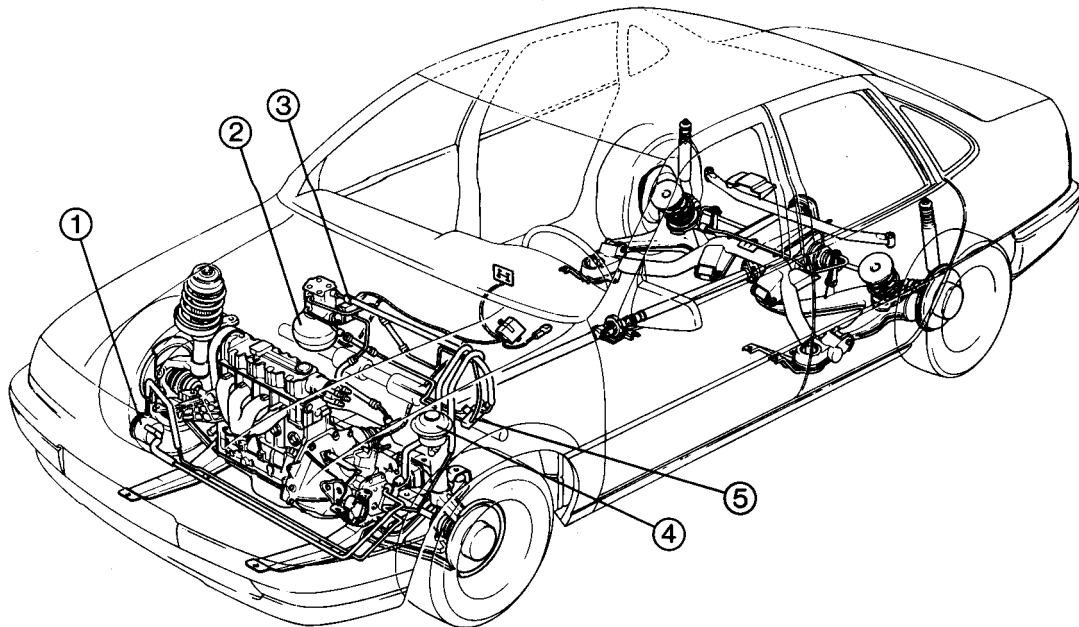


Hydraulic system for the all-wheel separation



- | | |
|---|--|
| 1 oil pump for power steering | 4 oil reservoir for power steering and separator piston of the transferbox |
| 2 oil pressure controller with hydraulic accumulator (H31-system) | 5 steering gear |
| 3 control valve | |

In the Vectra A / Cavalier / Calibra 4x4 a newly developed safety system (with the deceleration of the vehicle) is controlled hydraulically by oil pressure of the pump of the power steering.

The hydraulic circuit for the power steering a small quantity of oil is branched off by means of oil pressure automatic controller (H31 system) and supplied to the hydro pneumatic accumulator. Thus the hydro pneumatic accumulator, without impairment of the power steering, is loaded.

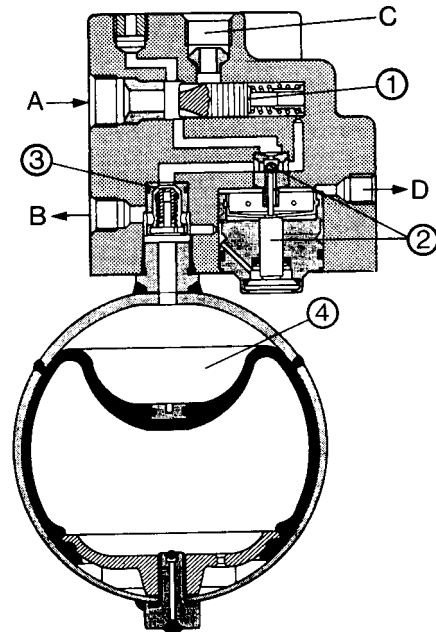
Via an electrically operated control valve the pressure ram of the multiple disk clutch in the transferbox is operated for switching on and off the all-wheel drive.

Oil pressure controller with hydraulic accumulator (H31-system)

The oil flow (A) arriving from the pump of the power steering by the throttle valve (1) one structures and one supplies by way of switching valve (2) and check valve (3) the hydro pneumatic accumulator (4).

The major part of the delivered flow quantity of oil is supplied to the link (C) of the power steering passing the throttle valve.

If in the hydro pneumatic accumulator (4) upper response pressure is achieved, over an appropriate controlling of the throttle valve (1) the entire oil delivered flow is made available to the power steering.



- A** = from the oil pump power steering to the oil pressure controller
- B** = from the hydro pneumatic accumulator to the control valve
- C** = from the oil pressure controller to the power steering
- D** = from the oil pressure controller to the oil reservoir

● Important

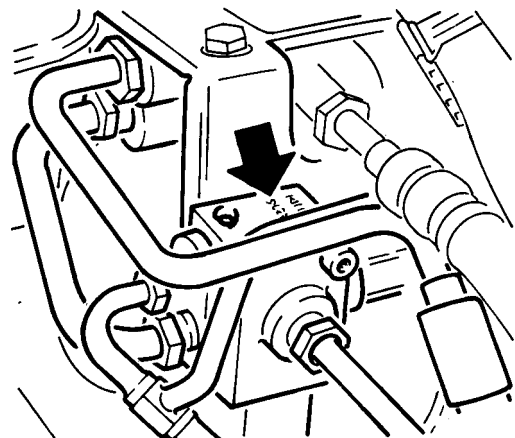
In the case of ignition switched on don't "play" with the brake pedal (press, detach, press,...) because otherwise the accumulator will unload and the control pressure of the pressure ram collapses!

Thus the contact pressure of the multiple disk clutch is too low in the transferbox and the clutch can grind through!

Control valve

The control valve (arrow) is installed at the handle for the oil pressure controller with hydro pneumatic accumulator. It is an electrically operated 2/3 way-valve.

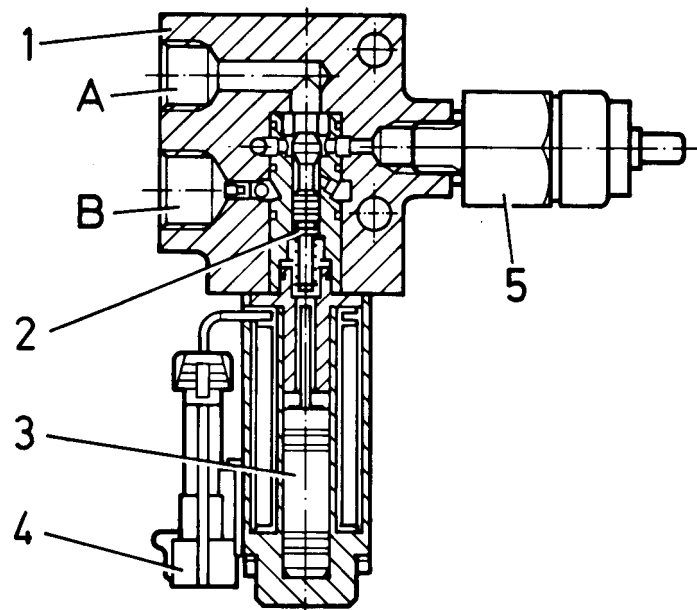
In the unstressed status the hydraulic cylinder space is connected with the return pipe and the oil pressure supply from the hydro pneumatic accumulator is concluded.



- The multiple disk clutch is detached, the all-wheel drive switched off.

If the control valve receives voltage by the ECU, the return is locked and the hydro pneumatic accumulator is connected with the hydraulic cylinder space.

- multiple disk clutch is applied
- permanent all-wheel drive is switched on



- | | |
|------------------------------|---|
| 1 valve housing | 5 pressure switch |
| 2 valve pistons | A link for return pipe |
| 3 electromagnet | B link of the hydro pneumatic accumulator |
| 4 electrical plug connection | |

In this sectional view the link to the transferbox is invisible.

The control valve is supplied with voltage and at the same time its function is monitored both by the ECU.

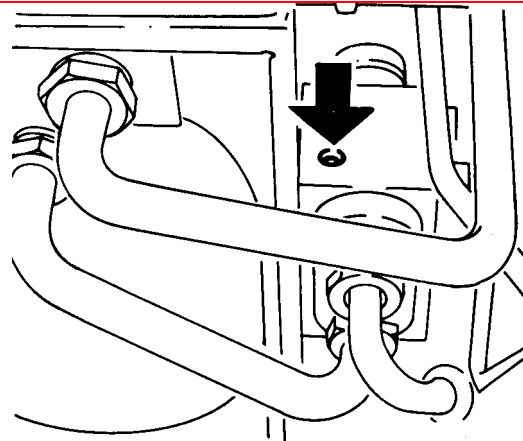
In driving the control valve is constantly provided with voltage, except during operation of the brake pedal at a rate over 25 km/h.

With halted engine the control valve is de-energized. For a soft application of the multiple disk clutch while driving provides a hydraulic throttle, which is in the control valve.

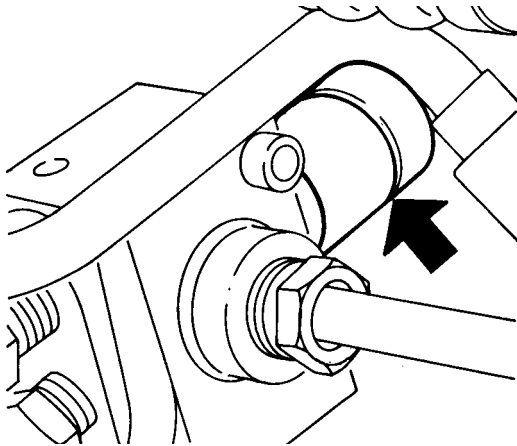
● **Service**

A hexagon socket screw (arrow), attached in the control valve, serves for the air vent of the complete hydraulics - all-wheel drive and power steering. This hexagon socket screw must be opened approx. 3 revolutions and the engine should run for approx. 10. 15 minutes.

● Hydraulic system airs out itself.



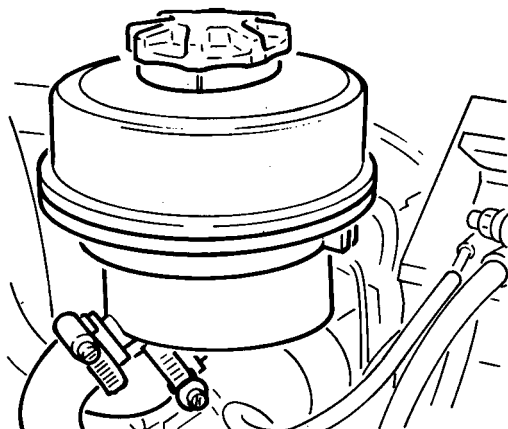
Pressure switch



The pressure switch (arrow), screwed in the control valve, controls the hydraulic system pressure between control valve and multiple disk clutch. With rising pressure the electrical contact opens.

The pressure switch signals to the ECU whether the necessary hydraulic pressure for the operation of the multiple disk clutch is available.

Oil reservoir



Because of the quantity of oil in the hydraulic system, larger with the all-wheel drive, and the occurring volume fluctuations by the hydro pneumatic accumulator with these vehicles an increased oil reservoir is inserted in relation to the normal power steering.