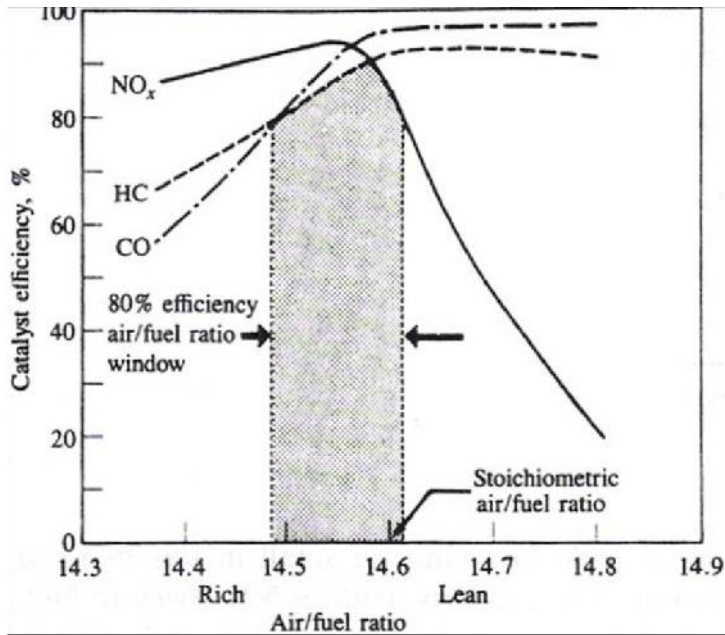


EXHAUST EMISSIONS



This seminar serves as a comprehensive overview of the formation and control of the common exhaust gas pollutants from internal combustion engines: carbon monoxide (CO), hydrocarbons (HC), nitrous oxides (NO_x) and carbon dioxide (CO₂). modern Electronic Fuel Injection systems. During this course we explain the effect of air/fuel ration on emissions formation and investigate the various factors contributing to combustion inefficiency such as wall wetting, crevice volume and flame quenching, piston blow-by. NO_x formation is dominated by combustion temperature, and is discussed in relation to engine load, spark timing, air/fuel ratio and dilution. Exhaust catalysts and emissions control strategies are given special emphasis. Finally vehicular emissions standards and testing procedures are discussed in detail.

Covered Topics Include:

- Combustion Chemistry
- Fuel Atomization and mixing
- Wall wetting
- Crevice volumes
- Piston blow-by
- Temperature and NO_x formation
- Combustion Efficiency
- Exhaust Gas Circulation
- Oxidation & Reduction Catalysts
- Cold Start Strategies
- Emissions Standards & Testing

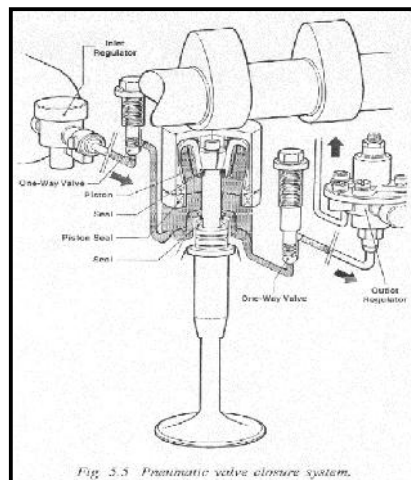


Fig. 5.5 Pneumatic valve closure system.