Speedometer

Information on speed is generated in TCS or ESP active wheel speed sensor (rear left on petrol cars and front left on diesel). The TCS/ESP control module converts the speed signal (48 pulses/rev) to wheel speed.

The speed signal is transmitted as rpm on the P-bus and is converted by the engine control module to vehicle speed after allowing for the programmed tyre dimension.

The engine control module (ECM) transmits the vehicle speed on the P-bus. CIM forwards the vehicle speed to the I-bus. The main instrument unit shows the vehicle speed on the speedometer. The control module transmits the vehicle speed on the I-bus, where information is made available to all the control modules.

Programming the speedometer

The TCS or ESP control module reads 48 pulses per wheel revolution. Depending on the tyre and wheel dimension (physical circumference), one kilometre will correspond to a different number of pulses when the engine control module receives the value from the TCS or ESP control module. It is possible to change how the engine control module interprets the total number of pulses per kilometre so that it corresponds to the current tyre dimension on the car. Programming is required so that the speedometer and odometer will provide the driver with the correct information. On many markets, it is a legal requirement that the value shown by the speedometer is between 0 and 10 km/h too high.

Location

Wheel speed sensor, rear left (298RL)

Main use

To send wheel speed to the TC/ABS or ESP unit.

Type

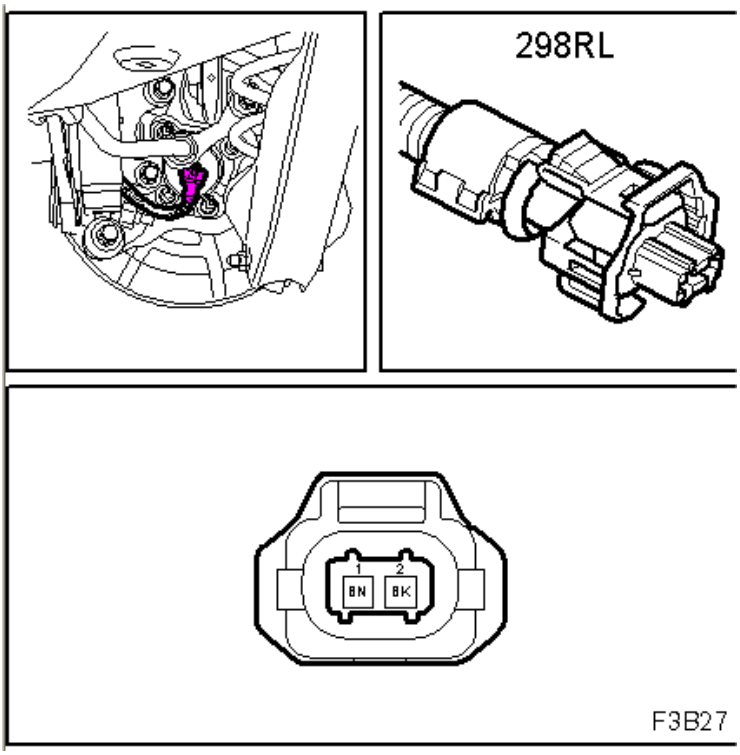
Two Hall sensors which measure wheel speed using a 48-pole magnetic disc, which provides 48 pulses per rotation.

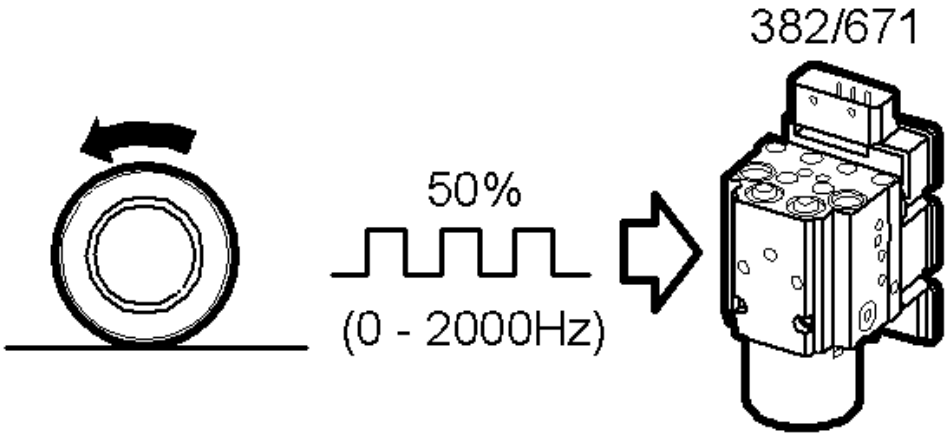
The Hall sensor sends a square pulse with a 50% pulse-rate.

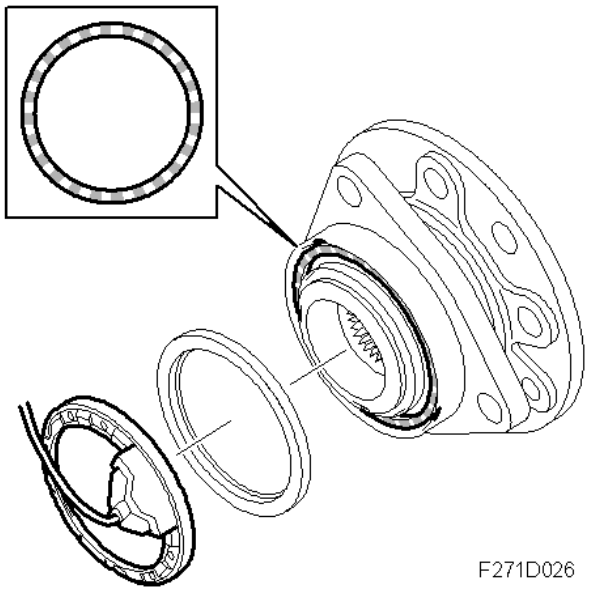
The control module uses the frequency to calculate wheel speed; by measuring variation in current consumption, the frequency can be measured. The frequency increases with a corresponding increased wheel speed from 0 to 2000 Hz.

Connection (not for control module)

Pin no.	Type of signal	Description
1	Power supply	From TCS/ESP control module
2	Signal	Approximately +0.85 and + 1.85 V with the sensor connected


298RL
2
BN
BK
F3B27


382/671
50%
(0 - 2000Hz)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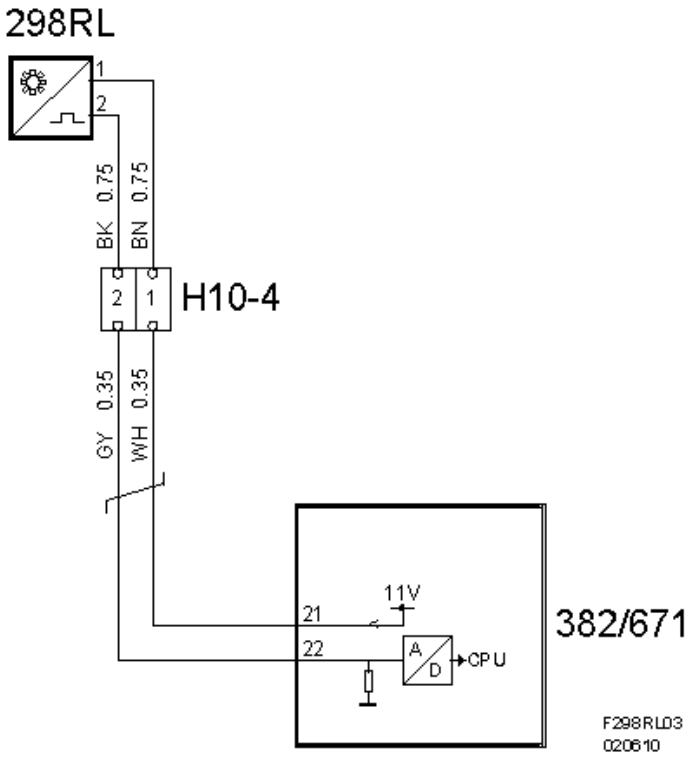
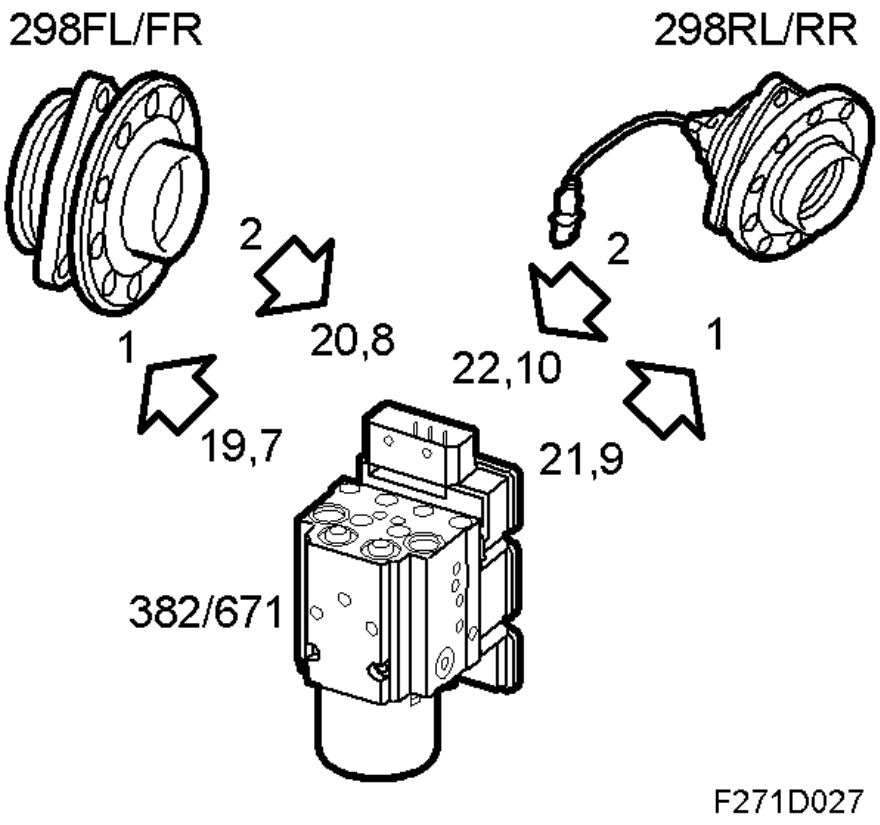

298RL
1
2
BK 0.75
BN 0.75
2
1
H10-4
GY 0.35
WH 0.35
11V
21
22
A
D
CPU
382/671
F298RL03
020610


298FL/FR
298RL/RR
2
2
1
1
20,8
22,10
19,7
21,9
382/671
F271D027