

# Cargo Fire Suppression by Depressurization

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The 6<sup>th</sup> Triennial Fire & Cabin Safety Research Conference

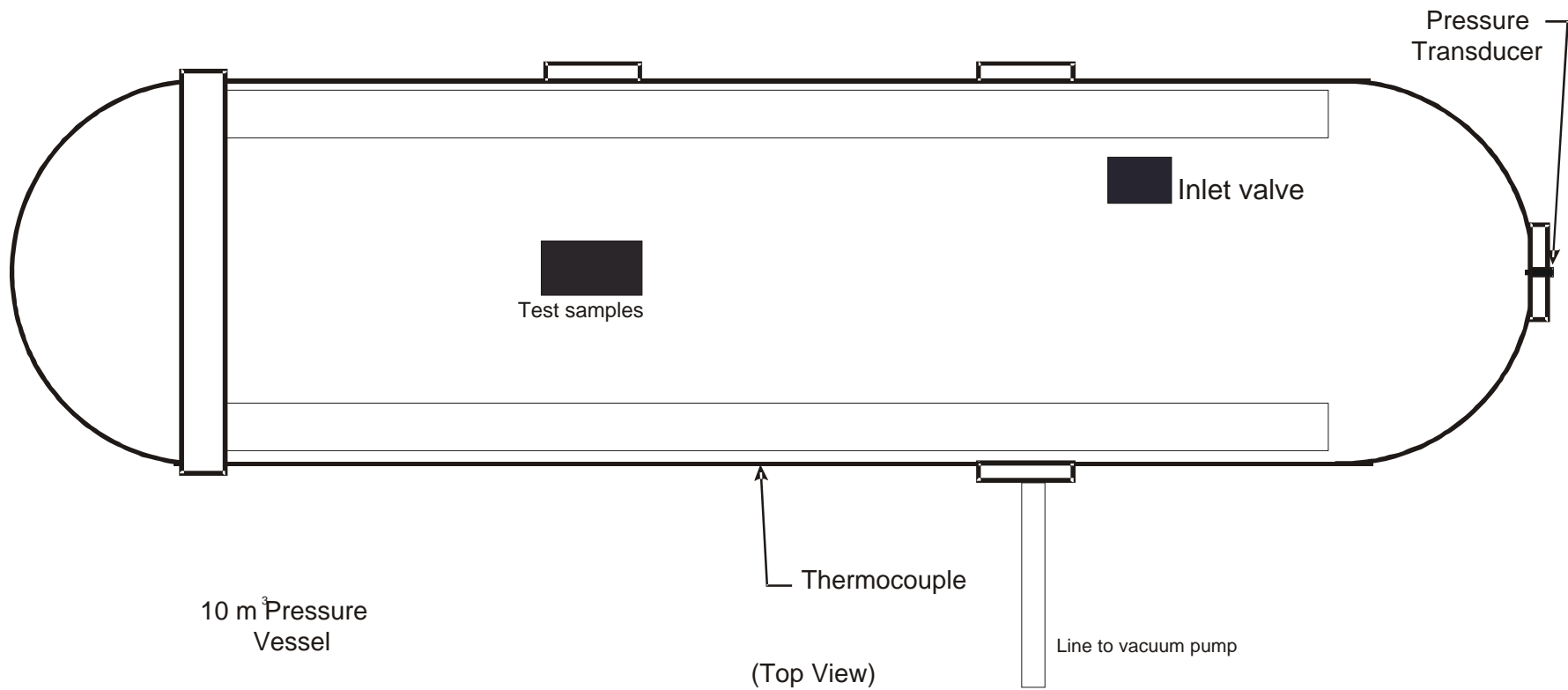
Tropicana Casino Resort; Atlantic City, NJ

October 25 – 28, 2010

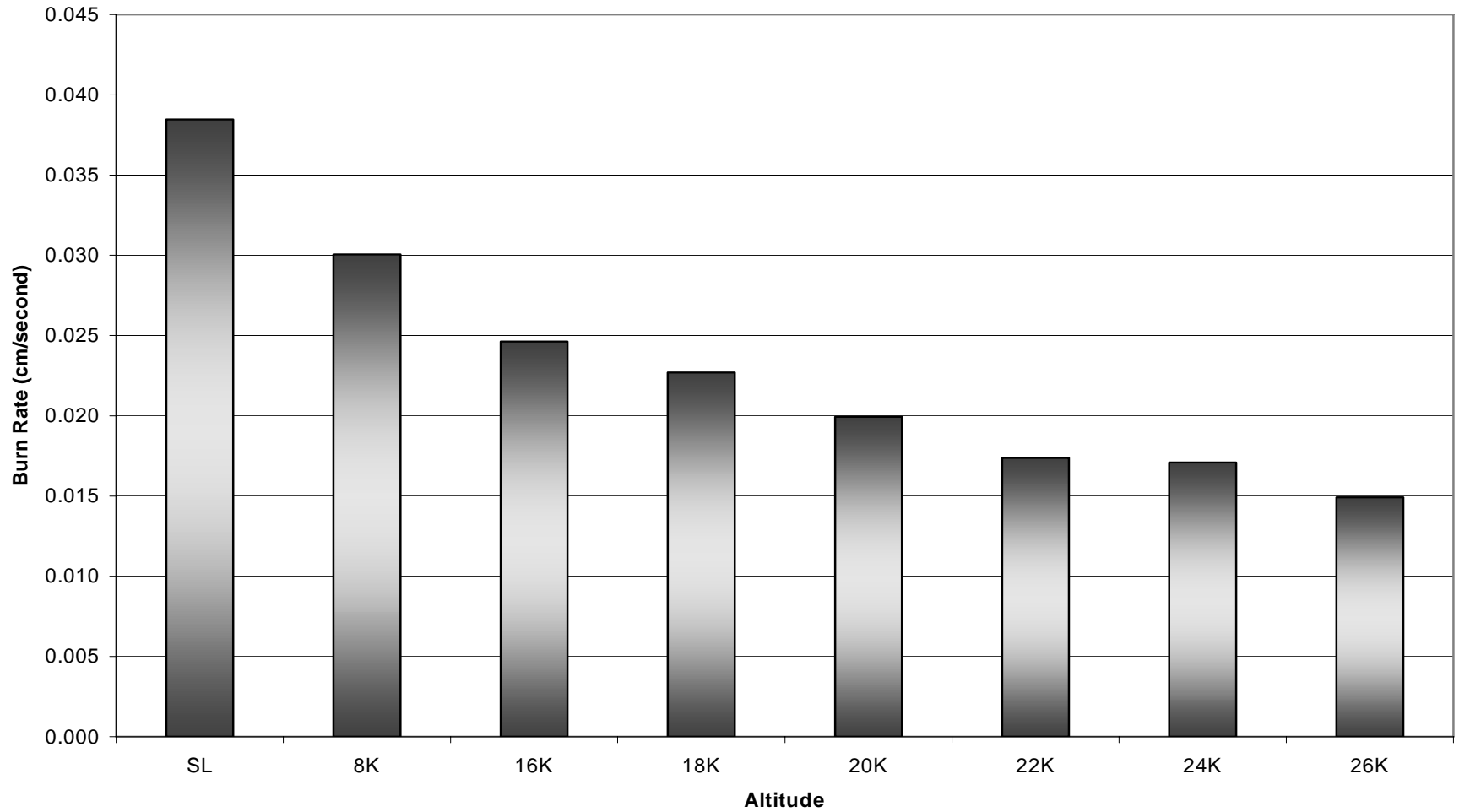


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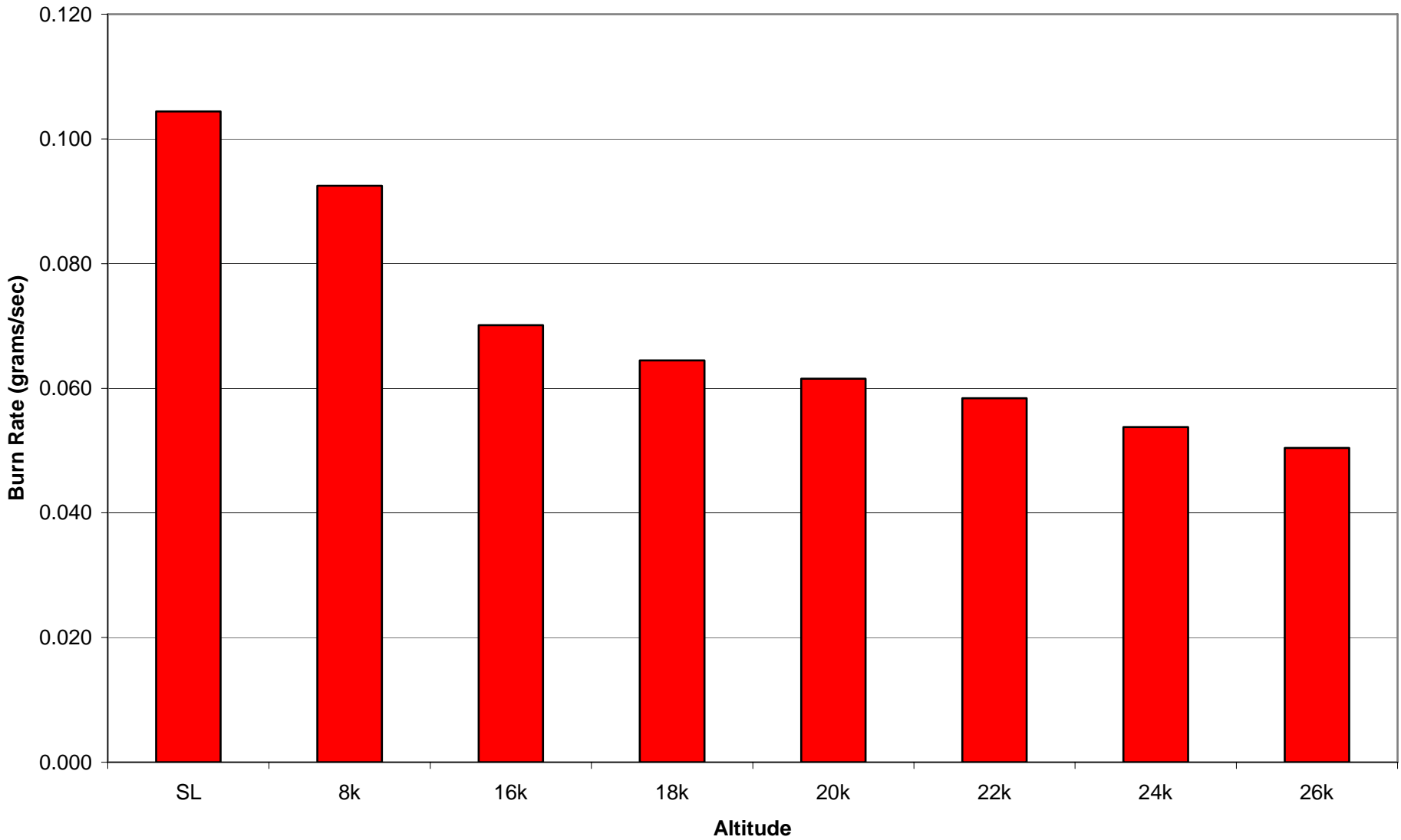




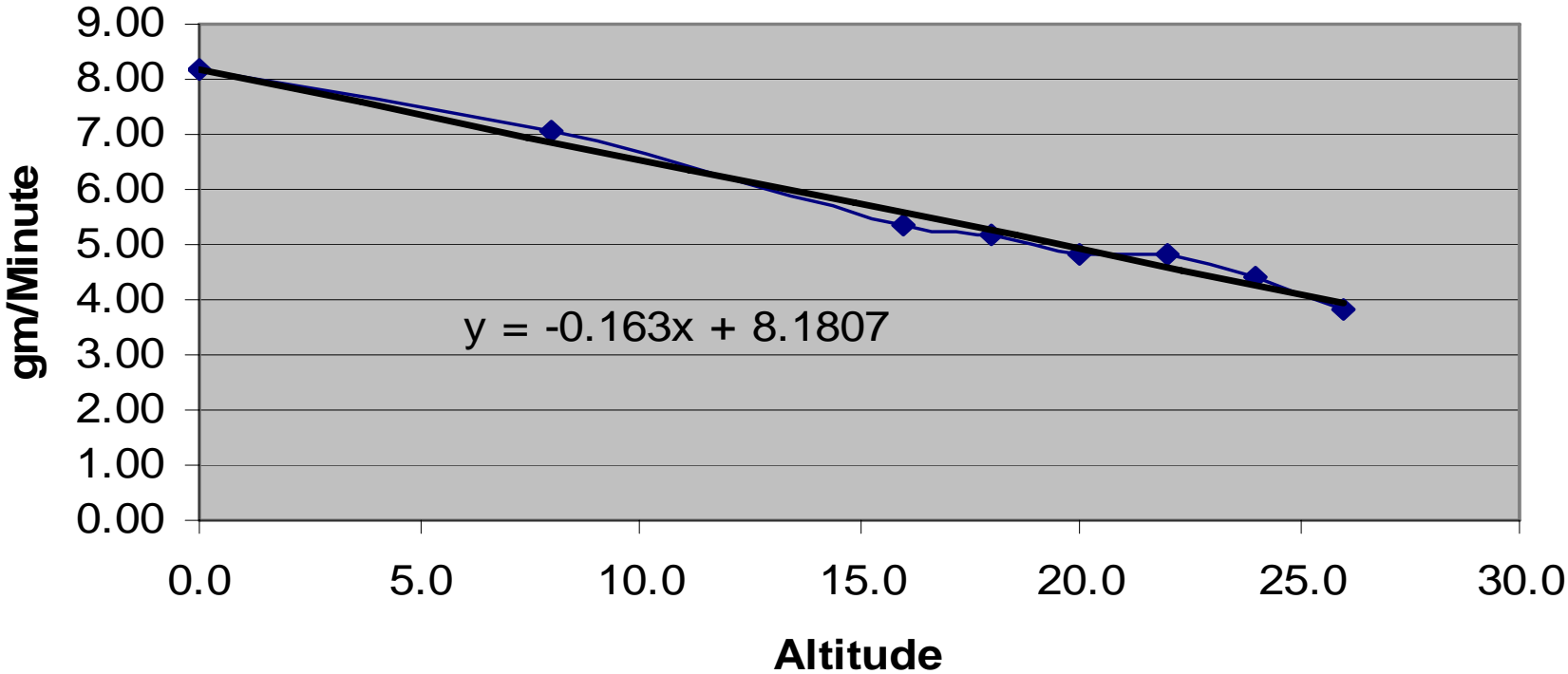
## Acrylic Burn Rate vs Altitude



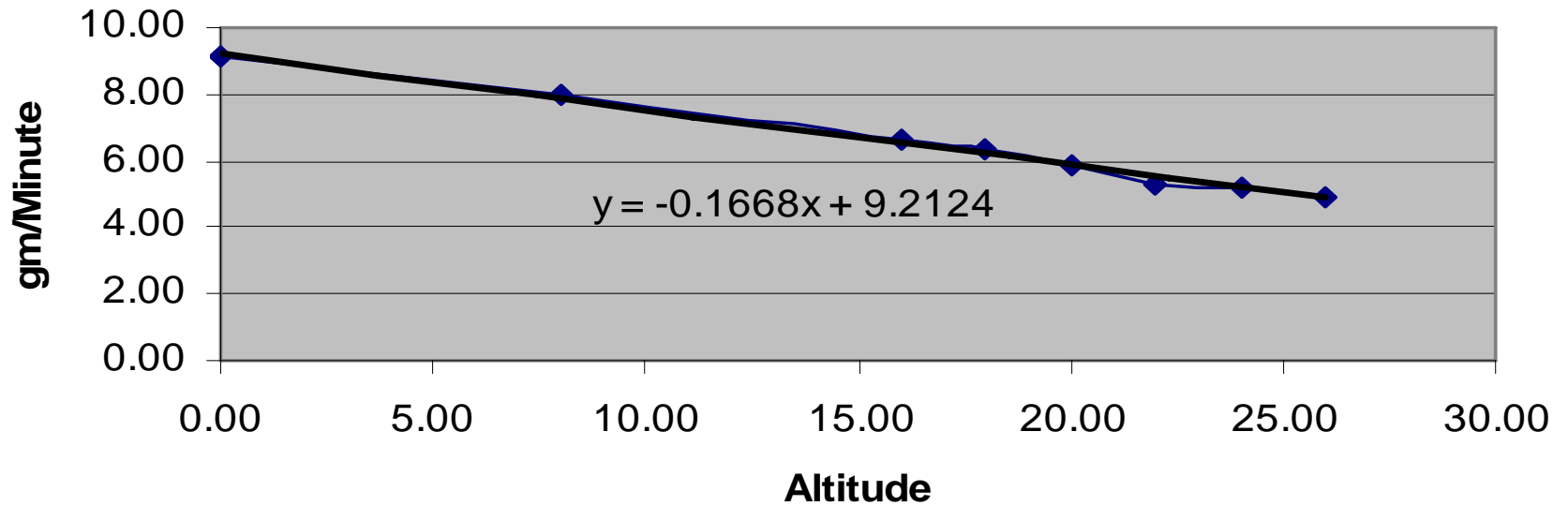
# JetA Burn Rate vs Altitude



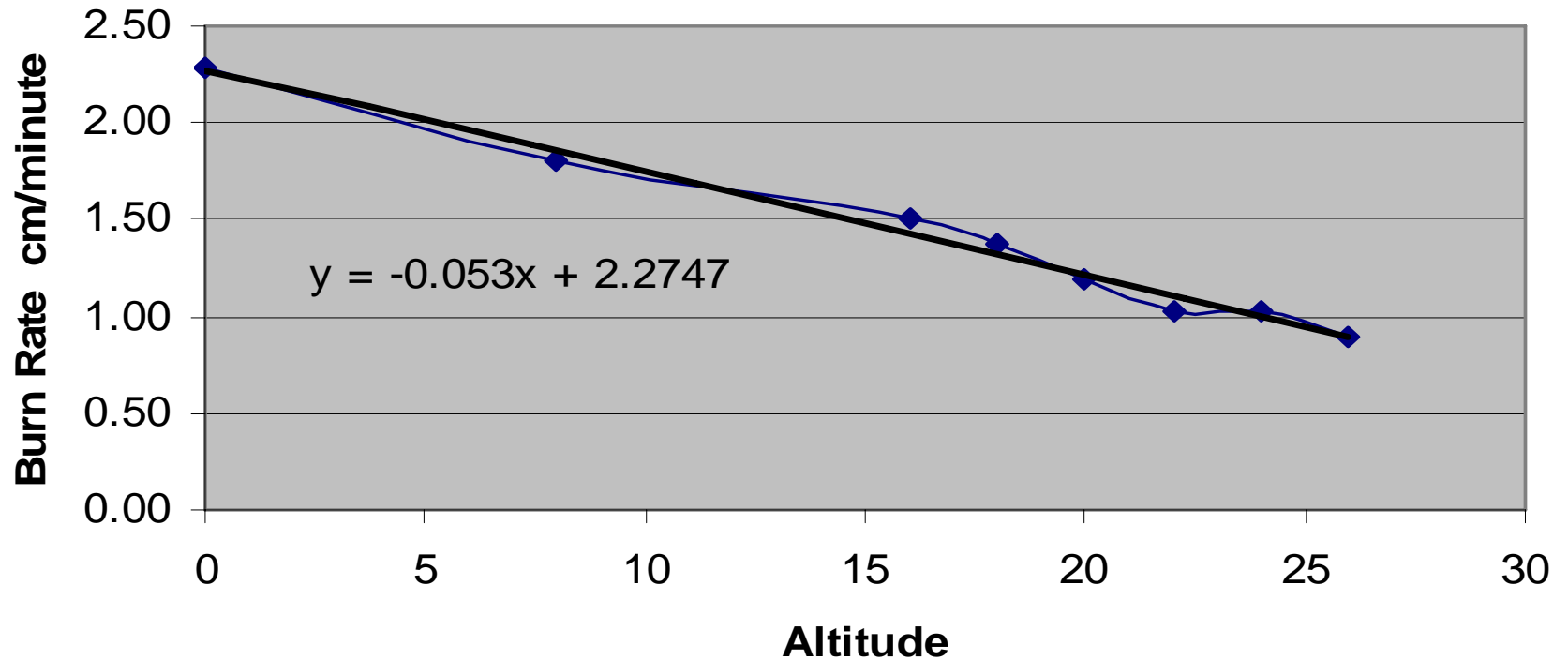
# Jet A Mass Loss vs. Altitude



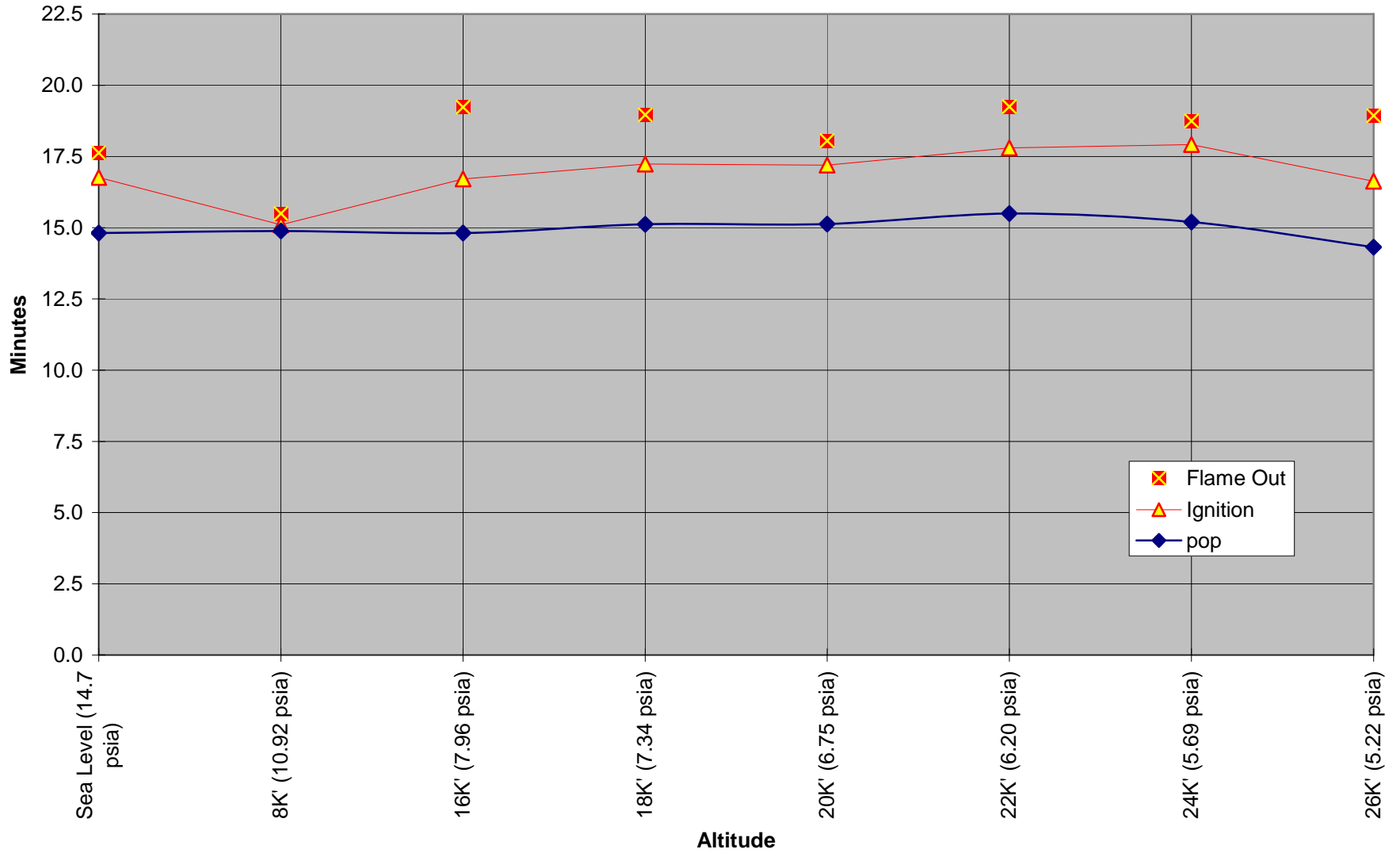
## Propanol mass loss Vs Altitude



## Acrylic Burn Rate vs. Altitude



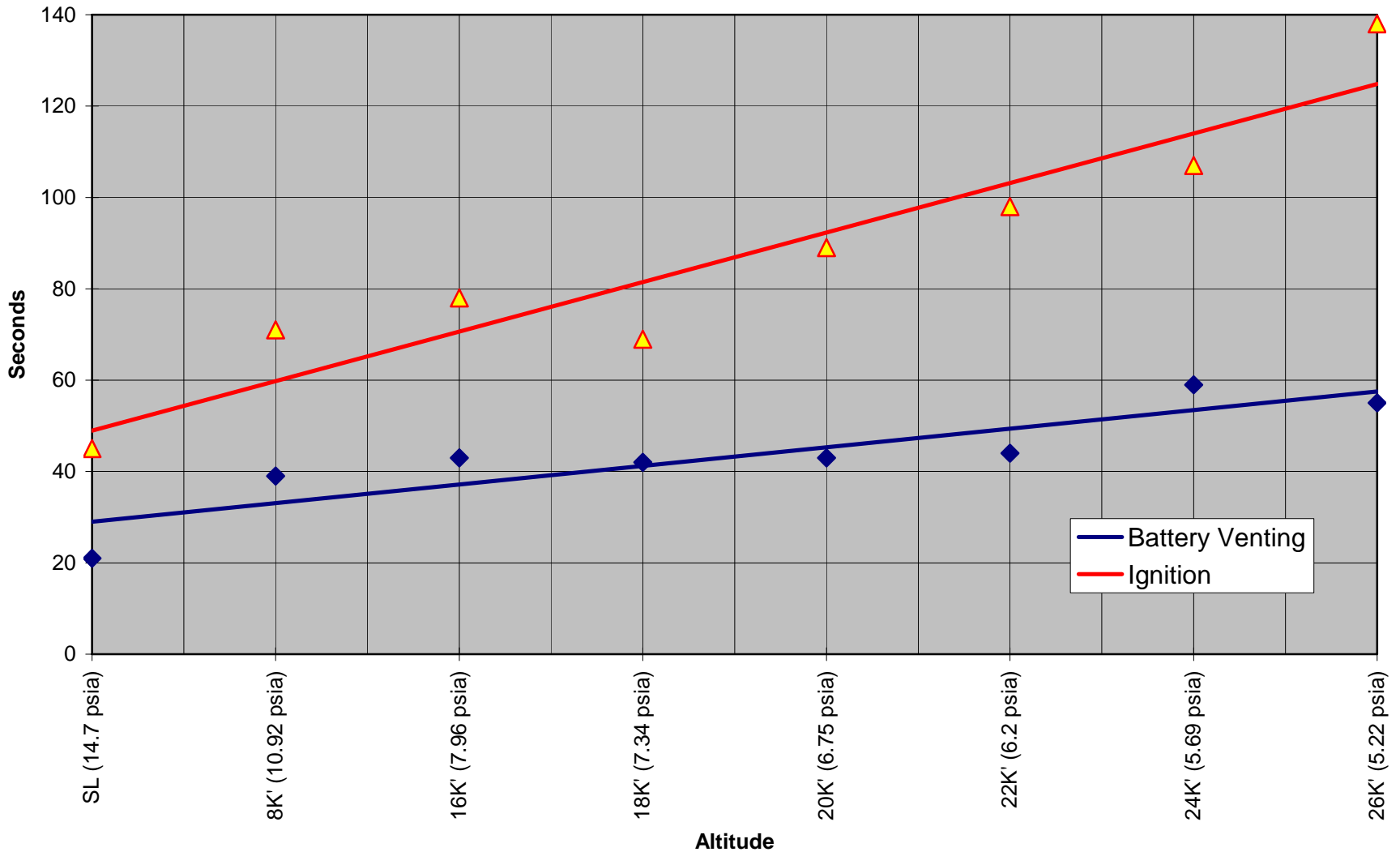
# Heated Lithium Ion Battery vs Altitude

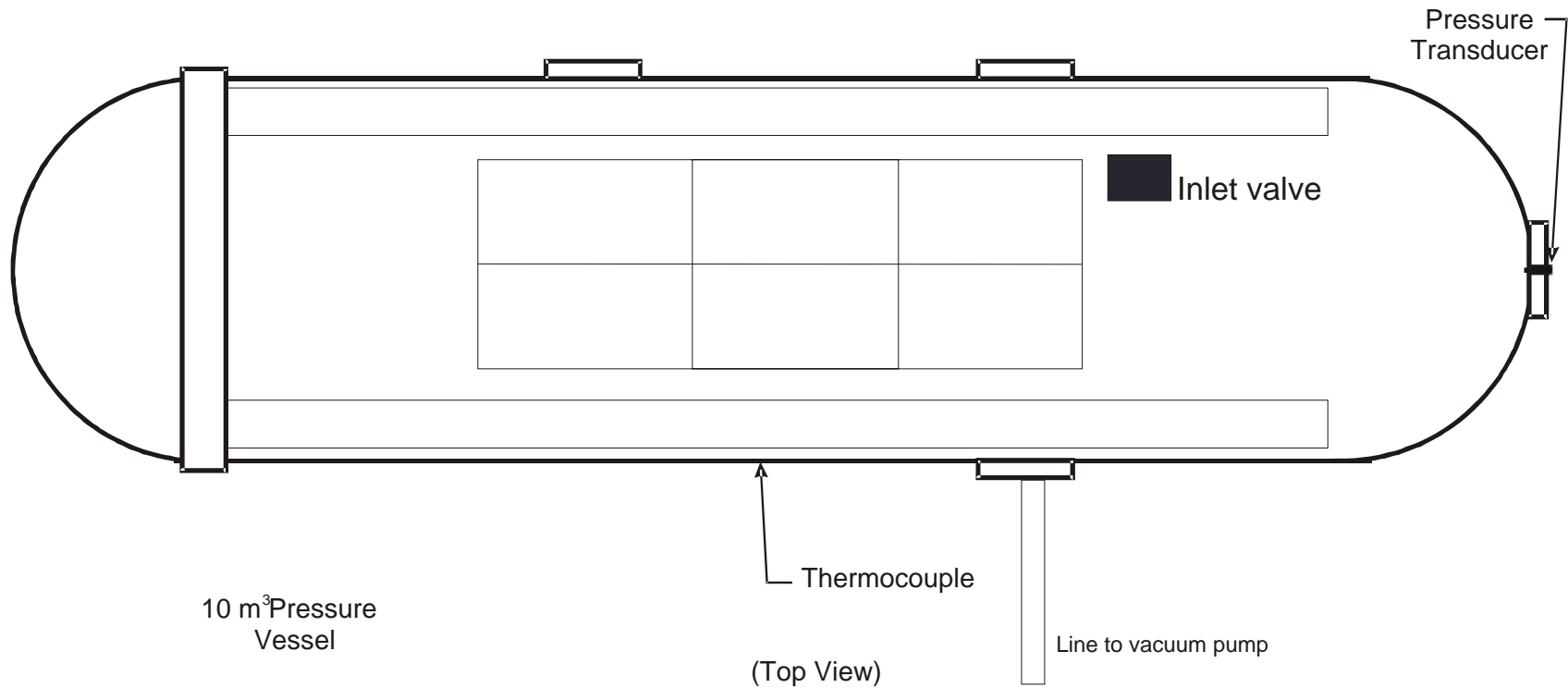


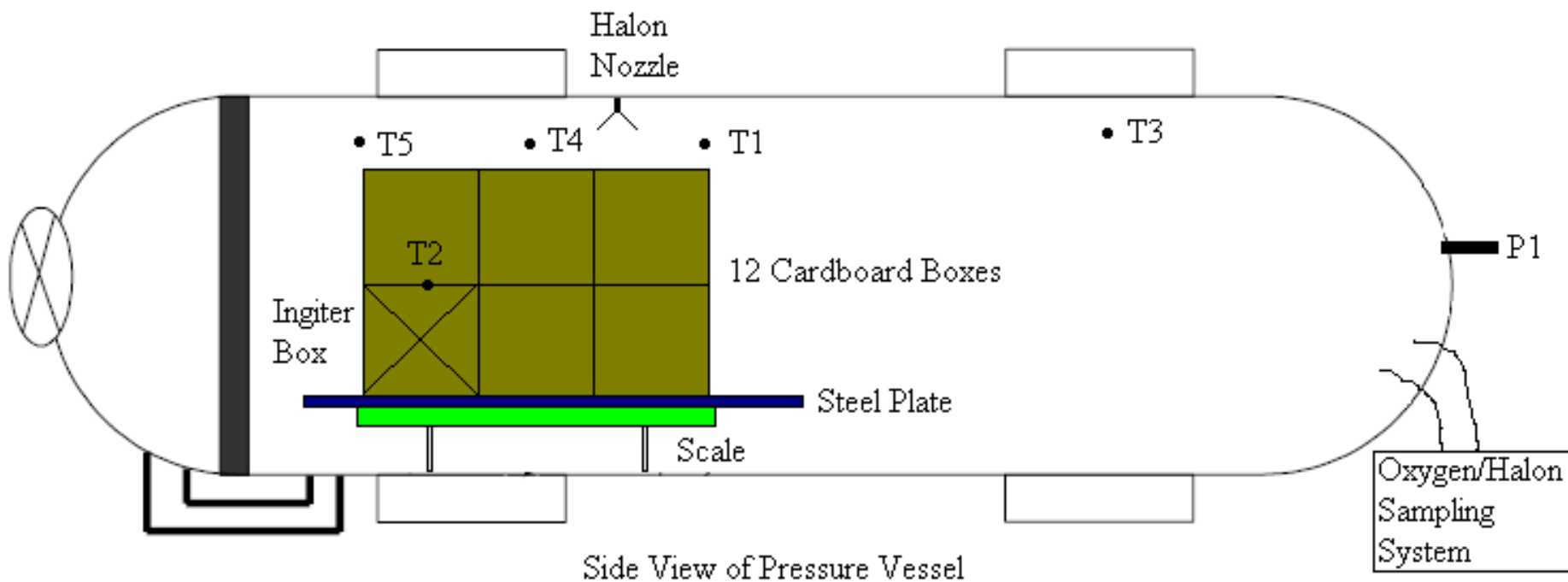


# Altitude vs Time to Battery Venting & Ignition

## 1.6 L/min Propane Flame - 10g Single Lithium Primary Battery







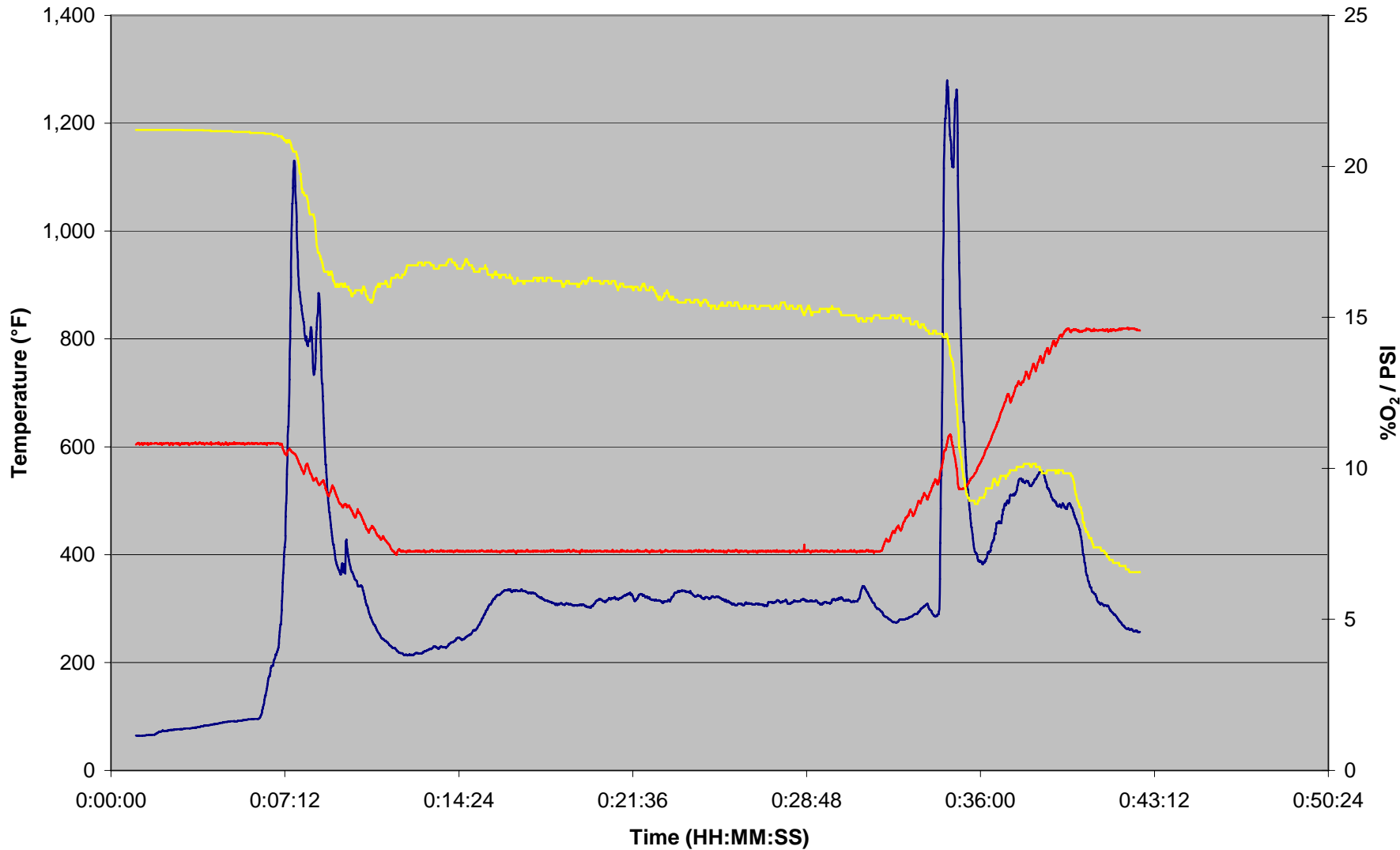


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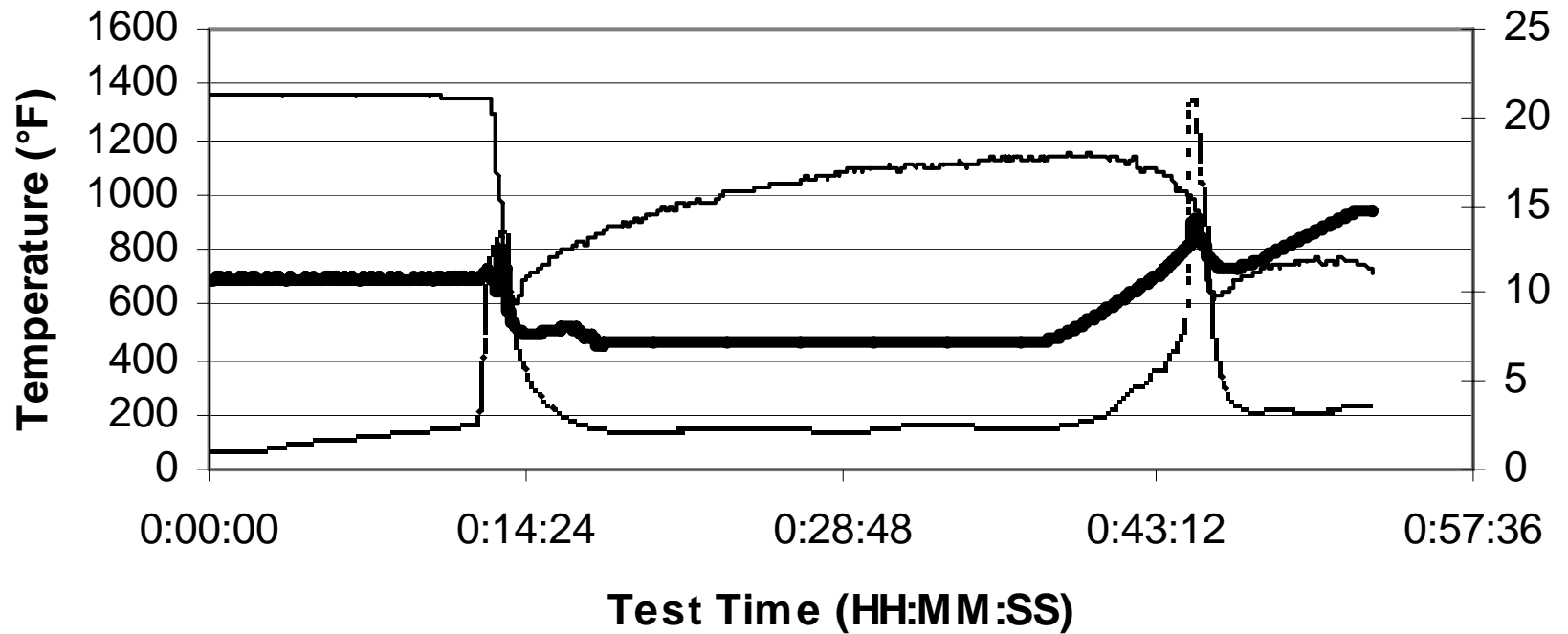
# 8,000 Feet to 18,000 Feet



— Ch #1: T/C 1 (°F) — Ch #5: PressTrans (PSI) — Ch #8: Oxygen Analyzer (%O<sub>2</sub>)



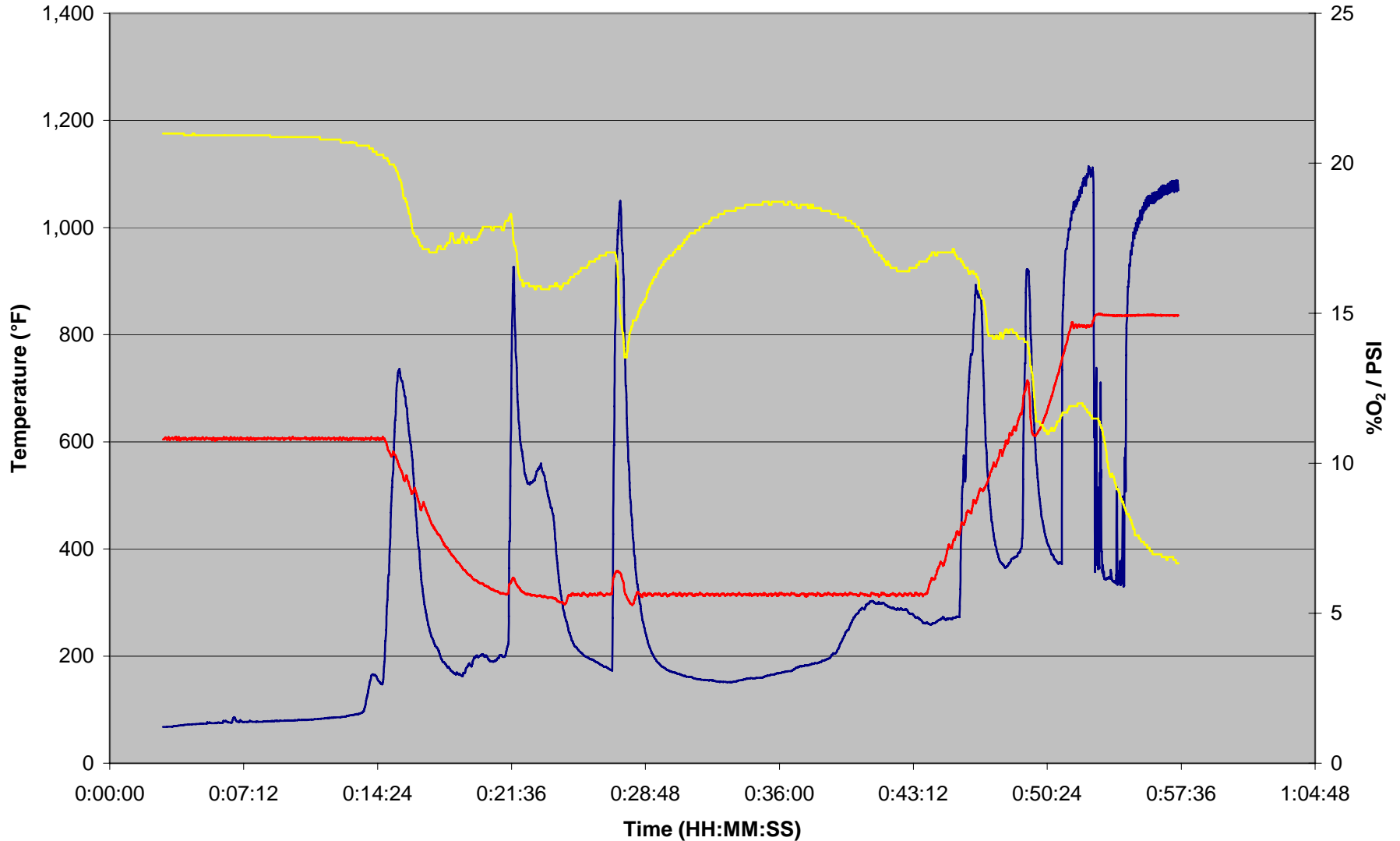
### 8,000ft (10.92 PSI) to 18,000ft (7.34 PSI)



----- TC    ——— PSI    ——— %O2



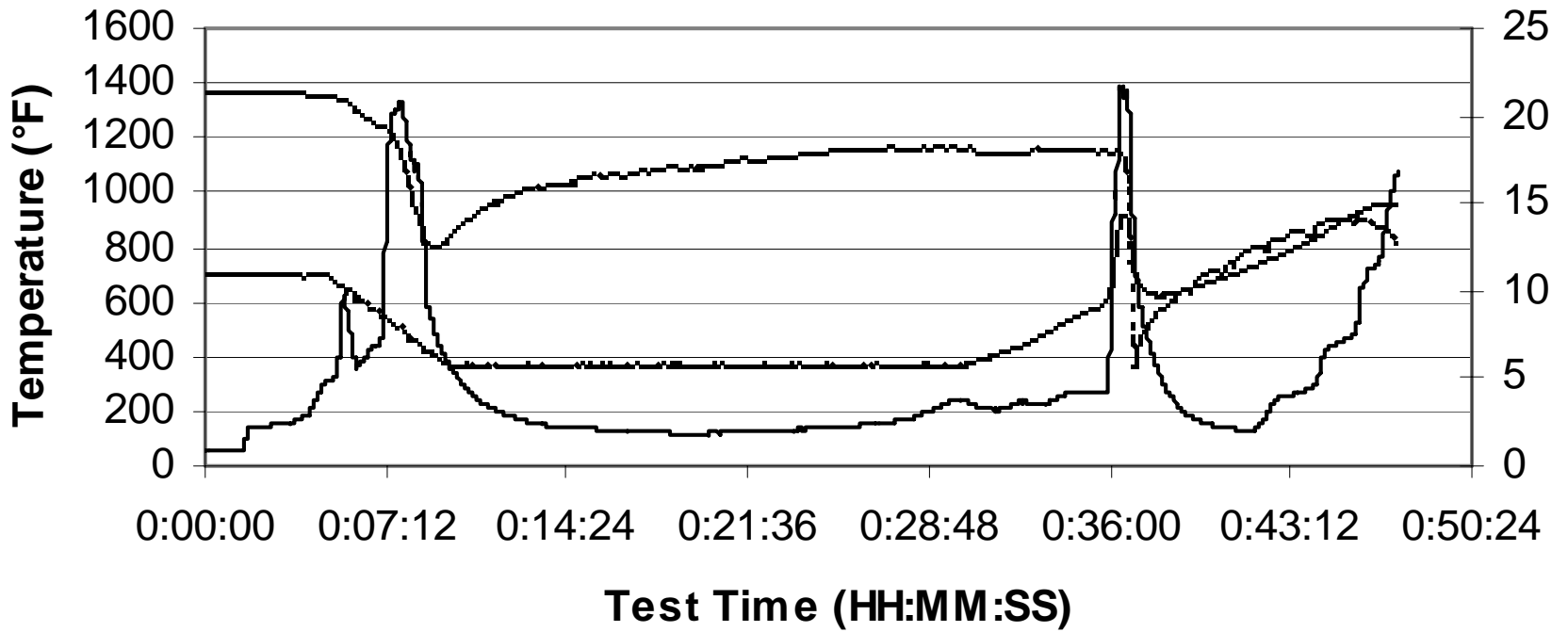
# 8,000 Feet to 24,000 Feet



— Ch #1: T/C 1 (°F) — Ch #5: PressTrans (PSI) — Ch #8: Oxygen Analyzer (%O<sub>2</sub>)



### 8,000ft (10.92 PSI) to 24,000ft (5.7 PSI)

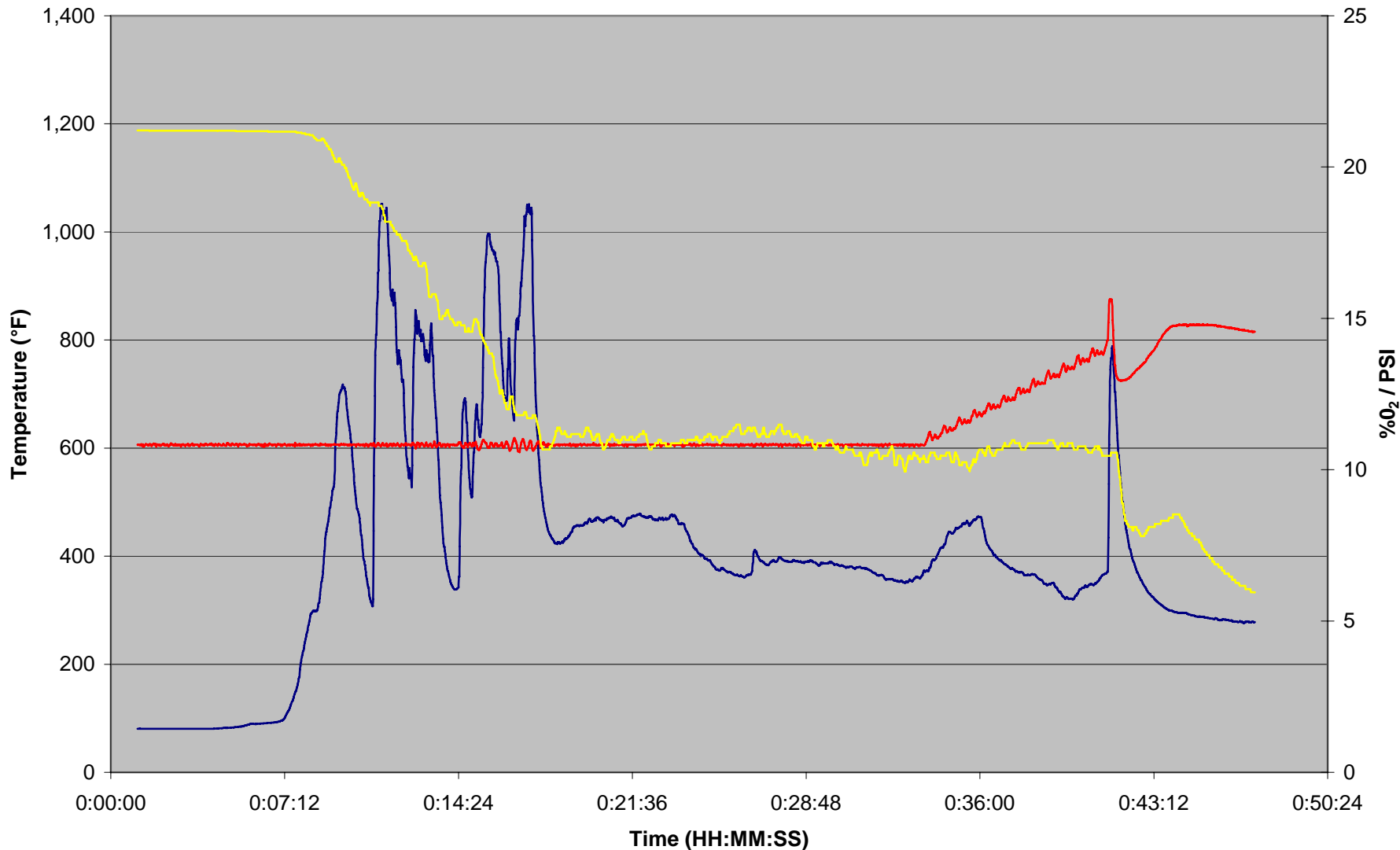


— TC - - - - PSI - - - - - %O2





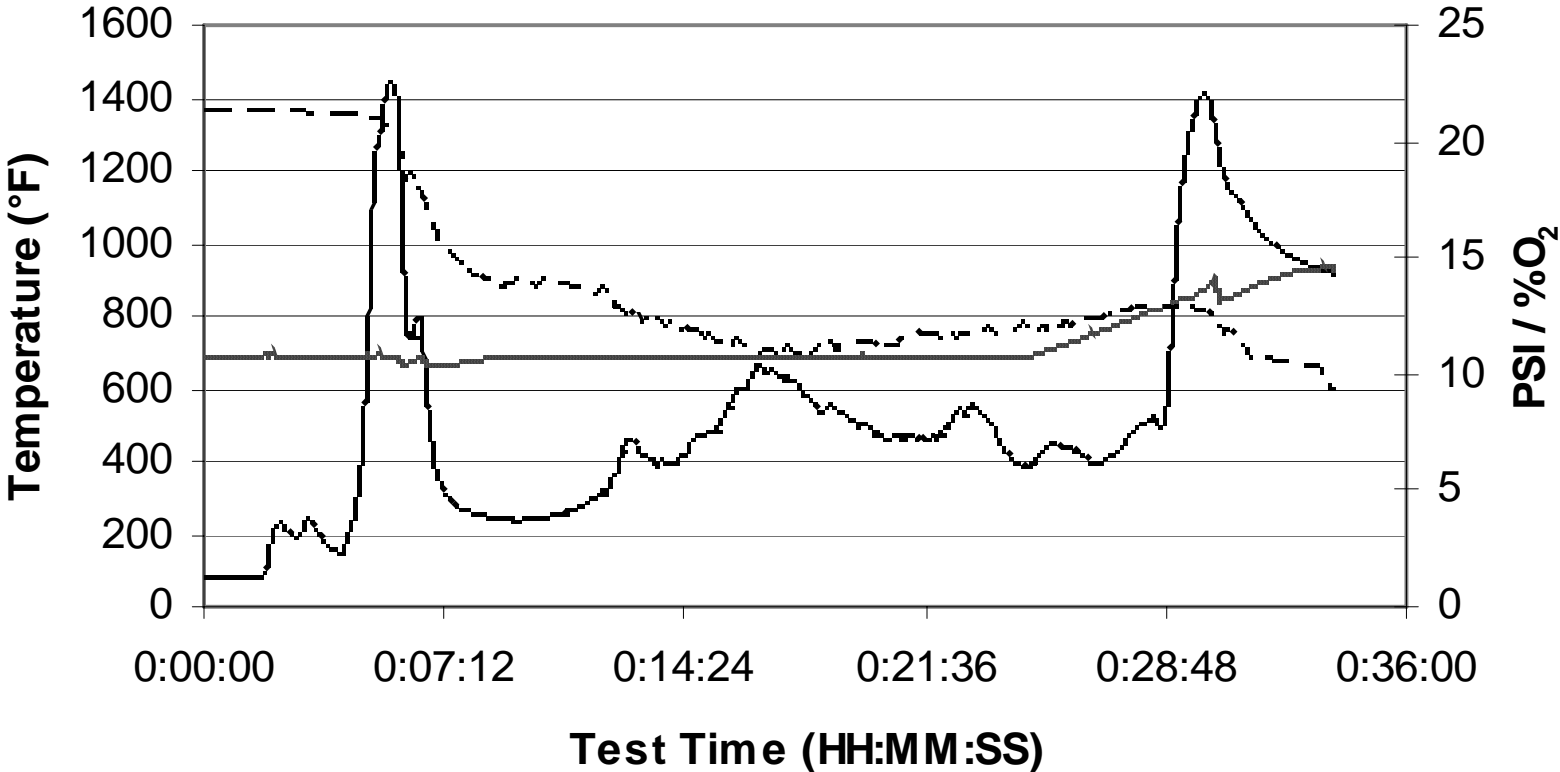
# Cruise @ 8,000 Feet



— Ch #1: T/C 1 (°F) — Ch #5: PressTrans (PSI) — Ch #8: Oxygen Analyzer (%O2)



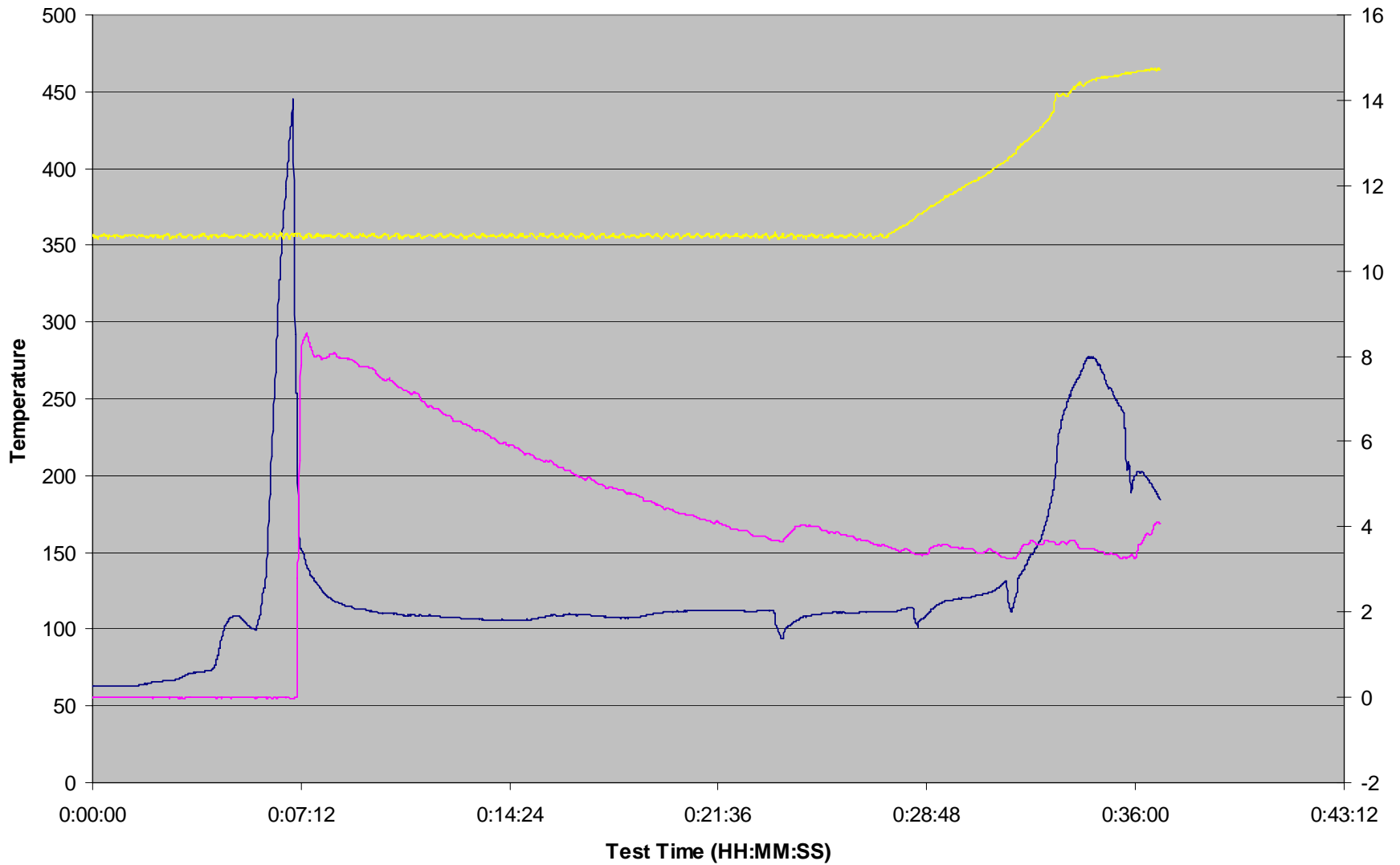
### Cruise @ 8,000 Feet (10.92 PSI)



--- TC    — PSI    - - - - %O2



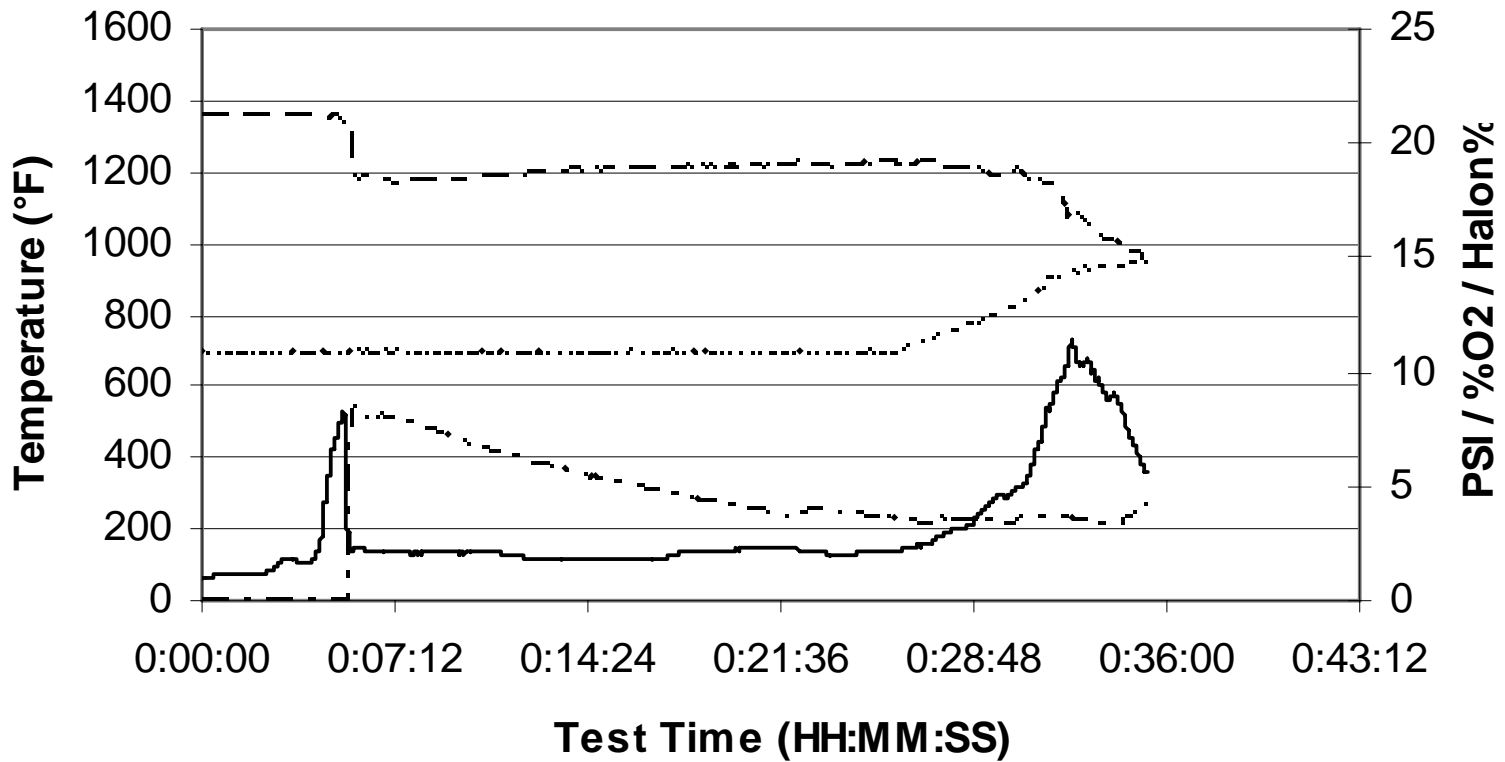
# Cruise @ 8,000 feet with Halon



— Ch #1: T/C 1 (°F) — Ch #3: Analyzer (%) — Ch #5: PressTrans (PSI)



### Cruise @ 8,000 Feet (10.92 PSI) with Halon



— TC    - - - - Halon%    - . . . . %O2    . . . . . PSI

