Diagnostics

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Function

Computer-assisted electronics account for most of the inner workings of modern motor vehicles. The number of control units installed in a vehicle, networked via a data bus and communicating with one another is very often in double figures.

Over time, almost all mechanical control components have been replaced by equivalent electronic circuits. Powerful electronic control unit open up whole new possibilities where safety and comfort are concerned. Complex systems (ABS, ESP, parking assistants and ACC, for example) can be implemented relatively easily.

This development has completely changed how garage mechanics work. Gone are the times in which troubleshooting relied solely on specialist knowledge, an open-end spanner and a screwdriver. Today, in-depth system knowledge, the latest garage software and a powerful control unit diagnosis system provide the basis for repairing modern vehicles. Control unit diagnosis is facilitated by communication with the vehicle electronics. This enables faults to be located more quickly in the garage or other service functions to be activated, for example.

Options supported by control unit diagnosis

A garage mechanic using the control unit diagnosis system can read out the fault memory of the systems installed in the vehicle, for example. If the fault memory contains error code entries, the expert mechanic must interpret them correctly. (Just because a fault code has been entered for an electronic component, this does not necessarily mean that the component is faulty.) Before a garage mechanic replaces a component, they must use conventional test methods (a signal generator, a multimeter or an oscilloscope, for example) to identify the exact cause of the fault. Powerful diagnosis devices can be used for vehicle-specific guided troubleshooting in such cases. The garage mechanic works through preconfigured test steps and is assisted by images and nominal values. Once the repair work is complete, the fault memory can be deleted with the diagnosis system.

For many vehicles, a diagnosis system has become essential even for standard tasks such as resetting service intervals, brake repairs or oil and battery changes.

Options

The range of diagnosis systems is comprehensive, extending from diagnosis modules which are connected to a PC to touchscreen and handheld devices and even tablet PCs. Many devices are equipped with a Bluetooth interface for wireless data transmission.

The control unit diagnosis system is completed by a powerful garage software package which contains the control unit diagnosis software, service information, troubleshooting instructions, nominal values, job values, technical vehicle data for petrol and diesel vehicles, circuit diagrams for all important areas of

convenience electronics and information about adapter plug requirements.

The latest generation control unit diagnosis systems feature a built-in camera to take photographs of anything out of the ordinary on the vehicle or parts that need to be replaced.

Control unit reprogramming to Euro 5

Going forward, the technical requirements for type approval will apply universally for the entire EU. According to these requirements, automotive manufacturers have an obligation to make technical repair information available on their online portals to independent garages also, and to provide independent garages with the necessary means to reprogramme control units. Only diagnosis systems with Euro 5 approval may be used in this context. These are devices which already feature what is known as a "Pass-Thru" interface. This interface is a communications driver which is used when reprogramming control units. These control unit diagnosis systems can install the latest software version from the manufacturer's online portal in a vehicle's control unit if this is required.

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