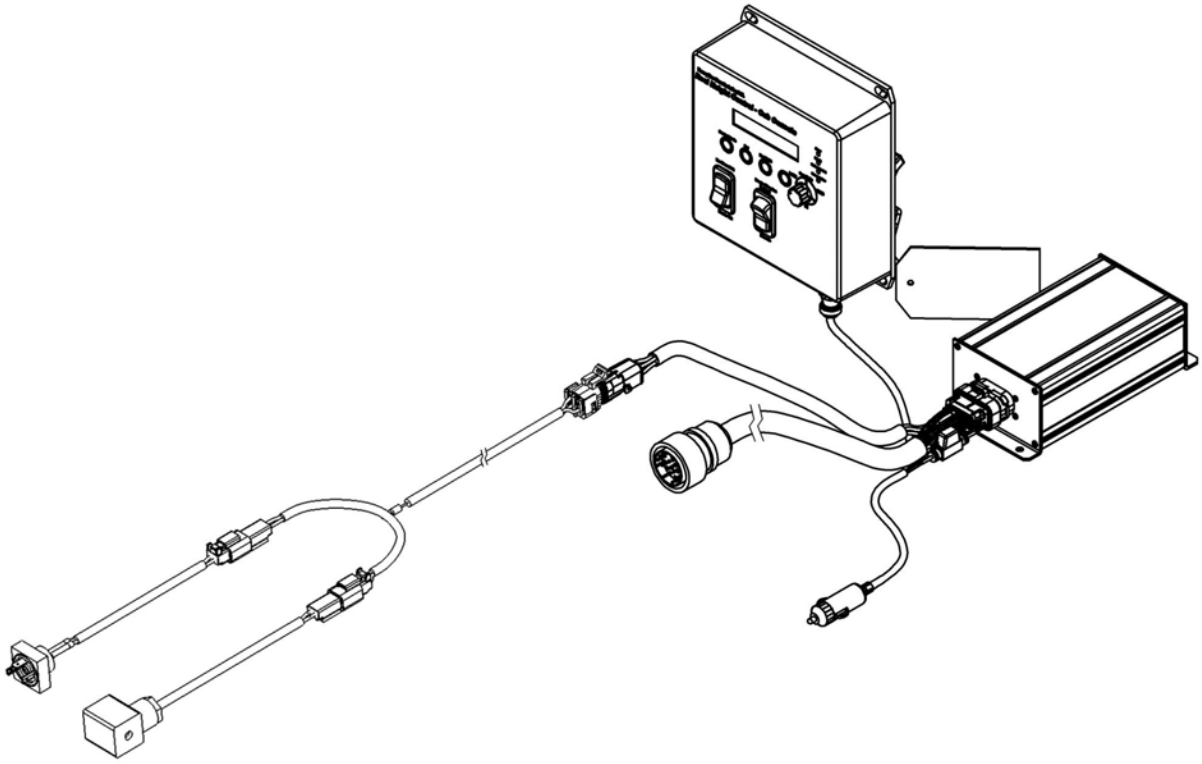
Honey Bee

CAT
Automatic Reel Height Controller
Installation

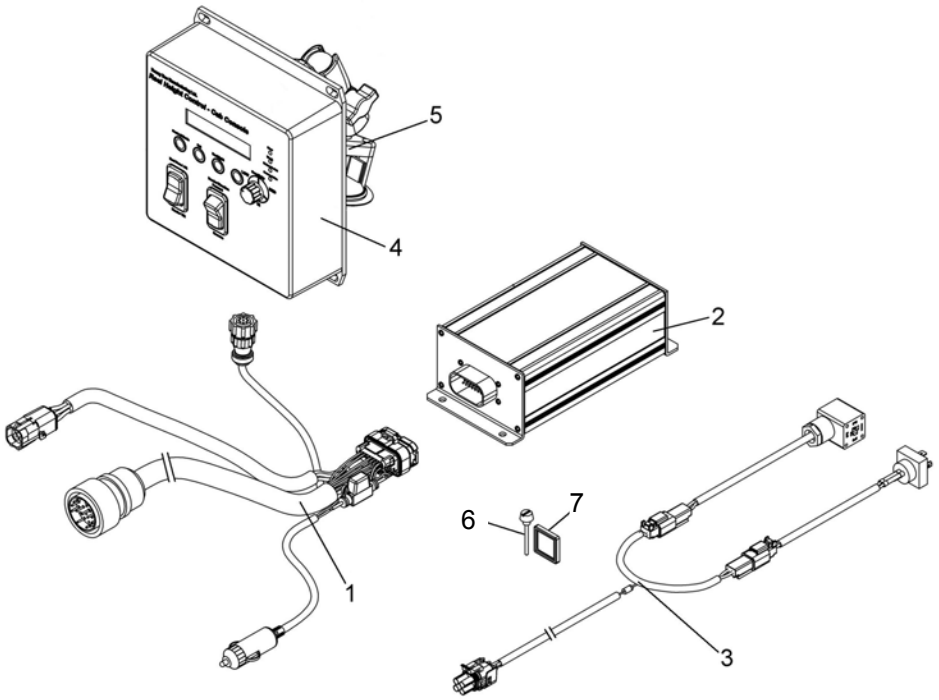


Preparation

Unpack the unit, and check the parts supplied against the packing list enclosed. Organize the components, and plan the best locations for the readout, and controller.

Parts

1. Wire Harness
2. Controller
3. Interrupt Harness
4. Readout
5. Suction Arm
6. Hirschmann Screw
7. Hirschmann Gasket



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Assembly

1. Examine the Interrupt harness, and identify the components shown here. For simplicity, the lead lengths shown here do not represent the actual harness lengths, but the appearance of the plugs is accurate.

   The Hirschmann plug adapters are required for older combines.

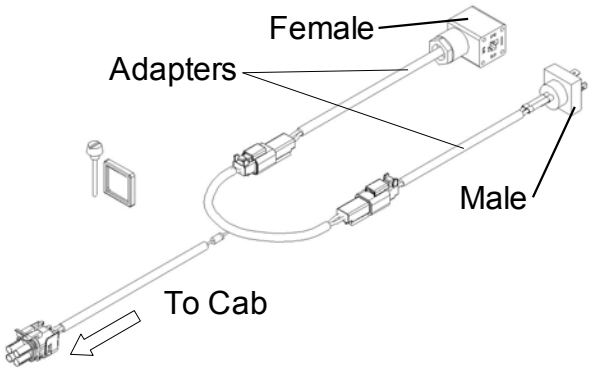
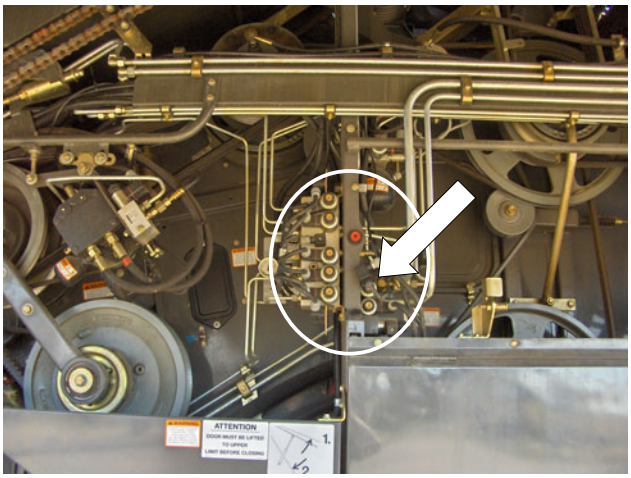


Illustration 1: Interrupt Harness

2. Open the safety panel on the left side of the combine to expose the main hydraulic control block.

Illustration 2: Main Hydraulic Block Access Panel

3. The hydraulic control block is located near the center of the combine. Locate the solenoid plug, near the lower right of this block.



For Combines Manufactured Prior to 2007

The interrupt harness Hirschmann plug adapters are required for this range of combines.

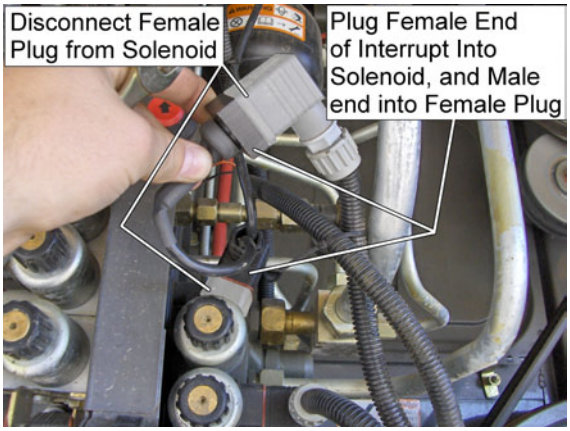


Illustration 3: Locations of Interrupt Plugs

1. Disconnect the female plug from the solenoid.
2. Plug the female end of the interrupt harness into the solenoid.
3. Plug male end of the harness into the female plug that you disconnected from the solenoid.
4. Run the wire from the interrupt harness up into the cab of the combine, securing with zip-ties along the way. Ensure you run the wire in such a way that it does not come into contact with any moving parts or locations where it may become damaged.

For Combines Manufactured In 2007 and After

The interrupt harness Hirschmann plug adapters (Shown in *Illustration 1 on page 3*) are **not required** for this range of combines.

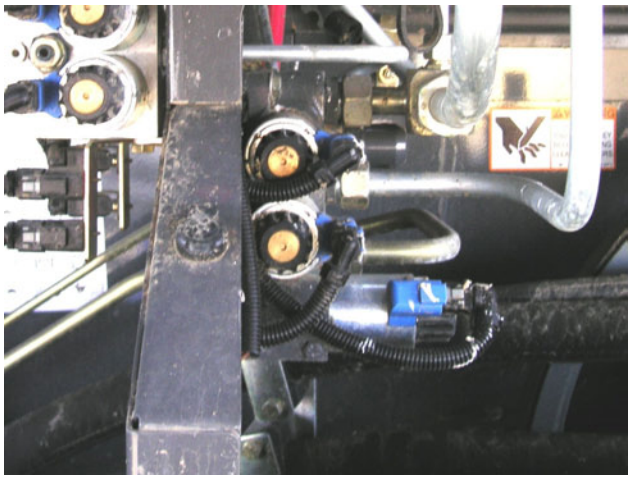


Illustration 4: Before Modification

1. Disconnect the female plug from the solenoid.
2. Plug the female end of the interrupt harness into the solenoid.
3. Plug male end of the harness into the female plug that you disconnected from the solenoid.

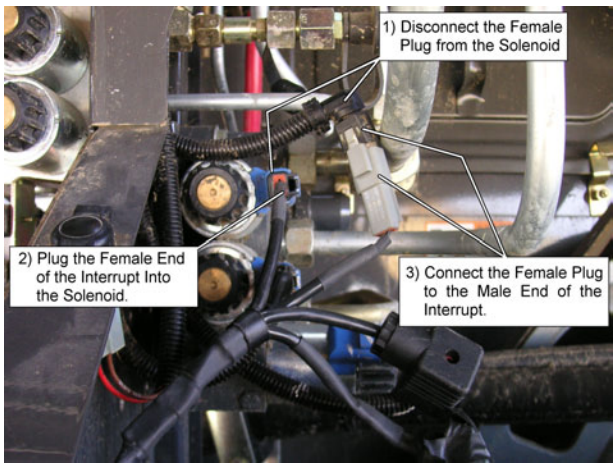


Illustration 5: After Modification
The Interrupt harness in this image may not be exactly as shown.

4. Run the remaining wire from the interrupt harness up into the cab of the combine, securing with zip-ties along the way. Ensure you run the wire in such a way that it does not come into contact with any moving parts or locations where it may become damaged.

5. Mount the Readout and Controller in safe and clean locations. The readout comes with a suction cup mount for attaching to the windshield, moisten the suction cup to ensure a good hold.

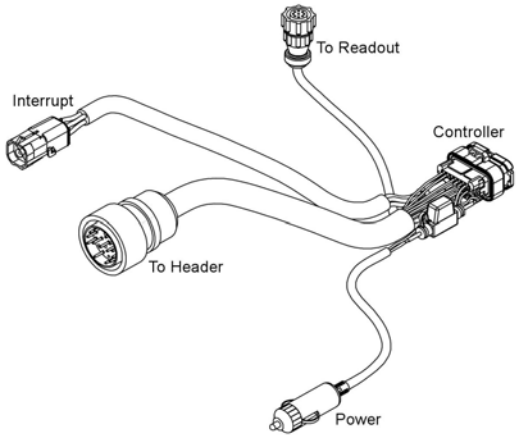


Illustration 6: Wire Harness

6. Connect the interrupt plug to the Wire Harness. Connect the wire harness to the controller, readout, 12v power plug, and to the multi coupler on the header.

Illustration 7: Readout Connection

7. The plugs are designed to fit in only one way, with some care in aligning them, they should connect easily, and snap, or lock into position with a slight turn. Take care to align the plugs correctly.


Illustration 8: Controller Connection


Illustration 9: Power Connection

8. Ensure that when you run the connector to the header, that you secure the wire in such a way that it does not come into contact with any moving parts.

Illustration 10: Interrupt Harness Connection

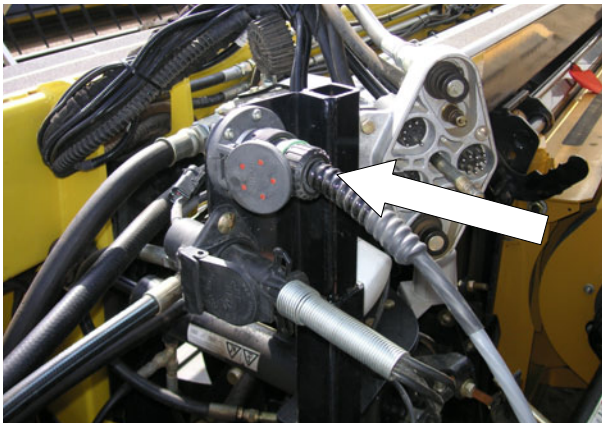


Illustration 11: Harness To Header Connection

IMPORTANT

You must disable the CAT automatic reel height sensor in order to operate the Honey Bee Automatic Reel Height Control. As both sensors use the same circuit, they can conflict with each other. Please refer to the CAT Combine operator's manual for details on disabling this feature.

Configuring Reel Height Control

After the interrupt harness, readout and controller are properly installed:

1. Start the combine and turn on the reel height controller.

2. The display on the readout should say “HoldAuto”. Press the “Control Mode” button so the display reads “Manual.

3. Lift/Lower the table to regular cutting height, and lift the reel to your safety point (operating height).

4. Press and hold “Set” until “Set Point Stored” is displayed on the readout.

5. Press “Control Mode” once more so the display reverts back to “HoldAuto”

6. The light labeled “block” should be on at this time, raise the reel slightly and it will turn off.

The “block” light indicates that the auto reel height sensors are tripped.

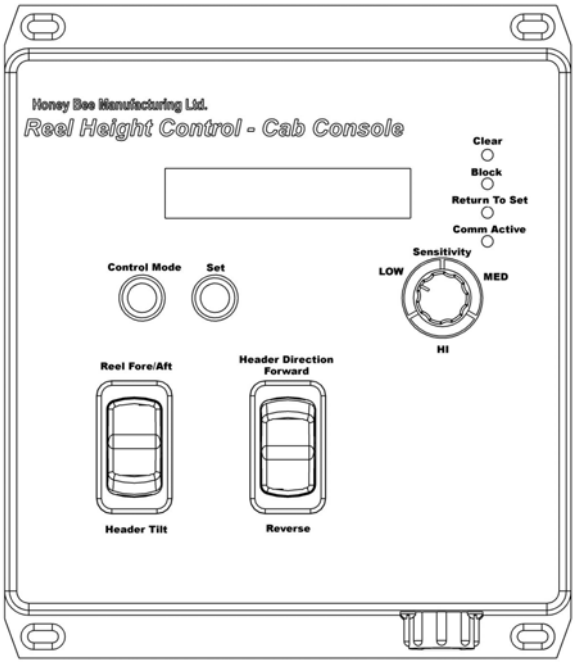


Illustration 12: Automatic Reel Height Control Readout

Operation

If the cutter bar lifts above the set height, the reel should automatically raise up to avoid touching the cutting system. **For this reason, the cutter bar must not be locked in a stationary position and must be 'floating' for the automatic reel height control to function.** The closer the reel is to the cutter bar, the higher the sensitivity should be set on the readout.

Note:

Always turn off the controller when the combine is not in use, as it will be using power from the battery even if the combine is turned off.

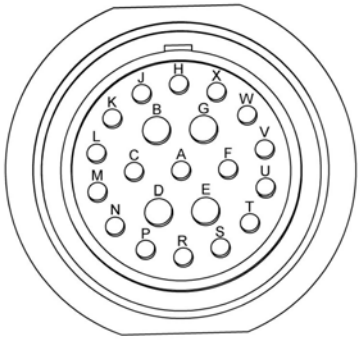
The Automatic Reel Height Control will not function until the knife drive is running at a minimum of 20 rpm. This is to ensure that it does not trigger when someone is working on the unit.

Testing

Start the unit, and calibrate the sensor as detailed in the Combine Operator's Manual. Test, and accustom yourself to, the operation of the controls.

Diagnostics

Refer to the following pin-out diagram for testing of specific circuits:



Electrical Plug Pin Layout
(Female End)

A - Signal From LH Sensor (LH Green)
C - Signal From RH Sensor (RH Green)
P - Positive (White LH & RH)
S - Negative (Black LH & RH)

NOTE: The Pin layout on the male plug is a mirror image of the female plug.

Illustration 13: Main Connector Pin Usage

Troubleshooting

Reel Not Moving Far Enough and/or Moving Too Far

If the reel is not moving far enough when the sensors are activated, loosen the adjuster bolt and slide the link arm along the central arm towards the front of the header. Then re-tighten the bolt. This will increase the motion of the reel.

If the reel is moving too far, then loosen the adjuster bolt, slide the link arm back towards the rear of the header and re-tighten the bolt. This will decrease the motion of the reel.

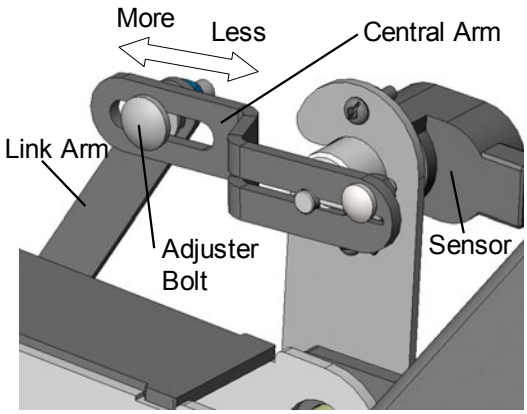


Illustration 14: Reel Arm Sensor

Reel Will Not Raise and/or Lower

Examining the Readout & Electrical Connections

The first thing you should troubleshoot is the electrical connections. The easiest way to do this is to monitor the Reel Height Control Readout.

When the **Reel Raise** controls are activated you should see the **up arrow** (⬈) displayed for both the input and the output.

When the **Reel Lower** controls are activated you should see the **down arrow** (⬊) displayed for both the input and the output.

If the arrows do not match, or if only one arrow is shown then there is a problem with the electrical connections. Inspect all electrical connections to ensure they are properly installed. Refer to *Illustration 13: Main Connector Pin Usage* if necessary.

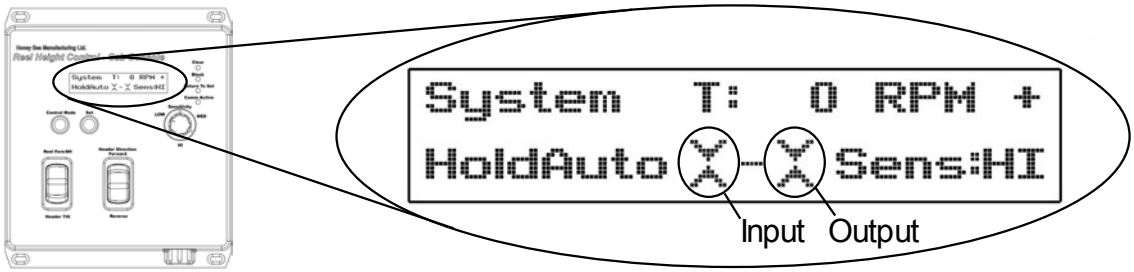


Illustration 15: Readout Input and Output Locations

Adjusting the Springs and Sensor Rollers

1. Ensure that the automatic reel height control sensor rollers are lightly pressing down on the cover plates on the cutter bar.
2. If the rollers are not touching the cover plates, remove the feather plates, keeping track of the nuts, bolts and washers.
3. Check and make sure that the springs on the Sensor Roller Assembly are properly oriented, so that they are causing the sensor rollers to press down on the cutter bar.

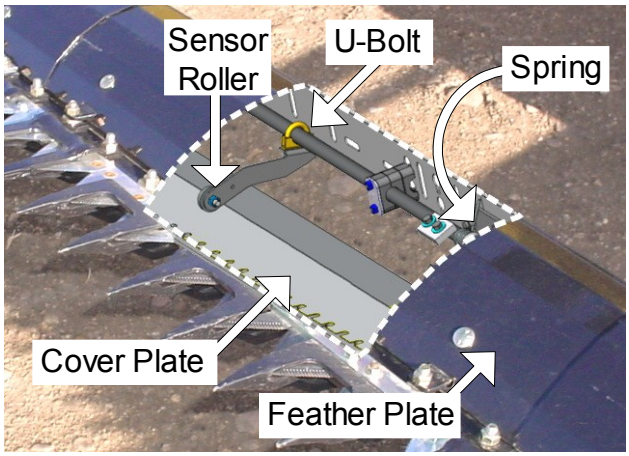


Illustration 16: Auto Reel Height Sensor Roller

4. If the spring is properly oriented, but the rollers are still not in the correct position, loosen the U-bolt holding each roller in place and reposition so they are touching the cover plates. Re-tighten the the U-bolt.