

# CONVERSION

INSTALLATION & OPERATION MANUAL



**LEXION  
TO  
JD 6/7xxC/CF**

09040115d



HEADSIGHT.COM | 574.546.5022



# About Headsight

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## About this Manual

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### 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](mailto:info@headsight.com).

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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.



**JD heads 2016 & up have a check valve block added in the Reel F/A circuit on the head. Older heads may also have this block retrofitted. This check valve must be removed for proper operation on any other combine. The symptom is a “jerky” motion of the Reel F/A circuit.**

## 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



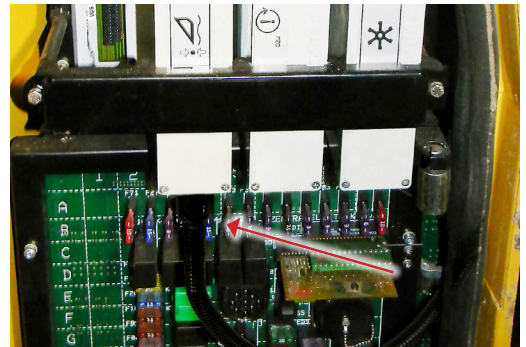
### Type 3: 500A

- 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.
  - AHC Module has wiring out bottom.
  - See Advanced Info, Identifying Installation of...for more information on this kit.



### Type 5: 600, 700 & 8000

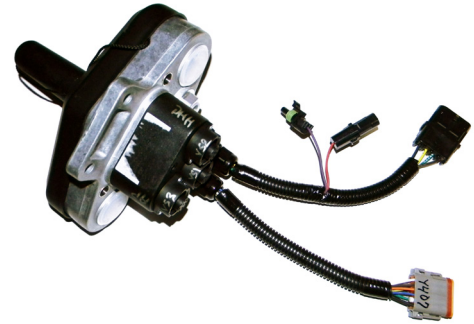
- All 600, 700 & 8000 combines



# Components

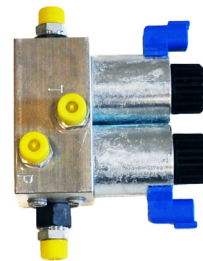
## 1. Multilink

- CA500MLHYD
- Required to allow connection to the combine
- Also Includes the Reel Flow fittings kit HT9003



## 2. Hydraulics, Single Valve Assm. kit

- HT9001
- Required to control the hydraulic functions on the header to the combine. See valve-specific manual.



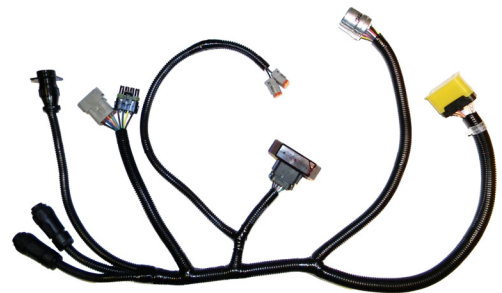
## 3. Insight

- INSIGHT
- Converts the AHC system on the header to the Lexion combine.



## 4. Header Adapter Harness

- QB0-CA12-31Q
- This harness is installed on the Header, between the Insight, Lexion multilink, valve assm, and the JD header connection. For connector details, see “Wiring” in the Appendix





Make sure the cable routing is done so no wiring can bind or pinch. Tie up all loose cabling. Properly installed wiring is the most critical aspect of a trouble-free installation. For harness details, see Advanced Info/Harness & Connector Guide.

## Multilink and Valve Mounting

1. Mount the Headsight Multilink assembly on the header.
  - Shown with combine connected
  - Photo shows one suggested mounting position
2. See the Specific Installation Guide for the Dual Valve assembly for details on the next steps.
3. Mount the hydraulic valve assembly to the head.
4. Route the pressure and tank hoses from the valves to the multilink.
5. Disconnect the smaller hoses from the OEM Header Single point and connect them to the valve assembly.
6. Install the Reel Flow couplings into the Multilink and connect the Reel Drive hoses.



## Insight Box Mounting

1. Hold Insight unit (or mounting bracket if supplied) at rear of header near the Multilink and feederhouse electrical connection on combine and mark mounting hole locations.
2. Drill mounting holes using 1/4" drill bit.
3. Secure box to header.
  - Use provided tie straps or 1/4" bolts.
  - Box must be within reach of the header electrical connector and the Multilink.



If Insight Box does not power up after completing full installation section, check that Y401 is connected to correct port on multilink, and see Advanced Info, 12V Power Test.

# Header Adapter Harness

1. Connect the 24 pin connector on the adapter Header harness to the Insight box using an Allen wrench.

## Header Connection

2. Remove the snap ring holding the OEM header electrical connector in the JD single-point plate.
3. Remove the OEM header connector from the single point plate.

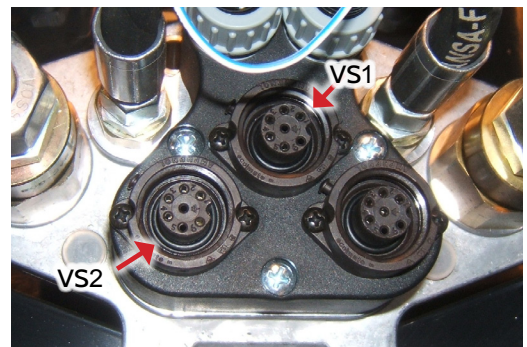


4. Connect to Y202 on the adapter. Press the two connector bodies together; secure with the HT2259 bracket and zip ties.
5. Make sure a Header Recognition Module is installed on Y310.
6. Tie Y232 (and Y248, FD only) so they are easy to connect during header hookup.



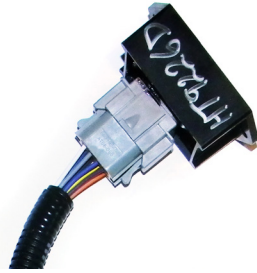
## Multilink Connection

7. Connect Insight™ header harness to header side of multilink block.
  - The plug marked Y410/VS1 should connect to receptacle VS1
  - The plug marked Y401/VS2 should connect to receptacle VS2
  - Make sure Y424 (16 pin Round) is tied so that it is easily accessible when connecting/disconnecting the header
8. Connect Y111 and Y112 (Lights) together.
9. Connect Y407 and Y408 (Valve Functions) together.
10. Place Y424 near the Multilink so it can be easily accessed during header attachment.



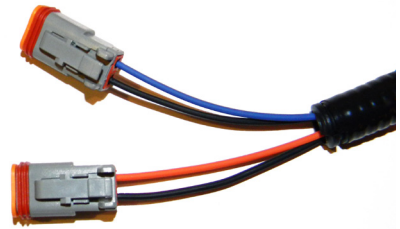
## Diode Module

11. For non-folding heads, make sure the Y160C Jumper cap (not shown) is installed on Y160.
12. For Folding heads, Remove the Y160C and install HT9226 (shown) on Y160. Mount or Zip-tie as appropriate.



## Deck Plate/Fold Valve Connection

13. Connect the Deck Plate/Fold valve Connection.
  - Connect Y417 to the Deck Closed Solenoid
  - Connect Y418 to the Deck Open Solenoid
14. If the function operates backwards, switch the connectors to the opposite valves (Y417<->Y418).



## Reel Enable



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

1. To enable reel drive flow connect the mating 1p Weatherpack connectors, Y517 & Y518.
  - For headers with end augers, corn reels, etc.



## 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.

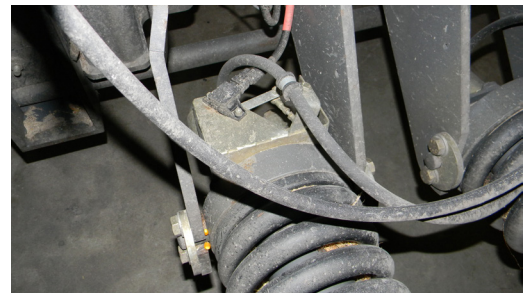
### **Type 3: 500A combines**

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.



## Setup Insight<sup>®</sup> Box

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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

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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.



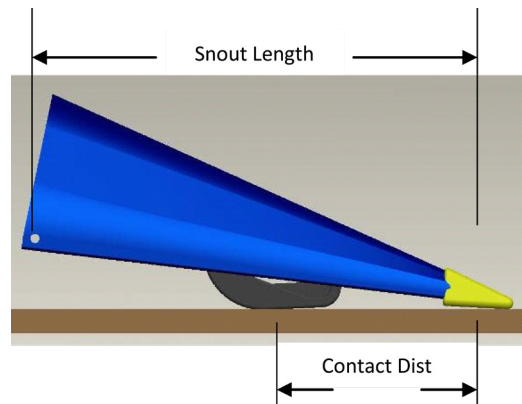
If an error appears on the Insight box - see the Diagnostic section of this manual.

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





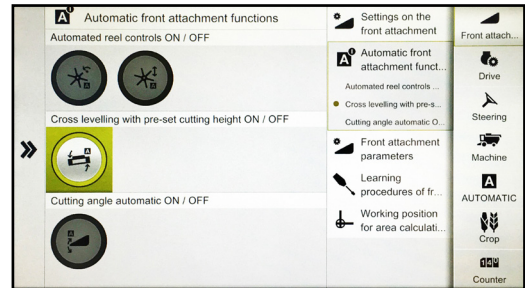
# Combine Calibration: 8000 Series



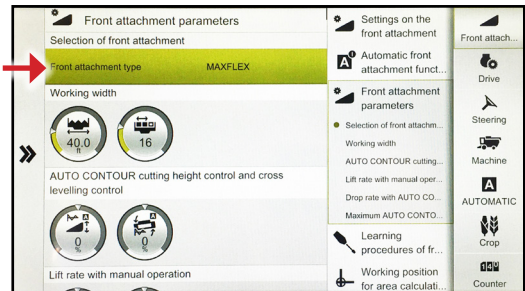
**Note:** Calibrations and parameter adjustments are only available in Expert/Professional mode on the 8000 series Cebis system. If you do not have these settings, check the Mode.

## Setup

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

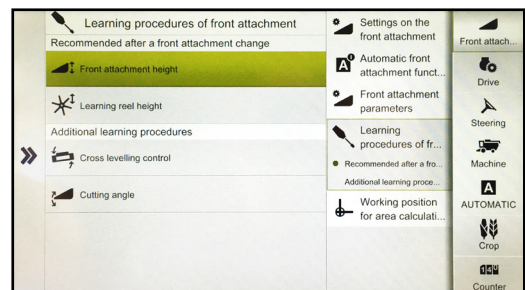


4. Choose “Front Attachment Parameters”
5. Select the Front attachment type
  - Choose the most relevant type of header from the list
6. Select other relevant setup for the header under “Settings”
  - Width, rows, etc.




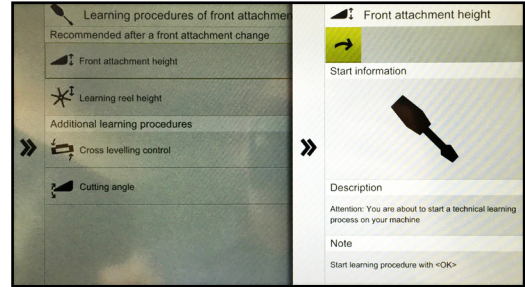
## Calibration


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

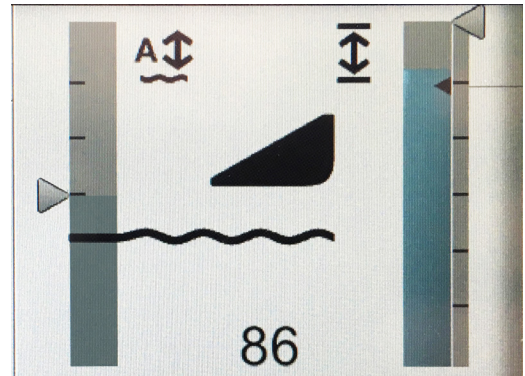
7. After calibration, the right bar graph should read 0-100 as the head is moved full stroke.

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.





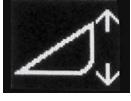

The graphs may not respond exactly as noted for all heads and types. If the AHC appears to work correctly, the system can still be considered properly set and calibrated.

# Combine Calibration: 600 & 700 Series



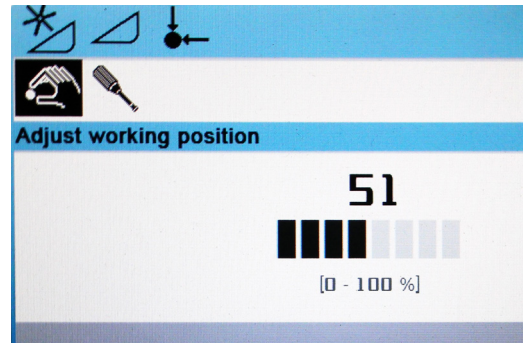
To ensure a proper calibration, make sure your combine has the latest Lexion recommended software and the feeder to header latching mechanism is tight with minimal play. See Appendix for more information.

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.

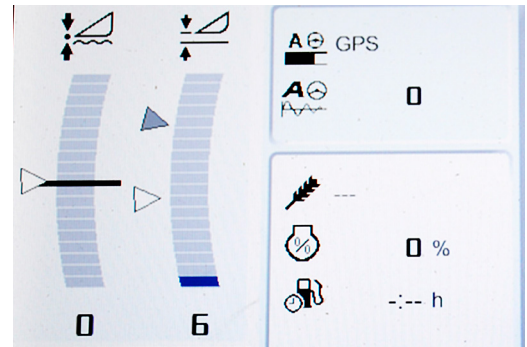
9. Reading the left graph:

- 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”.



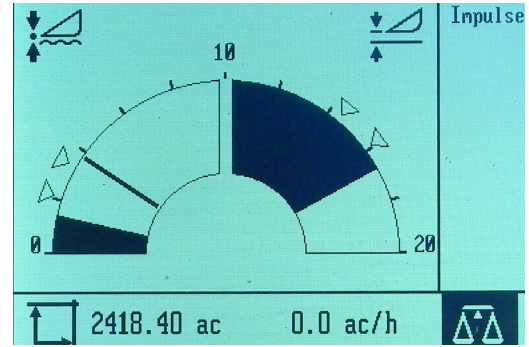
- Choose  on the harvest display – Press OK
  - Choose “Header” – Press OK
  - Choose “Sensitivity CAC” – Press OK
  - For Off-Ground sensing (corn or wheat sensors): change setting to:
    - 50% for Type1: 400 & Type 2: 500S combines with lift springs (Do not adjust)
    - 61-100% for Type 3: 500A & 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.


## Insight Settings

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### Tilt Sensitivity

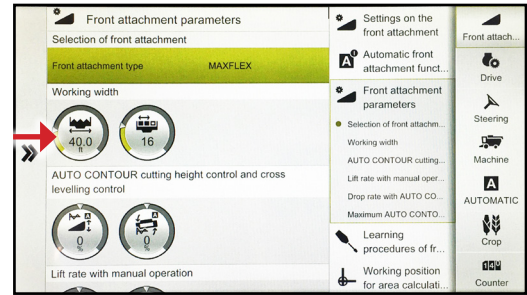
1. To change this setting go to >>Settings>>Tilt Sensitivity in the Insight™ box.
  - Default setting is 50.
2. Adjust combine Tilt Sensitivity first (when available.)
3. If the head is to jumpy from side to side:
  - Decrease sensitivity
4. If you would like the head to be more responsive:
  - Increase sensitivity
5. Press  Enter to save value

### Tilt Balance

1. To change this setting go to >>Settings>>Tilt Balance in the Insight™ box.
  - Default setting is 100
2. Make certain ALL other possible causes of head running out of level are eliminated first:
  - Insight/sensors not calibrated on flat level surface
  - Combine not calibrated on same surface as Insight
  - Header float not equal across head. Cutterbar should move the same travel at both ends.
3. If the head will still not run level:
  - Increase value to tilt head to right.
  - Decrease value to tilt head to left.
  - Press  Enter to save value
4. This setting must be reset to 100 every time before doing a combine header calibration.

# 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.

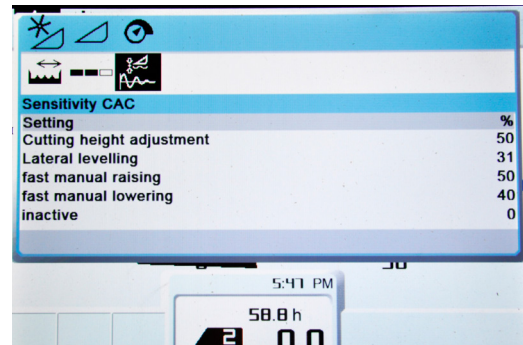
1. Perform “Learning End Stops” calibration before attempting fine tuning.
2. Start combine.
3. Use the scroll knob and ESC to navigate the menus as shown:
4. Get to the HHC “Sensitivity CAC”.

- Choose  on the main display - Press the Scroll knob to OK

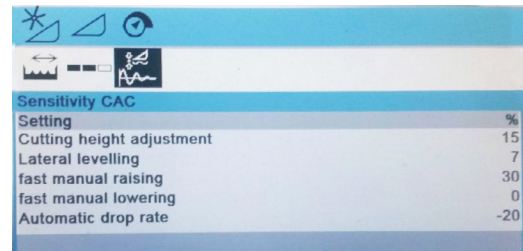
- Choose  - Press OK

- 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)



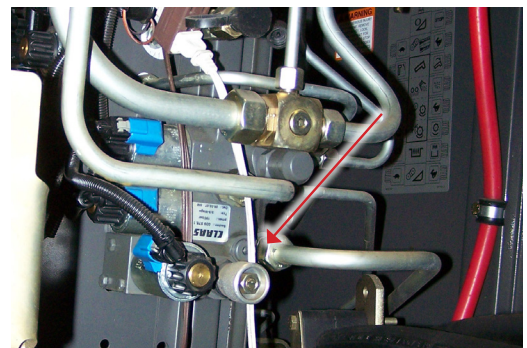
3. Choose  on the harvest display – Press OK.
4. Choose “Header” – Press OK
5. Choose “Sensitivity CAC” – Press OK
6. For off-ground sensing only (corn or wheat sensors): change setting to:
  - 50% for Type 1: 400 & Type 2: 500S combines with lift springs (Do not adjust)
  - 61-100% for Type 3: 500A & 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 too 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.



# 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

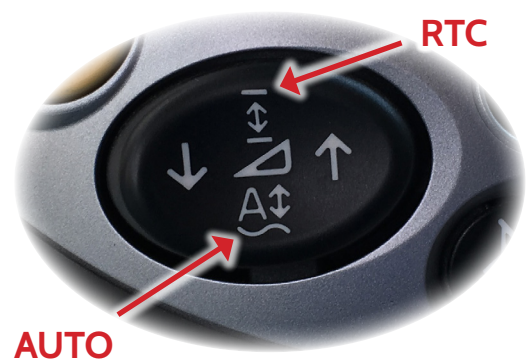


### 2. Press Auto (A w/wavy line) to enter AHHC.

- Press again to switch setting.
- For all heads with height sensors on the head

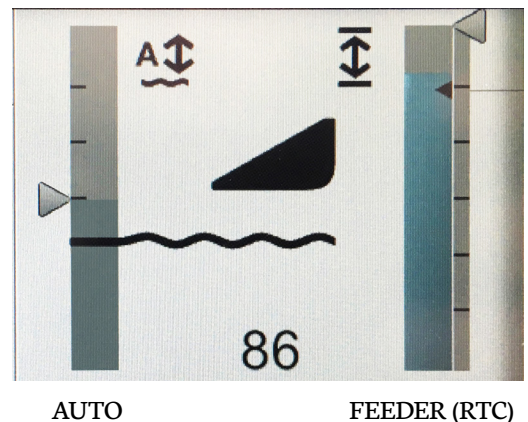
### 3. The top button (arrows to lines) is "Feeder Position" (Return to Cut or RTC).

- 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.



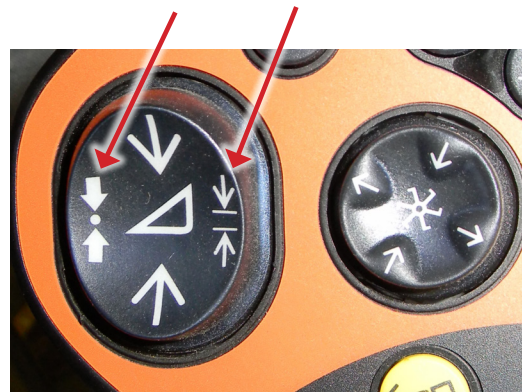
## 4/5/6/700 Series

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



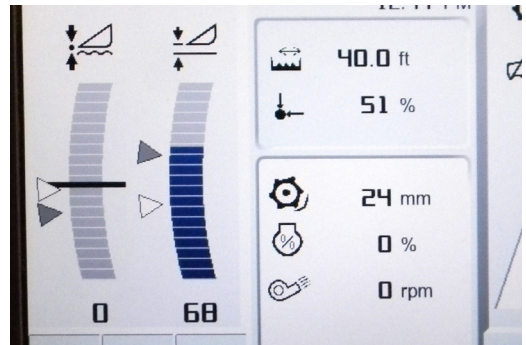
- Press left side of header raise/lower button to enter AHHC. Press again to switch setting.

- 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.



- 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.







## 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<sup>®</sup> to Defaults

To reset all settings hold  +  for 5 seconds

## Updating Insight<sup>®</sup> 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](http://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 (varies 1-4 volts)
  - green or pink = 5 volt power
3. The Insight box (if equipped) 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 sensors 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 similar to what it would see with an OEM system.  
All existing combine controls and settings may be used.

## Basic Requirements

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**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.**

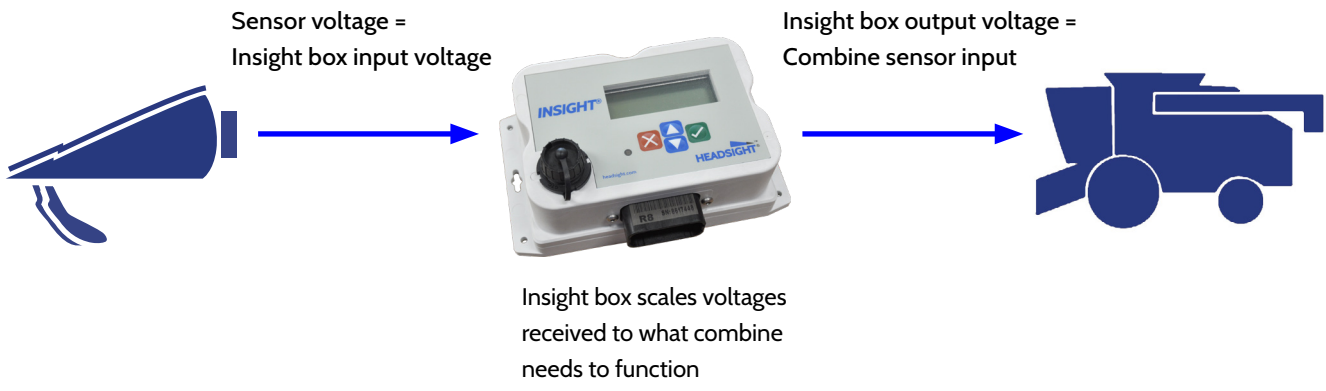
- See the header manual for sensor adjustment instructions.
- Sensor output voltage must always be between .3 and 4.7 volts.
- Sensor output voltage must change more than 1.0 volts from raised to lowered position for each sensor.

# 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<sup>®</sup> Box : Sensor Voltages

1. From main menu, go to >> Diagnostics>>Display Voltages

- This shows real-time voltage coming from each sensor.

```
L LC CTR RC R  
0.0 0.0 0.0 0.0 0.0  
Sensors^ L C R  
Outputs> 0.0 0.0 0.0
```

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

```
Left Sens =0.00V  
Max=0.00V SetH=5.00V  
Min=0.00V SetL=0.00V  
Enabled=N Reversed=N
```



## On the Insight<sup>®</sup> Box : Output Voltages

### 1. From main menu, go to >> Diagnostics>>Display Voltages

- This shows real-time voltage sent to the combine
- 1.0V with head fully lowered
- 4.0V with head raised

```

L   LC   CTR  RC   R
0.0 0.0  0.0  0.0  0.0
Sensors^ L   C   R
Outputs> 0.0 0.0  0.0

```

### 2. Alternately: 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

```

Pressure/aux Sensor
->Left Height Out
Right Height Out
Sensor Status

```

### 3. Left Height Output = X.XVolts

- 1.0V with head fully lowered
- 4.0V with head raised

```

Left Height OUTPUT
      =1.00V
Range = (1.0v-4.0V)

```

### 4. Right Height Output = X.XVolts

- 1.0V with head fully lowered
- 4.0V with head raised

```

Right Height OUTPUT
      =1.00V
Range = (1.0v-4.0V)

```

## 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.

# 12V Power Test



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

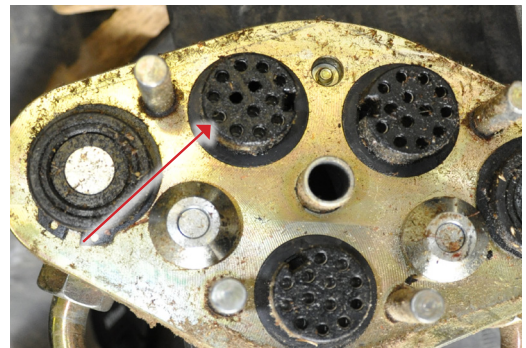
1. Turn on engine. Make sure the roading switch is in field mode.

- 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.



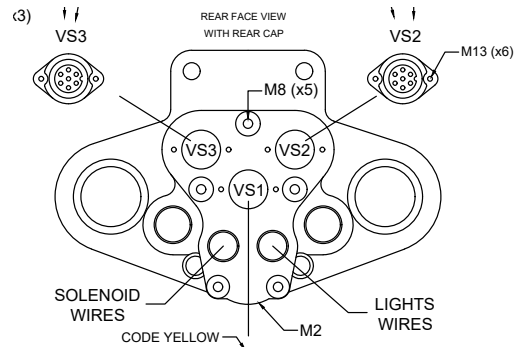
2. Disconnect the Combine Multilink and use a voltmeter to measure pin 9 of the B housing on the Combine Multilink.

- 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
  - Repair the Internal multilink power wire



## 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

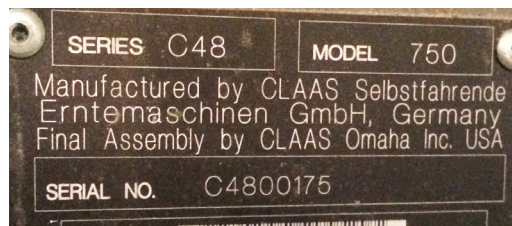
For machines with 2011-2014 OEM Lexion software, play in the connection between the header and feeder house can cause the calibration process to not work correctly. If your feeder can drop more than 1/2" after the header solid frame (not flex cutterbar skids) touches the ground, it is recommended that 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.



Information about version	
ECU	Software
CEBIS	3.0.0
VBM	1.4.3
OPM	3.2.0
WLP	2.0.6
ATP	1.2.4

#### Solution 2 – Earlier Models

- Note: this procedure works for all 6/700 combines on all headers.
- Remove or chain up any stubble stompers so they do not carry header weight during calibration.
- 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.



# 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.)



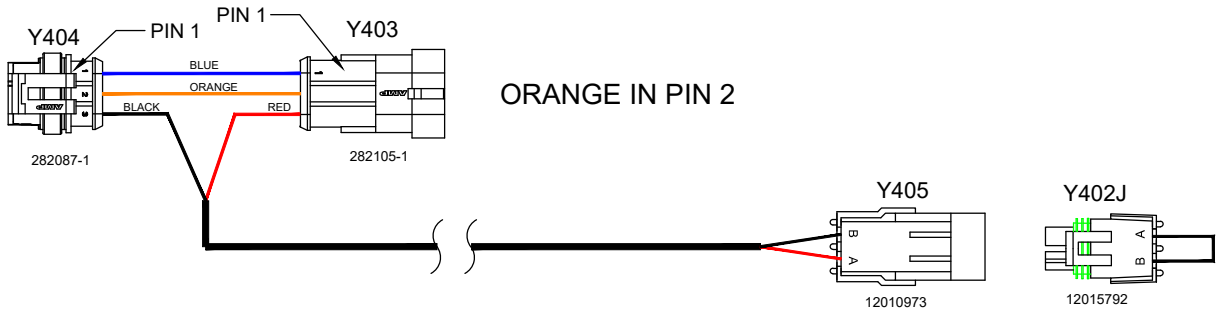
## Option #1: Coil Spring

- 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 1: COIL SPRINGS

APPLIES TO:

- ALL TYPE 1: 400 & TYPE 2: 500S COMBINES WITH LIFT CYLINDER COIL SPRINGS AND SPRING POSITION SENSOR



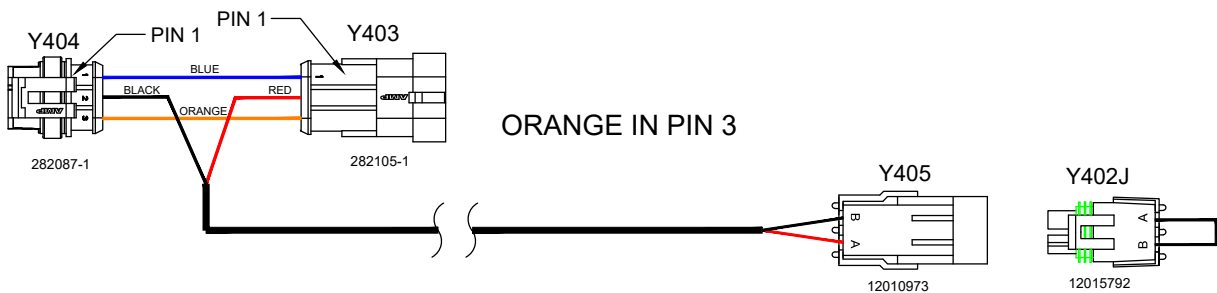
## Option #2: Accumulator

- 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)

### OPTION 2: ACCUMULATORS

APPLIES TO:

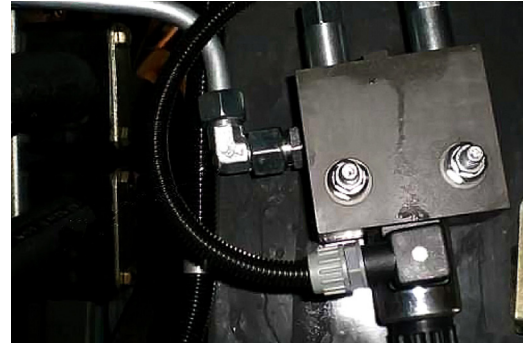
- ALL TYPE 3: 500A COMBINES WITH HP FEEDERHOUSE, LIFT CYLINDER HYDRAULIC ACCUMULATOR PACKAGE



# Identifying Installation of the 00 1498 048 0 Kit:

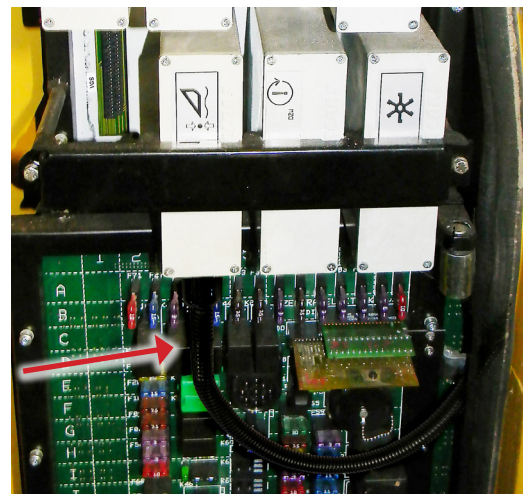
## Hydraulics:

- 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

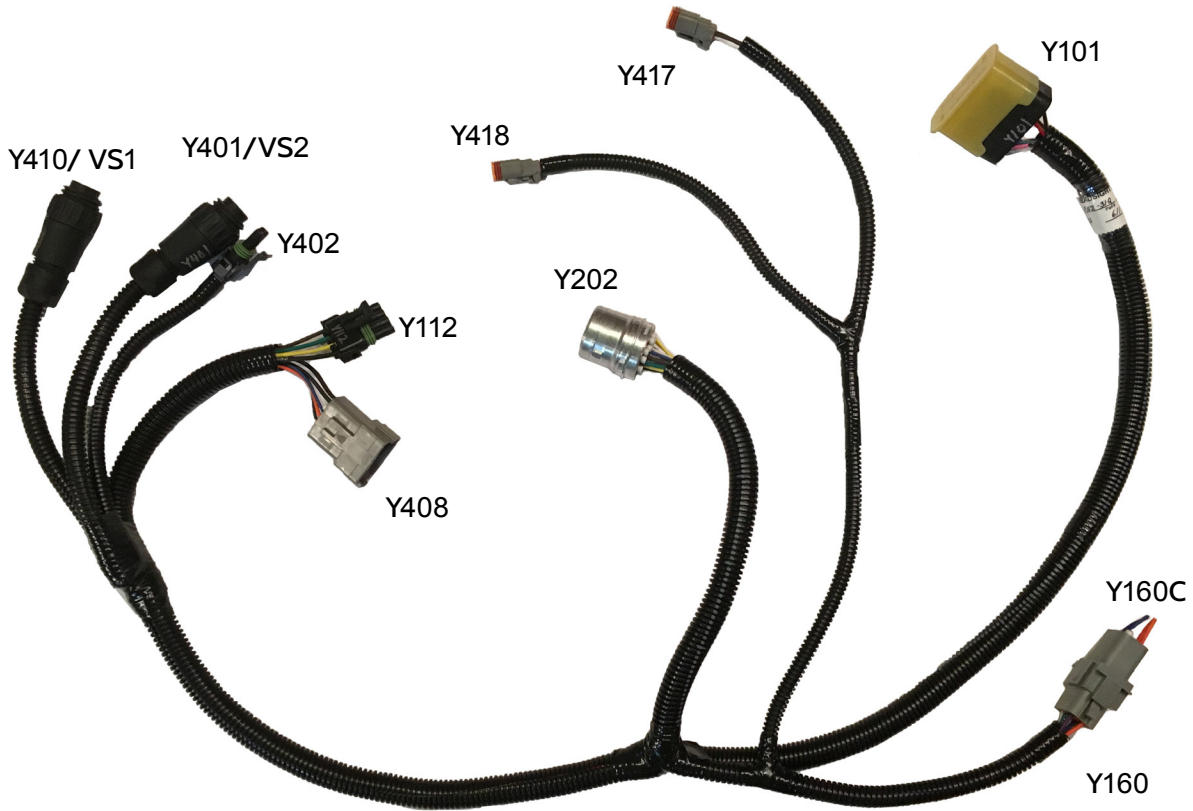


If both of these are present, your combine has the update kit installed. If so, the following instructions apply:

- 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

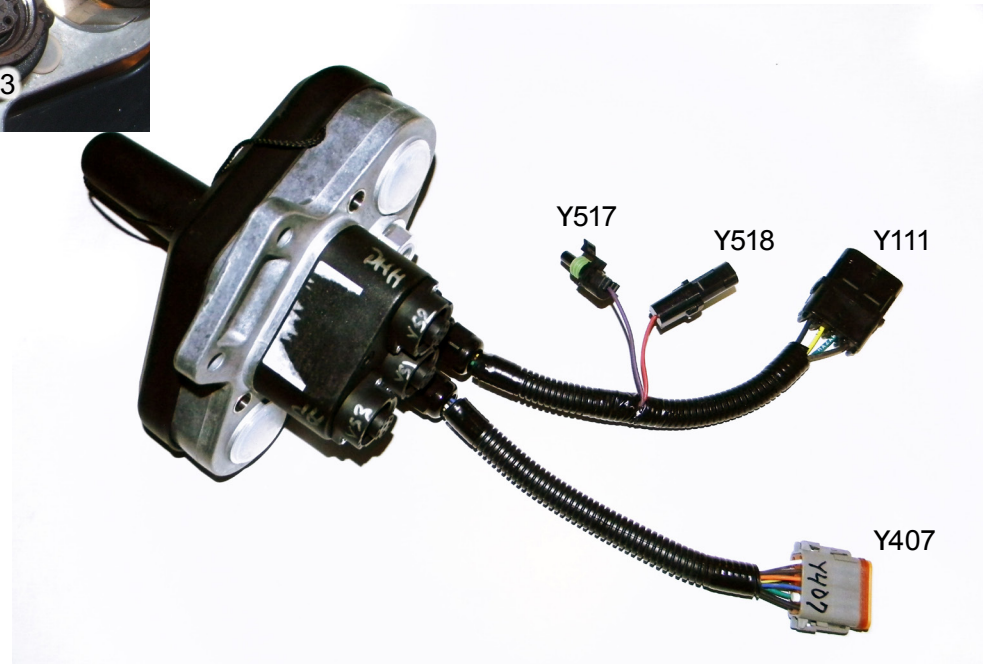
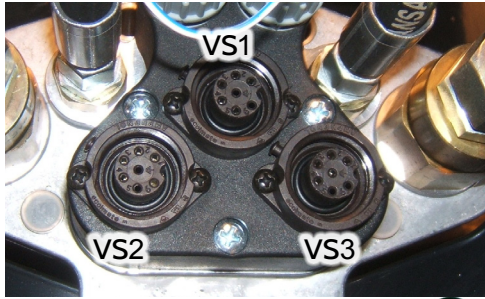
# Harness & Connector Guide

## QP0-CA12-31Q - Header adapter harness



<u>Connector</u>	<u>Description</u>	<u>Connects to</u>
Y202	31 pin Deutsch	Header Connector – Header Single-Point
Y112	4 pin WP	Multilink: Y111 Lights
Y101	24 pin DT	Insight™ Control box
Y160	12 pin DT	Jumper or HT9226 Diode Module
Y160B	12 pin DT	Jumper
Y408	12 pin DT	Multilink: Y407 Valve Functions
VS2/Y401	7 pin C016 (AHC)	Multilink: VS2
VS1/Y410	7 pin CO16 (Deck)	Multilink: VS1
Y417/8	2 pin DT set	Deck Plate Solenoids
Y402	2 pin WP	Pressure Bypass (4/500 Series)

## CA500ML - Multilink



<u>Connector</u>	<u>Description</u>	<u>Connects to</u>
VS1	Reel Sensors	VS1/Y410 (If equipped)
VS2	AHHC	VS2/Y401
VS3	AutoPilot	VS3/Y409 (If equipped)
Y111	Lights	Y112
Y517	Reel Drive	Y518
Y518	Reel Drive	Y517
Y407	Valve Functions	Y408

# 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.
  - Diagnostics are general for typical sensors...may not apply exactly to OEM JD header sensors
- 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
  - May not be accompanied by an Error message or Fault Code
- Common Combine Problems
- AHHC Diagnostics
- Lateral Tilt Diagnostics



# 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

## Sections

- Insight Status Light Diagnostics
- AHHC Diagnostics
- Lateral Tilt Diagnostics
- Deck Plate/Fold Diagnostics

Symptom	Problem	Solution
<b>Insight Status Light Diagnostics (Status not green)</b>		
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
<b>AHHC Diagnostics</b>		
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, or calibration not completed	Check wiring from sensor to combine, complete Combine AHHC calibration
	Insight not set correctly	Check Combine selection
	Header control is not enabled with cab controls	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
	Multilink wiring failure	Check AHHC sensor voltages in CEBIS (Lexion Service tool only)
	Combine Problem	Contact your Lexion Dealer
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

Symptom	Problem	Solution
<b>AHHC Diagnostics</b>		
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	Recalibrate Insight on flat surface.  Reset Insight: See Insight Overview for details
	0.8-1.2V head fully lowered 3.8-4.2V sensors off ground	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.
Lift Pressure Sensor Error in combine (4/500 Series only)	Pressure Bypass Jumper not installed	Install jumper for flex headers
	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
Cannot operate head low enough	Insight Bypass Output Incorrect	Call Headsight
	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
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

Symptom	Problem	Solution
<b>AHHC Diagnostics</b>		
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
<b>Lateral Tilt Diagnostics</b>		
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 reversed	Adapter harness miswired, contact Headsight
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
	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

Symptom	Problem	Solution
<b>Lateral Tilt Diagnostics</b>		
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 are adjusted the same
	Header not adjusted correctly	<p>Make sure the frame to cutterbar float adjustment is the same across the width of the head</p> <p>Repair header float mechanism as needed</p>
	All the above fails to correct problem:	<p>&gt;&gt;Settings&gt;&gt;Tilt Balance</p> <p>Adjust balance to level Head</p> <p>(Must be reset to 100 before calibrating combine)</p>

Symptom	Problem	Solution
<b>Deck Plate/Fold Diagnostics</b>		
Deck Plates do not function	Wiring not connected properly	Verify Y407 & Y408 are connected  Verify Y417 & Y418 are connected to the correct solenoids
	Jumper or Diode Module not installed	Make sure that Jumper or module is installed on Y160
	Diverter valve on head not firing (C/7xxCF only)	Verify that Pin 11 of Y202 has 12V when either Reel Fore or Aft button is pressed.
	Check for 12V to Deck Select valves	Test header harness
	Hydraulic problem on head	Check hoses for correct connection pattern  Contact JD service
Header does not fold or unfold (6/7xxCF heads only)	Wiring not connected properly	Verify Y407 & Y408 are connected  Verify Y417 & Y418 are connected to the correct solenoids
	Diode Module not installed	Make sure the HT9223 module is installed on Y150
	Diverter valve on head not firing	Verify that Pin 6 of Y202 has 12V when either Reel raise or lower is pressed.
	Check for 12V to Fold Select valves	Test header harness
	Hydraulic problem on head	Check hoses for correct connection pattern  Contact JD service

## Troubleshooting by Insight® Error Codes

Error Code	Problem	Solution
<b>ER11</b> Left 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
<b>ER12</b> Left 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
<b>ER13</b> Left sensor swing less than 0.6V	Left 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
<b>ER16</b> Left sensor expected but not detected	Left sensor not properly connected	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)
	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
<b>ER17</b> Left sensor detected but not expected	Control box /wiring failure	Contact Headsight
	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 PIN7 of connector Y101
	Control box /wiring failure	Contact Headsight



<b>Error Code</b>	<b>Problem</b>	<b>Solution</b>
<b>ER21</b> 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
<b>ER22</b> 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
<b>ER23</b> 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
<b>ER26</b> 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
<b>ER27</b> 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

<b>Error Code</b>	<b>Problem</b>	<b>Solution</b>
<b>ER31</b> Center sensor signal less than 0.3V	Center 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
<b>ER32</b> Center 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
<b>ER33</b> Center sensor swing less than 0.6V	Center 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
<b>ER36</b> Center sensor expected but not detected	Center sensor not properly connected	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)
	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
<b>ER37</b> Center sensor detected but not expected	Control box /wiring failure	Contact Headsight
	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 PIN8 of connector Y101
	Control box /wiring failure	Contact Headsight

<b>Error Code</b>	<b>Problem</b>	<b>Solution</b>
<b>ER41</b> 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
<b>ER42</b> 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
<b>ER43</b> 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
<b>ER46</b> 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
<b>ER47</b> 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

<b>Error Code</b>	<b>Problem</b>	<b>Solution</b>
<b>ER51</b> 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
<b>ER52</b> 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
<b>ER53</b> 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
<b>ER56</b> 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
<b>ER57</b> Right sensor detected but not expected	Control box /wiring failure	Contact Headsight
	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
<b>ER61</b> Sensor 6 (aux sensor) signal less than 0.3V	Control box /wiring failure	Contact Headsight
	Wiring open	Check sensor harness for pinched/ broken wiring
	Sensor failure	See sensor test instructions

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

# Schematics

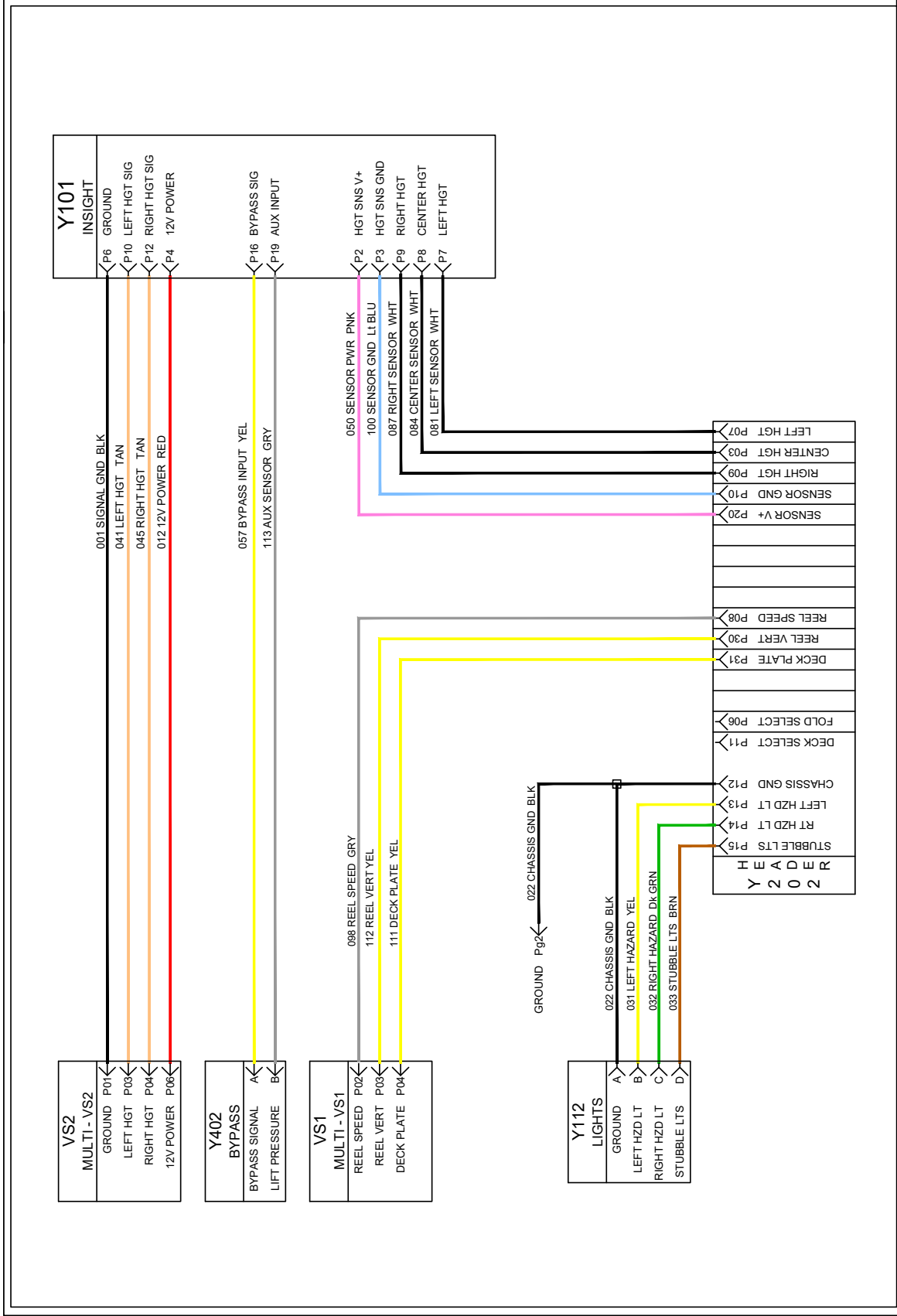


The Insight Harness schematic is the main harnesses used for all applications in this manual, each uses one of the following valve harnesses depending on your steering device.



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.

# Header Adapter harness - Pg 1



NOTES:

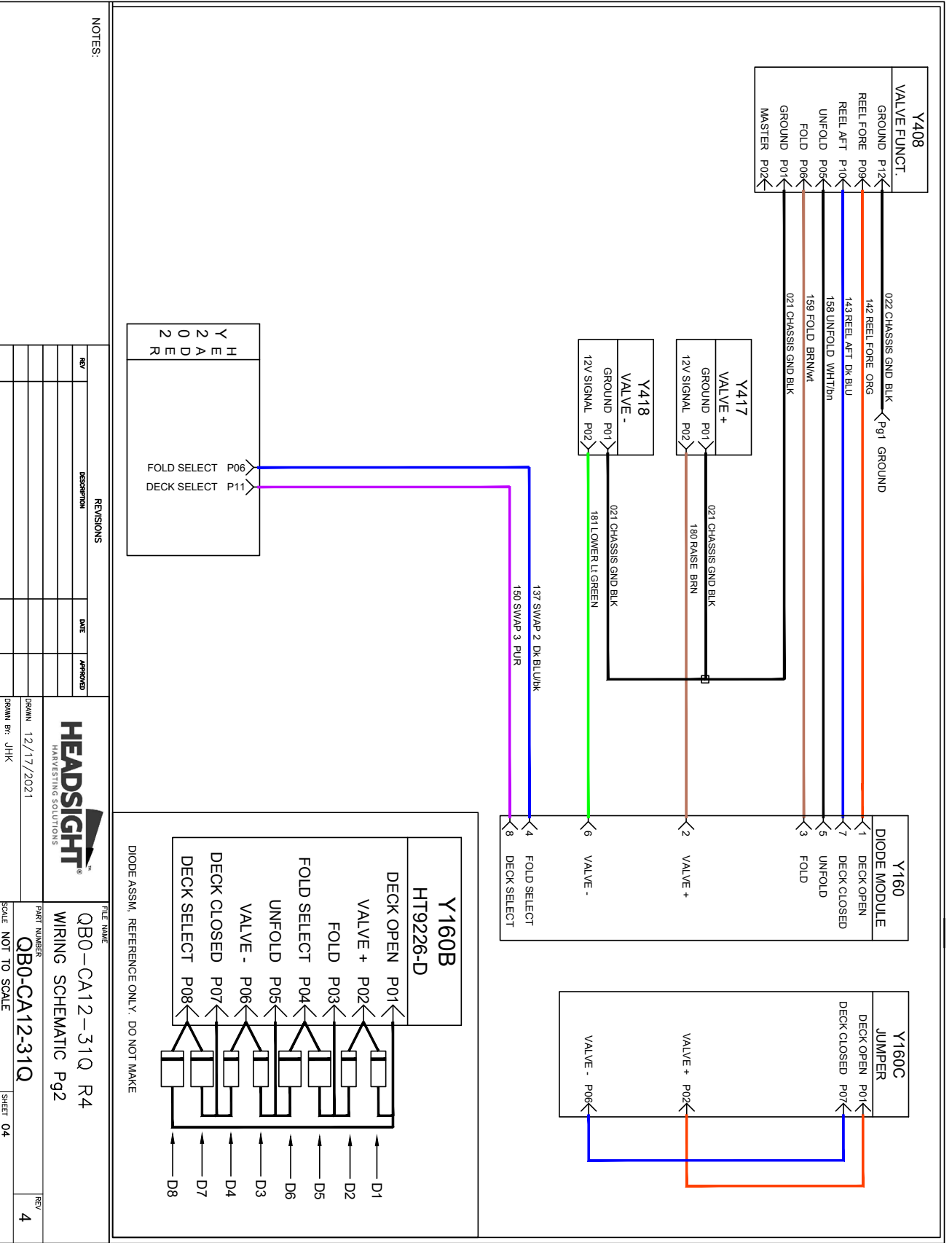
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REVISIONS

REV	DATE	APPROVED	DESCRIPTION

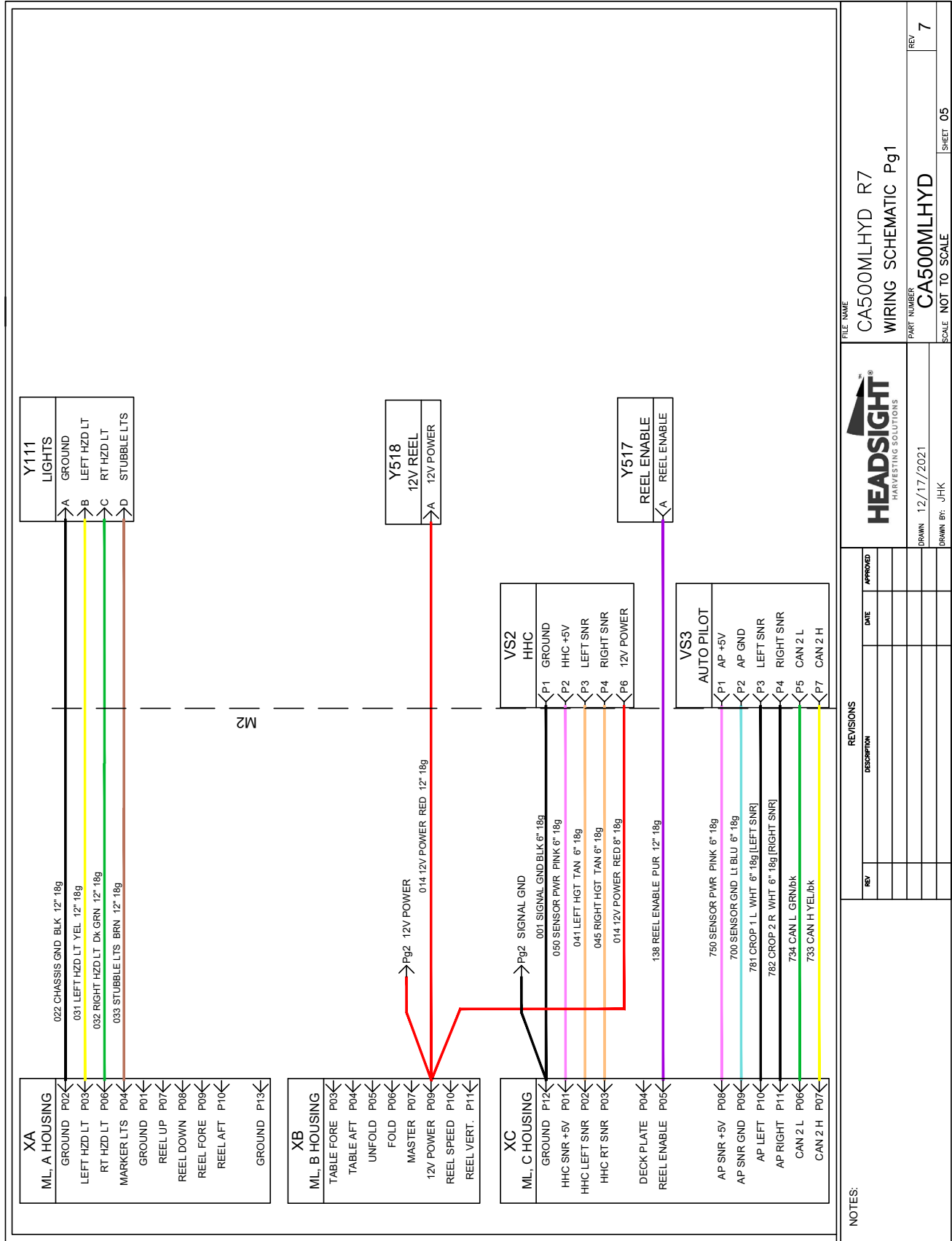
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 WIRING SCHEMATIC Pg1  
 PART NUMBER: QB0-CA12-31Q  
 SCALE: NOT TO SCALE  
 DRAWN: 12/17/2021  
 DRAWN BY: JHK  
 SHEET 03

# Header Adapter Harness - Pg 2





# Header Multilink - Internal Schematic Pg 1



FILE NAME		CA500MLHYD R7	
WIRING SCHEMATIC Pg1		REV 7	
PART NUMBER		CA500MLHYD	
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SHEET		05	

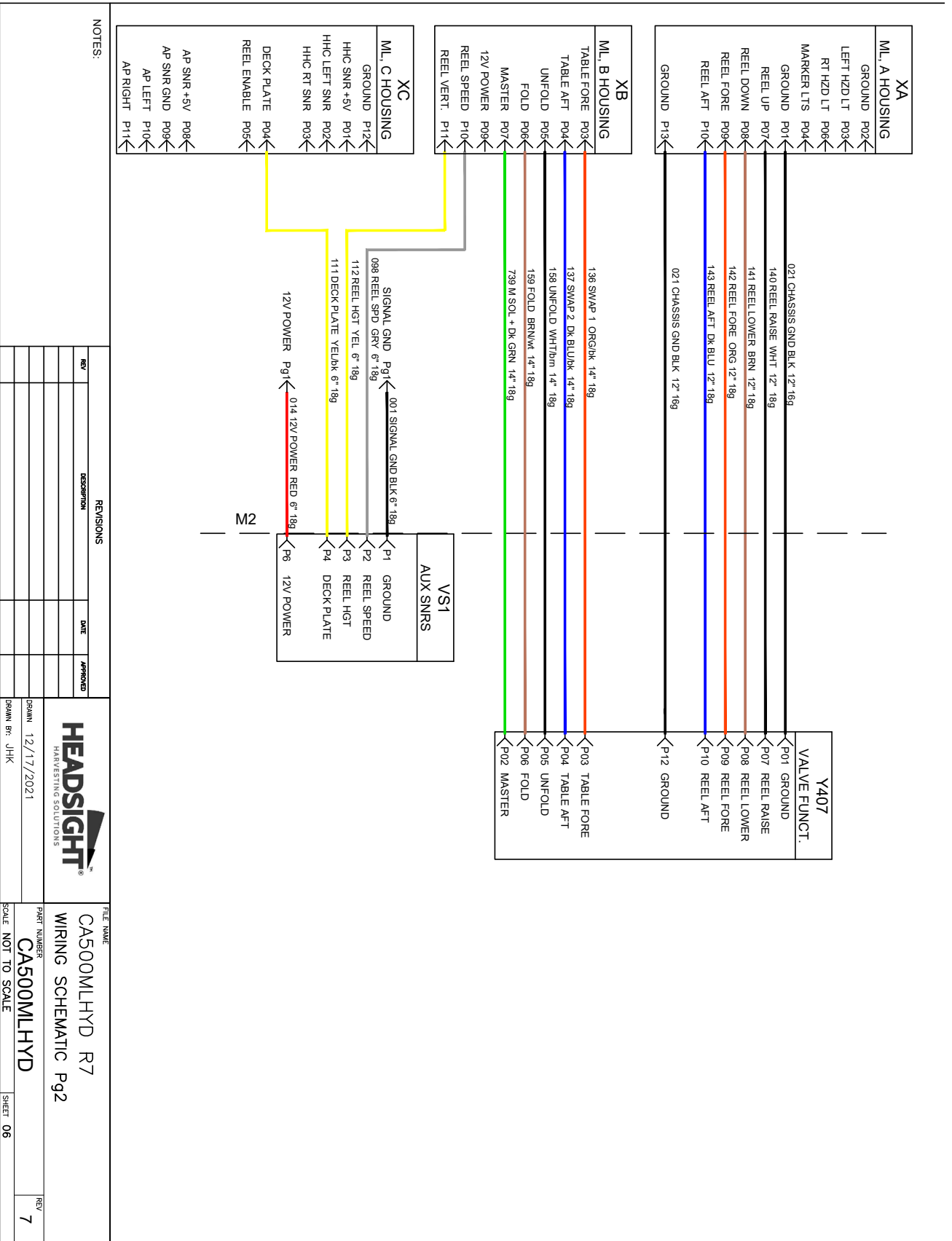
HEADSIGHT® HARVESTING SOLUTIONS		DATE	APPROVED
DESIGN	12/17/2021		
DRAWN BY:	JHK		

REV	DESCRIPTION	DATE	APPROVED

NOTES:

# Header Multilink - Internal Schematic Pg 2



NOTES:

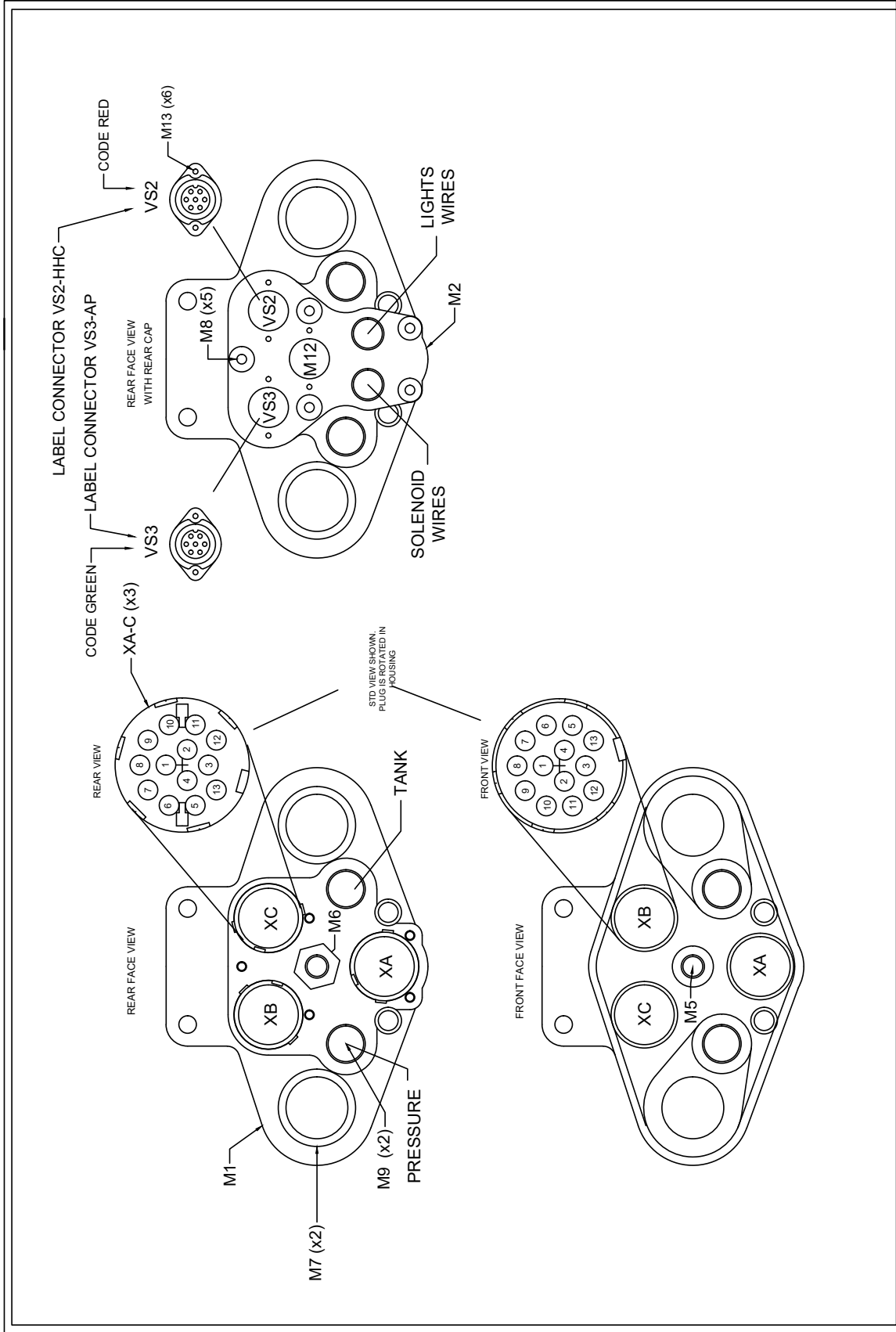
REV	DESCRIPTION	DATE	APPROVED

**HEADSIGHT**  
HARVESTING SOLUTIONS

DATE: 12/17/2021  
DRAWN BY: JHK

FILE NAME: CA500MLHYD R7  
PART NUMBER: CA500MLHYD  
WIRING SCHEMATIC Pg2  
SCALE: NOT TO SCALE  
SHEET: 06  
REV: 7

# Header Multilink - Mechanical



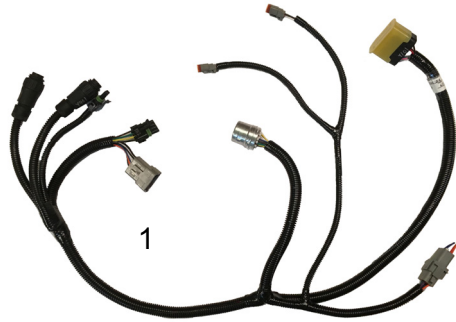
NOTES:

REV	DESCRIPTION	DATE	APPROVED
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FILE NAME	CA500ML R7
MECHANICAL LAYOUT	
PART NUMBER	CA500MLHYD
SCALE	NOT TO SCALE
SHEET	01
REV	7

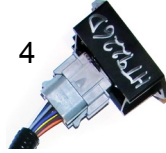
# Parts



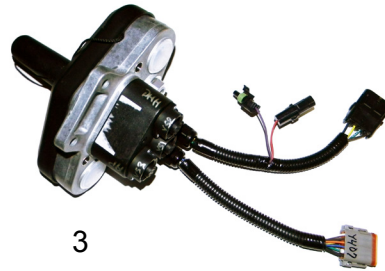
1



2



4



3

<u>ITEM</u>	<u>QTY.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	1	QB0-CA52-31Q	Header Adapter Harness
2	1	INSIGHT	AHC Interface
3	1	CA500MLHYD	Multilink Assm.
4	AR	HT9226-D	Diode pack, Folding only

# 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 or 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: **1/2022**



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