

CONVERSION

INSTALLATION & OPERATION MANUAL



JOHN DEERE 900F TILT KIT

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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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US10244680; EP2955993(DE,ES,FR,IT,UK); EP2956851 AU2004203614;
BR112015019262; BR112015019286; CA2900987; CA2900994; WO20180152266

Table of Contents

Installation	01
Right Sensor	02
Left Sensor	04
Wiring	06
Adjustment	07
Calibration	08
Diagnostics	09
Troubleshooting—Sensors and Harnesses	10
Troubleshooting by Symptom	11
Parts	13
Sensor Assemblies HT3358, HT3359	13
Hardware Kit	14
Statement of Limited Warranty	15

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.

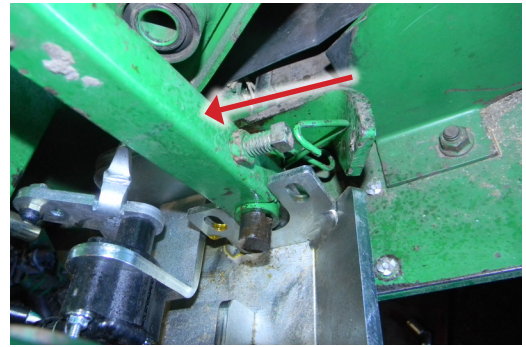


Right Sensor

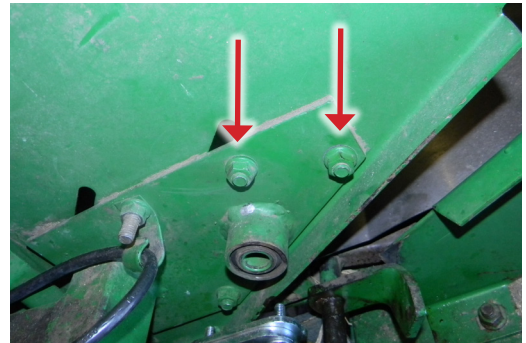


The following steps may be accomplished without removing the end dividers of the header. However, removing the dividers during the sensor installation may make it easier to reach some of the attaching bolts.

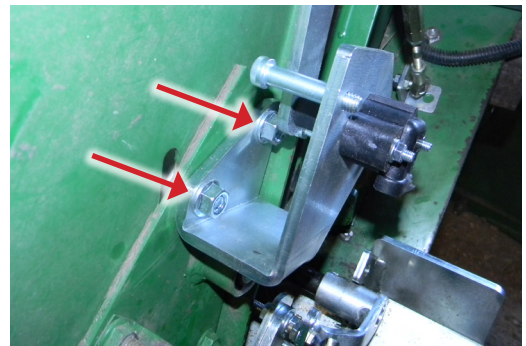
1. If your head is equipped with the “ball” indicator and linkage arm and you plan to install CM sensors, you must also remove the arm and spring from the height sensing cross rod before proceeding.
 - Remove the DAM sensor or AHC linkage arm from the end of the height sensing cross shaft (bolts and roll pin)
 - Disconnect the arm from the “ball” indicator rod
 - Lubricate the arm pivot on the shaft
 - Disconnect the spring
 - Work the arm off the cross shaft
 - Reinstall the DAM sensor or AHC linkage arm



2. Attach the sensor assembly.
 - Remove bolts and nuts shown

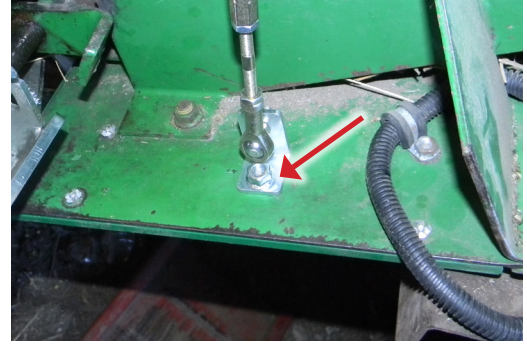


- Using M10 x 25 carriage bolts and nuts provided, attach sensor as shown



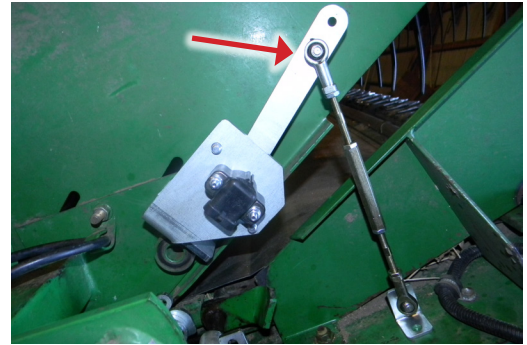
3. Attach angle bracket as shown.

- If you have a late model head with a prepunched hole, use the included M8 x 15 carriage bolt
- If you have an early model head with no hole, drill a 5/16" hole in the approximate area shown, and use a M8 x 20 flange head bolt to attach the angle bracket
- Use a small spade bit to drill a large enough hole thru the poly skid to clear the bolt head
- Alternately, spot weld the bracket to the skid and cool immediately with water



4. Connect the sensor arm and angle bracket together with the tie rod assembly as shown.

- Use Inner hole in sensor arm
- Tie rod lengths will be adjusted after all installation is complete



Left Sensor



Early 900 heads without predrilled holes **MUST** have the left end divider removed to install the tilt sensor.

1. On the upper left hand side, examine the top bolt for the wobble box counter weight spring as shown in the pictures. If your header has the bolt out toward the end of the bracket, you must drill a new hole and move the bolt and spring in as shown.

- Measure 1 1/8" in and drill a new 13/32" hole in the bracket in the location shown.
- Measure the current spring tension. Measure the distance from the bracket down to the top of the spring and record below:

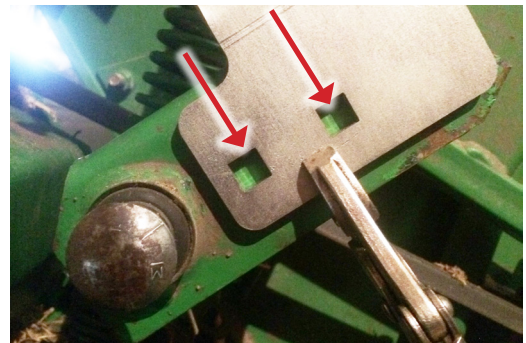
Tension Distance = _____

- Lubricate the bolt threads
- Unthread the bolt completely (best done with head on ground) and move to the new inner hole
- Reinstall the bolt and draw the spring up to the original measurement for initial setting.
- Use the OEM header owner's manual to adjust this bolt to the correct float tension on the left end skid of the header (Verify that skid floats freely through its range of motion when making this adjustment)



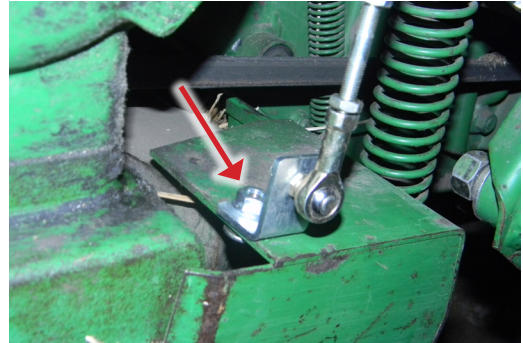
2. Install sensor as shown.

- On early heads without predrilled holes, clamp the sensor assembly to the snout carrying arm as shown and drill (2) 13/32" holes using the sensor assembly as a template. The sensor bracket should be square with carrying arm, and holes should be close to the center of the arm
- Attach the sensor bracket using (2) M10 x 25 carriage bolts and nuts provided



3. Attach angle bracket as shown to the wobble box counter weight cover bracket. Rotate the belt pulley to move the counterweight clear of the hole.

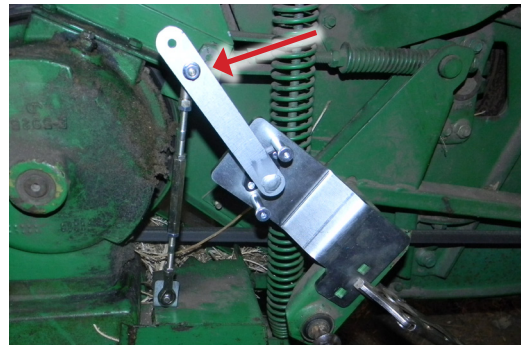
- If you have a late model head with a prepunched hole, use the included M8 x 15 carriage bolt
- If you have an early head with no hole, drill a 5/16" hole in the approximate area shown, and use the M8 x 20 flange head bolt to attach the angle bracket
- Alternately, spot weld the bracket to the cover plate



Heads prior to SN 638501 did not have a Counterweight or a cover. On these heads, fabricate a bracket to hold the angle bracket in the same general area (approx. level with top of wobble box baseplate), or extend the linkage to reach down to the skid.

4. Connect sensor arm and angle bracket together with the tie rod assembly as shown.

- Use Inner hole in sensor arm
- Tie rod must be to inside of sensor arm
- Tie rod lengths will be adjusted after all installation is complete



Wiring

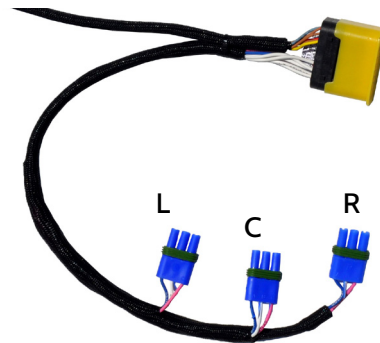


A very common problem during install is to reverse the wires at the connector after removing the plug to route the cables. See “Diagnostics>>Sensors and Harness” for the correct pattern.



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. Route the included shorter harness from the left side of the feederhouse to left end of head, and forward to left sensor. Follow existing hydraulic lines. You may need to drill an access hole through the left end panel next to the hydraulic lines to route the harness to the left sensor.
2. Route the included longer harness from the left side of the feederhouse, through the tube over the feederhouse opening. Continue routing harness to right end of head, and forward to right sensor. Follow existing hydraulic lines.
3. Make sure to keep the harnesses clear of chains, belts and moving parts.
4. 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).
5. Connect the left sensor harness just installed to the left (L) input of the adapter harness.
6. Connect the Right sensor harness just installed to the Right (R) 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 both 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 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

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 00/10, Perform the Contour Master (CM) 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
Lateral Tilt 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.)
One sensor has much greater or smaller range of voltage swing the other sensor	Sensor improperly installed	Make sure tie rods are in same hole on sensor arm.
	The cutter bar does not float evenly	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)

Symptom	Problem	Solution
Lateral Tilt Diagnostics		
Head slightly out of level (but not tipped all the way) See also "One sensor has much greater or smaller range of voltage swing the other sensor"	Improperly adjusted sensors	Adjust the sensors to both be about 1-1.2V when sitting flat on the ground
	Insight/Combine not calibrated properly (Cal on flat surface)	For Insight, Perform Calibration. For 00/10 series, perform the contour master calibration found in Owners Manual For 50-S series, perform the Header Cal found in Owners Manual
Header tips wrong way (Once head is moved off level, it continues all the way in either direction)	Left and Right sensor harnesses reversed	Verify sensors are connected to correct main harness connectors.
Head tips all the way one direction	Improperly adjusted sensors	Adjust the sensors to both be about 1-1.2V when sitting flat on the ground
	Sensor harness improperly wired	See note in, Troubleshooting Sensors and Harness Section of this manual
	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 and harness fault	See, Troubleshooting Sensors and Harness Section of this manual

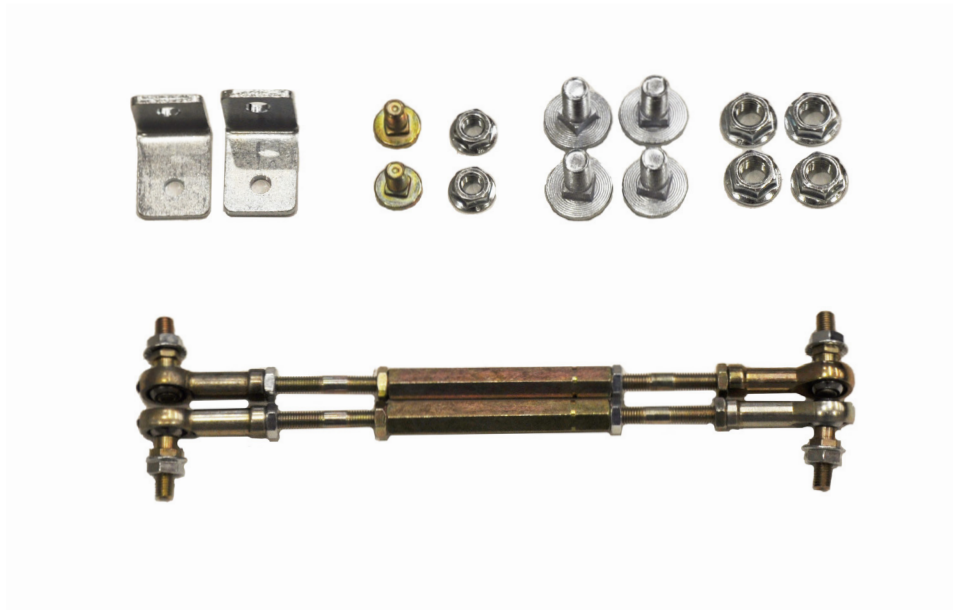
Parts

Sensor Assemblies HT3358, HT3359



<u>ITEM</u>	<u>QTY.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	1	HT3358	"U" Sensor Assembly
2	1	HT3359	"Z" Sensor Assembly

Hardware Kit



<u>ITEM</u>	<u>QTY.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	2	HT3354	Angle Bracket
2	2	08200120	Carriage Bolt
3	2	08200119	Flange Nut
4	4	08200132	Carriage Bolt
5	4	08200103	Flange Nut
6	2	HT3355	Turnbuckle Assembly
7	2	08200116	Flange bolt (not pictured)

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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