.1, 1.2 and 1.3 are complete.

The combine must be calibrated to work correctly with the header. Ensure the header is in FLEX mode and the tilt cylinder is fully retracted.

1. On the **COMBINE** display, enter the calibration mode and follow the instructions.

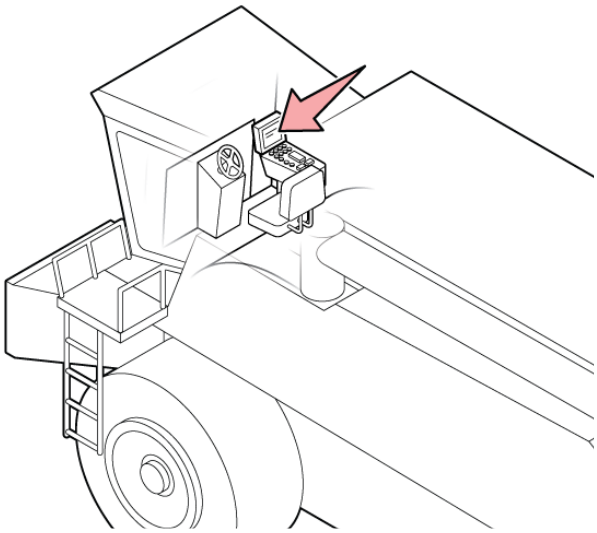


Fig. 5 - Perform COMBINE calibration

2. Confirm the combine completes the calibration procedure successfully. If not, troubleshoot and repeat. To test the combine calibration:
    - Lift the header straight up to the top and hit resume. Watch for correct and accurate positioning to setpoint. Once this is confirmed working, then:
    - Lift the header all the way up and TILT it over fully to one side and hit resume. Watch that low side stops pushing down and header levels off before going to final setpoint. If this is working then you are good to go.

1.5 - Combine Settings for Header Height

The AirFLEX Quick Start guide gives combine specific instruction for combine settings for header height performance. There are some common concepts that we will review here. Variables to adjust, relate to height positioning and lateral tilt positioning:

- Lift and Drop rate settings set the max speed of valve functions.
  - When manually positioned, the header should move from full down to full up in about 5 seconds. (faster)
  - When manually positioned, the header should move from full up to full down in about 7 seconds. (slower)
- Height and Tilt sensitivity sets the rate of acceleration to the max speed set in the previous step.
- The lift sensitivity and the lateral tilt sensitivity should not be similar in value.
  - Normally the height sensitivity would be adjusted as high as possible until it starts to hunt, and then backed off in 10% increments until stable. E.g. hunts at 100, back off to 90, then 80… until hunting is not detected. Let's say the result is 80 (for this example).
  - Normally the lateral tilt sensitivity would be the height sensitivity (80), divided by 2 (40), minus 10% (4), for a resulting setting of 36.
  - The purpose of this is to ensure that one function is significantly more active than the other. This provides the best response in the header height control system on the combine.

NOTE:

In some cases (smaller combines), it may be better to have the lateral tilt have the higher setting and the lift, the lower setting. This improves pitching stability on smaller platforms.

1.6 - Set Cutting Height and Adjusting During Harvest

Setting your cutting height is straight forward, but when using the subframe sensors pay careful attention as the process will be different than the other two modes.

1.6.1 - RIGID MODE: Divider Sensors

Ensure the header is tilted all the way OUT (tilt cylinder extended).

1. With the header tilted fully OUT, lower the header until at your desired cutting height.

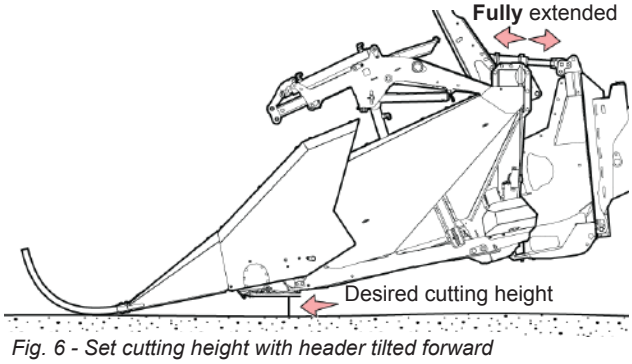


Fig. 6 - Set cutting height with header tilted forward

2. Save this setpoint on the combine: see Quick Start Guide for combine specific instructions.
3. Adjust your cut height using the combine controls

NOTE:

Once RIGID divider cut height set point is set, you can now set your center limit warning if you desire. The center limit function allows you to set a center height warning point using the center drop down rollers while in RIGID divider mode. This function alerts you when the center of your header is getting close to the ground terrain while operating. Please refer to section “2 - RIGID Center Limit Function Supplemental Information” on page 17 in back of this supplement for more information on this function and how to set the center warning point.

If you do not wish to use the center limit warning function, you may lock your drop down sensors in up position to reduce wear and tear on them during operation

1.6.2 - RIGID MODE: Center Drop Down Sensors

Ensure the header is tilted all the way back (tilt cylinder fully retracted).

Center drop down sensors can be used when you wish to lock up your floating dividers or when you are using your vertical shear option

1. With the header tilted all the way back (tilt cylinder fully retracted), lower the header until you are at your desired cutting height..

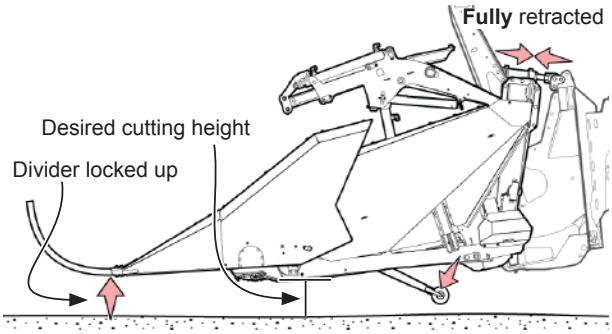


Fig. 7 - Header tilted BACK, at desired cutting height.

2. Save this setpoint on the combine: see Quick Start Guide or combine manual for combine specific instructions.
3. Adjust your cut height using the combine controls.

NOTE:

Center Limit warning cannot be used while in Center Drop Downs Sensors Rigid mode

1.6.3 - FLEX MODE: Cutter Bar Sensors:

Ensure the header is tilted all the way BACK (tilt cylinder fully retracted).

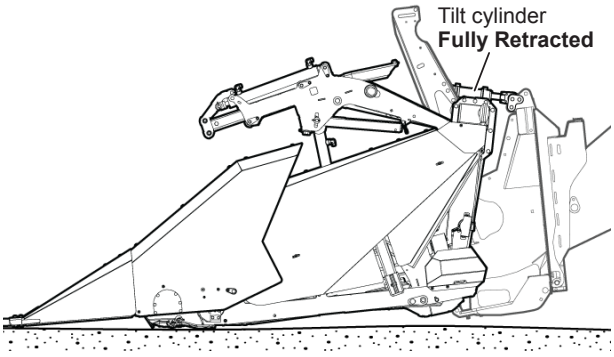


Fig. 8 - Header tilted BACK

1. Press the INFO button on the Automatix control panel until the header height informaiton is displayed.

2. With the header tilted fully BACK, lower the header until the cutter bar is pushed all the way up (no bars on the header height display).

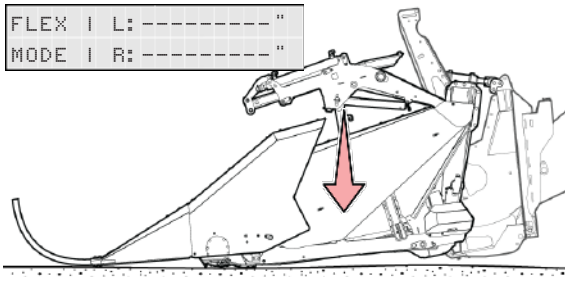
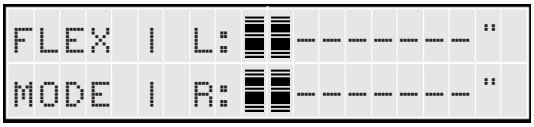


Fig. 9 - Header lowered all the way down.

3. Lift the header until 1.5 to 2 bars show on the AUTOMATIX bar-graph.



4. Save a setpoint on the combine for this position.
    - In FLEX mode we always want this setting to be 1.5 to 2 bars.

1.7 - Combine Calibrations in the Field

NOTE:

The preceding pages, detail INITIAL setup procedures. They are designed to complete the initial setup process in the simplest way, with the fewest steps. When running in the field, further calibrations may be required.

Alternate calibration procedures are available to match the mode the equipment is operating in, while performing field work.

Combine header height calibrations can be performed in Rigid as well as Flex mode. The procedures here, allow calibrations to be performed, without changing your operating setup and to save time during harvest. Combine calibrations should be done in optimal locations with hard flat ground, under both the header and the combine. Calibrations done poorly, will result in frustrating performance issues in the field.

1.7.1 - RIGID MODE: Divider Sensors:

1. With the header tilted fully out (tilt cylinder extended), lower the header until the dividers just touch the ground.

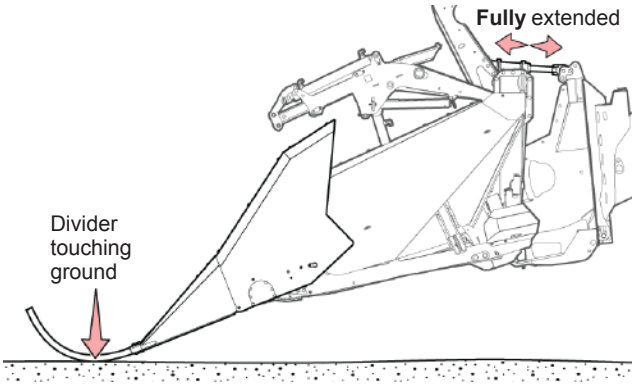


Fig. 10 - Tilt fully forward & lower until dividers touch ground

2. You will probably have to put a block of wood under the divider extensions to ensure that they deflect UP fully during the calibration.
    - Lower the header fully down and then get out and lift the dividers up, to see the size of the block you will need. It is very important that the dividers get calibrated for their FULL range of motion.

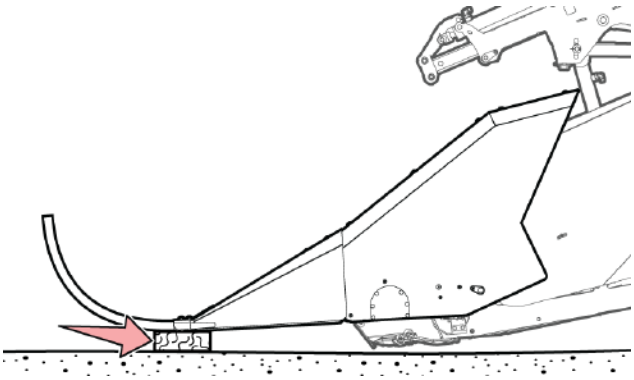


Fig. 11 - Use wood block to ensure full divider deflection

NOTE:

Blocking will depend on the type and position of your divider extensions and whether or not you have skid shoes installed. Ideally, skid shoes are fully up or removed for FLEX cutting, unless it is desired to cut in FLEX mode at a pre-set height above the dirt.

3. On the COMBINE display, enter the calibration mode and follow the instructions.

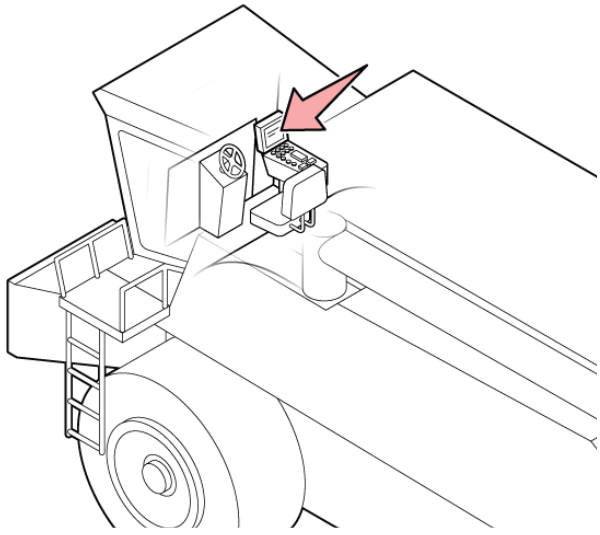


Fig. 12 - Perform COMBINE calibration

4. Confirm the combine completes the calibration procedure successfully. If not, troubleshoot and repeat. To test the combine calibration:
    - Lift the header straight up to the top and hit resume. Watch for correct and accurate positioning to setpoint. Once this is confirmed working, then:
    - Lift the header all the way up and TILT it over fully to one side and hit resume. Watch that low side stops pushing down and header levels off before going to final setpoint. If this is working then you are good to go.

1.7.2 - RIGID MODE: Center Drop Down Sensors:

1. With header tilted all the way back (tilt cylinder fully retracted), center drop down sensors and dividers unlocked, level the header by making sure the divider tips are just touching the ground at the same time.

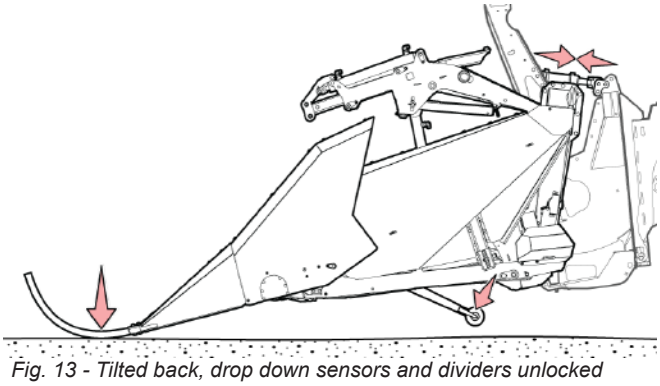


Fig. 13 - Tilted back, drop down sensors and dividers unlocked

2. On the COMBINE display, enter the calibration mode and follow the instructions.

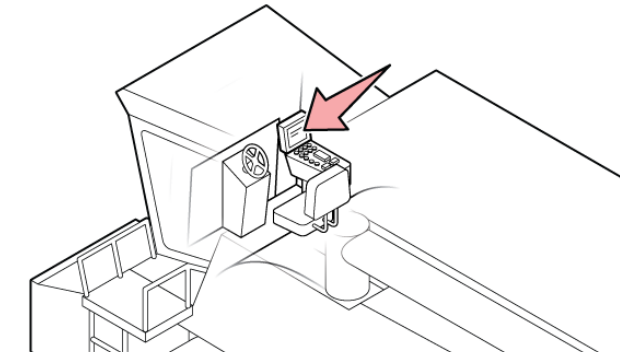


Fig. 14 - Perform COMBINE calibration

3. Confirm the combine completes the calibration procedure successfully. If not, troubleshoot and repeat. To test the combine calibration:
    - Lift the header straight up to the top and hit resume. Watch for correct and accurate positioning to setpoint. Once this is confirmed working, then:
    - Lift the header all the way up and TILT it over fully to one side and hit resume. Watch that low side stops pushing down and header levels off before going to final setpoint. If this is working then you are good to go.

1.7.3 - FLEX MODE: Cutter Bar Sensors:

Ensure the header is tilted all the way BACK (tilt cylinder fully retracted).

1. With the header tilted fully BACK, lower the header until the dividers just touch the ground.

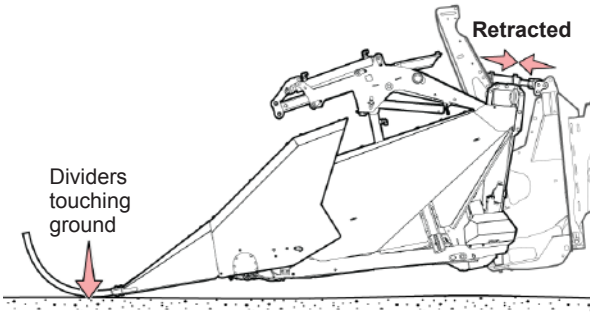


Fig. 15 - Tilt back & lower until dividers touch ground

2. On the COMBINE display, enter the calibration mode and follow the instructions.

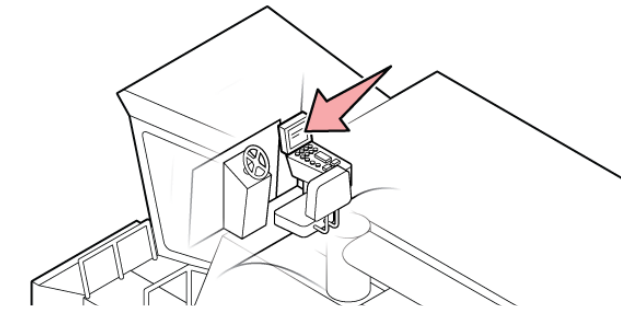


Fig. 16 - Perform COMBINE calibration

3. Confirm the combine completes the calibration procedure successfully. If not, troubleshoot and repeat. To test the combine calibration:
    - Lift the header straight up to the top and hit resume. Watch for correct and accurate positioning to setpoint. Once this is confirmed working, then:
    - Lift the header all the way up and TILT it over fully to one side and hit resume. Watch that low side stops pushing down and header levels off before going to final setpoint. If this is working then you are good to go.
4. Adjust your combine header lift and tilt sensitivities to achieve smooth but responsive positioning without hunting.

2 - RIGID Center Limit Function Supplemental Information

2.1 - Please Note

The center limit function is for use with 2017 and earlier AirFLEX 200 series headers which have drop down roller sensors under the table. This function can only be used on Automatix software version 3.16.100 or newer.

If unsure, check the underside of the header. There will be 2 to 4 drop down roller sensors attached to the side of the struts.

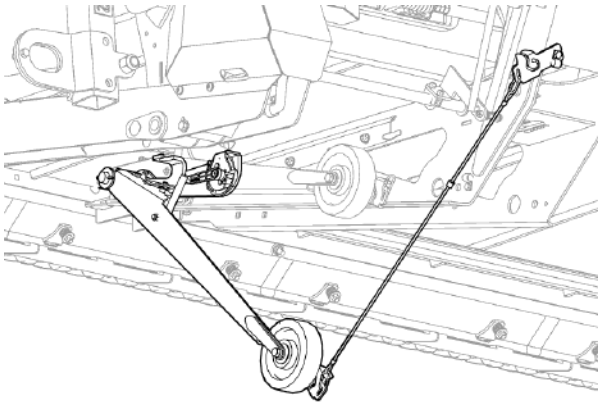


Fig. 17 - Drop down roller sensor

⚠ WARNING!

Shut OFF engine, set parking brake, and remove the key and wait for all moving parts to stop before exiting the cab.

STOP IMPORTANT!

Not for use with for 2018 AirFLEX 200 Series with sub frame sensing.

This function is disabled by default as 2018 headers do not have drop down sensors

2.2 - RIGID Center Limit Purpose

The system allows you to set a warning point on the center drop down roller sensors when the header is in rigid divider mode.

When harvesting in rigid mode using the divider sensors, the divider sensors gives the best detection of terrain changes in front of the cutter bar, however, the dividers are not detecting terrain changes in the middle area of the cutter bar, only the ends.

The header height rigid center limit function allows you to be alerted to rising terrain detected from the drop down sensors at their location (closer to the center of the header).

2.3 - Using the Header Height RIGID Center Limit Function:

2.3.1 - To enable the center limit function in the service menu:

5. Press and hold the 2 left hand black buttons until the service menu appears (5 seconds)

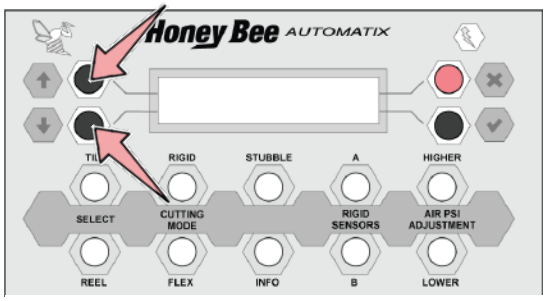


Fig. 18 - Hold these buttons until service menu appears

6. Press the lower left black button until the h/h rigid center limit screen is showing

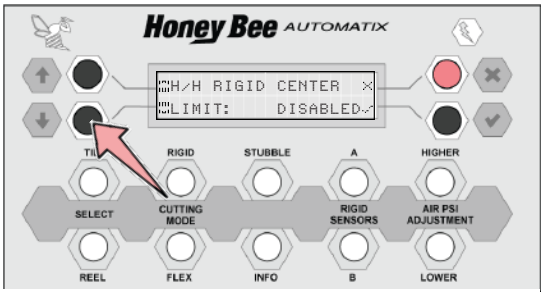


Fig. 19 - Press the down button until center limit shows

7. If the setting already shows enabled, skip to step 11.
8. Press the lower right black button (check) to allow a setting change (flashing)

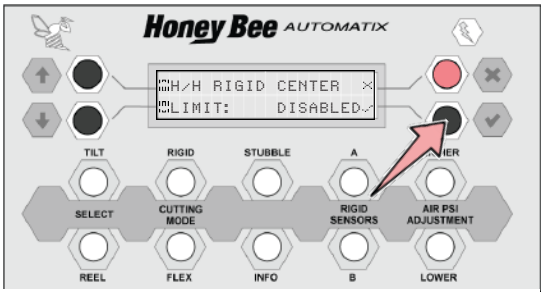


Fig. 20 - Press checkmark button to change the value

9. Press the left black button (down arrow) until enabled is showing.

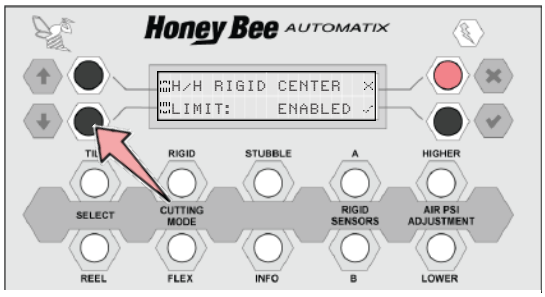


Fig. 21 - Press the down button until enabled

10. Press the lower right black button (check mark) to save the change (stops flashing)

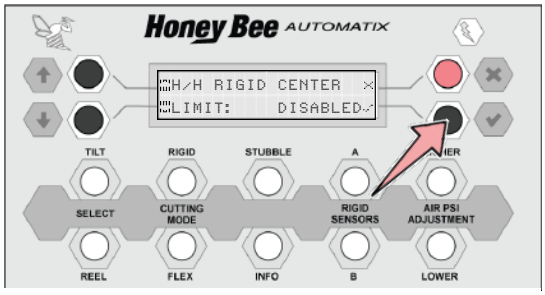


Fig. 22 - Press checkmark button to save changes

11. Press and hold the top right red button until the main screen returns (5 seconds)

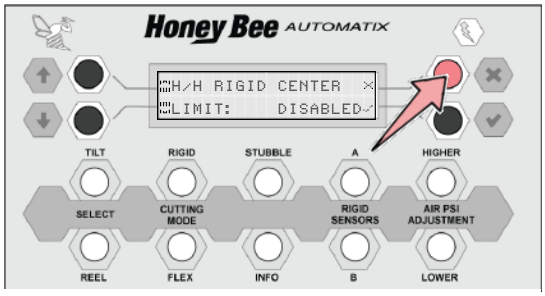


Fig. 23 - Hold red X button to exit system menu

2.3.2 - To set the center limit warning height:

1. This function is for use in divider sensor mode only. You can verify this by looking at the “A” button, the button should be lite to indicate the divider sensor cutting mode is active.
    - The divider mode should be active and its button (‘A’/’Out’/’Higher’) lit.

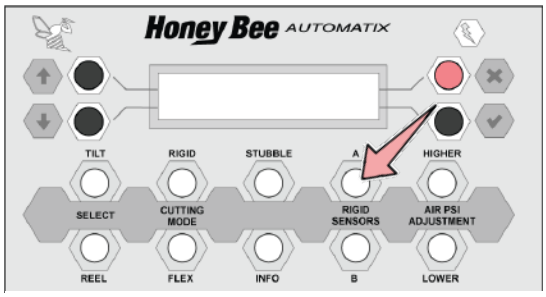


Fig. 24 - Divider mode should be active (this button lit)

IMPORTANT!

Your divider cut height setpoint needs to be at least 4 inches above ground.

If you are cutting lower than 4 inches above ground, center sensors should be used instead of the divider sensors and center limit function.

2. Lower the header until it is 2 inches off the ground. This will be the warning height.
3. Press and hold the ‘A’/’OUT’/’HIGHER’ button until the display shows ‘CENTER LIMIT SET’. See the illustration below for button location.

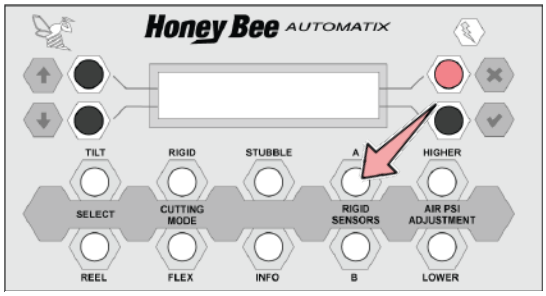


Fig. 25 - Press and hold ‘A’/’OUT’/’HIGHER’ button

    - Release the button and resume normal operations using the dividers

IMPORTANT!

The divider sensor mode cutting height setpoint must be higher than the limit height by a minimum of 2 inches, so that the center limit warning is not going off all the time.

2.3.3 - What to expect when operating with center limit active.

While running at your divider cut height, the combine header height system will maintain this height as detected by the divider setpoint only.

If the ground under the header rises between the dividers, nothing will happen until the knife is within 2 inches of the ground (or whatever height you set your limit to).

At the limit setpoint, the display will beep and warn you with a visual message to lift the header out of hazard.

IMPORTANT!

The combine will not automatically raise the header based on the center limit warning, it is an operator warning only and requires you to manually lift the header

2.3.4 - To turn off the center limit

1. Press and hold the ”B” button.

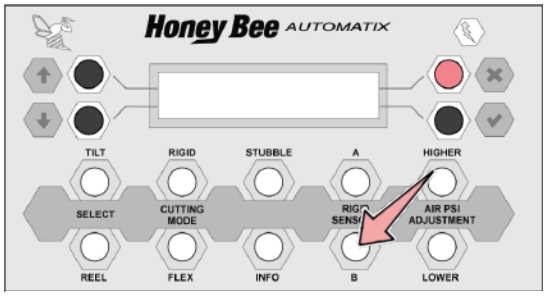


Fig. 26 - Press and hold ‘B’/’BACK’/’LOWER’ button

2. When holding the button, the display will beep and show “center limits cleared successfully”
3. Release the button and note that you are now in drop down sensor mode. This is indicated by the (‘B’/’BACK’/’LOWER’)button being lit.
4. To go back to divider mode, press the “A” button (2018), or the “out” button (2017), or the “higher” button (2016-).

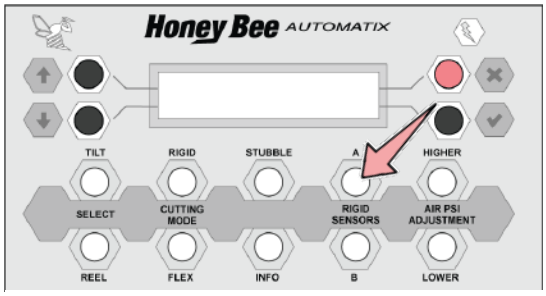


Fig. 27 - Reactivate divider mode with this button

- You may now resume divider header height operation, without a center warning.

2.3.5 - To turn on the center limit again

Go back to section 1.3.2 and set a new center limit.

If you have set a center limit and turn off the combine then the previous center limit setpoint and mode will be remembered.

IMPORTANT!

When you are in center sensor mode (lower button lit), there is no need for center limit warning, and it is not active. In the center sensor mode, all of your drop down sensors are active auto header height sensors for the combine, and will detect the terrain at their locations normally.