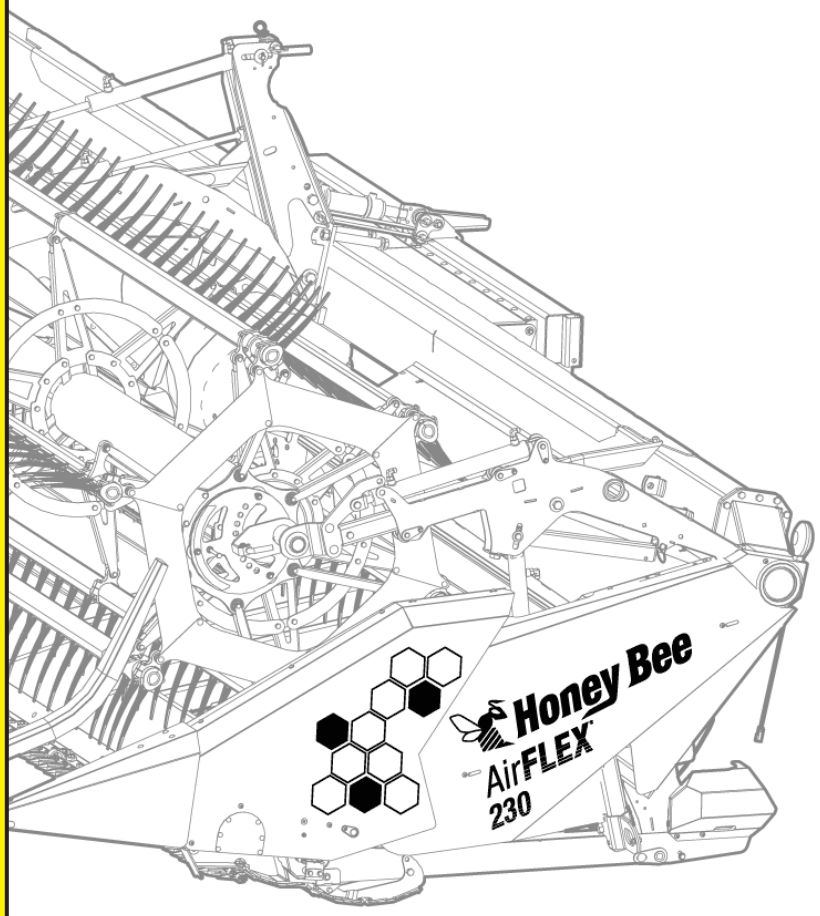
2018

AirFLEX

200 Series

FLEX Header
Calibration Guide



Honey Bee®

Revision 1.0

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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.

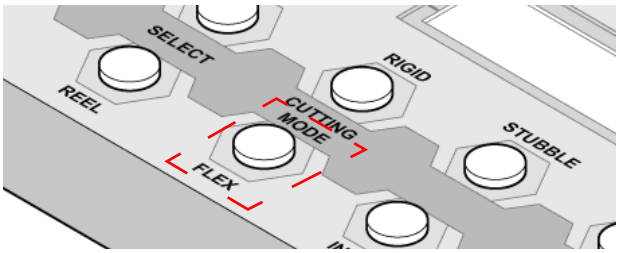


Fig. 1 - Select FLEX mode

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.

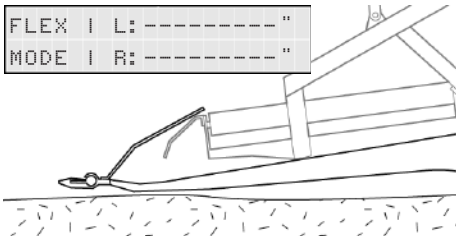
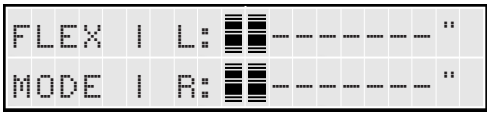


Fig. 2 - Cutterbar pushed up

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.

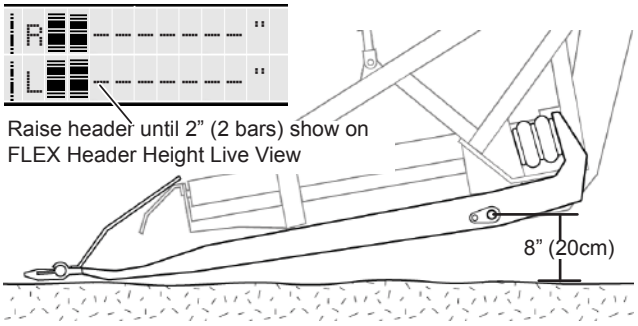


Fig. 3 - Optimal Feeder House Angle

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 will be performed with the header tilted OUT fully (header tilt cylinder fully extended), and with the gauge wheels & dividers attached. This initial calibration must be done in FLEX mode, so that all sensors get calibrated.

1. With the header tilted fully out, lower the header until the dividers touch the ground. The header should be low enough so you can reach the gauge wheel cranks.

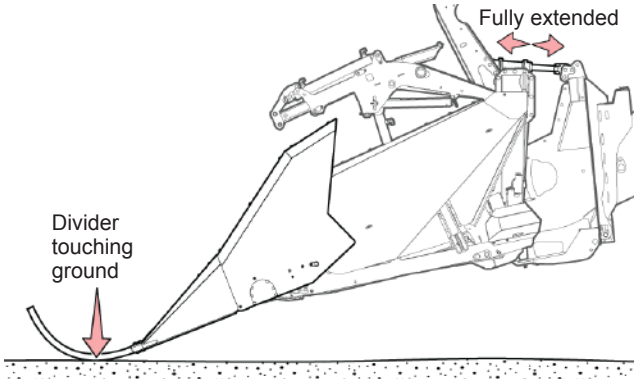


Fig. 4 - Tilt forward and lower until divider touches ground

⚠ WARNING!

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

2. Lower the gauge wheels until the indicator gauge is showing 10 inches. Use the same setting for both sides.

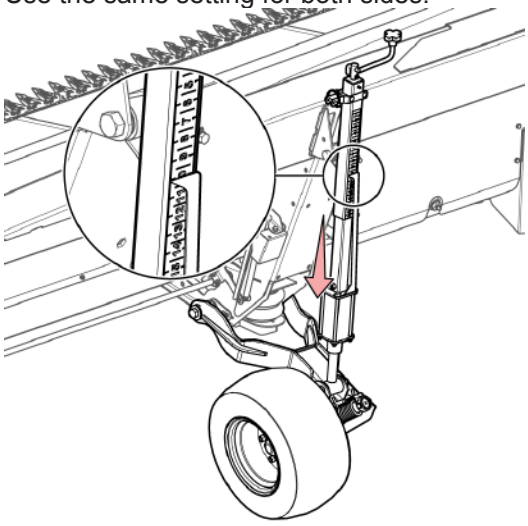


Fig. 5 - Lower gauge wheel to #10

3. On the AUTOMATIX display, enter the calibration mode and follow the instructions.
4. When requested to lower the header until the knife is fully pushed up, the subframe should be pushed all the way down until it stops moving (to ensure full deflection of the subframe header height sensors).
    - Confirm this by looking at the subframe airbag straps to ensure they are straight/tight.

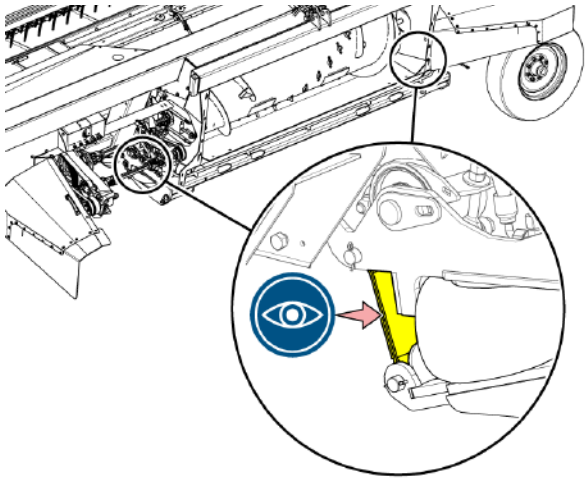


Fig. 6 - Ensure staps are tight.

⚠ WARNING!

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

6. 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.

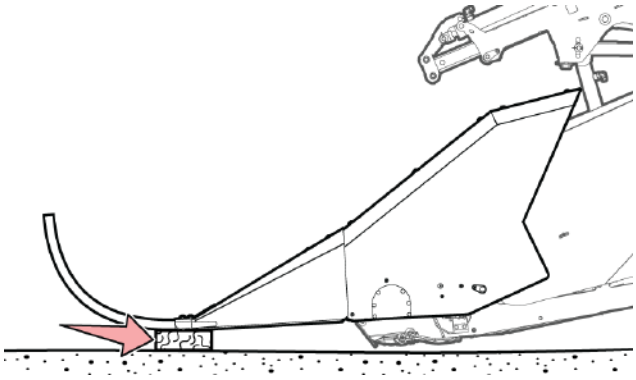


Fig. 7 - Use wood block to ensure full divider deflection

IMPORTANT!

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

7. 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.
8. When requested to raise the header 3 feet up, ensure the gauge wheels are NOT touching at this point (no adjustment to them should be required).
9. When done, you should see “Calibration Completed NORMALLY”. If not, troubleshoot and repeat.
10. 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	????%

   - **Top row:** Left Divider, Left Flex, Right Flex, Right Divider
   - **Bottom row:** Not used, inner left center sensor, inner right center sensor, not used
11. 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, tilted all the way OUT (tilt cylinder fully extended), and with the gauge wheels retracted and out of the way. We need the gauge wheels in position, to allow the combine feeder house to push down low, without tilting the header back.

1. With the header tilted fully out, lower the header until the dividers touch the ground
    - The header should be low enough so that you can reach gauge wheel cranks.

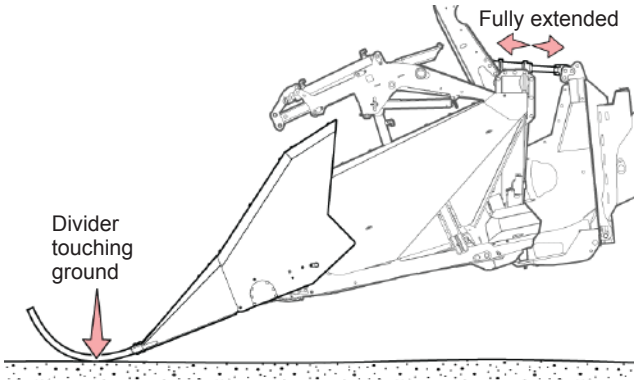


Fig. 8 - Tilt forward and lower until divider touches ground

2. Lower the gauge wheels until the indicator gauge is showing 10 inches. Use the same setting for both sides.

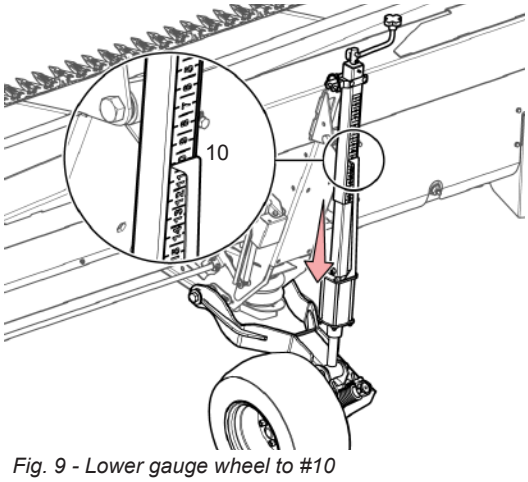


Fig. 9 - Lower gauge wheel to #10

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

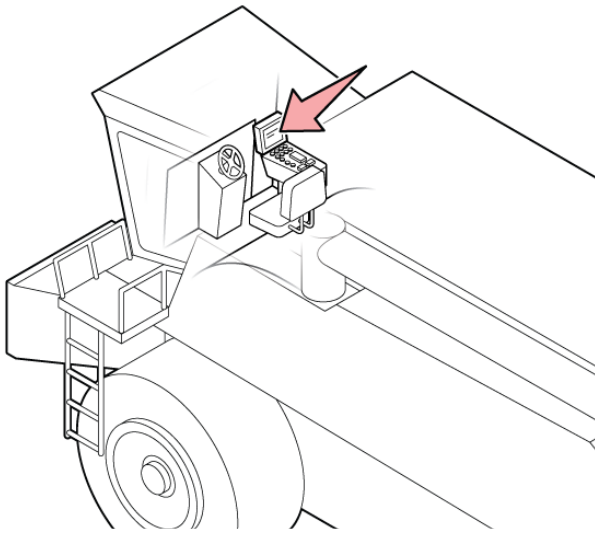


Fig. 10 - Perform COMBINE calibration

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.

1.5 - 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), with gauge wheels retracted out of the way to start.

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

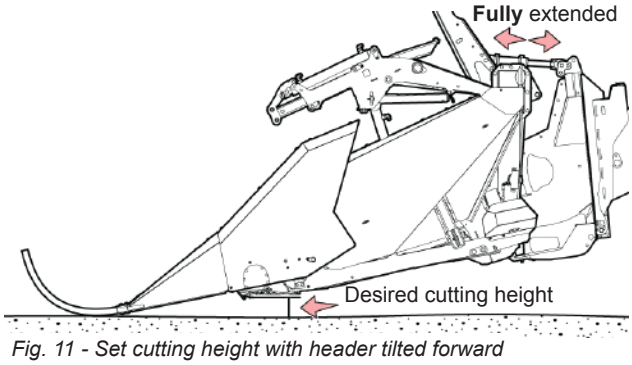


Fig. 11 - Set cutting height with header tilted forward

2. Save this setpoint on the combine: see Quick Start Guide for combine specific instructions.
3. Lower the gauge wheels until they are touching the ground. They should NOT be compressed.

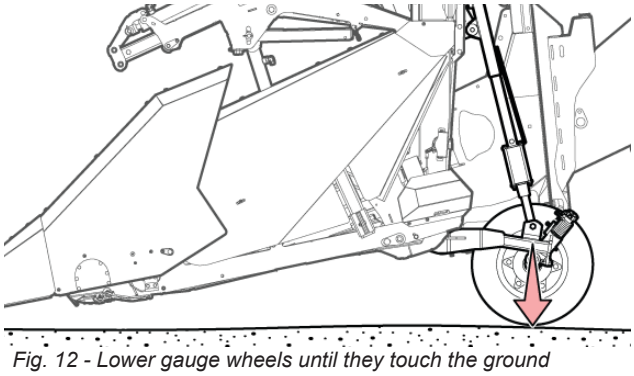


Fig. 12 - Lower gauge wheels until they touch the ground

IMPORTANT!

In **divider sensor** mode, gauge wheels only provide stabilization, and should not impact header height.

4. Adjust your cut height using the combine controls

1.6.2 - RIGID MODE: Subframe Sensors

Ensure the header is tilted to HALF way out (tilt cylinder extended half way through its range), with the gauge wheels retracted and out of the way to allow the combine feeder house to push down low, without tilting the header back.

1. Confirm the RIGID air pressure is set to 90.

Fig. 13 - Center Sensor Mode standby screen

2. With the header level and tilted to HALF the tilt range, lower the header to your desired cut height.

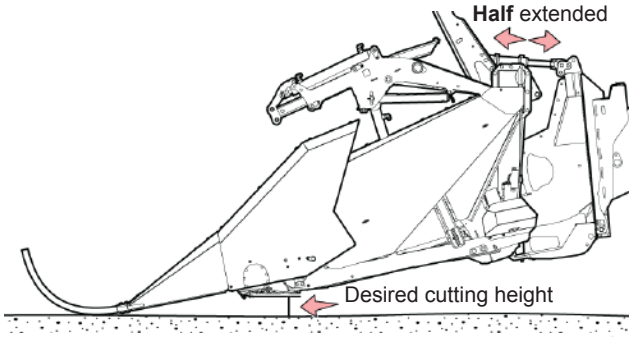
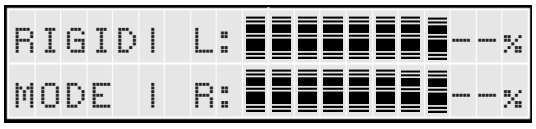


Fig. 14 - Set cutting height with tilt cylinder HALF extended

3. Lower the LEFT gauge wheel until it is touching the ground.
4. Raise the header a few inches and lower the LEFT gauge wheel an additional 1.5 inches.
5. Take note of the height indicator on the LEFT gauge wheel and lower the RIGHT gauge wheel to the same value.
6. Lower the header until AUTOMATIX bar-graph is showing 70-80% (missing 2 or 3 bars) and save the combine setpoint.



IMPORTANT!

This setpoint does not change after it is set.

IMPORTANT!

Any major change to your cut height are made only with gauge wheel adjustments.

IMPORTANT!

Minor changes to your cut height can be made using the header tilt cylinder. Running the header in the middle of the tilt range will allow cutting height adjustment in both directions: higher and lower.

1.6.3 - FLEX MODE: Cutter Bar Sensors:

Ensure the header is tilted all the way BACK (tilt cylinder fully retracted), with the gauge wheels removed or fully retracted (UP and NOT touching the ground).

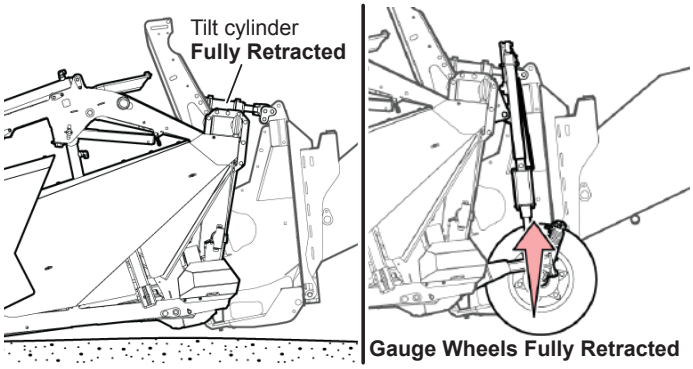


Fig. 15 - Header tilted BACK, gauge wheels retracted.

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).

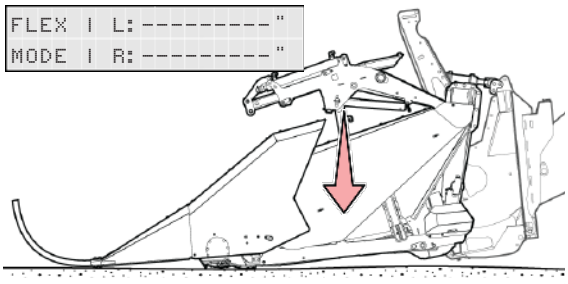
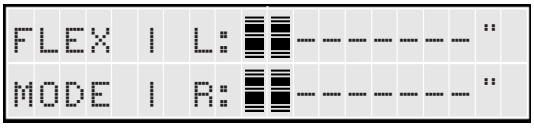


Fig. 16 - Header lowered all the way down.

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.

IMPORTANT!

You should NEVER use gauge wheels in FLEX mode. They will fight the header height system and do the opposite of what you want resulting in damage to the header.

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.

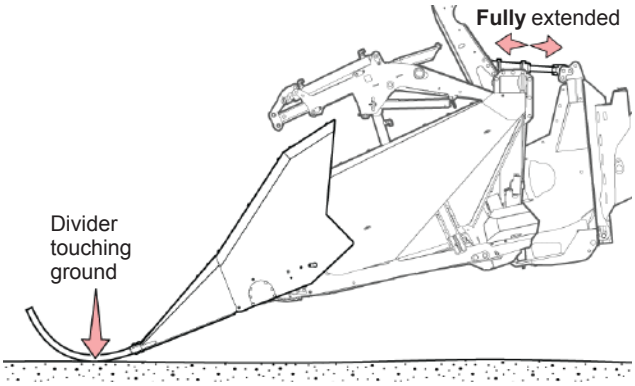


Fig. 17 - Tilt fully forward & lower until dividers touch ground

2. Lower the gauge wheels until the indicator gauge is showing 10 inches. Use the same setting for both sides.

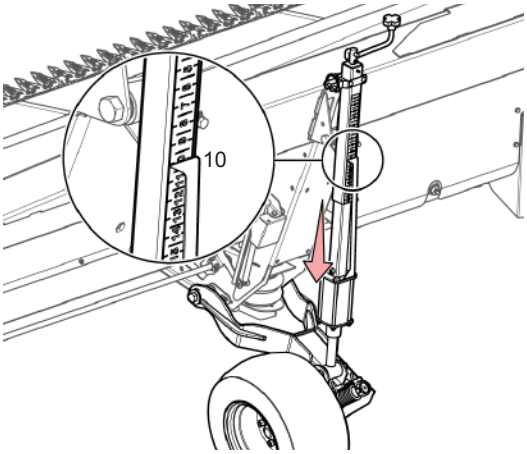


Fig. 18 - Lower gauge wheel to #10

3. 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.

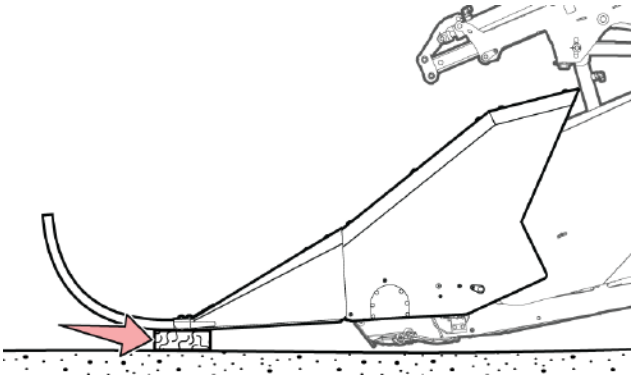


Fig. 19 - Use wood block to ensure full divider deflection

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.

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

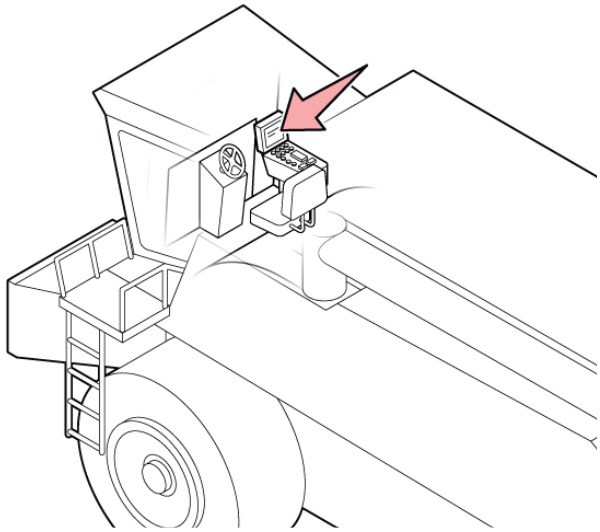


Fig. 20 - Perform COMBINE calibration

5. 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: Subframe Sensors:

1. With the header tilted HALF out, lower the header until the dividers just touch the ground.

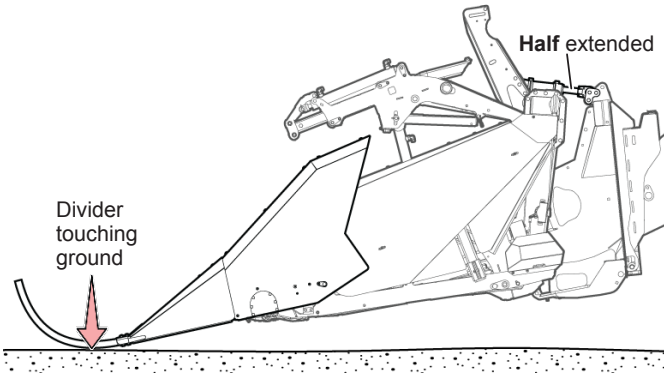


Fig. 21 - Tilt half-way forward & lower until dividers touch ground

2. Lower the gauge wheels until the indicator gauge is showing 10 inches. Use the same setting for both sides.

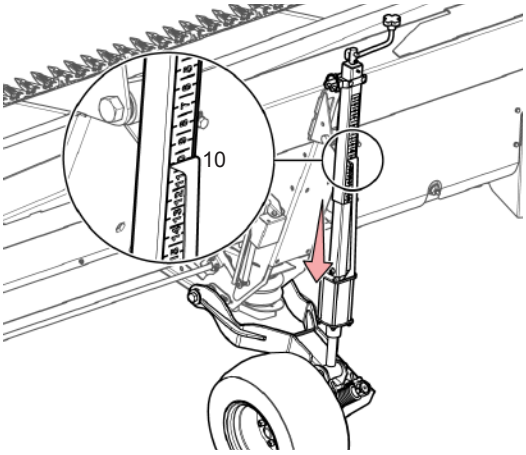


Fig. 22 - Lower gauge wheel to #10

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

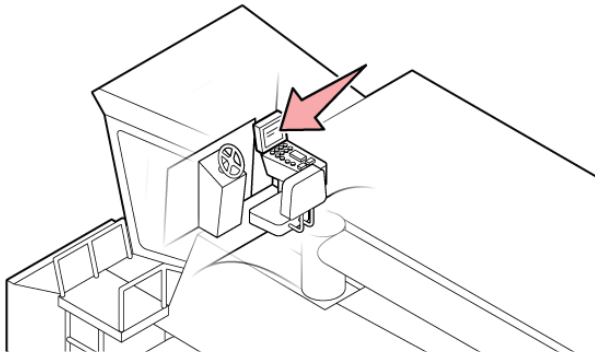


Fig. 23 - Perform COMBINE calibration

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.

1.7.3 - FLEX MODE: Cutter Bar Sensors:

Ensure the header is tilted all the way BACK (tilt cylinder fully retracted), with the gauge wheels removed or fully retracted out of the way: THIS SHOULD BE THE CASE ALREADY IF YOU ARE RUNNING IN FLEX.

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

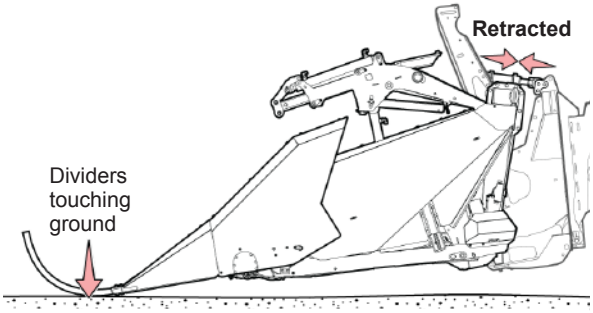


Fig. 24 - Tilt back & lower until dividers touch ground

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

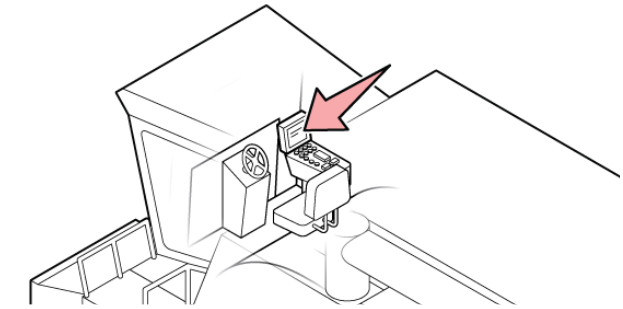


Fig. 25 - Perform COMBINE calibration

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.