



XK

DATE 01/03

310-09

SERVICE

TECHNICAL BULLETIN

EVAP DTC P0455 (Gross Leak) Present –
XK Vehicles Only –
Background Information For Diagnosis

MODEL 1998-2000 MY
XK Range
VIN
031303-A22929

Issue:

This bulletin is intended to assist in giving a precise diagnosis of a purge valve that is stuck in the closed position.

Typically the only EVAP related code encountered on XK8s is DTC P0455 - Gross leak. However, it is important to understand that what causes this code to be set is the fact that the target tank pressure cannot be achieved within the prescribed time period during the 0.040 Leak Check.

There are two main causes for the DTC P0455 being set, these are:

1. A large or gross leak is present. To confirm this cause, conduct visible checks and use EVAP system pressure test equipment, or equivalent, to identify root cause.

Note: Fuel caps have been known to be the root cause of an intermittent leak.

2. No vacuum is being pulled on the fuel tank. This could be due to blocked or damaged pipe work or the EVAP purge valve being stuck closed.

It has been found that a high proportion of cases where the code DTC P0455 is present, are due to the purge valve being stuck in the closed position.

Action:

To verify that the Purge Valve is stuck in the closed position, proceed as follows:

1. Check all connections and pipes for damage or kinks which would prevent flow.
2. Connect the WDS (loaded with WDS Issue 15 or later) to the data link connector (DLC).
3. Select the “Vehicle Setup and Configuration” section tab.
4. Within “Special Applications,” select “Fuel system monitor” .
5. Select “Fuel purge and leak test parameter” page.

STATIC/WORKSHOP PURGE VALVE TEST

1. Verify that a duty cycle is being applied to the purge valve, i.e. purge is active (“Purge flow” >0%).
Purge will only be enabled/active if the following conditions are met:
 - A minimum of 30 adaptations have occurred in each of the load sites. (“Region n fuel adaptation bank counter”).
 - Engine is up to normal operating temp (temp gauge at or near mid point).
 - Engine has been running for 2 minutes minimum.

Note: The duty cycle (“Purge flow”) as displayed by the WDS, is the duty cycle supplied from the ECM to the purge valve, not a reading of what the purge valve is actually doing.

2. Verify that vapor concentration (“Purge concentration”) is being calculated.
It should be possible to see that vapor concentration is being calculated. Note that vapor concentration is not calculated if purge is not active/enabled or if the purge valve is stuck closed. This value is dependent upon the amount of vapor that is stored in the carbon canister, the ambient temperature conditions, and the time the engine has been running (Note: it is possible to get some level of vapor concentration being calculated with the purge valve stuck closed, usually this value will be less than 10%.)
3. Monitor Fuel tank pressure – **This is the best indicator of the purge valve stuck closed.**
With purge operating there should be some amount of depression in the fuel tank. If no pressure change can be determined, it is likely that the purge valve is stuck in the closed position.

Increasing the engine speed and load will cause the purge valve duty cycle to increase. This will then cause a greater depression to be present within the fuel tank, this pressure change may only be small, but it should be possible to see that by increasing the purge valve duty cycle, the tank pressure will decrease further. The WDS may display this pressure in volts, whatever the units, the reading should reduce. If the tank pressure does not decrease, the purge valve may be stuck in the closed position or the pipe may be blocked.

PURGE VALVE ROAD TEST

Alternatively, perform a Road Test using the “Fuel purge and leak check parameter” page, and monitor the following:

- Purge Valve duty (Purge flow)
- Fuel Tank pressure
- Vapor concentration (Purge concentration)

During normal driving, with purge active, the tank pressure should reduce and the vapor concentration should be calculated.

If the vehicle is driven such that a leak check test is initiated - Canister Close Valve (CCV) closed, the fuel tank pressure should reduce as the purge valve is opened, if the fuel tank pressure does not reduce, then either the purge valve is stuck closed or there is some blockage or damage to pipe work between the fuel tank and the engine.