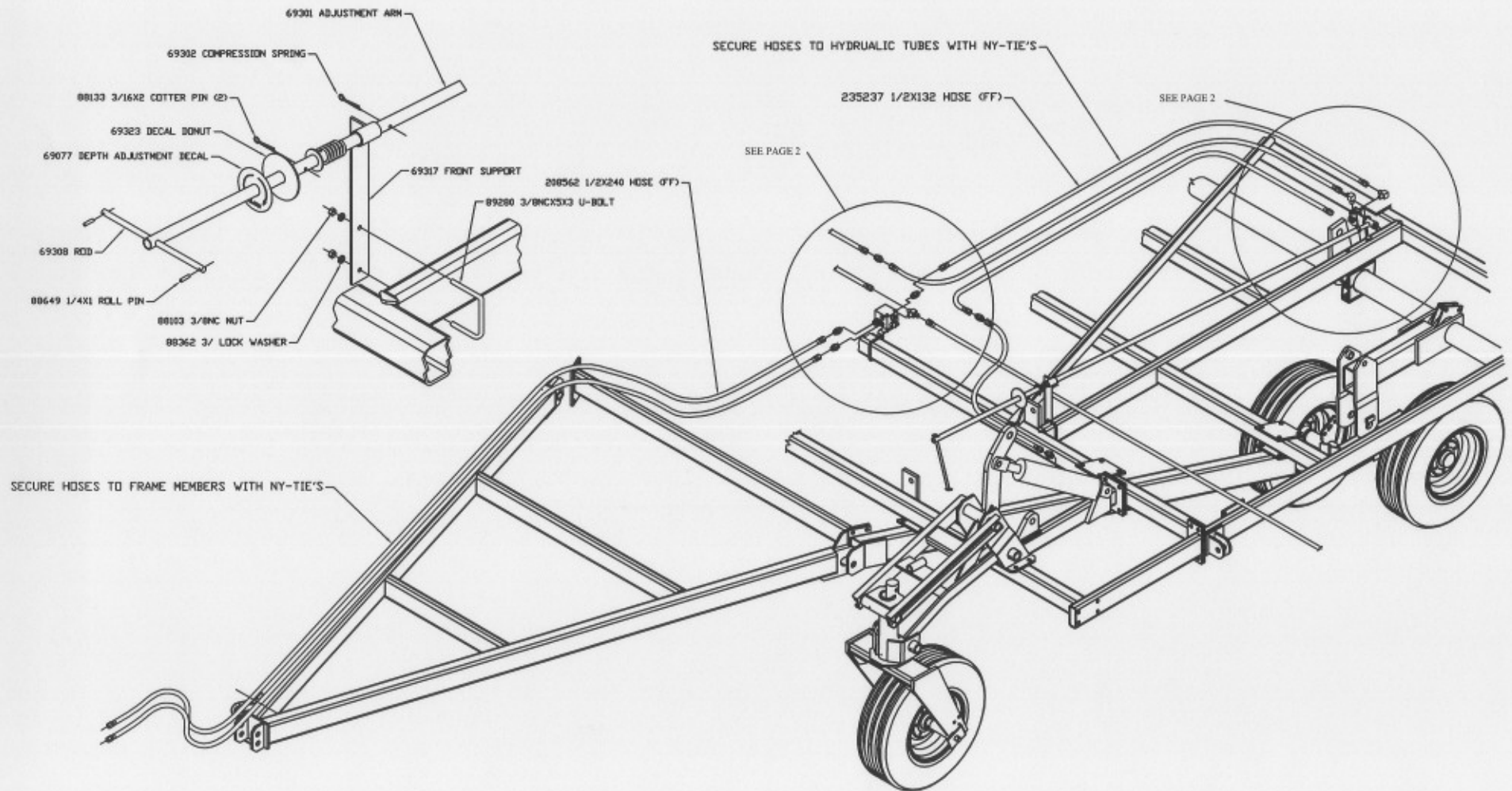
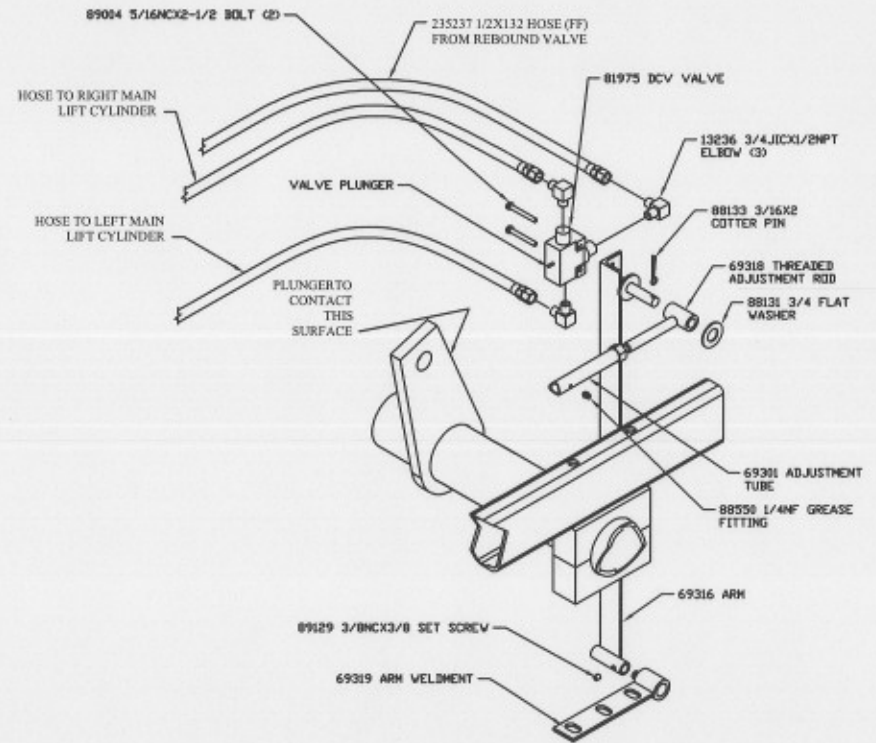
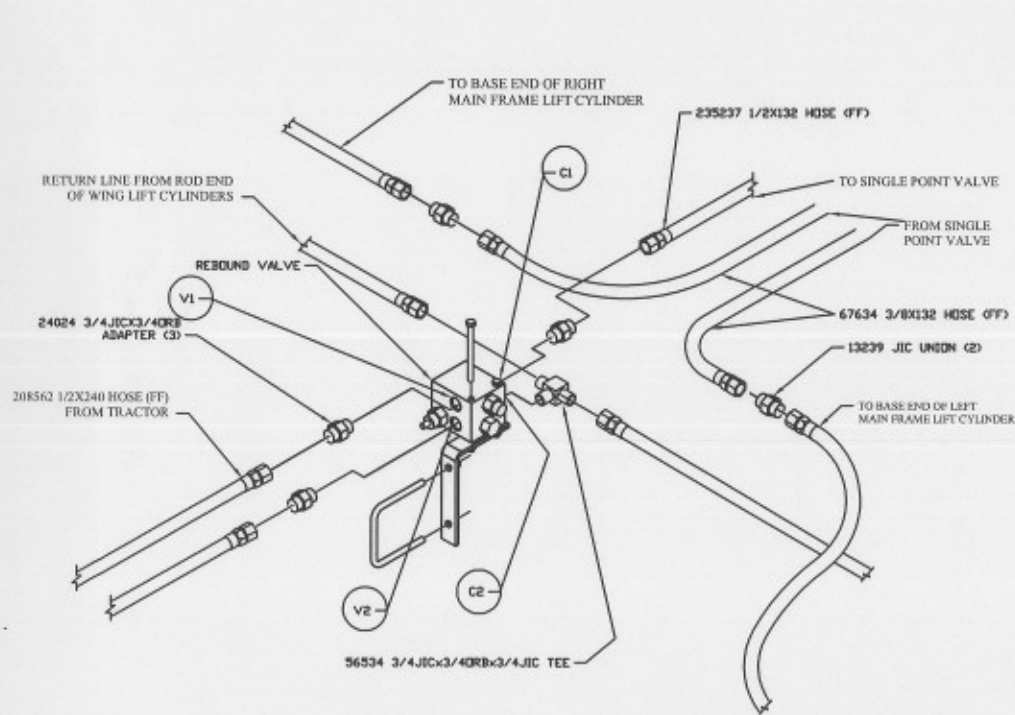


# QUADX SINGLE POINT DEPTH CONTROL ASSEMBLY INSTRUCTIONS



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## QuadX Single Point Depth Control Functional Information and Assembly/Operating Instructions

The QuadX field cultivator single point depth control is designed to allow the adjustment of the operating depth of the unit. The normal procedure involves the use of the adjustable screw stops on the hydraulic lift cylinders. The depth control valve is placed in the base circuit and functions as a shut off to contain the oil flow and hold the depth of the machine.

**NOTE: use of the single point depth control will still require that the lift circuit be regularly purged to maintain the lift sequence. The reliability of the depth control is dependent on the containment of oil in the cylinders and circuit; this valve will not ensure proper function without the purging of the system.**

The single point depth control consists of two parts – the rebound valve and the single point control valve. Each part performs a distinct function and work together to control the depth of the unit.

### Rebound Valve

The rebound valve is mounted to the second frame tube as shown on sheet 2. Position the mounting bracket to the right center of the frame tube, secure with the u-bolt and assemble the hydraulic fittings and hoses. **Make certain that the valve is tied to the main lift cylinder circuit and that the hoses are routed to the specified ports of the rebound valve. The valve will not function properly if it is incorrectly placed in the circuit.** Securely tighten all bolts and fittings once the valve has been positioned.

The Rebound Valve addresses problems of air ingestion, uneven cylinder rod extension, and stability when using series cylinders in a lift system. The manifold assembly cancels or dampens these problems through the use of three cartridges: (1) **counterbalance**, (2) **pressure reducing and relieving**, and (3) **check**.

The **counterbalance** addresses *air ingestion* by preventing the implement's series cylinders from running ahead of the oil supply. This prevents a vacuum and air sucking past the rod seals into the cylinders. Since air is highly compressible and expandable, its presence causes spongy and unsynchronized cylinder movements. This cartridge is also a holding and relief cartridge and provides "On-The-Go" depth selection. The operator can manually select variable working depths on the go from the tractor cab. The new work depth will hold to 3000 psi before relieving.

The **pressure reducing and relieving** addresses the effects of *compression* (3000 psi) which expands the hydraulic circuitry, and *de-compression* (zero psi) which returns the circuitry to a relaxed state. De-compression accumulatively transfers excess oil from the series into the last cylinder. An example of compression to de-compression occurs when the center section rises to work shallow and the wing section then rides above the surface. The reducing valve cancels these effects by maintaining a minimum pressure on the rod side of the last series cylinder, and bleeding off higher pressures at a restrictive rate of flow.

The **check** valve adds *stability* by trapping the pressure of 750 psi established by the pressure reducing and relieving cartridge. Implement draft maintains this minimum pressure. The stiffened circuitry stabilizes implement frame and tools and can enable faster operating speeds.

## SINGLE POINT VALVE

**Assembly** – The single point control valve is mounted at the rear of the unit as shown on sheet 3. Mount the arm mount w/bearing to the bottom of the cast bearing cap. Attach the arm to the bearing and secure with the setscrew provided. Mount the DCV valve to the arm with the plunger to the front. Align the plunger with the axle plate on the axle. The arm mount has slotted holes to allow side to side adjustment of the arm. Secure the arm mount to the bottom of the bearing cap with the  $\frac{3}{4}$ " flat washers provided. Thread the threaded adjustment approximately 1" into the long adjustment tube. Secure the assembly to the arm with the flat washer and cotter pin. Screw the grease zerk into the adjustment tube and pump a liberal amount of grease into the tube to prevent thread seizing and repel water.

Connect the hoses to the depth valve as shown and route the hoses to the center rear of the unit. Secure the hoses with tie straps to the main steel hydraulic tubes in the center of the unit, routing the hoses to the rebound valve at the front of the unit. Insert the adjustment tube in the front support and mount the front support to the inside of the wheel well tube in the location show with the u-bolt provided. Place a cotter pin into the rear hole in the adjustment tube behind the front support, position the spring over the tube in the front of the support tube. Secure into position with the flat washer and cotter pin. The plastic disc with the adjustment decal is slid on the tube and should rotate freely. Place the rod through the end of the adjustment tube and secure with the  $\frac{1}{4}$ " roll pins in each end.

**Adjustments** – the single point valve is used to control the operating depth of the unit. As the unit is lowered into the ground the axle will rotate back. By positioning the depth control valve to contact the axle plate the valve will shut off the flow of oil and stop the axle rotation. Once the valve has been installed the adjustments will need to be made in the field. Level the complete unit as outlined in the QuadX assembly instructions. Adjust the depth stop collars on all lift cylinders to the clevis end of the rod. Cycle the hydraulic system to purge and lower the unit into the ground. As the decal notes each turn of the adjustment tube will adjust the depth of the unit approximately  $\frac{1}{4}$ ", either up or down. Turn the adjustment tube clockwise to raise the unit or counterclockwise to lower the unit. Adjust as required to the desired operating depth.

The proper functioning of this depth control system is dependent on the containment of oil in the hydraulic cylinders and circuitry. The rebound valve described above is effective in maintaining a balanced and sequenced system but internal leaks can occur. As a safety measure once you have determined the maximum depth that you will be operating the unit you can adjust the main lift cylinder screw stops to maintain this maximum depth. Note: the movement of the main lift cylinders will be stopped when either the single point valve plunger is depressed or any of the lift cylinder screw stops contact the cylinder end plates. Refer to the QuadX operating instruction for information on setting the lift cylinder depth collars. It will be necessary to occasionally purge the system to clean out air and stabilize the system.