

# Volvo S40/V40 fuel tank level indicator errors

On some Volvo S40 and V40 models equipped with a 1.6/1.8/1.9/2.0 litre engines, the wiring in the fuel tank on the fuel level sending circuit can become detached and causes a fuel level fault. PIERBURG provides an overview of the Volvo fuel tank ventilation system and describes how this fault can occur and be diagnosed.

## Potential complaints

- Tank indicator errors
- Cable has become detached from fuel delivery module
- Loud hissing when opening tank cap

If there is a problem with the fuel tank ventilation system, a strong vacuum can develop inside the fuel tank, causing it to start collapsing in on itself.

The fuel delivery module comprises a flange cover and the reservoir with the sender unit and fuel pump. Thanks to this two-part construction, the fuel delivery module can compensate for changes in the size of the fuel tank up to a certain degree (Fig. 1).

However, if the vacuum becomes too strong during cold weather, for example, and the fuel tank shrinks too much, the sender unit's cables can become detached (Fig. 2)

## Fuel tank ventilation system

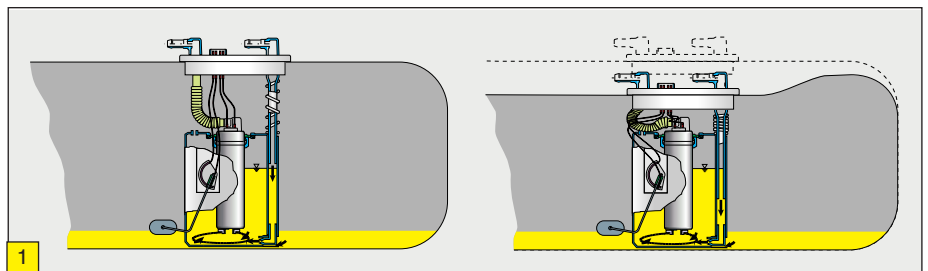
The fuel tank ventilation system prevents the emission of harmful hydrocarbons by binding fuel vapours with an activated carbon filter (ACF) in a special receptacle or canister (7). For this reason, the fuel tank ventilation system is also known as an activated carbon filter system or ACF system.

In certain operating states, the ACF canister is flooded with fresh air via the open canister purge shut-off valve (8). The accumulated hydrocarbons are channelled in a controlled manner for combustion via the regeneration valve (4).

The fuel tank ventilation system also provides air to the fuel tank, for example if a vacuum forms in the tank when fuel levels fall or the ambient temperature is low.

Possible causes of faults in the fuel tank ventilation system may be:

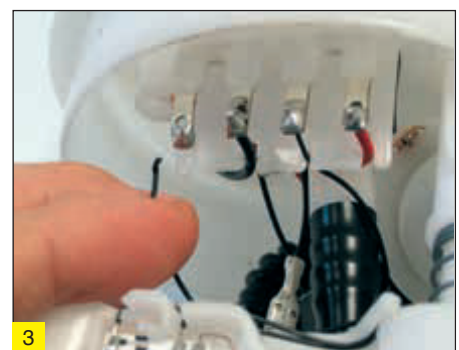
- Defective solenoid valves
- Blocked activated carbon canister
- Blocked venting valve in the fuel tank cap (1)
- Bent or blocked connections



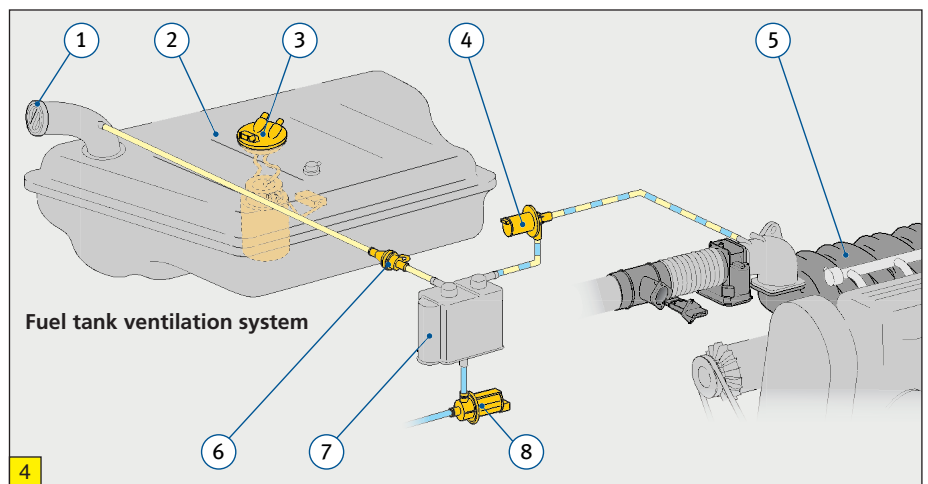
**1** The fuel delivery module can compensate for changes to fuel tank size



**2** The wiring is pulled off the connection if the compression of the fuel delivery module is too extreme



**3** Typical damage symptoms: the sender unit's wiring is detached and the electrical contacts are bent



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| <b>1</b> Fuel tank cap                           | <b>5</b> Intake manifold               |
| <b>2</b> Fuel tank                               | <b>6</b> Fuel tank pressure valve      |
| <b>3</b> Fuel pump                               | <b>7</b> ACF canister                  |
| <b>4</b> Canister purge valve/regeneration valve | <b>8</b> Canister purge shut-off valve |