



HEADSIGHT™ INSTALLATION GUIDE FOR A BYRON HARVESTER

HEADSIGHT INC.

harvesting solutions



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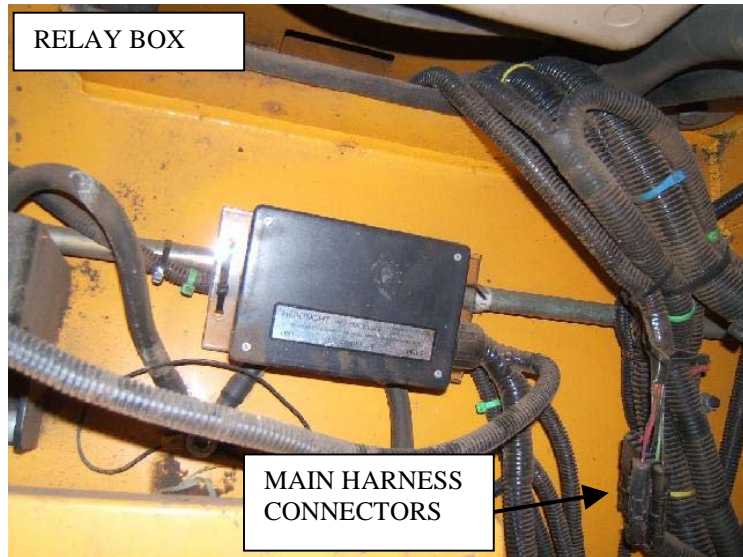
1. **OPERATION:** The header height control system you have purchased is designed to be used with BYRON harvester machines. It provides fully adjustable height control, having infinite adjustment of the header height and variable sensitivity settings for both height and tilt. It also provides tilting if the machine is equipped for manual tilt. Careful installation should result in excellent operation, so please read and follow the directions carefully. When installed and adjusted properly, the system will provide adjustable, automatic height control whenever the Harvest Functions switch is engaged and the header lower control is pressed. It will shut off when the header raise switch is pressed.

2. **CONTROL BOX INSTALLATION:** The first step is to mount the Height Controller Box in the cab. Mount the bracket to the top edge off the cab console in the approximate location shown with the two 1/4" x 1/2" bolts provided, and adjust angle as necessary.



3. **RELAY INTERFACE BOX INSTALLATION:** Bolt or tie the relay box in place above the harvester control cabinet as shown in the picture. The harness from the relay box contains the necessary connectors to all the hydraulic functions, as well as the connection to the Harvest Functions power connection. The harness is provided with Weather Pack (W.P.) plugs that plug directly between the connectors from the OEM wiring to the solenoids. Plug the harness connections in as listed below:

- 3.1. Connect the 2 position W.P. Y connection with the yellow , brown, and black wires into the Raise Solenoid connector.
- 3.2. Connect the 2 position W.P. Y connection with the Lt. green , Dk. green, and black wires into the Lower Solenoid connector.
- 3.3. Connect the 2 position W.P. Y connection with the orange and black wires into the Tilt Left Solenoid connector.
- 3.4. Connect the 2 position W.P. Y connection with the Dk. blue and black wires into the Tilt Right Solenoid connector.
- 3.5. Connect the 2 position W.P. single connector with the Grey and Black wires directly to the hydraulic flow control solenoid connector. For information on installing this system, if not currently installed, please see the section below on Hydraulic Flow Control.
- 3.6. Connect the 1 position W.P. connection with the unterminated purple wire to the Harvest Functions power wire (Wire 402, CN106 3+4) in the OEM machine harness. This wire will likely be either off-white (the only wire this color) OR a green wire that is slightly larger gage and a slightly different color than the other green wires.



4. **CABLE ROUTING: NOTE:** Cable routing properly takes time, but is essential to long life of electrical controls. Take the time to fully understand the routing requirements, and carefully route and tie all cables in safe locations away from heat, wear, or pinch points

4.1. **MAIN HARNESS:**

- 4.1.1. Lay the main harness on top of the feederhouse, with the main Y in the harness tied to the left end of the main cross cab support under the middle of the cab. Route the end of the cable with the 16 pin round connector across the support frame and up into the cab through the access panel in the left edge of the cab floor. Make sure the power connection is inside the cab. Plug cable into the connector on the rear of the controller module. Notch the access panel and reinstall it.
 - 4.1.2. Route the end of the harness that has the 31 pin round plug forward over the frame rail, and down through the feederhouse pivot point following with the OEM feederhouse wiring. Make sure to leave a “slack” for motion. Route the cable along with the feederhouse wiring Secure with zip ties, making sure all wiring is firmly held and not able to be rubbed or pinched.
 - 4.1.3. Route the end of the harness with the 6 pin flat and 1 pin plugs back along the left side of the frame, securing it to the OEM harness and pipes until it reaches rear edge of the cab walk way. There, route wire up unto platform, then down over the rail along with the OEM harness. Route wire into the triangular open area directly below the cab walkway. You will have to remove the access panel to finish bringing the harness back through the open area into the hydraulic controls area. Then follow the OEM wiring down. Connect the 6 position and 1 position connectors to the relay box harness plugs as shown in the Relay Box picture.
 - 4.1.4. Attach the 12V Power and GND wires to a switched power source protected by a 10A fuse.
- 4.2. **HEADER CABLE:** A Header Y Harness is included with this kit. If needed, additional header harnesses can be ordered or special adapters to certain OEM heads can be provided. Mount the 31 pin connector and its bracket securely to the back of the head near the original lights connection mounting where the main harness will reach it, and tie up the Y harness. The individual sensor cables then attach to each output of the Y harness. Note, this 31 pin connector will plug directly to JD headers with a matching connector and JD sensors, and an adapter can be provided for the “multilink” connectors on the newest JD combines. It **WILL NOT** electrically connect to new CIH/NH headers with the same plug, but an adapter is available.

- 5. SENSOR INSTALLATION:** Raise header and lock into place. For JD poly headers, install the sensors on the two tip bolts using the allen head bolt included. Other header types use a variety of mounting brackets, contact Headsight for further instructions. For BYRON poly headers, first remove the snoots that are to receive the sensors from the head. For all center snoots, the poly needs to be cut out under the snoot as shown, and the sensor mounted to the front skid point as shown with a single 10-mm x 25 bolt. The skid point must be drilled for this bolt, and a 10-mm nut welded to the back side of the skid plate. Also, drill or cut the poly out to clear this nut. Reinstall the skid point, and loosely install the sensor. Make sure the cutout is large enough to easily clear the sensor as it swings. (End snoots may need to be mounted differently, if it is desired to place the sensors in the end snoots.) The key to mounting sensors is to make sure they are mounted at the same angle, and as far forward as is possible.



- 6. SENSOR CABLE INSTALLATION:** The key to cable routing is to make sure the cable is securely fastened out of the way of moving components and stalks, but still allow movement of the snoots. Select the appropriate length harness (see chart on head sizes) and plug the harness into the sensor. Drill holes in the snoots near the pivot, and route wire inside lower snoot to pivot, then back inside upper snoot to rear center. Make sure that cable is loose enough that it doesn't bind, but also will not get pinched. In the pivots. Route wire under head, making sure it is clear of all moving parts, and across the back of the head to the header Y harness. Plug cable into the correct harness input. (Note: you may need to remove the end of the right sensor cable and feed it through the cross tube above the feederhouse.) Tie up any extra cable on rear of head. Make sure cables are fully tied or clamped up.

- 7. SENSOR CALIBRATION:** Please read this section over thoroughly before attempting to set the sensors. NOTE: Any type of sensor can be set using this technique. The point is to get the sensors all equal to each other, so that any sensor will cause the head to lift. If this is not done, one or more sensors might be out of adjustment, and not lift the head when needed. (Note: JD sensors are not adjustable as provided. Headsight potentiometers can be installed on them for up to 10 degrees of adjustment if necessary.)
- 7.1.** Raise the header fully up and lock into place if this has not already been done.
 - 7.2.** Make sure that the Down Stops on each sensor are set so all sensors hang at the same angle.
 - 7.3.** Disconnect the LOWER and RAISE solenoids from the relay box harness, unplugging only the actual solenoid connector. Leave the OEM wiring plugged into the Relay box harness. This is to prevent any header movement.
 - 7.4.** Throw the small switch mounted on the side of the relay box to CAL.
 - 7.5.** In the cab, turn the ignition switch to ON. Do not start the motor.
 - 7.6.** Turn on the main power switch on the Height Controller.
 - 7.7.** Turn the height position knob to minimum.
 - 7.8.** Pulse the “Header Lower” button on the hydro handle.
 - 7.9.** Unplug all but one sensor. Loosen the two small nuts holding the potentiometer and rotate the pot until the “raise” light on the controller just comes on just before sensor “bottoms” against snoot. Or, another height position (such as just before the tips would touch the ground) may be chosen, as long as the potentiometer is within the range of adjustment. You may need to remove the sensor from the snoot to loosen the nuts. Tighten nuts in chosen position.
 - 7.10.** Reconnect each other sensor in turn, and set them as in 7.9. If greater accuracy is needed, see 7.11.
 - 7.11.** For more accurate setting, use a voltmeter to measure between the white and black wires at the sensor potentiometer (sensor must remain connected, insert probes in rear of plug in positions B & C). Measure the voltage at any repeatable position in its swing (such as against the snoot.) Set the other sensors using this voltage measurement, +/- 0.1 Volt by probing each sensor in turn and rotating the pot until reading is correct. DO NOT attempt to set sensors using resistance (OHMS) as this can easily be off by 20%.
 - 7.12.** Tighten the bolts holding the sensors into the snoots.
 - 7.13.** Turn off the key. Set the switch on the relay box back to RUN and reconnect the solenoids.

8. ADJUSTING THE SYSTEM.

8.1. Adjust the following settings as noted:

- 8.1.1.** Set the main drop rate valve on the hydraulics to allow the head to drop fully in about 6 seconds when the manual button is pressed.
- 8.1.2.** Set the main raise rate valve on the hydraulics to allow the head to raise fully in about 5 seconds when the manual button is pressed.
- 8.1.3.** Set the auto drop rate needle valve so that the head lowers fully in about 10-12 seconds.
- 8.1.4.** Set the auto raise rate needle valve so that the head raises fully in about 6-8 seconds.
- 8.1.5.** Set the Accumulator valve about 1-2 turns open. The idea is to remove the shock without slowing the system down too much. Note: Accumulators without valves do not usually need adjusting. If your head is jerky, in that the raise and lower events cause the whole machine to jump, suspect that your accumulator is not functioning properly, or the valve needs to be opened further. If you do not have any accumulator, please contact either your local dealer or Headsight to install one. It will result in much improved operation and less stress to both you and the machine in all situations, manual or auto.
- 8.1.6.** Lower the head and turn on the height control. If the head “bounces” reduce the Sensitivity Setting on the controller, or slow down the drop rate. (Raise rate can also sometimes be adjusted). Opening the Accumulator slightly can help too, but too much can cause a “wallowing” effect in which the header actually “lags” the sensors so much it overcorrects continually (think of a car with poor shocks). Adjusting these settings usually will result in a smoothly operating height control.

9. TROUBLESHOOTING:

9.1. No Operation, Height

- 9.1.1. Make sure the controller box is turned on.
- 9.1.2. Check to see if there is 12V on the red wire to the relay box ONLY when the key switch is on. Fix 12V source wiring if necessary.
- 9.1.3. Check for 12V at the purple wire ONLY when the Harvest Functions switch is on. Repair wire if necessary.
- 9.1.4. Make sure all connections are clean and together.**
- 9.1.5. Check for power from the relay box after the Harvest Functions switch is on and the Lower button is pressed. The white wire should be 12V after the above conditions are met. If there is no voltage and 9.1.3 is OK, **lower head to ground and turn off height controller main switch.** Flip switch on relay box to CAL and toggle Lower button in cab. If there is still no voltage on the white wire, suspect Relay KB or KC. If there is voltage, replace relay KS. **Reset switch to RUN.** The white wire should always drop to 0V when the Raise button is toggled.
- 9.1.6. If the LED's on the Controller box function when the height adjustment is in the middle and any sensor is swung full range, examine the Relay box wiring and connections to the solenoids. Replace relay box if needed.
- 9.1.7. Check the following on the 31 pin Plug on the header Harness
 - 9.1.7.1. Pin 10 should be 8V.
 - 9.1.7.2. Pin 20 should be 0V.
- 9.1.8. If voltages are not as specified, inspect the wiring and connector to the header for cut wires or dirty connectors. Clean all connectors and redo 9.1.7
- 9.1.9. Check all sensors as in 9.2. Plug in sensors.
 - 9.1.9.1. With a sensor hanging fully down, Pin 2 of the 4 pin connector to Y harness block should be 2-4V; and increase to 5-7V when ANY sensor is fully up.
- 9.1.10. If voltages are not as specified, wiring is good, but Leeds do not function, suspect a bad controller unit.

9.2. Sensor Troubleshooting

- 9.2.1. Unplug the suspect sensor harness from the interface unit.
- 9.2.2. The resistance from pin 1 to pin 3 should be 5 kilohms, +/- 20%
- 9.2.3. 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.
- 9.2.4. If the sensor does not respond as above, then remove sensor from head and redo 9.2.2—9.2.3 at the potentiometer itself, replacing 1 w/ A, 2 w/ B, 3 w/ C (markings are on the mating plug).
 - 9.2.4.1. If potentiometer is faulty, replace
 - 9.2.4.2. If potentiometer reads correctly, replace cable.
- 9.2.5. If sensor responds correctly, measure voltages at Y harness as in 9.1.7 - 9.1.9.

10. HYDRAULIC FLOW CONTROL INSTALLATION

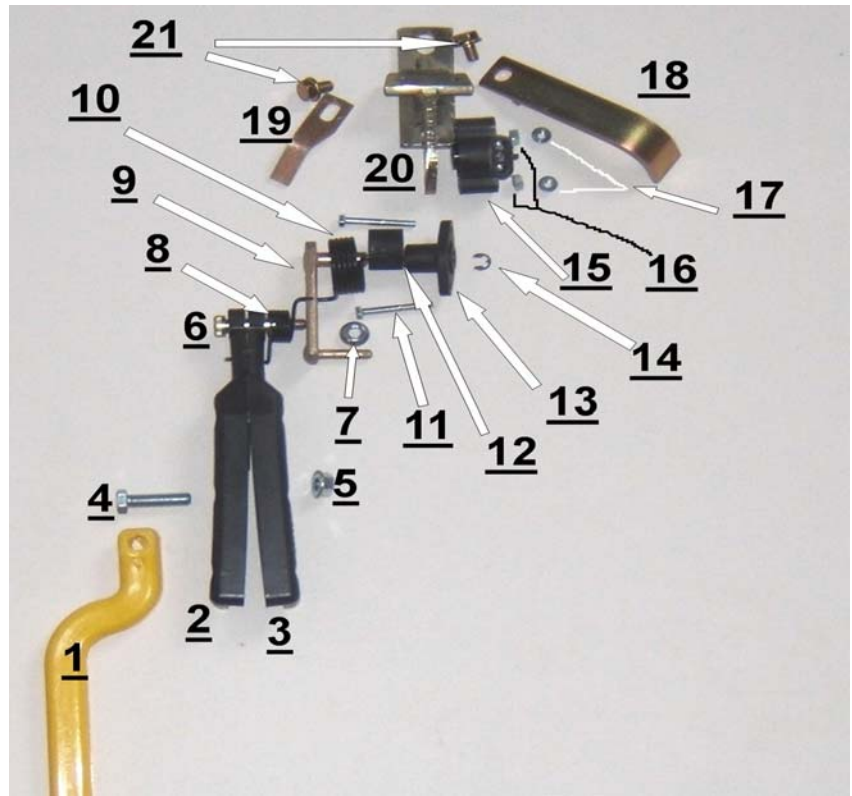
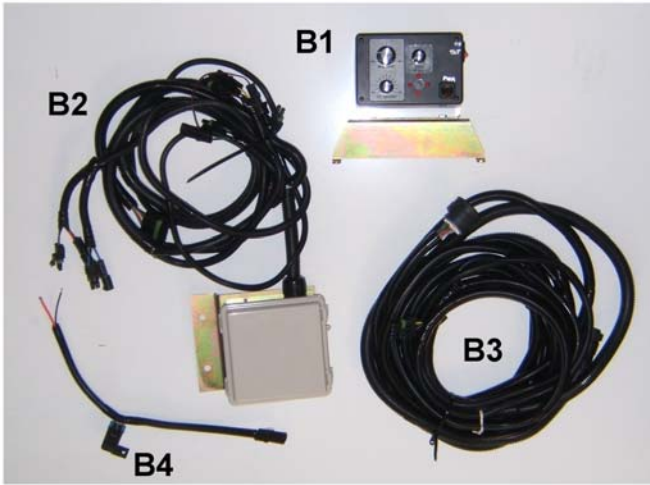
The main flow control valves for raise and lower rates on the BYRON harvester can be adjusted for overall drop and raise rates. For smoother and more accurate control, a bypass valve and secondary drop rate needle valve should be installed in the pressure line to the lift rams. A raise rate needle valve may also be added if desired, although Headsight does not recommend slowing the raise rate down significantly. However, if rapid raise response (3-4 sec.) is wanted during manual operation, this control should be installed to slow the auto response down (6-8 sec.). These valves should be installed to meet the following criteria:

1. The flow bypass valve should be installed into the pressure line running to the lift cylinders so that the oil flow is routed through the automatic drop rate needle valve(s) when the solenoid is NOT energized. Note: This is opposite of what Byron used in their earlier system.
2. When the solenoid is energized, oil should flow directly back to the main valve stack.
3. The Lower Rate needle valve must restrict oil flow ONLY when oil is flowing back to the main valve body. It should free flow in the reverse direction.
4. The Raise Rate needle valve (if installed) should restrict flow ONLY when oil is flowing to the raise cylinders. It should free flow in the reverse direction.

If these criteria are met, then adjust flow rates as discussed above in **Adjusting the System**. The Headsight system will provide power to the flow control bypass solenoid whenever the manual buttons are pressed, overriding the needle valves and providing rapid response. When the system is operating in auto, the needle valves will restrict head movement.



11. PARTS



US PRICE	KEY	PART NO.	DESCRIPTION	QTY	REMARKS
25.00	1	HT777 or HT2113	POLY ARM	1	polyurethane-available in Yellow, Red, or Black (HT777Y,HT777R, HT777B)
10.15	2 and 3	HT2117	RH and LH EXTENSION	1	Formerly HT777X
	4	FA13108	3/8-16x1 3/8	1	
	5	FA1137341	3/8-16 FLNG	1	
3.50	6	FA26332	SHOLDER BOLT	1	5/16 Bolt
	7	FA1137339	NUT	1	5/16 Flange locking
7.50	8	HT2110	SPRING	1	Old number = HT556
29.50	9	HT2106	PIVOT BRACKET	1	Old number = HT121 (curved arm with shoulder bolt welded on = HT2114)
12.95	10	HT2111	SPRING	1	Down pressure spring
.95	11	FA38549	BOLT	2	8.8(grade 5) M5-.8 X 50 mm (cut down from 19M7664) (Old number HT222)
	12	HT2116	BUSHING	1	
9.00	13	HT2112	PIVOT BUSHING	1	Poly (Old bushing = HT334)
	14	CH11489	SNAP RING	1	Also may substitute-*40M7161 or *40M7040
65.00	15	HT9810-720	POTENTIOMETER	1	potentiometer – 5k ohms(May also substitute* RE30295*)
	16	14M7272*	NUT	2	6MM (spacer use only, eases in wrench access when adjusting)
	17	14M7375*	NUT	2	5MM X .8MM FA10420-01729
10.50	18	HT2104	SHIELD	1	For sensor and wiring protection. (Old number = HT141)
11.50	19	HT2105	STOP	1	for shaft angle adjustment in free hanging position (Old number = HT161)
65.00	20	HT2100	MOUNT BRACKET	1	Threaded holes are 10mm x 1.2mm & 8mm x 1.0mm (Old number = HT101)
	21	19M7864*	BOLT	2	10.9(grade 8)M8-1.0 X 12 mm flange head
\$1095	B1	OX-207	IN CAB CONTROLLER	1	
	B2	OX-208	HYDRAULIC CONTROLLER	1	
For all 4 parts	B3	OX-209	WIRING HARNESS FOR HARVESTER	1	
	B4	OX-210	POWER WIRE W/FUSE	1	
20.00	Not shown	PFW10	WIRE- 10'	1	
45.00		PFB17	" -17'	1	
50.00		PFB23	" -23'	1	
55.00		PFB33	" -33'	1	
58.00		PFB38	" -38'	1	

All pricing subject to change w/o notice.

* = JD part number

FA = Fastenal part number



Statement of Limited Warranty for Corn Systems

Headsight Inc. (Headsight) warrants its new corn sensors assemblies for a period of thirty-six (36) months, and its electronic wiring and interface control boxes for a period of twelve (12) to be free from defects in material and workmanship following the date of purchase by the retail purchaser.

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:

- 1) Warranty claims directly resulting from improper installation of the product.
- 2) Any product damaged by accident, abuse, misuse, or negligence after shipment from Headsight.
- 3) Any unauthorized product alteration or modification.
- 4) Any unauthorized repairs made with parts other than genuine Headsight parts.
- 5) 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 sixty (60) days of the occurrence of the claim and within the warranty period.
- All parts removed during warranty repair should be held for a period of 60 days after the warranty claim has been submitted to Headsight.
- Headsight, Inc. reserves the right to either inspect the product at the original retail purchaser's location or require it to be returned to Headsight, Inc. 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, NO FOR ANY SUM IN EXCESS OF THE PRICE RECEIVED FOR THE GOODS FOR WHICH LIABILITY IS CLAIMED.**

No representative of Headsight nor any dealer associated with Headsight has the authority to change the items of this warranty in any manner whatsoever, and no assistance to purchaser by Headsight in the repair or operation of any Headsight product shall constitute a waiver of the conditions of this warranty, nor shall such assistance extend or revive it.

Headsight reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold.