



## H0009 High Speed Unloader Valve Hydraulic Logic For SB360, SB300 and SB330 Hydraforce

H0009	Version 2	Hydraulics	17-08-04
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### System Operation

The tandem pump delivers oil to the high speed load sensed unloader valve, where the two flows can be combined to give high speed operation, or split to give low speed with the second pump flow returning to the oil reservoir.

#### HIGH SPEED / LOW PRESSURE Mode

In high speed the two oil flows are combined to give a total oil flow of 120l/m. To prevent the engine from overload the working pressure is reduced to 140bar (2000psi).

The pressure limiting is done by opening valve (5) and allowing L/S pressure to be limited by relief valve (3).

Increased flow occurs when the high speed valve cartridge (4) is energised allowing the 2<sup>nd</sup> pump to enter the circuit.

#### LOW SPEED / HIGH PRESSURE Mode

In low speed there is only one pump creating pressure (1<sup>st</sup> pump) with the 2<sup>nd</sup> pump being dumped to tank. Total oil flow is now 60l/m at 280bar (4000psi).

The pressure is now being limited by the Danfoss PVG32 control valve, as the shutoff valve (5) is closed preventing the relief valve (3) from operating. Oil is prevented from entering the 2<sup>nd</sup> pump circuit by check valve (6).

#### DUMP VALVE Optional

Also fitted to this valve may be a solenoid operated dump valve that is activated by the joystick controllers and the emergency stop buttons. This is an **OPTION** for higher levels of safety required for dangerous goods CE machines and PTO Versions.

When the valve is in the de-energised condition load sensed (LS) oil is dumped to tank. When the valve is energised the LS line is blocked to tank therefore allowing the hydraulic system to operate.

#### General Information

The low speed mode only applies to the lifting arms. The stabiliser legs are always in high speed irrespective of the position of the high/low speed selector mode switch.

When the dump solenoid is de-energised it is fail safe to dump L/S pressure.

When the High speed valve (4) and shutoff valves (5) are de-energised they are set to low speed / high pressure therefore allowing the operator to continue operation with heavy containers.

Following is a summary of the logic and function of the "High speed load sense unloader valve".



## High Speed Load Sense (LS) Unloader Valve Logic

Speed Mode	"High speed"	"Low Speed"
Operating oil flow	120l/min	60l/min
Operating Pressure	140bar (2000psi)@ valve (3) HS-LS-U valve	280bar (4000psi) @ Danfoss PVG32
No of pumps operating	2 x Pumps	1 x Pump (second pump to tank)
High speed Solenoid (4)	Energised	De-energised
High Speed relief (2)	140bar (2000psi)	Not Active
Load Sense shutoff (5)	Energised	De-energised
Load Sense Relief (3)	140bar (2000psi)	Not Active
EHF's	Bypassed. (Not Active)	Active



