

Vehicle Research Laboratory

Dynamometer:

Twin-roll, 300 Hp Eddy-Current
1,500 Pound Equivalent Fixed Inertia during deceleration; variable inertia simulated electrically during acceleration.

Dyno Controllers:

Inter-Loc V with Cell-Assistant Software
Driver's Aid for performing drive cycle tests.

Data Acquisition:

- 10 Type-K Thermocouple
- 8 Timer/Counter
- Analog Inputs
- Digital Inputs

Fuel Control:

Day-tanks for off-board fuel sourcing. Fuel flow measurement and handling using a Max Machinery 710-214 positive-displacement fuel metering system.

Room and Dilution Air Conditioning:

Laboratory is air conditioned to maintain constant temperature.

Emissions Instrumentation:

8 Inch full-flow light-duty dilution tunnel with secondary dilution capability for filter samples.

2 flow paths with standard instruments:

- Heated Chemiluminescence (NO_x)
- Heated Flame Ionization (HCs)
- Non-dispersive Infrared (CO, CO₂)
- Paramagnetic (O₂)

1 Additional path with heated chemiluminescence and heated flame ionization instruments.

ETAS-LA3 Lambda Meter

More advanced instrumentation is included in a pool shared among several labs. (FTIR, TEOM, SMPS, etc.)



Available Research Vehicles:

Mercedes A170 CDI: 1.7L Common-Rail Diesel (1999 Model Year)

Volvo S40 1.8 TI: 1.8L Gasoline Direct-Injection (2000 Model Year)

Other Vehicles can be leased as needed or supplied by partners / users.

Typical Projects:

The Vehicle Research Lab has been used for studies of NO_x trap regeneration and studies of the effects human and mouse lung tissue to both diesel and gasoline exhaust. The lab has also been utilized for user R&D activities. Additional user projects are anticipated in FY2005. An example of the data collected during a NO_x trap project can be found in SAE paper number 2002-01-2876.