Automatic Header Height Control

Setup and Maintenence Instructions

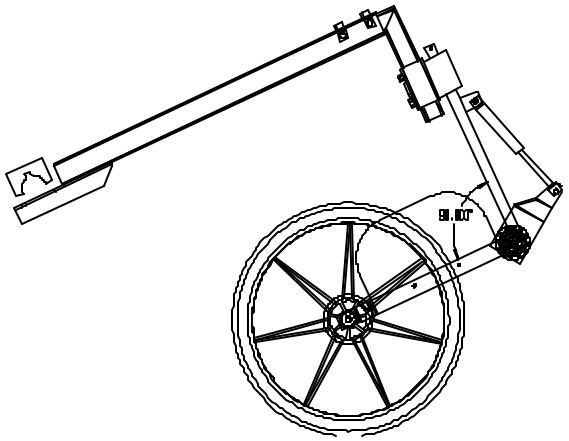
2000 Pik Rite Cucumber Harvester

By Dave Gearhart Telephone 1-800-326-9763 May 10, 2000

Set-up instructions for header height on cucumber harvester

1) Move small centering cylinder to halfway position.
2) Loosen setscrews locking rotary valve shaft.
3) Move control box switch #8 to auto position (down).
4) Facing shaft end of the rotary valve, use a large straight screwdriver inserting through hole on pivot shaft to turn rotary valve shaft. Clockwise should raise the header while counter clockwise should lower the header (if your results are opposite the rotary valve shaft needs to be turned apx. 1/4 of a turn). **Note: Machines previous to 2000 Models are done the opposite way as mentioned.**
5) With rotary valve shaft in proper position (field operating position), tighten setscrews on rotary valve shaft.
6) Lift wheel by hand, to make sure header goes up when wheel goes up.

The cucumber harvesters main bracket may be rotated on the mounting round tube. If this is moved make sure you have 46" at highest point to ground & spider wheel arms are 90° to 1" vertical shaft.



Note: The spoked wheel or tire should run either between the rows or where the plants are thinnest. When on raised beds, the wheel should NOT run on the edge or close to any major elevation changes. If this happens, the wheel will sometimes run high and other times run low, which will not give the header a consistent height. A certain amount of side

adj. is built into our system; however, it may not fit into the crop or the beds you are harvesting. If this is the case you may need to alter the bracketing.

CUCUMBER HARVESTER MANIFOLD BLOCK FOR AUTO HEIGHT CONTROL

Port and Cartridge Description

WORK PORT LABELS	SIZE	DESCRIPTION
RP	SAE #4	Rotary pressure - the oil supply to the rotary valve.
RT	SAE #4	Rotary tank - the oil return from the rotary valve.
R1	SAE #4	Rotary work port #1 - connected to the hose that connects with port A on the rotary valve.
R2	SAE #4	Rotary work port #2 - connected to the hose that connects with the B port on the rotary valve.
P	SAE #6	Pressure - connected to the hose that connects with the tee on the pressure side on top of the Brand valve stack.
T	SAE #6	Tank - connected to the hose that connects with the tee on the return hose at the Brand valve stack.
C1	SAE #4	Lift cylinder up - connected to the hose that connects with the outside lift cylinder's lower port.
C2	SAE #4	Lift cylinder down - connected to the hose that connects with the inside lift cylinder's upper port.
C3	SAE #4	Header tilt - connected to the hose that connects with the inside lift cylinder's upper port.
C4	SAE #4	Rotary position cylinder - connected to the hose that connects with the small cylinder that controls the rotary valve centering.
C5	SAE #4	Rotary position cylinder - connected to the hose that connects with the small cylinder that controls the rotary valve centering.

CARTRIDGE PORT LABELS	**DESCRIPTION**
#1	Pressure compensated flow regulator that restricts the flow into the manifold block with a fixed flow, except to the rotary valve's pressure; the rotary valve's flow is adjusted by cartridge #3.
#2	Restricts the flow to the rotary position cylinder to apx. 1/2 GPM.
#3 AND #4	Work together to create an adjustable pressure compensated flow to the rotary valve's pressure port.
#5	Controls the rotary valve's centering cylinder's inward and outward movements.
#6 AND #7	PO check valves that work in conjunction with #5 to assure that there is no leakage or movement from the small cylinder.
#8 AND #9	Identical cartridges that open a passage from the lift cylinders to the rotary valve work ports when energized. When de-energized, they spring back to the connection that manually lifts the lift cylinder; as a result, the header will NOT go down in the de-energized mode.
#10	Raises the lift cylinders when energized; this is the manual lift valve.
#11	Controls the inside cylinder only, which is the header tilt control.
#12	Adjustable relief valve for #11 controls twisting of the header.
#13 AND #14	Works together to keep tilt cylinder from drifting. When header height is operating, #13 is an On/Off Cartridge and #14 is a PO Check Valve.

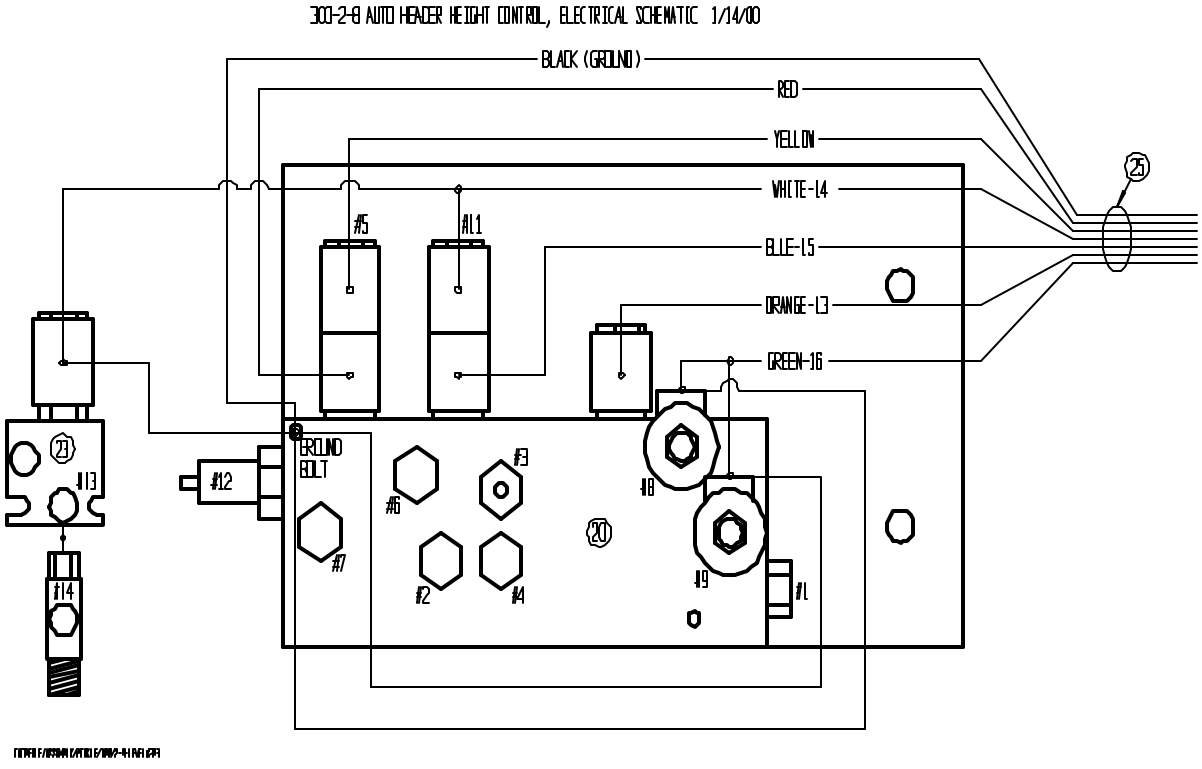
ELECTRICAL CONNECTIONS AND NOTES

Note: All of the coils are internally grounded; a ground wire is not needed.

#5 cartridge	When energizing the top coil, the rotary valve centering cylinder will go in. When energizing the bottom coil, the rotary valve centering cylinder will go out. This is connected to switch #6 on the control box. When switch #6 on the control box is pressed down, the green/black wire is energized, which energizes the top coil of cartridge #5, moving the centering cylinder in. When switch #6 on the control box is held up, the red/black wire is energized, which energizes the bottom coil of cartridge #5, moving the centering cylinder in.
#8 AND #9 cartridges	When energized, the valves open to the rotary valve work ports. When the switch is in the maintain down position, the electrical connection is from the control box to switch #8 via. the orange wires. These cartridges are also de-energized when cartridge #11's top or bottom coils are energized; this is accomplished by a small relay located inside the control box.
#10 cartridge	When energized, this cartridge will raise the header lift cylinders. When de-energized, a spring forces the valve into the blocked position; this is connected to the same switch as cartridges #8 and #9. In the up position, current only flows to cartridge #10 through the orange wire. In the down position, current only flows to cartridges #8 and #9 through the green wire. In the center position, current doesn't flow to either; as a result, when all three cartridges are de-energized, the header will remain up.

#11 cartridge	When energizing the top coil, the inside cylinder only will go down. When energizing the bottom coil, the inside cylinder only will go up. When either coil is energized, a relay inside the control box is energized that causes cartridges #8 and #9 to be de-energized (diodes inside the control box prevent electrical feedback). When switch #7 on the control box is pressed down, the white/black wire is energized, which energizes the top coil of cartridge #11; as a result, the inside cylinder only will go down. When switch #7 on the control box is raised up, the blue wire is energized, which energizes the bottom coil of cartridge #11; as a result, the inside cylinder only will go up.

Note: The lift cylinders are rephased in a slave/master arrangement (oil from one of the cylinders feeds the other one, causing both sides to go up evenly despite the uneven loading). The small-bore cylinder is on the outside, and the large bore cylinder is on the inside. The cylinders will rephase when the header is lifted all the way up. Rephasing extracts all the air in the system and evens the cylinders when they are lifted up.



300-2-8 AUTO HEADER HEIGHT CONTROL, HYDRAULIC SCHEMATIC (FOR IN HOUSE PLUMBING) 1/12/00