



Model 921A, Sensor Change Update

March 2010

In February of 2009 Arbiter Systems Inc changed suppliers for the catalytic bead sensor used in our Model 921A, Combustible Gas Meter. This change was due to degraded sensor performance characteristics that we found unacceptable. All new units manufactured after Feb/2009, and those units returned for repair where a sensor change is warranted, will feature the new sensor. The sensor that replaced it does have different sensitivities to certain gases, when compared to the old sensor.

Customers who have been trending transformers using a Model 921A with old sensors (VQ3) may see a change in their TCG (Total Combustible Gas) results once the 921A sensor is replaced with the newer sensor (NP), which may occur as part of a unit repair. The difference in the TCG result may be exaggerated due to a higher concentration of a particular gas present in the transformer.

It is important to note that neither TCG results from the old or new sensors are “absolute” values of any particular gas except for methane, which is used as the calibration reference. Used as a trending device, TCG results from a 921A can assist the field technician in determining when a more thorough oil analysis is warranted.

While it has been indicated by customers that elevated levels of hydrogen in a transformer will return a lower TCG result with the new sensor, it is difficult to say with any certainty how the total concentration of gases in any given transformer will compare from the VQ3 to NP sensors. This is because the different catalyst mix used on the two sensor types result in different sensitivities to the various species which are found in the transformer gas blanket: carbon monoxide, hydrogen, acetylene, ethylene, etc.

When trending transformers it is necessary to establish a baseline reading at the outset. Using different units to make subsequent readings may yield different results, although it can be expected that different 921As using VQ3 sensors should return roughly the same results and the same should be true with different units using NP sensors. A Model 921A that has been returned to service from a factory repair may warrant the re-baselining of transformers or at the least a notation in the readings log indicating a 921A service or sensor change.

You can ascertain which sensor type your 921A has by removing the rear cover and locating the square silver colored sensor housing located toward the upper end of the circuit board. On it will be written the sensor type and a serial number. Additionally, Arbiter Systems Inc. will henceforth indicate if the sensor type has changed when a unit is returned to the customer from a factory repair.

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