

THE FKFS TESTING STAND

The Technische Hochschule of Stuttgart had a department, at times 450 employees strong, for technical developments in the science of engines. It was called the "Forschungs Institut für Kraftfahrwesen und Fahrzeugmotoren an der Technische Hochschule Stuttgart" located at Unter Türckheim near Stuttgart in a group of buildings of the Daimler Benz Factory. There a testing motor was developed, used for gasoline as well as for Diesel research, the FKFS Motor, having the following characteristics.

For diesel tests, in particular four (4) types of combustion chamber are available:

- Direct Injection
- Pre-combustion chamber
- Air-cell system
- Fuel-cell system

The compression ration can be varied from:

- 4.5:1 up to 25:1
- Bore 100m/m
- Stroke 130m/m
- Cylinder Volume 1000 cm<sup>3</sup> (1 liter)
- Speed Up to 2500 RPM normally, for short periods 3000 RPM corresponding to a piston speed of 42.6 feet per second

- Cooling water temp 80° C
- Lubricating Oil Vol. from 3 to 6 quarts
- Oil temperature up to 100° C
- Oil pressure 3 Atm
- Valve lift (both) .15 m/m
- Inlet valve opens 10° BTDC
- Exhaust valve closes 12° ATDC

Injection and ignition timing controllable

Injection pressures:

- Direct injection 180 Atm
- Pre-comb, chamber 90 Atm
- Air-cell 90 Atm
- Fuel Cell 110 Atm