

# ECAS

Electronically Controlled Air  
Suspension for Commercial Vehicles



# WABCO

# Electronically Controlled Air Suspension



ECAS from WABCO is a straightforward electronic air suspension system of modular design, which is suited for a multitude of application in heavy-duty, medium and light-duty commercial vehicles.

## ECAS applications

Due to its modular design, ECAS can be used in:

- Trucks with air suspended rear axles, with air suspended rear and lifting axles, with air suspended front and rear axles, with air suspended front, rear and lifting axles
- Buses with air suspension systems
- Trailers with air suspension systems
- Light-duty commercial vehicles and passenger cars

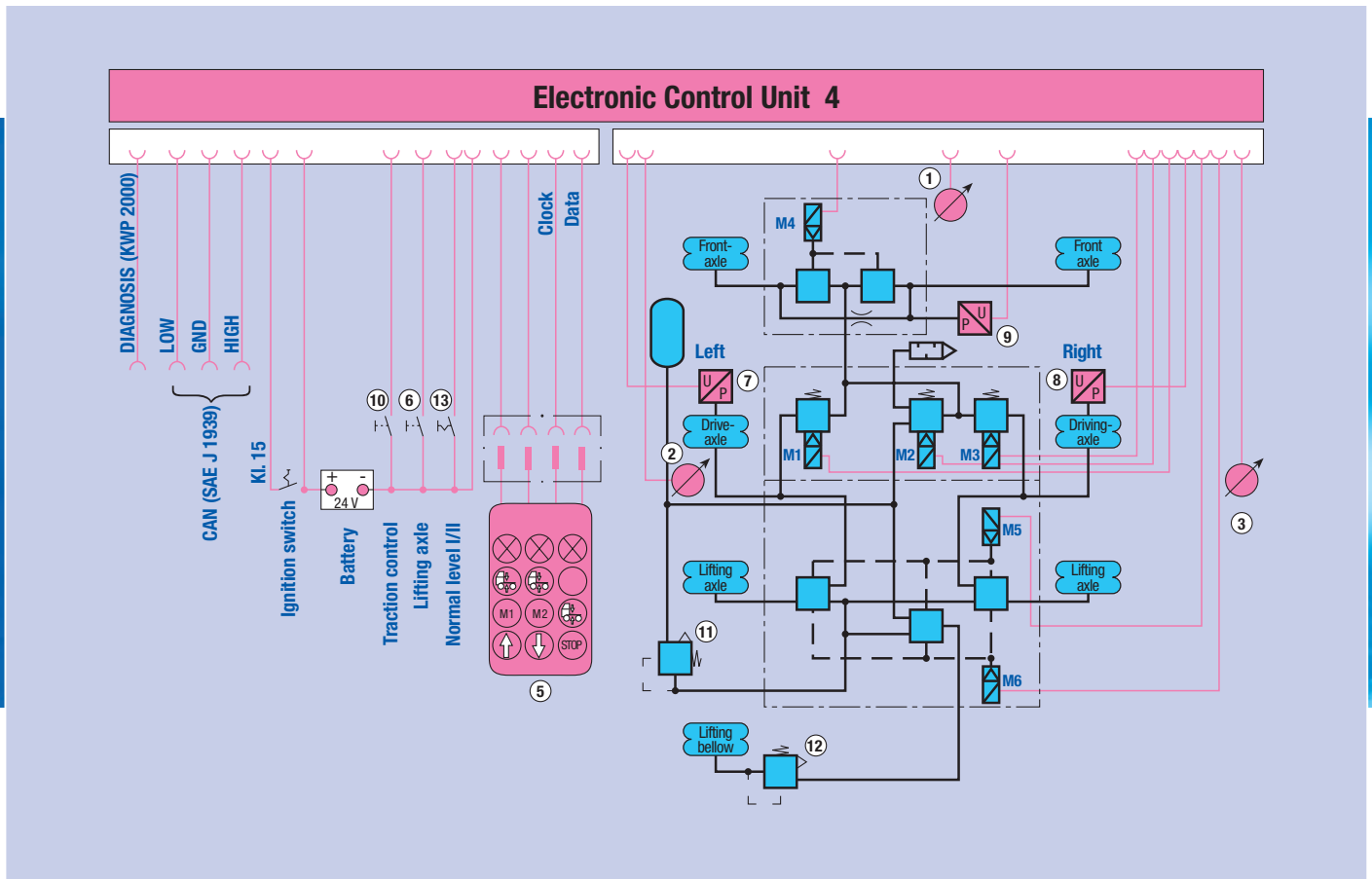
## ECAS offers clear benefits

ECAS is available with or without a remote control unit and offers:

- Vehicle superstructure in parallel to the road at a pre-set level even if the load is not spread evenly
- Constant level for loading ramp operation with no need of manual re-adjustment; stand-by operation possible
- Automatic traction control in compliance with the latest European legal requirements
- Traction control as an option for the maximum utilization of permissible axle loads
- Rapid lifting and lowering times
- Low air consumption as brief dynamic spring motion does not affect the control process
- CAN bus capability
- Load indication
- Long service life

In addition, ECAS only requires little space for installation and pipes. ECAS is used as the basis for electronic damping control ESAC. Different concepts for diagnosis (e. g. according to ISO 9141 or KWP 2000) have been implemented.

# ECAS in trucks with air suspended front, rear and lifting axles



## Nominal level control

Three distance sensors (1, 2, 3) placed between bodywork and axle pick up the height of the superstructure, convert it into electrical signals and transmit it to the ECU (4). In the event of any deviations from the pre-set nominal level, the ECU activates the corresponding solenoid valves (M1-M4). Depending on the actual level, the pressure in the air bellows is increased or decreased until the nominal level has been reached. Dynamic spring motion is not taken into account and does not cause the control process to be activated. The intelligent level controller computes the optimal type of control for any load.

## Lifting/lowering operation

The level of the vehicle's superstructure can be altered manually by means of a remote control unit (5). In this way it is possible to adjust the level either from inside or outside the driver's cab.

In loading ramp operation, the level of the vehicle's superstructure can thus be adjusted to the level of the loading ramp. The new reference level is automatically maintained for the subsequent loading or unloading process. No manual re-adjustment is necessary.

The manual relief of the lifting axle of an empty or partially loaded vehicle can be achieved at any time via the lifting axle button (6), provided the permissible axle load of the driving axle is not exceeded. The air suspen-

sion bellows of the driving and lifting axles are separated for this purpose by solenoid valves (M5, M6). The residual pressure in the lifting axle bellows is maintained by the pressure limiting valve (11). The maximum pressure in the lifting bellow is limited by the valve (12).

Different normal levels (NLI or NLI) can be selected, by using a switch (13).



### Automatic pressurizing of the lifting axle

When the permissible load on the driving axle (measured by pressure sensors 7 and 8) is exceeded, the raised lifting axle is automatically lowered and weighted in parallel to the driving axle.

### Traction assist

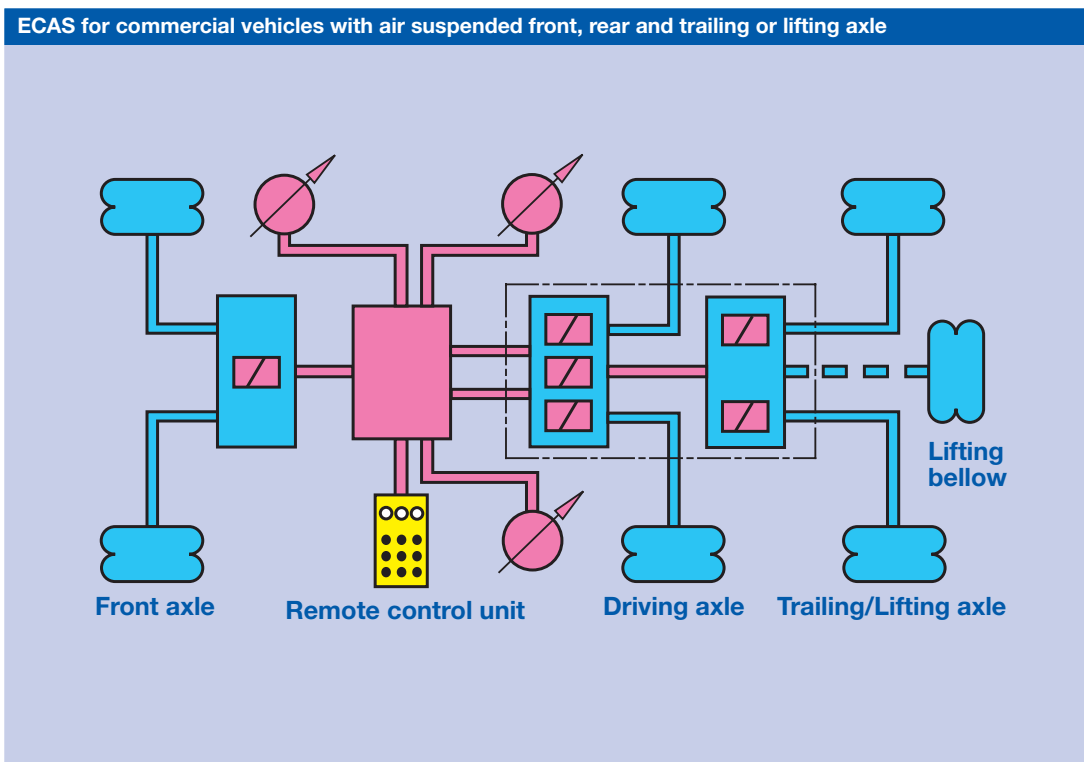
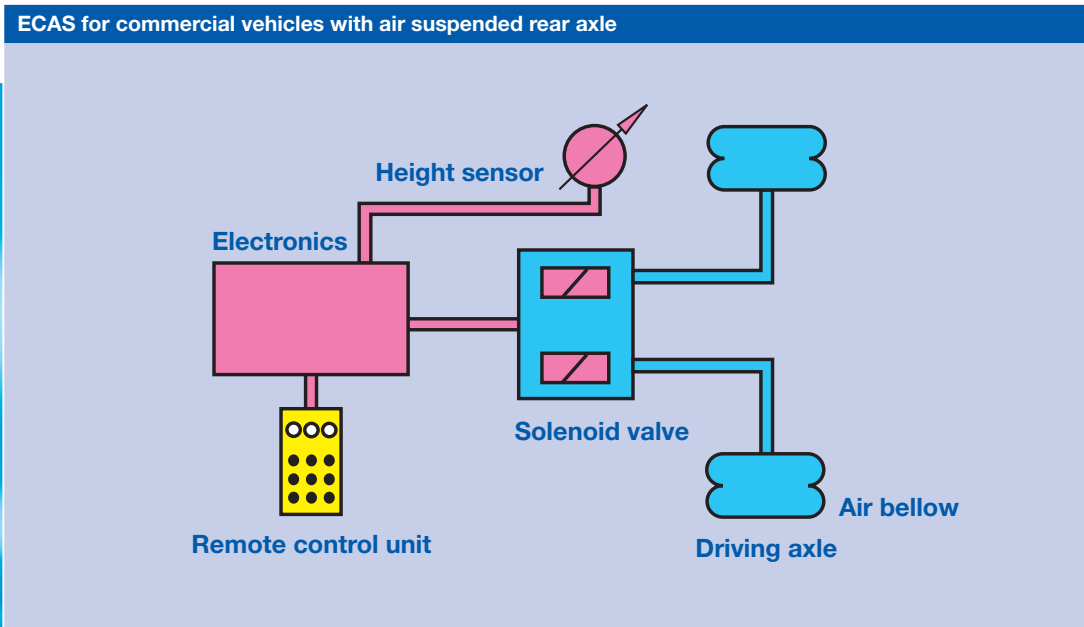
In various European countries, legislation permits the load on the driving axle to be exceeded, with or without a time limit, by reducing the weight on the lifting axle, e.g. to improve traction on difficult terrain.

By pushing a button (10) on the dashboard, this process is activated. To make sure that the maximum permissible axle load is not exceeded, the pressure in the air suspension bellows must be monitored. This is done by the pressure sensors (7 and 8).

### Measuring bellows pressure and load

The load is measured by pressure sensors (7, 8, 9) and shown on the display within the dashboard.

# Modular, electronically controlled air suspension systems





WABCO, the vehicle control systems business of American Standard Companies, is the world's leading producer of electronic braking, stability, suspension and transmission control systems for heavy duty commercial vehicles. WABCO products are also increasingly used in luxury cars and sport utility vehicles (SUVs). Customers include the world's leading commercial truck, trailer, bus and passenger car manufacturers. Founded in the US 135 years

ago as Westinghouse Air Brake Company, WABCO was acquired by American Standard in 1968. Headquartered in Brussels, Belgium, the business today employs nearly 6500 people in 29 office and production facilities worldwide. In 2003, WABCO contributed US\$ 1.358 billion to American Standard's total sales of US\$ 8.568 billion.

**Website: [www.wabco-auto.com](http://www.wabco-auto.com)**

