

# TRUESENSE

INSTALLATION & OPERATION MANUAL



## LEXION AUTOPILOT

09050501s



HEADSIGHT.COM | 574.546.5022



# About Headsight

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## About this Manual

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### How to use this manual

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



This icon designates information of which you should take note.



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



This icon designates an important instruction.

## Suggestions

If you have any suggestions to improve this manual please call 574-546-5022 or email [info@headsight.com](mailto:info@headsight.com).

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BR112015019262; BR112015019286; CA2900987; CA2900994; WO20180152266

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# Installation



**Before working on combine or under header always:**

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



## Identify the Components

### 1. Interface Module

- TS-CAAP-IM - Module for all Lexion, Claas

### 2. Module Mounting Hardware

- TS-BOX



### 3. Main Harness for Module

- TS-CAAP-ADPT - Main Harness



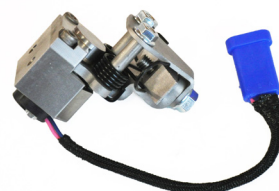
### 4. Lexion Multilink Adapter Harness

- TS-STD-CAAP - Multilink to main harness adapter



### 5. Crop Sensor Assembly

- HT2501 - Crop sensor assembly



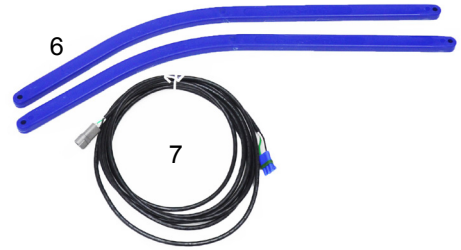


## 6. Crop whiskers

- HT2695 - Arm TrueSight

## 7. Truesight Crop Sensor Extension Harness

- HT2808 - Extension Harness



## 8. Crop sensor mounting kit

- May vary based on header
  - 1 - B2713 - Mounting kit
  - 1 - HT2713 - Bracket
  - 2 - 08200124 - Bolt M10x25
  - 2 - 08200134 - Bolt Fl 5/16" x .75"
  - 2 - 08200133 - Washer 5/16"
  - AR - 08200107 - Screws
  - AR - 08100101 - Cable clamp small
  - AR - 08100102 - Cable clamp large
  - AR - 08300102 - Zip ties



## Crop Sensor Assembly



Arms have holes at both ends. Make sure the correct end of the arms are mounted to the sensor assembly for your row spacing.

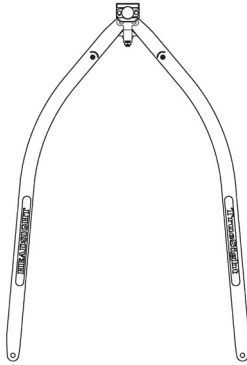


For row spacings 15" and narrower, cut and drill poly arms at the locations marked on the poly arms. Mount the arms with the new holes as described below.

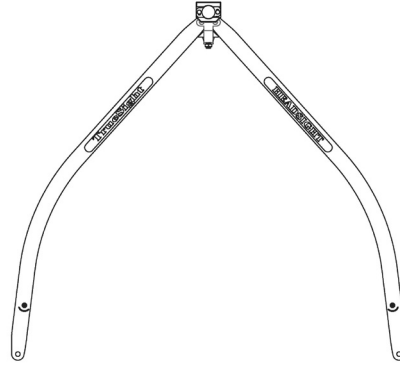
### Sensor Assembly

1. Choose your headers row spacing range.

28" and Narrower Row Spacing



30" and Wider Row Spacing



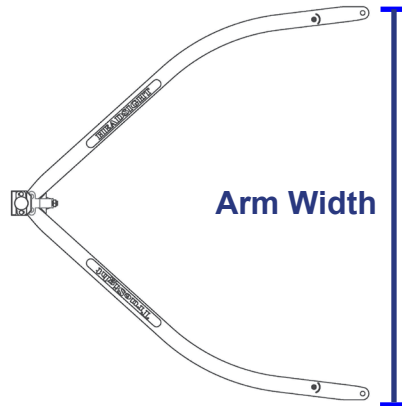
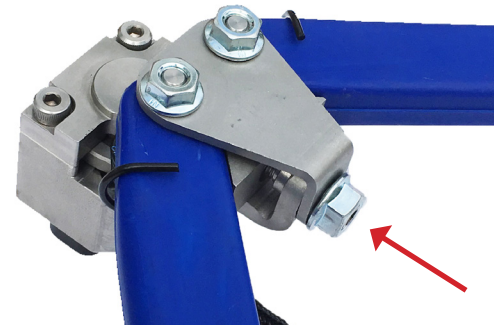
2. Install arms on crop sensor.

- Remove the crop sensor lower shield
- Hold the arms and spring as shown
- Slide the spring hooks over both arms, then the arms over the pivot posts of the sensor
- Replace the lower shield



## Width Adjustment

1. Loosen the jamb nut indicated.
2. Turn arm adjustment screen using a hex (Allen) wrench.
  - Adjust arm width to row spacing plus 2 inches (e.g. adjust to 32" for 30" row spacing)
3. Tighten jamb nut.



The poly arm width setting gradually decreases. Reset spacing after the first day of running and continue to check every day for first week & once a week thereafter, or until dimension stabilizes.

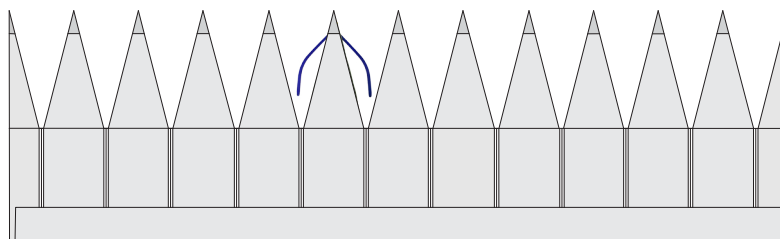
Before working on combine or under header always:

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



### Snout Choice

6. Choose the snout to which crop sensor will be mounted.
  - For most headers, mount the crop sensor on the snout which is one row to the left of center.



## Header Harness Routing

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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 snout motion as well as sufficient clearance from moving header parts or crop flow.

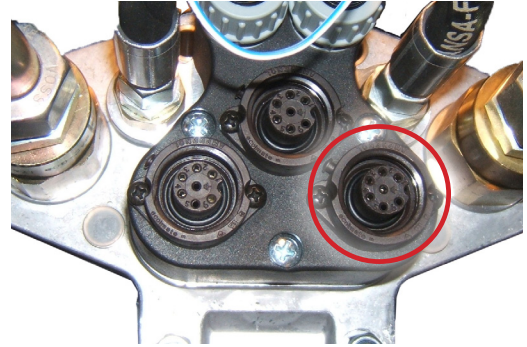
1. Lay out wiring harness to appropriate snout.
  - Wiring will run from sensor to rear of header near combine's feederhouse connection
2. Connect wiring to sensor.
  - Ensure connection is properly aligned and seated
  - Push gently but firmly until you hear or feel a slight click
3. Fasten wiring with cable clamps on both sides of connection.
  - Allow slight ( $\frac{1}{2}$ " ) slack near sensor
4. Fasten with cable clamps near snout hinge points.
  - Lift snout to see full range of motion
  - Leave enough slack to prevent tension on wiring when snout is raised OR lowered
  - Route near outer edge of snout, as near pivot point as reasonable
5. Route wiring to rear of header.
  - Route to near combine feederhouse electrical connectors – avoiding moving parts
6. Secure wiring with cable clamps and zip ties approximately every 12-24" as needed.
  - Follow existing wiring where possible



Follow header-specific installation manual to install sensor assembly.

## Multilink Block Identification

1. If you have a pre-2012 Geringhoff head, See Advanced Info, Modifying Geringhoff Multilink before continuing.
2. Identify VS3 (circled.)
  - If your Multilink does not have VS3
    - Headsight® assembled, pre-Autopilot
    - OE header block with no wiring.
    - Follow the instructions in Advanced Info, Adding Autopilot to an Early Headsight Multilink



Having only 1 large pin in the combine side of the Multilink behind the VS3 plug does NOT mean you need this update. There is no correlation between the combine and header sides of the Multilink.

## Interface Module and Harness Installation

1. Mount the interface module on the rear of the header.

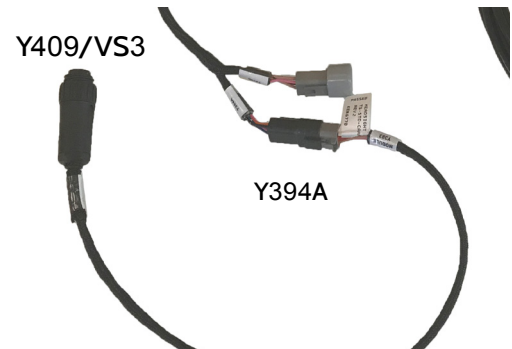
2. Locate the module adapter harness TS-CAAP-ADPT.

- Connect Y290 to the bottom of the Interface module
- Connect Y703 to the crop sensor extension harnesses HT2808

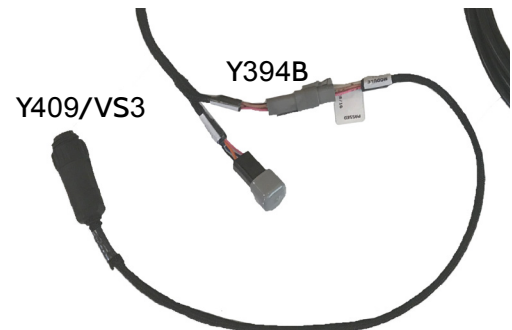


3. Locate the multilink harness TS-STD-CAAP

- Connect Y409/VS3 to VS3 on the multilink block
- Connect Y393 (Module) to the adapter harness (TS-CAAP-ADPT) Y394A or B
  - For 400 and 500 series combines, use connector Y394A (BLACK)



- For 600,700, & 8000 series combines, use connector Y394B (GREY)
- Place cap on unused plug



4. Connect the combine multilink and start the combine engine.

- For 700 series combines, the thresher must also be engaged
- If the Red ERR light is on, or the green power LED does not come on, disconnect Y393 from Y394A/B and stop the combine
  - Go to Advanced Info, Testing Non-Headsight Multilinks and follow steps to correct the problem
  - Call Headsight® Technical Support at 574-546-5511

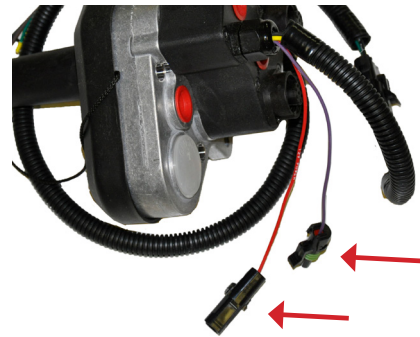
5. Make sure the center green Power LED is on when the combine is running.
  - When the sensor is centered, only the Power LED should be on
  - When the sensor is pressed toward the left end of the header, the Left LED should illuminate
  - When the sensor is pressed toward the right end of the header, the Right LED should illuminate

## Reel Enable Connection

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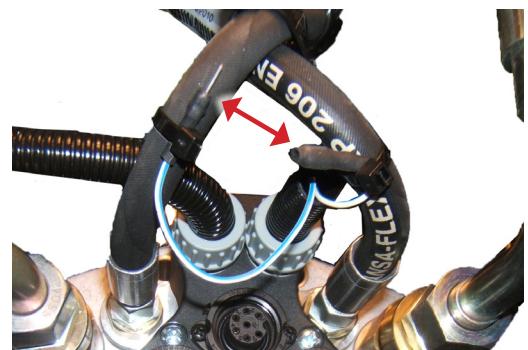
### Multilink Assemblies Provided by Headsight®

1. If your header needs reel drive flow (down corn reel, Roto-cones, etc.), connect the mating 1pin Weatherpack connectors.
2. Otherwise leave them disconnected.



### Multilink Assemblies Provided by Geringhoff®

1. If your header needs reel drive flow (down corn reel, Roto-cones, etc.), connect the mating spade terminals.
2. Otherwise leave them disconnected.



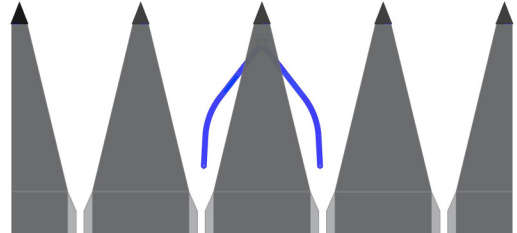
# Calibration

## Preparing for Calibration



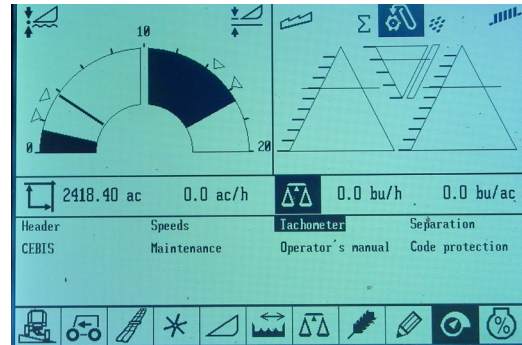
Proper adjustment is essential to having responsive steering. Take time to try different settings.

1. Center sensor in the row before calibration.

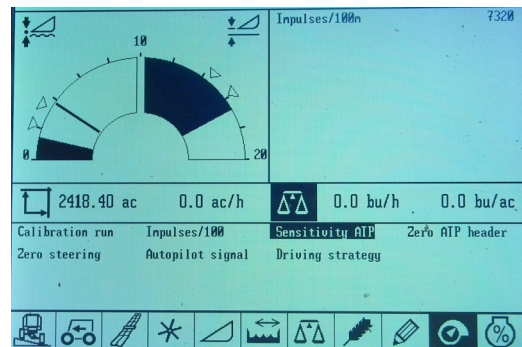


## 400 & 500 Series

1. On Cebis, chose Tachometer.



2. Under Autopilot Signal, choose Touch Arm input.
3. Perform Zero ATP header.
  - The crop sensor must be centered when calibrating
4. Perform the Zero Steering.
  - The rear wheels must be centered when calibrating
  - If the combine persistently tries to run "off center", redo this calibration
5. If necessary, refer to the Lexion Owner's manual.



For early 400 combines, these settings are screwdriver adjustments on the front of the AutoPilot Module



# 600 & 700 Series

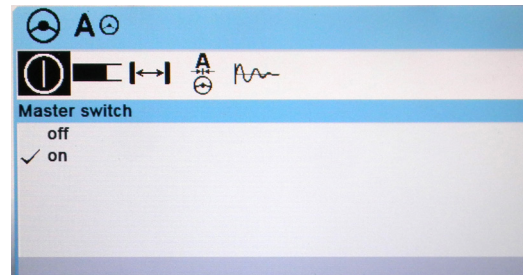
1. Use the Scroll/Select and escape buttons to navigate the menus.



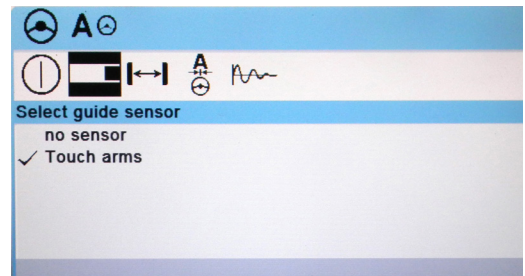
2. On Cebis, chose Steering.



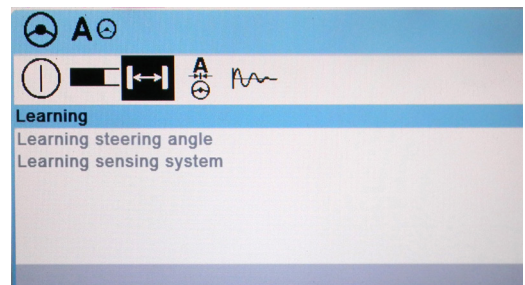
3. Turn on the Master Switch.



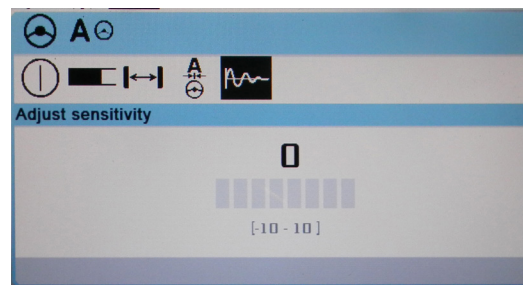
4. Under Steering Input type, choose Touch Arms.



5. Perform the “Learning steering angle” calibration.
  - The rear wheels must be centered when calibrating
  - If the combine persistently tries to run “off center”, redo this calibration



6. Perform the “Learning sensing system” calibration.
  - The crop sensor must be centered when calibrating
  - If this calibration fails, check the sensor wiring and module operation on the header

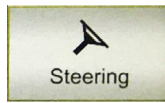


# 8000 Series

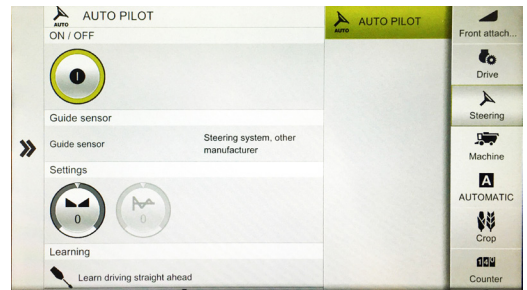
1. Use the touchscreen or the Scroll/Select and Escape buttons to navigate the menus.



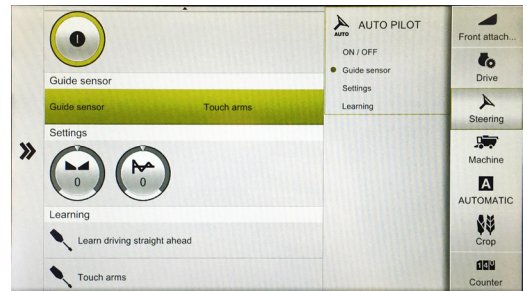
2. Choose Steering.



3. Turn on the Master Switch.



4. Under Guide Sensor type, choose “Touch Arms” or “Sensing Bands” (depending on combine year & software).

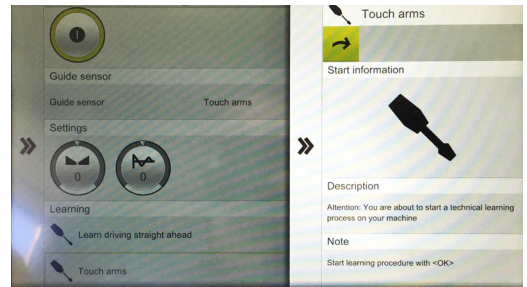


5. Perform the “Learning/Driving straight ahead” calibration.

- The rear wheels must be centered when calibrating



- Press OK to enter & save calibration
- If the combine persistently tries to run “off center”, redo this calibration



6. Perform the “Learning/Touch arms” calibration.

- The crop sensor must be centered when calibrating

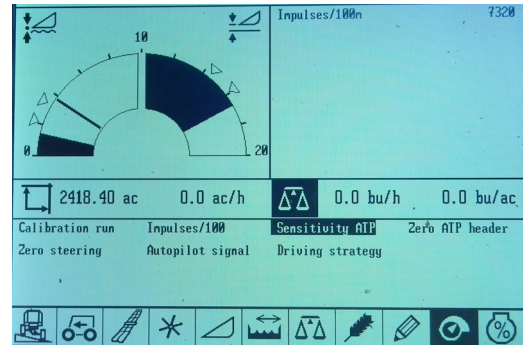


- Press OK to enter & save calibration
- If this calibration fails, check the sensor wiring and module operation on the header

# Settings

## 400 & 500 Series

1. Adjust the Sensitivity ATP and Driving Strategy as desired during operation.
  - A suggested starting point is 70% sensitivity, driving strategy-normal



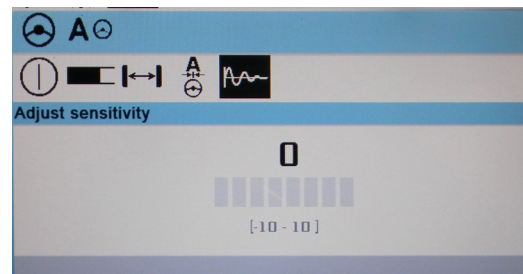
For early 400 combines, these settings are screwdriver adjustments on the front of the AutoPilot Module

## 600 & 700 Series

### Sensitivity



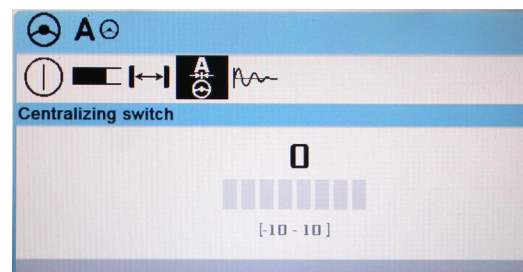
1. On Cebis, chose Steering.
2. Adjust the Sensitivity.
  - A suggested starting point is +7
  - Note: the value must be "entered" before taking effect



### Centering



1. On Cebis, chose Steering.
2. Adjust Centering as needed during operation.
  - Note: the value must be "entered" before taking effect
  - If the combine always seems to be "fighting" itself to stay on line, redo the steering angle calibration



## 8000 Series

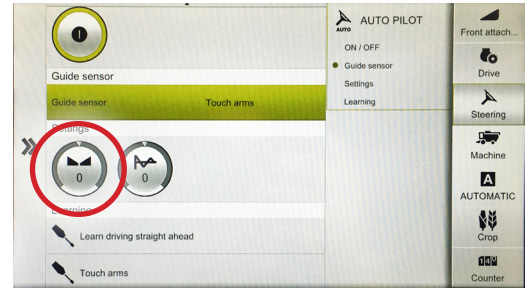
### Centering



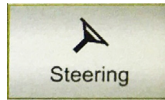
1. Choose Steering.
2. Adjust Settings/Centering as needed during operation.




- Press Enter to save setting
- Note: the value must be “entered” before taking effect
- If the combine always seems to be “fighting” itself to stay on line, redo the “Driving straight ahead” calibration

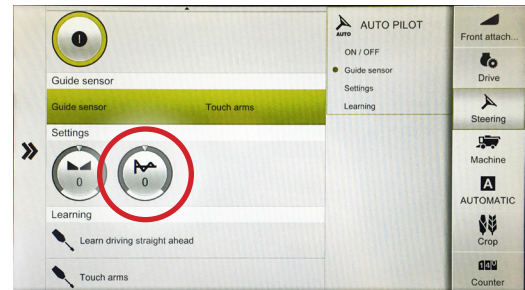


### Sensitivity



3. Choose Steering.
4. Adjust Settings /Sensitivity as needed during operation.

- A suggested starting point is +7
- 
- Press Enter to save setting
  - Note: the value must be “entered” before taking effect



# Operation



Operate the Truesense system exactly like you would use a Lexion RowGuide system. Details may be found in the Lexion operators manual.

1. Engage header and separator clutches.
2. Drive forward at at least 1 mph/kph.
3. Turn on the Autosteer switch.
  - 4/5/6/700 series only
  - 8000 series -software switch only



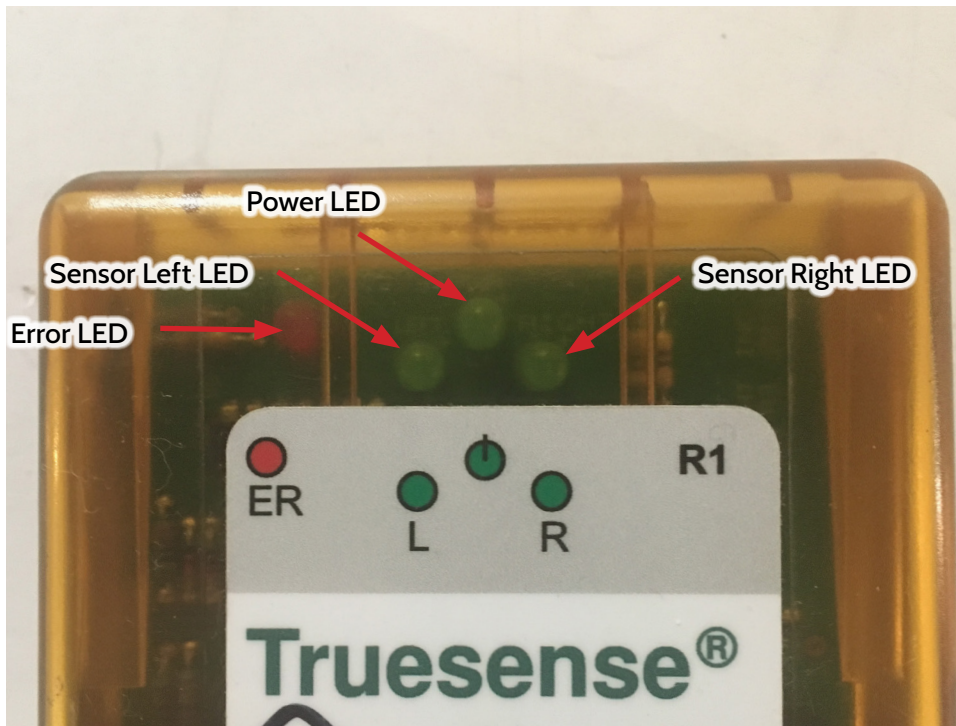
4. Engage Autosteer.



# Overview

## Interface Module

### Meaning of Status Lights



#### ● Power LED

- System is operating, the box is powered and 5v is being sent to the sensor

#### ● Sensor Left LED

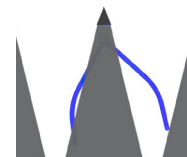
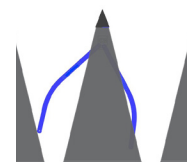
- On when you swing sensor toward left side of head

#### ● Sensor Right LED

- On when you swing sensor toward right side of head

#### ● Error LED

- Multilink supplying 12V instead of 5V (see Testing OEM Lexion Multilinks)



# Advanced Information

## Theory of Operation

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

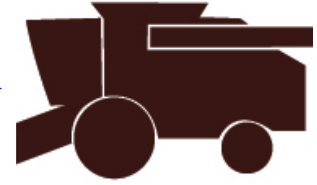
1. The Truesight Hall Effect Crop sensor has 3 wires
  - Red = 5V power
  - Black = ground
  - White = signal returned to the combine (0.3 and 4.7 volts)
2. A sensor returns a variable voltage depending on its swing, with center being approx. 2.5V.
  - When stalks fully push right wand = high voltage (approximately 4.0 volts)
  - When stalks fully push left wand = low voltage (approximately 1.0 volts)
3. For the 400 & 500 series combines, the interface module “creates” and sends a left and right sensor signal similar to the voltages from OEM Lexion “analog” touch arms for those combines.
4. For the 600, 700, & 8000 series combines, the interface module “creates” and sends a left and right sensor signal similar to the voltages from OEM Lexion “digital” touch arms for those combines.

## Reading Voltages

Sensor voltage = Interface module input voltage



Interface Module output voltage = Combine sensor input



### Initial Requirements

1. Connect the combine multilink and start the combine engine.
2. For 600 & 700 series combines, the thresher must also be engaged.
3. Use a good DVM and measure the voltages from the wire noted to a clean frame ground, unless otherwise noted.

### Sensor Voltage

1. Disconnect Y703 from the sensor extension harness. .
2. Measure the pink in Y703 to a frame ground.
  - Should be +5V
3. Measure the pink to blue in Y703.
  - Should be +5V
  - Lt Blue is ground, Pink is +5V
4. Reconnect Y703 to the sensor extension harness and backprobe the white wire to a frame ground.
  - 2.5V +/- 0.1V when crop sensor is centered. If not within tolerance, adjust sensor
  - Increase toward 4.0V when pressed toward the left end of the header
  - Decrease toward 1.0V when swung toward the right end of the header



## Interface Module Output Voltages

To supply power, plug Y393 into the opposite plug of the output you want to test.

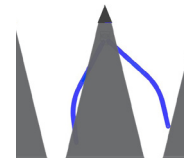
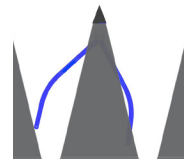
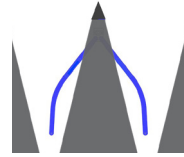
- The plug/pins to be tested will be open
- Measure to a chassis ground

### For 400 & 500 series combines

1. Move Y393 to Y394B.

2. Measure the pins in Y394A.

- Crop Sensor is centered
  - Y394A pins 2 & 4 should read about 2.5V
- Sensor pressed to the left
  - Y394A pin 2 (Left AP, ORG) should increase toward 3.5V
  - Y394A pin 4 (Right AP, BLUE) should remain about 2.5V
- Sensor pressed to the right
  - Y394A pin 2 (Left AP, ORG) should remain about 2.5V
  - Y394A pin 4 (Right AP, BLUE) should decrease toward 1.5V



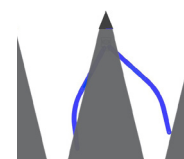
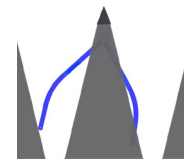
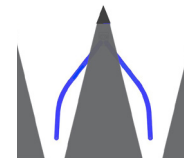
3. Reconnect Y393 to Y394A after test.

### For 600, 700 & 8000 Series Combines

1. Move Y393 to Y394A.

2. Measure the pins in Y394B.

- Crop Sensor is centered
  - Y394B pins 2 & 4 should read about 0.6V
- Sensor pressed to the left
  - Y394B pin 2 (Left AP, TAN) should increase toward 3.5V
  - Y394B pin 4 (Right AP, TAN) should remain about 0.6V
- Sensor pressed to the right
  - Y394B pin 2 (Left AP, TAN) should remain about 0.6V
  - Y394B pin 4 (Right AP, TAN) should increase toward 3.5V



3. Reconnect Y393 to Y394B after test.



You can only read the voltages in the combine with a Lexion Service Tool. If the voltages appear correct above, but the combine is not responding correctly, contact your Lexion Service department. The AP voltages read on the Service Tool should be the same as those above.

## Testing Non-Headsight Multilinks



Testing the multilink is not normally required for multilinks supplied by Headsight®. If you have an OEM Lexion multilink, or multilink supplied by another aftermarket source, complete the test below to determine if you need to modify the block.



If the Red LED is on, disconnect Y393 from Y394 until the voltage is tested.

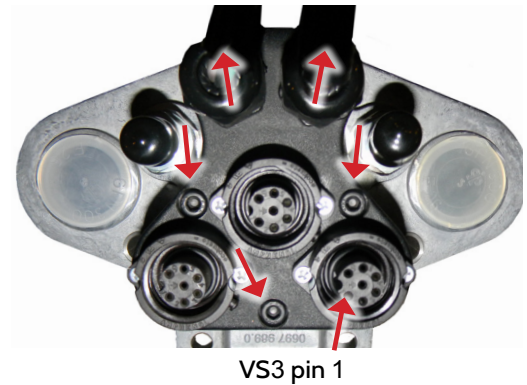
Lexion header multilink blocks use different internal wiring schematics for Autopilot.

- Blocks designed for Laser pilot systems use +12V on pin 1 of the VS3 plug
- Corn heads normally have +5V on pin 1 for finger sensing
- To operate a +5V Headsight sensor on the OEM Lexion multilink, the following test must be made:

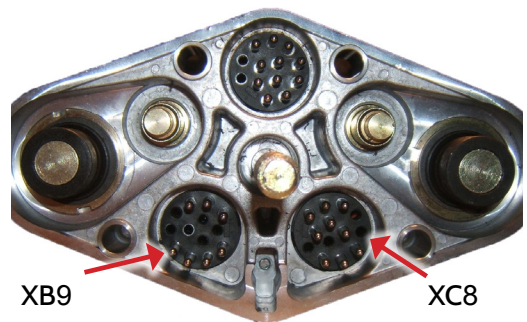
1. Connect the TS-STD-CAAP harness to the VS3 receptacle on the Multilink (but NOT to the Interface Module Adapter; leave Y393 disconnected.)
2. Connect the combine multilink and start the combine engine.
3. For 600 & 700 series combines, the thresher must also be engaged.
4. Using a voltmeter, measure DC voltage on pin3 of Y393 (Pink wire). The voltage can be measured to a chassis ground or to pin 1 of Y393 (Lt Blue wire).
  - If Pink wire voltage is +5V DC—continue Installation. No modification is needed
  - If the voltage is reversed (the Lt blue wire is +5V, and the pink is ground) (late model Geringhoff)
    - Remove the wedge lock on Y393
    - Use a small screwdriver to release the pin catches and pull the pink and Lt. blue wires out
    - Swap the pink and Lt blue wires. Pink to pin 1, Lt blue to pin 3
    - Replace the wedge lock
    - Pink will now line up with black in Y394A/B, and Lt blue with pink. This will provide the correct polarity to the interface module
  - If voltage is +12V, you must follow the steps in the next section to switch to the 5V power wire inside the Multilink.

# Modifying a OEM 12V Multilink

1. Clean the block thoroughly and remove the 5 screws holding the back cover onto the box.
  - You may need to disconnect harnesses or hoses to have adequate working room. If so, first carefully mark all components for reassembly
2. Carefully pull the plastic housing away from the metal of the multilink until you can reach the wiring and plugs inside.



3. Correct the internal wiring.
  - Cut the wire coming from VS3 pin 1 (see previous picture) free from XB pin 9 and from any other wires
  - Crimp a new CAT multilink pin (PN 213 603.0) onto the end of the wire from VS3 pin 1
  - Press the XC connection assembly back out of the multilink metal housing
  - Gently pry the 2 halves of the assembly apart 1 notch
  - Insert the LARGE pin into pin 8
  - Snap the XC holder assembly back fully together
  - Reinsert XC into the multilink housing



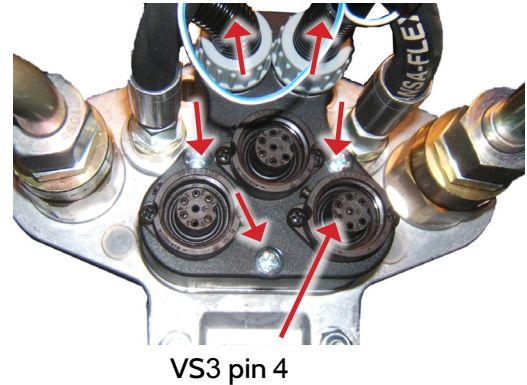
4. Carefully reassemble the multilink, making sure not to pinch wires between the housings.

# Modifying Geringhoff Multilink 028651.4 and Prior

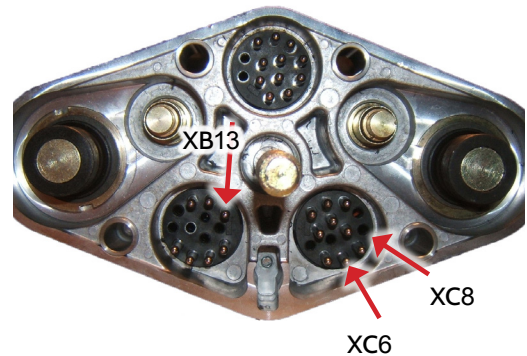


This only applies to pre-2012 Geringhoff heads that were built with this Multilink assembly.

1. Clean the block thoroughly and remove the 5 screws holding the back cover onto the box.
  - You may need to disconnect harnesses or hoses to have adequate working room. If so, first carefully mark all components for reassembly
2. Carefully pull the plastic housing away from the metal of the multilink until you can reach the wiring and plugs inside.
  - Press the XB connection assembly back out of the multilink metal housing. Gently pry the 2 halves of the assembly apart 1 notch
  - Push pin 13 out of XB
  - Snap the XB holder assembly back fully together
  - Reinsert XB into the multilink housing
  - Press the XC connection assembly back out of the multilink metal housing. Gently pry the 2 halves of the assembly apart 1 notch
  - Insert the pin removed from XB 13 into XC pin 8
  - Remove the pin from XC pin 6 and cut it off the wire
  - Cut **ONLY** the wire from this pin to VS3 pin 4. Do not cut the wire from VS3 pin 4 to XC Pin 11
  - Use black tape to cover the cut wire end
  - Snap the XC holder assembly back fully together
  - Reinsert XC into the multilink housing



VS3 pin 4



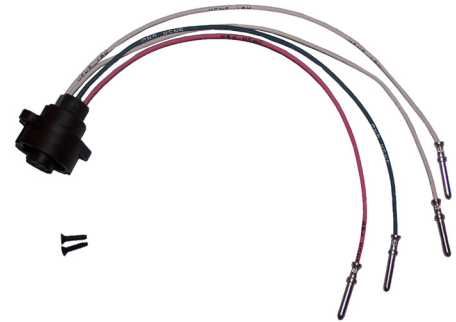
3. Carefully reassemble the multilink, making sure not to pinch wires between the housings.

# Adding Autopilot to an Early Headsight Multilink



This only applies to early versions of the Multilink which did not include a connector plug in the VS3 location. It does not refer to not having pins in the combine side of the Multilink behind the VS3 plug. There is no correlation between the combine and header sides of the Multilink.

1. Make sure you have the Multilink Autopilot update kit, which includes a 7 pin plug with 4 wires w/ terminals, and 2 small screws. If not already ordered, please call Headsight® to order one.

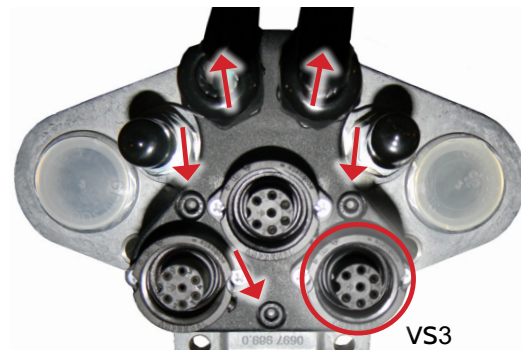


2. Clean the block thoroughly and remove the 5 screws holding the back cover onto the box.

- You may need to disconnect harnesses or hoses to have adequate working room. Mark all components for reassembly

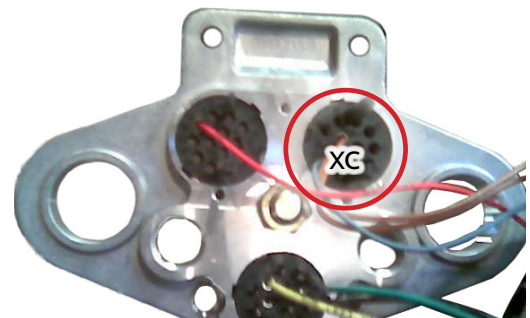
3. Loosen the compression nut on the lights harness, then carefully pull the plastic housing away from the metal of the multilink until you can reach the wiring and plugs inside.

4. Remove the cap from the VS3 location and insert the four large pins through the hole from the outside of the cap.



5. The wires must go to the correct locations in the XC plug. See the Wiring diagram in 6 for detailed diagrams of the plugs.

- Press the XC connection assembly back out of the multilink metal housing
- Use a small screwdriver to snap the 2 halves of the assembly apart 1 notch
- Insert the large pin on the PINK wire into pin 8
- Insert the large pin on the BLUE wire into pin 9
- Insert the large pin on the WHITE wire marked LEFT into pin 10
- Insert the large pin on the WHITE wire marked RIGHT into pin 11
- Snap the holder assembly back fully together
- Reinsert XC into the multilink housing



6. Carefully reassemble the multilink, making sure not to pinch wires between the housings.

7. Coil the wires for the Autopilot plug down into the housing and secure the new connection into place with the two screws provided.

# 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. Turn off combine and remove key from ignition.
4. Set combine parking brake.
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
  - Weaving in row
  - Won't engage

# 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

Error Code	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  “Sensor” voltage should be 5V  (Use DVM to measure voltages)	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  (Use DVM to measure voltages)	If sensor cannot be adjusted to achieve a voltage within the range, replace sensor.

# Troubleshooting by Symptom



Nearly every problem with the Truesense may be resolved by one of the following simple steps:

- Make sure each sensor meets the basic requirements discussed above
- Properly calibrate Truesense system
- Enable Autopilot
- Properly set the Autopilot performance settings

Symptom	Problem	Solution
The green power light is not on	No power is available	Check that the engine is running and, the Road Transport switch is off  Check that thresher is engaged (600-700 only)  Check that the combine is equipped with the AP module.  Check multilink or combine wiring.
	The pink wire in the Y393 connector is not 5V, or the Lt. Blue wire is not ground.	Check for 5V on Y393, between pins 1 & 3 in the adapter harness. Start the combine engine and recheck.
	The pink and blue wires are reversed (Lt Blue is +5V, Pink is ground)	Some Geringhoff heads have the +5V and ground reversed. Reverse the Pink and Lt Blue wires in Y393 so that +5V is on pin 3, ground on pin 1 in Y393
	The sensor harness is shorted to ground	Unplug Y703 and see if the light comes on
	Defective Truesense module	Replace module
Left / Right LEDs do not come on when sensor is moved	No sensor attached	Check sensor wiring and connections
Left or Right LED stays on continuously even when sensor is moved	Sensor or wiring shorted to +5V or Ground	Disconnect Y703 at module If LED goes out, check sensor harness
	or Defective module	If LED does not go out, replace module
Left or right LED is on when sensor is "centered", but will go out when sensor is moved.	Sensor not hanging straight	Adjust mounts so sensor is level and centered in snout
	Broken centering spring	Make sure both tabs are still on centering spring. Replace if needed.
	Misadjusted sensor	Loosen 2 small bolts and adjust hall-effect sensor to 2.5V +/- 0.1V when centered



Symptom	Problem	Solution
AP wands do not calibrate (combine does not recognize wands), or combine has AP error codes	Combine adapter harness Y393 is connected to the wrong connector on the Main harness	Make sure to connect to the correct Y394 plug as shown in Installation/Module & Harness Y394A for 400 & 500s Y394B for 6/700 & 8000s
	The system is not connected	Make sure interface module power light is on - See Overview section of this manual
	Plugged in to wrong port	Make sure Y409/VS3 is connected to VS3. See Installation.
	Sensor or wiring defective	Test sensor using LEDs shown in Interface Module Overview
	Module defective	Test module outputs as described in Advanced Info/Reading Voltages
	Wiring in Multilink or combine defective	Trace wiring through multilink or contact your Lexion service dept.
Combine does not steer	Combine is not moving fast enough	Drive forward at greater than 1 mph/kph
	System not enabled or calibrated	See Calibration, settings and operation sections
	Module defective	Test module outputs as described in Advanced Info/Reading Voltages
	Combine problem	Test combine components: Rear axle sensor, etc.

# Schematics

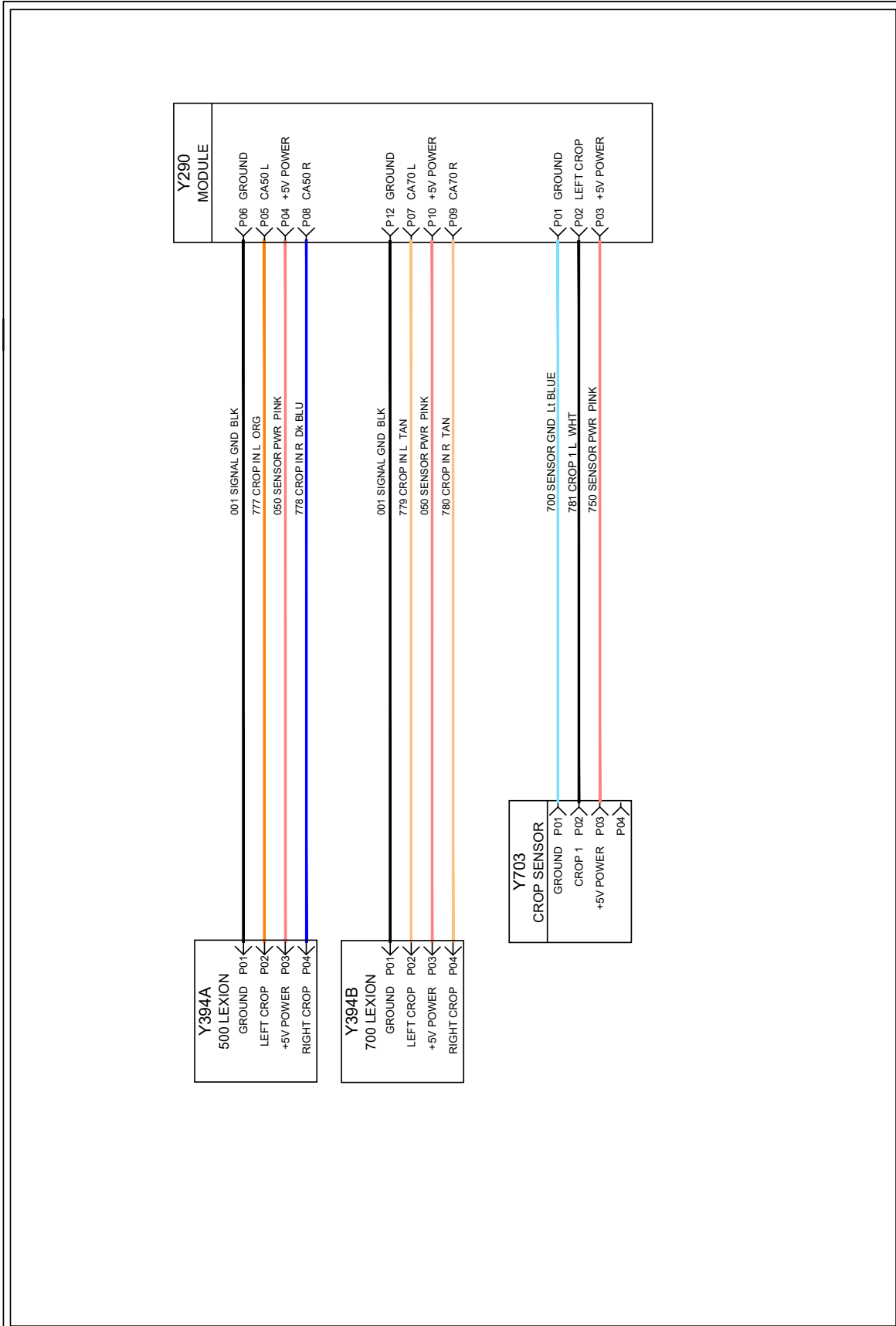


The TS-TRUNK schematic is the main harnesses used for all applications in this manual, each uses one of the following valve harnesses depending on your steering device.



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.

# TS-CAAP-ADPT



NOTES:

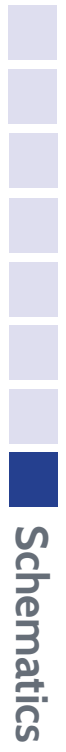
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REV	DESCRIPTION

DATE		APPROVED

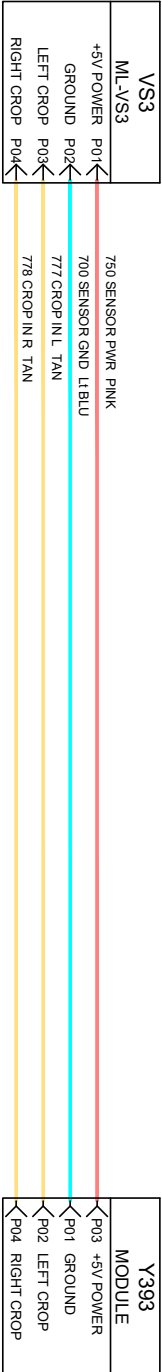
FILE NAME: TS-CAAP-ADPT R1  
 WIRING SCHEMATIC  
 PART NUMBER: TS-CAAP-ADPT  
 SCALE: NOT TO SCALE  
 SHEET 02

HEADSIGHT INC. MARKETING SOLUTIONS  
 DRAWN: 7/31/2015  
 DRAWN BY: JHK

REV 1



# TS-STD-CAAP



NOTES:

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



DRAWN 12/21/2021  
DRAWN BY: JHK

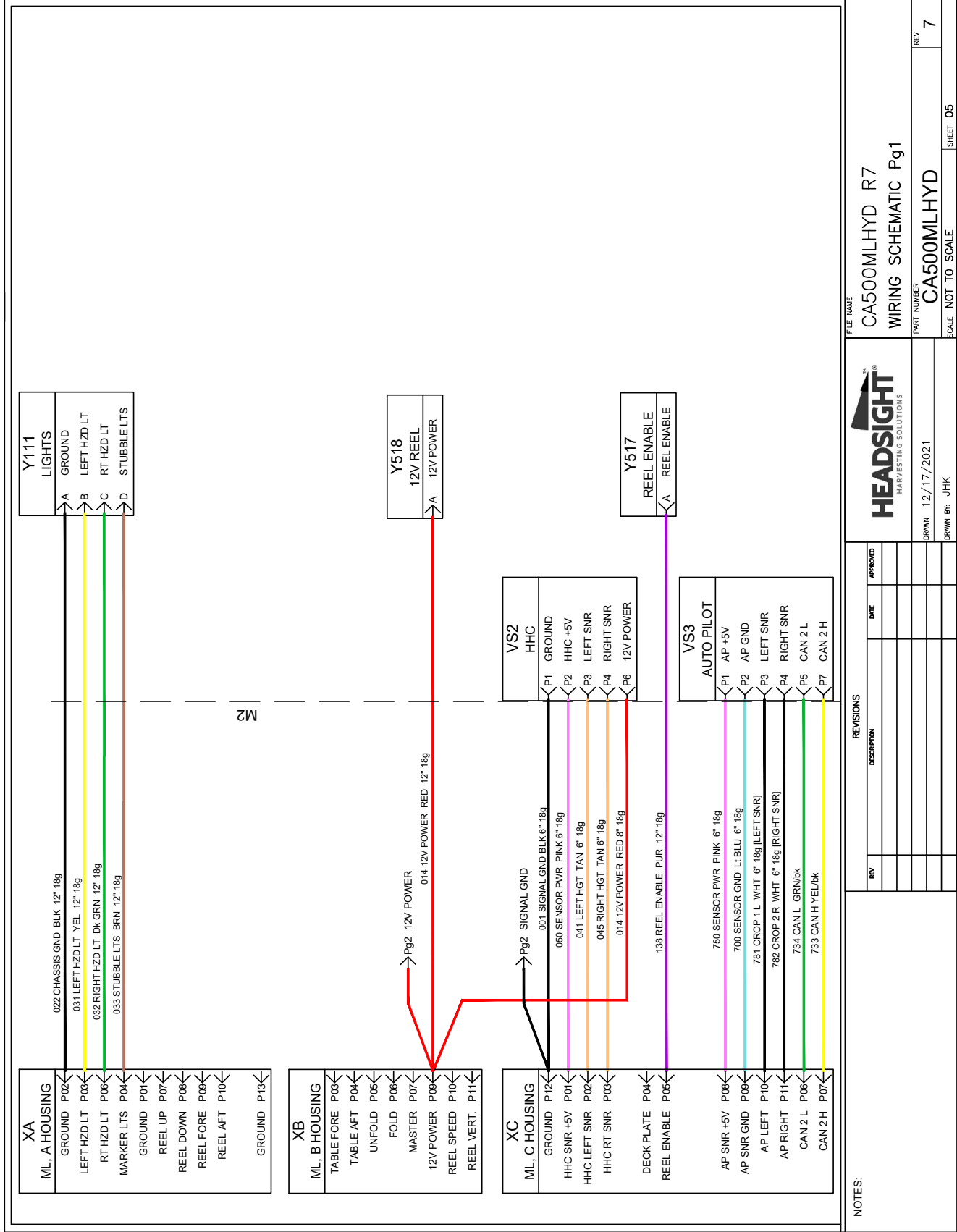
FILE NAME  
TS-STD-CAAP R4  
WIRING SCHEMATIC

PART NUMBER  
TS-STD-CAAP  
SCALE NOT TO SCALE

SHEET 02

REV  
4

# Multilink - Typical Internal Schematic



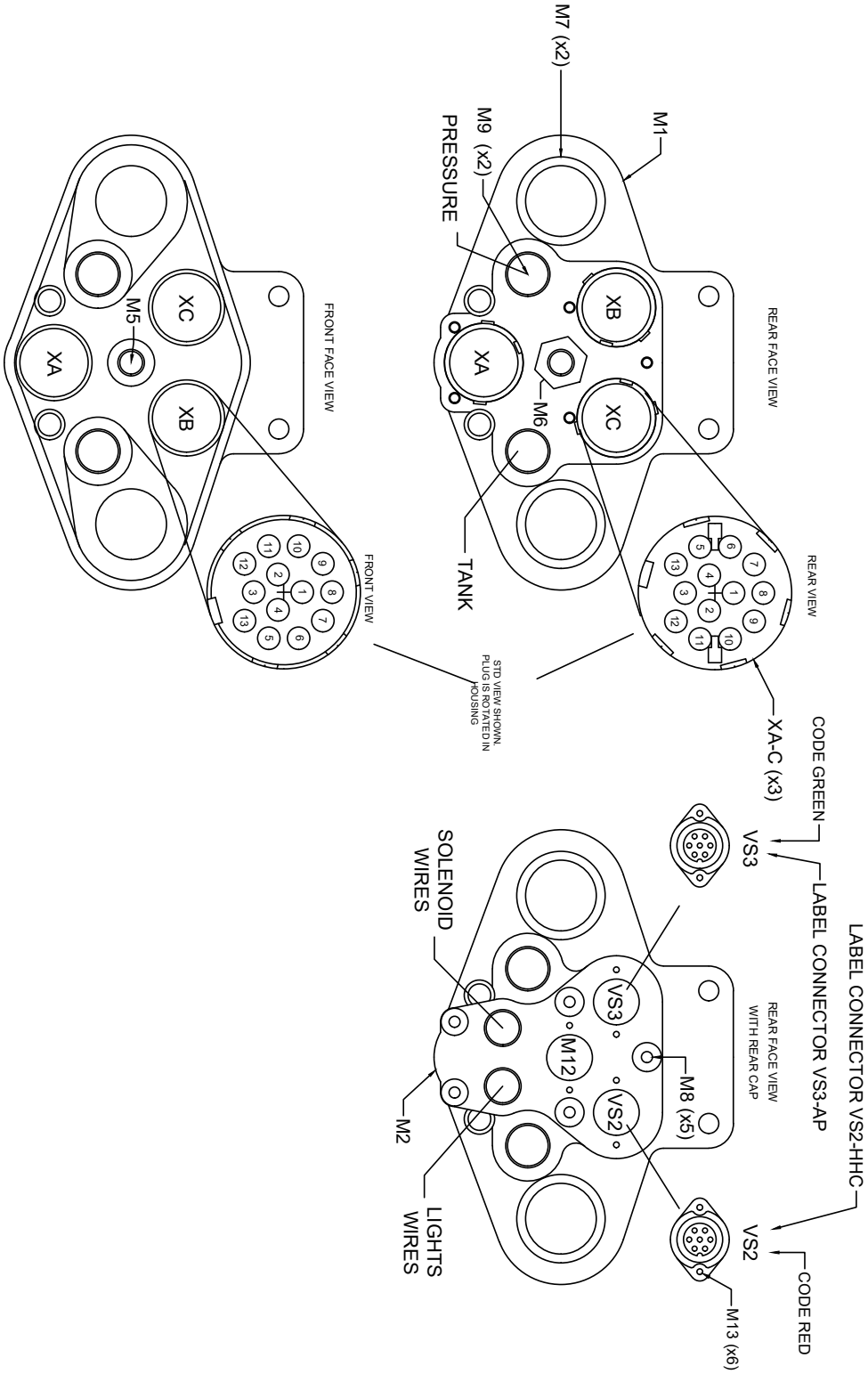
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PART NUMBER		CA500MLHYD	
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DRAWN BY		JHK	
SCALE		NOT TO SCALE	
SHEET		05	
REV		7	

REVISIONS		
REV	DESCRIPTION	DATE

NOTES:

# Multilink - Mechanical



NOTES:

REV	DESCRIPTION	DATE	APPROVED
7	HEATSHRINK ON CABLES. CAN	12/17/21	JHK

<p>REVISIONS</p>	<p>DATE</p>	<p>APPROVED</p>
<p>DESCRIPTION</p>	<p>DATE</p>	<p>APPROVED</p>

<p>FILE NAME</p> <p>CA500ML R7</p> <p>MECHANICAL LAYOUT</p>	<p>DRAWN</p> <p>12/17/2021</p>	<p>HEADSIGHT</p> <p>TRUCK TESTING SOLUTIONS</p>
<p>PART NUMBER</p> <p>CA500MLHYD</p>	<p>DRAWN BY:</p> <p>JHK</p>	<p>SCALE</p> <p>NOT TO SCALE</p>

<p>SHEET</p> <p>01</p>	<p>REV</p> <p>7</p>
------------------------	---------------------

# Parts

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	08200157	10-24x1/2 SLOTTED WASHER HEAD HEX SCREW	2
2	HT2128	SENSOR	1
3	08100135	O-RING SIZE-021	1
4	08100132	RETAINING RING	1
5	08100130	BUSHING	1
6	HT2688	SENSOR BODY	1
7	HT2690	SPRING	1
8	08100138	O-RING SIZE-012	2
9	HT2672	PIVOT PLATE (INCLUDES ITEM 8, O-RINGS)	1
10	HT2692	SPRING	1
11	HT2687	SUPPORT	1
12	08200145	5/16-18 SERRATED FLANGE NUT	2
13	08100143	BUSHING	1
14	HT2669	CROP SENSOR CAP	1
15	08200214	1/4-20 THREAD, 5/16" x 1/2 SHOULDER BOLT	2
16	08200131	3/8-16 SERRATED FLANGE NUT	1
17	HT2685	SHAFT ADJUSTMENT STUD	1
18	HT2681	CALIBRATION WEDGE	1
19	HT2695	POLY WAND	2
20	HT2501	COMPLETE SENSOR (ASSEMBLY EXCLUDES ITEM 19)	2

NOTE: SENSOR CALIBRATION  
TARGET VOLTAGE WITH SENSOR CENTERED = 2.50V

MATERIAL N/A  
UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
DIMENSIONS WHO TOL ARE BASIC

THIRD ANGLE  
PROJECTION

SHEET 1 OF 1

**HEADSIGHT INC.**

THE INFORMATION CONTAINED ON THE DRAWING IS PROPRIETARY TO HEADSIGHT, INC. ANY UNAUTHORIZED USE OF SUCH CONTENTS IS STRICTLY PROHIBITED.

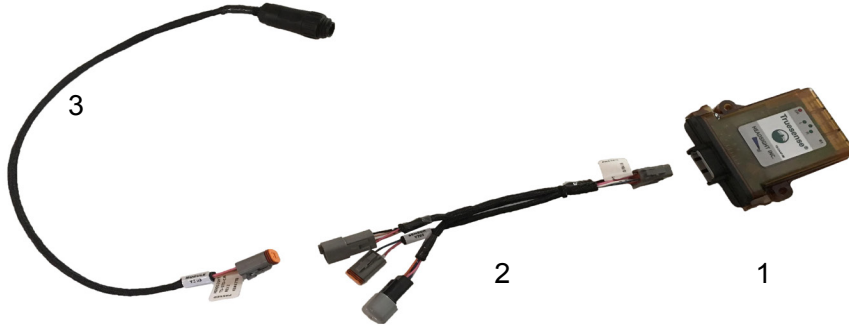
TRUESIGHT SENSOR PARTS

HT2501\_PARTS

CHECK LEVEL

OCT 30, 14

# Module & Adapters



<u>ITEM</u>	<u>QTY.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	1	TS-CAAP-IM	Module
2	1	TS-CAAP-ADPT	Module Adapter Harness
3	1	TS-STD-CAAP	Multilink AP Harness
4	1	TS-BOX	Hardware, not shown



# 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: 11/2021**



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