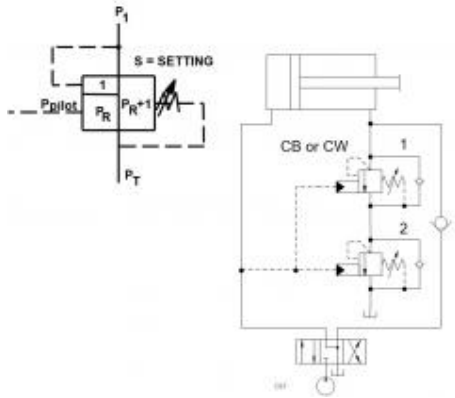


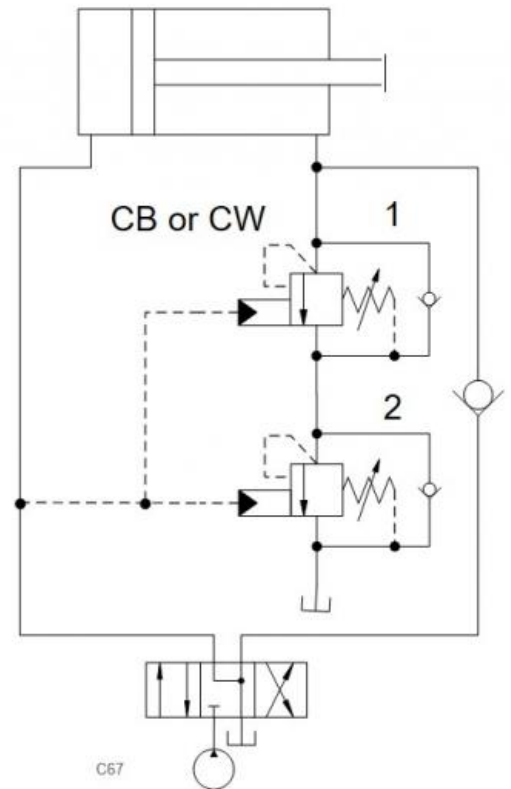
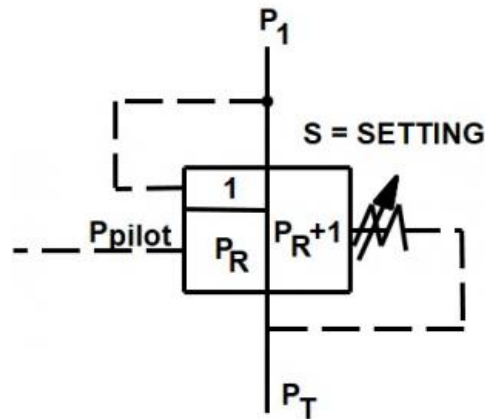
Prepared for :

Prepared by :

Schematics



Summary



Related Products

Cartridges

- CBEW* - 1:1 pilot ratio, standard capacity counterbalance valve
- CWBG* - 4.5:1 pilot ratio, vented counterbalance valve

The circuit shows two counterbalance valves in series to increase the load-holding pressure yet allow for a lower pilot pressure to control load.

- **Standard counterbalance valve :** CB**
- **Vented counterbalance valve :** CW**

Benefits of this circuit arrangement:

- The pressure in the return line of counterbalance valves is additive to the setting with a factor of the pilot ratio plus one. The back pressure can be used to intentionally boost the setting of a counterbalance valve.
- In the example, CBV 1 has a setting of 3000 psi and a pilot ratio of 3:1 CBV 2 has a setting of 500 psi and pilot ratio 10:1
- CBV 1 won't open unless inlet pressure exceeds 5000 psi. $(3000 + (3+1) \times 500 = 5000 \text{ psi})$
- With increasing pilot pressure, CBV 2 will start to open (at 45 psi) before CBV 1 starts to open (depending on load-induced pressure, cylinder ratio). Once CBV 2 is essentially out of the way, the setting of CBV 1 will be returned to its original setting for normal operation.
- In order for this work as designed, back pressure downstream of CBV 2 must be zero.

Note: Having two counterbalance valves in series back pressure creates a multiplication effect that boosts the setting (with factor: (pilot ratio plus 1) squared)

*CBV 1 can be a standard valve CB** or a vented CW** with port 4 connected to port 2.*

For Sun technical support, contact Bernhard Kristen.