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HYDRONIC 300 VALVE SETTING INSTRUCTIONS

HYDRONIC LIFT

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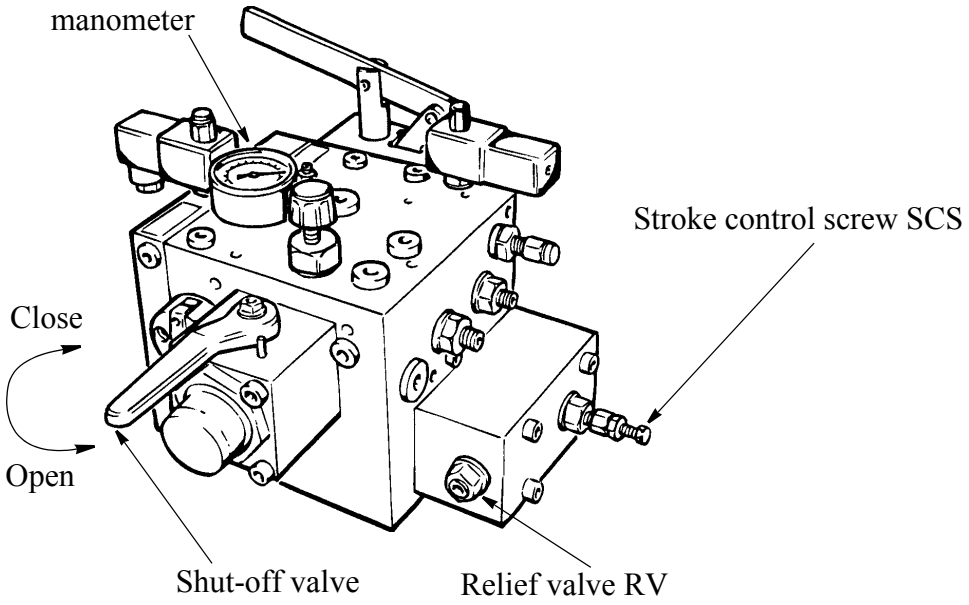
INSTRUCTION FOR HYDRONIC 300 ADJUSTMENT

By-pass pressure

The by-pass pressure is adjusted at the factory. It is readjusted only if start delay time needs adjustment. The by-pass flow pressure must be equal or less than empty car static pressure. Too low by-pass pressure causes extra delay during start up

Figure 1.



Tools:
- socket head wrench 6 mm
- spanner 10 mm, 13 mm and 19 mm

Adjustment of by-pass pressure:

- Close the shut-off valve.
- Open the relief valve (RV) so much that there is no spring force.
- Start the elevator for up travel.
- Adjust the stroke control screw (SCS) until the manometer indicates 10...15 bar by-pass pressure. (turning the screw clockwise increases the by-pass pressure)
- Secure the adjustment with the lock nut.
- Adjust the over pressure.

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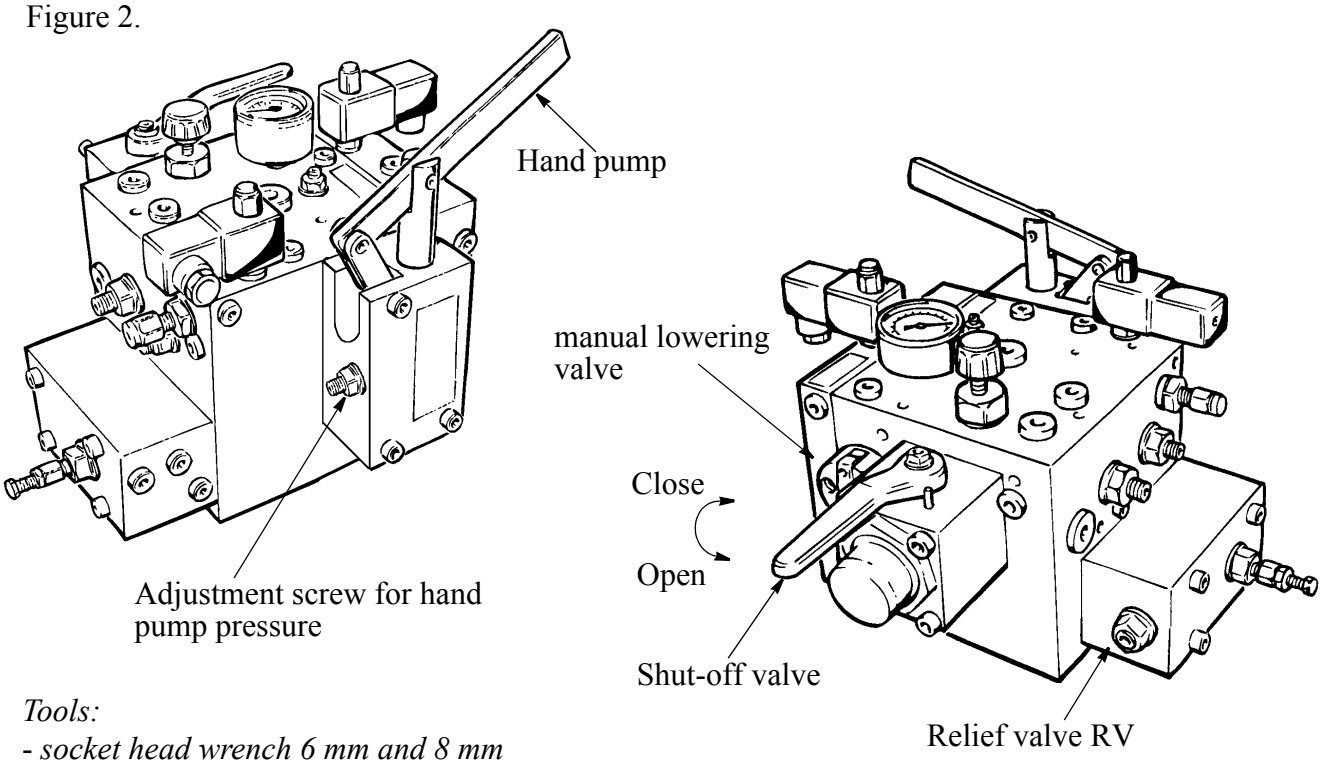
Over pressure

The over pressure (approx. maximum working pressure + 8 bar) is adjusted at the factory. It is readjusted only, if the relief valve (RV) has been repaired or if its adjustment has been altered for some reason. Max. working pressure = car with full load, travelling up (dynamic pressure).

Figure 2.



Tools:
- *socket head wrench 6 mm and 8 mm*
- *spanner 19 mm*
- *spanner 24 mm*

Adjustment of over pressure:

Relief valve RV

- Close the shut-off valve.
- Start the elevator for up travel.
- Turn the adjustment screw of the relief valve (RV) until the manometer shows the correct pressure (about max. working + 8 bar).
- Lock the adjustment with lock nut.

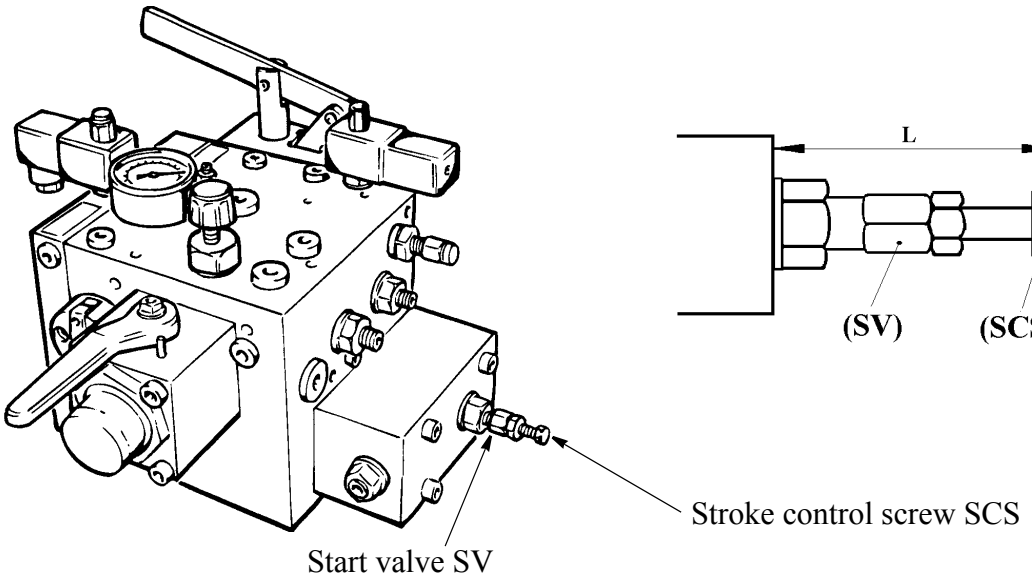
Hand pump

- Close the shut-off valve.
- Pump up the pressure with the hand pump and read the value from the manometer.
- Adjust the hand pump pressure screw if the value is less than the over pressure (the value must not exceed 2.3 times the full load static pressure).
- Lock the adjustment with lock nut.

Acceleration up

The start valve (SV) spring force must be adjusted so that the elevator has a comfortable acceleration.

Figure 3.



Tools:
- spanner 10 mm, 13 mm and 19 mm
- socket head wrench 5 mm

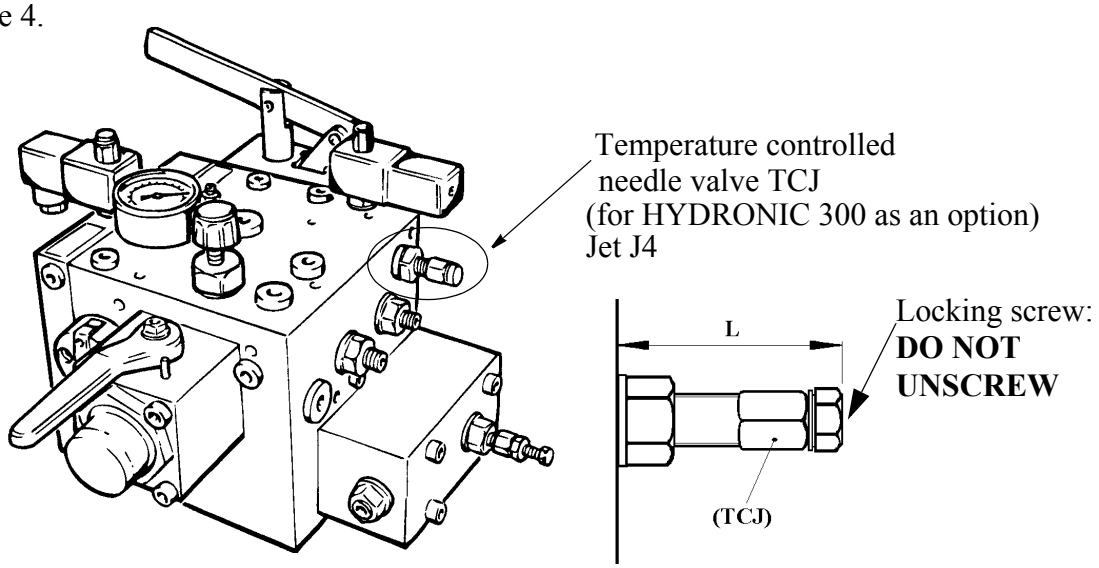
Adjustment of acceleration up:

- Measure the length L of the stroke control screw (SCS) (see picture).
- Start the elevator to up-direction and observe the acceleration.
- Turn the adjusting screw of the start valve (SV) **anti-clockwise**, if the acceleration is too hard, or **clockwise** if the acceleration is too slow.
- Lock the adjustment with lock nut.
- Re-adjust the stroke control screw (SCS) to the measured length L.
- Listen and make sure that the by-pass flow is completely stopped within 2.5....3 seconds.
  (If not, increase the acceleration up. Also check the by-pass pressure)

Deceleration up and down

Deceleration is controlled with TCJ (optional), which with J4 forms a needle valve.

Figure 4.



Tools:
- Spanner 13 mm e 19 mm

Reference dimension L is 40 mm

Adjustment of deceleration:

- Drive the elevator in up-direction and observe the deceleration and charge-over to the levelling speed.
- Turn the adjustment screw of TCJ **clockwise** to get a smoother deceleration and **anti-clockwise** for harder deceleration.
  (Attention: turn only 1/6 of a turn at a time; screwing the needle valve too far inwards can destroy the valve).
- Lock the adjustment with lock nut.

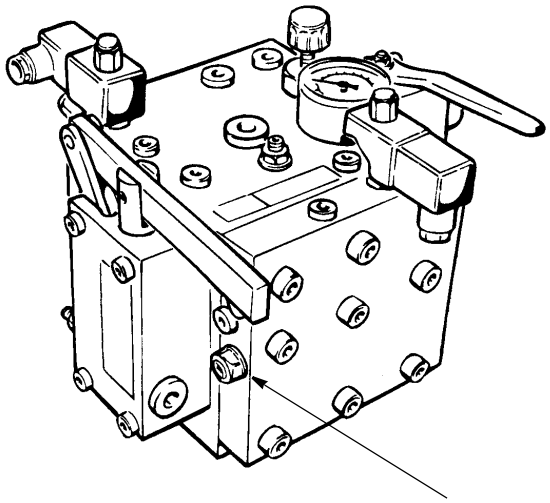
N.B. : The reference dimension L is 40 mm; little variations are possible, due to test performed in the factory

N.B. : ATTENTION! Pay attention not to unscrew the locking screw when regulating TCJ (see fig. 4): **the TCJ could be damaged!**

Nominal speed down

The adjustment of the pressure difference (DV2) for nominal speed in down-direction must be always. (Normally, the elevator speed has to be equal in both up and down direction).

Figure 5.



Pressure difference valve DV2

Tools:
- *Socket head wrench 6 mm*
- *Spanner 19 mm*

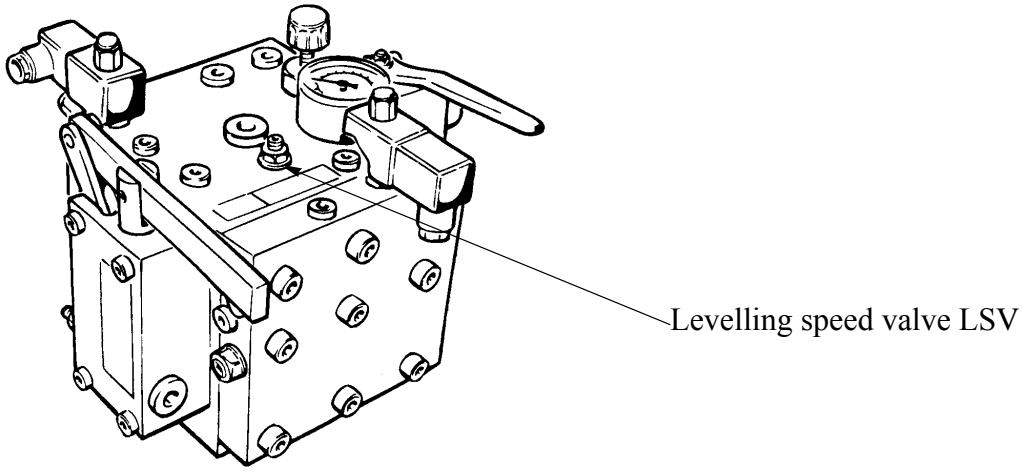
Adjustment of nominal speed down:

- Drive the elevator in up-direction and measure the elevator speed with a tachometer or a clock (stop-watch).
- Drive the elevator in down-direction and measure the speed as in up-direction. Compare the results.
- Turn the adjustment screw of the pressure difference valve **clockwise** for speed increase or **anti-clockwise** for speed decrease.
- Lock the adjustment with the lock nut.

Levelling speed

The levelling speed valve (LSV), which is common for the levelling speeds in both up- and down-direction, is pre-adjusted at the factory. therefore, only a fine-adjustment is carried out at the site.
The levelling speed must be adjusted so that the final stop is comfortable. As too low levelling speed can cause vibrations (stick-slip effect).

Figure 6.



Tools:
- Socket head wrench 4 mm
- Spanner 13 mm

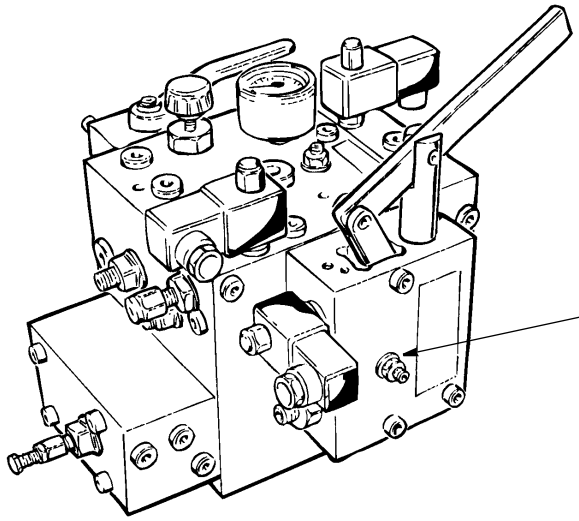
Adjustment of levelling speed:

- Turn the adjusting screw of the levelling speed valve **anti-clockwise** in order to gain a higher speed or **clockwise** for a lower speed.
- Check the levelling or **clockwise** for a lower speed.
- Lock the adjustment with the lock nut.

Service speed (only valid for HYDRONIC 300S)

The service speed valve (SSV), which is common for the service speeds in both up- and down-direction, is preadjusted in factory.
the service speed must not exceed 0,63 m/s.

Figure 7.



Tools:
- Socket head wrench 5 mm
- Spanner 13 mm

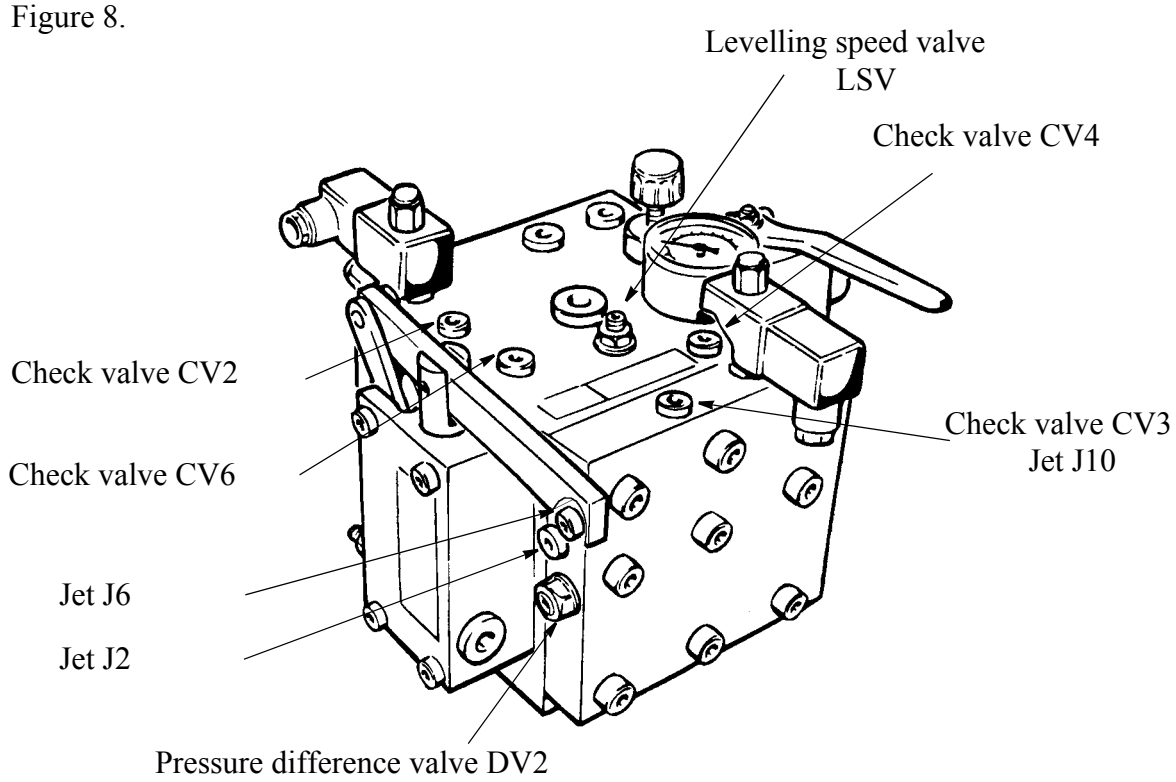
Adjustment of service speed:

- Turn the adjustment screw of the service speed valve (SSV) **anti-clockwise** in order to gain a higher speed or **clockwise** to reduce the speed.
- Check the service speed in both directions.
- Secure the adjustment with the lock nut.

N.B. : The service speed is obtained only activating the pilot valve 12:S

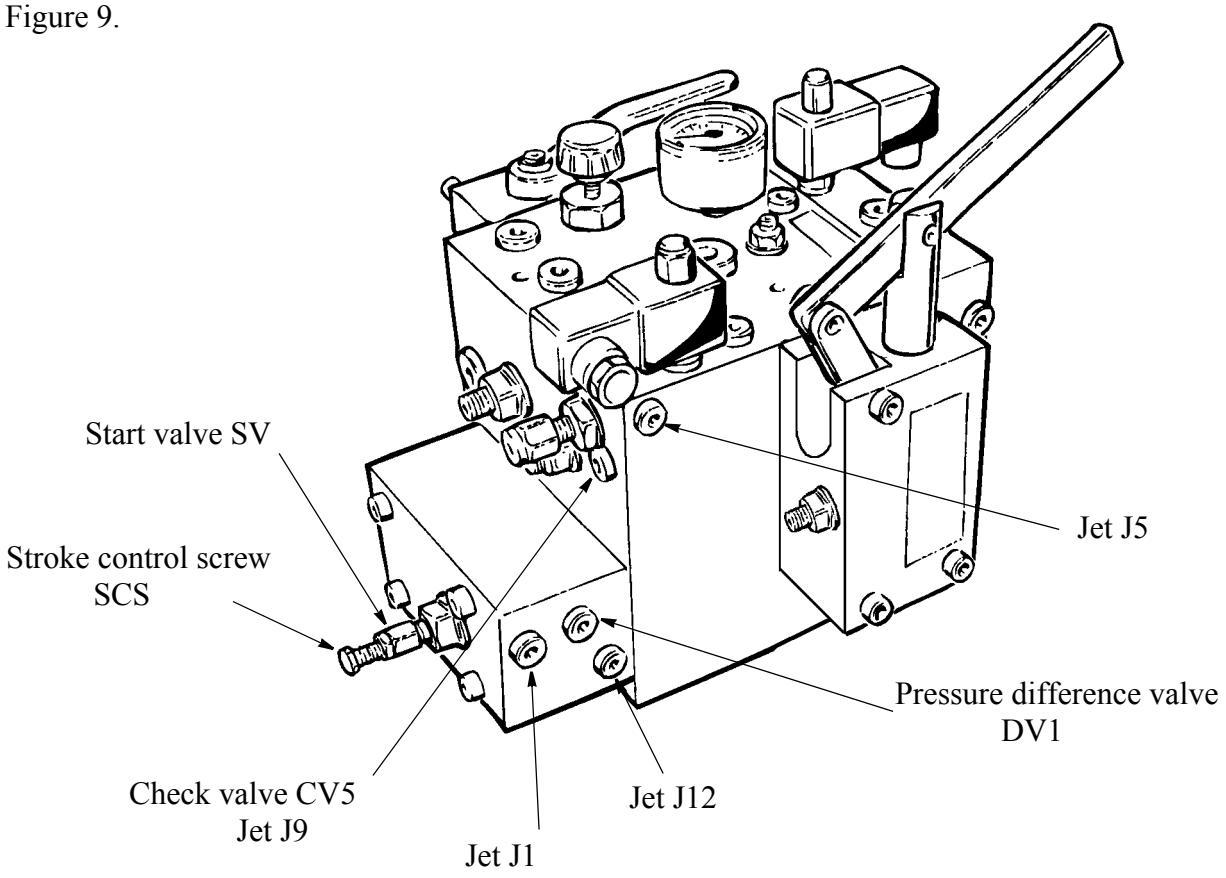
Valve details

Figure 8.



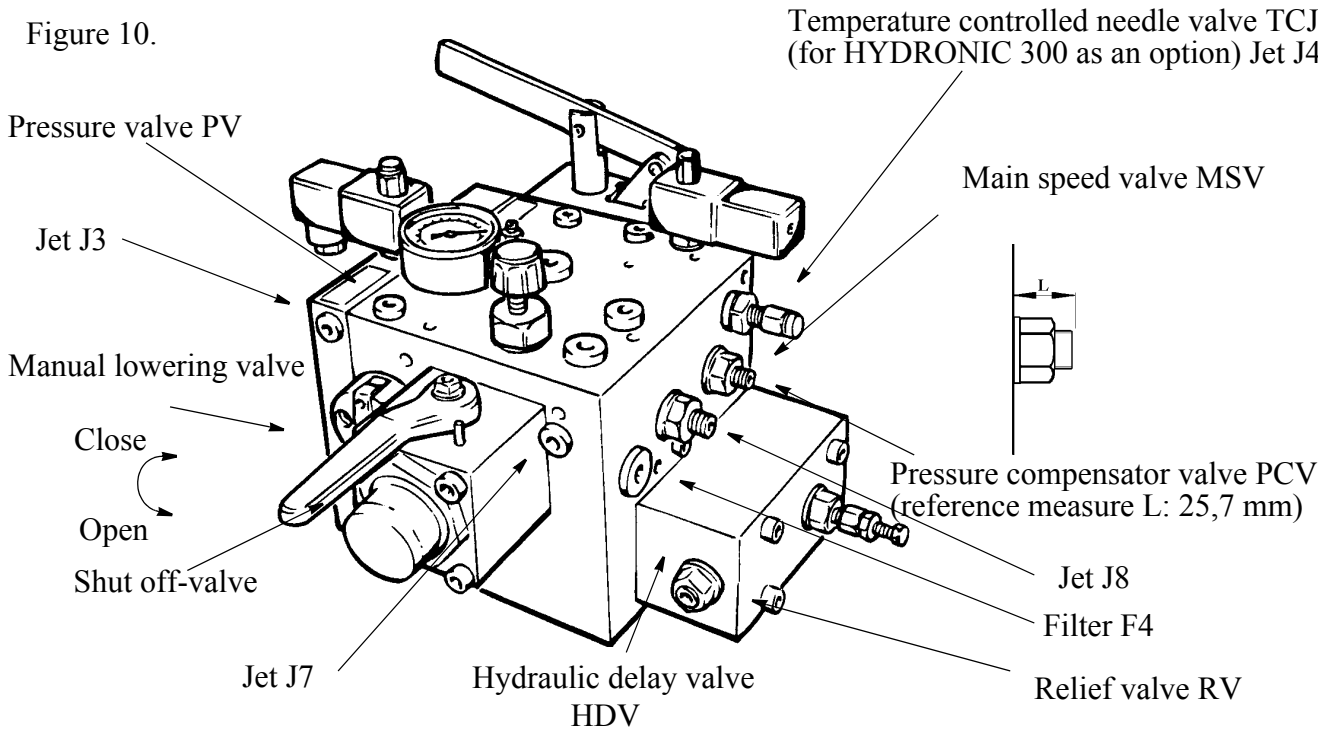
Jet J2	0,8 mm for all pump sizes. Placed under the plug
Jet J6	0,6 mm for all pump sizes. Placed under the plug
Jet J10	0,8 for all pump sizes. Placed under the plug
Check valve CV2	Placed under the plug
Check valve CV3	Placed under the Jet J10
Check valve CV4	Placed under the plug
Check valve CV6	Placed under the plug
Pressure difference valve DV2	Adjustment screw for elevator speed down
Levelling speed valve LSV	Adjustment screw for levelling speed

Figure 9.



Jet J1	0,8 mm for pump size 70 a 155 l., 0,6 mm for larger pumps. Placed under the plug.
Jet J5	0,8 mm for all pump sizes. Placed under the plug. Not used for 50 and 70 L/min pumps.
Jet J9	1,0 mm for all pump sizes. Placed under the plug
Jet J12	0,8 mm for all pump sizes. Placed under the plug
Check valve CV5	Placed under the Jet J9
Stroke control screw SCS	For adjusting of the by-pass pressure. preadjusted at the factory.
Start valve SV	Acceleration upwards is adjusted by means of the adjusting screw. Carried out the site.
Pressure difference valve DV1	Placed under the plug

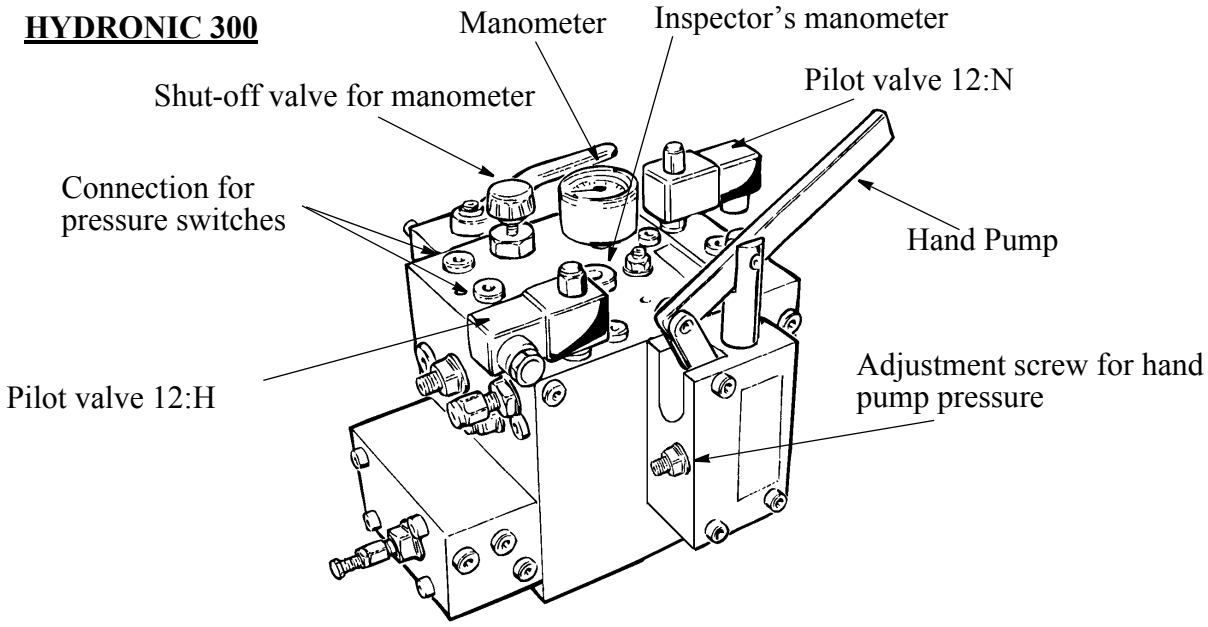
Figure 10.



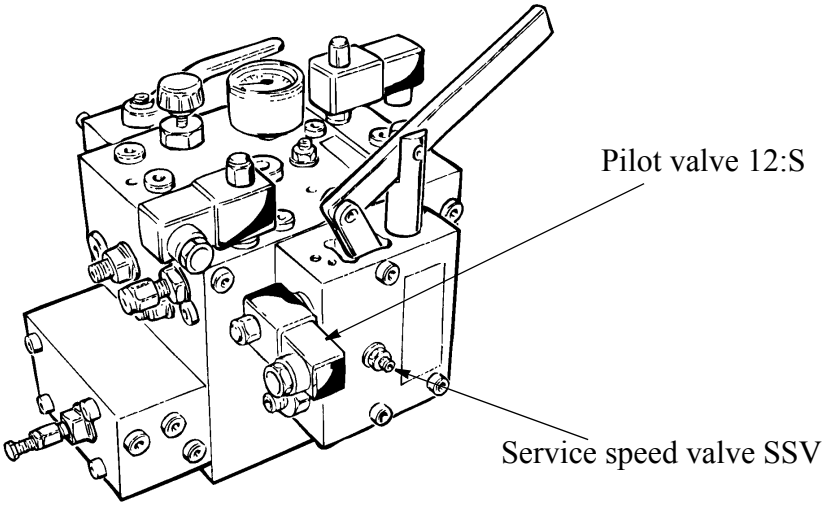
Jet J3	0,8 mm for all pump sizes. Placed under the plug.
Jet J4	1,0 mm for all pump size. Placed under TCJ. 0,8 mm for all pump sizes until 145 L/min , 0,7 mm from 172 to 270 L/min without TCJ . Placed under the plug.
Jet J7	0,8 mm for all pump size. Placed under the plug.
Jet J8	Only when required. For increasing the downward speed when loaded car.
Pressure valve PV	The valve spring has to be removed when unloaded cylinder is lowered. Placed under the plug.
Temperature controlled needle valve TCJ	Adjusting screw for acceleration down and deceleration up and down. To be adjusted at site.
Main speed valve MSV	The screw is adjusted to the correct value at the factory and should not required any adjustment at site.
Relief valve RV	The screw is adjusted to the correct pressure. at the factory and should not normally required any adjustment at site
Hydraulic delay valve HDV	Hydraulic delay valve for start in up travel.
Pressure compensator valve PCV	For testing the rupture valve screw clockwise, then set it to reference measure (25,7 mm). The screw is adjusted to the correct value at the factory and should not require any adjustment at site.

Figure 11.

HYDRONIC 300



HYDRONIC 300 S



Pilot valve 12:H	Pilot valve for speed in up and down travel
Pilot valve 12:N	Pilot valve for down travel
Pilot valve 12:S	Pilot valve for service drive
Service speed valve SSV	Adjusting screw for service speed in up and down travel

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MSV and PCV spool valves setup

The setup of these valves is done by the manufacturer during the power unit test; they don't require any further regulation. The following instructions are given only to check out and correct unwanted manipulations.

Spool valve PCV

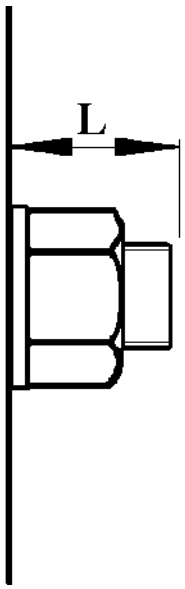
The setup for this spool valve is the same for all the power unit: the reference measure is 25.7 mm from H300 body (see fig. 10).

Spool valve MSV

This spool valve is regulated as follows:
Take away the locking nut and screw the regulation screw inward until it stops (it stands out from the H300 body for about 8 mm) then unscrew it out for the measure indicated in table 1. which is function of power unit oil flow.
The final dimension L is the sum of the (about) 8 mm, plus the measure indicated in table 1. Lock the screw with the locking nut: be careful not to rotate the screw while tightening the nut! Check again the dimension L after tightening the locking nut.

Table 1

Pump flow (L/min) 50 Hz (60 Hz)	Measure (mm)
50 (70)	7.5 (9)
70 (96)	9 (11)
96 (115)	11 (12)
115 (125)	12 (13)
125 (145)	13 (15)
145 (172)	15 (10,5)
172 (210)	10,5 (12)
210 (270)	12 (15)
270 (only 50 Hz for H300)	15 (-)



HYDRONIC LIFT

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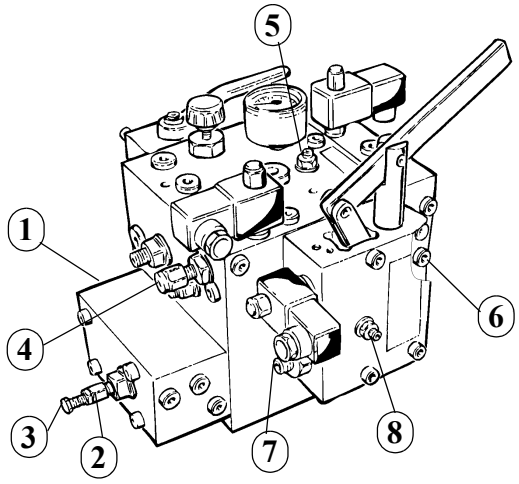
INSTRUCTION FOR ADJUSTMENT

	Elevator movement	Change	Procedure	Remarks
UP	Acceleration	Slower	Screw 2	
		Faster	Screw 2	
	Elevator speed			Not adjustable
	Deceleration up and down	Softer	Screw 4	1/6 turn at time
	Levelling speed	Increased	Screw 5	Common for up and down. Normally c:a 0,05 m/sec
		Decreased	Screw 5	
	Stop	Levelling	Adjusted with shaft vane	Vane ~ 30 mm from floor level
DOWN	Acceleration			Not adjustable
	Elevator speed	Increased	Screw 6	Normally equal with speed in up direction
		Decreased	Screw 6	1/6 turn at time
	Deceleration up and down	Softer	Screw 4	
	Levelling speed	Increased	Screw 5	Common for up and down. Normally c:a 0,05 m/sec
		Decreased	Screw 5	
	Stop	Levelling	Adjusted with shaft vane	Vane ~ 30 mm from floor level
Over pressure		Higher pressure	Screw 1	Adjusted to max. working pressure + 8 bar
		Lower pressure	Screw 1	



1. Adjustment screw for over pressure
2. Adjustment screw for acceleration up
3. Adjustment screw for by-pass pressure
4. Adjustment screw for deceleration up and down (for HYDRONIC 300 as an option)
5. Adjustment screw for levelling speed up and down
6. Adjustment screw for elevator speed down
7. Adjustment screw for hand pump pressure
8. Adjustment for service speed (only when HYDRONIC 300S)