

HEADSIGHT®

Auto Header Height Control Systems

CAT LEXION INSTALLATION GUIDE

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1. **OPERATION:** The interface unit supplies the combine with a Left and Right sensor signal based on the position of the lowest reading sensor connected to that input. For three sensor systems the center sensor feeds both lines equally, all other systems are split down the center of the head. The system emulates the grain platform inputs, and can be troubleshot similarly.
The combine must be set to GRAIN PLATFORM input to use this system!
To set CEBIS, follow the same steps used to set and initialize the Grain Platform sensors.
2. **SENSOR INSTALLATION:** Remove outer two snoots and any others to be used from head. Place sensor pocket in snoot, as far forward as possible. Make sure the sensor will clear all obstructions in its swing, and is square to the direction of travel. Bolt or weld pocket in place, and bolt in sensor. Reinstall Snoot on combine. Plug appropriate length cable into sensor, and route cable up under snoot, carefully securing cable away from any moving parts. Make sure cable is loose enough to flex with the snoot, and will not catch on stalks. Route cables to left hand side of head beside feederhouse.
3. **INTERFACE BOX INSTALLATION:** The box can be bolted or ziptied to any suitable flat area on the left rear of the head near the feederhouse. Install it with the 4 pin receptacles DOWN. The shorter cable plugs into the CAT multilink block in the upper forward receptacle. NOTE: A low-end two sensor system uses a Y harness and does not require the interface box. However it does not have as great of sensitivity.
4. **SENSOR ADJUSTMENT:**
 - 4.1. **Disconnect all sensors except one left and one right. Tie up sensor(s) on side currently not being set.** For a 3 sensor system, disconnect outer two sensors when setting center sensor. The LED will stay on if there is not at least one good sensor with a max. voltage less than 4.0 V attached to both the Left and the Right sides.
 - 4.2. Loosen the nuts holding the sensor potentiometer (pot). With the arm held fully down against the stop, rotate the pot until the red LED on the Interface box lights. Turn the pot back until the light just goes off. Tighten the nuts and check that the light does not come on.
 - 4.3. Repeat 4.1—4.2 for each sensor.

5. FEEDERHOUSE POTENTIOMETER BYPASS INSTALLATION: At this point, the height control will function, but have rather slow response. This is because CAT uses a spring compression sensor (ie. weight of header) on the lift rams for about 50% of the height control. (The header CAC setting controls this percentage). While this works well for the platform which “floats” against the ground, it does not work for the cornhead, which should never touch the ground. HEADSIGHT provides a way to replace this spring sensor while harvesting corn with a “equalized” signal from the HEADSIGHT sensors. This results in a much more responsive system that tracks the ground very well when running low to the ground. If you wish to add this feature (strongly recommended) carefully follow the instructions below.

5.1. **Wire Installation:** Unroll the 24” cable supplied and tie the end with the 2 pin jack firmly against the combine multilink cable several inches above multilink plug. Make sure the HEADSIGHT Interface Box long cable will reach the plug without stretching during oscillation of the header. Zip tie the 24” cable firmly along the multilink cable up to the cab. Route the 24’ cable through the wire tray under the cab and then down the control cable on the right front corner of the combine. Route the cable over the axle, tying it firmly to the existing wiring.

5.2. **Wire Connection:** Identify and disconnect the plug to the sensor on the right lift ram spring. If the 24’ cable has 2 plugs installed on the end that matches with your plug, simply plug the connector that matches the sensor receptacle into the sensor, then connect the other plug to the combine harness. Otherwise, slit the combine harness plastic sheath for several inches about 3” above the plug. Identify and cut the GRAY wire with a purple stripe. Strip both ends about ¼”. Cut the plug assembly off the 24’ wire, and strip the ends of the two wires as above. Using butt connectors, crimp the BLACK wire from the 24’ cable to the end of the Gray wire that goes to the sensor plug. Crimp the RED wire to the end that goes to the combine. **MAKE SURE THIS IS DONE CORRECTLY !** Wrap the connections with electrical tape, and then wrap the whole cable with tape to seal the connection site. Plug the harness back into the sensor, and finish tying up the cable so it does not rub on any moving parts, or catch on stalks.

5.3. **Using the connection:** When using the HEADSIGHT header control, plug the Interface Box cable into the 2 pin jack when connecting the header. Remember to unplug it before disconnecting header. When using a platform, you **MUST** install the jumper plug provided into the 2 pin jack of the 24’ cable. This reconnects the combine spring sensor to the combine controller.

6. COMBINE INITIALIZATION:

Follow the procedures in the CAT manual for properly setting CEBIS header height parameters as if the head was a grain platform. When properly set, the scale bar on the in-cab display screen should be clear at the bottom when the head is fully down, and all the way at the top when the head sensor arms are just off the ground.

Use these parameters as a starting point:

CAC = 45%

Lower Height = 1

AUTO is ON

Height control is using the left scale (as for your platform), not the right scale (feeder position).

7. TROUBLESHOOTING:

7.1. No Operation, Height or Tilt

- 7.1.1. Check to see if LED on interface is off. If it is not, then follow the procedures above to check and set the sensors properly.
- 7.1.2. Make sure the combine is functioning properly. Many problems are caused by improperly adjusted combines, especially the feederhouse position switch (or sensor) not being set properly for the cornhead. Follow the troubleshooting directions for the combine first!
- 7.1.3. Unplug Interface cable connection. Check for 5V at pin 2 on the Height connector on header block. Pin 1 should be 0V (GND). If voltages are not as specified, then check wiring connections and fuses on the combine. Reconnect and recheck voltages on rear of interface unit connector.
- 7.1.4. Check the following on the 4 pin AMP receptacles on the interface box:
 - 7.1.4.1. Pin 1 should be 0V.
 - 7.1.4.2. Pin 3 should be 5V.
 - 7.1.4.3. Pin 2 should be 4.5V with no sensor connected
- 7.1.5. If voltages are not as specified, inspect the interface box wiring and connector to the combine for cut wires or dirty connectors. Clean all connectors and redo 7.1.4. Replace interface box if needed.
- 7.1.6. Check all sensors as in 7.5. Plug in sensors.
 - 7.1.6.1. With ALL Left sensors hanging fully down, Pin 3 of the 7 pin connector (to header block) should be 3.8-4.5V; and decrease to 0.5-1V when ANY Left sensor is fully up.
 - 7.1.6.2. With ALL Right sensors hanging fully down, Pin 4 should be as above; and decrease as above with any right sensor fully up.
 - 7.1.6.3. The red wire of the 2 pin plug from interface box should be as above for ANY sensor.
- 7.1.7. If voltages are not as specified and wiring is good, suspect a defective interface unit.

7.2. Header Tilts One Way

- 7.2.1. Check all sensors as in 7.5.
- 7.2.2. Follow Steps 7.1.4—7.1.7 above.
- 7.2.3. Adjust all sensors.
- 7.2.4. If the voltages are as noted, thoroughly clean the connections and check wiring to connector. Retry. If not functioning, have the combine serviced.

7.3. Header Tilts Wrong Way

Reverse all L & R input cables from the sensors.

7.4. Sensor Input Error (Cebis)

- 7.4.1. Make sure all sensors are connected and working properly.
- 7.4.2. If the input voltage to the combine exceeds 4.95V, this fault will occur. Readjust sensors.

7.5. Sensor Troubleshooting

- 7.5.1. Unplug the suspect sensor harness from the interface unit.
- 7.5.2. The resistance from pin 1 to pin 3 should be 5 kilohms, +/- 20%
- 7.5.3. The resistance from pin 1 to pin 2 should be 3-4 kilohms, +/-20%, (depending on setting) with the sensor hanging down against the stop, and should decrease smoothly toward 500 ohm at full up.
- 7.5.4. If the sensor does not respond as above, then remove sensor from head and redo 7.5.2—7.5.3 at the potentiometer itself, replacing 1 w/ A, 2 w/ B, 3 w/ C (markings are on the mating plug).
 - 7.5.4.1. If potentiometer is faulty, replace
 - 7.5.4.2. If potentiometer reads correctly, replace cable.
- 7.5.5. If sensor responds correctly, measure voltages at interface unit as in 7.1.3, and troubleshoot as in 7.1.4—7.1.7.

8. CAT UPDATE CLARIFICATION- AUTO CONTOUR CONTROL

8.1. POWER TO THE HEADER HEIGHT CONTROLLER

CAT (CLAAS) Header MultiLink Blocks use 2 different wiring schematics for the Height control. Most aftermarket and platform blocks use pin 2 of the 7 pin AMP plug at +5V for power to the height control system. The Headsight controller box is designed for this type of connection. Late model (2004 And up) corn head have only +12V on pin 6. If your multilink block is like this, contact Headsight for a special control box for this application. If your box is labeled CA12, you have a box already set for this application.

8.2. HEADER LIFT PRESSURE SENSOR WIRING

Headsight needs to tie into this sensor for proper header control. We need to break the sensor signal return wire, not the 12V or Ground wire to the existing sensor. The lift pressure sensor wire provided is not finished because of a recent change by CAT/CLAAS. See the included diagram CAT-C03 to properly finish this harness for your machine. The difference lies in the design of the header lift rams and sensors. If your combine has the older style mechanical springs and mechanical spring sensor, use the #1 pattern with the red and black wires in the #3 position. . If your combine has the newest style spring-less rams with accumulators and a hydraulic pressure sensor, we need to check the exact wire pattern in the OEM harness. Remove the plastic cover from the back of the OEM connector, and find out which position the PURPLE wire is in. If the purple wire is in the center pin, then use the #2 pattern with the red and black wires in the #2 position. If the purple wire is in position 3, use the wire pattern # 1 as for an older combines. Be sure to use the correct pattern, as connecting the wires wrong can result