

## TRACTOR HYDRAULICS

### HYDRAULIC POWER LIFT (H.P.L.)

The H.P.L. lever, 1, is located on the right-hand control pod. The lever controls the position of the two lift arms.

To lower the lift arms, first make sure the flow control valve, 3, is open, then move the H.P.L. lever forward. To raise the lift arms, move the lever rearward. An adjustable stop, 2, is located in this quadrant for returning the lever to a preset position.

The hydraulic lift system provides accurate, smooth, and instant hydraulic power for raising a variety of compatible equipment whenever the engine is running. The system's position control feature maintains the selected height or depth of three-point linkage equipment in relation to the tractor. When the hydraulic lift control lever is moved to a higher or lower setting in the quadrant, the system repositions the equipment to a higher or lower position and maintains the selected position.

The hydraulic lift system may be equipped with the optional draft control.

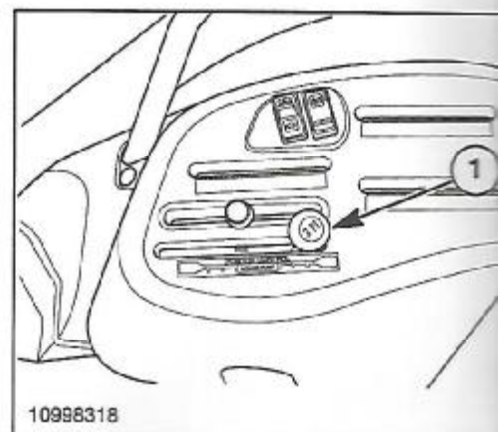
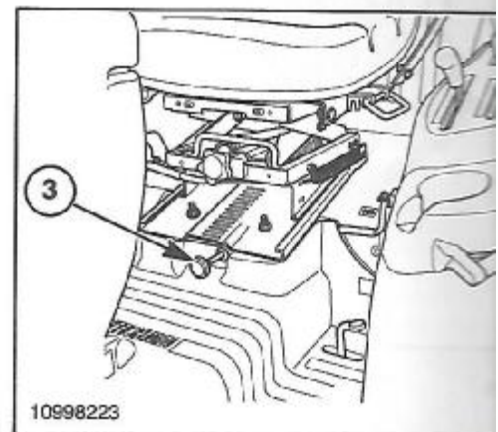


**WARNING: MAKE SURE THE AREA IS CLEAR OF PEOPLE BEFORE LOWERING EQUIPMENT.**

### POSITION CONTROL

Position control provides easy, accurate control of three-point linkage equipment which operates above the ground, such as sprayers, rakes, mowers, etc. It also provides uniform depth when using a blade or similar equipment on ground level.

When operating in position control, there is a definite relationship between the position of the control lever in the quadrant and the position of the equipment. The lever, 1, must be moved to change the position of the equipment relative to the tractor. The system will automatically maintain the equipment in the selected position.



## DRAFT CONTROL

When operating in draft control, the draft control lever is used to adjust sensitivity to draft loads. Once the lever is positioned, the hydraulic lift system will automatically adjust the depth of the equipment to maintain an even load on the tractor as soil conditions vary. The hydraulic system senses draft changes through changes in upper link compression. The operation of the upper link draft sensing system is described in the following paragraph.

**Upper Link Compression Loads:** As the equipment is pulled through the soil, the draft caused by soil resistance tends to rotate link hitch points. This draft creates a pushing or compressive force on the upper link hitch points. This draft creates a pushing or compressive force on the upper link. When changes in soil resistance cause the draft to increase, the compression force on the upper link will also increase. These changes in upper link compression, signal the hydraulic system through internal linkage, to raise the equipment slightly to maintain uniform draft.



**WARNING: ALWAYS LOWER THE HYDRAULIC LIFT AND ALL OTHER HYDRAULIC EQUIPMENT BEFORE STOPPING THE TRACTOR.**

New Holland tractors having the Hydraulic Draft Control option are equipped with two lever hydraulic lift control systems. The operation of each system is described below:

## TWO LEVER CONTROLS POSITION CONTROL OPERATION

The two lever control system is shown in Figure 2-42. Position control is obtained by placing the draft control lever all the way forward and then moving the outer (Position) control lever, 1, to position the equipment as desired. The outer (Position) lever is used to set the desired working height or depth.

## DRAFT CONTROL OPERATION

Draft control is obtained by placing the position control lever in the forward position. Use the draft control to adjust the draft setting (the lift system will automatically maintain the selected draft as described above.)

## OPERATING IN BOTH POSITION AND DRAFT CONTROL

The position control may be used together with the draft control as follow:

1. Set the position control lever at the maximum desired implement depth. The hydraulic system will not lower the implement below the preselected depth. (This will also prevent "diving" which may be encountered with light equipment, such as a rear blade, when grading or backfilling.)
2. Adjust the draft control lever, 2, for the maximum draft load (pull) desired.

The hydraulic lift system will now provide normal draft response within the range set by the position control. This adjustment provides a more uniform depth while maintaining an even pull in widely varying soil conditions.



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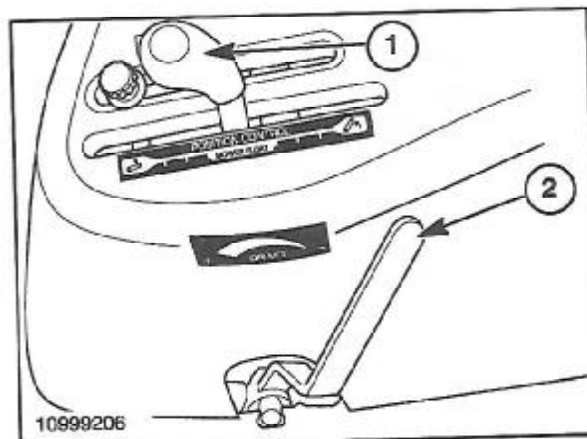


Figure 2-42



## SINGLE-LEVER POSITION ADJUSTMENTS

### Linkage Adjustments

The length of the position control rod is critical and careful adjustment must be observed for proper operation. If the control rod is adjusted too short, the control valve spool will remain in the raised position when the lift arms have reached their maximum height and the system relief valve will blow. If the control rod is too long, the control valve spool will return to neutral before the lift arms reach their full height.

The position control rod should be adjusted any time the link is disconnected for service to the hydraulic system, or any time the relief valve operation is noticed while the lift arms are at the full raise position.

### Adjustment Procedure

1. Loosen the locknut, 1, on the position control rod, 2, and remove the pin, 3, from the link.
2. Set the control lever, 4, to the highest position.
3. Start the engine. The lift arms, 5, should raise and the relief valve should operate.
4. Move the control lever down until the relief valve ceases operation.
5. Adjust the length of the position control rod and clevis to align the pin holes. Then lengthen the rod one additional turn and install the pin. Tighten the locknut.
6. Check the operation. The relief valve should not operate when the lift arms are in the fully raised position.

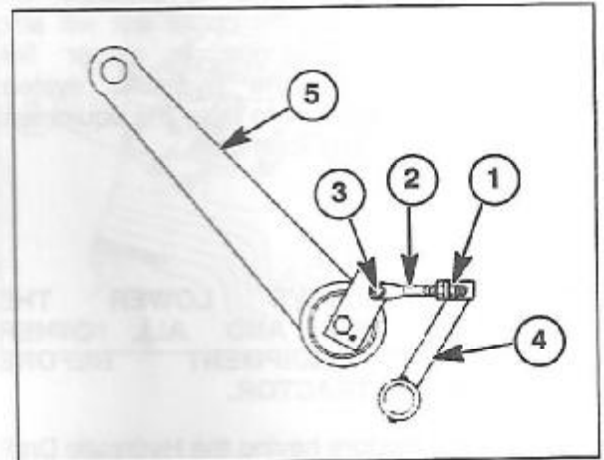


Figure 2-43

## DOUBLE-LEVER POSITION AND DRAFT ADJUSTMENT

**NOTE:** Adjust the draft rod only after completing the position control adjustment.

1. Set the draft control lever to the most sensitive "+" position.
2. Loosen the locknut, 6, on the draft control rod, 7.
3. Remove the cotter pin, 8, and disconnect the draft control rod from the draft control arm pin 9.
4. Open the flow control valve knob to the full open position.

**NOTE:** The position control lever must be in the raised position and the lift arms up.

5. Start the engine and set at 1000-1500 rpm.
6. Move the draft feedback rod, 7, rearward until the relief valve stops operating. Adjust the length of the rod to match the rod hole with the draft arm pin, 9, then shorten the rod one more turn and connect the rod to the draft arm.
7. Check the adjustments as follows:

- With the engine running, move both the position control and draft control levers to the full raise position.
- The move the position control lever to the forward (down) position.

**NOTE:** If the lift arms do not descend or descend too slowly, shorten the draft control rod one more turn.

## TOP LINK MAIN SPRING ADJUSTMENT

Remove the cotter pin and adjust the main spring length, 5, to 77 mm (3.03) and secure with the cotter pin.

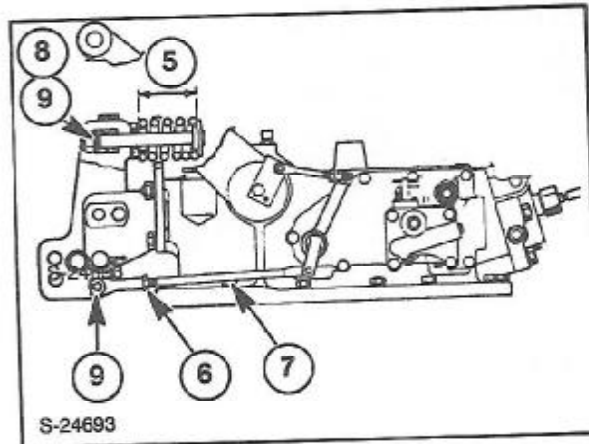


Figure 2-44