COMBINE AHC
INSTALLATION & OPERATION MANUAL

JOHN DEERE
50/60/70/S

09010101n

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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.

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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.
**Insight® Box Mounting (if equipped)**

1. Connect Insight box to Insight adapter 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 1/4” drill bit.

4. Secure box to header using hardware provided.

**Combine Connector**

**All models with single point**

1. If equipped, remove factory harness from existing single point latch plate.

2. Install Insight harness into OE or provided single point latch plate using snap ring.

**JD 50 Series**

3. Mount the HT2250 bracket and the header adapter harness to the rear of the head near the left of the feederhouse.

**Header Connector**

4. If your header had an existing OE header plug, connect it to Y202 or Y204 on the header adapter harness.
   - For single point, press the two connector bodies together & secure with the HT2259 bracket & zipties
   - For 50 series, screw connectors together.

5. If Horizon main harness has Y111 and Y112 pigtail, wire lights as described in Header manual.
Sensor Connections

Factory "Prewired" Headers

A number of header models are “prewired” with OE sensors. If adding an Insight & harness system to these heads (typically used for conversions, etc.) simply connect the OE header plug to the provided Insight conversion harness.

Basic Harness Only Systems

Harness only systems do not use the Insight box. After completing this section go directly to Combine Ground Calibration section.

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

<table>
<thead>
<tr>
<th></th>
<th>Left</th>
<th>Center</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Sensor</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3 Sensor</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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

**DP - Deck Plates

Insight® Systems

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

<table>
<thead>
<tr>
<th></th>
<th>Left</th>
<th>Left Center</th>
<th>Center</th>
<th>Right Center</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Sensor</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
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</tr>
<tr>
<td>3 Sensor</td>
<td>X</td>
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<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 Sensor</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 Sensor</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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

**DP - Deck Plates
Feathersight® Option Installation (if equipped)

S550-S670, 70 Series, & 60 Series STS only

This system is equipped to control height and lateral tilt using a combination of height sensors and “Pressure Sensing” capabilities. The Feathersight option allows a portion of the height control to be determined by the pressure in the feederhouse lift cylinders of the combine.

Feathersight® is especially useful in low-laying crops like peas, lentils, etc. where the header must be maintained at a level very near the ground but without carrying the weight of the header on the ground.

Components
- PFCxx extansion harness
- Y Adapter
  - All models thru 2019 - FR-TEE-MP
  - All Models 2020 & up - FR-TEE-AS16

JD S680, S780, S690, & S790

1. Remove factory cover over valve block assembly just in front of left front tire, above left hand lift ram.
2. Unplug factory harness from pressure sensor and plug in supplied Y adapter to sensor.
3. Connect factory wiring to Y adapter.
4. Connect extension harness to Y adapter.
5. Carefully route extension harness to front of combine near header connector and attach with zip ties.
6. Connect harness to Y113 on Main Insight harness (4 pin round AMP connector).
7. Secure all harnesses with zip ties.
8. Install factory cover over hydraulic valve assembly.
All Other Combines with Standard or Optional OE Lift Pressure sensor

1. If combine already has a feederhouse pressure sensor, connect Y Adapter in-line with combine feeder house pressure sensor on main valve block.
   • If combine does not have a feeder house pressure sensor in the location shown, contact your dealer to install one.

2. Connect extension harness to Y adapter.

3. Carefully route harness to front of combine near header connector and attach with zip ties.

4. Connect harness to Y113 on Main Insight harness (4 pin round AMP connector).

JD S550-S770

JD 70 Series and 60 Series STS only
Combines without OE Lift Pressure sensor

JD 50 & 60 nonSTS

1. Perform all combine and header manufacturer safety precautions for servicing header.

2. Remove header from combine.

3. Insert stop to prevent movement of header.

4. Release all pressure in hydraulic cylinders.
   • Lower feeder house against lock and hold button for 10 seconds

5. Turn off combine and remove key from ignition.

6. Set combine parking brake.

7. Install pressure sensor in lift port on left hand lift cylinder.
   • Remove line from cylinder
   • Install provided “T” fitting in line
   • Attach provided pressure sensor
   • Reattach hydraulic line and ensure o-rings are properly seated

8. Connect harness to sensor.

9. Carefully route harness to front of combine near header connector attaching with zip ties.

10. Connect harness to main Insight harness (4 pin round AMP connector).
Magic Power Boost Connectors

Your harness may be equipped with Magic Power Boost connectors Y246, Y247 and Y248. If these connectors are present follow the instructions below.

1. For all John Deere Stalkmaster™ 12 row and larger heads connect Y246-Main to Y248-OEM.

2. For all other heads connect Y246-Main to Y247-HS.
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 “John Deere”
   - Choose “50/60/70/S”
   - Choose the Header Type
   - 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
   - Park the combine on a smooth, level surface - preferably a cement driveway or shop floor.
   - Follow on-screen instructions.
   - “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.

4. 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:

\[
\text{Gain} = \frac{\text{Snout Length}}{\text{Contact Distance}}
\]

<table>
<thead>
<tr>
<th>Headsight Sensor Wand Length</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position 1</td>
<td>3.5</td>
</tr>
<tr>
<td>Position 2</td>
<td>3.1</td>
</tr>
<tr>
<td>Position 3</td>
<td>2.8</td>
</tr>
<tr>
<td>Position 4 (longest)</td>
<td>2.5</td>
</tr>
</tbody>
</table>

5. 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, the combine needs readjusted NOT Foresight

6. Return to the main menu by pressing ✗ escape three times.
7. Select >>Calibration - Follow on-screen instructions.
   - “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.

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.

8. 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

A full combine calibration must be completed on new installations or if a component of the header control system is changed on the combine. See combine operators manual for details.

**GS4/4600 - JD S700-Series**

1. Press **Menu.**
2. Press **Machine Settings.**
3. Press **for calibrations.**
4. Select **Header.**
5. Select **Feeder House Raise Speed Calibration.**
6. Follow instructions to calibrate.
7. Select **Header Calibration.**
8. Follow instructions to calibrate.
9. Select "Header Tilt Speed Calibration" on only the S780 and S790 Machines.
10. Follow instructions to calibrate.
JD S-Series

Press menu.

1. Press combine.

2. Press combine.

3. Press for calibrations.

4. Select Feeder House Raise Speed in calibration box and press enter.

5. Follow instructions to calibrate and press enter to save calibration.


7. Follow instructions to calibrate and press enter to save calibration.

8. For S680 and S690 machines only select Feeder House Tilt Speed and press enter.

9. Follow instructions to calibrate and press enter to save calibration.
JD 70-Series

1. Rotate knob until diagnostic is highlighted on screen and press until it shows calibrations.

2. Rotate knob until Feeder house speed is highlighted in calibrations box and press.

3. Rotate knob until is highlighted and press.

4. Follow calibration instructions and press after every step and at end of calibration to save.

5. Only press to cancel or quit calibration.

6. Rotate knob until diagnostic is highlighted on screen and press until it shows calibrations.

7. Rotate knob until header is highlighted in calibrations box and press.

8. Rotate knob until is highlighted and press.

9. Follow calibration instructions and highlight after every step and at end of calibration to save.

10. Only press to cancel or quit calibration.
JD 50 and 60-Series

1. Press Diagnostics button on cornerpost.
2. Press Up until the screen reads “CAL”.
3. Press Enter.
4. Press Up until the screen reads “Hdr”.
5. Press Enter – screen will read “Hdr – dn”.
6. Lower the header completely to the ground.
7. Press Cal – screen will read “Hdr – up”.
8. Raise the header to the top of its stroke.
9. Press Cal – screen will read “EOC”.
10. Press Enter.
11. Press Esc until returned to the main screen.
Combine Settings

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

Always perform the combine ground calibration before adjusting settings. Set each sensitivity setting by increasing till header bouncing occurs then decreasing till header becomes stable.

- Set the automatic drop rate to 6-8 seconds from full up to full down in auto mode
- Set the automatic raise rate to 5-7 seconds from full down to full up in auto mode
- Open hydraulic accumulator
- Set height sensitivity
- Set tilt sensitivity

GS4/4600 - S700 Series combines

1. Press the button below the screen.
2. Drag the sliders to adjust settings as desired.

S600 Series & 70 Series combines

1. Set the AHHC height and tilt sensitivity.
   - Press the header button repeatedly until AHHC sensitivity or contour master sensitivity displays (70 series shown).
   - Use scroll knob to adjust sensitivity.
60 Series STS combines

Set the automatic drop rate
• Use the knob under the operator’s right-hand armrest.

50 Series & 60 Series Non-STS combines

To test the automatic drop rate – you must disconnect the wiring to the auto drop rate bypass valve. Reconnect the wire after testing.

Set the Automatic Drop Rate
• Use the adjustment on the valve block.
• Turn in all the way then out ½ turn for initial guess.
• If the speed is to fast – hunting will occur.
• If the speed is to slow – the system will not be responsive enough.
• Common range is 6–8 seconds from header full up to full down in automatic mode.

Set the Hydraulic Accumulator
• Close the accumulator valve all the way
• Open the accumulator valve 1 full turn (from closed position).
• Opening the accumulator to far will give sloppy response.
• Not opening the accumulator far enough will give a jerky response.
• Close the accumulator valve all the way, then open it 1 full turn.

If running Feathersight on 50 & 60 series JD combines, and wish to adjust the height sensitivity, please call Heasight Tech support.
Reel Enable for Corn Headers

GS4 - S700 Series

1. Press the button below the screen.
2. Tap the Corn Head Header Type bar.
3. Check Reel Installed box.

GS3 or GS2 - S600 Series

1. Press menu.
2. Press combine.
3. Press head.
4. Press header width button.
5. Make sure Reel Installed box is checked.
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

2 Sensor Tilt

4 Sensor Tilt
**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 if 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
After calibrating Insight, operate the Headsight system exactly like you would use a John Deere system.

Enabling Height Control

GS4/4600 - S700-Series

1. Press the button below the screen

2. Check the settings for AHHC.
   - Height Resume should be ON
   - Height Sensing should be ON
   - Lateral Tilt should be

3. Engage header clutch.

4. Press 2 or 3 resume button on hydro handle to engage AHHC.

5. Turn the AHC dial on the armrest with header control engaged.
   - Clockwise = higher
   - Counter-clockwise = lower
**GS3 or GS2 - S600-Series**

1. Press `menu`.

2. Press `combine`.

3. Press `combine`.

4. Press `head`.

5. Press `auto` to access height control options.

6. Check appropriate box’s.

7. Engage `header clutch`.

8. Press 2 or 3 resume button on hydro handle to engage AHHC.

9. Turn the `AHC dial` on the armrest with header control engaged.
   - Clockwise = higher
   - Counter-clockwise = lower
50/60/70 Series

1. Press the on cornerpost to enable the icon.

2. Press the on cornerpost to enable the icon.

3. Engage the header clutch.

4. Ensure that the header float option is disabled.

5. Press 2 or 3 the resume button on hydro handle to engage AHHC.

6. Turn the AHC dial on the armrest with header control engaged.
   - Clockwise = higher
   - Counter-clockwise = lower
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

- Green:
  - System is operating
  - No errors detected

- 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

- 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 $\times + $ 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 (varies 1–4 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 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 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>>Disp Sensor 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

<table>
<thead>
<tr>
<th>Sensor Voltages</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
</tr>
<tr>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Left Sens</th>
<th>=0.00V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max</td>
<td>0.00V</td>
</tr>
<tr>
<td>Min</td>
<td>0.00V</td>
</tr>
<tr>
<td>SetH</td>
<td>5.00V</td>
</tr>
<tr>
<td>SetL</td>
<td>0.00V</td>
</tr>
<tr>
<td>Enabled</td>
<td>N</td>
</tr>
<tr>
<td>Reversed</td>
<td>N</td>
</tr>
</tbody>
</table>
On the Insight® Box: Output Voltages

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

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

Read the sensor inputs to the combine on the combine monitor (as equipped).
See your combine owners manual or below for more information. These voltages should be close to the voltages on the Insight “Height Outputs” above.
GS4/4600 - S700-Series Combines

1. Press Menu.
2. Press System.
3. Press Diagnostics System.
4. Press System Diagnostics.
5. Select AHC-Sensing.
7. Read values displayed on the resulting screen.

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC1 Sensor Supply Voltage</td>
<td>5.00 V</td>
</tr>
<tr>
<td>Feeder House Position Sensor</td>
<td>2.12 V</td>
</tr>
<tr>
<td>Feeder House Position</td>
<td>39.4 %</td>
</tr>
<tr>
<td>Left Header Height Sensor</td>
<td>0.00 V</td>
</tr>
<tr>
<td>Center Header Height Sensor</td>
<td>0.00 V</td>
</tr>
<tr>
<td>Right Header Height Sensor</td>
<td>0.00 V</td>
</tr>
</tbody>
</table>
**GS3 or GS2 - S600-Series Combines**

1. Press **menu**.
2. Press **message center**.
3. Press **addresses**.
4. Select LC1 in **devices box**.
5. Press **arrow down till you see address 21-Left, 22-center, 24-right**.
6. For each address, the right 3 digits are the height sensor voltage X.XX.

**70 Series Combines**

1. Press **menu**.
2. Scroll to **when highlighted press**.
3. Scroll to **when highlighted press**.
4. Scroll to **when highlighted press**.
5. Scroll to **when highlighted and press**.
6. Scroll to when highlighted and press until desire address is displayed.

7. Address 28 - left, 29 - center, and 30 - right;

8. Read sensor voltage as X.XX volts.

---

**50 and 60 Series Combines**

1. Press Diagnostics button on cornerpost.

2. Press Up until the screen reads “E01”.

3. Press Enter.

4. Press Up until you see address 22-Left, 24-center, 26-right

5. Read sensor voltage as X.XX volts.
Changing Tilt Orifices - 50 & 60 non-STS

The purpose of changing the orifices is to decrease/increase the maximum speed that the Contour-Master can tilt. The factory configuration will be satisfactory for most conditions. However, orifices may need to be adjusted for wide headers. Only change orifices if the system cannot be set properly by using the sensitivity adjustment on Insight or the Contour-Master card.

1. Manually move header from full right tilt to full left tilt.
   - The target tilt speed is 5–8 seconds
   - If not correct go on to step 2

2. Perform all combine and header manufacturer safety precautions for servicing header.

3. Remove header from combine.

4. Insert stop to prevent movement of feederhouse.

5. Release all pressure in hydraulic cylinders.
   - Lower feeder house against lock and hold button for 10 seconds to relieve hydraulic pressure

6. Turn off combine and remove key from ignition.

7. Set combine parking brake.

8. Using 1/8” allen wrench – remove original orifice from valve block in tilt cylinder supply lines.
   - Keep orifice in secure location for later use if needed.

9. If tilt speed is too fast – install an orifice that is smaller than the original orifice removed.

10. If tilt speed is too slow – install an orifice that is larger than the original orifice removed, or remove orifice completely

**JD orifice availability:**

- .26” Z60904 (Original on 50/60 series)
- .31” H135777 (Original on 00/10 series)
- .46” H149804
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

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

Diagnostics
## 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

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

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AHHC Diagnostics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No automatic operation height or tilt (If the Insight box does not have a green status light, go to “Insight Status Light Diagnostics”)</td>
<td>Wiring is not connected properly</td>
<td>Check wiring from sensor to combine</td>
</tr>
<tr>
<td></td>
<td>Header control is not enabled with cab controls</td>
<td>See Operation section of this manual</td>
</tr>
<tr>
<td></td>
<td>Wrong HHC mode selected</td>
<td>Turn on AHHC, see Operation section of this manual</td>
</tr>
<tr>
<td></td>
<td>Sensors are out of range (Direct Wire Systems only)</td>
<td>Correct sensor voltages to between 0.5V &lt; xx &lt; 4.0V, low on ground.</td>
</tr>
<tr>
<td></td>
<td>Power supply from combine less than 10V to Insight.</td>
<td>Check 12V power source (Pin 4 in combine plug)</td>
</tr>
<tr>
<td></td>
<td>Insight box/wiring failure</td>
<td>&gt;&gt;Diagnostics&gt;&gt;Detailed Diagnostics&gt;&gt;Left/Right Height Output</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.8-1.2V head fully lowered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.8-4.2V sensors off ground</td>
</tr>
<tr>
<td>Symptom</td>
<td>Problem</td>
<td>Solution</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AHHC Diagnostics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Header is too jumpy</td>
<td>Combine is improperly set</td>
<td>See - Setting section of this manual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduce Auto Drop Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decrease sensitivity</td>
</tr>
<tr>
<td></td>
<td>Insight or combine needs to be re-calibrated</td>
<td>See Calibration section of this manual</td>
</tr>
<tr>
<td>Header responds to slowly</td>
<td>Insight or combine needs to be re-calibrated</td>
<td>See Calibration section of this manual</td>
</tr>
<tr>
<td></td>
<td>Combine is improperly set</td>
<td>See - Setting section of this manual</td>
</tr>
<tr>
<td>Combine Header Cal Fails</td>
<td>Header not properly connected</td>
<td>Verify that Insight harness is attached and Insight box has power.</td>
</tr>
<tr>
<td></td>
<td>Insight Has Errors</td>
<td>Repair error, clear error codes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cycle key</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recalibrate Insight</td>
</tr>
<tr>
<td></td>
<td>Combine does not recognize header</td>
<td>Verify the JD&gt;&gt;50/60/70/S is chosen on the Insight box, and that the correct</td>
</tr>
<tr>
<td></td>
<td></td>
<td>header type has been selected.</td>
</tr>
<tr>
<td></td>
<td>Header Raise Speed Cal Required</td>
<td>Perform Header Raise Speed Cal first</td>
</tr>
<tr>
<td></td>
<td>(S series only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insight Outputs are not correct</td>
<td>Recalibrate Insight on flat surface.</td>
</tr>
<tr>
<td></td>
<td>&gt;&gt;Diagnostics&gt;&gt;Detailed Diagnostics&gt;&gt;Left/Right Height Output</td>
<td>Reset Insight: See Insight Overview for details</td>
</tr>
<tr>
<td></td>
<td>0.8-1.2V head fully lowered</td>
<td>Insight defective</td>
</tr>
<tr>
<td></td>
<td>3.8-4.2V sensors off ground</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cannot operate head high enough</td>
<td>Calibration not properly completed</td>
<td>Perform Insight and Combine calibration on flat level surface</td>
</tr>
<tr>
<td></td>
<td>Sensors too short</td>
<td>Install extensions on corn sensors.</td>
</tr>
<tr>
<td>Cannot operate head low enough</td>
<td>Calibration not properly completed</td>
<td>Perform Insight and Combine calibration on flat level surface</td>
</tr>
<tr>
<td></td>
<td>Special software needed</td>
<td>Contact Headsight regarding optional products Foresight and/or Feathersight</td>
</tr>
<tr>
<td>Header dives to ground and recovers entering crop</td>
<td>Lower Rate set too High</td>
<td>See Combine Specific Settings</td>
</tr>
</tbody>
</table>
### AHHC Diagnostics

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Jumps and Jerks whole combine</td>
<td>Drop rate too fast</td>
<td>See Combine Settings section of this manual)</td>
</tr>
<tr>
<td>Unopened accumulator</td>
<td>Open accumulator valve 1-2 turn</td>
<td></td>
</tr>
<tr>
<td>Discharged accumulator</td>
<td>Test accumulator as described in combine owner’s manual, replace or recharge as necessary</td>
<td></td>
</tr>
</tbody>
</table>

### Lateral Tilt Diagnostics

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height works but not Tilt</td>
<td>Increase Tilt Sensitivity.</td>
<td><code>&gt;&gt;Setup&gt;&gt;Tilt Sensitivity</code> Increase Tilt sensitivity</td>
</tr>
<tr>
<td>Rare combine problem</td>
<td>Call Headsight to increase Max Combine Tilt.</td>
<td></td>
</tr>
<tr>
<td>Head rocks back and forth</td>
<td>Tilt Sensitivity too high</td>
<td>Adjust sensitivity in combine <code>&gt;&gt;Setup&gt;&gt;Tilt Sensitivity</code> Decrease Tilt sensitivity Press Check</td>
</tr>
<tr>
<td></td>
<td>Left and Right sensor harnesses reversed</td>
<td>Connect sensor harnesses to correct plugs on adapter harness.</td>
</tr>
<tr>
<td>Header tips wrong way (Once head is moved off level, it continues all the way in either direction)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Insight/Combine not calibrated properly (do Cal on flat surface)
## Lateral Tilt Diagnostics

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head tips all the way one direction</td>
<td>Improperly adjusted sensors</td>
<td>Adjust the sensors to both be equal when sitting flat on the ground (platform) or when hanging against stops (corn/grain)</td>
</tr>
<tr>
<td>Sensor harness improperly wired</td>
<td>See Diagnostics: Sensor and Harness Spec: Note about reversed wires in connectors.</td>
<td></td>
</tr>
<tr>
<td>Poor connection</td>
<td>Check harness and connectors for cut/torn wire or loose terminals Make sure terminals are properly latched, not “pushed back”, in connector body</td>
<td></td>
</tr>
<tr>
<td>Sensor or harness fault</td>
<td>See Diagnostics: Sensor &amp; Harness</td>
<td></td>
</tr>
<tr>
<td>Insight box failure</td>
<td>&gt;&gt;Diagnostics&gt;&gt;Detailed Diagnostics&gt;&gt;Left &amp; Right Height Outputs 1.0V head fully lowered 4.0V sensors off ground</td>
<td></td>
</tr>
<tr>
<td>Combine problem</td>
<td>Test combine on a different header</td>
<td></td>
</tr>
<tr>
<td>Header runs slightly out of level</td>
<td>Insight or combine not calibrated correctly</td>
<td>Recalibrate Insight and combine on flat surface</td>
</tr>
<tr>
<td>Sensor physically misadjusted</td>
<td>Make sure both end sensors mount the same and hang at the same angle</td>
<td></td>
</tr>
<tr>
<td>Header not adjusted correctly</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>All the above fails to correct problem:</td>
<td>&gt;&gt;Settings&gt;&gt;Tilt Balance</td>
<td>Adjust balance to level Head (Must be reset to 100 before calibrating combine)</td>
</tr>
<tr>
<td><strong>Symptom</strong></td>
<td><strong>Problem</strong></td>
<td><strong>Solution</strong></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>General Insight Problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display dim, blank, or hard to read</td>
<td>Screen contrast improperly adjusted</td>
<td>See Insight Settings</td>
</tr>
<tr>
<td></td>
<td>Weak power supply to Insight™ box</td>
<td>See Installation, 12V Power Test</td>
</tr>
<tr>
<td></td>
<td>Short in sensors/wiring powered by Insight box</td>
<td>Individually disconnect sensors to isolate problem – screen will regain contrast when faulty sensor is disconnected.</td>
</tr>
<tr>
<td></td>
<td>(Reversed polarity to hall-effect sensors may cause this symptom)</td>
<td>Correct short in wiring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Insight will need reset after correction of wiring short</td>
</tr>
<tr>
<td></td>
<td>Control box failure</td>
<td>Contact Headsight</td>
</tr>
</tbody>
</table>
## Troubleshooting by Insight® Error Codes

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ER11</strong></td>
<td>Left sensor signal less than 0.3V</td>
<td>Left sensor temporarily disconnected.</td>
</tr>
<tr>
<td></td>
<td>Wiring open</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td></td>
</tr>
<tr>
<td><strong>ER12</strong></td>
<td>Left sensor signal greater than 4.7V</td>
<td>Wiring problem</td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td></td>
</tr>
<tr>
<td><strong>ER13</strong></td>
<td>Left sensor swing less than 0.6V</td>
<td>Left sensor mechanical range is restricted</td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td></td>
</tr>
<tr>
<td><strong>ER16</strong></td>
<td>Left sensor expected but not detected</td>
<td>Left sensor not properly connected</td>
</tr>
<tr>
<td></td>
<td>Not enough swing during cal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incorrect number of sensors selected in setup</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control box/wiring failure</td>
<td></td>
</tr>
<tr>
<td><strong>ER17</strong></td>
<td>Left sensor detected but not expected</td>
<td>Incorrect number of sensors selected in setup</td>
</tr>
<tr>
<td></td>
<td>Harness wiring error</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control box/wiring failure</td>
<td></td>
</tr>
<tr>
<td>Error Code</td>
<td>Problem</td>
<td>Solution</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>ER21</strong></td>
<td>Left Center sensor temporarily disconnected.</td>
<td>Repair wiring or bad connector. Calibrate Insight Box. Calibrate Combine.</td>
</tr>
<tr>
<td></td>
<td>Wiring open</td>
<td>Check sensor harness for pinched/broken wiring.</td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td>See sensor test instructions.</td>
</tr>
<tr>
<td><strong>ER22</strong></td>
<td>Left Center sensor signal greater than 4.7V</td>
<td>Wiring problem. Ground wire to sensor is open. Signal short to power. Calibrate Insight Box. Calibrate Combine.</td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td>See sensor test instructions.</td>
</tr>
<tr>
<td><strong>ER23</strong></td>
<td>Left Center sensor swing less than 0.6V</td>
<td>Left 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.</td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td>See sensor test instructions.</td>
</tr>
<tr>
<td><strong>ER26</strong></td>
<td>Left Center sensor not properly connected</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>Not enough swing during cal</td>
<td>Make sure sensor meets requirements in - Advanced Information - Basic Requirements section of this manual.</td>
</tr>
<tr>
<td></td>
<td>Incorrect number of sensors selected in setup</td>
<td>Go to &gt;&gt;Initial Setup&gt;&gt;Number Sensors and choose the correct number of sensors.</td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td>See sensor troubleshooting instructions.</td>
</tr>
<tr>
<td></td>
<td>Control box/wiring failure</td>
<td>Contact Headsight.</td>
</tr>
<tr>
<td><strong>ER27</strong></td>
<td>Incorrect number of sensors selected in setup</td>
<td>Go to &gt;&gt;Setup&gt;&gt;System Select and choose the correct number of sensors.</td>
</tr>
<tr>
<td></td>
<td>Harness wiring error</td>
<td>Verify that no wires contact PIN13 of connector Y101.</td>
</tr>
<tr>
<td></td>
<td>Control box/wiring failure</td>
<td>Contact Headsight.</td>
</tr>
<tr>
<td>Error Code</td>
<td>Problem</td>
<td>Solution</td>
</tr>
<tr>
<td>------------</td>
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<td>----------</td>
</tr>
<tr>
<td>ER31</td>
<td>Center sensor signal less than 0.3V</td>
<td>Center sensor temporarily disconnected.</td>
</tr>
<tr>
<td>ER32</td>
<td>Center sensor signal greater than 4.7V</td>
<td>Wiring problem</td>
</tr>
<tr>
<td>ER33</td>
<td>Center sensor swing less than 0.6V</td>
<td>Center sensor mechanical range is restricted</td>
</tr>
<tr>
<td>ER36</td>
<td>Center sensor expected but not detected</td>
<td>Center sensor not properly connected</td>
</tr>
<tr>
<td>ER37</td>
<td>Center sensor detected but not expected</td>
<td>Incorrect number of sensors selected in setup</td>
</tr>
<tr>
<td>Error Code</td>
<td>Problem</td>
<td>Solution</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>ER41</strong></td>
<td>Right Center sensor signal less than 0.3V</td>
<td>Repair wiring or bad connector&lt;br&gt;Calibrate Insight Box&lt;br&gt;Calibrate Combine</td>
</tr>
<tr>
<td><strong>ER42</strong></td>
<td>Right Center sensor signal greater than 4.7V</td>
<td>Wiring problem&lt;brSensor failure</td>
</tr>
<tr>
<td><strong>ER43</strong></td>
<td>Right Center sensor swing less than 0.6V</td>
<td>Right Center sensor mechanical range is restricted&lt;brSensor failure</td>
</tr>
<tr>
<td><strong>ER46</strong></td>
<td>Right Center sensor expected but not detected</td>
<td>Right Center sensor not properly connected&lt;brNot enough swing during cal&lt;brIncorrect number of sensors selected in setup&lt;brSensor failure&lt;brControl box/wiring failure</td>
</tr>
<tr>
<td><strong>ER47</strong></td>
<td>Right Center sensor detected but not expected</td>
<td>Incorrect number of sensors selected in setup&lt;brHarness wiring error&lt;brControl box/wiring failure</td>
</tr>
<tr>
<td>Error Code</td>
<td>Problem</td>
<td>Solution</td>
</tr>
<tr>
<td>------------</td>
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</tr>
</tbody>
</table>
| **ER51** | 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 | 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 | 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 | 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).  
Make sure sensor meets requirements in - Advanced Information - Basic Requirements section of this manual. |
| | Not enough swing during cal | Go to >>Initial Setup>>Number Sensors and choose the correct number of sensors.  
See sensor troubleshooting instructions. |
| | Incorrect number of sensors selected in setup | Contact Headsight. |
| | Sensor failure |  
Control box /wiring failure |  
| | **ER57** | Incorrect number of sensors selected in setup | Go to >>Setup>>System Select and choose the correct number of sensors.  
Verify that no wires contact PIN9 of connector Y101. |
| | Harness wiring error | Contact Headsight. |
| | Control box /wiring failure |  
| | **ER61** | Sensor 6 (aux sensor) signal less than 0.3V | Wiring open  
Sensor failure | Check sensor harness for pinched/broken wiring.  
See sensor test instructions. |
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER62</td>
<td>Sensor 6 (aux sensor) signal greater than 4.7V</td>
<td>Ground wire to sensor is open</td>
</tr>
<tr>
<td></td>
<td>Wiring problem</td>
<td>See sensor test instructions</td>
</tr>
<tr>
<td></td>
<td>Sensor failure</td>
<td></td>
</tr>
<tr>
<td>ER92</td>
<td>Tilt Sensitivity greater than 4.0V</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>Wiring problem</td>
<td>Reading &gt; 4.5V. Combine problem- Check wiring on combine</td>
</tr>
</tbody>
</table>
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 "Wheat"

- **071 HDR REC 1 ORG**
- **QB5-INPUT HARNESS**
- **Y201 COMBINE**
- **P07 LEFT HGT SIG**
- **P03 CENTER HGT**
- **P09 RIGHT HGT SIG**
- **P04 SWITCHED 12V**
- **P10 SENSOR GND**
- **P16 HDR REC 1**
- **P20 SENSOR V+**
- **P08 REEL SPEED**
- **P12 CHASSIS GND**
- **P13 LFT HZD LT**
- **P14 RIGHT HZD LT**
- **P15 STUBBLE LTS**
- **P26 DRAPER +**
- **P27 DRAPER -**
- **P30 REEL VERT**
- **P31 REEL F/A**

**NOTES:**

- **QJ5-JD63-31Q**
- **36 Schematics**
- **Insight Harness - Typical "Wheat"**
### Insight and Harnesses

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>AR</td>
<td>INSIGHT</td>
<td>Insight Control Box</td>
</tr>
<tr>
<td>2</td>
<td>AR</td>
<td>QC5-JD73-04</td>
<td>Insight Harness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HC3-JD53-04</td>
<td>Insight Harness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HC3-JD63-04</td>
<td>Insight Harness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>QJ5-JD63-31Q</td>
<td>Insight Harness</td>
</tr>
<tr>
<td>3</td>
<td>AR</td>
<td>HT2252</td>
<td>Single Point Cover</td>
</tr>
<tr>
<td></td>
<td>AR</td>
<td>08100108</td>
<td>Snap Ring</td>
</tr>
<tr>
<td>4</td>
<td>AR</td>
<td>HT2250</td>
<td>Bracket</td>
</tr>
<tr>
<td></td>
<td>AR</td>
<td>B2250</td>
<td>Bracket Hardware Kit</td>
</tr>
</tbody>
</table>

*All parts vary for each application, please call for more information*
Statement of Limited Warranty

For Headsight® Products

Headsight Inc. (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 Inc. (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, Inc. reserves the right to either inspect the product at the original retail purchaser’s location or require it to be returned to Headsight, Inc. 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, suitabilty 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: 1/2020