

Tips & Technology

For Bosch business partners

Current topics for successful workshops No. 09/2014

Electrics / Electronics



BOSCH

Invented for life

Digital Headlight Check

While manufacturers used halogen bulb technology almost exclusively for more than 30 years following its initial introduction in the automobile industry, a revolution has occurred in this field to some extent in the past ten years. Xenon headlamps are installed in all vehicle categories today. All-LED headlamps are already available in the mid-sized class and the new laser lights are ready to be introduced. The analog headlamp beam setters still found in automotive workshops today can no longer meet the requirements of the market.

The advantage of digital headlamp beam setters

Regardless of how beneficial the bright xenon and LED headlamp systems are in terms of illuminating the roadway, they are difficult to adjust precisely without appropriate equipment. At the light-dark boundary, xenon and LED headlamp systems generate a kind of blue fringe that makes it impossible for the eye to recognize the exact light-dark boundary. With incorrect interpretation of the light-dark boundary, the headlamps can be adjusted too low, leading to reduced illumination of the roadway. If the headlamps are adjusted too high because of the misinterpretation, the oncoming vehicle is blinded by the intense xenon and LED headlamps and an accident may result. In addition, headlamps that are adjusted too high are considered a major fault during the main vehicle inspection, so that the sticker is not issued.

Bi-xenon headlight pattern on the test screen of an analog headlamp beam setter:



Because of the blue fringe of the xenon light, the eye is not able to detect the exact light-dark boundary clearly. The exact evaluation and adjustment of headlamps required for safe traffic cannot be achieved with an analog headlamp beam setter.

Digital headlamp beam setters using camera technology have been developed specifically for this purpose. They are able to filter out the disturbing blue fringe and in this way define the light-dark boundary exactly.

Filtered live image of a bi-xenon headlamp on the HTD 815:



Vehicles with light assistance functions exhibit distinctly different shapes for the light-dark boundary from one manufacturer to another. For this reason, intelligent lighting systems have a specific setting mode for evaluating the light-dark boundary. The manufacturer provides reference values for this purpose.

LED segment headlamps with dynamic light assistants, which have a vertical and horizontal light-dark boundary, are evaluated using the location of the so-called "reference segment". With the digital headlamp beam setter, it is possible to read the coordinates of the "reference segment". This information is then transmitted to the control unit and the headlamp recalibrated. Mechanical adjustment of the headlamp is no longer possible.

Digital headlight check with the HTD 815 from Bosch

To assure proper evaluation of the manufacturer-specific headlight patterns in the case of intelligent lighting systems and to perform the electronic adjustment of the LED headlamp properly requires a digital headlamp beam setter. The HTD 815 was developed by Bosch specifically for checking and adjusting modern lighting systems. Even user-guided headlamp adjustment can be carried out precisely only with such equipment. The headlight adjustment is evaluated in real-time and the HTD 815 guides the user through the adjustment process with simple arrow indicators. Once the exact setting is reached, the unit signals the status to the user visually and audibly. The monitor can be positioned individually for safe and comfortable use.

The exclusive system elements of the HTD 815:

- CMOS camera for fast image processing (high resolution and image rates)
- Glass lens with large diameter (230 mm)
- Laser sight for accurate alignment of the light box to the vehicle helps in the absence of distinctive chassis points and remains distinct even under poor light conditions.

- Cross laser for alignment of the light box to the headlight projection unit or the lamp (especially helpful for LED and xenon)
- Sensor for automatic height measurement (optional)

Application benefits of the HTD 815 at a glance:

- Adjustment of all light sources (incandescent filament, halogen, xenon and LED).
- Adjustment of all vehicle types: passenger cars, motorcycles, trucks and commercial vehicles
- Adjustment of all headlamp types: main headlamp, fog lamp, auxiliary headlamp
- Digital evaluation (digital image processing)
- High-quality, scratch-resistant glass lens – easy to clean
- Maximum mechanical stability of all system elements for consistently precise measured values
- Lightweight, stable floor group made from aluminum and stainless steel for simple and true traversing between the headlamps.
- Special recess for motorcycle front wheels
- 4 wheels for tilt resistance – three wheels vertically adjustable
- Low-friction, rotating column mounted in plain bearings
- Lightweight, CAD-optimized plastic enclosure
- Maintenance-free, 4-bearing guidance system; steel cable and rollers covered and protected
- Battery-powered for independent operation
- Above-floor-mounted guide rail (optional)

The HTD 815 is TÜV-certified on the basis of design approval according to the directive for testing of headlamp adjustment test equipment (StVZO § 50 Section 5).

Operation of the HTD 815:

- The HTD 815 uses real-time data processing for testing. The limit values and results are displayed digitally and live on the screen. Precision: 10-meter measuring distance +/-1 cm
- Digital, interactive 5.7" touchscreen display with 262,000 colors
- Display of the live image (with cross symbol)
- Measurement results are shown together with their rating: horizontal deviation, vertical deviation (nose-dive angle), luminosity, roll angle and yaw angle
- Through a conversion, the display unit can be rotated 180°.



- Simple navigation for the evaluation and adjustment process with self-explanatory operating steps and easily understood symbols
- Extremely easy height adjustment and fingertip control with one hand
- Automatic self-locking over the measuring range of 24–145 cm
- 360° operation: Ergonomic operation from all sides
- Navigation in 7 languages
- Dust-proof and sprayed water-proof

Item numbers:

HTD 815 with printer (RAL 6018) 1 692 104 319

Special accessories:

Guide rail for above-floor mounting (3 m) 1 692 105 061

Note: Please order two units for a double-rail system.

Additional information is available at :www.headlighttester.com or directly with the aid of the following QR code:

