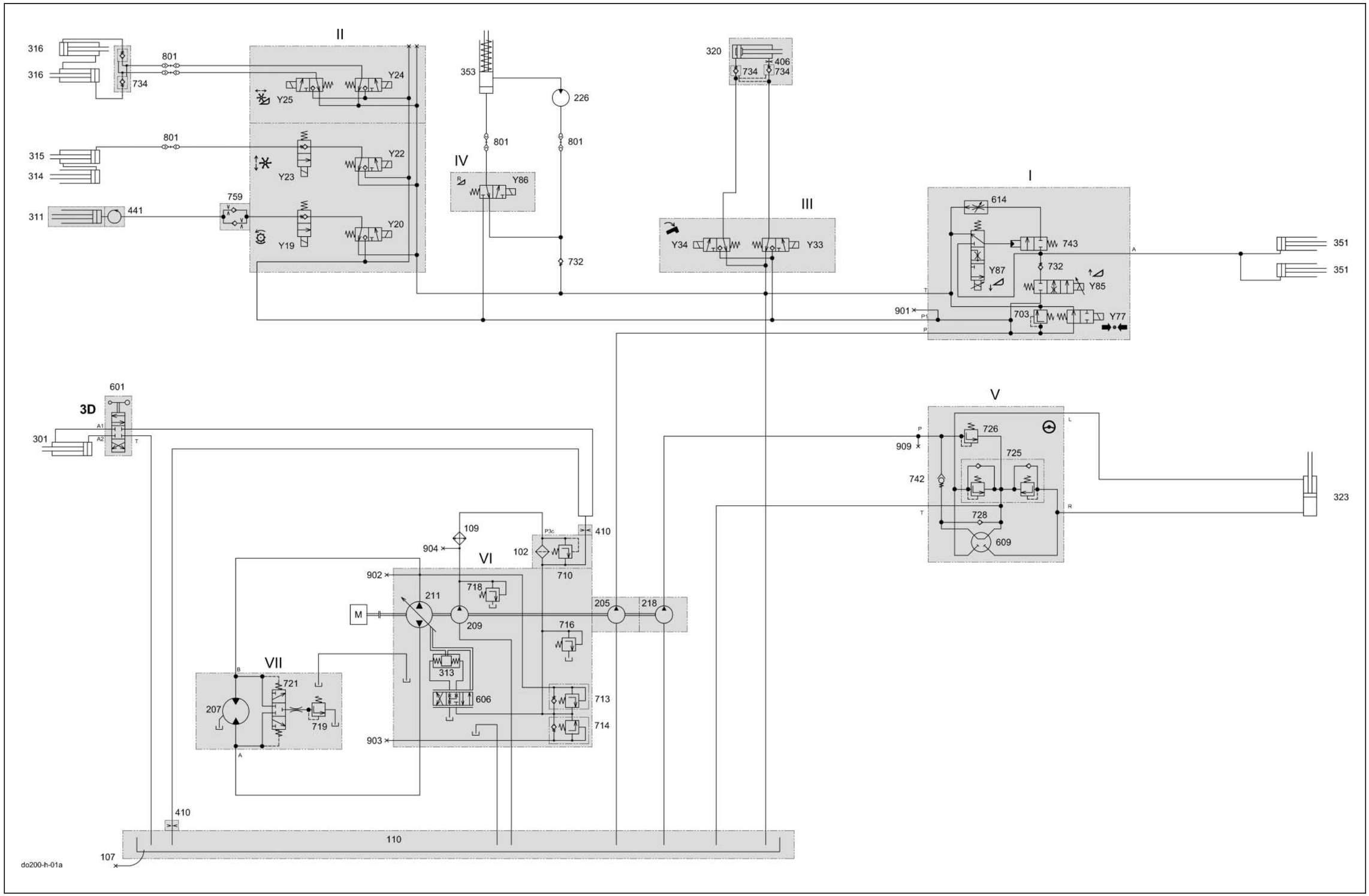
Contents

1.1

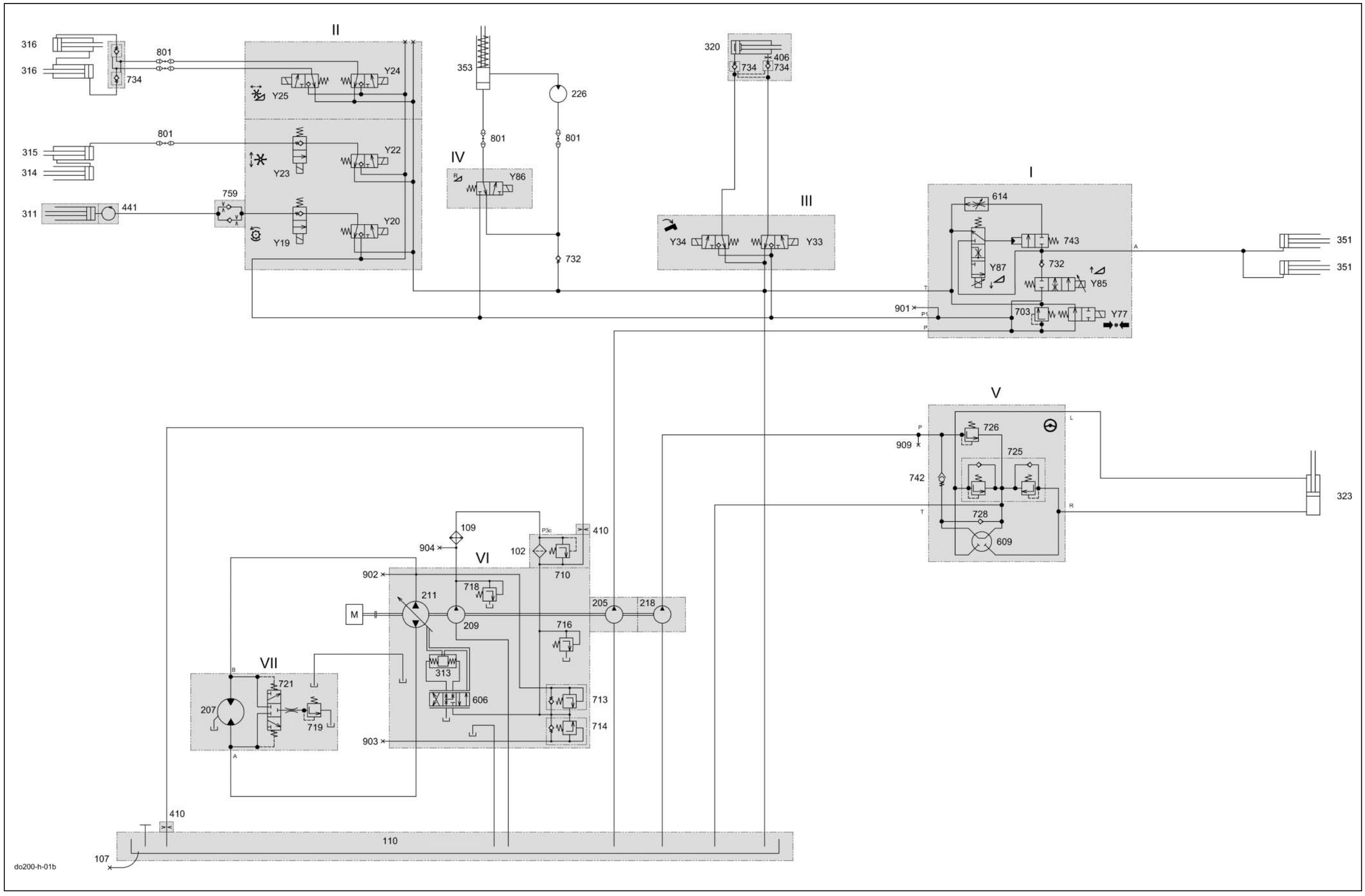
Overall hydraulic system circuit diagram

with 3D sieve pan

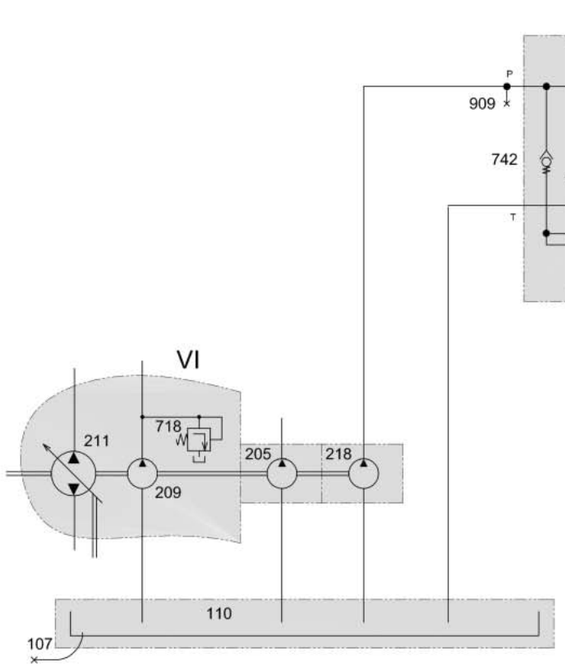
1.1 Overall hydraulic system circuit diagram with 3D sieve pan



1.2 Overall hydraulic system circuit diagram without 3D sieve pan



2.1 Steering hydraulics circuit diagram



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Key to diagram:

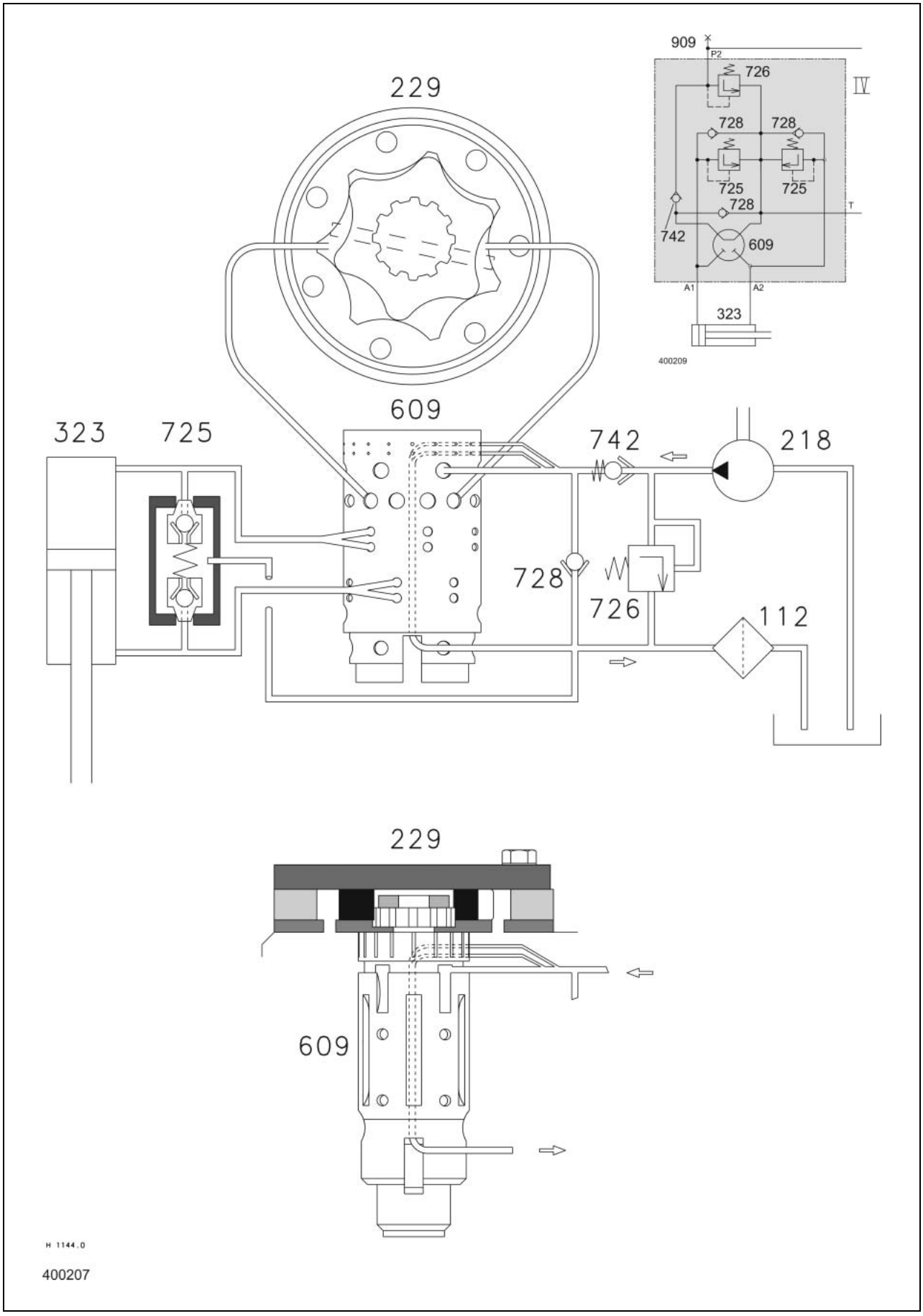
V	Orbitrol steering hydraulics
VI	Ground drive hydraulics hydrostatic pump
107	Oil drain
110	Oil tank
205	Working hydraulics pump
209	Ground drive feed pump
211	Ground drive variable displacement pump
218	Steering hydraulics pump
323	Steering hydraulic cylinder
609	Orbitrol steering system rotary valve
718	Ground drive feed circuit cold start injector ..... 25 bar
725	Steering double shock valve ..... 150^{+15} bar
726	Steering pressure relief valve ..... 90^{+5} bar
728	Anti-cavitation valve (non-return valve)
742	Steering safety valve
909	Steering hydraulics measuring point

Pressure measurement :

Neutral circulation pressure = < 20 bar
System pressure = 90^{+5} bar
Shock valve = 150^{+15} bar

Note: These values refer to measurements made at the max. no-load speed of the diesel engine and a hydraulic oil operating temperature of approx. 60°C.

2.2 Steering valve unit



Description of function:

Steering actuation

When actuating the steering to one or another direction, the Orbitrol rotary disc (609) is rotated by up to 8° relative to the outside spool. During this process, the return line from the steering hydraulics pump (218) to the tank is closed and the connection to the steering hydraulics proportioning pump (229) is released.

Via the steering hydraulics proportioning pump (229) and the Orbitrol rotary disc (609), the volume flow is released as a function of the sense of rotation, path and speed of steering wheel motion to the ram or the ram ring surface of the steering hydraulic cylinder (323). Here, the displacing surface of the steering hydraulic cylinder (323) is connected with the return line to the tank via the Orbitrol rotary disc (609).

As soon as there is no more steering motion, leaf springs bring the outer rotary disc of the Orbitrol rotary disc (609) back to neutral position. Now both sides of the steering cylinder are shut off again and the connection from the steering hydraulics pump (218) to the tank is re-established.

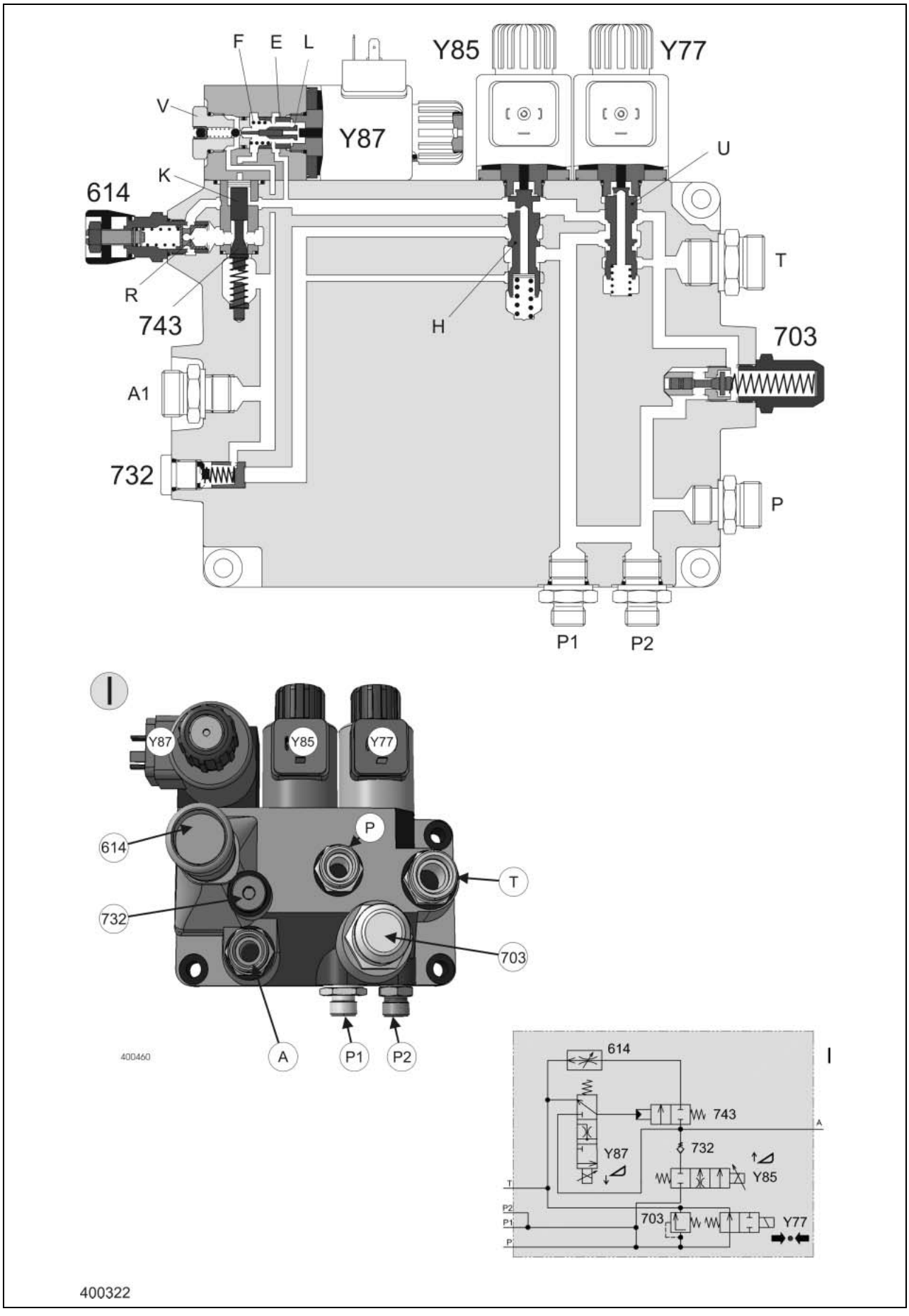
Emergency steering

When the steering system is not supplied any more by the steering hydraulics pump (218), the steering safety valve (742) closes and thus ensures that no oil will escape from the steering system.

When the steering is actuated, the inner and outer disc of the Orbitrol rotary disc (609) are rotated relative to each other. Now the oil can be conveyed from one side of the steering hydraulic cylinder (323) via anti-cavitation valve (non-return valve) (728) to the other side through human power by the drive of the steering hydraulics proportioning pump (229).

3.2 Main valve

with master valve, pressure relief valve, raise/lower front attachment



Description of function:

Flow control valve

When the "Lower front attachment – fast" function is used, the oil displaced via port A flows to the tank (T) through the restrictor in the control spool of the flow control valve (614).
This creates a ram pressure ahead of the control spool, making the latter move against the control spring and restrict the return channel to the tank (T) as a function of the load pressure.
When the load pressure in port A changes, both the volume flow through the restrictor and the load pressure against the control spool change, too, and consequently also the return channel cross-section.
This control function keeps the volume flow and therefore the front attachment drop rate constant, independent of the load pressure.
The front attachment drop rate is adjusted merely by the pre-stress of the control spring at the handwheel.

Relieve tension of control spring = lower drop rate
Tensioning the control spring = increase drop rate

Key to diagram:

II	Front attachment / threshing drum variator working hydraulics valve block
311	Threshing drum variable-speed drive hydraulic cylinder
314	Reel raise/lower slave cylinder
315	Reel raise/lower master cylinder
316	Horizontal reel adjustment hydraulic cylinder
441	Rotary coupling
759	One-way restrictor valve, two-sided
801	Quick release coupling
Y19	Threshing drum variable-speed drive slow solenoid valve
Y20	Threshing drum variable-speed drive fast solenoid valve
Y22	Reel raise solenoid valve
Y23	Reel lower solenoid valve
Y24	Reel forward solenoid valve
Y25	Reel reverse solenoid valve

Description of function:

Neutral	The hydraulic cylinders are tightly closed by the valve insert of solenoid valve (Y23).
Raise reel	The solenoid valve (Y22) and the master valve (Y77) are actuated at the same time. The corresponding pilot spool opens the ball in the valve insert and closes the return line to the tank. The pressure P1 which consequently rises opens the valve insert of the unactuated solenoid valve (Y23) and the oil flows to the consumer port A2.
Lower reel	Solenoid valve (Y23) is actuated without the master valve (Y77). The pilot spool in question opens the ball in the valve insert and thus relieves the oil pressure to the tank via the valve insert of the unactuated solenoid valve (Y22).

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Y25	Reel reverse solenoid valve

Description of function:

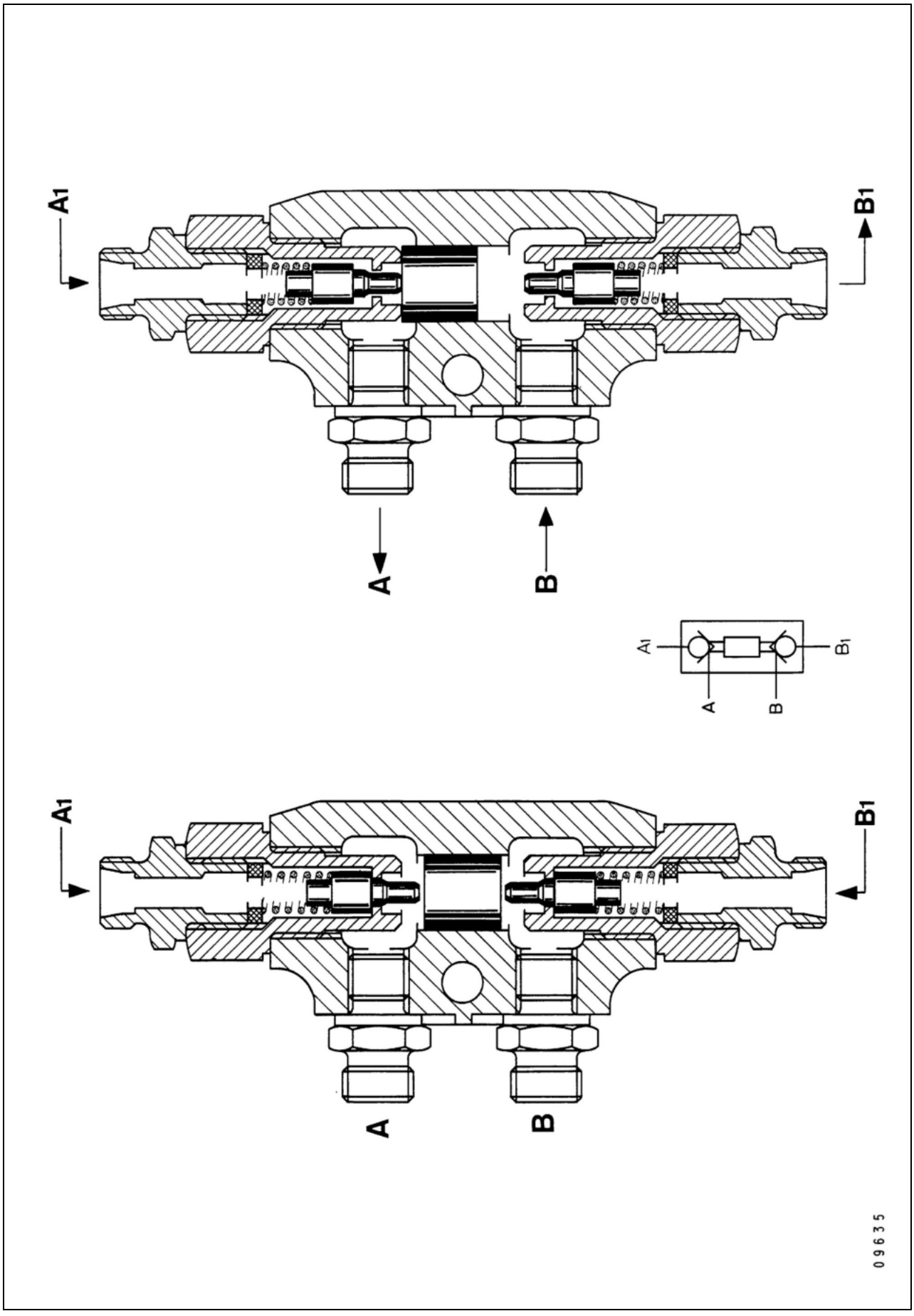
Neutral

Both sides of the hydraulic cylinder are tightly closed by the lock-up valve unit (734).

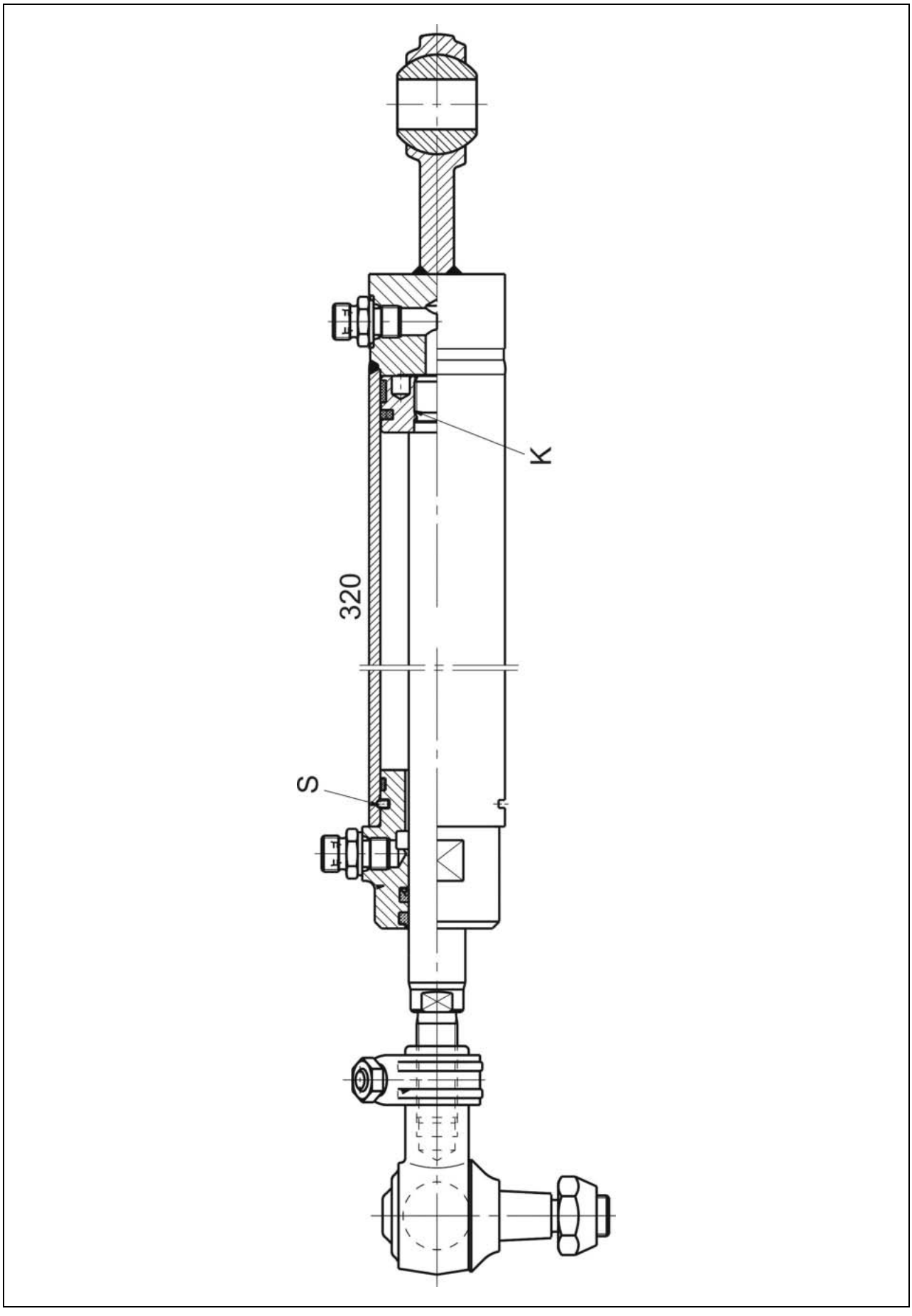
Reel forward / reverse

Depending on the necessary direction of movement, one of the solenoid valves (Y24/Y25) and, at the same time, the master valve (Y77) is actuated. The corresponding pilot spool opens the ball in the valve insert and closes the return line to the tank. The pressure which consequently rises builds up against the ram in lock-up valve unit (734) and thus unlocks the return line to the tank in the opposite port.
The return line of the hydraulic cylinder is relieved to the tank via the valve insert of the unactuated solenoid valve (Y24/Y25). The pressure rising further now opens the lock-up valve unit (734) on the pressure side and the hydraulic cylinders are retracted or extended.

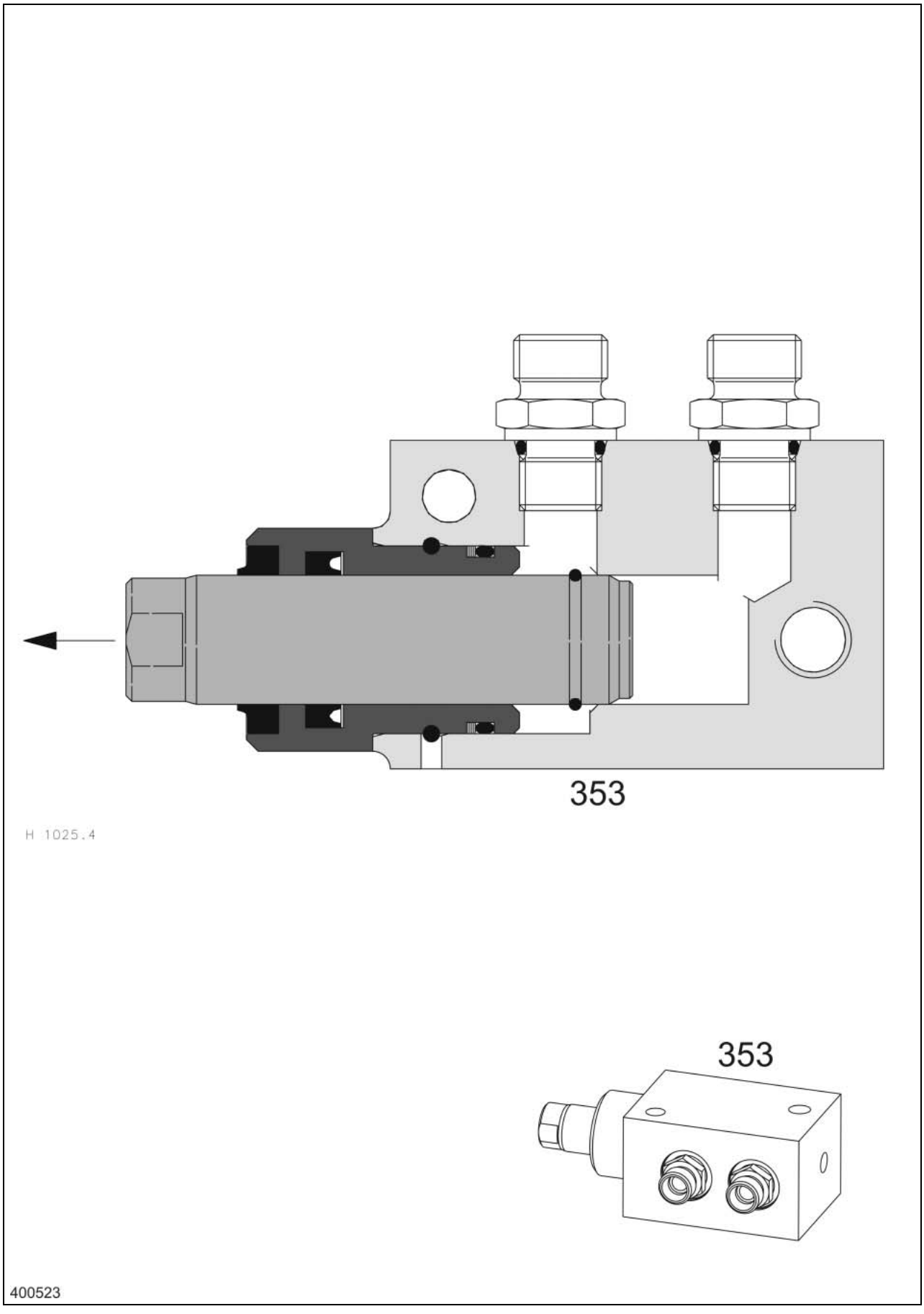
Horizontal reel adjustment
Lock-up valve unit (734)



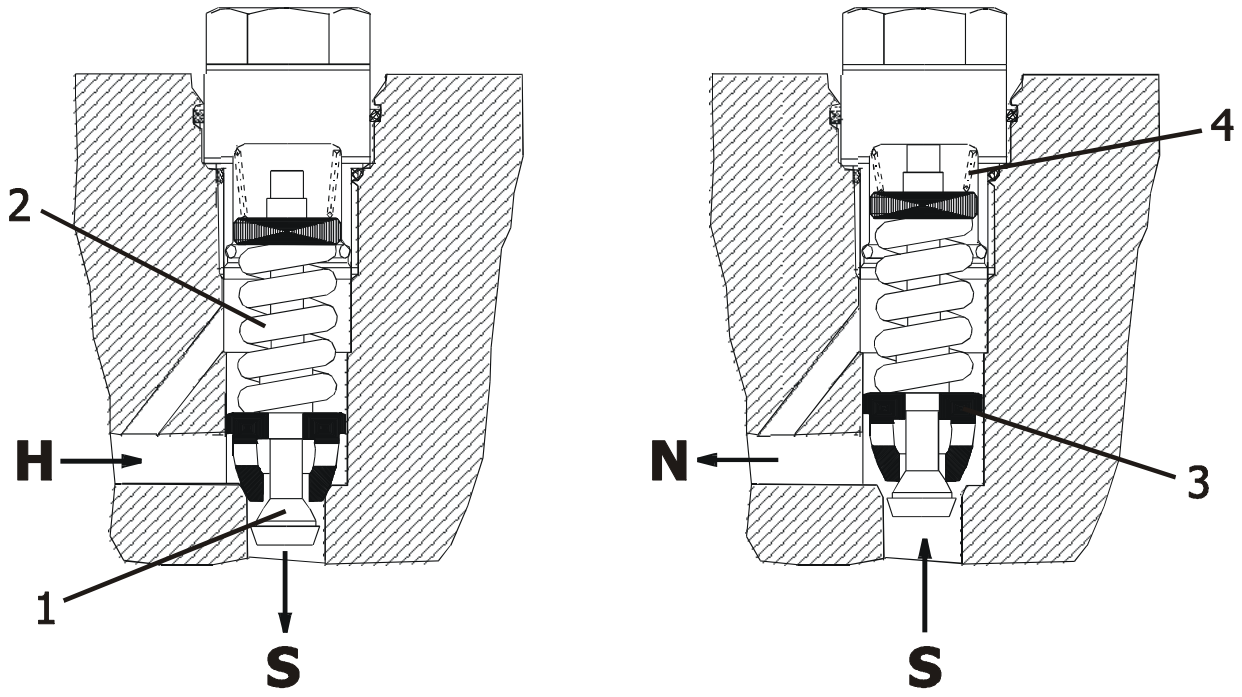
Swinging the grain tank unloading tube
Hydraulic cylinders



Reverse front attachment
Hydraulic cylinders



4.4 Ground drive multi-function valve



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