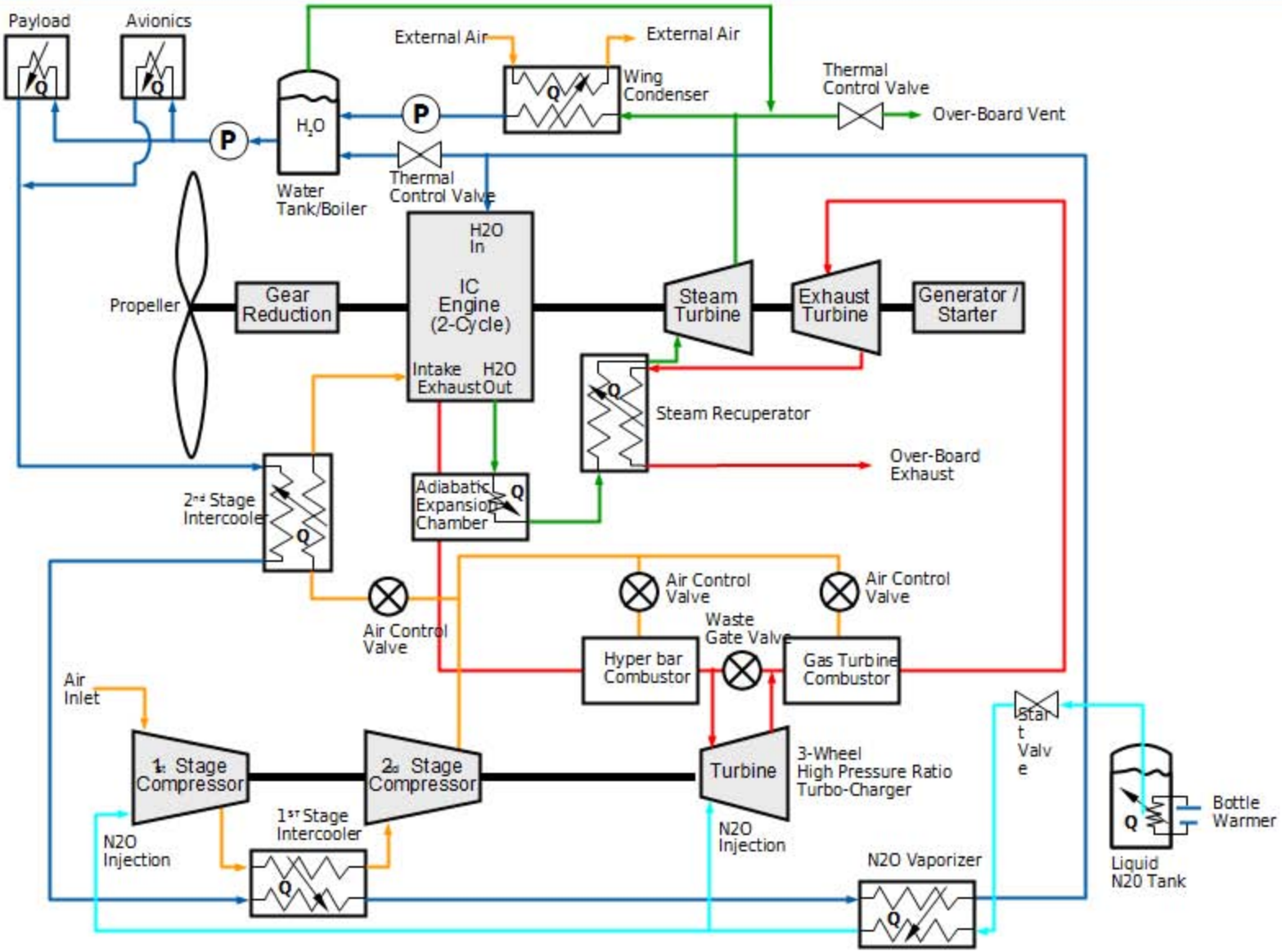
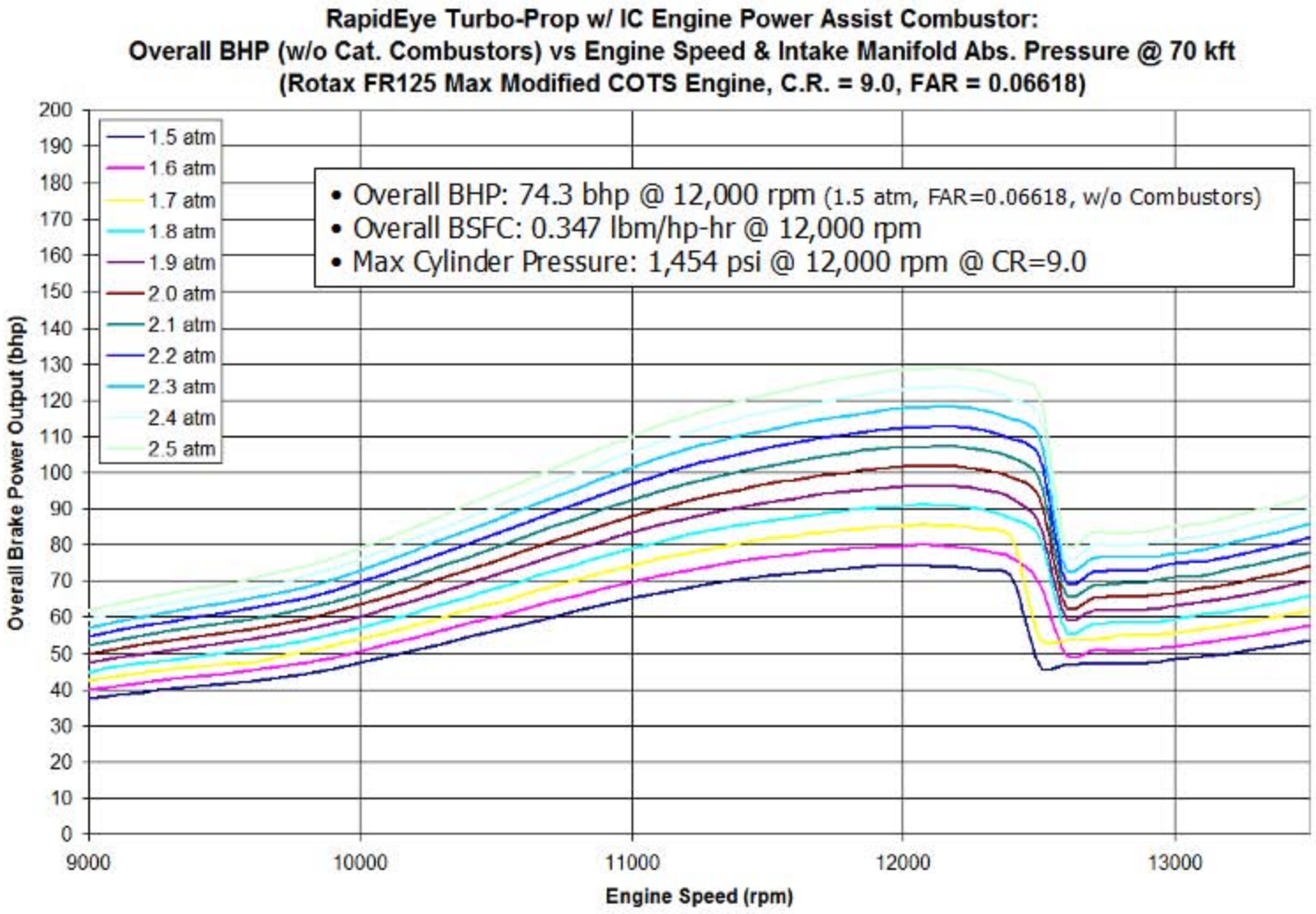
Propulsion System Schematic Overview



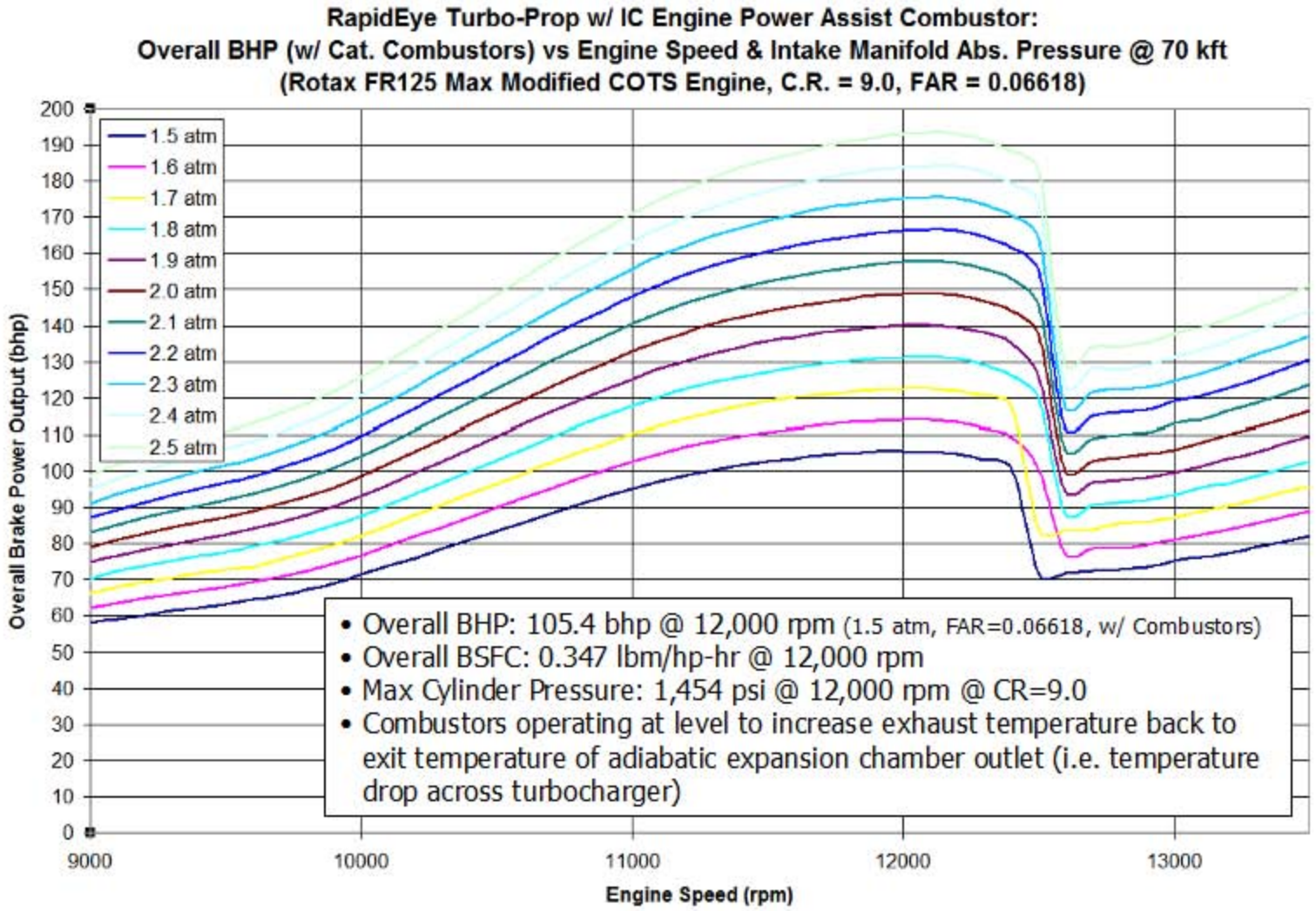
AV Engine Sub-System:

- Turbo-Prop Configuration with IC Engine Power Assist Combustor
- 3-Wheel/2-Stage High Pressure Ratio Turbocharger (Pr_max = 8.5 per stage) w/ Gaseous N2O Compressor Injection for Engine Start Sequence
- (2) Part-Time Catalytic Combustors, Pre- and Post-Turbocharger, for Hyperbar and Gas Turbine Operation Modes
- Modified COTS Rotax FR125 Max 125cc Liquid Cooled 2-Stroke Cycle Kart Engine (Stock 28 bhp @ 11,500 RPM, Redline @ 13,500 RPM) Power Assist Combustor
- Liquid Cooled Adiabatic Expansion Chamber Exhaust System Design for Turbo-Prop/Turbocharger Operation and Enthalpy Recovery via Boiling Heat Transfer
- Combustion Gas Power Recovery Turbine Attached To IC Engine Shaft
- Steam Power Recovery Turbine Attached To IC Engine Shaft
- Exhaust Stream Recuperator (Post Combustion Gas Turbine) for Enthalpy Recovery and Improved Overall Brake Specific Fuel Consumption

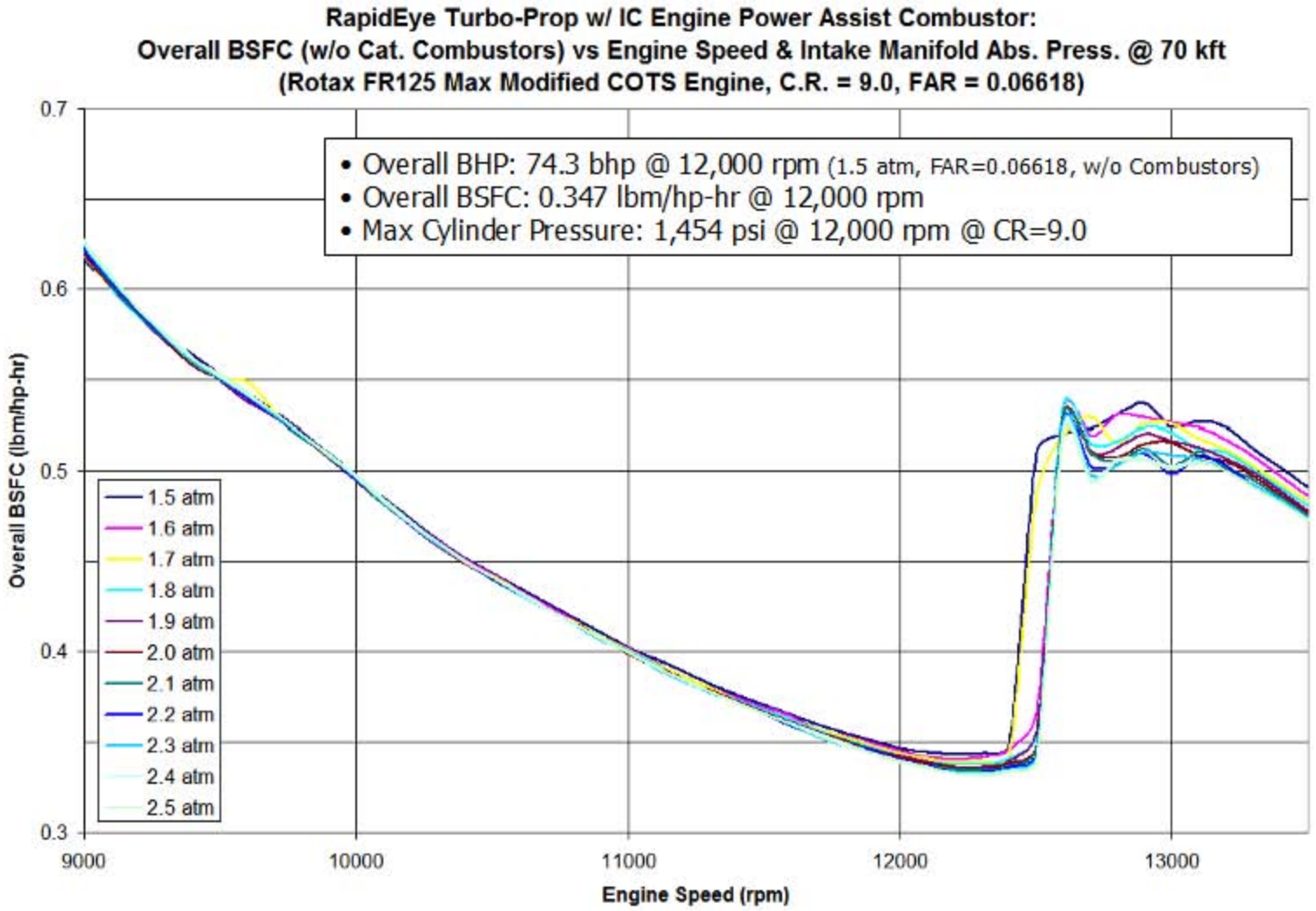
AV Engine Overall BHP w/o Combustors:



AV Engine Overall BHP w/ Combustors:



AV Engine Overall BSFC w/o Combustors:



AV Engine Overall BSFC w/ Combustors: