HORIZON®

INSTALLATION & OPERATION MANUAL

POLY ARM SENSORS

HORIZON

09062201j

HEADSIGHT™

HARVESTING SOLUTIONS®

About Headsight

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

Table of Contents

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.

Before You Start

⚠️ **Complete the installation portion of the header manual before continuing.**

1. Do you have a supported Virtual Terminal Screen?
   - John Deere – GS3 (2630 or GS3 Command Center) or GS4 (4600)
   - CaseIH Pro 700 (must have Virtual Terminal Software installed)
   - NH Intelliview IV (must have Virtual Terminal Software installed)
   - Ag Leader Integra or InCommand
   - AGCO C2100 or Tyton
   - Trimble FMX, GFX750, or 2050

⚠️ **If you need VT software for a CIH or CNH display, contact your local dealer and have them install it. The VT software allows Headsight's Horizon to appear on a VT display. For all CNH displays remove USB (if one is installed) from display until all Headsight VT applications have loaded.**

2. Follow "Installation/Header".

3. Follow "Installation/Header Options (if equipped)" and specific Header App Manual.

4. Follow "Installation/Combine" .

5. Follow "Calibration" section.

6. Follow "Settings" section.

OVERVIEW

COMBINE

ISO CAN

DISPLAY

OEM EDT #2

Y936

Y937

Y251

CAB POWER
BY APP.

Y570
12015024

Y569
12015798

BRIDGE HARNESS

POWER POINT

Y902

Y9002

Y702

TS2 BASE

OR

BRIDGE

OEM

POWER WIRE (BY APPLICATION)

FEATHERSIGHT OPTION (GRAIN ONLY)

CASPERS

PRESSURE
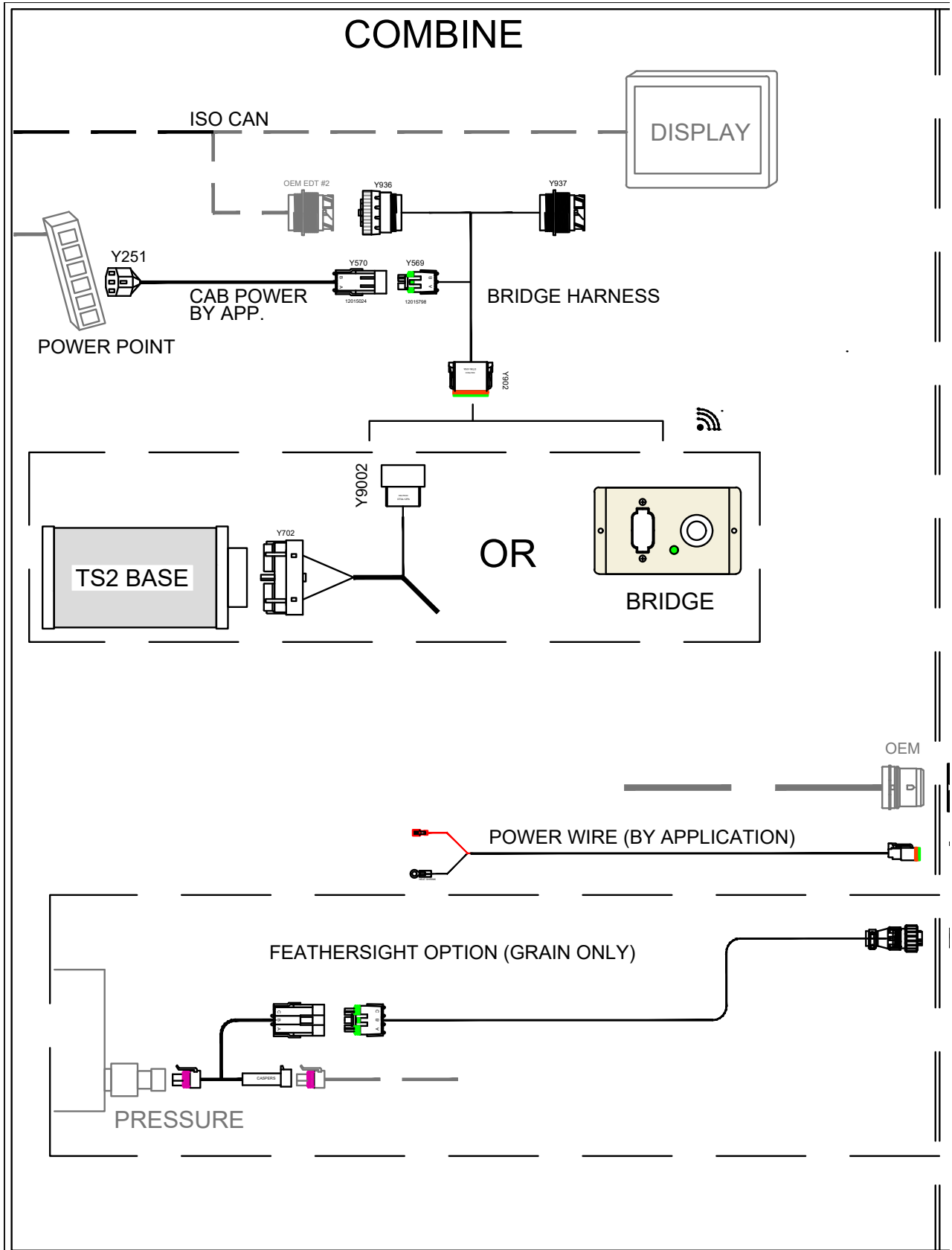
Overview continued.

HEADER

HORIZON BASE

OEM HEADER FUNCTIONS

Y193

Y903 Y904

HEADER AUX HARNESS
OPTION, VARIES BY APP.

SOME HEADERS

Y202   OEM

Y111   Y112   LIGHTS (SOME HEADERS)

TRUESENSE+ APP

Y703   HT2808

Y201

Y113

S81   PFBxx

S82

S84   2-5 SENSORS

S86

S87   PFBxx

Header- Horizon Base & Main Harness

Factory "Prewired" Headers

A number of header models are "prewired" for Headsight sensors and controllers.

- Honeybee 4000
- Maya - 2020 & up
- Geringhoff - certain models

1. Mount Horizon box to back side of head according to header installation manual.

2. Connect Horizon adapter harness to Horizon box and connect remaining connectors to the factory installed wiring connectors, see header intallation manual.

Systems with Individual Sensor Cables

1. Mount Horizon box to back side of head, left of feederhouse, with supplied hardware.

   - The box must be mounted horizontally on header
   - Orientation of the Horizon box is critical for header angle display on Drago, Geringhoff, and Capello headers:
     - The box must be mounted flat against the back panel of the header (See header installation manual for specific mounting instructions.)
     - Using a mounting bracket is acceptable for other header brands.

2. Connect main harness to Horizon box.

3. Connect sensor wiring to main Headsight harness.

   - Sensor location as viewed from operator's seat

	Left	Left Center	Center	Right Center	Right
2 Sensor	X				X
3 Sensor	X		X		X
4 Sensor	X	X		X	X
5 Sensor	X	X	X	X	X
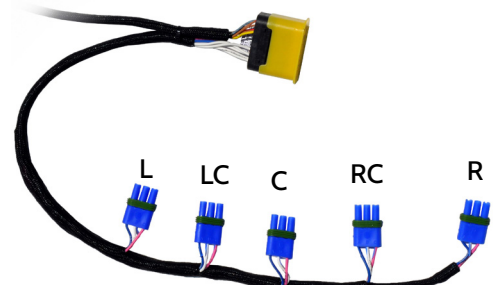
*L-Left, LC-Left Center, C-Center, RC-Right Center, R-Right

All Headers:

JD & Agco Combines w/ Single point

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

2. Install Horizon harness into OEM or provided single point latch plate.

3. If equipped, connect mating plug to OEM header connector removed in step 1.
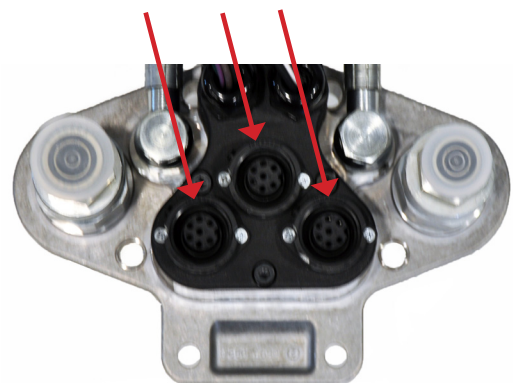

CNH Combines

1. Connect eyelet Y621 to a clean frame ground bolt on header.

   - If equipped, Y147B should be connected to Y148 on main Horizon harness

2. Mount main header harness combine connector Y311 in bracket on rear of header

   - Mount supplied harness bracket on head or
   - Install plug into OEM bracket

     - Connect OEM plug to Y312
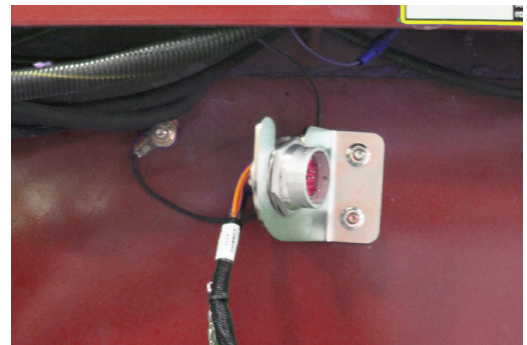
Lexion Combines

1. AHHC: Connect harness connector Y40/VS2 to VS2 on header side of multilink block.

   - Use Receptacle marked with arrow in picture at right (VS2) (except MacDon)
   - MacDon only: Trace and disconnect OEM Float sensor harness at Multilink. Connect Headsight Adapter to that receptacle

2. Row Guidance: Connect harness connector Y409/VS3 to VS3.

   - Corn heads only

3. If desired, connect harness connector Y410VS1 to VS1.

   - Corn heads: allows deck plate indicator
   - Grain heads: leave original reel functions plug in place

All combines

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

   - All others, connect other half of main Horizon wiring harness to original header harness
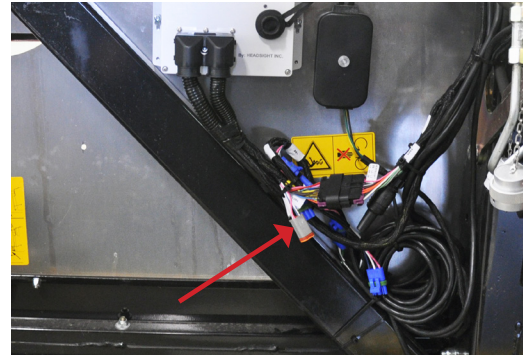
Header Options (if equipped)

 This section is for header specific options to control header functions or display header information.

Truesense+ (For JD RowSense, Lexion Autopilot, Agco AutoGuide)

Non-prewired heads

1. Route HT2808 extension harness from crop sensor to Y703 on the Horizon harness.

   - Be sure to setup and calibrate as directed later in this manual

Factory prewired heads

Some header models are "prewired" for a Truesight sensor

- Geringhoff – Freedom

1. Connect Horizon adapter harness to the factory installed wiring connectors, see header specific installation manual.

All Other Header Options

 Headsight has partnered with some header companies to display operational information for those heads. This information is available as a Horizon header app on the VT. These applications require a specific adapter harness.

Information displayed may include:

- Deck plate spacing
- Deck plate angle
- Shaft speeds
- Hours in service
- Other

If Headsight is controlling any function on the header (example – folding the header), the application will also require a header specific Unlock.

See the appropriate Headsight specific Header App Manual for installation and operation instructions.

Combine - Horizon Bridge

⚠️ **If you are installing a Truesight 2 system with VT display option you will not need to install a bridge. The Truesight 2 control unit will act as a Bridge unit, follow instructions in Truesight 2 installation manual.**

OEM JD Display

John Deere S700 - GS4 Command Center/4600

1. Use CAN bridge harness HT9411.

2. Connect Y936 to diagnostic connector.

3. Connect Y569 of HT9411 to Y570 of HT9306.

4. Connect HT9306 to cab power strip.

5. Leave Y570 on HT9411 disconnected.

6. Set bridge on floor in cab corner.

John Deere S600 - GS3 Command Center/2630

1. Use CAN bridge harness HT9411.

2. Remove cup holder insert.

3. Connect Y902 to Horizon bridge.

4. Connect Y936 to diagnostic connector in cup holder.

5. Connect Y569 to Y570.

6. Place bridge under cup holder and reinstall cup holder.

John Deere 70-Series

1. Use CAN bridge harness HT9411.

2. Connect Y902 to Horizon bridge.

3. Connect Y936 to diagnostic connector in right rear lower cab corner.

4. Connect Y569 of HT9411 to Y570 of HT9306.

5. Connect HT9306 to cab power strip.

6. Leave Y570 on HT9411 disconnected.

7. Set bridge on the floor in the cab corner.
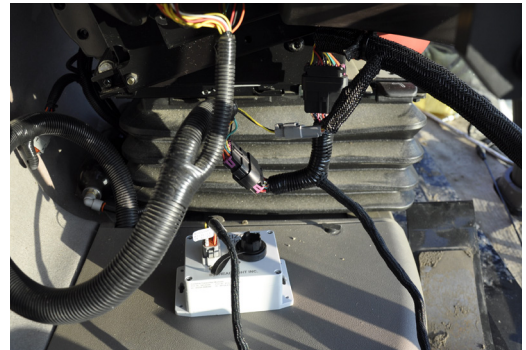
OEM CIH Display

CaseIH x250

1. Use CAN bridge harness HT9437.

2. Disconnect 31 pin connector X085 under armrest console and connect Horizon bridge harness in series with factory connectors.

3. Connect Y902 to the Horizon Bridge.

4. Bridge can be set in the right rearward corner of cab on floor under electronics cover.

5. Y7004 not used in this application.
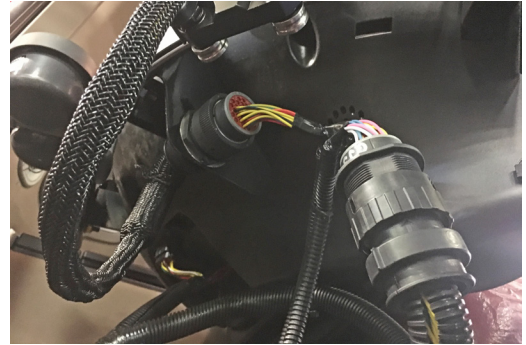
CaseIH x230 & x240 Common Cab - Pro700

1. Use CAN bridge harness HT9433.

2. Disconnect 16 pin connectors under armrest console and connect Horizon bridge harness in series with factory connectors.

3. Bridge can be set in the right rearward corner of cab on floor under electronics cover.

4. Connect Y902 to the Horizon Bridge.

CaseIH x230 Legacy Cab, x120, & x010 - Pro700

1. Use CAN bridge harness HT9432.

2. Open armrest door and remove tray.

3. Disconnect 10 pin connectors in armrest console and connect Horizon bridge harness in series with factory connectors (sometimes this connector is hanging just outside hole in bottom of armrest console - route back into console.)

4. Connect Y902 to the Horizon Bridge.

5. Set bridge inside arm rest and reinstall tray.

CaseIH x088, x130 & x140 Prior to 2018 - Pro700

When HT9434 is shipped, CAN connectors Y940 and Y941 are connected, yellow-to-yellow and green-to-green. This is correct for all newer machines. For machines older than serial number YCG00891 (change happened around MY13) the CAN wires need to be reversed for Horizon to appear on VT. Disconnect the CAN connection, and reconnect so it is connected yellow-to-green and green-to-yellow.

1. Use CAN bridge harness HT9434.

2. Remove the panel cover in the lower right corner of the cab.

3. Connect ground eyelet Y379 to any frame ground in fuse box area.

4. Connect power eyelet Y380 to switched 12V power junction.
   - Located at the rear of the fuse box the right side of the cab
   - The junction is covered in insulation

5. Connect Y936 to Diagnostics CAN port.

6. Connect Y902 to the Horizon Bridge.
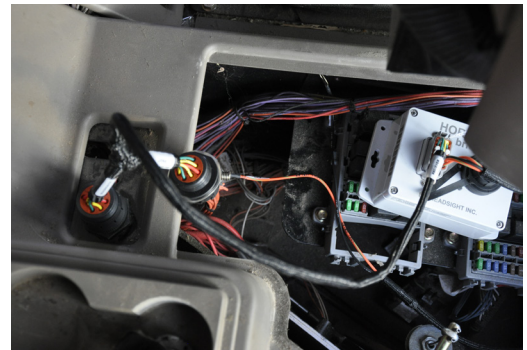
CaseIH x140 & x150, 2018 and up - Pro700

1. Use CAN bridge harness HT9435.

2. Locate connector below instructor seat.
   - Remove drawer under operators seat
   - Connect Y942 to the OEM Telemetry connection
   - Tuck bridge module under seat

OEM NH Display

IntelliView IV - CR DOT 2020 & up

1. Use CAN bridge harness HT9438.

2. Route HT9438 into electrical compartment to right of seat.

3. Wye bridge harness in line with X-1150
   - In electrical compartment to right of seat
   - Multiple plug sets are daisy-chained depending on options – wye harness into any set of X-1150 plugs

IntelliView IV - CR DOT 2019 -2021

1. Use CAN bridge harness HT9433.

2. Route HT9433 behind seat or as needed for Step 3.

3. Connect Y938 on bridge harness into X-1051
   - MY 2019 - In electrical compartment to right of seat

   - MY 2020 & up - Inside camera port housing under cab
     - Remove 4 screws holding housing to bottom of cab
     - Drop camera port assembly to access X-1051
     - Pull connector up into cab area

4. If applicable, connect Y939 to X-1051 OE mating connection.
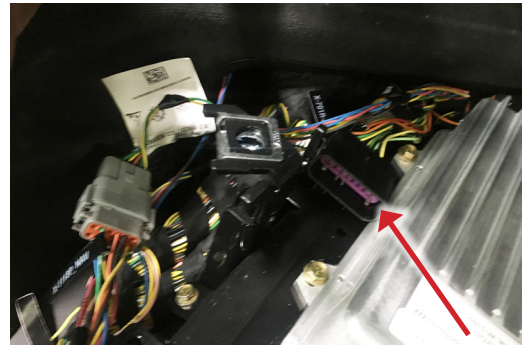
IntelliView IV - CR DOT prior to 2019

1. Use CAN bridge harness HT9433.

2. Locate connector below instructor seat.
   - Remove drawer under operators seat
   - Look through small access hole at location marked to see connector X-1051
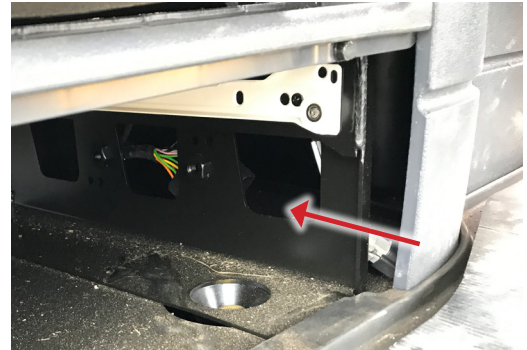
3. Remove cover right of operators seat.

4. Route OEM wiring harness with 16 pin CAN connector all the way back to right of operators seat as pictured.

5. Connect Y938 on bridge harness to X-1051 connector.

6. If applicable, connect Y939 to X-1051 OE mating connection.

7. Reinstall storage drawer.

IntelliView IV - CR 9000 pre-DOT

1. Use CAN bridge harness HT9432.

2. Disconnect white 10 pin connectors under armrest console.

3. Connect Horizon bridge harness in series with factory connectors.
   - Make sure color of wires match the machine wire colors and location
   - Some machines have two connectors and bridge will only work in correct connection

4. Set bridge on floor in cab corner.

5. Connect Y902 to the Horizon Bridge.

OEM AGCO Display

Agco - Gleaner S9x & Fendt Ideal

1. No Bridge is needed. The Horizon Base is connected directly to the ISOBUS in the header plug.

2. Connect Y110 to Y110B on Horizon main header harness.
   - All others: Leave Y110, Y110B disconnected

Agco C2100 and C3000

1. Use CAN bridge harness HT9450.

2. Connect Y902 of bridge harness to Y9002 of extension harness.
   - Extension may not be needed for all models

3. Connect Y936 of bridge harness to diagnostic connector EDT # 2 (grey)
   - Inside fuse panel compartment on some models
   - ISO port

4. For models with port inside fuse panel: Route harness down behind cab corner panel to floor of cab

5. Connect Y902 of extension harness to Horizon bridge.

6. Connect Y562 to Y561B most applications.
   - Y561 will remain not connected
   - If power on bridge does not turn off with key, connect Y562 and Y561 in line with Accessory power connector and Y561B will remain not connected

Aftermarket Displays

AgLeader with InCommand Display Cable p/n 4004671-12

1. Use CAN bridge harness HT9412. Also see Connection Guide 09.06.30.01

2. Disconnect any previously connected "accessory" harness (if any) from the Ag Leader Display cable 6 pin Deutsch connector.

3. Connect Y983 to the Ag Leader Display cable 6 pin Deutsch connector.

4. Reconnect the original "accessory" harness (if any) to Y982.

5. Connect supplied Terminator HT9208 to Y980.

6. Connect Y902 to the Horizon Bridge.
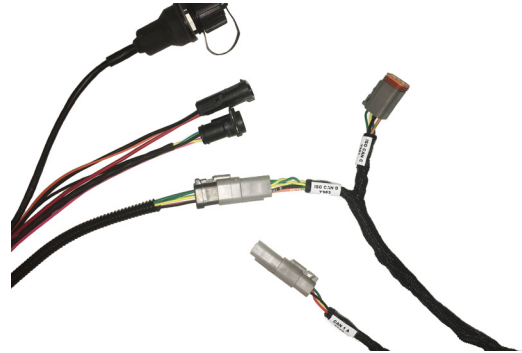
### AgLeader with Integra Display Cable p/n 4001608-12

Many Lexion combines w/AgLeader have this harness installed as OEM.

1. Use CAN bridge harness HT9412. May also req. HT3814.
   Also see Connection Guide 09.06.30.01

2. Disconnect any previously connected cable (if any) from the Ag Leader Display cable 4 pin Deutsch connector. This connector has a Pink, Black, Yellow and Green wire.

3. Connect Y976 to Ag Leader 4 pin Deutsch connector.

4. Connect Y977 to Y981.

5. Reconnect the original accessory harness (if any) to Y980.

6. Connect supplied Terminator HT9208 to Y980.

7. For installation with a previously disconnected AgLeader cable (see step 2 above),
   - Use adapter HT3814.
   - Connect Y983B to Y982 (6 pin) on HT9412 harness
   - Connect Y977B to existing Agleader cable
   - Typically used on Lexion to route power to AgLeader bridge module

8. Connect Y902 to the Horizon Bridge.

AgLeader with Integra Display Cable p/n 4002506-12 or -15

1. Use CAN bridge harness HT9412. Also see Connection Guide 09.06.30.01

2. Disconnect any previously connected cable (if any) from the Ag Leader Display cable 4 pin Deutsch connector. This connector has a pink and black wire only, and should be labeled "CAN B Power / Terminator".

3. Connect Y976 to Ag leader "Power" plug.

4. Reconnect the original accessory harness (if any) to Y977.

5. Locate Ag Leader 4 pin Deutsch connector Male/Female set (with Red, black, yellow and green wire.)
   • Connect Y981 to mating Ag Leader connector
   • Connect terminator HT9208 to Y980

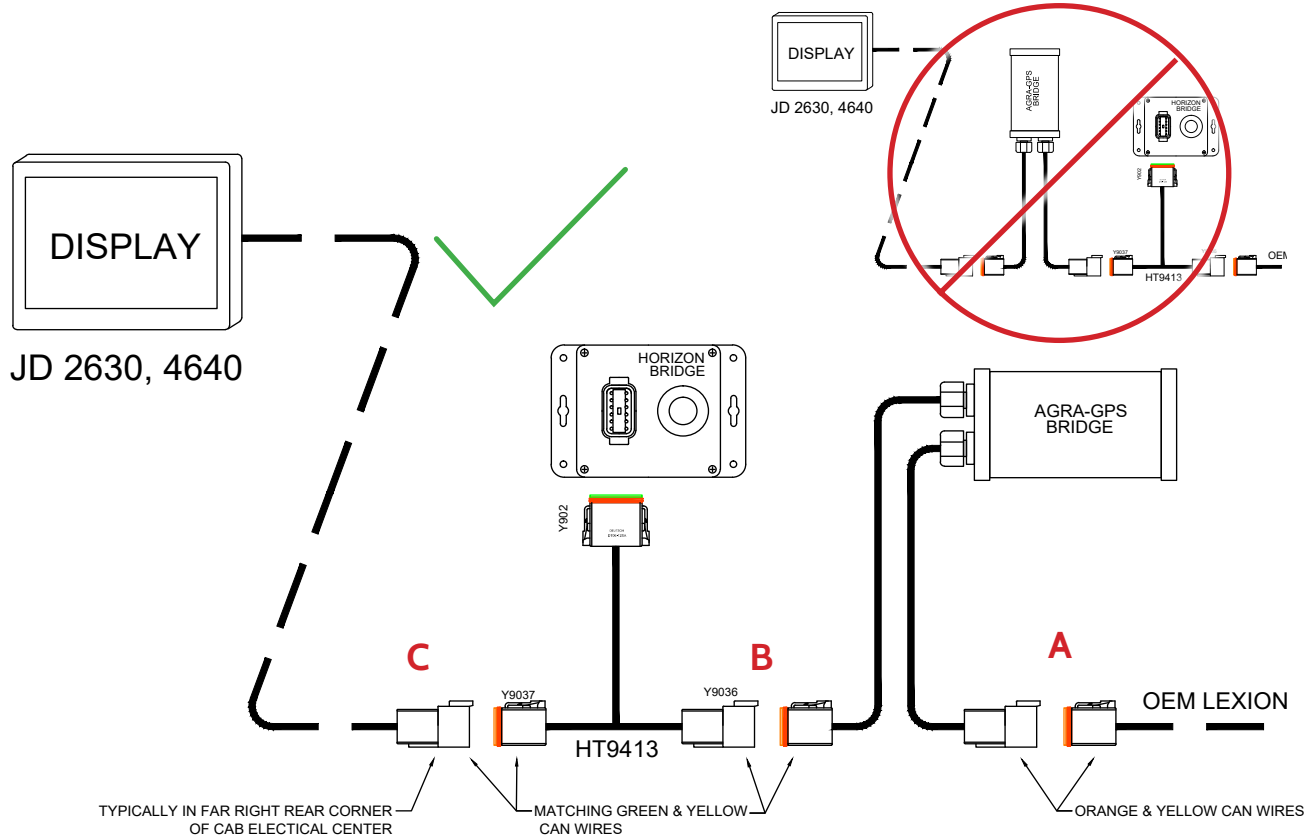6. Connect Y902 to the Horizon Bridge.
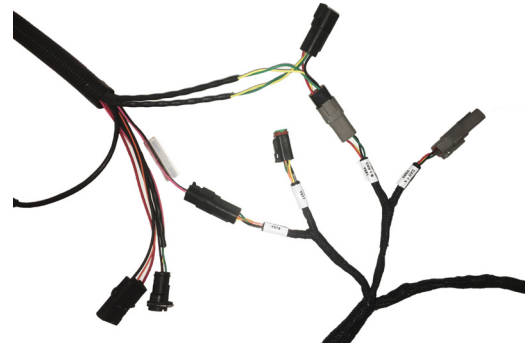
Trimble FMX , GFX750, 2050

1. Use CAN bridge harness HT9436.   Also see Connection Guide 09.06.30.02

2. Connect Y902 to Horizon bridge.

3. If connecting to a GFX750 or 2050 monitor & TM-200 module.
   • Tee Y918 & Y919 to P4 on the Trimble CAN adapter harness
     · Y919 to P4 CAN
     · Y918 to Trimble harness connected to P4 (if any)
   • Enable ISO VT on Port B

4. If connecting to a FMX monitor.
   • Connect Y943 to either Port A or B on monitor or R3 Port replicator on Trimble CAN harness
     · Connect Y942 to Trimble harness connected to Port (if any).
   • Enable ISO VT on appropriate Port A or B

JD GS3 or GS4 with Agra-GPS Conversion Module (Lexion Only)

The Horizon bridge harness HT9413 must be installed on the JD side of the Agra-GPS bridge. The connections on both side of the Agra-GPS bridge are the same. Make sure you are not connecting the HT9413 to the Claas/Lexion CAN side

DISPLAY

JD 2630, 4640

DISPLAY

JD 2630, 4640

HORIZON BRIDGE

AGRA-GPS BRIDGE

Y902

C   B   A

Y9037   Y9036   OEM LEXION

HT9413

TYPICALLY IN FAR RIGHT REAR CORNER OF CAB ELECTICAL CENTER   MATCHING GREEN & YELLOW CAN WIRES   ORANGE & YELLOW CAN WIRES

1. Use Bridge harness HT9413.

2. Complete installation of the Agra-GPS bridge system if not already done.
   - The Agra-GPS is required to connect the Lexion CAN network to the JD 2630

3. Make sure the JD 2630 monitor and Agra-GPS system are working properly before attempting to install the Headsight bridge.

4. DO NOT disconnect the Lexion CAN from the Agra-GPS (Connector A).

5. Disconnect the display adapter harness 6 pin Deutsch connector (C) from the Agra-GPS bridge (B).
   - This plug may be buried in the far back corner.

6. Connect Y9036 to the Agra-GPS bridge. (If this is the wrong polarity or CAN wire colors do not match, you are on the Claas/Lexion side, find the JD side).

7. Connect Y9037 to the display cable (C).

8. Connect Y902 to the Horizon Bridge.

9. Turn on the key. The Horizon Bridge icons should appear under VT on the JD monitor.
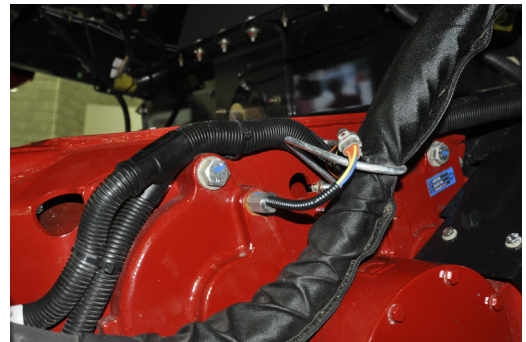
Combine - Power Wire

CIH

 No Power Wire is needed for the following models. Skip to the next section.

- CIH Midrange combines (x088/x130,x140, x150)
- CIH Flagship Model x250 s/n YKG239890 & newer

For all CIH Flagship x010-x240

1. Remove plastic shield from left side of feederhouse.

2. Connect 3 pin triangular plug in-line at feeder speed sensor (Y313 and Y314) on upper left side of feederhouse.

3. Route power wire along existing wiring to main header connector.

4. Unscrew rear of header connector on combine.

5. Remove white plug from rear of power wire pin 29 of header connector. Insert single Deutsch pin on power wire until it snaps into place.
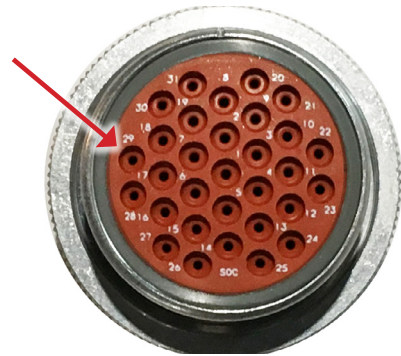
For CIH Flagship x250 before s/n YKG239890

This step is only needed for 1st year production x250 combines before s/n YKG239890. All combines prior to s/n YKG239854 are known to be Battery, proceed with x250 power wire install.

1. Test pin 29 in header connection to chassis ground.

2. If 12V with key off,

   - Follow the steps in "For x250 w/Battery Power on pin 29" to switch the power from battery to key switched.

3. If pin 29 is 12V only with the key on,

   - No change is needed.
   - Skip to the next section
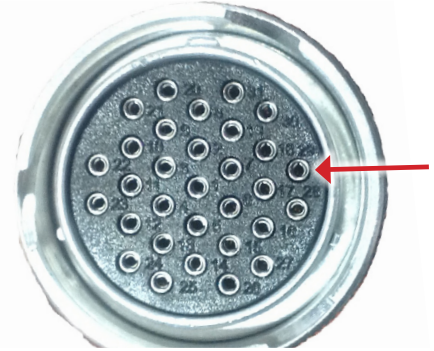
## For CIH Flagship x250 w/Battery Power on pin 29 ONLY

1. Use PFI-250-P

2. Remove metal shield from left side of feederhouse.

3. Remove plastic cable guard on the back of X-025P.

4. Use the included blue Deutsch removal tool to remove the red wire from pin 5.

   - This is the only red wire in the connector
   - You may need to loosen closest wire tie to easily access the connection

5. Insert included white sealing plug into cavity.

   - Extra sealing plug included if needed

6. Insert red wire pin into jiffy splice on PFI-250-P power adapter.

    - Make sure wire clicks into place

7. Reassemble cable guard and conduit on X-025P.

    - Red wire exits conduit outside cable guard
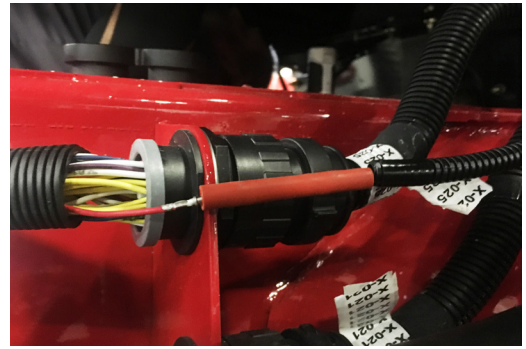
8. Connect 3 pin triangular plug in-line at feeder speed sensor (Y313 and Y314) on upper left side of feederhouse.

9. Ziptie power adapter harness to existing harnessing.

    - Make sure exposed wire cannot rub against metal framing
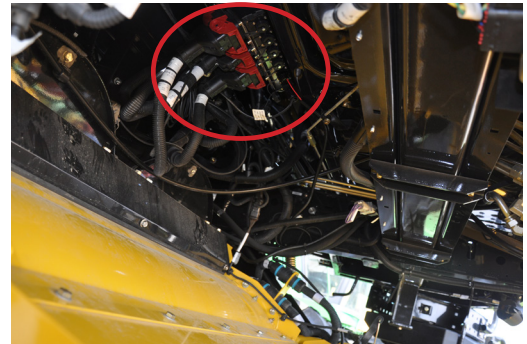
10. Reinstall metal shield.
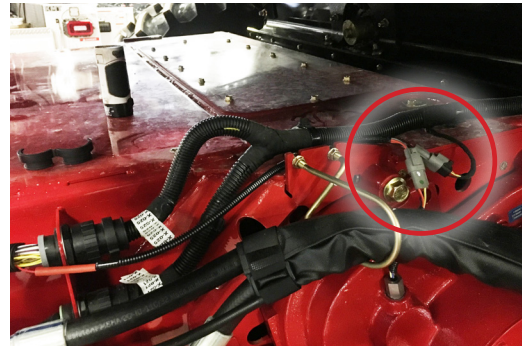
New Holland

For 2019-Up Combines - Dot Series

1. No power wire is needed.

For 2015 -2018 Combines - Dot Series

1. Use PFI-NH15-P

2. Connect 7 pin black plug to camera connection.
   • Located under cab, towards the back

3. Route power wire along existing wiring to main header connector.

4. Unscrew rear of header connector on combine.

5. Remove white plug from rear of pin 29 of the combine header connector.

6. Insert single Deutsch pin into pin 29 until it snaps into place.
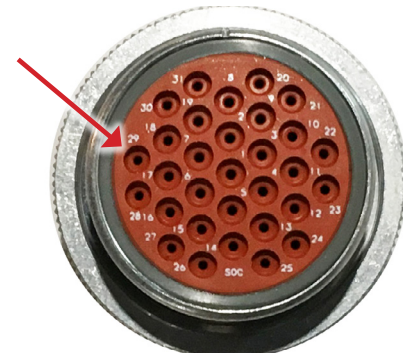
For 2007-2014 Combines w/ 5V CNH Header Control

1. Use PFI-CNH-P

2. Connect 2 pin black plug in-line to cab fan motor blower.
   • Located behind cab landing & above left front tire

3. Route power wire along existing wiring to main header connector.

4. Unscrew rear of header connector on combine.

5. Remove white plug from rear of pin 29 of the combine header connector (see above).

6. Insert single Deutsch pin into pin 29 until it snaps into place.

AGCO

MF 95xx, CH 5xx Models, GL S9x, Fendt Ideal

1. No power wire is needed.

2. Connect Y520 to Y521 on Horizon main header harness.

MF 9x95, CH 6x0B, GL Rx6-S88 Models

1. Use PFI-AGS7-P & HT9313 or HT9312

2. HT9313:
   - Connect Y571 & Y572 inline to seat connector.
   - 12 pin Deutsch behind operators seat

3. HT9312:
   - Connect Y561 & Y562 inline to seat air pump connector.
   - Connect Y563 & Y564 inline to seat safety switch connector.
   - 2 pin P56 blade conectors behind operators seat

4. Connect Y570 to Y569 on HT9313 or HT9312

5. Route PFI-AGS7-P out of cab, and down to the header single point connector. Follow existing wiring as possible.

6. Connect Y520 on power wire to Y521 on Horizon main header harness.
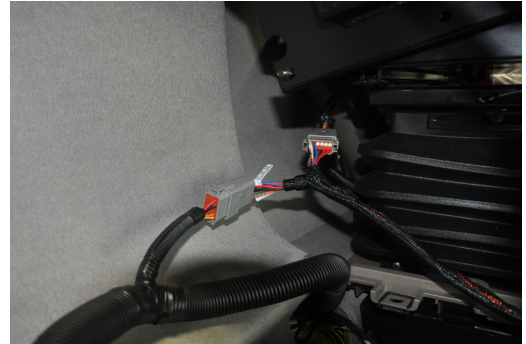
MF 9x90, CH 6x0, GL Rx5 Models

1. Use PFI-AG13-P

2. Connect Y520 on power wire to Y521 on main Insight Harness on header.

3. Route power wire into the cab (follow existing wiring) and up into fuse panel.

4. Attach Red wire Y551 to the Spare Fuse location on the board in the fuse panel.
   - If "Spare" terminal is not available, connect red wire to a keyed 12V source

5. Attach the black wire Y552 to a ground bolt in the fuse compartment.
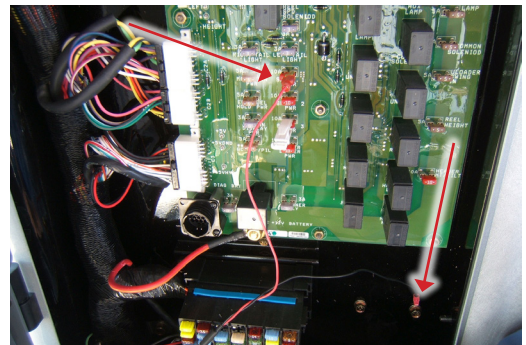
Feathersight® Option Installation (if equipped)

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.

Feathersight thru CAN: Horizon can access the pressure sensor reading from CAN on the following combines.   Direct connection to the combine sensor is not needed.   Instructions to do so are still included should direct connection be desired.

- JD S & X series
- CIH Flagship – MY2013 & up
- Fendt Ideal
- Other models to be added – if wiring is not included, test system without

JD S680, S780, S690, & S790, X Series

See "Feathersight thru CAN" note above – Direct wire Optional

1. Route Feathersight harness following existing combine harnesses and hoses from header connector to pressure sensor at valve block just in front of left front tire.

2. Remove factory cover over valve block assembly.

3. Unplug factory harness from pressure sensor and plug in supplied y-harness to sensor.

4. Connect factory wiring to y-harness and Feathersight harness.

5. Connect 4 pin round amp connector to main Horizon Harness.

6. Secure all harnesses with zip ties.

7. Install factory cover over hydraulic valve assembly.
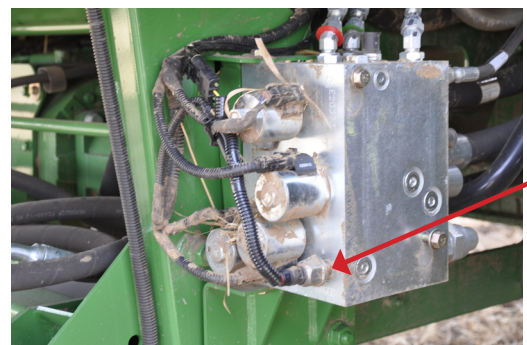
All Other Combines with Standard or Optional OEM Lift Pressure sensor

 **See "Feathersight thru CAN" note above - Direct wire Optional on some models**

1. If combine already has a feederhouse pressure sensor connect "Y" harness 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" harness.

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

4. Connect harness to main Horizon™ wiring (4 pin, round AMP connector).
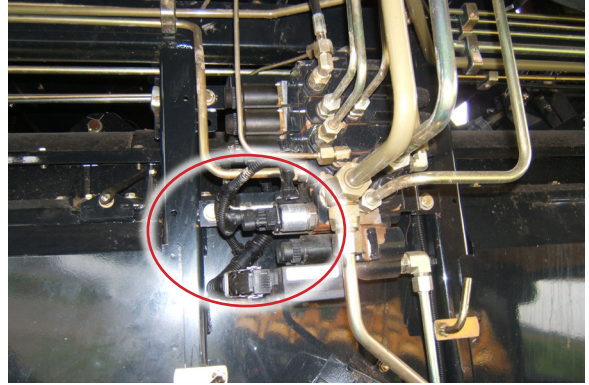
CIH Flagship, x250
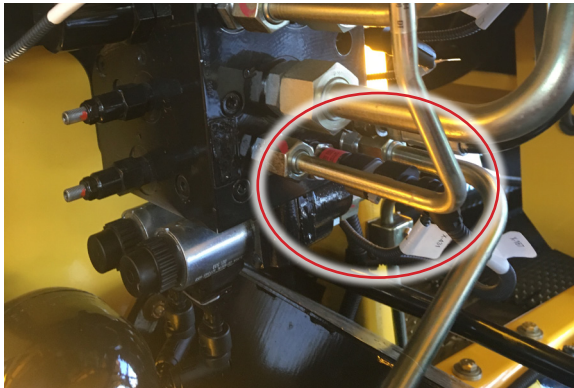
CIH Flagship
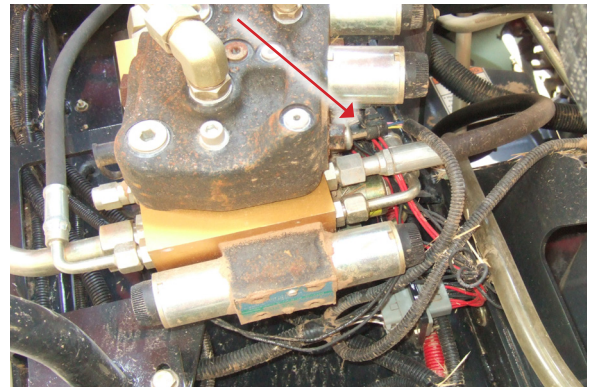
CIH Midrange (if equipped)

New Holland CR
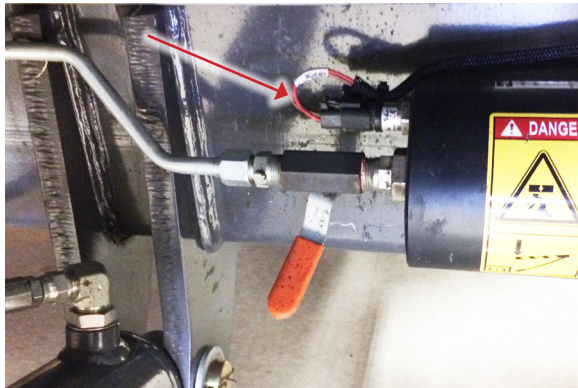

New Holland CX

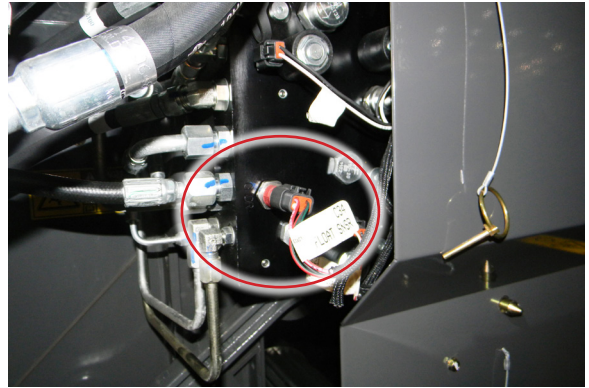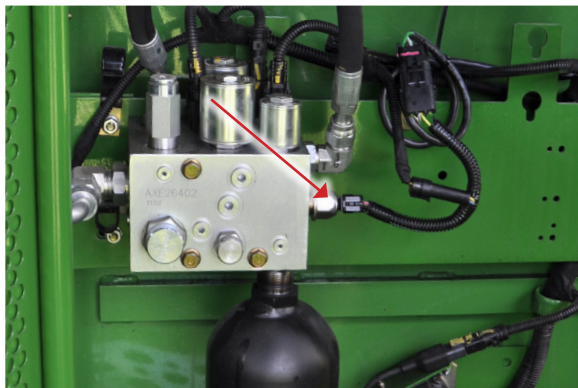New Holland CR DOT

Fendt Ideal

AGCO S9x

AGCO - Other (if equipped)

JD S550-S770

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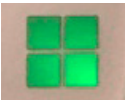
Combines without Integrated Lift Pressure sensor

- JD 60 nonSTS
- Some AGCO
- Other

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 Horizon wiring (4 pin round AMP connector).

Monitor Setup

AGCO Tyton (S9x, Fendt Ideal)

1. Press the quadrant button   .

2. In lower right quadrant, switch ISOBUS   on,

   press   .

3. Select ISOBUS   .

4. Select ISOBUS Settings   .
   - Screen displayed may be different from picture, with different button placement.

5. Select ISOBUS Isobus again   .

25
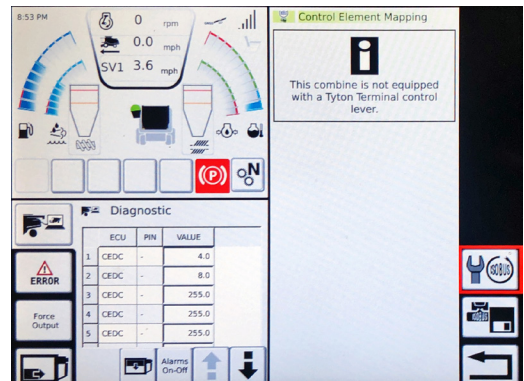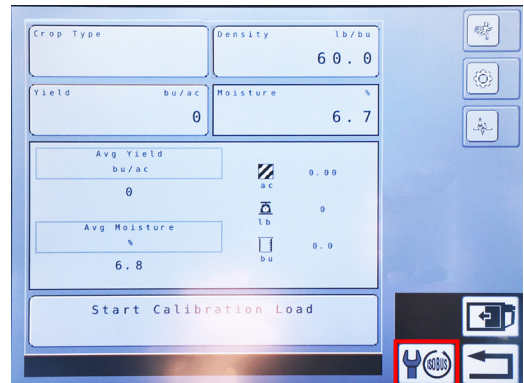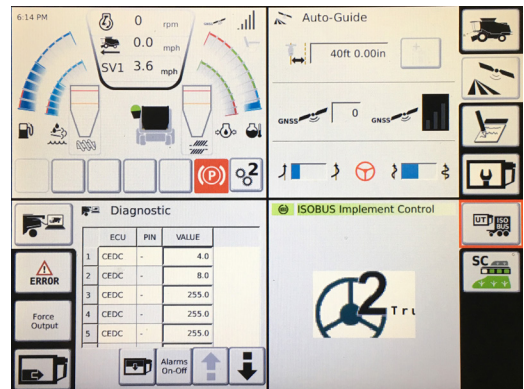
6. Enable UT 600 .

- If your software does not have this option, contact Agco to have the Tyton Software updated (early models only)
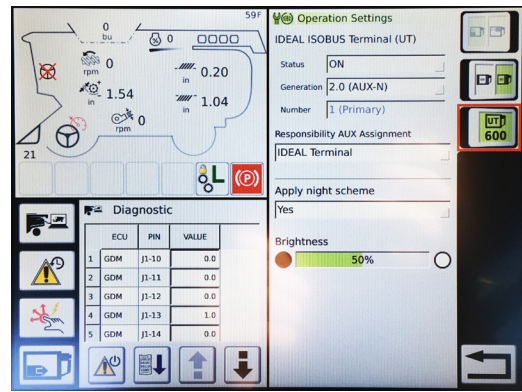
AGCO C2100 (MF 95xx, GL S6x-8x, Rx6, CH 5x0)

1. Check monitor for UT software installation.

- Turn on key
- If Truesight icon does not appear after installation, check UT settings in ISO
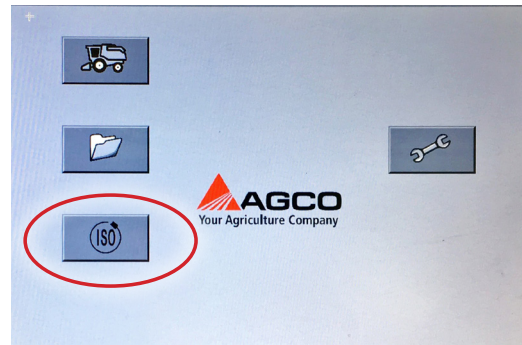
2. Enable Universal Terminal.

- Turn on key
- Choose HOME, select "Wrench"
- Select "Terminal Settings"
- Select "Isobus Terminal Setup"
- Must be set to "UT 1" and "AUTO/ON"
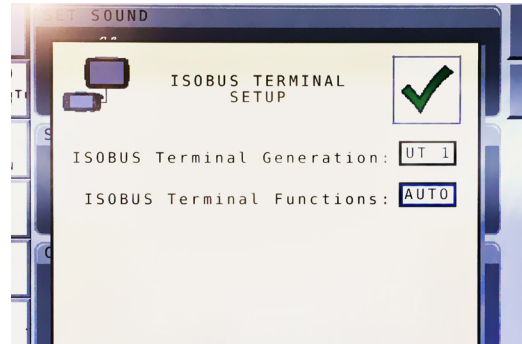
CNH Pro700/IntelliView 4

1. Press "Back" button in lower left corner of display and check monitor for VT software installation.

- If the VT icon is not present, call your CNH dealer and have VT software installed.
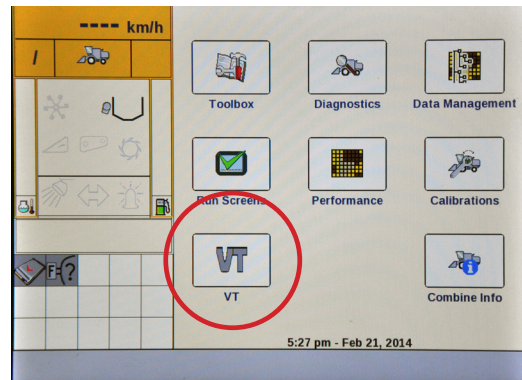
John Deere GS4/4600

1. Press Menu.

2. Choose Applications.

3. Select ISOBUS VT.

4. Choose the Horizon icon.

   - If there is another ISO application already open,

     - Press the menu button in the lower right corner to return to the main ISO page
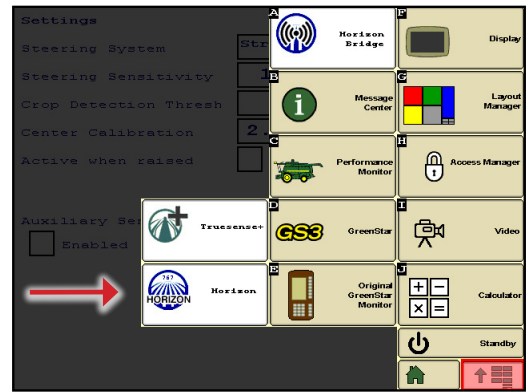
John Deere GS3/2630

1. Press display menu button, all VT icons will show up in this menu.
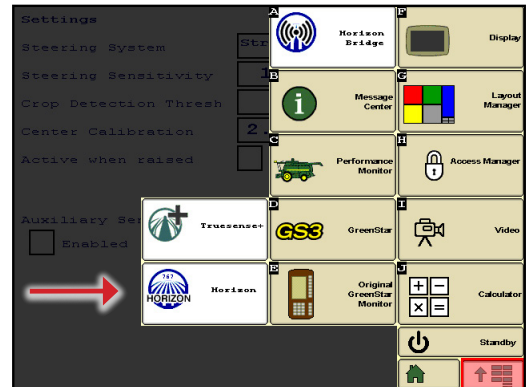
2. Some John Deere machines have 2 Displays.
   If equipped with 2 displays use the Next VT feature to force Horizon Icons to desired display.
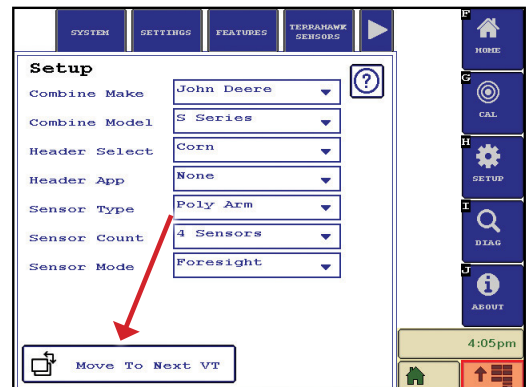
AgLeader InCommand/Integra

1. Check monitor for VT software installation.

    - Turn on key
    - If the UT icon appears on the home screen, VT should be enabled. If not, skip to step 3 below to enable VT on the monitor.
    - Note: Integra shown, Incommand similar

2. See if Truesight icon appears under VT tab.

    - If Truesight VT application does not appear, check the wiring and terminator installation (if required)
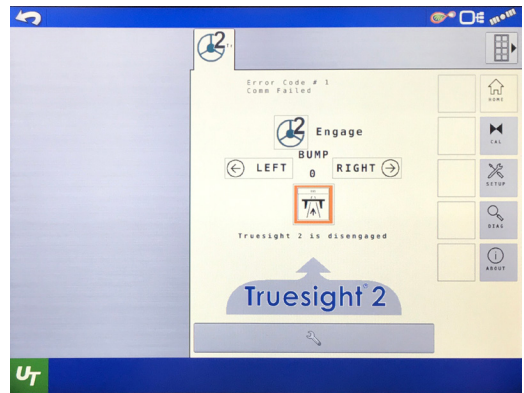
3. Enable "Universal Terminal" on the monitor.

    - On the Home page, choose the Setup (wrench) icon
    - Choose the Console (screen) tab
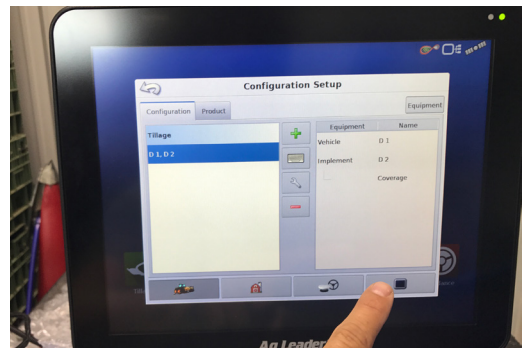
4. Choose Isobus Settings
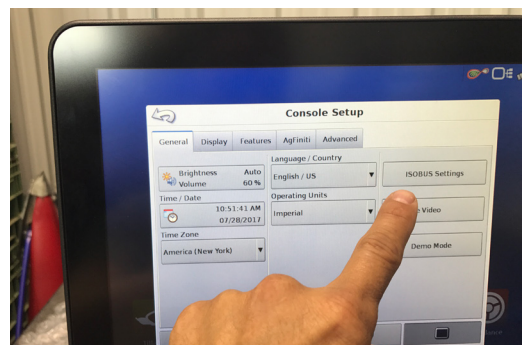
5. Enable Universal Terminal
   - Check the UT box
   - Press Check to enable

6. Cycle power to the monitor
   - Return to the home page
   - Check Step 2 above
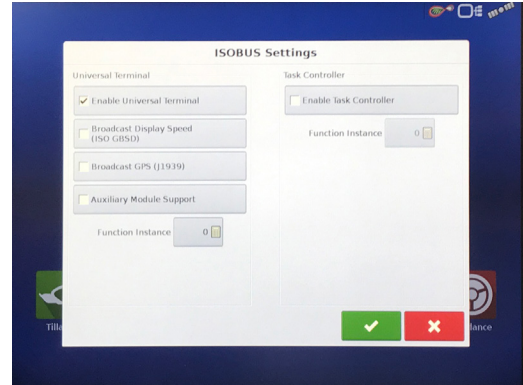
Trimble FMX, GFX, & TMX

1. Check monitor for VT software installation.
   - Turn on monitor
   - If the VT/UT icon appears on the home screen, VT should be enabled
   - 2050 shown, FMX similar
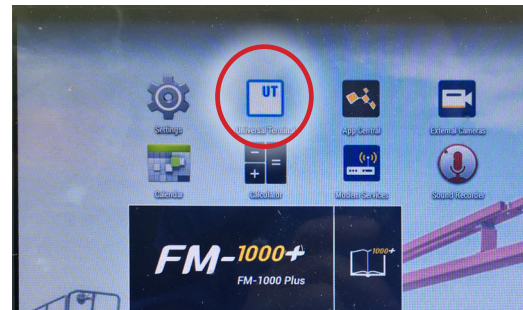
2. If not, add VT to the list of Active Plug-ins.
   - Settings»Configuration»Add/Remove
   - Chose correct Port for CAN
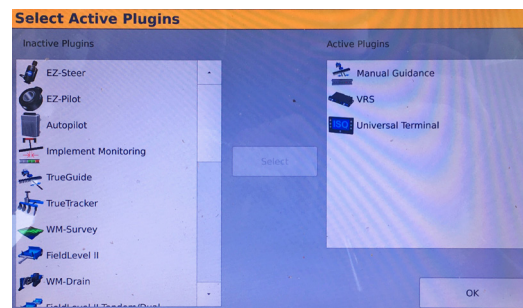
Calibration

Connecting Horizon Units

Horizon only needs to be linked at initial setup or any time a unit is replaced. If you already have or have installed a Truesight 2 system use the next section to connect units.

1. Select VT application "Horizon Bridge".
   - See Operation section of this manual to find Horizon Bridge VT application

2. Select serial number of Horizon base unit to which you want to connect.

3. Wait until screen says "Linked" and Loading of Pools has completed.

4. Go back to main menu and select VT application "Horizon".
   - See Operation section of this manual to find Horizon VT Applications

Connecting Horizon Units with Truesight 2

Before proceeding, complete the initial setup and calibration in the Truesight 2 manual (if not already done).

1. Select VT application "Truesight 2".
   - See Operation section of this manual to find Truesight 2 VT application

2. Select "Setup".

3. Select "WIFI".

4. Select "Mode" and switch the mode to "Bridge".

5. Cycle power, be sure that VT and Truesight 2 power cycle to save changes.

6. Go back to VT applications and select "Horizon Bridge".
   - See Operation section of this manual to find Horizon Bridge VT application

7. Select serial number of Horizon base unit to which you want to connect.

8. Wait until screen says "Linked" and Loading of Pools has completed.

9. Go back to main menu and select VT application "Horizon".
   - See Operation section of this manual to find Horizon VT Applications

Initial Setup

⚠ **If Horizon does not appear, temporarily remove any USB memory attached to the display monitor and cycle power.**

🔔 **Most Screens include Help pages that can be accessed by pressing the ? button.   These pages contain further information about the items displayed on the current screen.**

1. Power up Horizon by turning on combine ignition key.

2. Select VT application "Horizon".

    - See Operation section of this manual to find Horizon VT Applications

3. Follow on screen choices, and setup for your specific Horizon kit.

    - Combine Make – Choose make of combine
    - Combine Model – Choose model number of combine
    - Head Select– Important notes are below
        - Chopping Corn – Any Chopping corn head on JD combines
        - Other – Stripper Headers
    - Header App – Choose specific head if applicable
        - Options depend on Header Select

    - Sensor Type – Choose Poly Arm
    - Sensor Count – Number of Height Sensors
    - Sensor Mode
        - Options depend on Header Select
        - Standard
        - Foresight – Corn only, see Settings/Foresight
        - Feathersight – Grain only, see Settings/Feathersight
        - Other special applications (choose only if specifically stated in application manual)
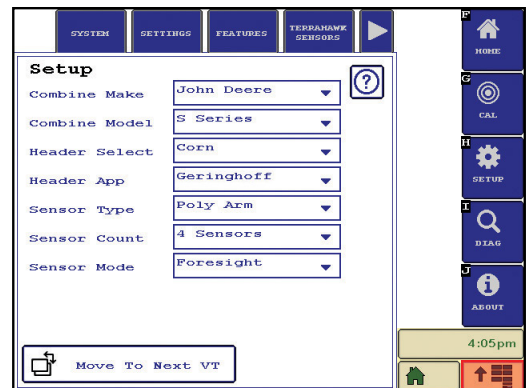
🔔 **Initial Setup appears until all the initial requirements are met.**

Calibrate Horizon

For the best header control and calibration score, always make sure the header angle is set correctly, there are 4-6" between skids and ground when snout tips touch, and snout tips are adjusted level. Calibrate on a hard level surface preferably use a driveway or shop floor.

For all JD S-Series combines with HFAT (Hydraulic Fore/Aft Tilt option) make sure "Feeder House Fore/Aft Tilt Range" calibration has been completed on combine before Horizon calibration.

1. Select Horizon VT application.

2. Level header to the ground

3. Select Calibrate on the display.

4. Select EasyCal Mode (Corn Only).

5. Raise header and select OK.

   - Follow on screen prompts
   - Calibration score will be calculated at end
   - Save Calibration if satisfied with score, if not satisfied with score repeat Calibration – See chart below

6. Calibrate header to combine as described in combine user manual.
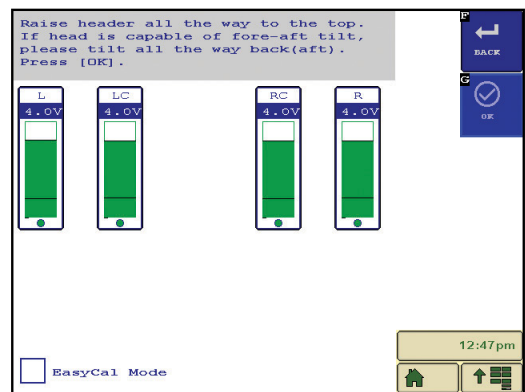
Calibration Score	
Best Performance	90-100
Good Performance	80-89
Fair Performance	70-79
Unreliable Performance	0-69
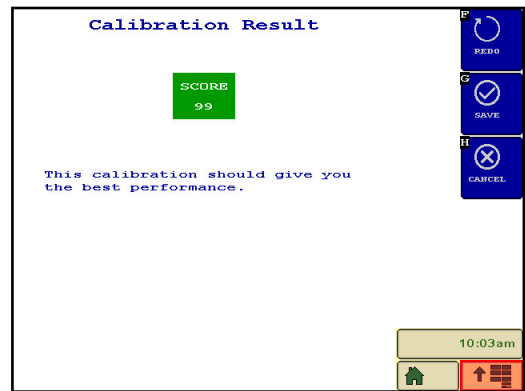
Note: A score of < 10 indicates Horizon has identified a specific problem, which should be displayed directly below the score. The problem must be corrected before calibration can be completed.

If a desired calibration score is not attained and all the above recommendations were completed, try a calibration without EasyCal Mode checked. This will add calibration steps and not automatically set Foresight® gain.

Settings

Most Screens include Help pages that can be accessed by pressing the ? button. These pages contain further information about the items displayed on the current screen.

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. Select L & R for 2 sensor tilt. Select L & R and LC & RC for 4 sensor tilt.

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
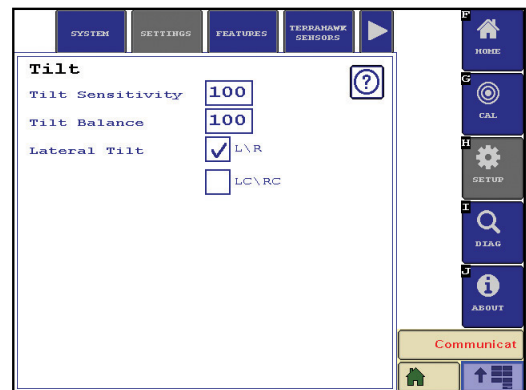
Outer 2 sensor tilt (default setting)

- 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
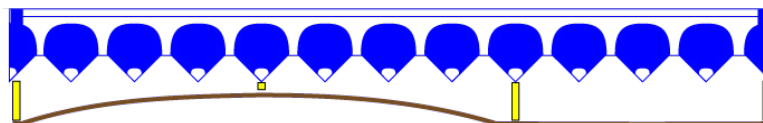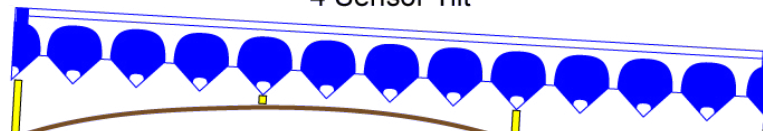
Tilt Sensitivity

If the head is too jumpy from side to side – decrease sensitivity. If you would like the head to be more responsive – increase sensitivity.

- Tilt sensitivity range - 0-200
- Always increase combine tilt sensitivity before increasing Horizon tilt sensitivity
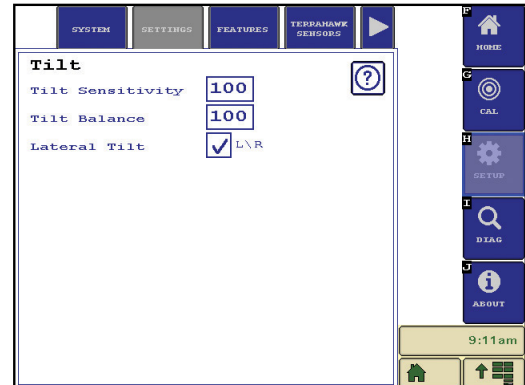
Foresight® - Gain (Corn Heads)

Foresight improves the performance of corn systems very near the ground. This setting is only applicable if you have turned on and calibrated the Foresight® option. If you used the Easy Cal feature, this number has been automatically determined in the calibration process. Otherwise follow instructions below.

1. Set the Foresight Gain.
   - The initial gain setting depends on the header dimensions. The proper setting may be determined by:

$$\text{Gain} = \frac{\text{Snout Length}}{\text{Contact Distance}}$$

2. 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, readjust the combine, NOT Foresight

Snout Length

Contact Dist
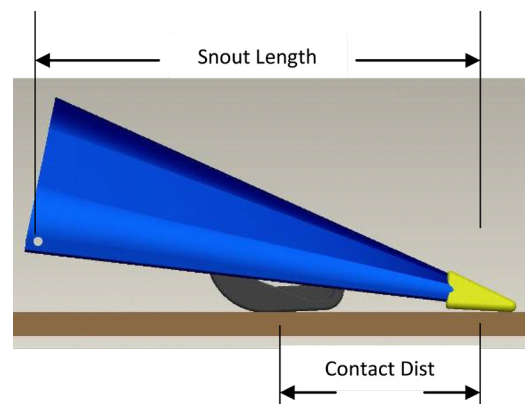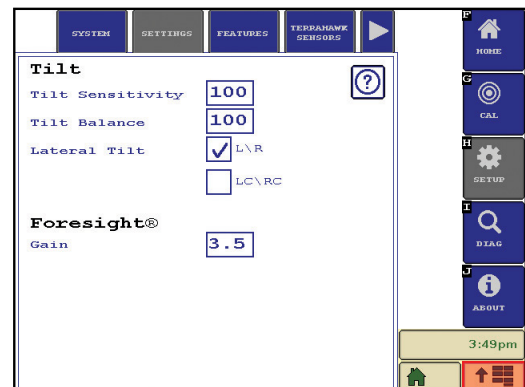
Feathersight® - HP Balance (Grain Heads)

This setting is only applicable if you have installed, turned on, and calibrated the Feathersight® option.

What to know:

- This setting is the percentage of the height response determined by the height sensors – the remaining response is 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 Horizon™ 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 Horizon™ with the pressure sensor disconnected to disable the pressure sensing mode

Advanced Machine

Outer Sensor Comp/Mount Distance (Grain Heads)

Properly setting Outer Sensor Comp/Mount Distance can significantly improve the performance of the header control.

Understanding Outer Sensor Comp

- Outer Sensor Comp should be selected when terrace-mounted sensors are being used on grain heads
- This setting corrects for the mounting position to provide the best performance possible
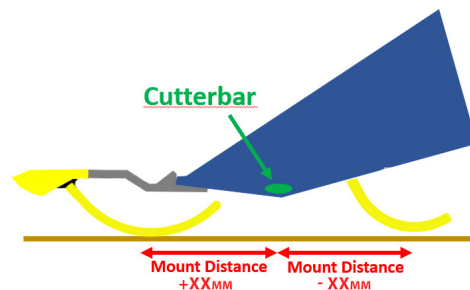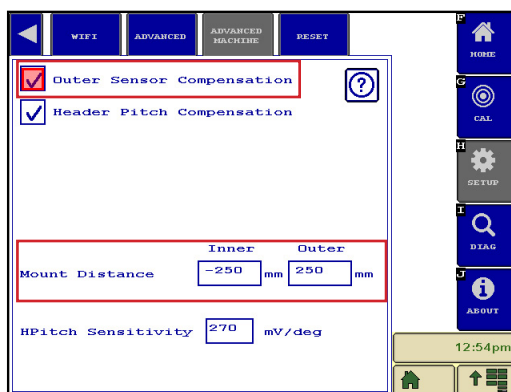
Header Pitch Comp

Header Pitch Comp noticeably improves the performance of the header control near ground on Headers with fore/aft tilt.

Understanding Header Pitch Comp

- Header Pitch Comp should be selected when using header with Fore/aft tilt
- This setting corrects Calibration values based on header geometry
- Header must be pitched all the way back before Horizon Calibration
- After completing Horizon calibration, MacDon heads should be pitched forward to normal operating position before completing combine calibration.

Setting HPitch Sensitivity

1. On the VT interface in the cab, open the Horizon pool, and press the "SETUP" softkey on the right.

2. Select the "ADVANCED MACHINE" tab along the top.

3. Select "Header Pitch Comp"

4. Set HPitch Sensitivity

   - Increase value to make it less sensitive
   - Decrease value to make it more sensitive
   - John Deere 6/700D Default is (270)
   - MacDon Default is (350)
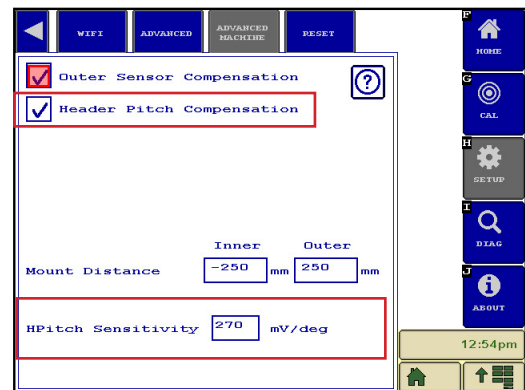
AutoSteer Module - Truesense+

Horizon Feature Unlock

The Truesense+ App requires a feature unlock in the Horizon setup.

1. Go to Horizon/Setup/Features

2. Truesense+ should be checked.
   - The unlock is typically purchased with the system package and preloaded at the factory

3. Contact Headsight if you purchased Truesense+ and do not have a check in the box.
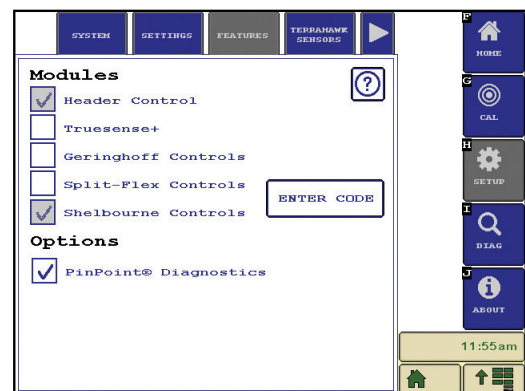
⚠️ **If you ever need to replace your Horizon Base, please notify the parts department that your unit has this feature unlocked.**

Setup Screen

⚠️ **You must select the steering system for Truesense+ to operate correctly. The combine must be equipped with the row guidance feature.**

Select steering system

- Straight Through
  - When using OEM John Deere sensors with JD Rowsense
  - When using Truesight2 in the combine

- JD RowSense
  - When using Truesense+ with JD RowSense
  - RowSense must be unlocked on the combine

- Claas AutoPilot
  - When using Truesense+ with Claas Lexion Autopilot
  - Autopilot outputs depend on combine model selected in main Horizon setup

- Agco AutoGuide
  - When using Truesense+ with Agco Autoguide
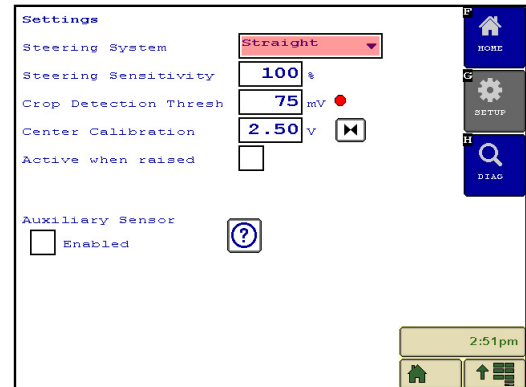
Steering Sensitivity

- Increase above 100% to make steering more responsive
- Decrease from 100% to make steering less responsive

Crop Detect Threshold

- Decrease if crop is not being detected
- Increase when crop is detected and there is no crop

Center Calibration

- Center sensor in row and press >< button
- Before modifying this number make sure to perform Rowsense calibration in combine
- Higher number will shift machine to right
- Lower number will shift combine to left
- If Rowsense calibration is off slightly from center, center combine in row and press center button

Auxiliary Sensor

- When using 2 crop sensors
- When using OEM JD RowSense sensors
- Note: When enabling Auxiliary Sensor, Pinpoint Diagnostics must be disabled (see Features Page)

Header App Settings

See the appropriate Headsight specific Header App Manual for detailed setup and operation instructions.

Operation

Finding VT applications

John Deere GS4/4600

1. Press [MENU] Menu.

2. Choose [Applications] Applications.

3. Select [ISO] ISOBUS VT.

4. Choose the Horizon icon.

   • If there is another ISO application already open,

      • Press the menu button [icon] in the lower right corner to return to the main ISO page

John Deere GS3/2630

1. Press display menu button, all VT icons will show up in this menu.
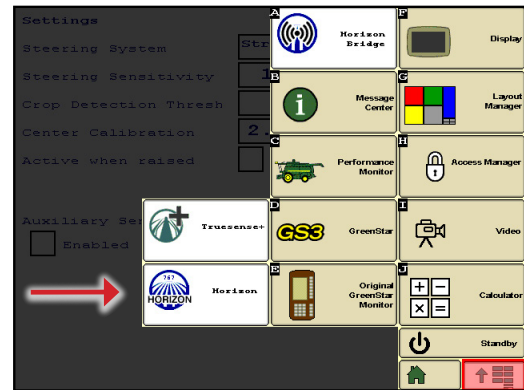
2. Some John Deere machines have 2 Displays. If equipped with 2 displays use the Next VT feature to force Horizon Icons to desired display.
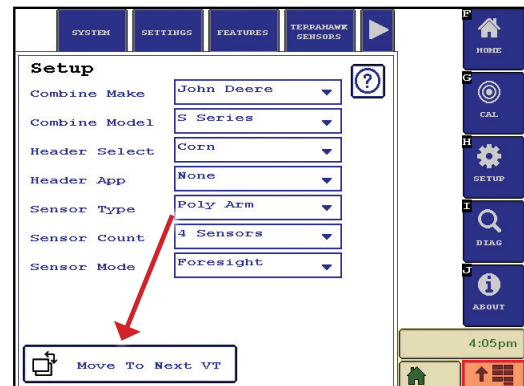
CaseIH & New Holland - Pro 700/IntelliView4

1. Press the back button on display then select VT icon.

2. Press menu button to display all pools.

Adding App Shortcut to Run Screen (Optional)

1. Press the back button on UT then select Toolbox.

2. Choose Layout tab

3. Select desired run screen

4. Add VT Implement (1x1) to list.
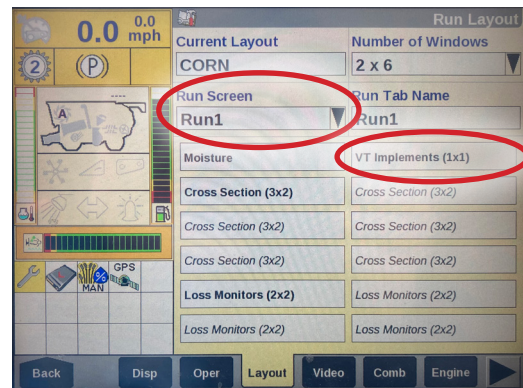
AGCO Tyton

1. Press the quadrant button .

2. In lower right quadrant, switch ISOBUS on, press .

3. To enlarge quadrant, select ISOBUS .
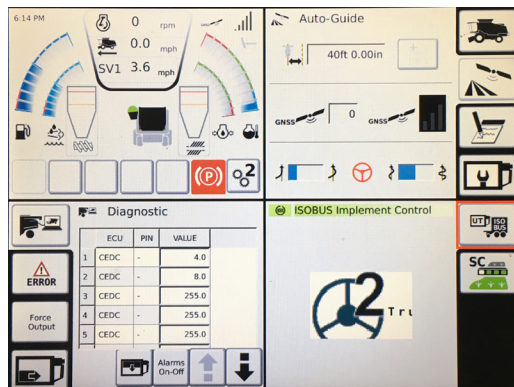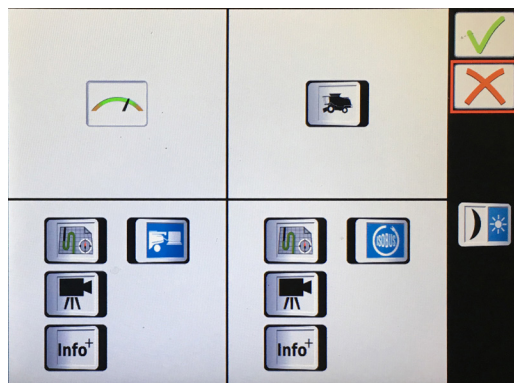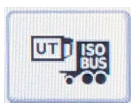
4. To switch UT applications, press . Select App, press .
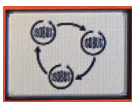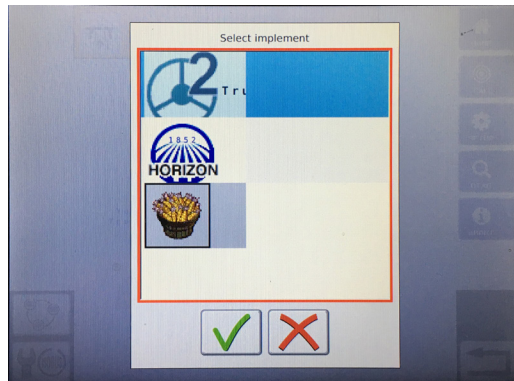
AGCO C2100

1. Press the home button .

2. Select ISOBUS .

Ag Leader Integra & InCommand

1. Press VT menu button
   - May have to enable VT in the screen settings

```
Linked

HZN: #0300535

Signal Strength

                      100%

  ⊘ DISCONNECT
```

```
  ⊡  Move To Next VT
```

Release Version   2.14.3

HORIZON ®

4:05pm
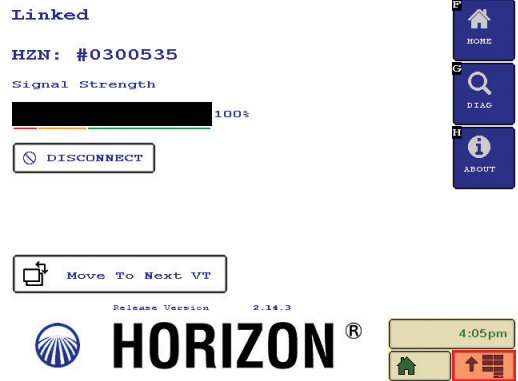
Trimble FMX, GFX750 & 2050

1. Press VT or UT menu button
   - May have to enable VT in the screen settings
   - Add VT to the Active plugins.
   - Chose correct Port for VT

Inactive Plugins		Active Plugins
Implement Monitoring		Row Guidance
TrueGuide		
TrueTracker	Select	
FieldLevel II		
WM-Drain		
FieldLevel II Tandem/D		
		OK
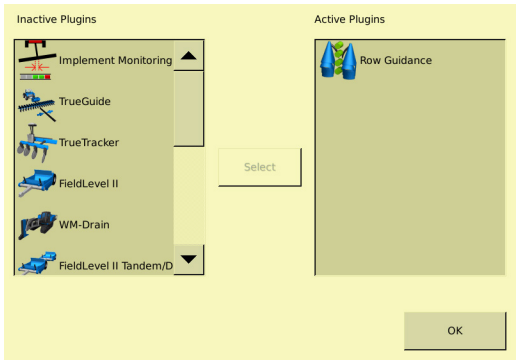
Operation

1. Be sure you have the initial settings entered and have calibrated Horizon.

2. Calibrate the header to the combine per operators manual.

   - For JD 9x70 series & newer, you must do the following calibrations **in the following order:**

     - Sx80 and Sx90 machines only: Perform "Header Tilt Speed Calibration"
     - All: Perform Feeder House Raise Speed Calibration
     - All: Perform Header Calibration

   - All others: Perform Header Calibration

3. Operate the Headsight system exactly like you would use your combine OEM height control system.

4. Fine tune all combine speed and sensitivity adjustments for best performance.

> **For more information on operating your combine, refer to the combine owners manual. Headsight also has other manuals that may have useful information on combine operation available @ Headsight.com>>Technical Info>>manual browser. Search for the manual # below. See the Combine Calibration, Settings, & Operation sections of those manuals; skip the Installation & Insight sections as not relevant to Horizon systems.**

- John Deere 60-S : Manual # 09010101
- CIH 5088-9250: Manual # 09010201
- New Holland CR/CX: Manual # 09010301
- Gleaner S6-7-8, MF 9x95-9x55: Manual # 09010401
- Fendt Ideal/Gleaner S9: Manual # 09010405
- Claas Lexion: Manual # 09010501

Advanced Information

Updating Software

Updating with Techlink™ App

1. Download Headsight Techlink App on your iPad or iPhone from the Apple store.

   - Must have Horizon 2.4.0 or later software
   - Must have Boot Loader 1.3.5 or later
   - Login, following on screen instructions
   - Go to "Help Info" to learn how to use app
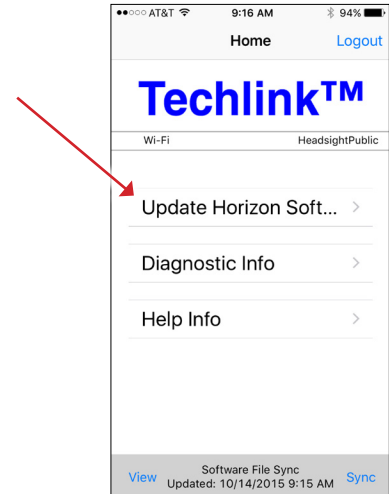
Updating with USB

1. Download latest version from website.

2. Unzip files, copy file insght2.bin onto root directory on USB flash drive.

3. Unplug Bridge unit in the cab while the Base update is being applied.

4. Plug USB flash drive into USB port on Horizon base on header.
   - If unit is not yet powered up, cycle key on combine
   - Base unit should start blinking yellow shortly after applying power. If this doesn't happen, unplug and plug the single point connector on the feederhouse

5. Wait until Horizon base has a green indicator light (should be no longer than 5 min.)

6. You can now safely remove the USB flash drive.
   - Be sure to replace USB cover cap to reseal box

7. Place USB stick in the Bridge unit.

8. Plug connector back into the Bridge unit.

9. Wait until Horizon bridge has a green indicator light (should be no longer than 5 min.)

10. Unplug USB when a green light is displayed on the Bridge unit.
    - Be sure to replace USB cover cap to reseal box

11. Wait for Horizon Bridge pool to appear on VT.
    - A power cycle might be needed after update

12. Your units are now updated. Please verify that your Horizon initial settings are correct.

- If a drop down menu is displayed, select the serial number of the base unit (the base applications should start loading after the bridge indicates a "linked" status)

If your Horizon units fail to update you must do a complete format on USB drive to a (FAT) file type and then recopy insght2.bin to root directory. If Horizon box continues to blink orange for more then 6 minutes or has a red light during update, install Boot Loader Update file before the main update file.

Status Light

LED Blink sequences

- Loading Data from USB: rapid yellow blink (approx. every 0.1 sec)
- Unit looking for VT: green LED, blinks twice a second
- Normal Operation: green LED, blinks every 3 second
- User Interaction required (Update): rapid green blink (an alarm mask will prompt the user on the VT)
- 12V power low: Red/yellow blink
- 5V supply low: 2 slow, 3 fast Green blinks

(Bridge only)

- Sending updates to VT: green LED blinks fast 3 times, then off 1 time

WIFI

Changing a WIFI channel is only needed when there is signal interference from another device. Renaming is only needed if you want a custom WIFI name.

1. Select SETUP≫WIFI on Horizon VT application.

2. Rename network by selecting box "Network Name".

3. Switch channel by selecting drop down box "Channel".

4. Cycle power after any WIFI changes have been made.
    - Be sure that Horizon unit power cycles to save changes

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.

Sensor voltage =
Horizon input voltage

Horizon output voltage =
Combine sensor input

Horizon scales voltages
received to what combine
needs to function
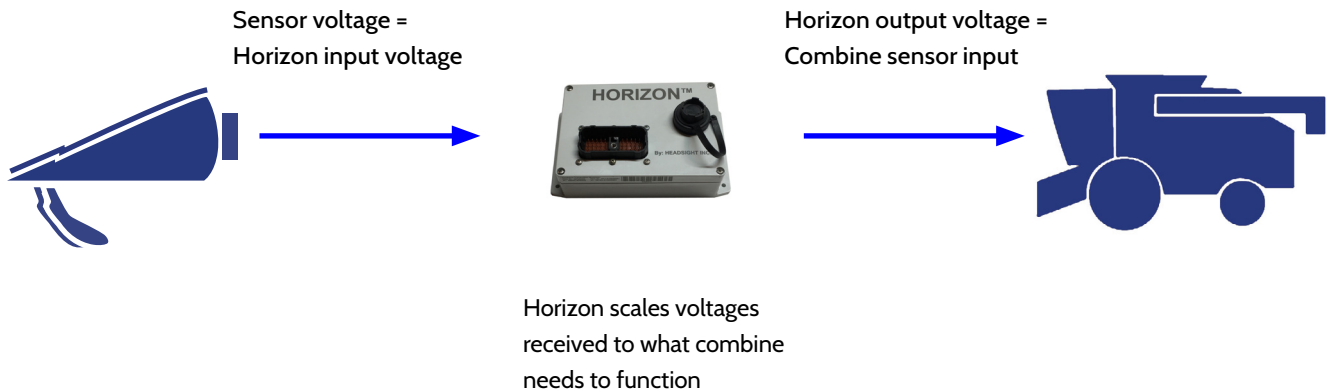
1. Each sensor returns a variable voltage depending on header height.

    - 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 (typically varies 1-4 volts)
    - green or pink = 5 volt power

3. The Horizon base 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
    - Horizon reads all sensors and sends signals to combine that will cause appropriate height and or tilt response
    - If Foresight is enabled - the Horizon magnifies the voltage change below the point where the snout tips touch the ground

4. Read the "sensor" inputs to the combine in the combine diagnostics (as equipped). See your combine owners manual for more information. These voltages should be close to the voltages on the Horizon "Combine Inputs" above.

5. 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.

Sensors - Basic Requirements

Each sensor must meet basic requirements for Horizon 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.

Pinpoint

Pinpoint is a diagnostic tool that utilizes software and hardware components to "Pin Point" a wiring problem.

- Works with analog sensors only - and must have check in box to function
- In order, the dots represent wires A,B, and C for each sensor
- Green dot represents that wire has no issues
- Yellow dot represents that wire had a fault
- Red dot represents a fault is present in that wire

To clear fault codes after a repair has been made, see the Diagnostics Errors section of this manual
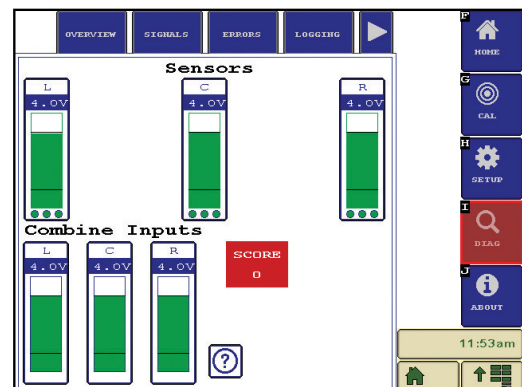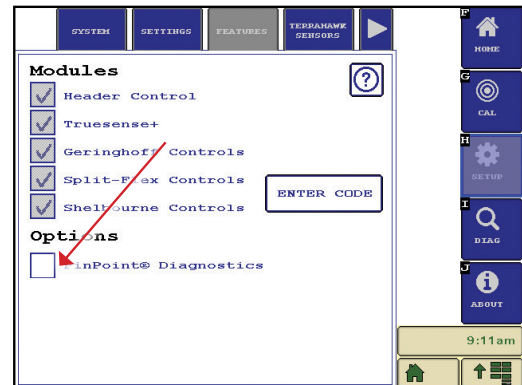
Horizon Diagnostics Screens

Overview

- Overview – displays voltages from sensors and voltages being sent to combine
- Calibration Score
- General reference to calibrated range – black lines on sensor graphs are high and low calibration points, middle hash mark is Foresight® calibration point when being operated on a corn head with Foresight® turned on
- Dots on graphs: Green – no codes, Yellow – had code but working, Red – code active
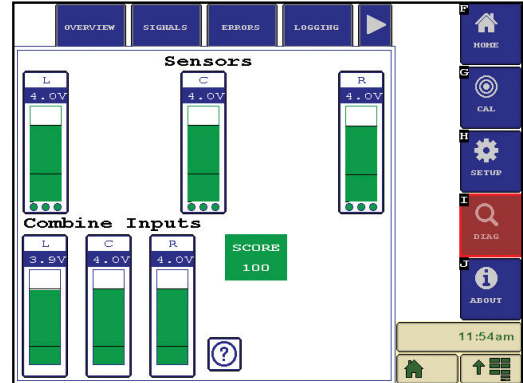
Detailed Sensor Voltages

- Press on any sensor graph
- Max and Min Voltages since last calibration
- High, Mid (used with Foresight), and Low calibration voltages
- Displays Foresight® Gain setting
- Use Previous and Next to scroll through sensors and Back to return to previous menu
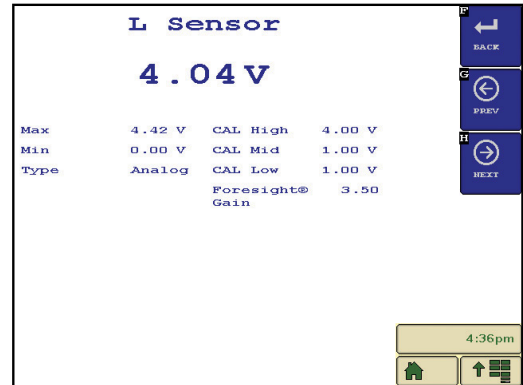
Signals

- General reference to inputs and outputs of Horizon™
- Displays – Signal, Value, and pin location on 50 pin connector on Horizon™
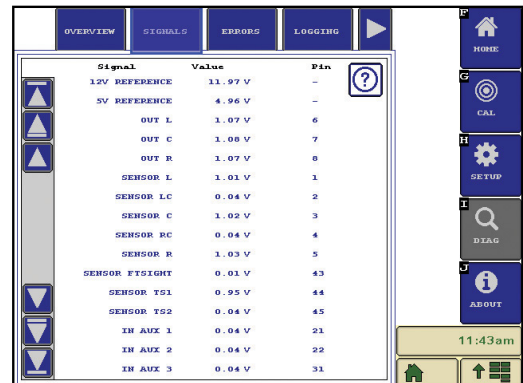
Errors

- Displays all error codes since last calibration or clearing of codes
- Displays active or inactive status for codes
- Allows clearing of codes after problem has been fixed

Truesense+

- Displays Current Sensor and Output values

    - Input Main = 2.5V when centered
    - Input Aux = auxiliary sensor only, normally 0.
    - JD sensors = 1.2V Main, 3.8V Aux

- Output values are dependent on Combine and Steering System selected

-

Input Main - Centered and Calibrated		
System	Output Right	Output Left
JD RowSense	4.00V	1.00V
Claas Lexion 700/8000	0.69V	0.69V
Claas Lexion 400/500	2.50V	2.50V
CNH Row Guide	0.69V	0.69V
Agco AutoGuide	0.69V	0.69V
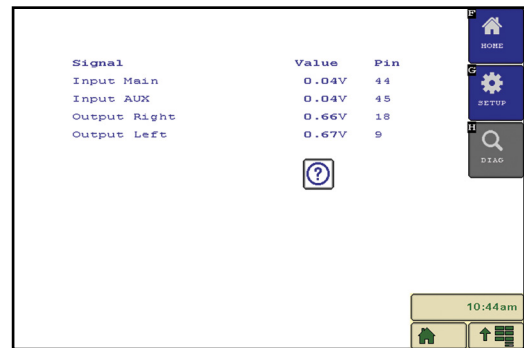
Header Apps

- See Headsight specific Header App manual for diagnostics

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

   • WIFI & CAN
     • Use this section to troubleshoot "connection" issues

   • AHHC Symptoms
     • Use this section to diagnose poor operation symptoms
     • Not usually accompanied by an Error message or Fault Code

3. Troubleshooting by Horizon Error Code

   • See Diag/Errors tab.

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 See "Diagnostics/Overview"	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 See "Diagnostics/Overview"	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 Horizon
- Properly calibrate combine AHHC ("Header Cal")
- Enable appropriate AHHC functions on combine
- Properly set combine electronics and/or hydraulics

Symptom	Problem	Solution
CAN & WiFi Diagnostics		
No Horizon Bridge App on VT See Advanced Info/Status Light for more diagnostics	Bridge or TS2 not connected to VT CAN.	Make sure Bridge is connected to correct VT CAN
	Bridge does not have Power (no LED)	Make sure bridge has switched 12V.
	ISO or VT not installed/enabled on monitor	Install of enable VT
	Truesight 2 is not enabled as "Bridge"	Check WIFi setup in TS2
	Memory stick interfering (CNH only)	Remove memory stick from VT, cycle power.
	Check for 2nd Display	Make sure Horizon is not on other display
Bridge cannot find Base See Advanced Info/Status Light for more diagnostics	Base not connected	Connect Header to combine

	No 12V power to Base	Make sure Base has power.
		    Check for power wire properly installed.
		    Check power from combine
		Some applications, Base LED can be on, but WiFi not powered. Start combine engine.

	Base connected to BAT not keyed 12V	Make sure that Base turns off with key.
	Base not broadcasting WiFi	Check smartphone Wifi Browser for "HZN xxxxxxx" network
	Other networks interfering. Wifi Cameras, Building Wifi, etc	Move combine away from buildings, etc. Change Wifi Channel. Cycle power and see if problem is resolved
	Base WiFi blocked	Move Base away from metal shields (frames, covers etc), Remove trash.

Symptom	Problem	Solution
CAN & WiFi Diagnostics		
Base not broadcasting WiFI No "HZN xxxxxxx" network on smartphone Wifi Browser See Advanced Info/Status Light for more diagnostics	No 12V Power	Make sure Base has 12V power. Check for power wire properly installed. Check power from combine Some applications, Base LED can be on, but WiFi not powered. Start combine engine.
	Shorted power system on header	Disconnect header wiring, Aux harness, Header CAN network, etc to see if WiFi will reappear
	Defective Base	Call Headsight for further diagnostics

Symptom	Problem	Solution
AHHC Diagnostics		
No automatic operation height or tilt	Wiring is not connected properly	Check wiring Installation
	Header control is not enabled with cab controls	See Combine owners manual
	Wrong HHC mode selected	Turn on AHHC, see Combine owners manual
	Error preventing operation	Correct error
Header is to jumpy or responds to slow	Combine is improperly set	See Combine owners manual
	Horizon needs to be re-calibrated	See Calibration section of this manual
Head Jumps and Jerks whole combine	Drop rate too fast	See Combine owners manual
	Unopened accumulator	Open accumulator valve 1-2 turn
	Discharged accumulator	Test accumulator as described in combine owner's manual, replace or recharge as necessary
Combine will not calibrate	Horizon not calibrated	Calibrate Horizon
	Horizon Outputs incorrect	See: Reading Voltages
	Combine Problem	Repair Combine

Symptom	Problem	Solution
AHHC Diagnostics		
CNH only Combine will not go into Auto Height mode. Combine stays in RTC (Straight line under header icon) No "wavy line" mode	Combine inputs incorrect Combine not Calibrated Combine Quirk. (Random combines need a "boot" to get them to shift into Auto mode. Perform suggested solution exactly as shown.)	Calibrate Horizon/change setup, etc so combine has correct input voltages Perform combine Header CAL Cycle Key Redo Combine Header CAL Lower head until snoot tips/cutterbar are touching ground Engage Thresher & Header Set #1 Height point there (very low) Check for "Wavy line" icon Bump height up as desired

Troubleshooting by Horizon® Error Codes

Error Code	Problem
1100.00	Left Wire A too High
1100.01	Left Wire A too Low
1100.03	Left Wire A shorted to High Source
1100.04	Left Wire A shorted to Low Source
1100.05	Left Wire A open
1101.00	Left Center Wire A too High
1101.01	Left Center Wire A too Low
1101.03	Left Center Wire A shorted to High Source
1101.04	Left Center Wire A shorted to Low Source
1101.05	Left Center Wire A open
1103.00	Center Wire A too High
1103.01	Center Wire A too Low
1103.03	Center Wire A shorted to High Source
1103.04	Center Wire A shorted to Low Source
1103.05	Center Wire A open
1105.00	Right Center Wire A too High
1105.01	Right Center Wire A too Low
1105.03	Right Center Wire A shorted to High Source
1105.04	Right Center Wire A shorted to Low Source
1105.05	Right Center Wire A open
1106.00	Right Wire A too High
1106.01	Right Wire A too Low
1106.03	Right Wire A shorted to High Source
1106.04	Right Wire A shorted to Low Source
1106.05	Right Wire A open
1110.00	Left Wire B too High
1110.01	Left Wire B too Low
1110.03	Left Wire B shorted to High Source
1110.04	Left Wire B shorted to Low Source

Error Code	Problem
1110.05	Left Wire B open
1111.00	Left Center Wire B too High
1111.01	Left Center Wire B too Low
1111.03	Left Center Wire B shorted to High Source
1111.04	Left Center Wire B shorted to Low Source
1111.05	Left Center Wire B open
1113.00	Center Wire B too High
1113.01	Center Wire B too Low
1113.03	Center Wire B shorted to High Source
1113.04	Center Wire B shorted to Low Source
1113.05	Center Wire B open
1115.00	Right Center Wire B too High
1115.01	Right Center Wire B too Low
1115.03	Right Center Wire B shorted to High Source
1115.04	Right Center Wire B shorted to Low Source
1115.05	Right Center Wire B open
1116.00	Right Wire B too High
1116.01	Right Wire B too Low
1116.03	Right Wire B shorted to High Source
1116.04	Right Wire B shorted to Low Source
1116.05	Right Wire B open
1130.00	Left Sensor too High
1130.01	Left Sensor too Low
1130.03	Left Sensor shorted to High Source
1130.04	Left Sensor shorted to Low Source
1130.05	Left Sensor open
1130.11	Left Sensor - Error not defined
1130.34	Left Sensor not detected
1131.00	Left Center Sensor too High
1131.01	Left Center Sensor too Low

Error Code	Problem
1131.03	Left Center Sensor shorted to High Source
1131.04	Left Center Sensor shorted to Low Source
1131.05	Left Center Sensor open
1131.11	Left Center Sensor – Error not defined
1131.34	Left Center Sensor not detected
1132.00	Truesight Sensor too High
1132.01	Truesight Sensor too Low
1132.03	Truesight Sensor shorted to High Source
1132.04	Truesight Sensor shorted to Low Source
1132.05	Truesight Sensor open
1132.11	Truesight Sensor – Error not defined
1132.34	Truesight Sensor not detected
1133.00	Center Sensor too High
1133.01	Center Sensor too Low
1133.03	Center Sensor shorted to High Source
1133.04	Center Sensor shorted to Low Source
1133.05	Center Sensor open
1133.11	Center Sensor – Error not defined
1133.34	Center Sensor not detected
1135.00	Right Center Sensor too High
1135.01	Right Center Sensor too Low
1135.03	Right Center Sensor shorted to High Source
1135.04	Right Center Sensor shorted to Low Source
1135.05	Right Center Sensor open
1135.11	Right Center Sensor – Error not defined
1135.34	Right Center Sensor not detected
1136.00	Right Sensor too High
1136.01	Right Sensor too Low
1136.03	Right Sensor shorted to High Source
1136.04	Right Sensor shorted to Low Source
1136.05	Right Sensor open
1136.11	Right Sensor – Error not defined
1136.34	Right Sensor not detected

FCC and IC Compliance Statements

The Horizon Box Contains Transmitter Module ESP32

WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operations at closer distances than this are not recommended.

ATTENTION: This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The FCC requires the OEM to be notified that any changes or modifications not expressly approved by SyChip, LLC may void the user's authority to operate the equipment. While an application of the ESP32 module in a product is not required to obtain a new FCC authorization for the module, this does not preclude the possibility that some other form of authorization or testing may be required for that end product.

This device using the integrated antenna has been tested to comply with FCC CFR Part 15. The device meets the requirements for modular transmitter approval as detailed in the FCC public notice DA00.1407.

ATTENTION: The term "IC" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Le terme "IC" devant le numéro de certification /d'enregistrement signifie seulement que les spécifications techniques Industrie Canada ont été respectées.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to

The following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme avec Industrie Canada RSS standard exempts de licence (s). Son utilisation est soumise à Les deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

This device complies with Health Canada's Safety Code 6 / IC RSS-210. The installer of this device should ensure that RF radiation is not emitted in excess of the Health Canada's requirement. Information can be obtained at: http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct-eng.php

Cet appareil est conforme avec Santé Canada Code de sécurité 6 / IC RSS-210. Le programme d'installation de cet appareil doit s'assurer que les rayonnements RF n'est pas émis au-delà de l'exigence de Santé Canada. Les informations peuvent être obtenues: http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct-eng.php

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.

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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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