

**BULLETIN**

MAKE / MODEL:

**All**

YEAR:

**1992-**

ENGINE CODE:

**All**

SUBJECT / SYMPTOM / TROUBLE CODE:

**A/C system leak test, vacuum test, leak detection agent/UV light, nitrogen test, leak detector****SOLUTION:****The following methods are used to locate a leak:**

- 1. Vacuum test using the service station**
- 2. Check using UV light, if leak detection agent has been filled**
- 3. Nitrogen pressure test and possibly leak detection spray/soapy water**
- 4. Pressure test using nitrogen/hydrogen, and a leak detector**

**You always carry out a vacuum test using the service station when the system has been exposed to atmospheric air.**

**This is necessary to get the moisture from the atmospheric air out of the system.**

**If you neglect this, the moisture will settle as ice crystals in the evaporator and thus clog the passage through the evaporator.**

**In order to get the moisture out of the system, you create a vacuum.**

**This vacuum entails that the water starts to boil/evaporate already at 20°C.**

**In this way, the evaporated water is drawn out.**

**You must create a vacuum for at least 30 minutes at an ambient temperature of 20°C.**

**If the temperature in the garage is lower, it takes longer, or it may even be impossible.**

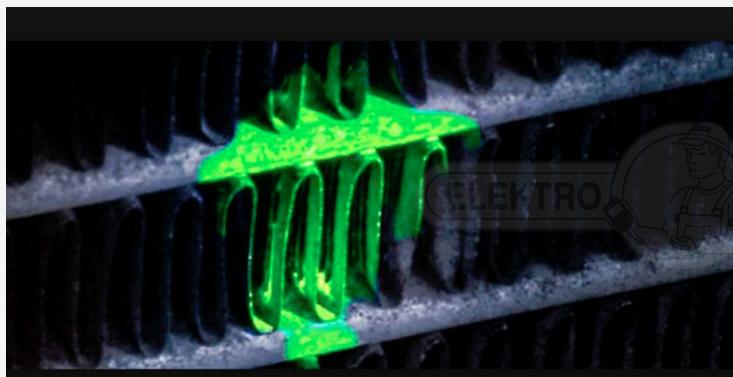
**Then you can check the density by observing whether vacuum can be maintained in the system for 10 minutes.**

**Leak detection using UV light:**

**This is the most common method for leak detection during service.**

**The UV leak detection agent binds to the oil.**

**This means that in case of very small leaks, you cannot see the emission because the oil does not get through this leak.**



**BULLETIN****SOLUTION CONTINUED:****Leak detection via nitrogen:**

This is usually the next step when you search for a leak that cannot be detected with UV light.

**Do not exceed 15 bars when filling.**

- Start by draining the system of refrigerant
- Fill nitrogen in the system via the low-pressure pipe connector until the pressure is at 15 bars
- Close the nitrogen tap
- Now observe the pressure of 15 bars for 2 minutes - it may not decrease
- If the pressure decreases, it indicates a leak
- Then tap nitrogen by e.g. carefully disconnecting the pipe connector



**Nitrogen is not toxic, and can be let into the room without using an extraction device.**

**BULLETIN**

SOLUTION CONTINUED:

**Leak detection via leak detector:**

**Fill a mix of gases (nitrogen/hydrogen).**

**This is useful if you can see that the nitrogen pressure (15 bars) decreases and if you cannot locate the leak.**

**When filling a mix of gases, an electronic leak detector can "smell" where hydrogen leaks out of the system.**

**This is often useful, if the leak is in the evaporator, which is inaccessible for check with UV light.**

**In CO<sub>2</sub> systems, this tool is well-suited.**

**Here, the pressure must reach 70 bars to make a pressure test.**

**A kit like this can be used for both R134a, R1234yf, R744 (CO<sub>2</sub>).**

