INSTRUCTIONS FOR USE – MEASURING CRACKING OR INHALATION EFFORT

WHAT IS CRACKING OR INHALATION EFFORT - DEFINITION:

Cracking or inhalation effort can be defined as the minimum amount of inhalation effort or vacuum required to start the airflow through the second stage regulator.

In other words it is the amount of inhalation/effort/vacuum required to just open the valve of the second stage or, to just separate the soft seat (poppet) from the hard seat (orifice) of the second stage regulator and start air flowing through the second stage.

HOW TO MEASURE CRACKING EFFORT:

- After calibration of the differential pressure gauge, install the mouthpiece assembly onto the second stage by means of a band seal. The hose of the mouthpiece assembly is connected to the inlet port of the differential pressure gauge. The regulator can now be pressurised.

- Gently inhaling or "sipping air" through the mouthpiece assembly will create a vacuum inside the second stage that will pull the onto the diaphragm. This flexing action of the diaphragm pushes onto the lever which in turn tries to pull the poppet away from the orifice. The total amount of inhalation effort required to slightly open the second stage and start the airflow will be displayed on the differential pressure or on a Magnehelic® gauge.

- Two methods are commonly used to measure the cracking effort – you can choose either one to measure the cracking effort -:

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    - Method 1: use of a differential pressure gauge only.
      Inhale very slowly/gently through the mouthpiece adapter while watching the differential pressure gauge needle. When the first audible indication of airflow is heard, the position of the differential pressure gauge needle is recorded (this is the cracking effort).

    - Method 2: use of a differential pressure gauge in combination with a intermediate pressure gauge

      This method requires in addition to a differential pressure gauge connected to the second stage an intermediate pressure gauge to be connected to the first stage. We recommend having both instruments side by side. As per method 1, inhale very slowly/gently through the mouthpiece adaptor whilst watching the intermediate pressure gauge. When the intermediate pressure on the intermediate pressure gauge drops, record the differential pressure gauge reading to determine the cracking effort of the 2nd stage. Compared to method 1, this method is more accurate and repeatable.

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Note: when the vacuum created by the technician reaches the point of poppet-orifice separation (iow. the valve cracks open), the intermediate pressure will drop slightly. The reaction of the intermediate pressure can be compared to slightly purging the second stage. As soon as an airflow is heard, the intermediate pressure drops.

CAUTION:

- *Gently inhaling/sipping air is crucial as cracking effort is by definition the minimum amount of inhalation required to start the airflow.*

- The amount/value of the cracking/inhalation effort for a second stage regulator is specified by the manufacturer at a specific supply and intermediate pressure and will be different from model to model.

- How to adjust the cracking effort for a specific second stage is described in the manufacturer's technical literature.

USEFUL CONVERSIONS:

- mbar to " (inches) of H_2O: 1 mbar = 0.401865 " (inches) H_2O
- mm w.c. to " (inches) of H_2O: 1mm of water = 0.039370 " (inches) H_2O

DISCLAIMER:

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