

# OXYGEN

Do You Have Enough

HOW TO CALCULATE CYLINDER DURATION

# Cylinder Types and Figures

Cylinder Type	Max Pressure	Max Volume	Conversion Factor
D – Cylinder	2216 psi	350 L (gas)	0.16
E – Cylinder	2216 psi	625 L (gas)	0.28
Bell 407	2216 psi	2545 L (gas)	1.14
BK 117		1-10 L (liquid)	1 L of liquid = 860 L of Gas

- ▶ Conversion Factor is calculated by dividing the max volume by the Max pressure.

# The Formula

- ▶  $(\text{Current Cylinder Pressure} \times \text{Conversion factor}) / \text{Flow (L/min)} = \text{Duration of flow (min)}$ 
  - ▶ ie:  $1000 \text{ psi} \times .28 / 10 \text{ L/min} = 28 \text{ minutes}$
- ▶ **Calculate duration of LOX with 5.4 L at 15L/min**
  - ▶ Convert to volume of gas first:
    - ▶  $5.4\text{L of liquid} \times 860 \text{ L of gas/L of liquid} = 4644 \text{ L of gas}$
  - ▶ Then take into account the liter flow:
    - ▶  $4644\text{L of gas} / 15\text{L/min} = 309.6 \text{ minutes or } 5.16 \text{ hours}$
- ▶ **Calculate duration of an E cylinder with 1500 psi at 2L/min**
  - ▶  $1500 \times .28 = 420 / 2 = 210 \text{ minutes or } 3.5 \text{ hours}$

# The Revel

It will calculate the cylinder duration for you

- ▶ Revel Manual. Chapter 10, pg. 28-29.
- ▶ Push and hold “Select” button until **Revel** appears. (Do Not put the vent in stand-by)
  - ▶ Rotate Knob -> until you see “Vent Config” -> press Select
  - ▶ Rotate Knob -> until you see “O2 Cyl Dur” ->Press Select
  - ▶ Rotate Knob -> until you see “Cyl Type” -> Press Select -> Enter maximum cylinder volume by rotating the knob->Press Select when the correct volume (This is the total volume of the tank, not what is in it currently)
    - i.e. (D = 350L) (E = 625L) (Bell 407 = 2545)
  - ▶ Rotate Knob -> until you see “Cyl Pressure” ->Press Select -> Enter current tank pressure from the gauge ->Press Select
  - ▶ The duration will be displayed for 60 sec. or until msg. acknowledge by pushing the **Select** or **Exit** button

**\*\*The Revel should automatically take all parameters into consideration when calculating\*\***

- ▶ This cannot be done with the LOX system. You need to do the math manually. Determine what you have onboard vs. the pt's. rate of consumption

# Don't Forget

## ▶ Bias Flow

- ▶ The Revel produces 3 – 10 Liters of Bias Flow per minute. This must be added into the pt's. minute volume calculation to determine the true amount of gas being utilized, if you are doing manual calculations.
  - ▶ **Most of our vents have the Bias Flow set at 5 LPM**

## ▶ FiO<sub>2</sub>

- ▶ Oxygen consumption will vary depending on set FiO<sub>2</sub>
  - ▶ At 100%, the total volume is supplied from the Oxygen tank.
  - ▶ At anything less, the Oxygen is mixed with ambient air therefore consumption from the tank is less.