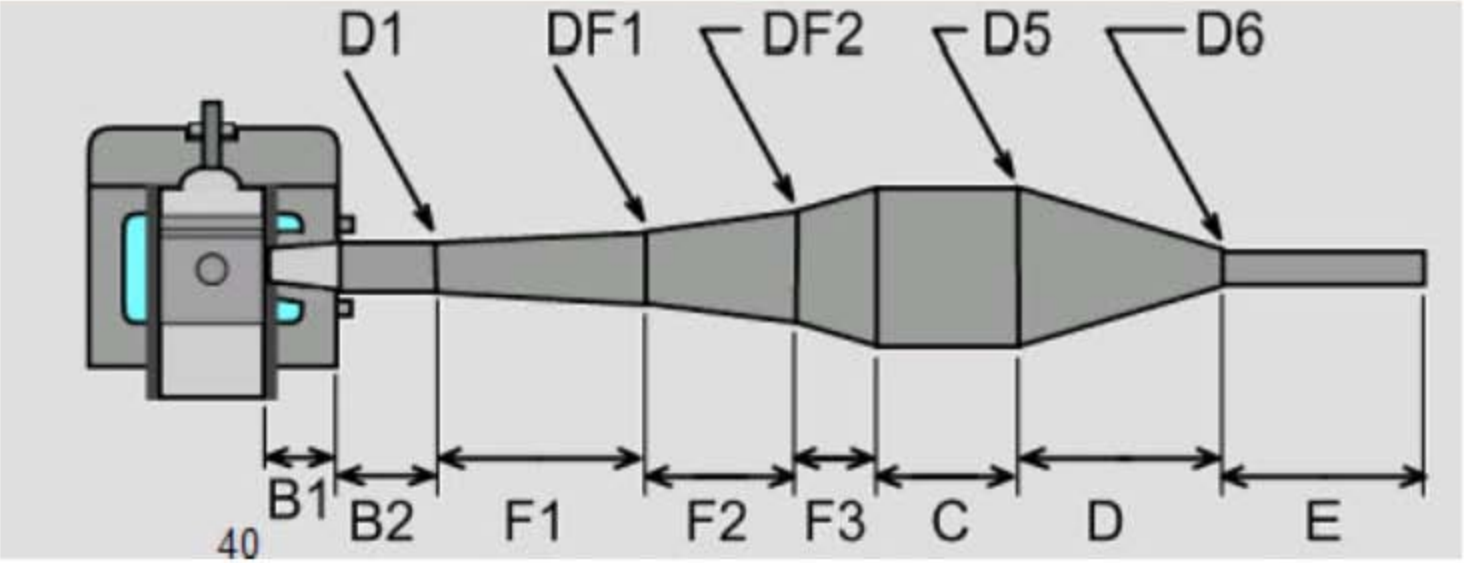
3-Stage Adiabatic Expansion Chamber Design

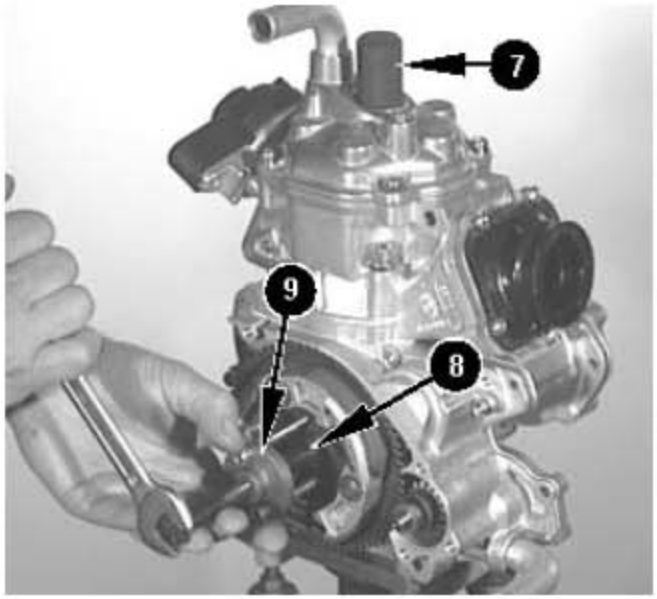


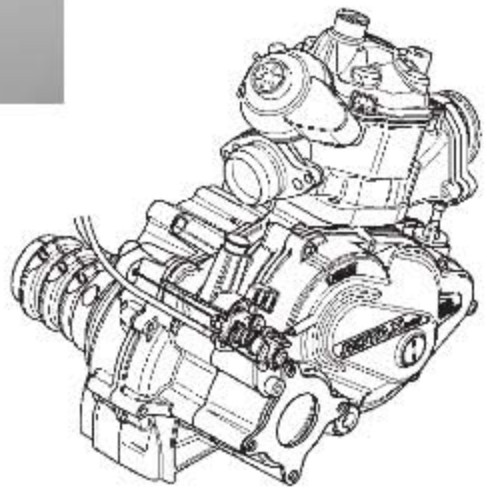
- B1+B2: 31.3 mm
- F1: 200.5 mm
- F2: 138.4 mm
- F3: 104.3 mm
- C: 155.3 mm
- D: 249.2 mm
- E: 224.2 mm
- D1: 36.5 mm
- DF1: 63.5 mm
- DF2: 105.1 mm
- D5: 136.6 mm
- D6: 19.1 mm

- BHP: 156.0 bhp @ 17,900 rpm
- BSFC: 0.55 lbm/hp-hr @ 17,900 rpm
- Max Cylinder Pressure: 2,377 psi @ 17,900 rpm @ CR=6.0
  (Stock FR125: 1,379 psi @ 28.2 bhp & 11,500 rpm, CR=14.8)

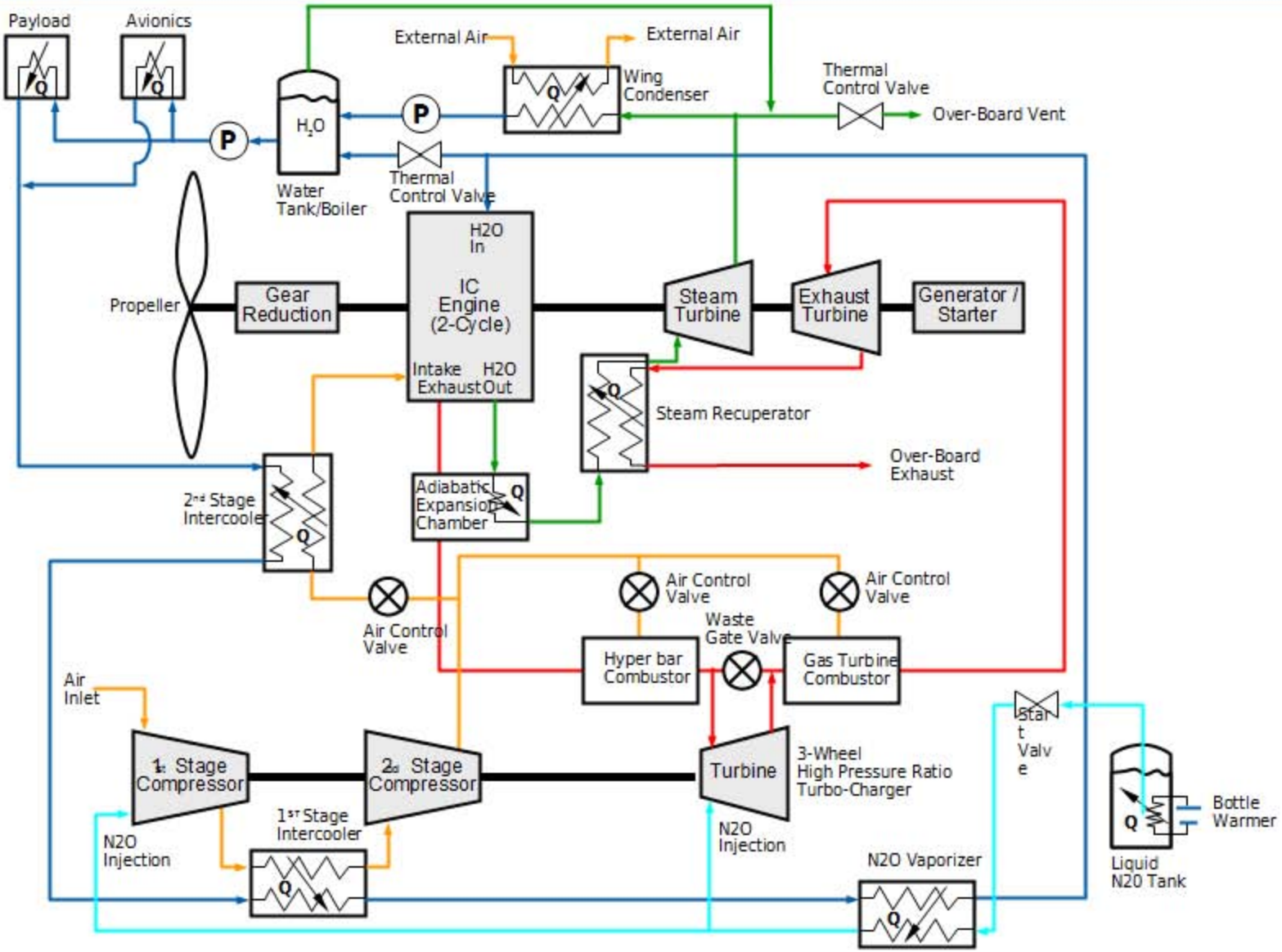
System Analysis Tool: "GT-Suite" by Gamma Technologies

Rotax FR125 Max Modified COTS IC Engine

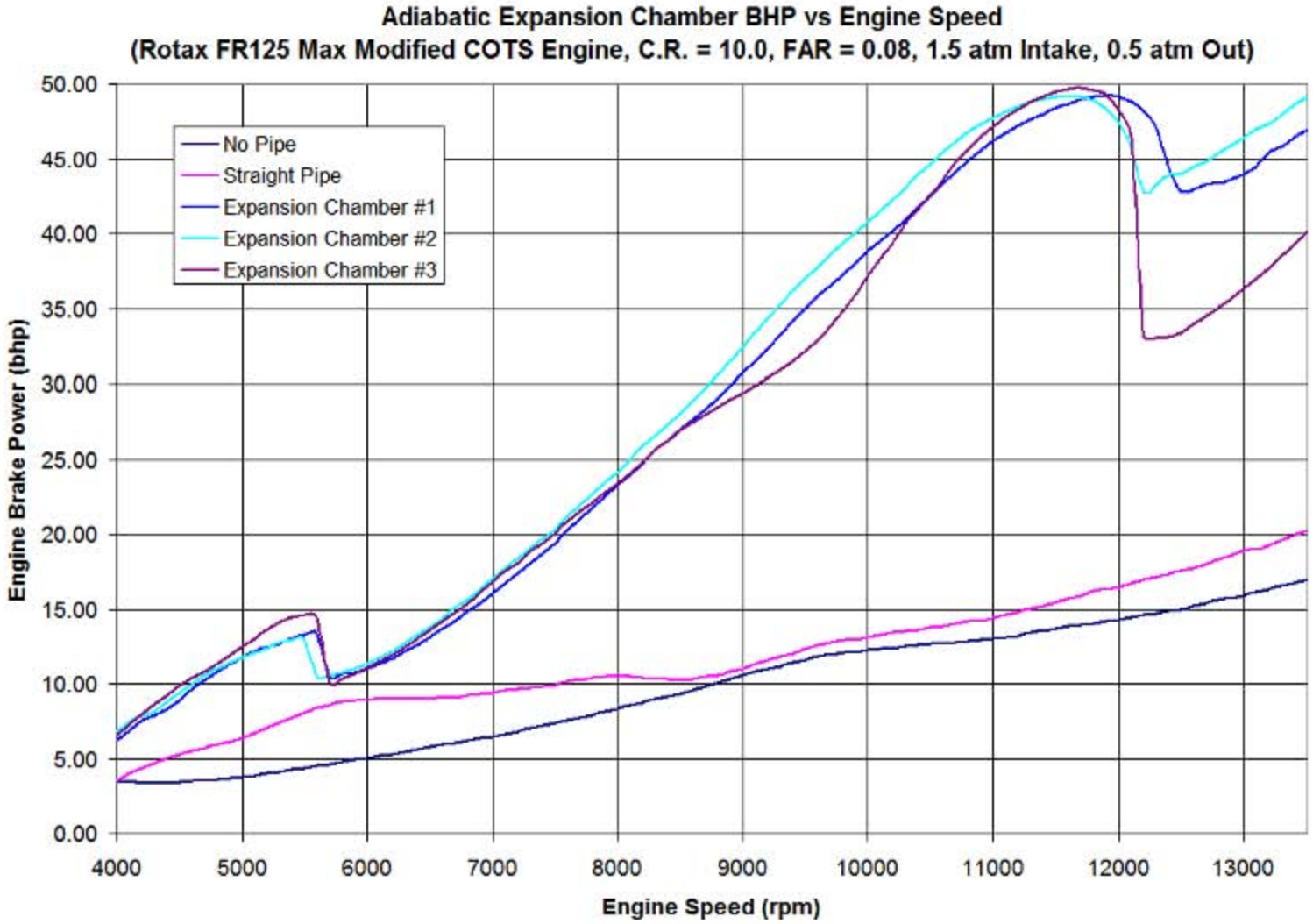




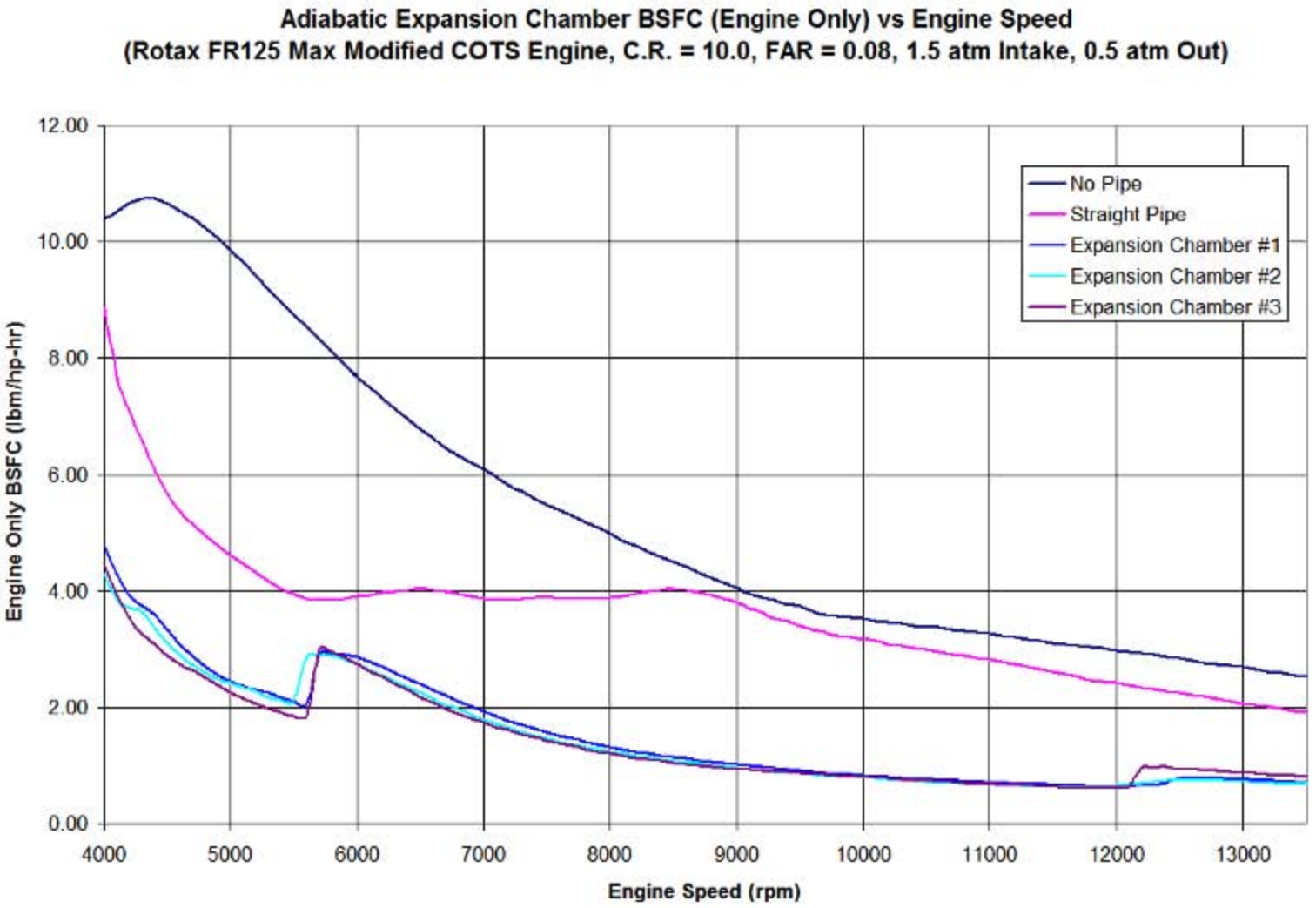
Propulsion System Schematic Overview



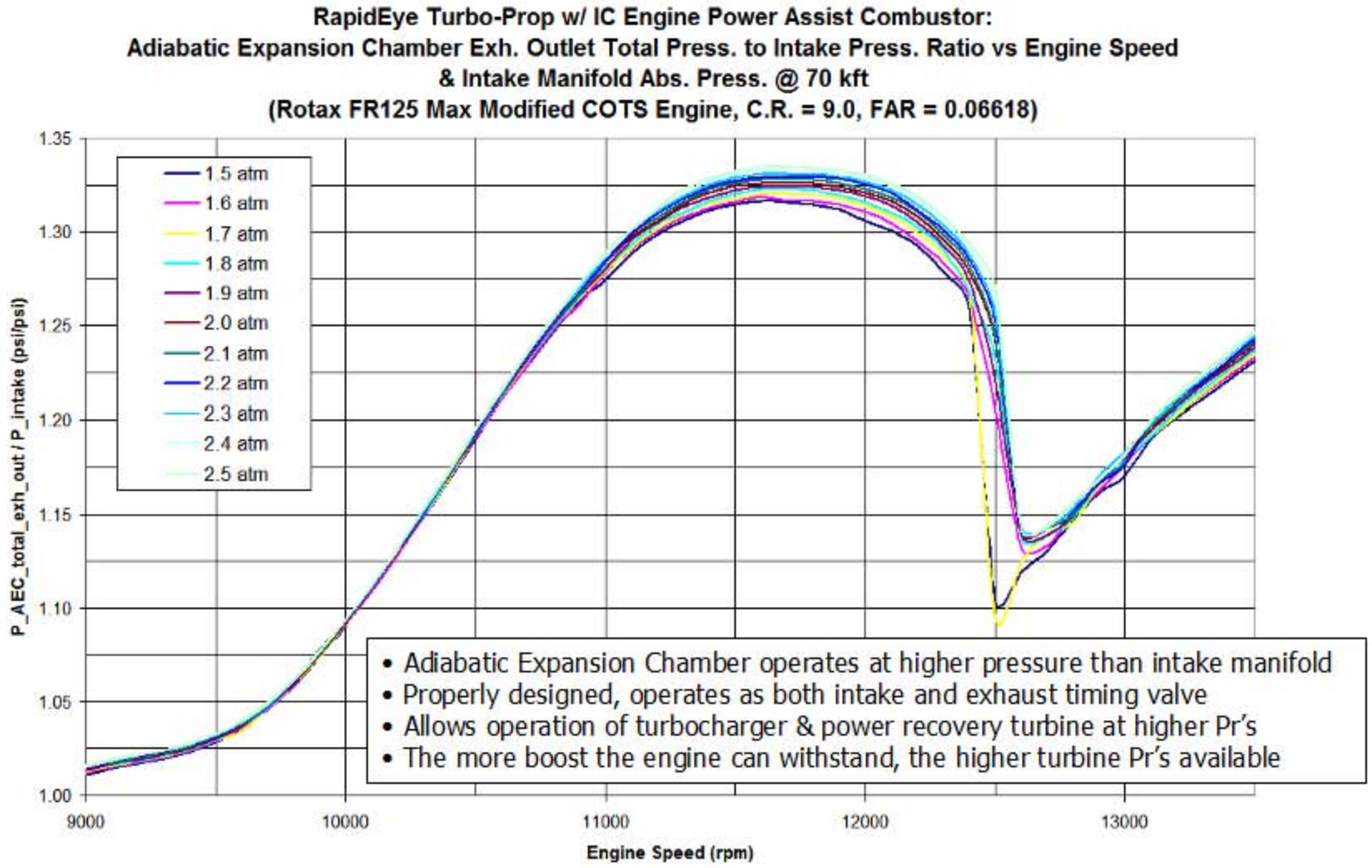
Expansion Chamber BHP Comparison:



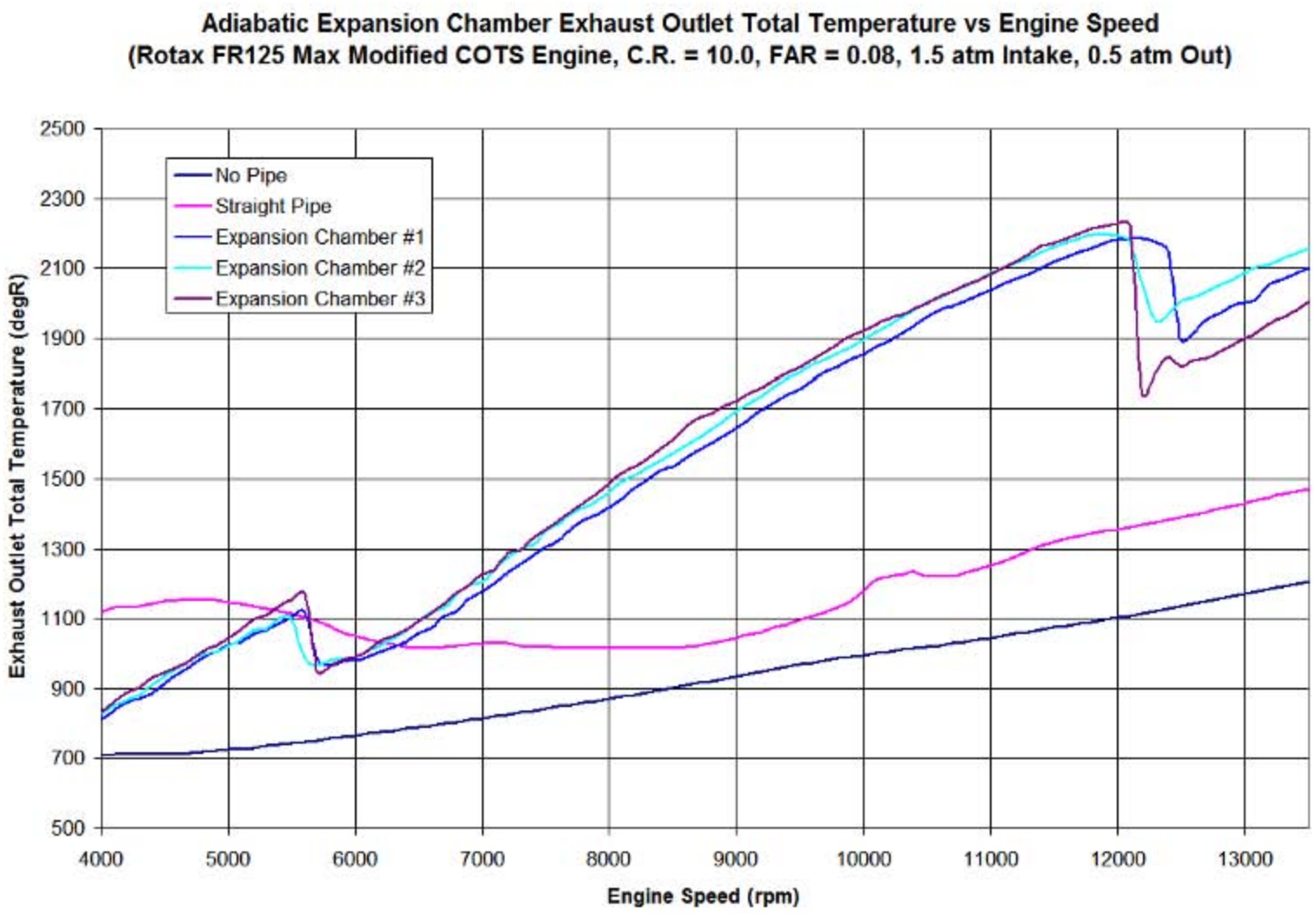
Expansion Chamber BSFC Comparison:



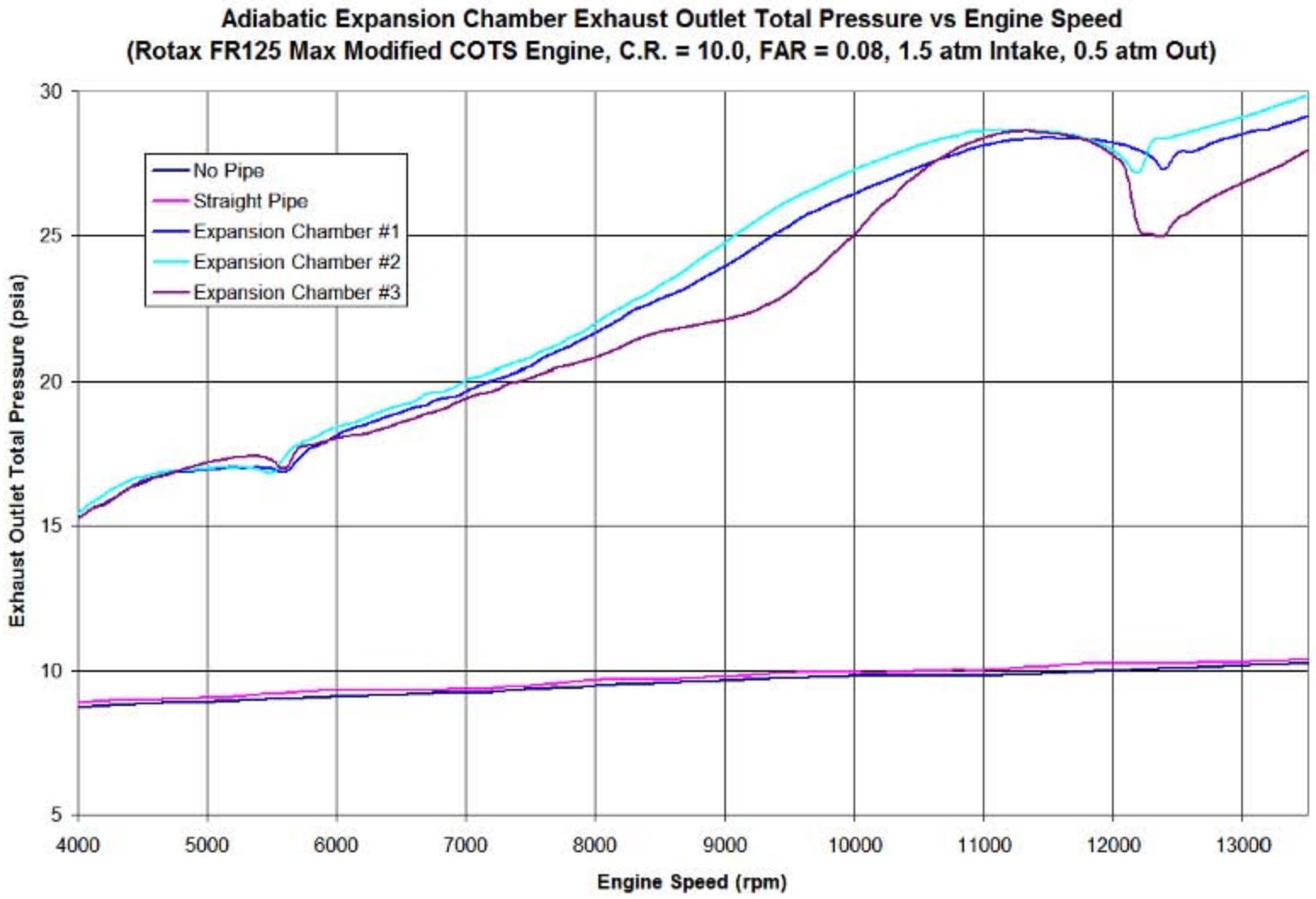
AV Engine Exhaust-to-Intake Pressure Ratio:



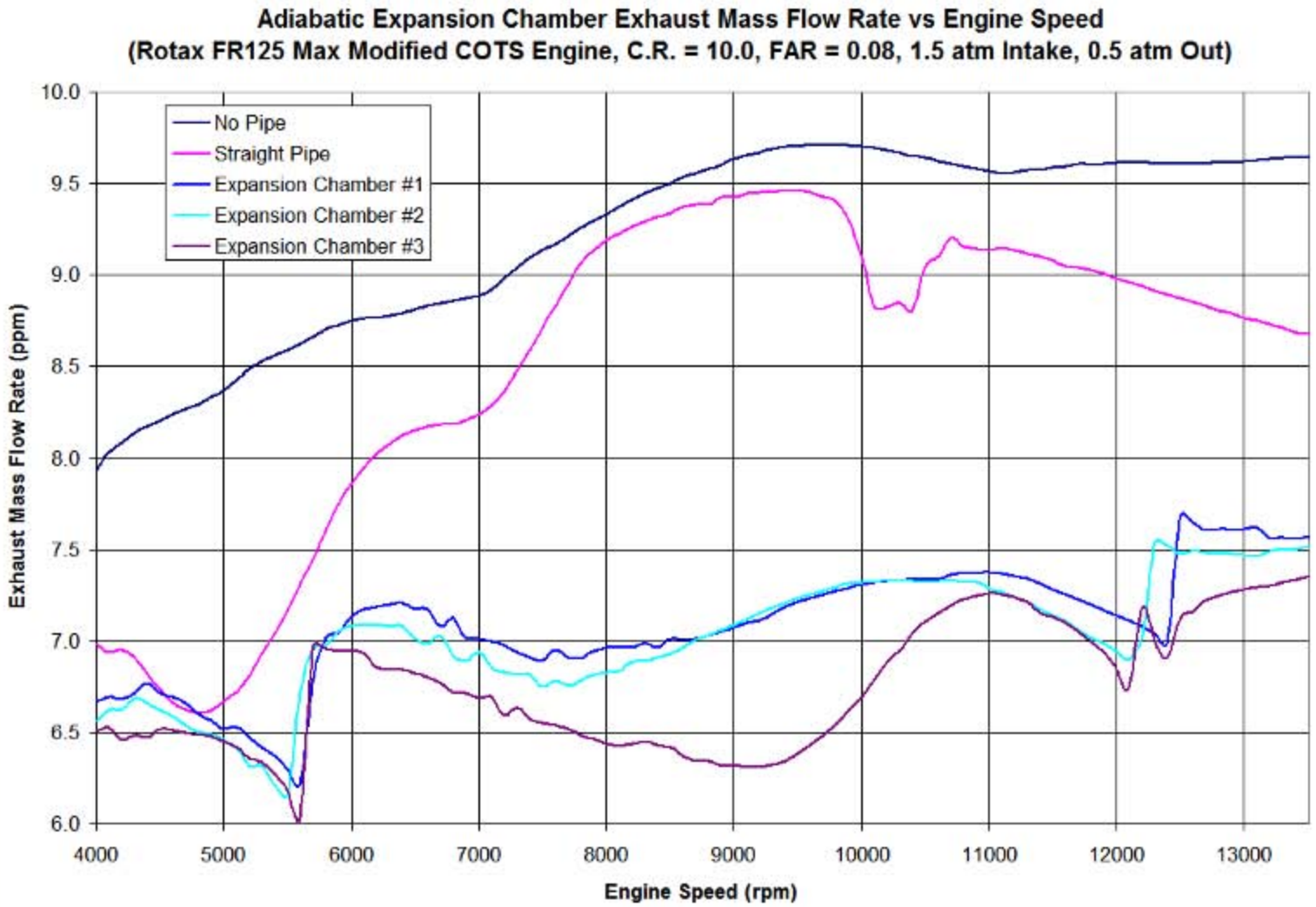
Expansion Chamber Exhaust Outlet T_total Comparison:



Expansion Chamber Exhaust Outlet P_total Comparison:



Expansion Chamber Exhaust Outlet Mdot Comparison:



Expansion Chamber Exhaust Turbine Power Comparison: