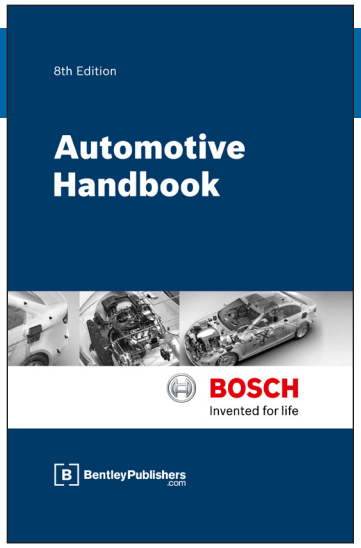
BentleyPublishers™
.com
established 1950
Automotive Reference™

Revised & Updated



BentleyPublishers
.com

Bosch Automotive Handbook
8th Edition

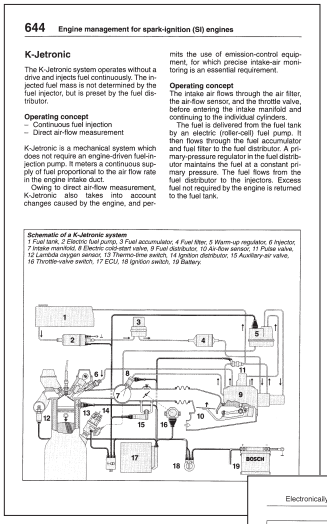
Price: $54.95
Bentley Stock No: H016
Publication Date: 2011.jun.1
ISBN: 978-0-8376-1686-5
Vinyl cover, 4 1/2 in. x 7 in.
Case quantity: 1
1256 pages
Over 1000 technical photos and illustrations

All about automotive engineering in a pocketbook

Robert Bosch GmbH published the first incarnation of the Automotive Handbook in 1932. The original preface to this edition introduced the book as follows: "These 'Technical Tables' are an attempt to give users of our products a small, handy collection of the interesting formulas, values, and figures - drawn mainly from automotive technology -that are otherwise scattered across various magazines." Three years later, the "Technical Tables" were renamed the "Automotive Handbook."

Contents - central themes

- Basic principles: physics, materials, machine parts, joining and bonding techniques
- Vehicle physics: basic terms of automotive engineering, motor-vehicle dynamics, vehicle acoustics
- Internal-combustion engines: gasoline engine, diesel engine, turbochargers and superchargers, exhaust-gas system
- Emission-control and diagnosis legislation
- Management for spark-ignition engines: manifold injection, gasoline direct injection, alternative gasoline-engine operation
- Management for diesel engines: common rail
- Alternative drives: hybrid drive, fuel cell
- Chassis systems: suspension, wheel suspensions, steering, brake systems
- Active safety: antilock braking system, driving-dynamics control system
- Lighting equipment
- Automotive electrics: vehicle electrical systems, starter batteries, electrical machines, alternators
- Automotive electronics: automotive networking, buses, architecture of electronic systems, sensors
- Driver-assistance systems: parking systems, vehicle navigation, Adaptive Cruise Control, night-vision systems


644 Engine management for spark-ignition (SI) engines

K-Jetronic

The K-Jetronic system operates without a drive and injects fuel continuously. The injected fuel mass is not determined by the fuel injector, but is preset by the fuel distributor.

Operating concept
– Continuous fuel injection
– Direct air-flow measurement

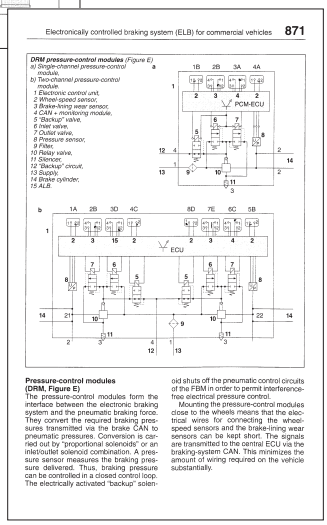
K-Jetronic is a mechanical system which does not require an engine-driven fuel-injection pump. It meters a continuous supply of fuel proportional to the air flow rate in the engine intake duct.

Owing to direct air-flow measurement, K-Jetronic also takes into account changes caused by the engine, and permits the use of emission-control equipment, for which precise intake-air monitoring is an essential requirement.

Operating concept
The intake air flows through the air filter, the air-flow sensor, and the throttle valve, before entering the intake manifold and continuing to the individual cylinders.

The fuel is delivered from the fuel tank by an electric (roller-cell) fuel pump. It then flows through the fuel accumulator and fuel filter to the fuel distributor. A primary-pressure regulator in the fuel distributor maintains the fuel at a constant primary pressure. The fuel flows from the fuel distributor to the injectors. Excess fuel not required by the engine is returned to the fuel tank.

Schematic of a K-Jetronic system
1 Fuel tank, 2 Electric fuel pump, 3 Fuel accumulator, 4 Fuel filter, 5 Warm-up regulator, 6 Injector, 7 Intake manifold, 8 Electric cold-start valve, 9 Fuel distributor, 10 Air-flow sensor, 11 Pulse valve, 12 Lambda oxygen sensor, 13 Thermo-time switch, 14 Ignition distributor, 15 Auxiliary-air valve, 16 Throttle-valve switch, 17 ECU, 18 Ignition switch, 19 Battery


Electronically controlled braking system (ELB) for commercial vehicles 871

DRM pressure-control modules (Figure E)
a) Single-channel pressure-control module,
b) Two-channel pressure-control module
1 Electronic control unit,
2 Wheel-speed sensor,
3 Brake-lining wear sensor,
4 CAN + monitoring module,
5 "Backup" valve,
6 Inlet valve,
7 Outlet valve,
8 Pressure sensor,
9 Filter,
10 Relay valve,
11 Silencer,
12 "Backup" circuit,
13 Supply,
14 Brake cylinder,
15 ALB

Pressure-control modules (DRM, Figure E)
The pressure-control modules form the interface between the electronic braking system and the pneumatic braking force. They convert the required braking pressures transmitted via the brake CAN to pneumatic pressures. Conversion is carried out by "proportional solenoids" or an inlet/outlet solenoid combination. A pressure sensor measures the braking pressure delivered. Thus, braking pressure can be controlled in a closed control loop. The electrically activated "backup" solenoid shuts off the pneumatic control circuits of the FBM in order to permit interference-free electrical pressure control.

Mounting the pressure-control modules close to the wheels means that the electrical wires for connecting the wheel-speed sensors and the brake-lining wear sensors can be kept short. The signals are transmitted to the central ECU via the braking-system CAN. This minimizes the amount of wiring required on the vehicle substantially.

Sample page spreads from the *Bosch Automotive Handbook*

BentleyPublishers™
.com
Bentley Publishers, 1734 Massachusetts Avenue, Cambridge, MA 02138-1804 USA
Tel: 617-547-4170 • Toll Free: 800-423-4595 • Fax: 617-876-9235
http://www.bentleypublishers.com/contact-us