



**PRELIMINARY**  
**2955S AND 2970S**  
*SIDEHILL LEVELING SYSTEMS*  
*OPERATORS MANUAL*

**NOTICE:**

**This is a PRELIMINARY operators manual a complete version will be sent to you as soon as it is completed.**

PLEASE READ THIS MANUAL COMPLETELY. This manual describes how to properly operate and service the Hillco Leveling System. Failure to do so could result in personal injury or equipment damage.

This manual should be considered a permanent part of your combine and should remain with the combine as long as the Hillco Leveling System is attached to your John Deere combine.

The terms “Left, Right, Top, Bottom or Back” used in this manual are referenced as if sitting in the operator’s seat of the combine facing the direction of forward travel.

Record the serial number of the Hillco Leveling System here for future reference. The serial number is located on the left side of the Undercarriage toward the rear.

Hillco Leveling System SN- \_\_\_\_\_



## **Statement of Limited Warranty**

Hillco Technologies, Inc. (Hillco) 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.

Hillco warrants genuine Hillco 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.

Hillco's obligation under these warranties shall be limited to repairing or replacing, free of charge to the original purchaser, any part that, in Hillco'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 Hillco.
- 3) Any unauthorized product alteration or modification.
- 4) Any unauthorized repairs made with parts other than genuine Hillco parts.
- 5) Any repairs performed by anyone other than Hillco or an authorized Hillco dealer unless specifically authorized by Hillco.

### **Warranty Procedure**

A Hillco Warranty Registration Form must be fully completed and returned to Hillco within 30 days of sale of the product to the retail customer.

All warranty claims must be submitted on a Hillco Warranty Claim Form that is fully completed.

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 should be held for a period of 60 days after the warranty claim has been submitted to Hillco.

Hillco reserves the right to either inspect the product at the original retail purchaser's location, or the authorized Hillco dealer's location; or require it to be returned to Hillco, F.O.B. Hillco, for inspection.

### **Limitation of Liability**

Hillco 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 Hillco 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 for a particular purpose. This warranty states Hillco's entire and exclusive liability and buyer's exclusive remedy for any claim for damages in connection with the sale or furnishing of Hillco products, their design, suitability for use, installation or operation, or for any claimed defects herein. **HILLCO 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.**

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

Hillco 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.

## SAFETY

### Safety Alert Symbol

When you see this symbol be alert to potential for personal injury or death. Follow recommended precautions and safe operating practices.



### Signal Words

These words are used with the safety alert symbol.

**DANGER** - An immediate and specific hazard that **WILL** result in severe personal injury or death.

**WARNING** - A specific hazard or unsafe practice that **COULD** result in severe personal injury or death if proper precautions are not taken.

**CAUTION** - Unsafe practices which **COULD** result in personal injury if proper practices are not taken, or as a reminder of good safety practices.



## HIGH PRESSURE FLUIDS

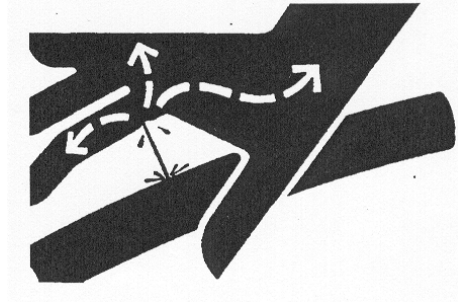
Escaping fluids under pressure can penetrate the skin causing serious injury.

Search for leaks with a piece of cardboard.

Relieve pressure before disconnecting hydraulic or other lines.

If an accident occurs consult a physician immediately.

Fluid injection into the skin must be surgically removed within a few hours or gangrene may result.



## SAFETY LABEL LOCATIONS



**Cab Window**

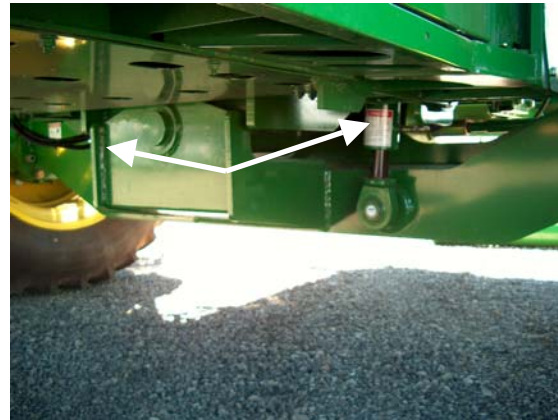


 <b>WARNING</b>	
	
<b>CRUSHING HAZARD</b>	
<ul style="list-style-type: none"><li>• Electronic components control combine leveling and header trim.</li><li>• Make sure machine is off and header lock is down before making any adjustments to the electrical system.</li></ul>	
<small>LL20-100786</small>	



**Leveling Controller**

 <b>DANGER</b>	
	 
<b>HYDRAULIC HAZARD</b>	
<ul style="list-style-type: none"><li>• Loss of hydraulic pressure may cause combine to tip.</li><li>• Read operator's manual before disconnecting any hydraulic components.</li></ul>	
<small>LL20-100788</small>	



**Leveling Cylinders**

**! DANGER**



**CRUSHING HAZARD**  
To prevent serious injury or death:

- Keep all persons and objects clear while any part of this machine is in motion.

LL20-100783



**Front and rear of the Hillco undercarriage on both the left and right side**

**! DANGER**



**PINCH POINT HAZARD**

- Keep hands, feet and body away from moving parts.
- Do not stand or climb on machine when operating.
- Hazard occurs during leveling and header trim.

LL20-100784



**Top of the Hillco transition on both the left and right side**

**IMPORTANT**

COMBINES EQUIPPED WITH A HILLCO SIDEHILL LEVELING SYSTEM:

OPERATE THE FEEDERCHAIN DRUM IN THE CORN POSITION FOR ALL CROPS

DO NOT OPERATE IN THE GRAIN POSITION OR DAMAGE MAY OCCUR

LL-140811

**Left and right side of feeder house near feeder drum adjustment**





## SYSTEM DESCRIPTION



### HILLCO 2955S AND 2970S SIDEHILL LEVELING SYSTEM DESCRIPTION

The Hillco Sidehill Leveling system designed for John Deere STS Combines is a bolt on system with minimal modification to the original JD combine. This system allows the combine to automatically remain level on slopes up to 18% as it moves across the terrain.

The leveling controller is located just above the transmission. The controller senses the combine level. As the combine moves onto a slope the combine starts to lean, when it is 1.5 degrees out of level the leveling controller sends an electrical current to the hydraulic leveling valve and it sends pressurized oil to the base end of one cylinder causing it to extend and also to the rod end of the other cylinder causing it to retract. Leveling the combine left or right until it is less than 1.5 degrees out of level.

When the combine is leveling the Hillco header adapter stays parallel with the ground. It does this because the system is a master/slave cylinder system. So as the combine levels the master cylinder located on the right side of the overcarriage/undercarriage is either extended or retracted, and the base end of the slave cylinder is plumbed from the base end of the master cylinder. This causes the slave cylinder to react opposite of the master cylinder.

## LEVELING CONTROLS AND COMPONENTS

### Leveling Control Switches

The leveling switches are located in the armrest console.

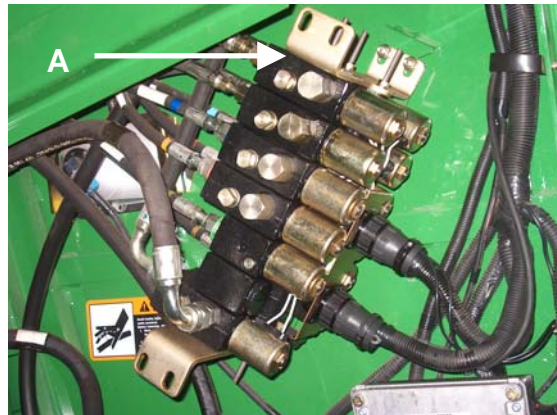
- A- Road Transport Disconnect Switch**
- B- Road Transport Disconnect Indicator Light**
- C- Automatic Leveling Control Switch**
- D- Automatic Leveling Indicator Light**
- E- Manual Leveling Control Switch**



### Leveling Control Valve

The leveling control valve is located in the hydraulic stack located on the left side of the combine.

- A- Leveling valve**



### Auto Leveling Controller

The leveling controller senses when the separator is 1.5 degrees out of level then sends a signal to either the left or right solenoid on the leveling valve to correct the combine separator until it is within that 1.5-degree window.

- A- leveling controller**



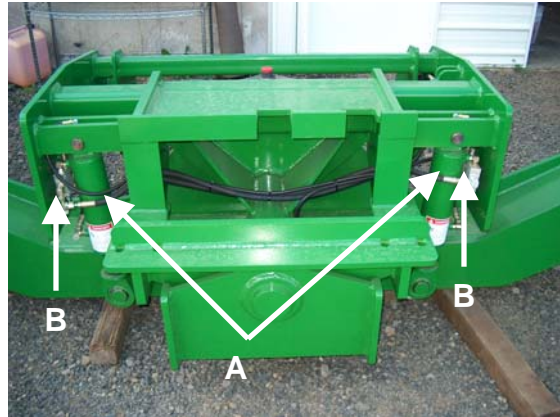
### Leveling Hydraulic Cylinders

There are two leveling cylinders under the combine on the backside of the Hillco undercarriage.

As oil is pumped into the rod end of one cylinder, the cylinder retracts. Oil is pumped into the base end of this cylinder is forced out and into the base end of the other cylinder, causing it to extend. Oil in the rod end of this cylinder is forced out and flows through the leveling valve and back to the main hydraulic reservoir.

Both leveling cylinders are equipped with pressure operated check valves (POCV) to prevent the loss of oil from the cylinders in the event of a hose rupture.

- A- Leveling cylinders**
- B- Pressure operated check valves (POCV)**



## HEADER TILT CONTROLS AND COMPONENTS

### Header Tilt Controls

The manual header tilt switch is located in the hydro handle.

- A- Manual Header Tilt Switch**



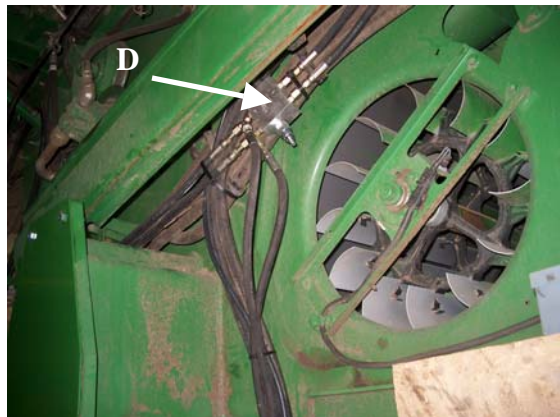
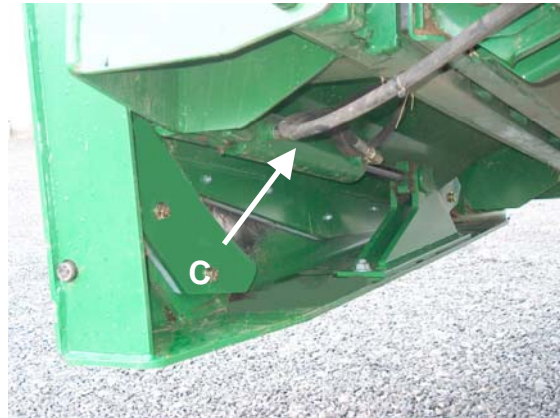
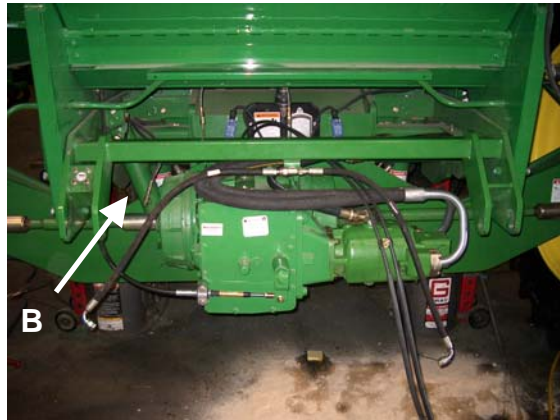
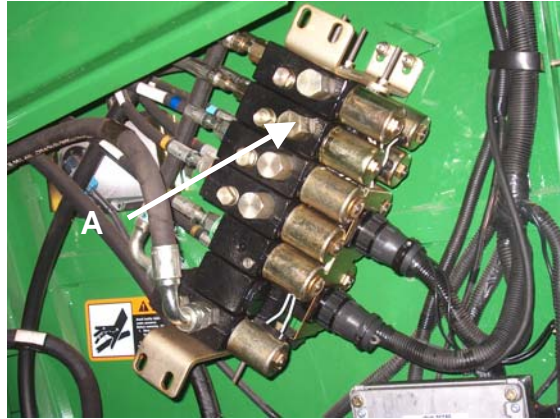
## Header Tilt System

The header tilt hydraulic circuit consists of the header tilt control valve, master cylinder, slave cylinder and relief valve.

As the combine levels over the master cylinder is either retracted or extended sending oil to the slave cylinder, which rotates the head. When the head tilt switch is depressed or the Contour Master system is turned on, it sends a signal to the header tilt valve and send oil down the hoses that are teed in between the master and slave cylinder. Since the master cylinder can't be moved the oil then travels to the slave cylinder to rotate the head.

For protection of this system a relief valve is installed to relieve pressure.

- A- Header tilt valve**
- B- Master cylinder**
- C- Slave cylinder**
- D- Relief valve**



## OPERATION

### Manual Leveling

To manually level the combine the road transport disconnect switch (B) must be off (the indicator light (A) next to the switch will go off). Press the manual leveling control switch (E) on the left or right side to tilt the combine as desired. If the auto level switch is on the combine will return to level as soon as you let go of the manual leveling switch.

### Automatic Leveling

To turn on the auto leveling press the auto-leveling switch (C) so the indicator light (D) next to the switch is on. Now the combine will automatically correct for change in slope as the combine travels across the slope.

### Road Transport

When road transporting the combine the auto level switch (C) must be off and for safety the road transport disconnect switch (B) should be on (the indicator light (A) will be on).



- A- Road Transport Disconnect Switch Indicator light**
- B- Road Transport Disconnect Switch**
- C- Automatic Leveling Control Switch**
- D- Automatic Leveling Indicator Light**
- E- Manual Leveling Control Switch**

### Header Tilt

To tilt the header manually press the header tilt switch (A) on the left or right side to tilt the header as desired.

The Hillco leveling system is fully compatible with John Deere's Contour Master lateral tilt system electronics.

To run the Contour Master functions refer to your combine operator's manual.

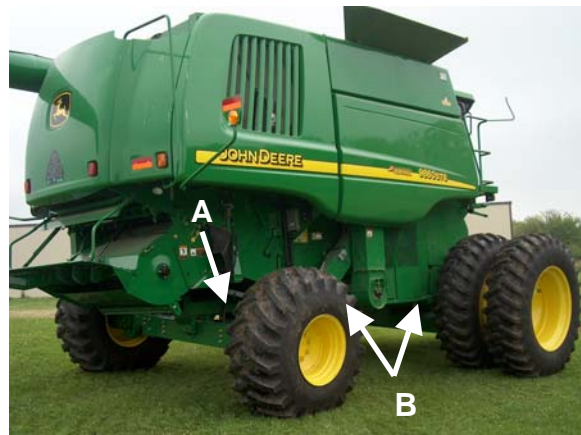


## MAINTENANCE

### Greasing

All grease points on the Hillco Leveling System are 50hr grease interval.

- A- Front pivot of JD rear axle
- B- Rod end of leveling cylinders
- C- Rod end of the master cylinder
- D- Grease bulkhead
- E- 2955s ONLY- Base end of the master cylinder
- F- Base and rod end of the slave cylinder



## ADJUSTMENTS



### Leveling Controller Adjustment

The combine should return to within 1.5 degrees to level from each side. If the combine doesn't come up to or near 1.5 degrees to level from one side and does or goes past level from the other direction, the leveling controller needs adjusted.

To adjust the controller loosen the three mounting bolts and swing the controller to the left or right as needed. If the combine is leaning to the right the controller needs to swing to the left and just the opposite if it was leaning the other direction.

### A- Leveling Controller

### Shimming The Header

Shims can be purchased from your JD dealer to raise the header in relation to the Hillco feeder house transition. The floor of the header should sit level or higher than the bottom of the opening of the Hillco transition, to allow for smooth crop flow. These are the same plates that are used on the original JD feeder house for the same purpose.



### Feeder chain adjustment

Follow the John Deere guidelines to tighten the feeder chain

**IMPORTANT: The feeder drum must always be operated in the corn position for all crops. Damage may occur if the drum is operated in the grain position.**

