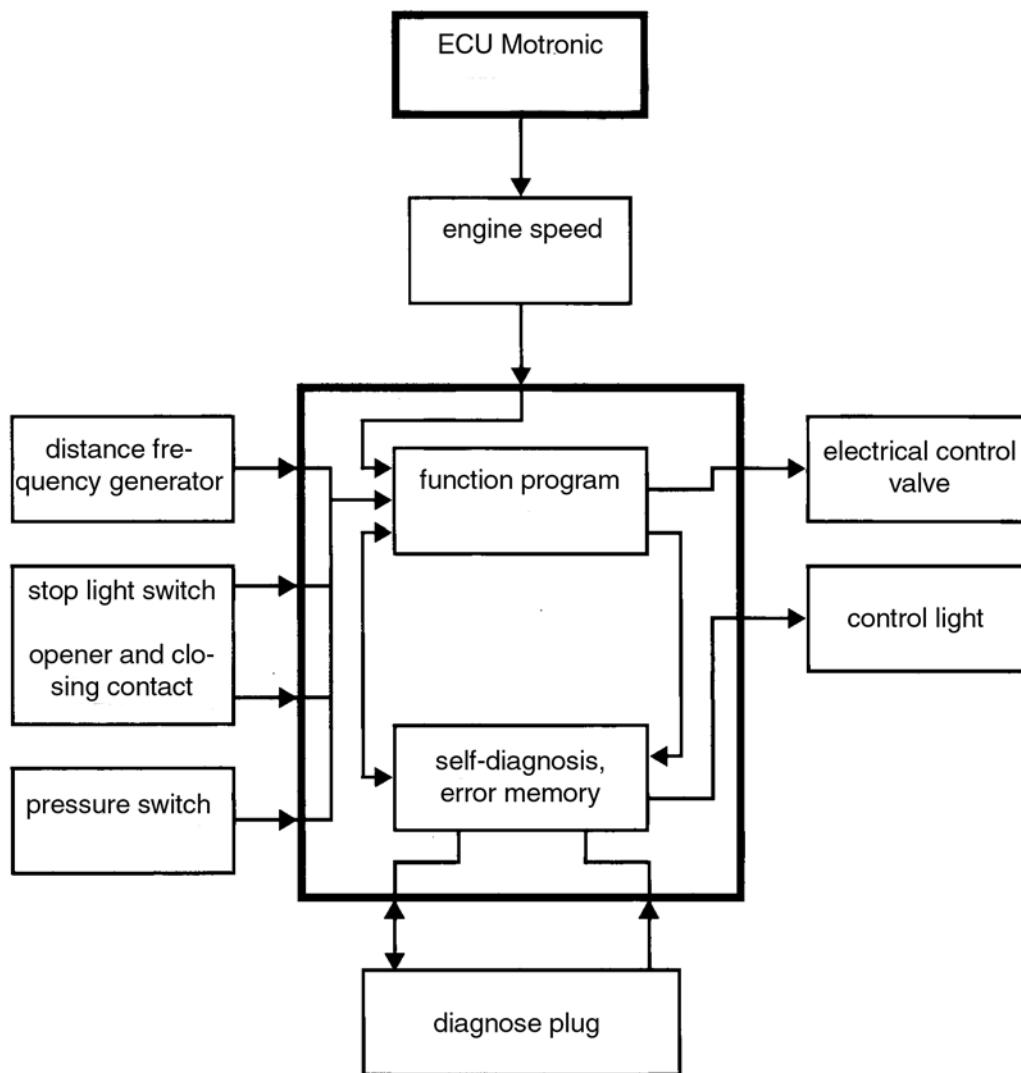


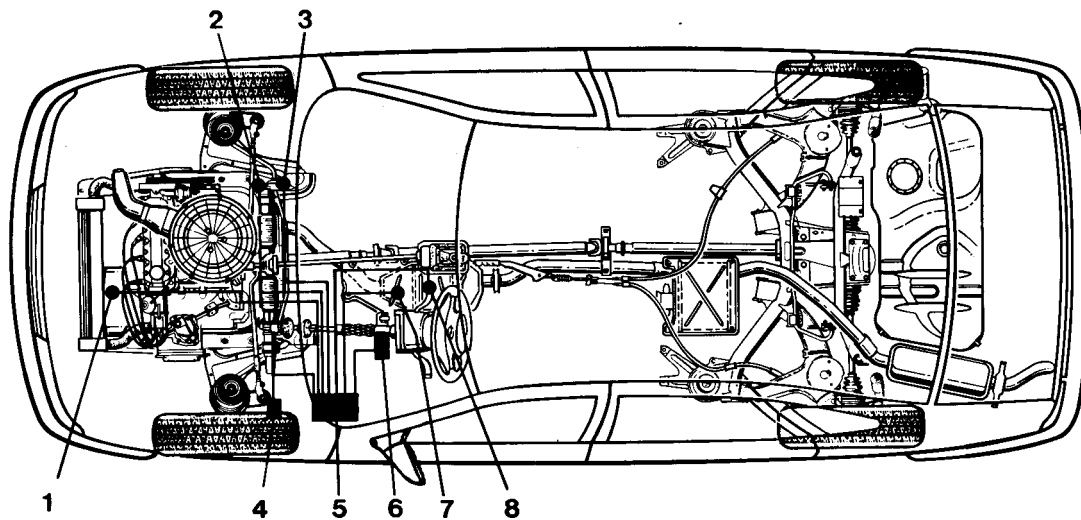
Electronic components

**Block diagram electronics until model year 1994**



With the transferbox electronic components are needed for the controlling of the multiple disk clutch during brake operations.

**Pattern chart: all-wheel drive**

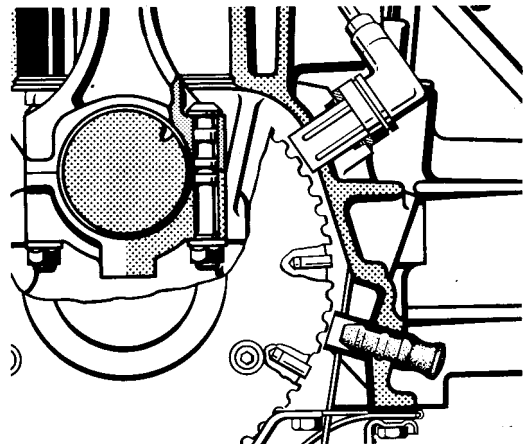


- |   |                                |
|---|--------------------------------|
| 1 pulse generator for engine speed signal | 5 ECU                          |
| 2 control valve                           | 6 distance frequency generator |
| 3 pressure switch                         | 7 stop light switch            |
| 4 diagnose plug (ALDL)                    | 8 all-wheel control light      |

**Inductive pulse generator**

The inductive pulse generator is necessary for the determination of the RPM and their report to the ECU.

It sits laterally, in direction of travelling in front, in the engine block. The generator disk consists of a toothed washer, which is fastened on the crankshaft.



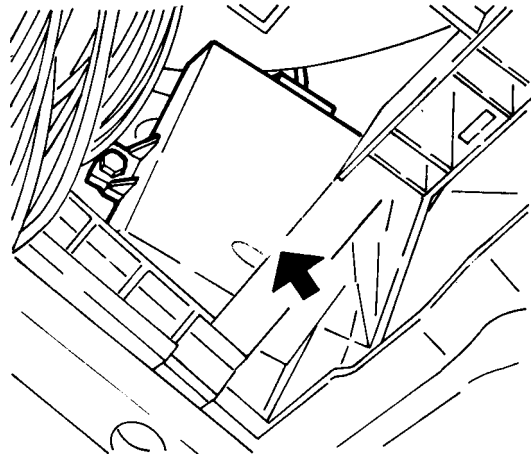
**Control valve and pressure switch**

Structure and method of operation are described under "Hydraulic system for the all-wheel separation".

### ECU

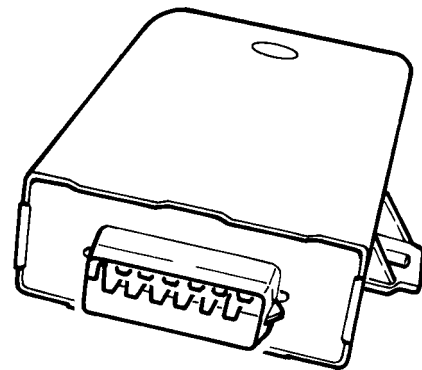
The ECU is attached on the left side under the instrument panel.

It is responsible for switching all-wheel drive to normal front wheel drive with brake applications over 25 km/h. Thus the disconnection of the rear axle by the transfer-box is initiated.



Also during the engine stoppage, i.e. engine speed  $< 500 \text{ min}^{-1}$  in dependency of the brake, a separation of the all-wheel drive is made.

Additionally the ECU monitors the reaching and leaving signals on plausibility. In the event of an error the ECU switches to front wheel drive and the all-wheel symbol in the instrument panel switches on or flashes. The determined error is stored as error code in the error memory.



#### ● Service

The error code in the error memory can be picked out using of KM-640 as flashing code or with TECH 1.

### Distance frequency generator

The distance frequency generator is on Vectra / Cavalier 4x4 with LCD instrument at the transmission, on Vectra / Cavalier 4x4 with mechanical speedometer (analogue instrument) in the speedometer.

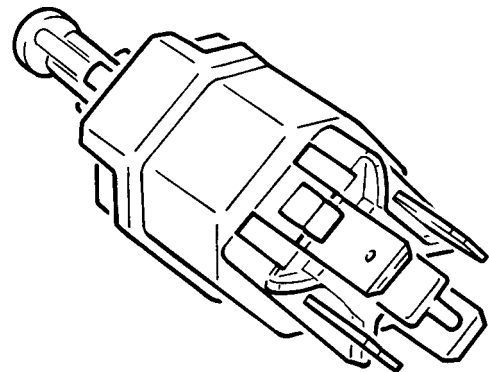
The square wave signal, produced by the distance frequency generator, whose frequency rises proportionally to the vehicle rate, is taken up by the ECU and converted into the momentary vehicle rate.

### Stop light switch

In the vehicles with all-wheel drive a combined stop light switch - dual switch is used.

During operation of the brake the stop light switch interrupts pedal the connection to the ECU.

At a rate over 25 km/h the all-wheel drive is separated by the hydraulic multiple disk clutch.



After the brake applications (brake pedal again in resting position) the grip to the rear axle is re-established immediately by the multiple disk clutch, i.e. the all-wheel drive is again in function.

### All-wheel control light (all-wheel symbol)

#### ● Service

In the case of a disturbance at the all-wheel drive, the all-wheel control light lighting up or flashing in the instrument panel displays this immediately.