Hand Lever Moved to Raise Implement, Showing Path of Oil to and from Rockshaft Piston

In this drawing the hand lever has been moved to raise the implement. This action has moved the spool type control valve (1) in from its "home" position, the pressure on the regulator valve piston (5) has been released through the open port "A", the regulator check valve (6) has been seated by the spring (7) and the system is again under high pressure.

Oil from the pump flows from port "C" around the control valve, out through port "E" to the rear of the check valve actuator (10) and through the rear check valve (11) to the rear side of the rockshaft piston (2).

Oil pressure on the rear of the actuator valve (10) forces the front check valve (9) off its seat allowing trapped oil at the front of the rockshaft piston to flow through the port "D", through the drilling in the control valve (1), out port "A" to the reservoir and back to the pump.

The rockshaft, its piston and valve operating lever (12) are forced toward the front until the valve operating lever is in the position as shown by the dotted lines. This completes the raising cycle and again places the spool type control valve (1) in its "home" position which returns the system to low pressure operation. Fluid is trapped on both sides of the rockshaft piston holding the rockshaft firmly in the position it had reached when the control valve (1) reached "home" position.

It will be noticed that a small movement of the hand lever moves the spool type control valve a small amount. This results in a similar small movement of the rockshaft required to return the spool type control valve to its "home" position, through the walking beam type of operating lever (12). Thus the rockshaft responds to any movement of the hand lever, in a similar amount and in a similar direction, up or down; power being required only during the time a change is taking place. Any position of the hand lever is a neutral position after the required movement of the rockshaft is completed.

It will also be noticed that any movement of the rockshaft piston depends upon the pressure for the opening of the check valves (9 and 11). Thus with the tractor engine stopped the Touch Control hand lever may be moved to any position without effect on the rockshaft. However, upon restarting the engine, the rockshaft piston will immediately move, correcting any difference between its position and the position of the hand lever.

Pressure gauge FES 1-2 having a pressure range from 0 to 3000 psi may be installed in the place of the 1/4 inch pipe plug located in the pump output side of the hydraulic manifold rear flange. This gauge is designed for test use on hydraulic systems where quick variations of pressure impose a severe shock load on a gauge. Pressure will be indicated only while a change in rockshaft position is taking place. Pressure during this short interval will vary with the load up to 1500 psi at which pressure the safety valve opens in the system.