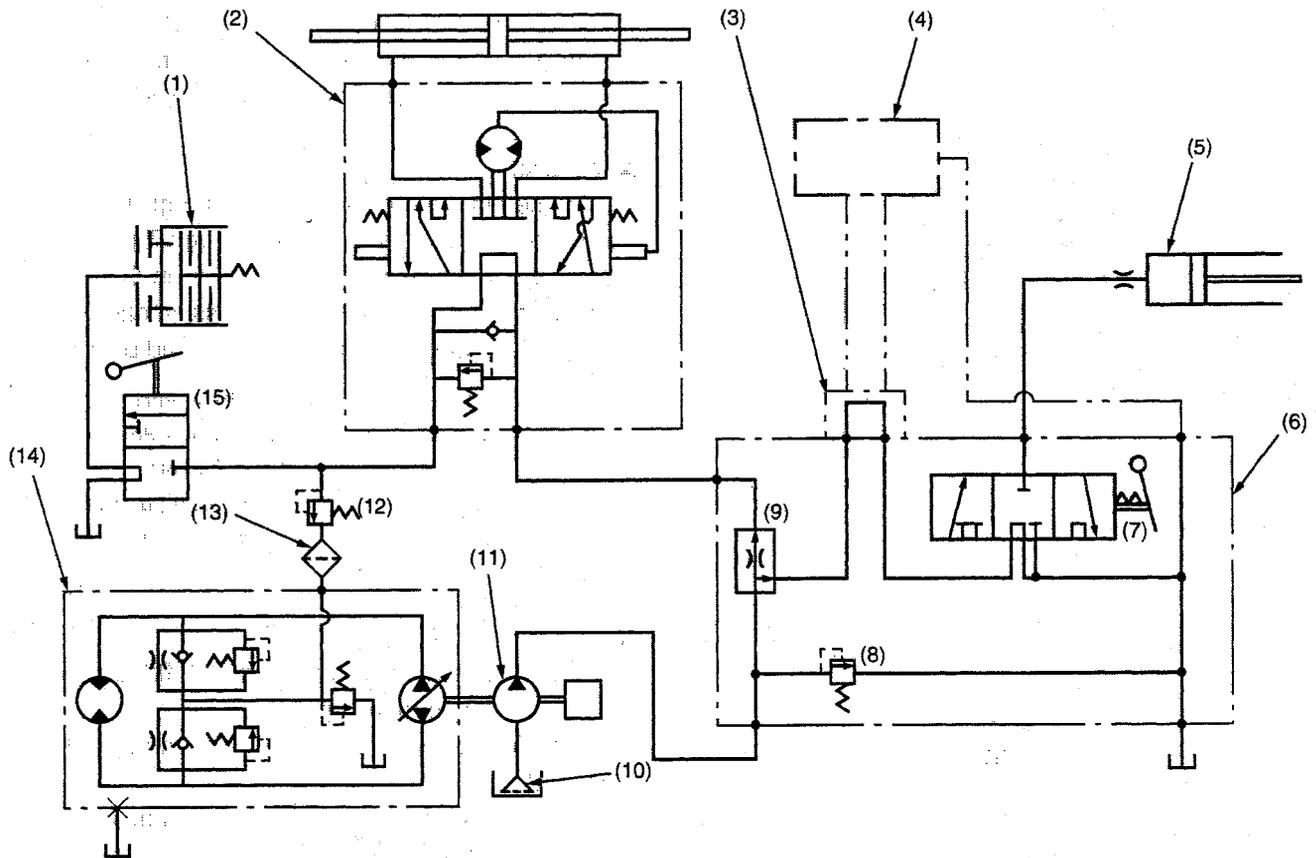


1. HYDRAULIC CIRCUIT



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- | | | |
|---------------------------------|--------------------------------------|-------------------------------|
| (1) PTO Clutch | (6) Hydraulic Control Valve Assembly | (11) Hydraulic Pump |
| (2) Power Steering Controller | (7) Control Valve | (12) PTO Relief Valve |
| (3) Hydraulic Block Type Outlet | (8) Relief Valve | (13) Oil Filter |
| (4) Front Loader (If equipped) | (9) Flow Priority Valve | (14) Hydrostatic Transmission |
| (5) Hydraulic Cylinder | (10) Oil Strainer | (15) PTO Clutch Valve |

The hydraulic system of this tractor is composed of a hydraulic pump, hydraulic block type outlet, control valve, hydraulic cylinder and other components.

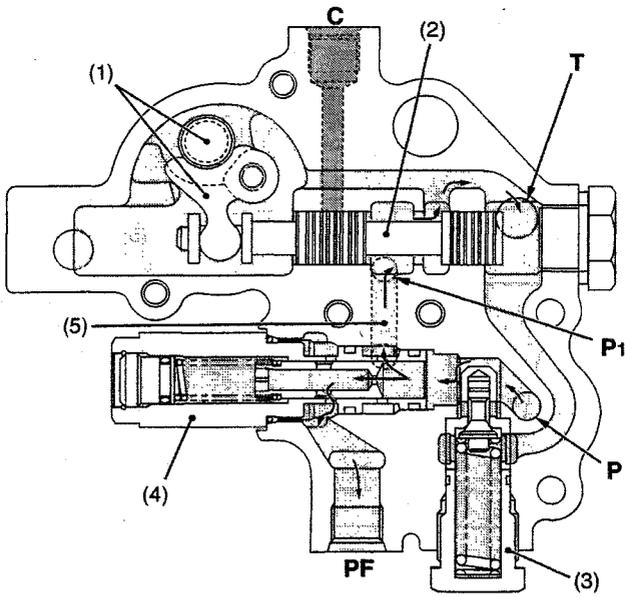
This system has the following functions.

1. Oil is supplied by hydraulic pump which is driven by pump drive shaft in the transmission case. As the pump drive shaft is connected to the propeller shaft, hydraulic pump starts running when engine is started.
2. The hydraulic pump forces out the oil to control valve for 3 point hitch system, power steering controller, PTO clutch valve and hydrostatic transmission after dividing oil flow by flow priority valve.
3. Hydraulic power take off from the hydraulic block type outlet to operate the implements such as a front loader and so on.

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2. HYDRAULIC CONTROL VALVE

Hydraulic control valve assembly is composed of control valve, flow priority valve (4) and relief valve (3). Oil from hydraulic pump is divided by flow priority valve (4) and forced into the control valve through passage (5) of hydraulic block type outlet. The spool (2) is moved by control arm (1) which is connected to hydraulic lever and oil from pump is changed flow direction by spool movement.



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■ Neutral

Oil forced into the control valve through **P1** port and returns to the transmission case through **T** port.

Also, **C** port is closed by spool (2), oil in the hydraulic cylinder does not flow to the transmission case.

Thus, the implement remains at its fixed position.

- | | |
|-------------------------------|--|
| (1) Control Arm | P, P1: Pump Port |
| (2) Spool (for Control Valve) | C: Cylinder Port |
| (3) Relief Valve | T: Tank Port |
| (4) Flow Priority Valve | PF: PF Port (to power steering circuit) |
| (5) Passage | |

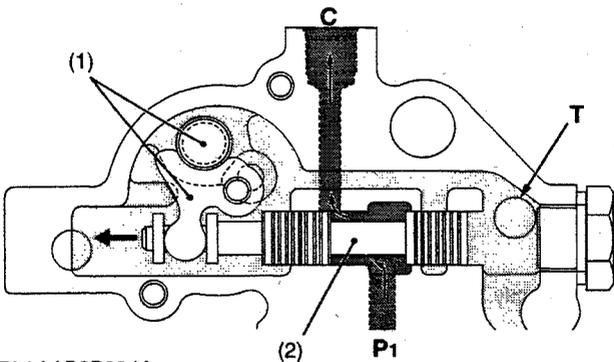
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■ Lift

When the control lever is set to the "**Lift**" position, the spool (2) is moved to the left.

The oil forced into the control valve through **P1** port flows to **C** port.

The oil pushes and flow into the hydraulic cylinder through the **C** port to lift the implement.



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- | | |
|-----------------|-------------------------|
| (1) Control Arm | P1: Pump Port |
| (2) Spool | C: Cylinder Port |
| | T: Tank Port |

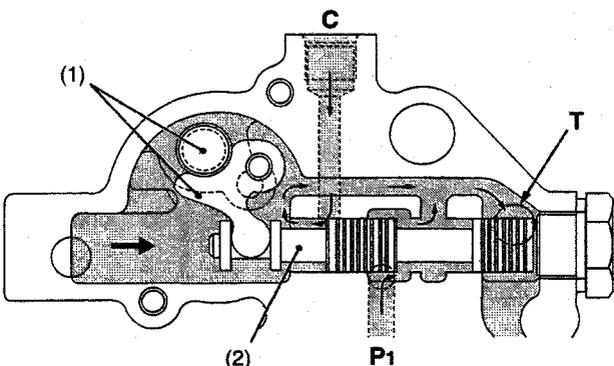
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■ Down

When the control lever is moved to "**Down**" position, the spool (2) is moved to the right.

Oil in the hydraulic cylinder is forced out to the transmission case through gap of spool and **T** port by the weight of the implement, causing the implement to lower.

Oil forced into the control valve through the **P1** port and returns to the transmission case through the **T** port.



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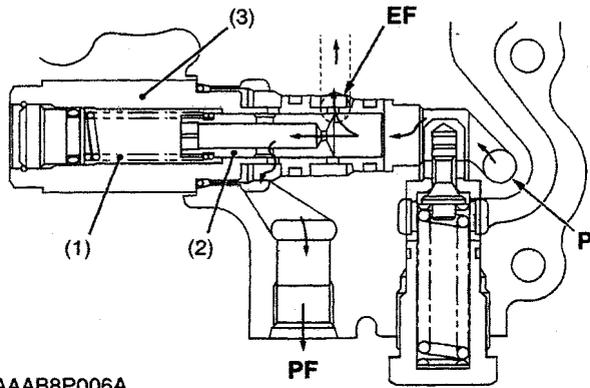
- | | |
|-----------------|-------------------------|
| (1) Control Arm | P1: Pump Port |
| (2) Spool | C: Cylinder Port |
| | T: Tank Port |

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3. FLOW PRIORITY VALVE

The flow priority valve is a flow divider that divides the flow from single hydraulic source (hydraulic pump) to actuates two circuits simultaneously.

This valve feeds fixedly controlled flow (7 L/min., 1.8 U.S.gals./min., 1.5 Imp.gals./min.) to the PF port with priority and excessive flow to the EF port.



- (1) Spring
- (2) Spool
- (3) Valve Body

EF: EF Port (to 3 point hitch control circuit)

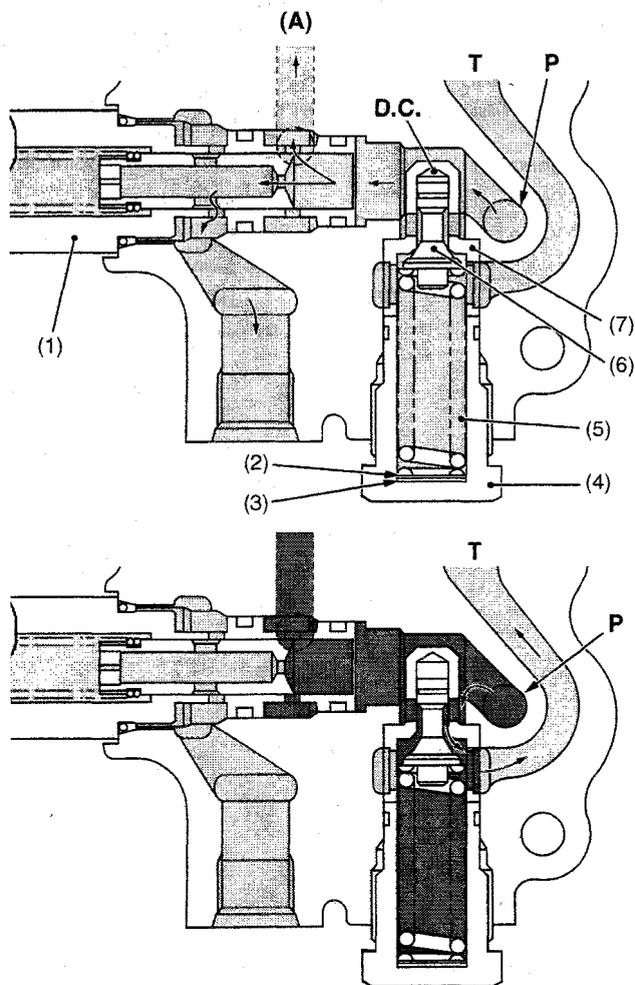
PF: PF Port (to power steering PTO clutch and HST circuit)

P: Pump Port

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RELIEF VALVE



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The implement control system circuit has a relief valve to restrict the maximum pressure in the circuit. The relief valve is located in the hydraulic control valve assembly.

The relief valve is of the guide piston type with damping effect.

Among direct acting relief valves, this type is suited to higher pressure and has large capacity. Furthermore, this type is free from unstable operation, such as chattering, which occurs often in direct acting relief valves.

As shown in the figure, the guide is attached to the poppet (5) and a valve chamber **D.C.** (called the damping chamber) is formed at the top of the guide piston. The inlet of the valve leads to the chamber via a clearance between the sliding portion of the guide and the seat (6), minimizing valve vibration with the damping effect of the chamber.

When the oil pressure in the circuit is lower than the setting pressure of the relief valve, the relief valve is not operated and the oil fed to the relief valve from the hydraulic pump flows into the implement control valve.

As the oil pressure in the circuit increases, so does the pressure in the damping chamber **D.C.**. When the pressure rises above the valve setting and overcomes the spring force, the valve opens. Oil then flows out to the transmission case through **T** port, preventing any further rise in pressure. The valve closes again when enough oil is released to drop pressure below the valve setting.

(Reference)

- Relief valve setting pressure : 12.3 to 12.7 MPa
125 to 130 kgf/cm²
1778 to 1849 psi
- Engine speed : Maximum
- Oil temperature : 40 to 50 °C
104 to 122 °F

- | | |
|-------------------------|---------------------------------------|
| (1) Flow Priority Valve | D.C. Damping Chamber |
| (2) Shim | P: Pump Port |
| (3) Washer | T: Tank Port |
| (4) Plug | (A) To Hydraulic Control Valve |
| (5) Spring | |
| (6) Poppet | |
| (7) Seat | |

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