Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The job of directional control valves is to be able to direct the fluid to the desired actuator. Normally, these control valves comprise a spool located inside of a housing made either of cast iron or steel. The spool slides to various positions within the housing. Intersecting channels and grooves direct the fluid based on the spool's position.

The spool is centrally located, help in place with springs. In this particular position, the supply fluid can be blocked and returned to the tank. If the spool is slid to one side, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. When the spool is transferred to the opposite direction, the return and supply paths are switched. Once the spool is enabled to return to the center or neutral position, the actuator fluid paths become blocked, locking it into place.

The directional control is usually made to be stackable. They usually have a valve for every hydraulic cylinder and a fluid input that supplies all the valves in the stack.

To be able to avoid leaking and deal with the high pressure, tolerances are maintained really tight. Normally, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. In order to prevent jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine' frame with a 3-point pattern.

Mechanical levers, solenoids or a hydraulic pilot pressure can actuate or push the spool right or left. A seal allows a part of the spool to stick out the housing where it is easy to get to to the actuator.

The main valve block controls the stack of directional control valves by capacity and flow performance. Several of these valves are designed to be proportional, like a valve position to the proportional flow rate, while some valves are designed to be on-off. The control valve is among the most pricey and sensitive parts of a hydraulic circuit.