

### 992 / 982 (4.0 liter variants) – Diagnosing DMTL Leakage Faults

#### Vehicles Affected

Models	Model Year	Model Type	VIN Range	Vehicle-Specific Equipment
911 Carrera	As of 2020	All 992 variants	N/A	N/A
718 Boxster GTS 4.0 718 Cayman GTS 4.0 718 Boxster Spyder 718 Cayman GT4	As of 2020	982360 982160 982510 982810	N/A	N/A

#### Revision History

Revision	Release Date	Changes
0	May 13, 2021	Original document
1	May 14, 2021	Content update

#### Condition

MIL (Check engine light) fault(s) for either an active or a passive tank leakage detection fault "P044200 (002EB3) – Fuel tank system leaking > 1 mm" or "P045600 (002EB2) – Leak (micro) in fuel tank system 0.5 to 1.0 mm." These faults also result yellow dash warning.

#### Technical Background

For the DMTL to perform a diagnostic tank leakage test, the following preconditions are necessary:

- If a leak is detected, two drive-cycles (DCY) are required for MIL illumination
- Engine Coolant Temperature at Start  $\geq 3^{\circ}\text{C}$
- Engine must not have operated for 6h since list DCY; and run at least 10 minutes in current DCY
- Ambient Air Temperature  $> 3.8^{\circ}\text{C}$  and  $< 35.3^{\circ}\text{C}$
- Atmospheric pressure  $> 73.95\text{ kPa}$  (0.73 atm) AND atmospheric pressure changes in the DCY must be  $\leq 50\text{ kPa}$  (0.49 atm)

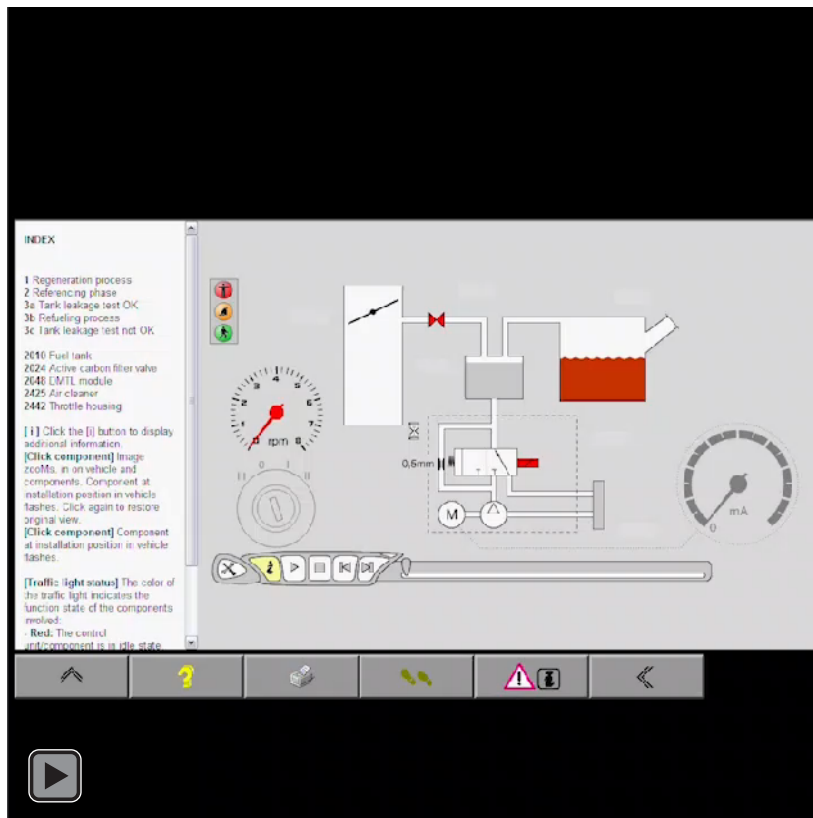
To standardize the diagnostic process for identifying leaking and or faulty EVAP components, please heed the instruction in this document to prevent both repeat workshop visits and unnecessary part replacements for the aforementioned faults.

**Service Information**

Please follow the fault tree presented in Figure 1 when diagnosing the aforementioned faults. Further background and reference for the Evaporative Emissions Leak Detection system in these vehicles is available in the attached film.

**NOTE:**

When running the 'Tank leakage short test' in PT3G (DME -> Maintenance repairs -> Tank leakage short test), the tester indicates a failed test with the text 'exited due to reasons of safety' in the result section.



**Video 1 - Diagnostic Fault Tree for Leak Detection Faults**

In order to play this video, you need to enable "playing of 3D content" under 3D & Multimedia in the preference settings (Edit) of Adobe Acrobat.

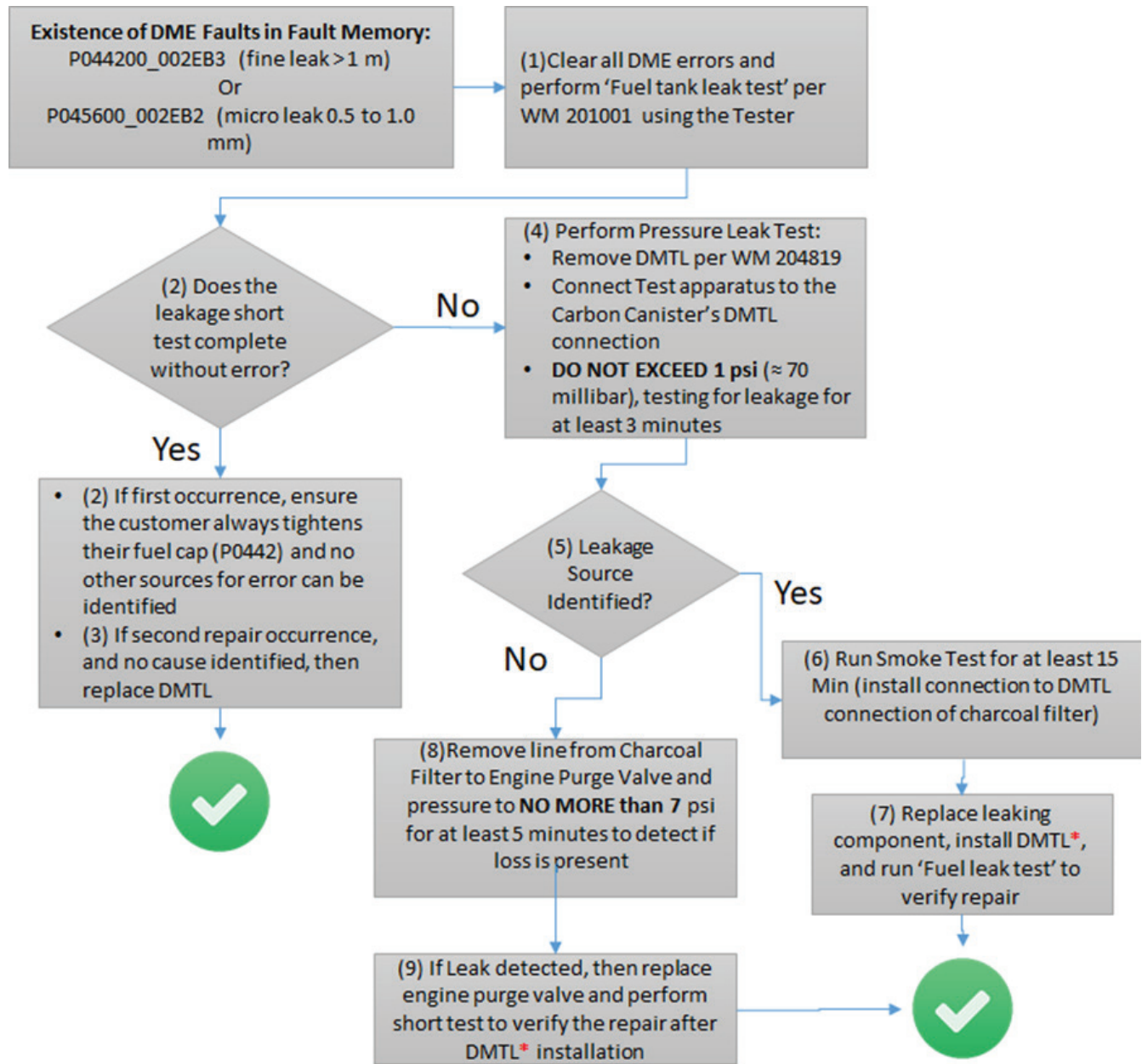
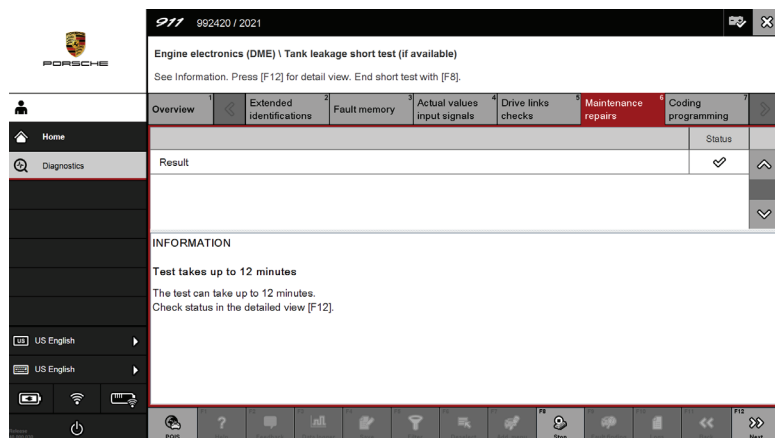


Figure 1 - Diagnostic Fault Tree for Leak Detection Faults

\*Regardless of whether or not an exchange of the DMTL is deemed necessary in accordance with Figure 1, the rubber grommet seals of the DMTL at the mating instances to the carbon canister and fresh air filter require replacement following testing.

**Steps 1, 7 and 9**

A successful 'Tank leakage short test' results in no EVAP errors in the fault memory and a check sign in the result status. An unsuccessful short test results in an "X" and tank leakage errors.

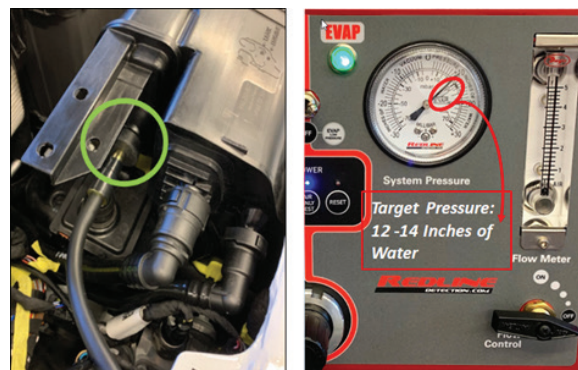


**Figure 2 - Successful Tank leakage short test in Tester**

**Step 4 Instruction**

After removing the DMTL in accordance with WM 204819, introduce pressurized air into the system where the DMTL connects to the charcoal canister (green circle, Fig. 3). A No. 4 stopper works well in this application. Even if the testing apparatus includes a fuel cap adapter for testing, the best fail-safe for identifying potential leaks is removing the DMTL and beginning as shown here. This allows for identification of any potential leaks at the cap, which may otherwise be masked. When performing a 'leak down' test, ensure the pressure does not exceed 1 psi ( $\approx$  70 millibar).

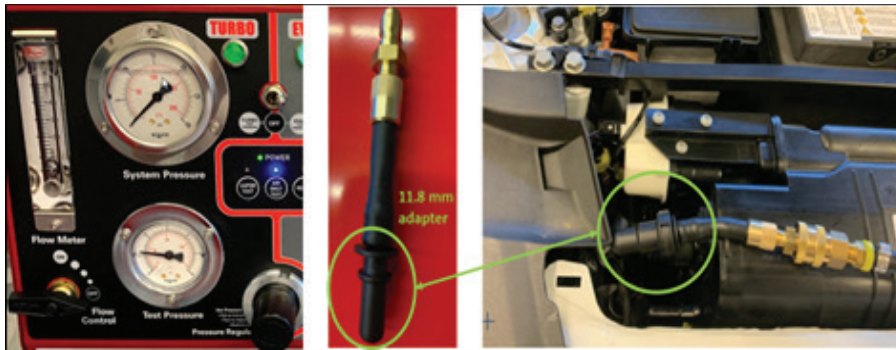
Some detection apparatuses incorporate a flow meter indicating air mass is flowing, e.g. the *Dual Purpose Diagnostic Leak Locator™* from Redline targets 12 – 13 inches of water column, which is slightly less than 0.5 psi. When the detection system reaches its targeted pressure, depending on whether or not there is a leak, the airflow stops. When checking for smaller leaks, the airflow control knob can stop flow at or below target pressure via the flow control knob to watch for pressure drop as a function of time.



**Figure 3 - Air Introduction into System and 'Leak Down' Operation**

**Step 8**

This step allows for leakage detection between the tank vent valve (purge valve) and the charcoal canister without removing the throttle or intake pipe. When following this step of the fault tree procedure of Figure 1, ensure the usage of an EVAP adapter of the proper size, 11.8 mm (Figure 4). When testing for a leak, do NOT exceed 7 psi and test for no less than 5 minutes. Similar to Step 4, if using *Redline's Dual Purpose Diagnostic Leak Locator™*, then the 'Turbo' side intended for testing exhaust/turbo leaks is helpful because it offers more pressure with a regulator. Again, there is a flow meter and a control valve to stop flow for 'leak down' testing.



**Figure 4 - Pressure Test to Tank Vent Valve**

**Warranty**

As always, please document the case completely in PQIS.

For this repair, please code the "cause" as follows:

Cause location: 20480 Leakage diagnosis module

Cause symptom: 4045 Warning activated

Use the following troubleshooting operations

20481950 Leakage diagnosis module remove and reinstall

40861900 Strut remove and reinstall (if applicable)

20251953 Carbon canister remove and reinstall

20100150 Fuel tank check (Depending on Diagnostic Result from Figure 1, more than one instance of this operation may be necessary)

\*This bulletin requires 30 minutes of 'smoke testing,' for which no labor operation exist. An 'A-time' labor operation is acceptable for this this work.

### Search Items

Smoke test, "P044200 (002EB3) – Fuel tank system leaking > 1 mm" or P045600 (002EB2) – Leak (micro) in fuel tank system 0.5 to 1.0 mm, 992, 982, 4.0 liter boxer engine,

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