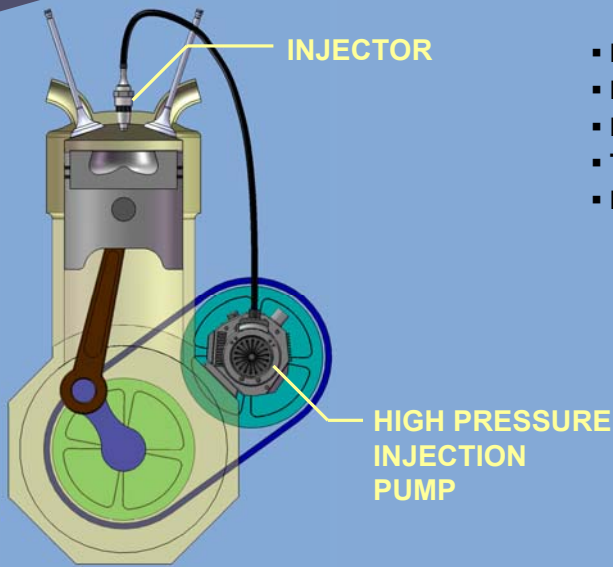


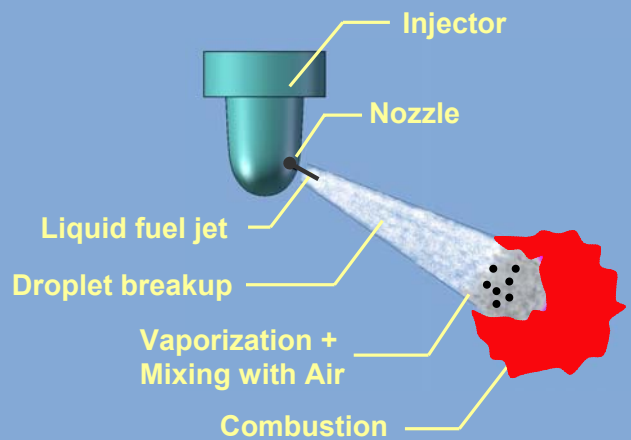
USM ENGINES LAB

DIESEL ENGINES



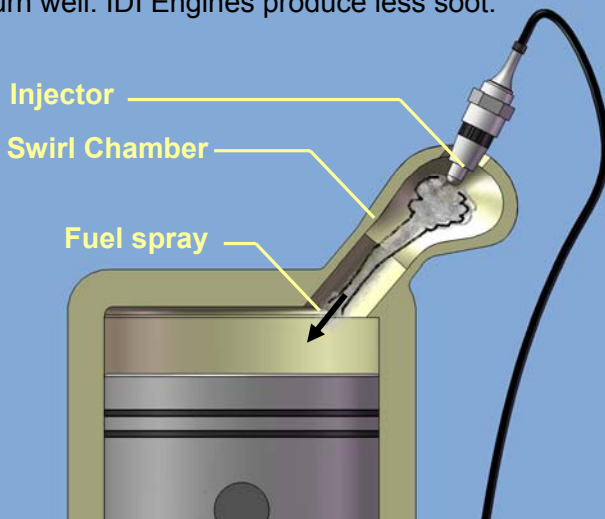
- Diesels are also called Compression Ignition Engines
- Diesels can be either 2 or 4 stroke systems
- Diesels do not have a throttle in incoming air
- They are usually turbo or supercharged
- Diesels are more efficient than spark ignited engines:
 - They have a higher compression ratio
 - They do not have a throttle blocking air intake
 - They operate at lower speeds (less friction)
 - They always operate LEAN

- In Diesels only air is drawn and compressed
- Fuel is injected into the combustion chamber near TDC, and ignition starts spontaneously
- Injection pressures are very high, >2000 bar
- The fuel burns as it mixes with the hot air
- Diesels can burn a wide variety of oily fuels



Indirect Injection (IDI)

During compression air is forced into a "Swirl" chamber in the head. Fuel is sprayed into the swirl chamber and begins to burn. This blows the rest of the air and fuel into the main combustion chamber and helps it mix and burn well. IDI Engines produce less soot.



Direct Injection (DI)

Fuel is sprayed directly into the combustion chamber usually there is a bowl in the piston to help the air and fuel mix. DI Engines are more efficient.

