

CONVERSION

INSTALLATION & OPERATION MANUAL



JOHN DEERE 900F AHC

09040107c



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About this Manual

How to use this manual

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



This icon designates information of which you should take note.



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



This icon designates an important instruction.

Suggestions

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

Disclaimers

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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.



Sensor



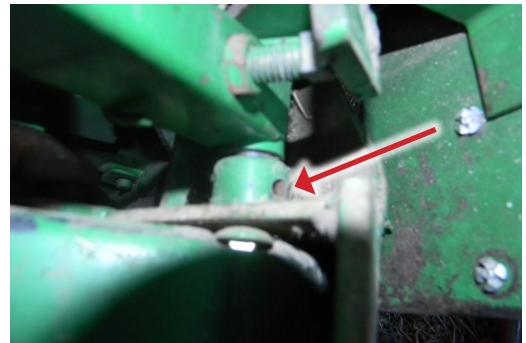
The following steps may be accomplished without removing the end dividers of the header. However, removing the dividers during the sensor installation may make it easier to reach some of the attaching bolts.

1. Remove the Dial-a-Matic™ sensor from the right-hand end of the header.

- Disconnect the plug
- Remove the rear lower bolt holding the box to the frame



- Drive the roll pin out of the cross rod right behind the sensing box
- Remove the sensor



2. Remove the DAM sensor support channel by removing three nuts indicated.

- Remove the back two first to give more room to access the front bolt
- Remove and discard the old support channel

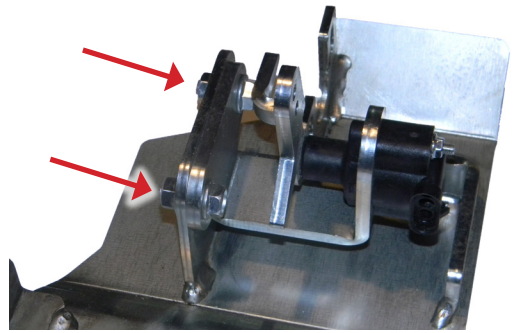


3. If your head is equipped with the “ball” indicator and linkage arm and you plan to install CM sensors, you must also remove the arm and spring from the height sensing cross rod before proceeding.

- Disconnect the arm from the ball rod
- Lubricate the arm pivot on the shaft
- Disconnect the spring
- Work the arm off the cross shaft



4. Preassemble the sensor assembly to the new AHC channel as shown using (2) M8 x 20 bolts and nuts.

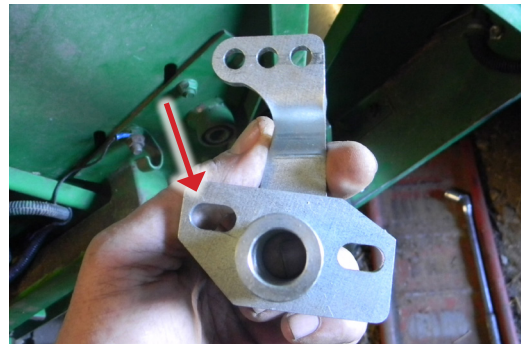


5. Install channel and sensor assembly in place of the channel removed in step 2 above.

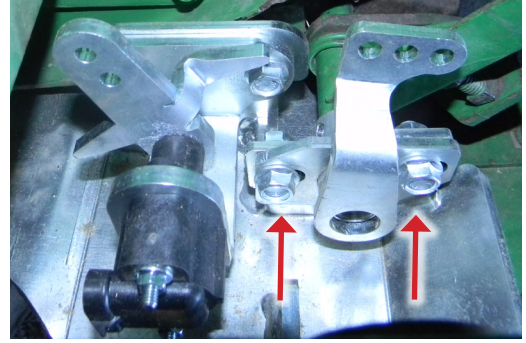
- Install the front nut first and tighten
- Position the support arm pivot back into place and install the previously removed back 2 nuts
- Sensor assm. removed for clarity



6. Slip the pivot plate over the new linkage arm as shown. Make sure the slot orientation is as shown. The “high” slot (marked) will align to the forward hole on the support channel bracket.

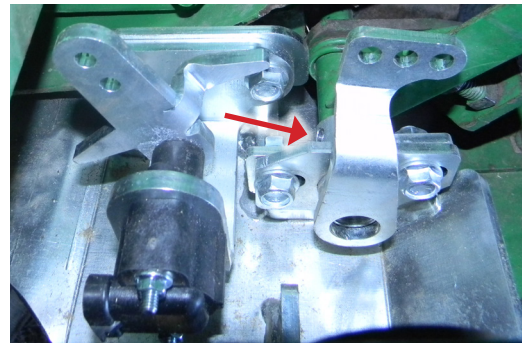


7. Slip the new linkage arm over the end of the height sensing cross rod and install (2) M8 x 20 bolts and nuts shown. Do not tighten bolts.



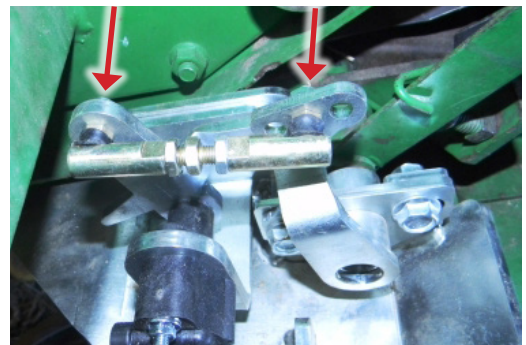
8. Connect height sensing cross rod to the linkage arm using the provided roll pin in the hole shown.

9. Tighten the two M8 bolts. Make sure the cross rod rotates freely (turn the rod by hand if possible).



10. Install the tie rod linkage as shown.

- Top hole on the Sensor arm
- Middle hole on the cross rod linkage arm.



Wiring



A very common problem during install is to reverse the wires at the connector after removing the plug to route the cables. See “Diagnostics>>Sensors and Harness” for the correct pattern.



Properly routing the wiring is the most critical part of the installation process. Please take time to ensure that you have allowed sufficient slack for motion as well as sufficient clearance from moving header parts or crop flow.

1. Remove the OEM harness from the clips, Pull it back out of the right side access hole. Tie it up behind the right rear corner of the header, under the frame rail.

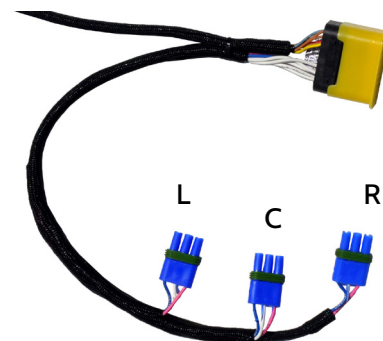


2. Route the included cable from the left side of the feeder, following existing hoses, down and thru the existing clips to the sensor as shown. Make sure to leave slack for cutter bar vertical travel.
 - If also installing Contour Master sensors, route both extension harnesses together.



If you have a 900F head, it may be dual wired. The AHC plug may be wrapped and tied up just below the frame rail on the back of head at the right hand end. If so, cut the zipties and “exchange” the two harness ends (DAM vs AHC). This is only applicable if using the OEM header plug to connect to a newer combine or Insight Adapter system wired thru the existing OEM harness.

3. If needed, install the appropriate combine adapter harness and/or Insight adapter system to the back of the head as shown in the Combine specific manual. (Standard harness shown, others may vary).
4. Connect the center sensor harness just installed to the center (C) input of the adapter harness.



Adjustment

The following requirements must be met before adjusting:

- Combine engine running
- Header connected
- On 9x00/10 combines the DAM switch must be on, the Feeder clutch must be on, and seat safety must remain closed (weight on seat)

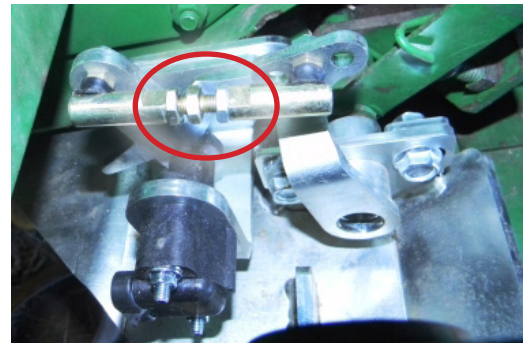
Read the voltage either with:

- Headsight sensor tester (does not require combine power)
- Voltmeter set to DC voltage, back probing the connector center wire to frame ground
- On the “Diagnostics»Display Sensor Voltage” page on the Insight box (if equipped)
- In the combine diagnostic menus for 50 Series and newer combines.
See the Headsight combine specific manual

1. Make sure all wiring is installed and connected.

2. Find a flat level surface and place the head flat resting on the ground.

- Adjust sensor tie rods to 1.0-1.2V
- If the sensor reading is
 - Greater than 3.0V with head on ground &
 - Less than 2.0V raised,
 - Please see step 4 below before adjusting



3. Raise the header.

- The voltage should increase as the head (not cutterbar) is raised
- The voltage should not exceed 4.2V

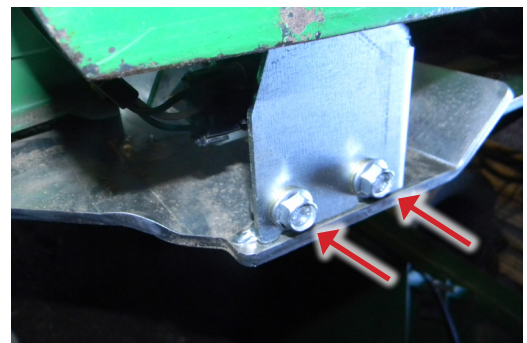
4. If the voltage decreases as the head is raised (voltage higher with header on ground)

- See the note about reversing the wires in the plug under “Diagnostics»Sensors and Harness”
- Reverse A and C at the sensor connector and readjust sensor

5. If overall voltage range is too low, and cannot be adjusted enough with linkage, move linkage to front hole in sensing rod arm.

6. If overall voltage range is too high, and cannot be adjusted enough with linkage, move linkage to rear hole in sensing rod arm.

7. Using (2) M8 x 20 bolts and flat washers, install the sensor shield as shown at right.



Calibration

- For Insight systems, “Perform Setup and Calibration” (see Combine specific manual)
- For 9x50 and up, Perform the Header Cal process (see Combine specific manual)
- For all other combines, see Combine specific manual

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—Sensors and Harnesses



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

The sensor connector pattern is as follows:

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



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

The following requirements must be met before testing:

- Key on, combine engine running
- Header connected

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

Troubleshooting by Symptom



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

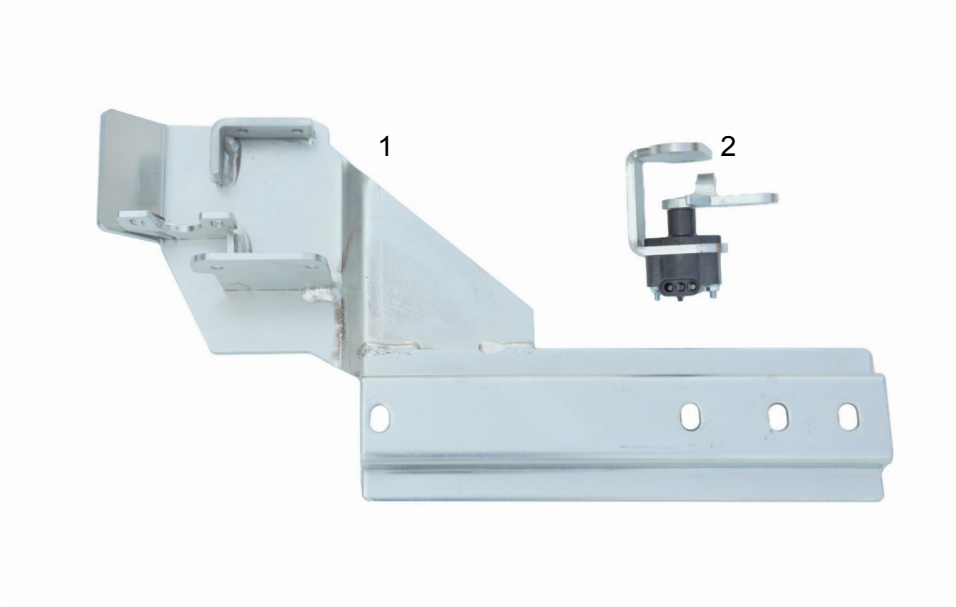
- Make sure each sensor meets basic requirements discussed in Advanced Info section
- Properly calibrate Insight box
- Properly calibrate combine AHHC (“Header Cal”)
- Enable appropriate AHHC functions on combine
- Properly set combine electronics and/or hydraulics

Symptom	Problem	Solution
AHHC Diagnostics		
Sensor out of range error	Sensor improperly adjusted	Adjust the tie rod on the height sensor so that the sensor is no less than 0.8V when smashed on the ground, and no more than 4.2V when raised. If the range is greater than this, Move the tie rod to the outer hole in the sensor arm and readjust the voltage.
	Sensor defective	See Troubleshooting: Sensor & Harness
	Poor connection/wiring	Make sure terminals are properly latched, not “pushed back”, in connector body
Sensor swing is < 2.0V	The cutter bar does not travel 6-8”	Clean out header skid shoe and lift arm area to allow greater cutterbar travel. Adjust sickle drive counterweight spring so header floats evenly on both ends (see OEM header manual)
	Sensor swing is too limited	Move tie rod to inner hole on sensor arm (last resort only—a properly floating head will not need this done.)
Head always raises	Height sensing cross rod stuck in full raised position	Remove “rigid lockup” bolts from header to allow flex to operate.
		Fix return spring on left end of header cross rod.
		Find and fix bent or rusted cross rod issue Redo Installation steps 7 & 9 to remove “bind” on cross rod
	Sensor or harness defective	See Troubleshooting: Sensor & Harness
Head always lowers	Tie rod misadjusted or disconnected	Reconnect or adjust tie rod
	Sensor or harness defective	See Troubleshooting: Sensor & Harness

Symptom	Problem	Solution
AHHC Diagnostics		
Head height “erratic”	Broken return spring	Fix return spring on left end of header cross rod.
	Improperly adjusted combine	See Combine Specific Manual
	Poor connections (wiggle plug to replicate symptoms)	Clean and tighten connectors.
	Bare wiring in header harness	Find and repair wires touching frame/ together in header harness
	Sensor has “bad spot”	Check sensor for smooth voltage change

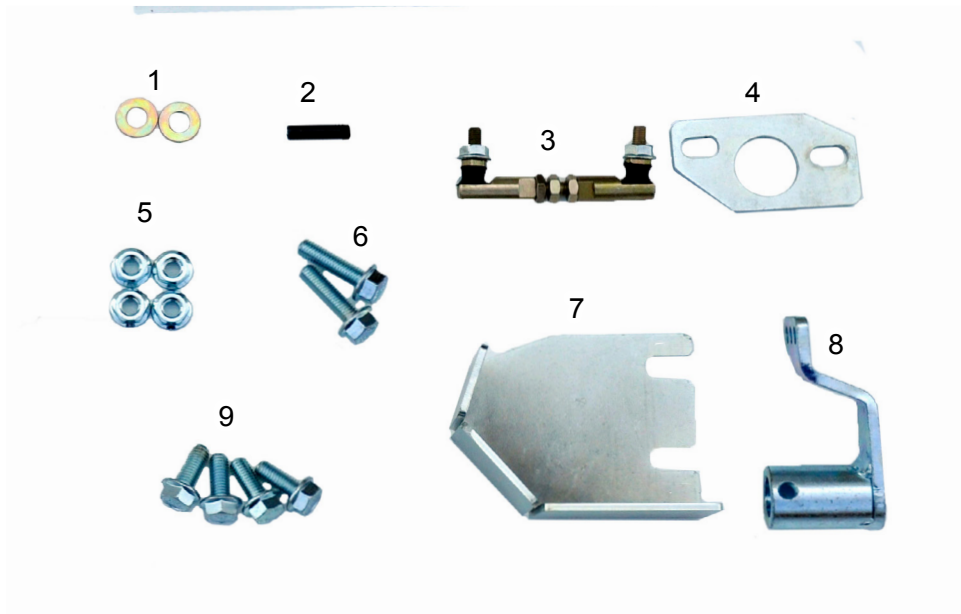
Parts

Height Assemblies HT3300



<u>ITEM</u>	<u>QTY.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	1	HT3301	Body Height Main
2	1	HT3310	Assembly Yoke Potentiometer

Hardware Kit



<u>ITEM</u>	<u>QTY.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	2	08200133	Washer
2	1	08100118	Roll Pin
3	1	HT3308	Turnbuckle
4	1	HT3304	Height Plate
5	4	08200119	Flange Nut
6	2	Not used	Not used
7	1	HT3303	Height Cover
8	1	HT3302	Height Arm
9	6	08200116	Flange Bolt

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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