

Vehicle testing



Contributions of Development



- Turbochargers
- Heavy-Duty Engines
- Powertrain / Hybrid Drive
- Exhaust Gas Systems
- Exhaust Gas Emissions
- Oil Consumption / Oil Dilution
- Coking of Injectors
- Component Structures
- Oil Supply Analyses /Swivel Test Bench
- Measuring Equipment
- Vehicle Test

History of KST



1967	Company Founding Engine Testing Lubes and Fuels
since 1980	Lifetime Development of Engines / Components Emissions, Road Test
since 2006	Extended Range of Services: Heavy-Duty Engines, Turbochargers, Powertrain, Certification for Emission-Testing, Hybrid and Electric Drive Extension of Test and Infrastructural Facilities by Expanding Plant

Certificates





Vehicle Road Test

The vehicle testing includes

- measurements of engines before test start and at test end
- oil analysis
- data accumulation for all engine parameters

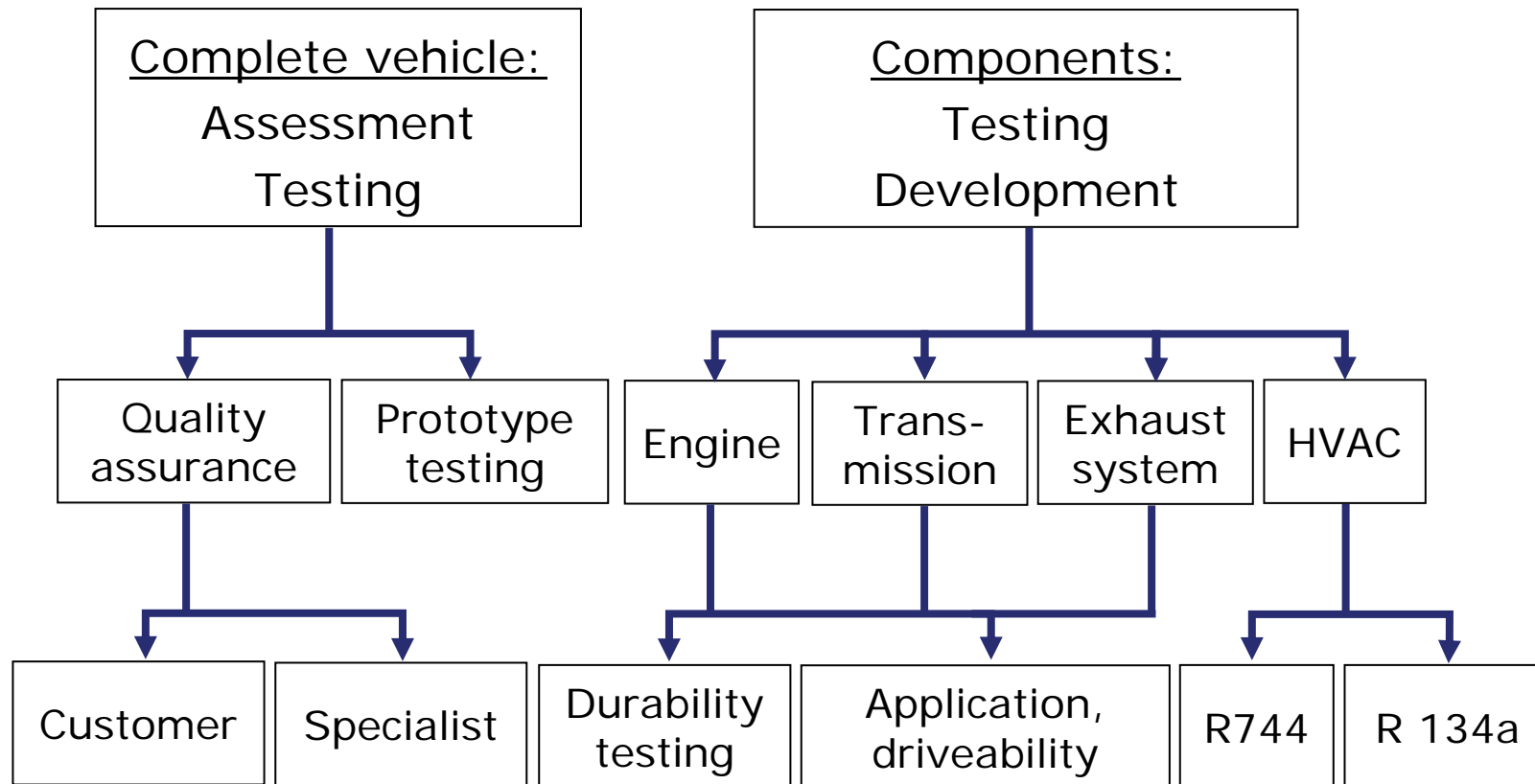
KST vehicle-testing is based on approx. 20 Mio. km of driving experience.

KST has been performing fleet tests on test tracks and public roads:

- Durability testing
- Mobile data logging 
- Transition of road load data for bench testing 



Vehicle test - Survey



- Selection of the drivers according to the KST selection procedure.
- Regular personnel for many years (minimum age 25 years).
- Steady control of the drivers by the vehicle test manager.
- Individual assessment and discussion (e. g. „consumption too high“).
- Track selection depending on the season.
- As a matter of principle no driving in line.
- Regular training of the drivers (ADAC safety training at least once a year, BMW-Drivers training)

- Vehicle control by the driver or the vehicle test manager, if necessary, after each ride:
 - Oil level control
 - HVAC control (pressure, cool down performance, leakage check)
 - Leakage test (operating agents / exhaust gas)
 - Idle noise / rev-up
 - Damages (e. g. tyres, stone impacts etc.)

- Transfer discussion to analyse possible systematic faults.
- All vehicles equipped with mobile phones.
- Cyclic exchange of drivers (daily/weekly) to avoid habituation effects.

Vehicle test – proposal

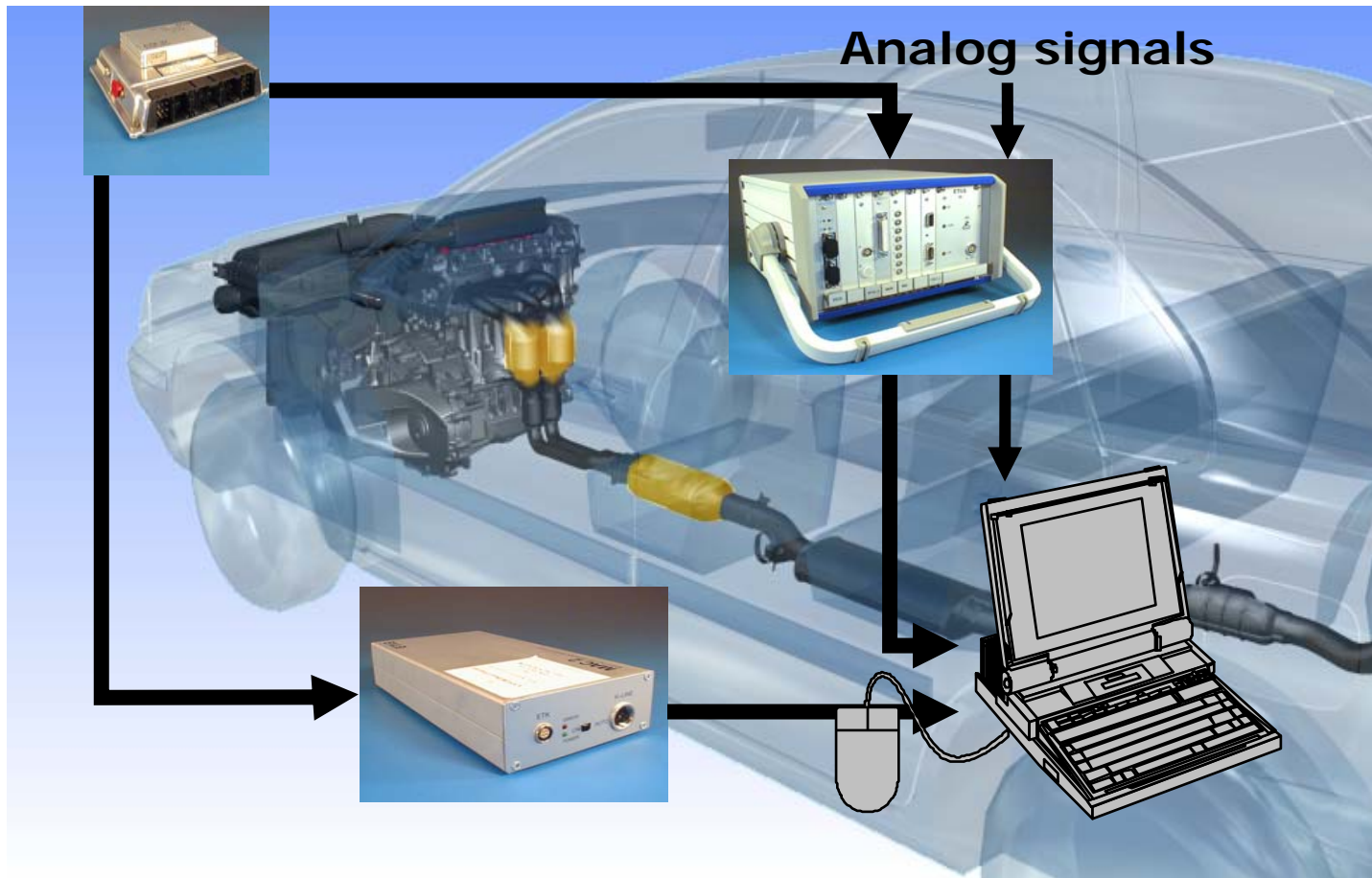


- Installation of measurement devices according to customer specs.
- Services and repairs through KST or licensed partners.
- Working time: 6 days/week; 2-shift operation from 6 a.m. to 10 p.m. (3-shift operation possible).
- Customer-oriented driving profiles.

Vehicle	Test course (km)	Driving profile	average speed (km/h)	Actual driving time (weeks)
1	200.000	Highway	110	24
2	200.000	Highway	110	24
3	50.000	City traffic	35	19
4	50.000	City traffic	35	19
5	100.000	Circuit I	65	20
6	100.000	Circuit I	65	20
7	150.000	Circuit II	75	26
8	150.000	Circuit III	75	26

The test tracks can also be set up according to customer specifications.

Vehicle test – application tools

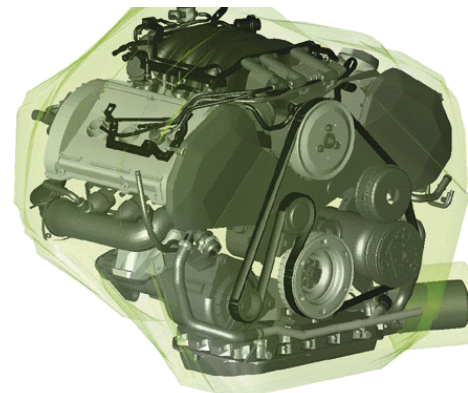
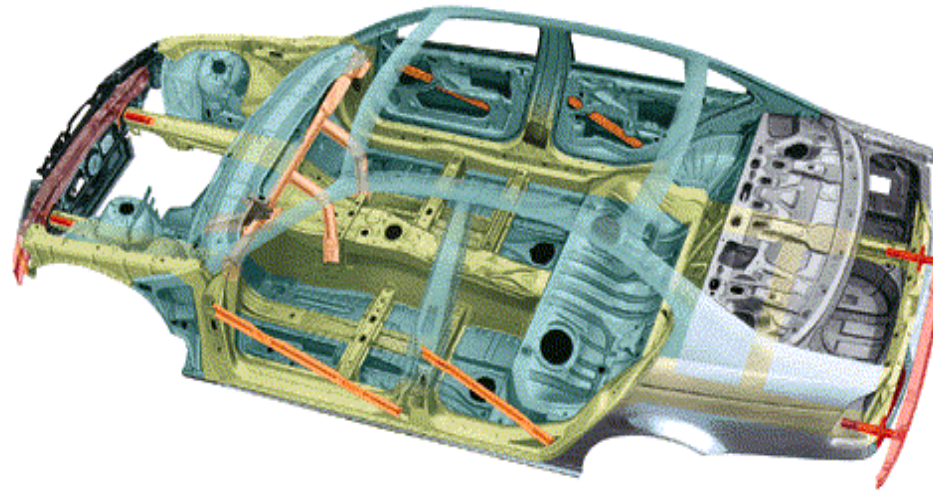


Vehicle test – conversion works



- Design
- Feasibility studies
- Prototype generation
- Mock-up
- HVAC (R134a, R744)
- Measurements:

Temperatures
Pressures
Forces
Accelerations
Speeds
Emissions



Locations



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