COMBINE AHC

INSTALLATION & OPERATION MANUAL

LEXION

09010501I

HEADSIGHT™

HARVESTING SOLUTIONS

HEADSIGHT.COM | 574.546.5022

About Headsight

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About this Manual

How to use this manual

The instructions in this manual are in the order that they should be completed for new installations. Complete all applicable instructions in each section before proceeding. Note that some sections are labeled to indicate they only apply to certain machines or applications. An index is available in the front of the manual to help find technical information for previously installed systems.

This icon designates information of which you should take note.

This icon indicates a special tool needed for a given task.

This icon designates an important instruction.

Suggestions

If you have any suggestions to improve this manual please call 574-546-5022 or email info@headsight.com.

Disclaimers

Protected by one or more of the following patents and published applications: US6883299; US7310931; US7647753; US9609806; US9609806; US10222410; US10244680; EP2955993(DE,ES,FR,IT,UK); EP2956851 AU2004203614; BR112015019262; BR112015019286; CA2900987; CA2900994; WO20180152266

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Installation

Before working on combine or under header always:

1. Perform all combine and header manufacturer safety precautions for servicing header.
2. Insert stop to prevent movement of header.
3. Set combine parking brake.
4. Turn off combine and remove key from ignition.
5. Disconnect all drive shafts from the header.

Complete the installation portion of the header manual before continuing.

Automatic Header Type Identification

There are 5 different types of AHC used on these combines. Determining which type is used is crucial to correct operation.

Type 1: 400

- All 400 series combines use lift springs

Type 2: 500S

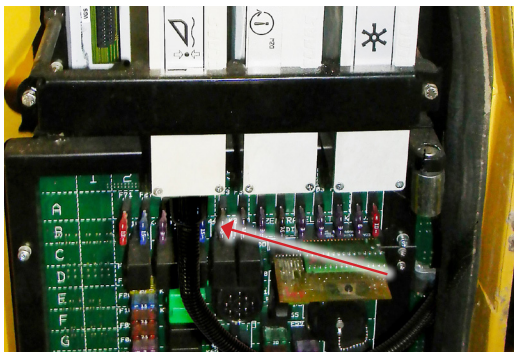
- All 500 series combines with lift springs

Type 3: 500A

- 500 series combines with accumulators
  - Does NOT have the Claas 00 1498 048 0 AHC update kit. (See Type 4 below for identification)

Type 4: 500U

- 500 series combines with accumulators (HP feederhouse)
- With the Claas 00 1498 048 0 AHC update kit.
  - AHHC Module has wiring out bottom.
  - See Advanced Info, Identifying Installation of....for more information on this kit.



Type 5: 600, 700 & 8000

- All 600, 700 & 8000 combines

Insight® Systems

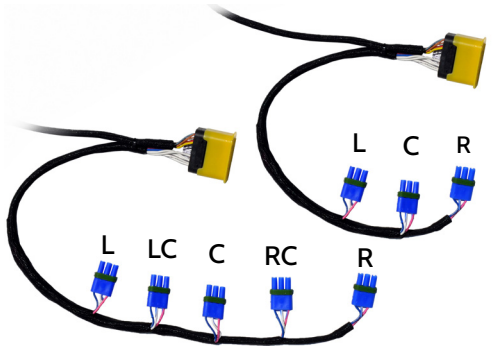
Insight® Box Mounting

1. Connect Insight box to main Headsight harness.
2. Hold box at rear of header so Headsight harness can reach feeder house electrical connection of combine and mark mounting hole locations.
3. Drill mounting holes using ¼" drill bit.
4. Secure box to header using hardware provided.

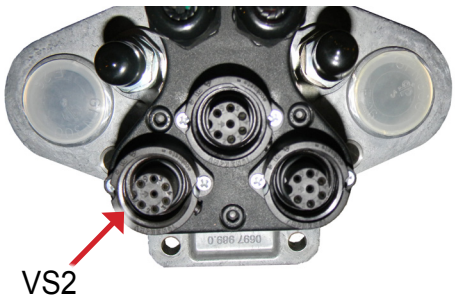
5. Connect sensor wiring to main Headsight harness.
   - Sensor location as viewed from operator's seat

	Left	Left Center	Center	Right Center	Right
2 Sensor	X				X
3 Sensor	X		X		X
4 Sensor	X	X		X	X
5 Sensor	X	X	X	X	X

*L-Left, LC-Left Center, C-Center, RC-Right Center, R-Right



6. Connect Insight harness Y401/VS2 to VS2 on header side of multilink block.
   - Use receptacle marked with arrow in picture at right (VS2) (except MacDon)
   - MacDon only: Trace and disconnect OEM Float sensor harness at Multilink. Connect Headsight Adapter to that receptacle.
   - If your header does not have a multilink block as shown, contact Headsight or your dealer.



7. Mate the remaining connectors to the combine and header.

Pressure Sensor Bypass (4/500 Series only)

400-500R Lexion combines determine a percentage of the height control from the feederhouse lift pressure. This Insight feature bypasses the lift pressure for better operation on Off-Ground headers (corn, wheat, etc).

Do NOT install/connect the bypass harness for the following combine AHC types:

- Type 5: 6/700 & 8000.
- Type 4: 500U (Lexion Update kit performs similar function).
- All On-Ground header operation (flex headers, soybeans, pulse, etc.)

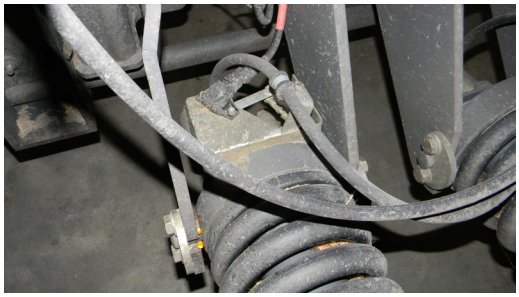
1. Assemble Y403/Y404 as shown in Wiring – Pressure Bypass Wiring
2. Connect Y405 (2 pin Weather-Pack plug) to Y402 on the Header Adapter harness (if equipped)
3. Leaving plenty of slack to connect to header, zip-tie Bypass Adapter to combine Multipoint cable assm.
4. Route wiring up from feederhouse connection across under cab, and down frame/hoses/wiring to feeder pressure sensor connection.
5. Connect Y403/Y404 (3 pin AmpSeal plugs) in-line to the pressure sensor.

Type 3: 500A combines

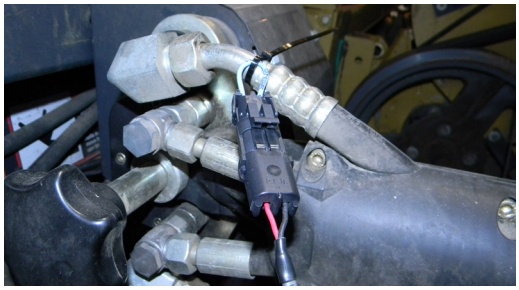
The header lift pressure sensor is located on back of the accumulator package, and has a GRAY sheathing on the integrated sensor harness. This wire runs up over the axle and back over the transmission. The connector is located above the combine's transmission.

Type 1: 400 & Type 2: 500S combines

A mechanical "spring compression" sensor is located at the back of the right lift ram. Unplug the OEM Harness from the sensor and T the Headsight harness in.



6. IMPORTANT: Install Y402J (2 pin Jumper plug) on Y405 when the Headsight system is disconnected, such as when a flex head is being operated.
7. Zip-tie the Y402J Jumper to the main Multipoint cable where you can easily plug the harness in for step 6 above.

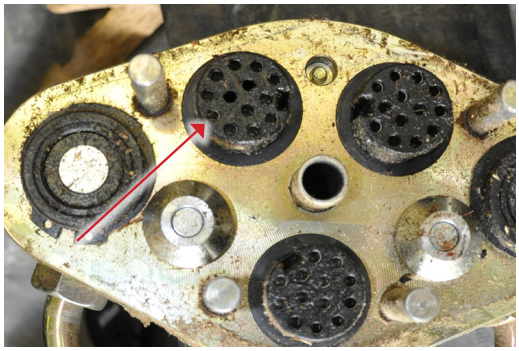


12V Power Test

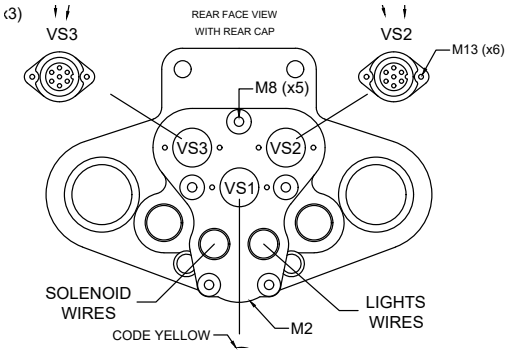
Complete the tests below to determine if you need to do the update. (Update should be very rare.)

1. Turn on engine. Make sure the roading switch is in field mode.
   - If the Insight or Horizon box turns on - You do not need to install the power wire. - Go to next section.
   - If the Insight or Horizon box does not turn on - Make sure the Adapter harness is plugged into VS2. Then continue with step 2.

2. Disconnect the Combine Multilink and use a voltmeter to measure pin 9 of the B housing on the Combine Multilink.
   - There is no 12V on pin B9
     - Find and repair 12V supply problem on combine (most likely issue!)
   - There is 12V on pin B9
     - Go to Step 3.



3. Connect the combine multilink to the header, and start the engine. Measure power on VS2, pin 6.
   - There is 12V on VS2, pin 6
     - STOP. Do NOT disassemble multilink. Check for Insight adapter harness fault.
   - There is no 12V on VS2, pin 6
     - Go to Advanced Info, 12V Power Wire Install, to install or repair the multilink power wire



Reel Enable Connection

This step is only applicable to Multilink assemblies provided by Headsight®.

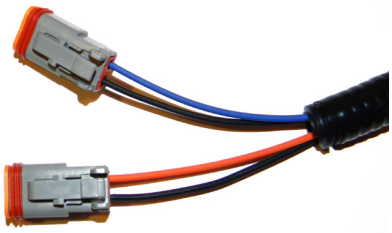
1. If your header needs reel drive flow (down corn reel, end augers, etc.), connect the mating 1p Weatherpack connectors, Y517 & Y518.
2. Otherwise leave them disconnected.

Reel/Deck plate/Fold Valve Connection

This step is only applicable to Multilink assemblies provided by Headsight®.

The Headsight® Multilink block is provided with either 2 or 4 valve connections. All are 2P DT plugs. Adapt to your type of valve connection as needed.

- Y413 & Y414
  - Orange and dark blue wires
  - Reel Fore/Aft, Deck Plate Open/Closed, Fold/Unfold
- Y411 & Y412
  - White and brown wires
  - Reel Up/Down
- All black wires are grounds. (Note: for ALL Lexion valve solenoids, Black (ground) must be pin 1)

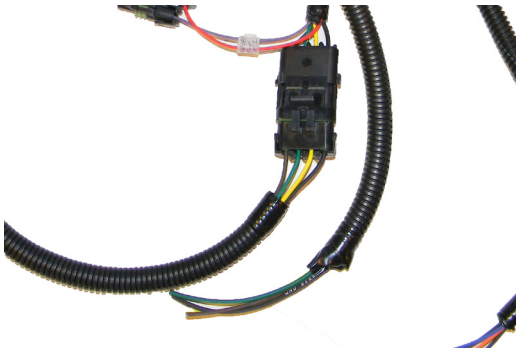


3. If the function operates backwards, switch the appropriate set of connectors to the opposite valves (Y413<->Y414, or Y411<->Y412).
4. VS1 has Reel speed, Reel position, and Deck Plate sensing available. See the Wiring Diagrams.
5. See the Mechanical Diagram for Pressure and Tank plumbing.

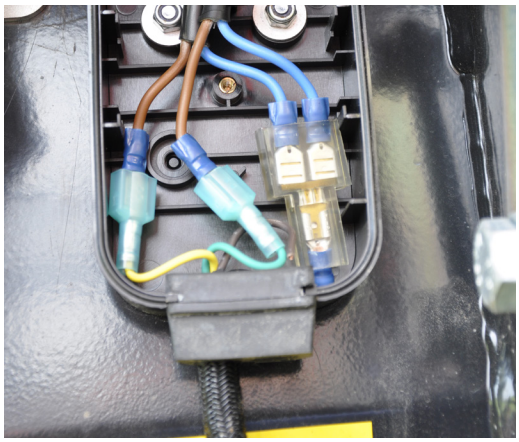
Lights Connection

For Headsight Multilink assemblies

1. If your header needs lights, the Headsight Multilink is wired with a standardized lights plug and a "tail"
   - 4 pin Weatherpack
     - Pin A - Black, Ground
     - Pin B - Yellow, Left Hazard
     - Pin C - Green, RIght Hazard
     - Pin D - Brown, Stubble Lights (if equipped)



   - Use HT3802 Lights Tail
     - Terminate/connect bare wires to header as needed.



For Geringhoff Multilink assemblies

1. The Geringhoff "black box" Lexion adapter has a EU style "trailer" plug for lights
2. Headsight has an adapter available for this plug, to our standard 4 pin Weatherpack.
   - Use HT3819
   - For heads with "loose wire conections
     - Connect HT3802 lights tail to HT3819
     - Terminate as above
   - For Patriot headers with connectors for Lights
     - Connect HT3821 adapter to HT3819
     - Connect HT3821 to X10 & X11 on header

Calibration

Setup Insight® Box

These steps must be performed the first time the Insight box is powered up and each time it is reset. They do not need to be redone each time the Insight box is calibrated. Read the Insight Overview section for basic information about how to use the Insight box.

1. Connect all wiring to Insight box and combine as described in previous section.
2. Start Combine.
3. On the Insight box.
    - Choose language
    - Choose "LEXION"
    - Choose the MY range
        - Type 1: 400, Choose 400
        - Type 2: 500S, Choose 500
        - Type 3: 500A, Choose 500
        - Type 4: 500U, Choose 6/700*
        - Type 5: 6/700/8000, Choose 6/700
        - *ALL type 4 combines should use Setup>>Combine Model >> 6/700 on Insight, even if the combine is a 500.
    - For 500 only: Does the combine have feederhouse lift springs? Choose Y/N.
        - Type 2: 500S, Choose Y
        - Type 3: 500A, Choose N
    - Choose the number of height sensors

Calibrate Insight

When you initialize Insight, you will be led directly to this calibration routine. If you wish to recalibrate at any time - select ">>Perform Calibration" on the Insight main menu.

Standard Calibration

1. Park the combine on a smooth, level surface - preferably a cement driveway or shop floor.
2. Follow on-screen instructions.
   - "Raise Header" all the way so that NO sensors touch the ground and press ✓ enter
   - "Fully Lower Header" all the way down on the skids and press ✓ enter
   - Go to Combine Ground Calibration section of this manual

If an error appears on the Insight box - see the Diagnostic section of this manual.

Foresight® Calibration (if equipped)

Foresight is an optional module to improve the performance of corn systems very near the ground. Each Insight box comes with a 5 hour free trial of Foresight. If you would like to purchase Foresight, contact Headsight.

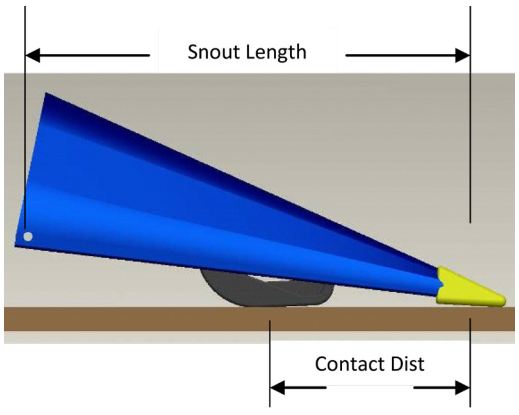
1. Park the combine on a smooth, level surface, preferably a cement driveway or shop floor.
   - If you are unable to find a smooth surface, disable Foresight and perform the standard calibration
2. Adjust the snout tip height.
   - The snouts should be level across the head and touch the ground at the same point
   - The snouts should touch the ground when the skid plates are 4–6" off the ground for most headers
3. Enable Foresight on the Insight Box.
   - Go to >>Setup>>Optional Modules>>Foresight>>Foresight Enable
   - Make sure Foresight Enable is Checked.
4. >>Perform Calibration - Follow on-screen instructions.
   - Park the combine on a smooth, level surface - preferably a cement driveway or shop floor.
   - "Raise Header" all the way so that NO sensors touch the ground and press ✓ enter
   - "Put Snout Tips On The Ground" until they just barely touch the ground and press ✓ enter
   - "Fully Lower Header" all the way down on the skids and press ✓ enter
   - Go to Combine Ground Calibration section of this manual.

If an error appears on the Insight box - see the Diagnostic section of this manual.

5. Set the Foresight Gain.
   - >>Setup>>Optional Modules>>Foresight>>Set Foresight Gain, in the Insight box
   - The initial gain setting depends on the header dimensions. To the right are example settings
   - For other headers and/or sensor combinations, the proper setting may be determined by:

$$\text{Gain} = \frac{\text{Snout Length}}{\text{Contact Distance}}$$

Headsight Sensor Wand Length	Gain
Position 1	3.5
Position 2	3.1
Position 3	2.8
Position 4 (longest)	2.5



6. Fine tune the gain setting.
   - Increase the gain for greater responsiveness near the ground
   - Decrease the gain if the header seems jumpy near the ground ONLY
   - If the header is jumpy with the points in the air, adjust the combine sensitivity NOT Foresight

Feathersight® Calibration (if equipped)

Feathersight is an optional module to improve the performance of grain systems. It uses both height sensors and the feeder house pressure sensor to allow seamless control from off ground to on ground harvesting.

- Insight automatically enables the pressure sensor when detected during calibration.
- If no pressure sensor was detected during calibration, Feathersight is not calibrated or enabled
- Pressure sensing may be manually enabled or disabled by selecting ››Setup››Optional Modules››Feathersight››Feathersight Enable
- Park the combine on a smooth, level surface - preferably a cement driveway or shop floor.

7. Follow on-screen instructions.
   - "Raise Header" all the way so that NO sensors touch the ground and press ✓ enter
   - "Lower Head to 4in. " until the skids are 4" off the ground and press ✓ enter
   - "Fully Lower Header" all the way down on the skids and ✓ enter
   - Go to Combine Ground Calibration section of this manual

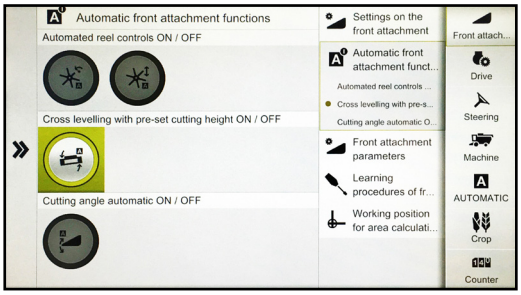
If an error appears on the Insight box - see the Diagnostic section of this manual.

Combine Calibration: 8000 Series

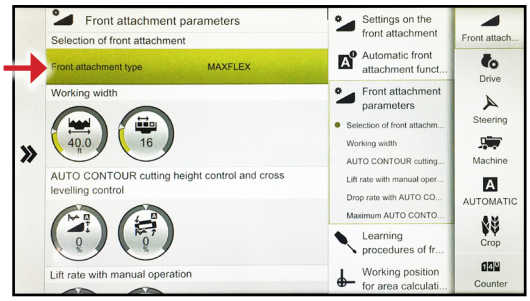
Note: Calibrations and parameter adjustments are only available in Expert/Professional mode on the 8000 series Cebis system. If you do not have these settings, check the Mode.

Setup

1. Choose "Front Attachment"
2. Choose "Automatic front attachment functions"
3. Turn ON "Cross levelling with preset cutting height"

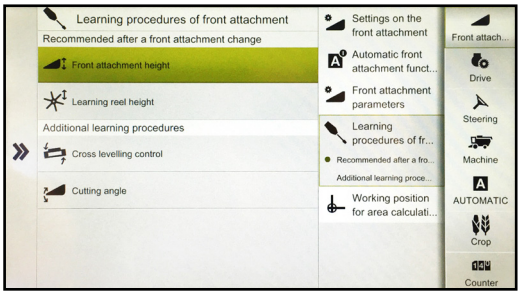


4. Choose "Front Attachment Parameters"
5. Select the Front attachment type
   - Choose the most relevant type of header from the list
6. Select other relevant setup for the header under "Settings"
   - Width, rows, etc.

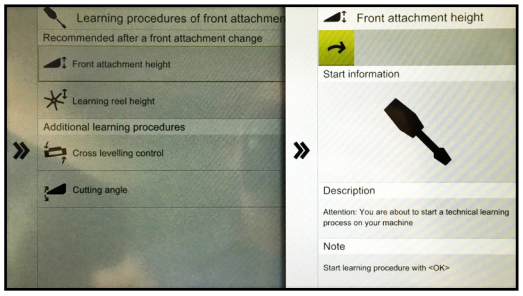


Calibration

1. Choose "Front Attachment"
2. Choose "Learning Procedures"
3. Choose " Front attachment height"
4. Prep combine
   - Engine running
   - Header raised
   - Thresher engaged
   - Feeder engaged
   - Throttle wide open



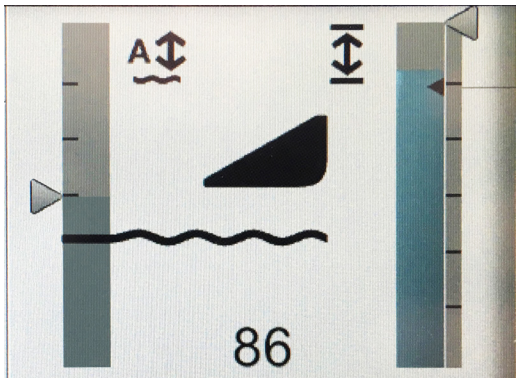
5. Perform the "Front attachment height" calibration.



   - Press OK  to start calibration
   - Follow the instructions on-screen
     - Press and HOLD the selected function until instruction changes

6. Tap  to close calibration screen

7. After calibration, the right bar graph should read 0-100 as the head is moved full stroke.



8. Reading the left graph:
   - Below the heavy divider is the header lift pressure
   - Above the line is the header AHC sensors.

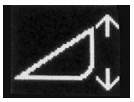
9. After calibration, the left graph should read:
   - 0 with the head all the way down.
   - At the line as the header frame begins to lift off the ground
     - On spring mounted heads such as the MacDon, this can vary somewhat
   - At the top of the graph as the header sensors (or cutterbar) clear the ground

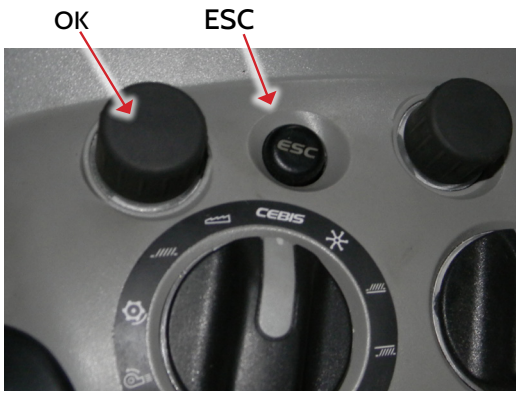
10. If the numbers on the graphs are close to this, the calibration is good.

The graphs may not respond exactly as noted for all heads and types. If the AHC appears to work correctly, the system can still be considered properly set and calibrated.

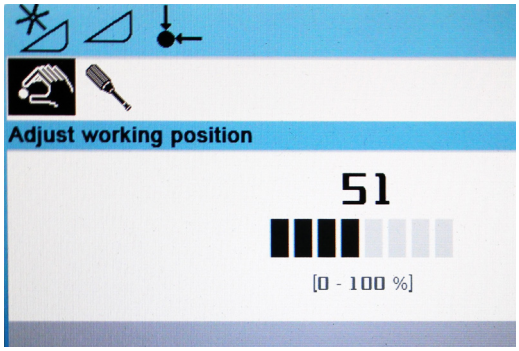
Combine Calibration: 600 & 700 Series

To ensure a proper calibration, make sure your combine has the latest Lexion recommended software and the feeder to header latching mechanism is tight with minimal play. See Appendix for more information.

1. Start combine.
2. Use the Scroll knob and ESC to navigate the menus as shown:
3. Get to the HHC "Learning End Stops".
   - Choose  on the main display – Press the Scroll knob to **OK**
   - Choose  – Press **OK**
   - Choose  – Press **OK**
   - Choose  – Press **OK**



4. The screen should read "Start learning procedure with "OK".
5. Follow the on-screen instructions.
6. You may also wish to calibrate other relevant items such as "Lateral Float End Stops" and "Deck Plate End Stops". See your Lexion Owners' Manual.
7. Also adjust working position to about 50%.

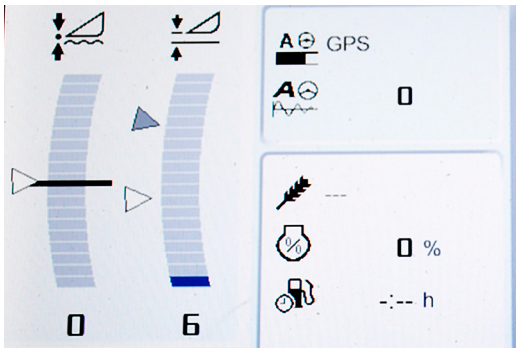


8. After calibration, the right bar graph should read 0-100 as the head is moved full stroke.

9. Reading the left graph:
   - 0-49 is the header lift pressure
   - 50-100 is the header AHC sensors.

10. After calibration, the left graph should read:
    - 0 with the head all the way down.
    - 50 as the header frame begins to lift off the ground
      - On spring mounted heads such as the MacDon, this can vary somewhat
    - 100 as the header sensors (or cutterbar) clear the ground

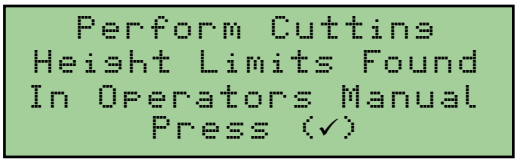
11. If the numbers on the graphs are close to this, the calibration is good.



The graphs may not respond exactly as noted for all heads and types. If the AHC appears to work correctly, the system can still be considered properly set and calibrated.

Combine Calibration: 400 & 500 Series

1. Start combine.
2. For Type 3:500A combines only (accumulator w/o update):
   - If the Insight box displays the screen shown on right, Perform "Cutting Height Limits" in the combine
     - This screen will be displayed at the end of the Insight calibration.
   - If not, Choose >>Setup >>Combine Cal Mode in the Insight menu.

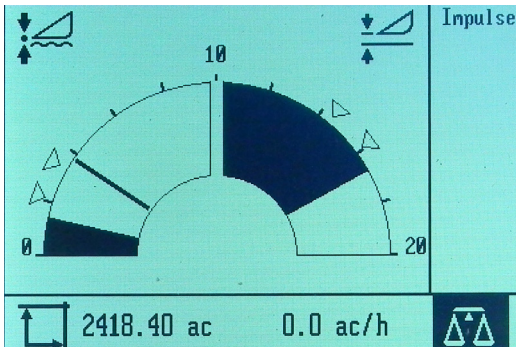


3. Set "Sensitivity CAC".
   - Choose  on the harvest display – Press **OK**
   - Choose "Header" – Press **OK**
   - Choose "Sensitivity CAC" – Press **OK**
   - For Off-Ground sensing (corn or wheat sensors): change setting to:
     - 50% for Type1: 400 & Type 2: 500S combines with lift springs (Do not adjust)
     - 61-100% for Type 3: 500A & Type 4: 500U combines with lift accumulators
   - Raising the Sensitivity CAC will make the system more responsive.
4. Engage the thresher and header clutches.
5. Raise head almost up, and speed up motor.
6. Choose  on the harvest display – Press **OK**.
7. Choose "Header" – Press **OK**.
8. Choose "Cutt. Height Limits" – Press **OK**.
9. Follow on-screen instructions.
   - Raise header / Lower header, etc
   - If head drops too fast, see Operation section of manual.
10. **For Type 3:500A combines only,** on Insight box:
    - Press ✓ Enter until you have exited the "Cal Mode" Screen

11. (All) After calibration, the right bar graph (feeder position) should read "empty" to "full" as the feeder is moved full stroke.

12. After calibration, the left graph should read:
    - Nearly "empty" with the head all the way down.
    - Nearly "full" as the header sensors (or cutterbar) clear the ground

13. If the graphs operate as suggested, the header sensors are working properly and the calibration is good.

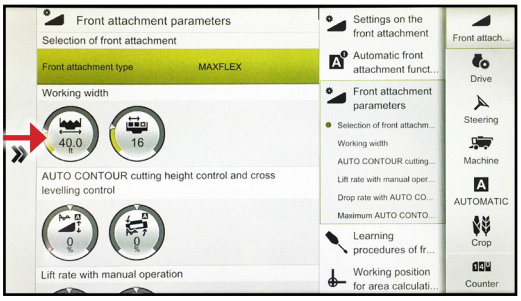


The graphs may not respond exactly as noted for all heads and types. If the AHC appears to work correctly, the system can still be considered properly set and calibrated.

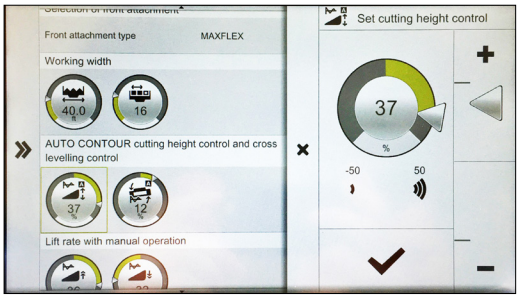
Settings

Combine Settings: 8000 Series

1. Choose “Front Attachment”
2. Choose “Front Attachment Parameters”
3. Select the desired adjustment
   - If you can not adjust these, see warning about Cebis Mode in Combine Calibration: 8000



4. Adjust Settings as needed during operation.
   - Drag caret or tap +/- to change setting
   - All Settings have a range of -50 to +50
   - Press Enter  to save setting
   - Note: the value must be “entered” before taking effect



Cutting Height Control

- Height sensitivity.
- Adjust to just below the point the head will “hunt”.
- Suggested initial setting: 0-10

Cross Leveling Control

- Tilt Sensitivity
- Adjust to just below the point the head will “rock” side to side
- Suggested initial setting: 10-20

Manual Raise Rate

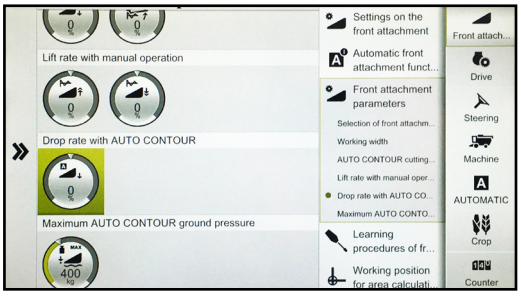
- Adjust to 5-6 seconds full down to full up.
- Suggested initial setting: 40

Manual Lower Rate

- Adjust to 8-10 seconds full up to full down
- Suggested initial setting: 0

Drop Rate with AUTO CONTOUR

- Adjust slow enough to eliminate “hunting”.
- Suggested initial setting: -40

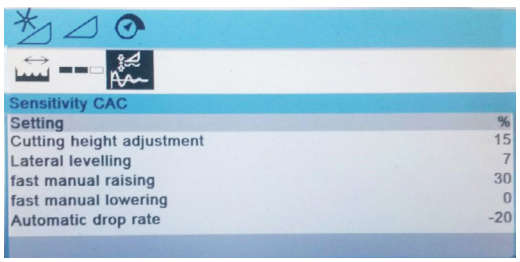


Combine Settings: 600 & 700 Series

Properly setting the combine is essential to having responsive header control. You should become very familiar with the steps in this section.

1. Perform "Learning End Stops" calibration before attempting fine tuning.
2. Start combine.
3. Use the scroll knob and ESC to navigate the menus as shown:
4. Get to the HHC "Sensitivity CAC".
   - Choose  on the main display – Press the Scroll knob to **OK**
   - Choose  – Press **OK**
   - Choose  – Press **OK**
   - Choose  – Press **OK**

5. All Settings have a range of -50 to +50.
6. "Cutting Height Adjustment" is actually height sensitivity. It should be adjusted just below the point the head will "hunt".
7. Adjust the "Lateral Leveling" to increase/decrease lateral response. It should be adjusted just below the point the head will "rock" side to side.
8. Set "fast manual raising" to 5-6 seconds full down to full up.
9. Set "fast manual lowering" to 8-10 seconds full up to full down.
10. Set "Automatic Drop Rate" slow enough to eliminate "hunting".
11. Suggested starting values are shown at right. Your values may vary.
    See your Lexion Owner's manual for more information.



Combine Settings: 400 & 500 Series

Properly setting the combine is essential to having responsive header control. You should become very familiar with the steps in this section.

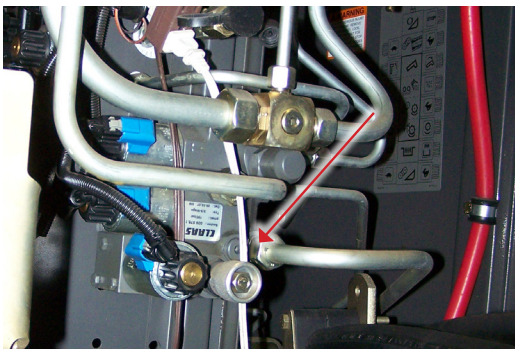
1. Perform "Cutting Height Limits" calibration before attempting fine tuning.
2. Set CAC setting.
   - For on-Ground operation of a flex head:
     - Do not install the pressure bypass
     - Adjust the CAC to an appropriate setting exactly as if you were operating a Lexion header (see Lexion Owner's Manual)
3. Choose  on the harvest display – Press **OK**.
4. Choose "Header" – Press **OK**
5. Choose "Sensitivity CAC" – Press **OK**
6. For off-ground sensing only (corn or wheat sensors): change setting to:
   - 50% for Type 1: 400 & Type 2: 500S combines with lift springs (Do not adjust)
   - 61-100% for Type 3: 500A & Type 4: 500U combines with lift accumulators

Raising the Sensitivity CAC will make the system more responsive.

- Always redo "Cutting Height Limits" calibration after changing Sensitivity CAC. Insight must be in ››Setup ››Combine Cal Mode.

4/500 High Speed Drop Rate

1. Use the high speed drop rate valve adjustment knob on the main valve block (indicated by arrow.)
   - Turn OUT (counterclockwise) to slow down, IN (clockwise) to speed up.
   - If the speed is too fast, hunting will occur.
   - If the speed is to slow, the system will not be responsive enough.
2. Common range is 8-10 seconds from header full up to full down in automatic mode.



Insight® Settings

Tilt Algorithm Selection

Headsight offers two algorithm choices for controlling lateral tilt. The choice of tilt algorithm is only available for 4 and 5 sensor systems. To change this setting go to ››Setup››Tilt Options in the Insight menu.

Use 2 sensor tilt (default setting) when harvesting:

- Across terraces
- Standard conditions

Use 4 sensor tilt when harvesting:

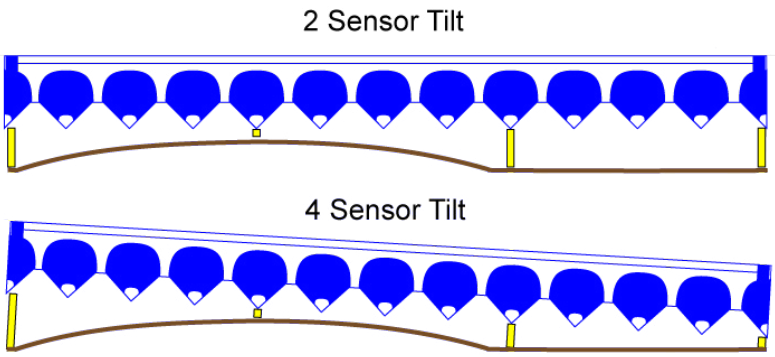
- Parallel to terraces
- Parallel to ditches
- With irrigation tracks

Outer 2 sensor tilt (default setting)

- Outer sensor on each side controls lateral tilt
- Keeps the outer two sensors the same distance from the ground
- All sensors control height
- Any sensor can cause the header to raise, all need to agree to lower the header
- Keeps the header's highest point closer to the ground but header may be higher on average

Outer 4 sensor tilt

- Outer TWO sensors on EACH side control lateral tilt
- Keeps the closest of each outer pair of sensors the same distance from the ground
- All sensors control height
- Any 1 can raise, all need to agree to lower
- Keeps the header closer to the ground on average but may have one end higher



Tilt Sensitivity

If the head is too jumpy from side to side – decrease sensitivity. If you would like the head to be more responsive – increase sensitivity. To change this setting go to ››Settings››Tilt Sensitivity in the Insight™ box. The range is from 5 to 95 with a default setting of 50.

Tilt Balance

If the head is consistently running higher on one end than the other, Tilt Balance manually tweaks the combine height inputs to level it out. Use tilt balance only after eliminating other possible solutions.

1. Before adjusting tilt balance,
   - Double check to make sure head frame is level and snouts are adjusted correctly
   - Re-calibrate Insight or Horizon box on a flat, level surface
   - Re-calibrate combine on a flat, level surface
2. If head is still not running level, adjust the tilt balance setting.
   - Default tilt balance value is 100
   - Lowering the tilt balance number will lower the left end of the head
   - Raising the tilt balance number will lower the right end of the head
3. Tilt balance setting will only last until the next calibration.
   - Do not recalibrate combine without resetting tilt balance to 100

Feathersight® – HP Balance

This setting is only applicable of you have installed and calibrated the optional Feathersight module.

4. To change this setting go to ››Setup››Optional Modules››Feathersight››HP Balance in the Insight box.

What to know:

- This setting is the percentage of the height response determined by the height sensors – as contrasted with the height response determined by the pressure sensor
- Changing this setting will not affect the tilt response
- This setting is only available when an auxiliary (pressure) sensor is detected during Insight calibration
- The default value is 65 when an auxiliary (pressure) sensor is detected and 100 if no auxiliary (pressure) sensor is detected

Setting Hints:

- To increase the height response for the height sensors, increase the HP Balance
- To increase the height response for the pressure sensor, decrease the HP Balance
- If you know that you intend to run with the header always on the ground, you may want to decrease the HP Balance
- If you know that you intend to run with the header always in the air, you may want to increase the HP Balance or recalibrate Insight™ with the pressure sensor disconnected to disable the pressure sensing mode

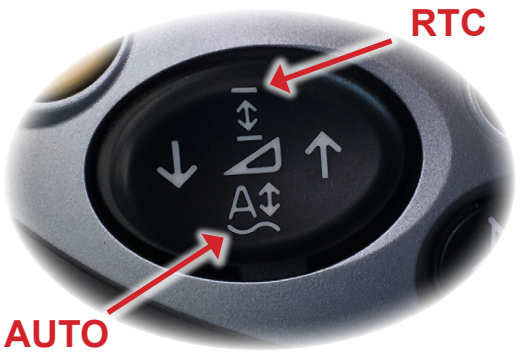
Operation

Operate the Headsight system exactly like you would use a Lexion system. Further details may be found in the combine operator's manual.

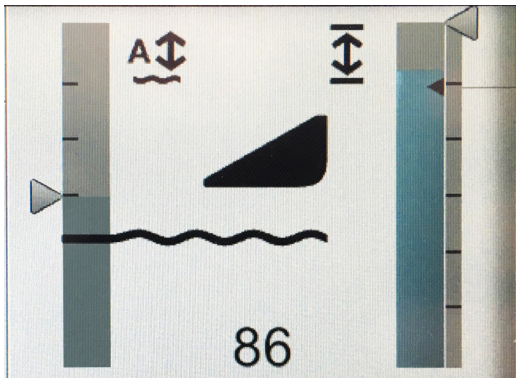
8000 Series

1. Engage header and separator clutch

2. Press Auto (**A w/wavy line**) to enter AHHC.
   - Press again to switch setting.
   - For all heads with height sensors on the head
3. The top button (arrows to lines) is "Feeder Position" (Return to Cut or RTC).
   - For heads with no height sensors,
   - To raise the head to a preset height at headlands



4. Choose desired cutting height setpoints
   - Manually lower the head to the desired cutting height
     - (Must be within the sensor travel range)
   - Press and hold **AUTO** button until the caret resets to the top of the colored bar in the left graph (Active Header Height)
     - Tap button once and redo above to set a 2nd position.
     - The "greyed" caret is selected.
   - To set a "feeder position," press and hold the RTC button until the caret resets to point to the top of the dark bar in the right graph (feeder position)
     - Tap button once and repeat to set a 2nd position.
     - The "greyed" caret is selected.

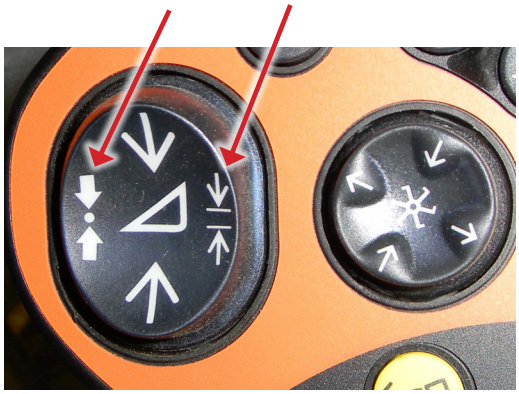


AUTO FEEDER (RTC)

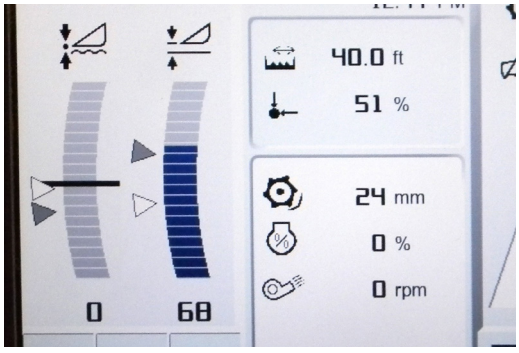
4/5/6/700 Series

1. Engage header and separator clutch (700 Series shown, 400 & 500 similar.)

2. Press left side of header raise/lower button to enter AHHC. Press again to switch setting.
   - The "Left Side" button (arrows to dot) is Active Header Height (AHHC).
     - For all heads with height sensors on the head
   - The "Right Side" button (arrows to lines) is "Feeder Position" (Return to Cut or RTC).
     - Only for heads with NO height sensors,
     - Or to raise the head to a preset height if needed.



3. Choose desired cutting height setpoints (700 Series shown, 400 & 500 similar.)
   - Manually lower the head to the desired cutting height
     - (Must be within the sensor travel range)
   - Press and hold the AHHC (left)button until the caret resets to the top of the dark bar in the left graph (Active Header Height)
     - Tap button once and redo above to set 2nd position.
     - The "greyed" caret is selected.
   - To set a higher "feeder position," press and hold the RTC (right) button until the caret resets to point to the top of the dark bar in the right graph (feeder position)
     - Tap button once and repeat to set 2nd position.
     - The "greyed" caret is selected.



Overview

Insight® Navigation

How to Navigate

When in a menu (selection arrow appears to left side)

- ✓ Enter: chooses the selected menu choice
- ✗ Esc: backs up one menu level
- ▲ Up: moves up within the menu choices displayed
- ▼ Down: moves down within the menu choices displayed

When in a screen which allows setting of parameters

- ✓ Enter: saves value and exits to menu
- ✗ Esc: backs up to last menu level without saving
- ▲ Up: increases the value
- ▼ Down: decreases the value

Meaning of Status Light

● Solid Green:

- System is operating
- No errors detected

● Solid Red:

- System is NOT operating
- No height or tilt signals are sent to combine
- You have changed settings which require calibration of Insight, are currently in a menu which will force a calibration if you make any changes, or are in calibration mode

● ● Solid Green with Flashing red:

- System is operating
- An error has been detected
- Repair problem then clear errors

● Flashing Red:

- System is operating
- A sensor has been ignored
- See note in Troubleshooting by Error - ER16
- Repair system - Recalibrate Insight

Screen Contrast Adjustment

To change contrast:

- Press and hold Esc ✗ + ▲ Up or ▼ Down to increase or decrease contrast

Resetting Insight® to Defaults

To reset all settings hold ✕ + ✓ for 5 seconds

Updating Insight® Software with USB Drive

Updating software may cause the Foresight option to be disabled. If you have purchased Foresight, contact Headsight before updating software.

1. You will need:
   - USB drive
   - Means of loading USB Stick (computer with USB)
2. Load USB drive with new software files.
   - Place insightf.hex in the root directory of USB drive (ex. E:\insightf.hex)
   - Do not change file names
3. If you do not have the new files you may:
   - Download updated software from www.headsight.com
   - Order pre-loaded USB drive from Headsight, Inc.
4. Remove cap from USB on front of Insight controller.
5. Insert USB drive card into USB slot on front of Insight.
6. Power Insight.
   - Turn on key switch
7. Wait for software to download.
   - Yellow light will blink while download is in progress
   - Green light will turn on solid when download is complete
8. Verify update is successful.
   - Go to ››About Insight››Software Version and read software version number
9. Remove USB drive.
10. Install cap on USB on front of Insight controller.
11. Remove power from Insight.
    - Turn off key

Advanced Information

Theory of Operation

A review of the following points will help the service technician to understand the complete system, which will help diagnose specific problems.

1. Each sensor returns a variable voltage depending on header height.
    - High header height = high voltage (approximately 4 volts)
    - Low header height = low voltage (approximately 1 volt)
2. Each sensor has 3 wires:
    - black or lt blue= ground
    - white = signal returned to combine (varies1-4 volts)
    - green or pink = 5 volt power
3. The Insight box adjusts signals as needed then sends them to combine using the same combine wiring as OEM system would use.
    - All sensors are scaled to an appropriate range for combine
    - Insight will reverse the direction of swing if needed
    - Insight box reads all senors and sends signals to combine that will cause appropriate height and or tilt response
    - If Foresight is enabled - the Insight box magnifies the voltage change below the point where the snout tips touch the ground
4. The voltages the combine sees are exactly like what it would see with an OEM system. All existing combine controls and settings may be used.

Basic Requirements

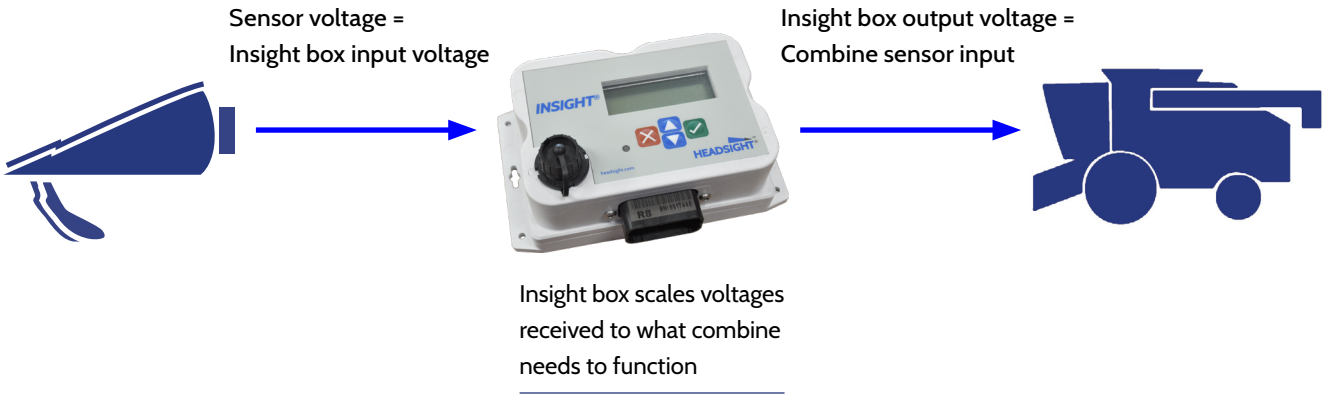
Each sensor must meet basic requirements for the combine to accept the calibration. If any sensor does not meet the requirements below, you must correct it and then recalibrate the Insight box.

- See the header manual for sensor adjustment instructions.
- Sensor output voltage must always be between .3 and 4.7 volts.
- Sensor output voltage must change more than 1.0 volts from raised to lowered position for each sensor.

Reading Voltages

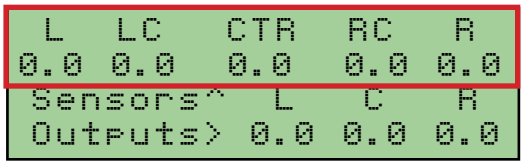
Before you Start

The Insight box can display both the input voltages it receives from each sensor and the output voltages it is sending to the combine.

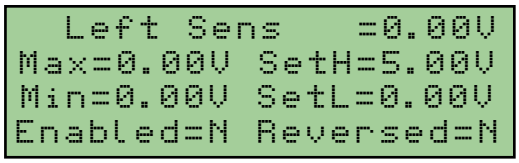


On the Insight® Box : Sensor Voltages

1. From main menu, go to >> Diagnostics>>Display Voltages
   - This shows real-time voltage coming from each sensor.

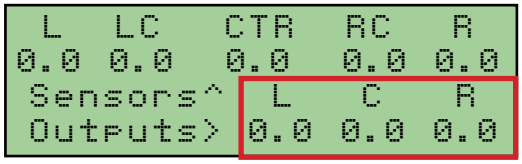


2. For more information about sensor history and status see >>Diagnostics>>Detailed Diagnostics>>(parameter of interest)
   - Sensor = signal from sensor in volts
   - Max = the maximum voltage sent to Insight box from sensor since last calibrated
   - Min = the minimum voltage sent to Insight box from sensor since last calibrated
   - Enabled = is this sensor enabled to control height? Yes or No
   - SetH = the "header raised" voltage set-point recorded during calibration
   - SetL = the "header lowered" voltage set-point recorded during calibration
   - Reversed = is the polarity of this sensor reversed? Yes or No

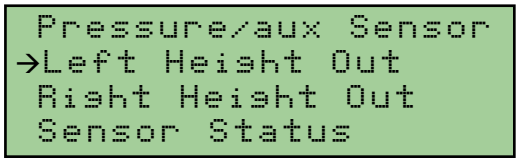


On the Insight® Box : Output Voltages

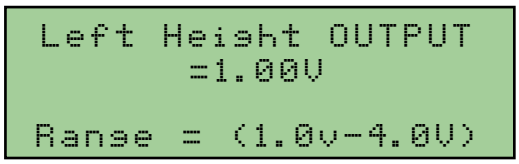
1. From main menu, go to ›› Diagnostics››Display Voltages
   - This shows real-time voltage sent to the combine
   - C output varies by model (See Pressure Height Out below)



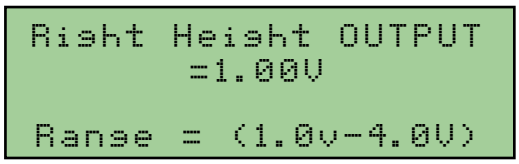
1. From main menu, go to ›› Diagnostics››Detailed Diagnostics›› (parameter of Interest).
   - Shows actual voltage being sent to the combine.
   - Available selections depend on combine model



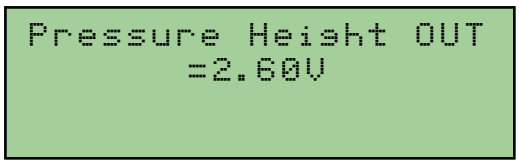
2. Left Height Output = X.XVolts
   - 1.0V with head fully lowered
   - 4.0V with head raised



3. Right Height Output = X.XVolts
   - 1.0V with head fully lowered
   - 4.0V with head raised



4. Pressure Height Out = X.XVolts (Types 1-3 Only):
   - Type 1 & 2: 1.0V - 4.0V
   - Type 3: 3.20V - 3.65V
   - Type 4 & 5: 0.0V



In Combine

5. You must have a service tool plugged into the diagnostic ports to read voltages on a Lexion combine.
6. To visually determine if the sensor voltages are getting to the combine, watch the left bar graph on the display while raising and lowering the header. See the appropriate "Combine Calibration" section for details.

Read the sensor inputs to the combine on the combine monitor (as equipped). See your combine owners manual for more infomation. These voltages should be close to the voltages on the Insight "Height Outputs" above.

600 & 700 Series Calibration Issues

Symptom

When the CAC system is engaged, the header dives into the ground, then recovers to the preset height.

Cause

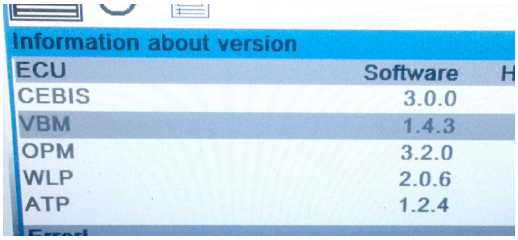
For machines with 2011-2014 OEM Lexion software, play in the connection between the header and feeder house can cause the calibration process to not work correctly. If your feeder can drop more than ½" after the header solid frame (not flex cutterbar skids) touches the ground, it is recommended that you use one of the two following solutions.

Stubble stompers mounted so they contact the ground during calibration can also cause this issue.

Solutions

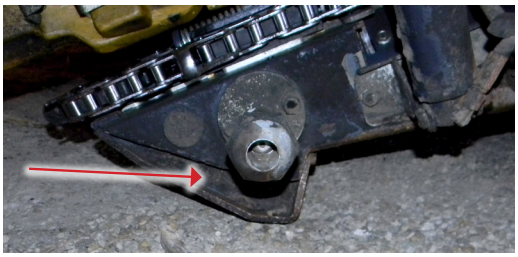
Solution 1 – s/n C67, C68, C69

6/700 series combines with SN's starting with C67, C68, or C69 and later should have the software updated to at least VBM 3.6.3 to eliminate this issue. For earlier machines, see solution 2.



Solution 2 – Earlier Models

1. Note: this procedure works for all 6/700 combines on all headers.
2. Remove or chain up any stubble stompers so they do not carry header weight during calibration.
3. Use blocks under the feeder faceplate to stop further movement downward during the calibration process.
   - The block height should be enough to stop the feeder just as the solid frame of the head contacts the ground (not flex cutterbar skids). See arrows.



NOTE: Some heads with floating adapters (for example draper heads) can also experience this symptom in flex mode. Limiting downward over-travel on the float adapter during calibration (Solution 2 above) may solve or reduce this issue.

NOTE: For off-ground (rigid) operation, make sure float mode is locked out.

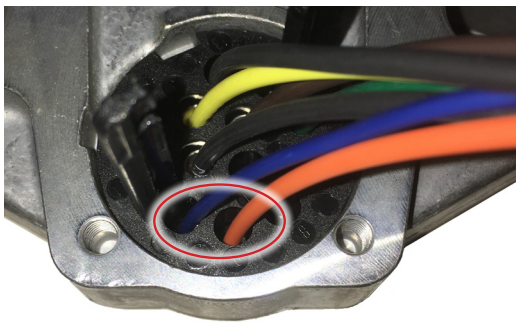
Folding Switch: Drago Folding only

1. The Headsight Multilink assembly provided with Drago headers is prewired to use the Reel F/A switch to operate the fold solenoids.
   - Test the operation of the fold using the Reel F/A switch first.
2. Lexion combines have a "Fold Head" switch location available in the upper right console.
   - Check to see if your combine is equipped with the fold switch
   - If your combine is not equipped, or if you choose not to use this switch,
     - STOP. Do NOT disassemble Multilink. Fold and unfold your head using the Reel F/A function on the header.
   - If you choose to use the fold switch,
     - If the switch is not installed, contact your Lexion dealer to order and install a switch. The wiring is already in the console.
     - Continue to Step 3. Move the fold solenoid wiring in the header multilink.

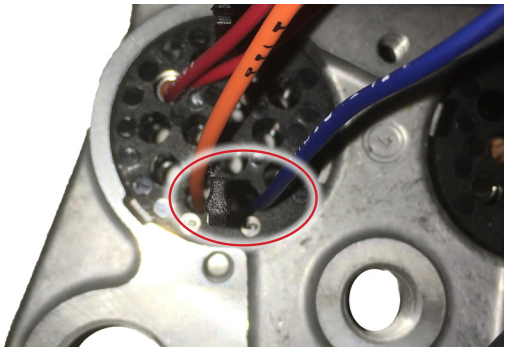
NOTE: If you do not want the fold switch, and your head is already wired to use it, just reverse steps 4 & 5.

3. Open the multilink assembly:
   - Remove any hoses or wiring in way of disassembly
   - Loosen the compression fittings
   - Remove 5 socket head bolts from housing
   - Pull housing assembly away from face plate

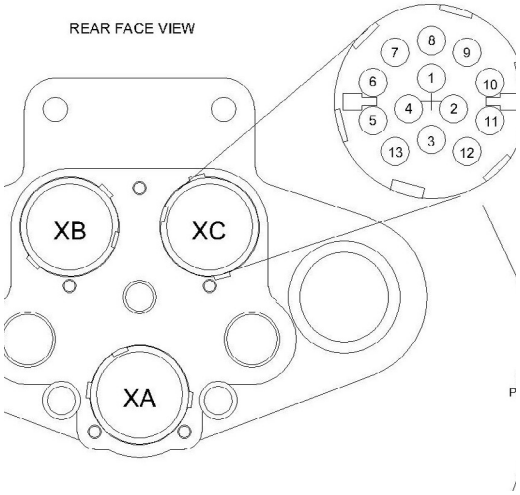
4. Remove the XA housing
   - Snap insert 1 notch apart
   - Work the orange and dark blue wires & terminals out of position 9 & 10.
   - Snap the insert back together
   - Connect small pin to VS2 pin 6



5. Remove the XB housing
    - Snap insert 1 notch apart
    - Snap the Orange wire & terminal into position 6
    - Snap the Dark Blue wire & terminal into position 5.
    - Snap the insert back together



6. See pictures for pin location
7. Replace pin inserts in proper cavities of plate:



8. Reassemble the multilink assembly:
    - Reassembly of housing is easier if you remove the screws holding the VS1-3 plugs onto the housing, and temporarily pull excess wiring out through the housing
    - Reassemble housing to plate, making absolutely sure no wires are pinched under the housing. Wires like to get pinched in the "center" of the housing, and around the pin insert pegs
    - The housing should sit snug against the plate without drawing up the bolts
    - Install the 5 socket head bolts into housing
    - If removed, coil excess wiring back into housing and reinstall screws in VS1-3
    - Replace any hoses/harnesses removed for access

Pressure Bypass Wiring (400 & 500 Series Only)

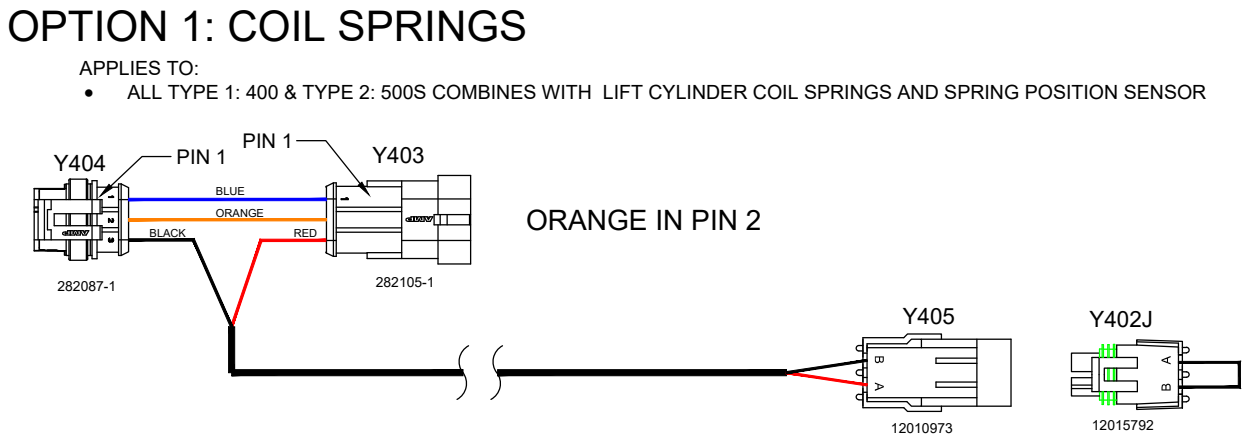
Option #0: No Bypass Harness

Do not use the bypass harness if you have:

- All Type 5: 600/700 series combines
- All Type 4: 500U combines (accumulator & equipped with CLAAS improvement kit 00 1498 048 0)
- All On-Ground header operation (flex heads, soybeans, pulse, etc.)

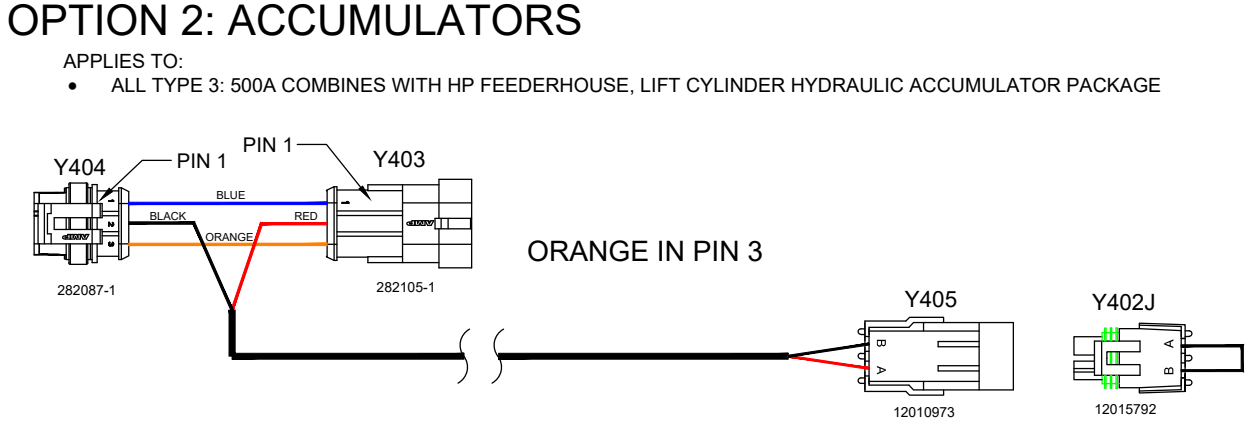
Option #1: Coil Spring

- All Type 1: 400 combines (with mechanical lift cylinder spring position sensor)
- All Type 2: 500S combines with mechanical lift cylinder spring position sensor



Option #2: Accumulator

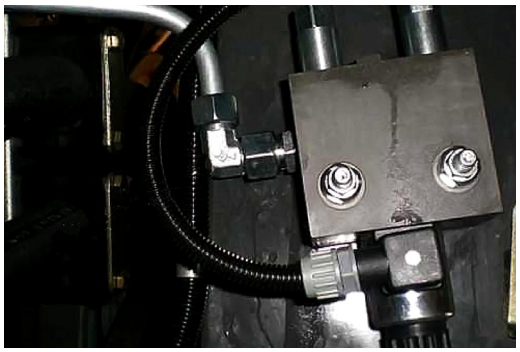
- Type 3: 500A combines (All 2005 and newer 500 series Lexion combines with lift cylinder hydraulic pressure sensor on accumulator package UNLESS equipped with CLAAS improvement kit 00 1498 048 0--see next section below)



Identifying Installation of the 00 1498 048 0 Kit:

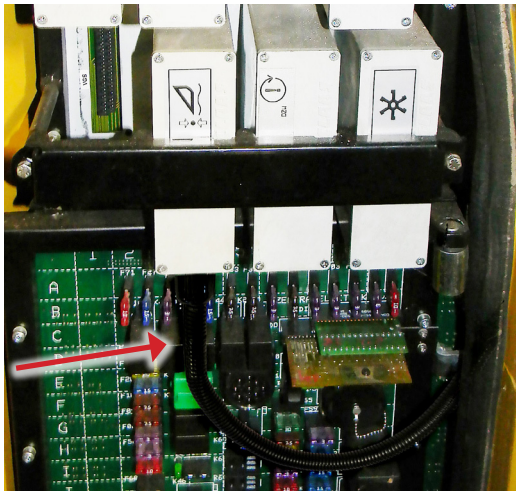
Hydraulics:

- The following valve block has been installed on the front face of the left side hydraulics support frame.
- This will be just in front of the OEM hydraulics valve assembly and high-speed drop rate adjustment.



Electrical:

- The HHC Module in the control tower has a harness coming out the bottom as shown.
- This module is PN 00 0015 762 0

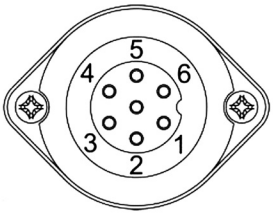


If both of these are present, your combine has the update kit installed. If so, the following instructions apply:

- Follow instructions for a Type 4: 500U combine
- On the Insight box, choose Combine Type: Lexion 6/700 instead of Lexion 500.
- Do not install the pressure bypass.
- The Insight box does not need to be in Combine Cal Mode to calibrate the combine. Perform "Cutting Height Limits" as for any OEM head

12V Power Wire Installation

This step is not required for most headers. Complete the test below to determine if you need to do this step.

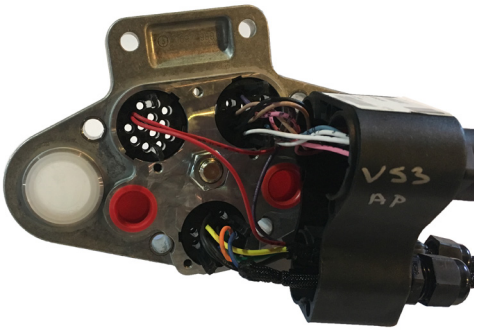


1. Make sure to do the test for combine power in Installation, 12V Power Test.
   - There is 12V on combine pin B9, AND
   - There is no 12V on VS2, pin 6, continue to step 2

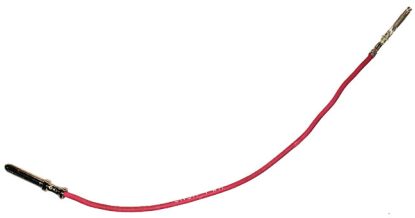
2. Install Jumper or repair the wiring in the Header Multilink.

3. Turn off the engine.

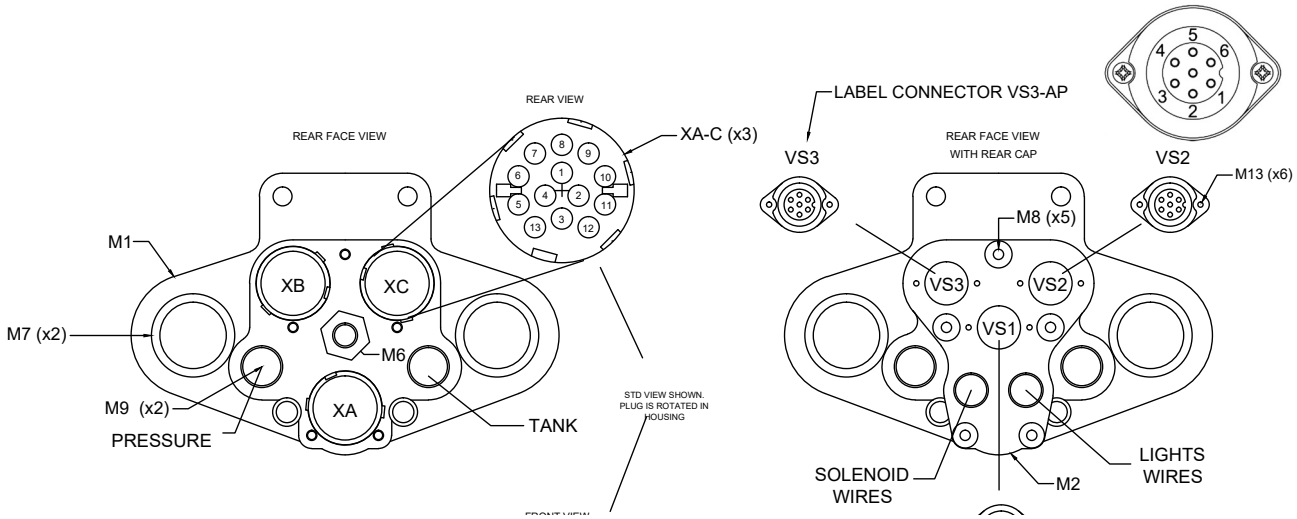
4. Open the multilink assembly:
   - Remove any hoses or wiring in way of disassembly
   - Remove 5 socket head bolts from housing
   - Pull housing assembly away from face plate



5. Install the provided jumper for the 12V power source.
   - Snap insert 1 notch apart and Insert large pin to XB pin 9, close insert. If there is already a pin, splice the wires.
   - Insert small pin to VS2 pin 6.



6. See pictures below for pin location.



7. Replace pin inserts in proper cavities of plate.

8. Reassemble the multilink assembly:

   - Reassembly of housing is easier if you remove the screws holding the VS1-3 plugs onto the housing, and temporarily pull excess wiring out through the housing
   - Reassemble housing to plate, making absolutely sure no wires are pinched under the housing. Wires like to get pinched in the "center" of the housing, and around the pin insert pegs
   - The housing should sit snug against the plate without drawing up the bolts.
   - Install the 5 socket head bolts into housing
   - If removed, coil excess wiring back into housing and reinstall screws in VS1-3.
   - Replace any hoses/harnesses removed for access.

Diagnostics

Before working on combine or under header always:

1. Perform all combine and header manufacturer safety precautions for servicing header.
2. Insert stop to prevent movement of header.
3. Set combine parking brake.
4. Turn off combine and remove key from ignition.
5. Disconnect all drive shafts from the header.

Troubleshooting Overview

Several Troubleshooting Sections are available, depending on the type of problem or symptoms.

1. Troubleshooting -Sensors & Harnesses
   - Use this section to troubleshoot a specific sensor that is not working or out of adjustment.
   - Typical symptom:
     - Sensor fault code displayed - example: "Err XX, Left sensor > 0.3V"
2. Troubleshooting by Symptom
   - Use this section to diagnose poor operation symptoms
     - Not usually accompanied by an Error message or Fault Code
   - Typical Symptoms
     - Header won't tilt
     - Header 'hunts'
3. Troubleshooting by Error Code
   - Use this section to help determine the problem when an fault code has been displayed.

Troubleshooting—Sensors and Harnesses

To properly test the wiring and sensors on the header, follow the steps below in order. Use a Volt Meter as needed.

The sensor connector pattern is as follows:

- Pin A is Ground (Black or Lt Blue)
- Pin B is Signal (White)
- Pin C is 5V (Green or Pink)

A very common problem during install is to reverse the wires at the connector after removing the plug to route the cables. Make sure that the wires/voltages are as shown. If A & C are reversed, the sensor output voltage will be 4.7V and not change.

The following requirements must be met before testing:

- Key on, combine engine running
- Header connected

Symptom	Problem	Solution
Bad Harness Wiring Disconnect Sensor Plug (Measure voltage on harness plug at sensor)	Measure C to Frame Ground Voltage should be 5V	If not, check harness for continuity or short on 5V wire Check Combine 5V source
	Measure C to A Voltage should be 5V	If not check harness for continuity on ground wire Check combine sensor ground source
	Jump C to B in harness plug Voltage should be 5V (For Insight systems, see "Diagnostics/ Display Sensor Voltages". For all others, use Combine Diagnostics*)	If not check signal wire for broken harness or bad connection
	All of the above are correct	Harness & combine connections pass test.
If you have a Headsight Sensor tester, use it to test the sensor. For all other:	Verify sensor is connected to extension harness Sensor voltage should be 0.5- 4.5V (For Insight systems, see "Diagnostics/ Display Sensor Voltages". For all others, use Combine Specific Diagnostics)	If sensor cannot be adjusted to achieve a voltage within the range, replace sensor.

Troubleshooting by Symptom

Nearly every problem with the header control system may be resolved by one of the following simple steps:

- Make sure each sensor meets basic requirements discussed in Advanced Info section
- Properly calibrate Insight box
- Properly calibrate combine AHHC ("Header Cal")
- Enable appropriate AHHC functions on combine
- Properly set combine electronics and/or hydraulics

Symptom	Problem	Solution
Insight Status Light Diagnostics	**(Status not green)**	
No light	Combine does not supply 12V to pin 4 of the Insight connector	Follow solution for problem: "No 12V power available on pin 4 of Insight plug"
	No Ground to Pin 6 of the Insight connector.	Check Grounds
	Insight defective	Replace Insight
Solid red	Wiring is not connected properly or calibration has not been completed	See Installation and Calibration sections of manual
Flashing Red or Green/Red	Insight box has detected an error	Correct problem, clear error codes, and recalibrate Insight box

Symptom	Problem	Solution
AHHC Diagnostics		
No automatic operation height or tilt (If the Insight box does not have a green status light, go to "Insight Status Light Diagnostics")	Wiring is not connected properly	Check wiring from sensor to combine
	Header control is not enabled with cab controls	See Operation section of this manual
	Wrong HHC mode selected	Turn on AHHC, see Operation section of this manual
	Sensors are out of range (Direct Wire Systems only)	Correct sensor voltages to between 0.5V < xx < 4.0V, low on ground.
	Power supply from combine less than 10V to Insight.	Roading switch on, set to field mode. See Installation, 12V Power Test
	Insight box/wiring failure	››Diagnostics››Detailed Diagnostics››Left/Right Height Output 0.8-1.2V head fully lowered 3.8-4.2V sensors off ground

Symptom	Problem	Solution
AHHC Diagnostics		
Header is too jumpy	Combine is improperly set	See - Setting section of this manual 4/500 Decrease Fast Drop 6/700 Reduce Auto Drop Rate Decrease sensitivity
	Insight or combine needs to be re-calibrated	See Calibration section of this manual
	Pressure Bypass installed when not needed.	See Installation.
	4/500 Type 1 & 2 only	Decrease Insight Setting ››Setup››Height sensitivity Normal = 100
Header responds to slowly	Insight or combine needs to be re-calibrated	See Calibration section of this manual
	Combine is improperly set	See - Setting section of this manual 4/500 Increase Fast Drop 6/700 Increase Auto Drop rate Increase sensitivity
	Pressure Bypass not installed when needed.	See Installation.
	4/500 Type 1 & 2 only	Increase Insight Setting ››Setup››Height sensitivity Normal = 100
Combine Header Cal Fails (Cutting Height Limits) or (Learning End stops)	Header not properly connected	Verify that Insight harness is attached to VS2, and Insight box has power.
	Insight Has Errors	Repair error, clear error codes Cycle key Recalibrate Insight
	Insight not in CAL mode (500U combines only)	See “Combine Calibration, 400 & 500 Series
	Insight Outputs are not correct ››Diagnostics››Detailed Diagnostics››Left/Right Height Output 0.8-1.2V head fully lowered 3.8-4.2V sensors off ground	Recalibrate Insight on flat surface. Reset Insight: See Insight Overview for details Insight defective
	Combine computer needs to be reset (4/500 Series only)	Disconnect header Multilink with key on, motor running. Turn off key/motor. Reconnect Header Turn on key, start engine.

Symptom	Problem	Solution
AHHC Diagnostics		
Lift Pressure Sensor Error in combine (4/500 Series only)	Pressure Bypass not connected (when applicable)	Connect Pressure Bypass harness to Insight Harness (2 pin WP)
	Insight not in CAL mode (500U combines only)	See "Combine Calibration, 400 & 500 Series
	Pressure Bypass Jumper not installed	Install jumper for headers w/o Insight box
	Pressure Bypass harness not assembled correctly	See Advanced Info, Pressure Bypass Wiring
	Insight set incorrectly	Verify that the proper combine and header type have been selected. Redo "Perform Calibration" on Insight box
	Insight Bypass Output Incorrect	Call Headsight
Cannot operate head low enough	Calibration not properly completed	Perform Insight and Combine calibration on flat level surface
	Special software needed	Contact Headsight regarding optional products Foresight and/or Feathersight
Cannot operate head high enough	Calibration not properly completed	Perform Insight and Combine calibration on flat level surface
	Sensors too short	Install extensions on corn sensors.
Header works upward, then dives to ground . (400 & 500 Series only)	Slow Lower non-functional	Test combine manual slow lower mode. Turn OFF Thresher & Header Use RTC and AHC buttons to test slow raise/lower modes. Head should raise and lower slowly. If not, repair OEM header lift valve assm.
Header dives to ground and recovers entering crop	Lower Rate set too High	See Combine Specific Settings
	6/700 Series: To much play in feeder to header coupling	See Advanced Info>>600 & 700 Series Calibration Issues
Head Jumps and Jerks whole combine	Drop rate too fast	See Combine Settings section of this manual)
	Unopened accumulator	Open accumulator valve 1-2 turn
	Discharged accumulator	Test accumulator as described in combine owner's manual, replace or recharge as necessary

Symptom	Problem	Solution
AHHC Diagnostics		
Combine will not calibrate	Insight not calibrated	Calibrate Insight
	Insight Outputs incorrect	See: Reading Voltages: Outputs
	Combine Problem	Repair Combine

Symptom	Problem	Solution
Lateral Tilt Diagnostics		
Height works but not Tilt	Increase Tilt Sensitivity.	››Setup››Tilt Sensitivity Increase Tilt sensitivity
	Rare combine problem	Call Headsight to increase Max Combine Tilt.
Head rocks back and forth	Tilt Sensitivity too high	Adjust sensitivity in combine ››Setup››Tilt Sensitivity Decrease Tilt sensitivity Press Check
	Insight/Combine not calibrated properly (do Cal on flat surface)	See Calibration Section
Header tips wrong way (Once head is moved off level, it continues all the way in either direction)	Left and Right sensor harnesses reversed	Connect sensor harnesses to correct plugs on adapter harness.

Symptom	Problem	Solution
Lateral Tilt Diagnostics		
Head tips all the way one direction	Improperly adjusted sensors	Adjust the sensors to both be about 1-1.2V when sitting flat on the ground
	Sensor harness improperly wired	See Diagnostics: Sensor and Harness Spec: Note about reversed wires in connectors.
	Poor connection	Check harness and connectors for cut/torn wire or loose terminals Make sure terminals are properly latched, not "pushed back", in connector body
	Sensor or harness fault	See Diagnostics: Sensor & Harness
	Insight box failure	>>Diagnostics>>Detailed Diagnostics>>Left & Right Height Outputs 1.0V head fully lowered 4.0V sensors off ground
	Multilink wiring failure	Check AHHC sensor voltages in CEBIS (Lexion Service tool only)
	Combine problem	Test combine on a different header
Header runs slightly out of level	Insight or combine not calibrated correctly	Recalibrate Insight and combine on flat surface
	Sensor physically misadjusted	Make sure both end sensors mount the same and hang at the same angle
	Header not adjusted correctly	Make sure the frame to snoot angle adjustment is the same across the width of the head Lower and tilt head until snoot tips just touch on a flat surface. Make sure frame is level to ground within 1" from left to right. Readjust snoots if necessary.
	All the above fails to correct problem:	>>Settings>>Tilt Balance Adjust balance to level Head (Must be reset to 100 before calibrating combine)

Symptom	Problem	Solution
General Insight Problem		
Display dim, blank, or hard to read	Screen contrast improperly adjusted	See Insight Settings
	Weak power supply to Insight™ box	See Installation, 12V Power Test
	Short in sensors/wiring powered by Insight box (Reversed polarity to hall-effect sensors may cause this symptom)	Individually disconnect sensors to isolate problem – screen will regain contrast when faulty sensor is disconnected. Correct short in wiring Insight will need reset after correction of wiring short
	Control box failure	Contact Headsight

Troubleshooting by Insight® Error Codes

Error Code	Problem	Solution
ER11 Left sensor signal less than 0.3V	Left sensor temporarily disconnected. Wiring open Sensor failure	Repair wiring or bad connector Calibrate Insight Box Calibrate Combine Check sensor harness for pinched/ broken wiring See sensor test instructions
ER12 Left sensor signal greater than 4.7V	Wiring problem Sensor failure	Ground wire to sensor is open Signal short to power Calibrate Insight Box Calibrate Combine See sensor test instructions
ER13 Left sensor swing less than 0.6V	Left sensor mechanical range is restricted Sensor failure	Verify sensor is not obstructed in swing Verify sensor can collapse fully with header lowered Adjust down stop to allow greater range See sensor test instructions
ER16 Left sensor expected but not detected	Left sensor not properly connected Not enough swing during cal Incorrect number of sensors selected in setup Sensor failure Control box /wiring failure	Verify harness is connected to sensor 1 Verify harness is connected properly to control box harness Verify that signal wire (Pin B white wire of sensor cable) is connected to PIN7 of connector Y101 (Insight box) Make sure sensor meets requirements in - Advanced Information - Basic Requirements section of this manual Go to ››Initial Setup››Number Sensors and choose the correct number of sensors See sensor troubleshooting instructions Contact Headsight
ER17 Left sensor detected but not expected	Incorrect number of sensors selected in setup Harness wiring error Control box /wiring failure	Go to ››Setup››System Select and choose the correct number of sensors Verify that no wires contact PIN7 of connector Y101 Contact Headsight

Error Code	Problem	Solution
ER21 Left Center sensor signal less than 0.3V	Left Center sensor temporarily disconnected. Wiring open Sensor failure	Repair wiring or bad connector Calibrate Insight Box Calibrate Combine Check sensor harness for pinched/ broken wiring See sensor test instructions
ER22 Left Center sensor signal greater than 4.7V	Wiring problem Sensor failure	Ground wire to sensor is open Signal short to power Calibrate Insight Box Calibrate Combine See sensor test instructions
ER23 Left Center sensor swing less than 0.6V	Left Center sensor mechanical range is restricted Sensor failure	Verify sensor is not obstructed in swing Verify sensor can collapse fully with header lowered Adjust down stop to allow greater range See sensor test instructions
ER26 Left Center sensor expected but not detected	Left Center sensor not properly connected Not enough swing during cal Incorrect number of sensors selected in setup Sensor failure Control box /wiring failure	Verify harness is connected to left center sensor Verify harness is connected properly to control box harness Verify that signal wire (Pin B white wire of sensor cable) is connected to PIN13 of connector Y101 (Insight box) Make sure sensor meets requirements in - Advanced Information - Basic Requirements section of this manual Go to ››Initial Setup››Number Sensors and choose the correct number of sensors See sensor troubleshooting instructions Contact Headsight
ER27 Left Center sensor detected but not expected	Incorrect number of sensors selected in setup Harness wiring error Control box /wiring failure	Go to ››Setup››System Select and choose the correct number of sensors Verify that no wires contact PIN13 of connector Y101 Contact Headsight

Error Code	Problem	Solution
ER31 Center sensor signal less than 0.3V	Center sensor temporarily disconnected. Wiring open Sensor failure	Repair wiring or bad connector Calibrate Insight Box Calibrate Combine Check sensor harness for pinched/ broken wiring See sensor test instructions
ER32 Center sensor signal greater than 4.7V	Wiring problem Sensor failure	Ground wire to sensor is open Signal short to power Calibrate Insight Box Calibrate Combine See sensor test instructions
ER33 Center sensor swing less than 0.6V	Center sensor mechanical range is restricted Sensor failure	Verify sensor is not obstructed in swing Verify sensor can collapse fully with header lowered Adjust down stop to allow greater range See sensor test instructions
ER36 Center sensor expected but not detected	Center sensor not properly connected Not enough swing during cal Incorrect number of sensors selected in setup Sensor failure Control box /wiring failure	Verify harness is connected to center sensor Verify harness is connected properly to control box harness Verify that signal wire (Pin B white wire of sensor cable) is connected to PIN8 of connector Y101 (Insight box) Make sure sensor meets requirements in - Advanced Information - Basic Requirements section of this manual Go to ››Initial Setup››Number Sensors and choose the correct number of sensors See sensor troubleshooting instructions Contact Headsight
ER37 Center sensor detected but not expected	Incorrect number of sensors selected in setup Harness wiring error Control box /wiring failure	Go to ››Setup››System Select and choose the correct number of sensors Verify that no wires contact PIN8 of connector Y101 Contact Headsight

Error Code	Problem	Solution
ER41 Right Center sensor signal less than 0.3V	Right Center sensor temporarily disconnected. Wiring open Sensor failure	Repair wiring or bad connector Calibrate Insight Box Calibrate Combine Check sensor harness for pinched/ broken wiring See sensor test instructions
ER42 Right Center sensor signal greater than 4.7V	Wiring problem Sensor failure	Ground wire to sensor is open Signal short to power Calibrate Insight Box Calibrate Combine See sensor test instructions
ER43 Right Center sensor swing less than 0.6V	Right Center sensor mechanical range is restricted Sensor failure	Verify sensor is not obstructed in swing Verify sensor can collapse fully with header lowered Adjust down stop to allow greater range See sensor test instructions
ER46 Right Center sensor expected but not detected	Right Center sensor not properly connected Not enough swing during cal Incorrect number of sensors selected in setup Sensor failure Control box /wiring failure	Verify harness is connected to right center sensor Verify harness is connected properly to control box harness Verify that signal wire (Pin B white wire of sensor cable) is connected to PIN14 of connector Y101 (Insight box) Make sure sensor meets requirements in - Advanced Information - Basic Requirements section of this manual Go to >>Initial Setup>>Number Sensors and choose the correct number of sensors See sensor troubleshooting instructions Contact Headsight
ER47 Right Center sensor detected but not expected	Incorrect number of sensors selected in setup Harness wiring error Control box /wiring failure	Go to >>Setup>>System Select and choose the correct number of sensors Verify that no wires contact PIN14 of connector Y101 Contact Headsight

Error Code	Problem	Solution
ER51 Right sensor signal less than 0.3V	Left sensor temporarily disconnected.	Repair wiring or bad connector Calibrate Insight Box Calibrate Combine
	Wiring open	Check sensor harness for pinched/ broken wiring
	Sensor failure	See sensor test instructions
ER52 Right sensor signal greater than 4.7V	Wiring problem	Ground wire to sensor is open Signal short to power Calibrate Insight Box Calibrate Combine
	Sensor failure	See sensor test instructions
ER53 Right sensor swing less than 0.6V	Right sensor mechanical range is restricted	Verify sensor is not obstructed in swing Verify sensor can collapse fully with header lowered Adjust down stop to allow greater range
	Sensor failure	See sensor test instructions
ER56 Right sensor expected but not detected	Right sensor not properly connected	Verify harness is connected to right sensor Verify harness is connected properly to control box harness Verify that signal wire (Pin B white wire of sensor cable) is connected to PIN9 of connector Y101 (Insight box)
	Not enough swing during cal	Make sure sensor meets requirements in - Advanced Information - Basic Requirements section of this manual
	Incorrect number of sensors selected in setup	Go to ››Initial Setup››Number Sensors and choose the correct number of sensors
	Sensor failure	See sensor troubleshooting instructions
	Control box /wiring failure	Contact Headsight
ER57 Right sensor detected but not expected	Incorrect number of sensors selected in setup	Go to ››Setup››System Select and choose the correct number of sensors
	Harness wiring error	Verify that no wires contact PIN9 of connector Y101
	Control box /wiring failure	Contact Headsight
ER61 Sensor 6 (aux sensor) signal less than 0.3V	Wiring open	Check sensor harness for pinched/ broken wiring
	Sensor failure	See sensor test instructions

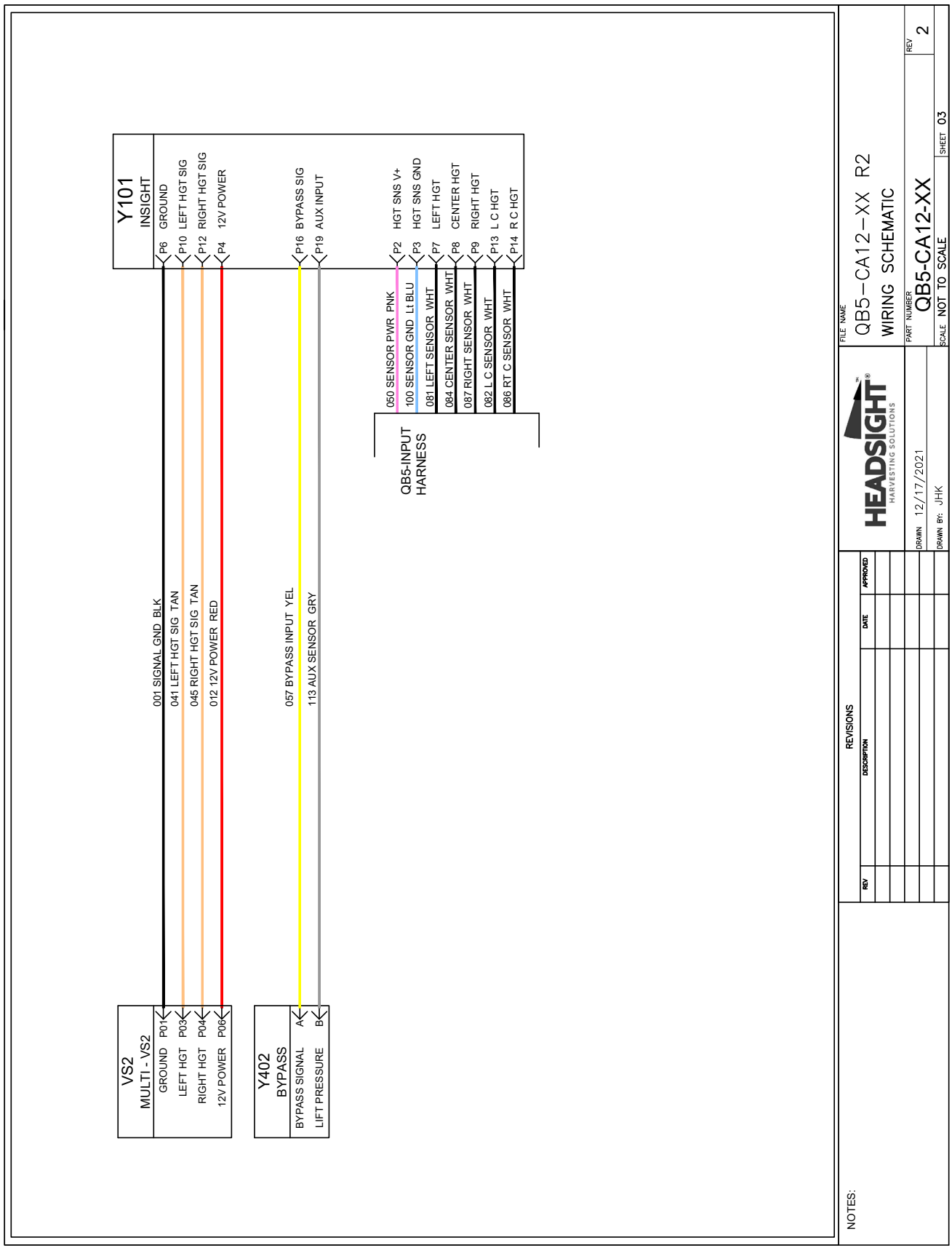
Error Code	Problem	Solution
ER62 Sensor 6 (aux sensor) signal greater than 4.7V	Wiring problem Sensor failure	Ground wire to sensor is open See sensor test instructions
ER92 Tilt Sensitivity greater than 4.0V	Wiring problem	Turn the Tilt sensitivity knob in the cab to Maximum CW. Read under ››Diagnostics››Detailed Diag.››Tilt Sens In, on the Insight box Reading between 4.0 and 4.5. Call Headsight for instructions Reading › 4.5V, Combine problem- Check wiring on combine

Schematics

The Insight Harness schematic is the main harnesses used for all applications in this manual, each uses one of the following valve harnesses depending on your steering device.

The following schematics are provided for troubleshooting and installation purposes only. Unauthorized uses, such as using them to replicate harnesses for resale, are strictly prohibited under copyright law.

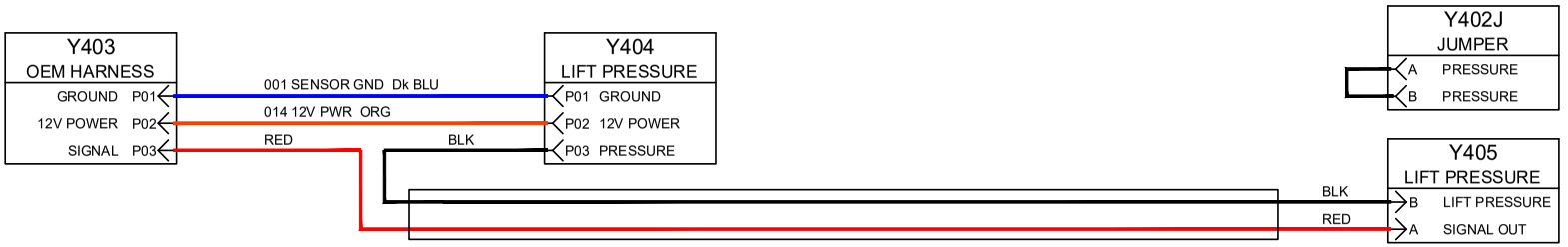
Insight Harness (typical)



OPTION 1: COIL SPRINGS

APPLIES TO:

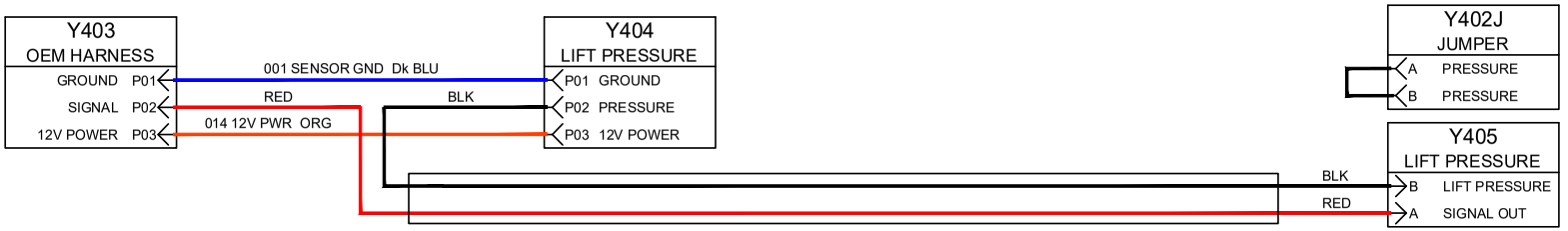
- ALL 400 & EARLY 500 SERIES WITH LIFT CYLINDER COIL SPRINGS AND SPRING POSITION SENSOR
- WHENEVER OEM PURPLE OR GREY WIRE IS IN POSITION 3.



OPTION 2: ACCUMULATORS

APPLIES TO:

- ALL 500 SERIES WITH LIFT CYLINDER HYDRAULIC ACCUMULATOR PACKAGE AND LIFT PRESSURE SENSOR
- WHENEVER OEM PURPLE OR GREY WIRE IS IN POSITION 2.



NOTES:

LEXION PRESSURE BYPASS HARNESS
FOR USE WITH ALL 400 & 500 SERIES LEXION

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
2	REVERSED OPTION 1 & 2	1-30-15	JHK

HEADSIGHT™ HARVESTING SOLUTIONS

DRAWN 4/4/2016
DRAWN BY: JHK

FILE NAME
PFB–CAT–P R2
WIRING SCHEMATIC

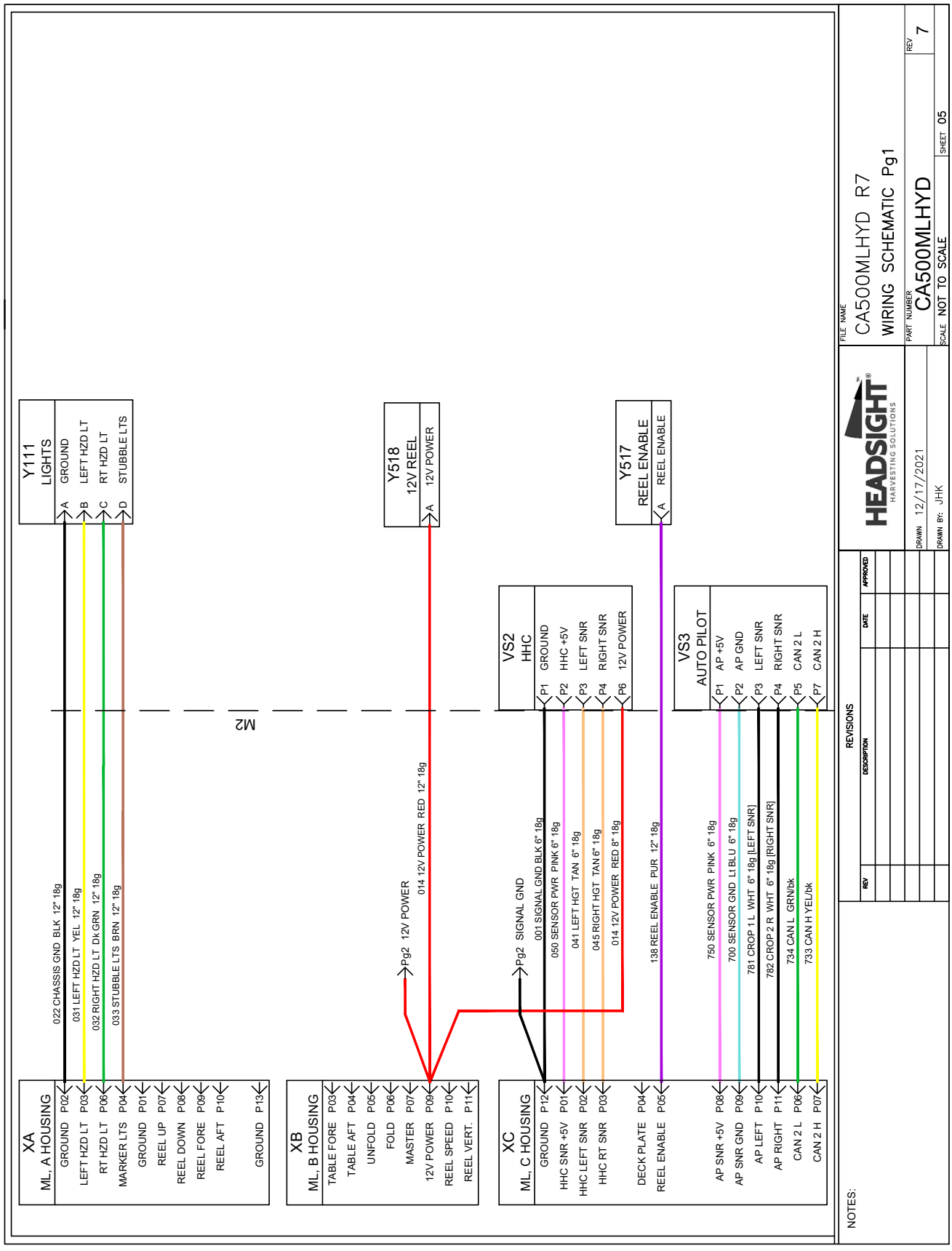
PART NUMBER
PFB-CAT-P

REV
2

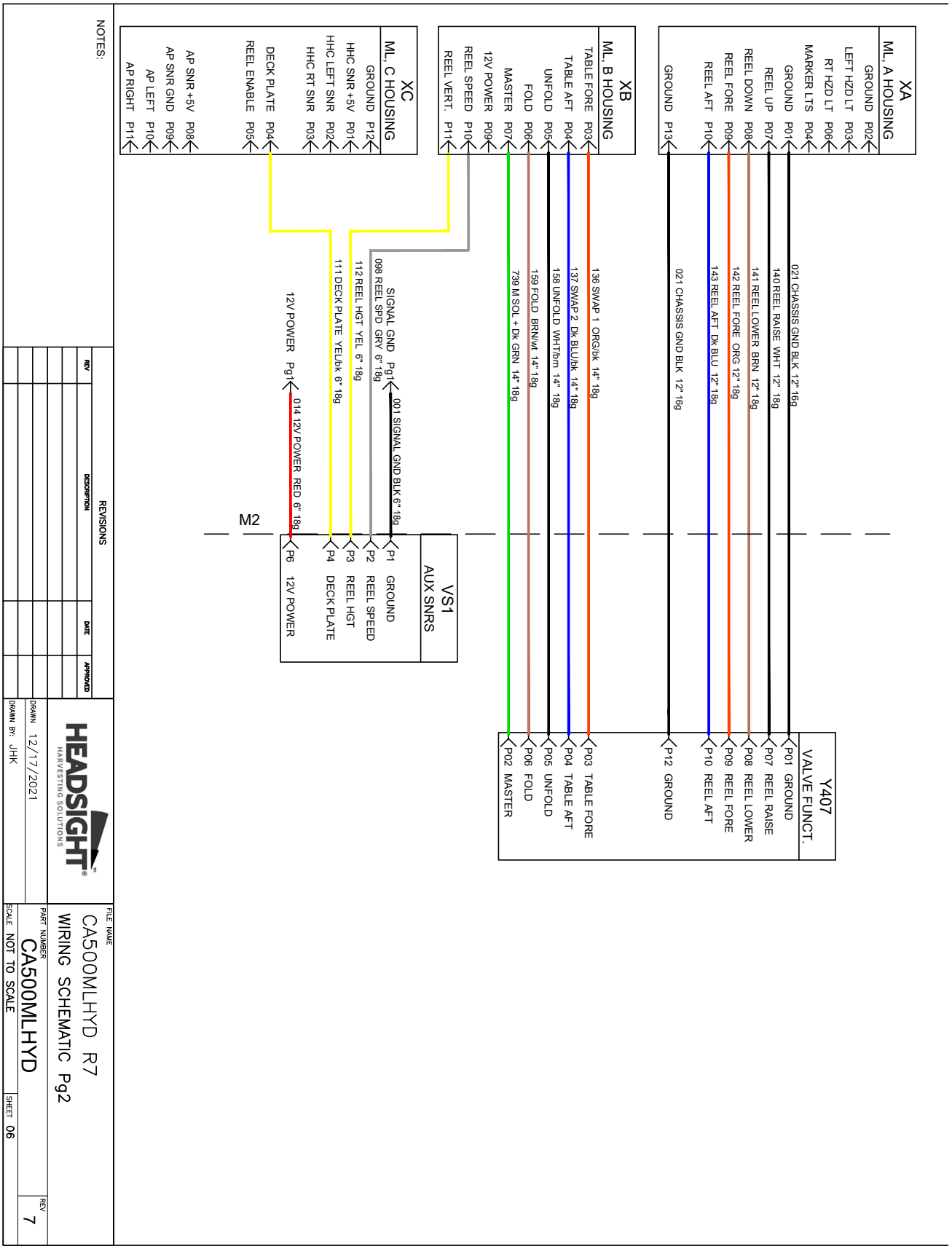
SCALE NOT TO SCALE

SHEET 02

Header Multilink - Internal Schematic Pg 1



Header Multilink - Internal Schematic Pg 2



NOTES:

REV	DESCRIPTION	DATE	APPROVED

REVISIONS

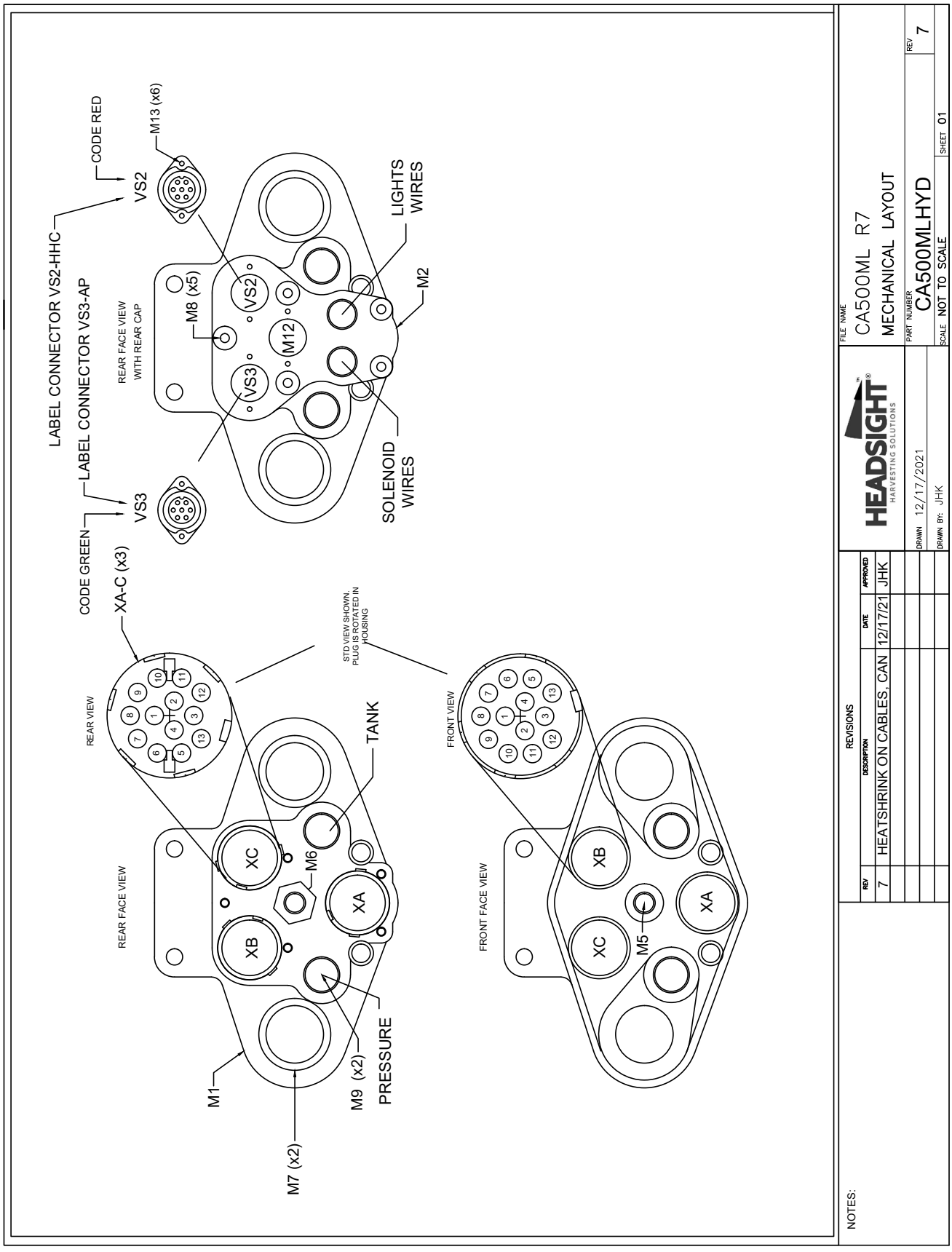
HEADSIGHT HARVESTING SOLUTIONS

DRAWN 12/17/2021
DRAWN BY: JHK

FILE NAME: CA500MLHYD R7
WIRING SCHEMATIC Pg2

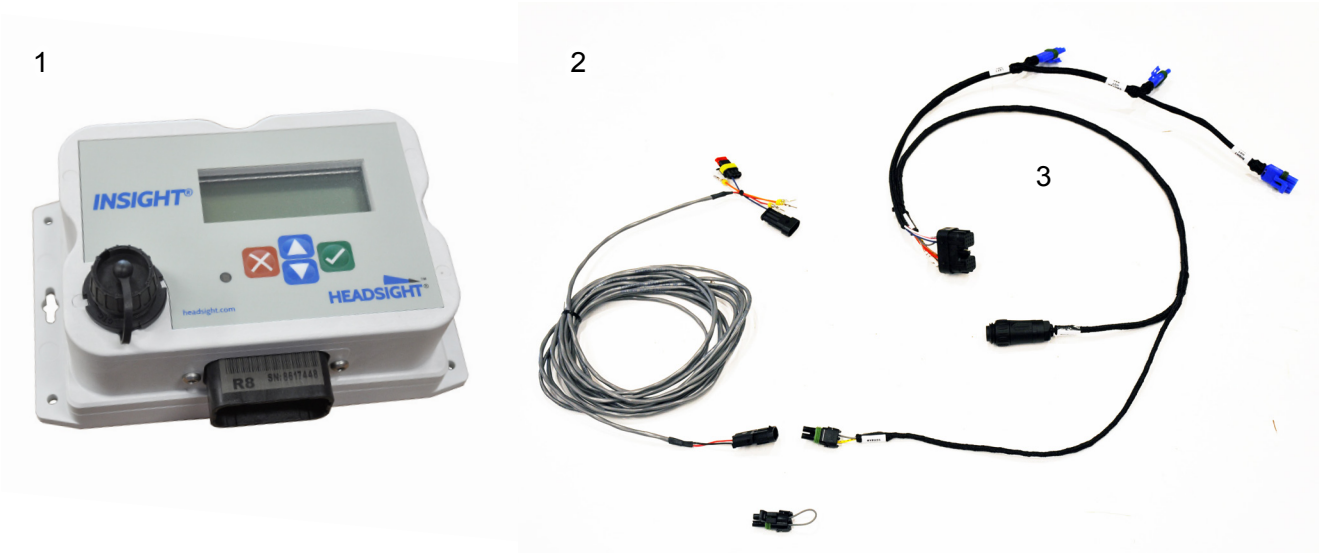
PART NUMBER: CA500MLHYD
REV: 7
SCALE: NOT TO SCALE
SHEET: 06

Header Multilink - Mechanical



Parts

Insight & Harnesses



ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	INSIGHT	Insight Control Unit
2	AR	PFB-CAT-P	Pressure Bypass
3	AR	QB5-CA12-XX	Main Harness

Statement of Limited Warranty

For Headsight® Products

Precision Planting DBA Headsight Harvesting Solutions (Headsight) warrants its new products to be free from defects in material and workmanship for a period of twelve (12) consecutive months following the date of purchase by the retail purchaser.

Headsight warrants its new corn sensors assemblies for a period of thirty-six (36) months.

Headsight warrants genuine Headsight replacement parts and components to be free from defects in material and workmanship for a period of six (6) consecutive months following the date of purchase or the remainder of the original equipment warranty period, whichever is longer.

Headsight's obligation under these warranties shall be limited to repairing or replacing, free of charge to the original purchaser, any part that, in Headsight's judgment, shows evidence of such defect.

Limitations to Warranty

This warranty does not cover:

- Warranty claims directly resulting from improper installation of the product.
- Any product damaged by accident, abuse, misuse, or negligence after shipment from Headsight.
- Any unauthorized product alteration or modification.
- Any unauthorized repairs made with parts other than genuine Headsight parts.
- Any repairs performed by anyone other than Headsight or an authorized Headsight dealer unless specifically authorized by Headsight.

Warranty Procedure

- Troubleshooting should be done between farmer/dealer and Headsight through our technical assistance **@ 574.220.5511**.
- Labor reimbursement will occur only pre-arranged through Headsight technical assistance and be scheduled to a flat rate basis or reasonable time allowance in Headsight's judgment.
- There is no mileage reimbursement.
- Diagnostic time will not be reimbursed except in pre-arranged circumstances.
- Warranty claims should be on typical dealer service work order with a number and name to be attached for any future correspondence.
- All warranty work must be performed, and claims submitted, within thirty (30) days of the occurrence of the claim and within the warranty period.
- All parts removed during warranty repair must be returned to Headsight with Headsight's Return Form within thirty (30) days of the occurrence of the claim and within the warranty period.
- Headsight reserves the right to either inspect the product at the original retail purchaser's location or require it to be returned to Headsight for inspection.

Limitation of Liability

Headsight makes no express warranties other than those, which are specifically described herein. Any description of the goods sold hereunder, including any reference to buyer's specifications and any descriptions in circulars and other written material published by Headsight is for the sole purpose of identifying such goods and shall not create an express warranty that the goods shall conform to such description.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. There are no implied warranties of merchantability or fitness of a particular purpose. This warranty states Headsight's entire and exclusive liability and buyer's exclusive remedy or any claim for damages in connection with the sale of furnishing of Headsight products, their design, suitability for use, installation or operation, or for any claimed defects herein. HEADSIGHT WILL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, NOR FOR ANY SUM IN EXCESS OF THE PRICE RECEIVED FOR THE GOODS FOR WHICH LIABILITY IS CLAIMED.

No representative of Headsight nor any dealer associated with Headsight has the authority to change the items of this warranty in any manner whatsoever, and no assistance to purchaser by Headsight in the repair of operation of any Headsight product shall constitute a waiver of the conditions of this warranty, nor shall such assistance extend or revive it.

Headsight reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold. Warranty: **12/2021**

HEADSIGHT™
HARVESTING SOLUTIONS

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