

ICS 43.040.20

CCS T38



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 4785-2019

Replacing GB 4785-2007

**Prescription for installation of the external lighting and
light-signalling devices for motor vehicles and their trailers**

汽车及挂车外部照明和光信号装置的安装规定

Issued on: December 17, 2019

Implemented on: July 1, 2020

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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1 Scope

GB 4785-2019 is the Chinese national standard on prescription for installation of the external lighting and light-signalling devices for motor vehicles and their trailers, in the field of road vehicles engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 17 December 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 July 2020. Classification: ICS 43.040.20, CCS T38. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the general requirements, special regulations, and inspection rules,

etc. for the installation of the external lighting and light- signalling devices for motor vehicles and their trailers. This Standard applies to type M, N, and O motor vehicles and trailers, etc.

2 Normative references

The following documents are indispensable for the application of this document. For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

GB/T 3977 Specification of colors

GB 4094 Motor vehicles - Symbols for controls, indicators and tell-tales

GB 4599 Motor vehicle headlamps equipped with filament lamps

GB 4660 Motor vehicle front fog lamps equipped with filament lamps

GB 5920 Photometric characteristics of front and rear position lamps, end- outline marker lamps and stop lamps for motor vehicles and their trailers

GB 11554 Photometric characteristics of rear fog lamp for power-driven vehicles and their trailers

GB 11564 Retro-reflector device for motor vehicles

GB 12676 Technical requirements and testing methods for commercial vehicle and trailer braking systems

GB 15235 Photometric characteristics of reversing lamps for power-driven vehicles

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Type test Carry out a type test on the number and method of installation of external lighting and light-signalling devices for a certain vehicle type.

3.2 Vehicle type with regard to the installation of lighting and light- signalling devices Vehicles that do not differ in the following are considered to be the same vehicle type. - Vehicle shape and dimensions; - The number and position of installation of the devices; - Headlamp dimming device; - Suspension system. Where it can be regarded as the same type. For some vehicles, there are differences from the above, but the differences do not change the type, number, location, geometric visibility, and inclination of the passing beam of the installed vehicle lamps and the installation of optional lamps or not.

3.3 Transverse plane The vertical plane orthogonal to the longitudinal symmetry plane of vehicle.

3.4 Unladen vehicle The vehicle without drivers, attendants, passengers, and loads, but with sufficient fuel, spare tires, and common tools.

3.5 Laden vehicle The vehicle of the maximum mass technically permitted by the loading manufacturer, with its loading conditions distributed on the axles.

Note. See Appendix A for various loading conditions.

3.6 Lighting and light-signalling device A unit, group of units, or installation unit for one or more functions.

4 General requirements

4.1 Lighting and light-signalling devices shall ensure that, under normal condition of use of a vehicle as defined in 3.26, even if subjected to vibration, they shall still meet the requirements of this Standard for each device and the entire vehicle. Do not adjust the device incorrectly due to improper operation. In particular, the lamp must not be loose and out of alignment.

4.2 The installation of passing-beam headlamp, main-beam headlamp, and front fog lamp shall facilitate the correct adjustment of their sights.

4.3 When installing all light-signalling devices (including light-signalling devices installed on the side of the vehicle), the reference axis shall be parallel to the parking surface of the vehicle on the road. In addition, for the side retro-reflector and the side marker lamp, the reference axis shall be perpendicular to the longitudinal symmetry plane of the vehicle; the reference axis of all other light- signalling devices shall be parallel to it. The tolerance in each direction is $\pm 3^\circ$. If the manufacturer has special installation instructions, they shall also be followed.

4.4 If there is no special instruction, when inspecting the installation height and direction of the lamps, the vehicle under test shall be unladen and placed on a level ground. The vehicle shall be in the state defined in 3.26. AFS shall be in a neutral state.

4.5 The installation requirements for paired lamps shall meet the following.

4.6 For vehicles with asymmetrical shapes, the requirements of

4.5 shall also be met as far as possible.

4.7 A single lamp, grouped lamps, combined lamps, and reciprocally incorporated lamps shall meet the following requirements.

a) The lamps, in accordance with their respective light colors, installation positions, orientations, geometric visibility, circuit connections, and other requirements, can be grouped, combined, or incorporated with each other. It shall meet the following requirements.

4.8 The maximum ground clearance shall be measured from the highest point of the apparent surface in the direction of reference axis. The minimum ground clearance shall be measured from the lowest point of the apparent surface in the direction of reference axis. (If the installation position clearly meets the requirements of this Standard, it is not necessary to determine the precise edge of any surface.) Except for the following cases.

4.9 Without special instructions, during the operation of lamp, its optical characteristics (such as. light intensity, color, apparent surface, etc.) must not be changed at will. Except in the following cases.

4.10 For the lamps defined in 3.9, no red light shall be observed from the front of the vehicle; no white light shall be observed from the rear of the vehicle (except for vehicle interior lamps). If there is any objection, it shall be inspected according to the following methods.

4.11 The circuit connection shall ensure that the front position lamp, rear position lamp, end-outline marker lamp (if installed), side marker lamp (if installed), rear-registration plate illuminating device, and marker lamp for draw- bar-trailer can only be turned on or off at the same time. Except in the following cases.

4.12 The circuit connection shall ensure that the main-beam headlamp, passing-beam headlamp, and front fog lamp can only be turned on when the lamps in

4.11 above are turned on. However, when the main-beam headlamp and passing-beam headlamp are used as warning signals, the above situation does not apply (i.e., the main-beam headlamp or passing-beam headlamp is turned on intermittently, or the main-beam headlamp and passing-beam headlamp are turned on alternately intermittently). When the following requirements are met, the passing-beam headlamp and/or main-beam headlamp and/or front fog lamp can replace the functions of the front position lamp.

4.13 The "closed-circuit" tell-tale in this Standard may be replaced by an "operating" tell-tale.

4.14 For concealable lamps, the following requirements shall be met.

4.16 The number of lamps installed on the vehicle shall meet the corresponding requirements in Clause

5 Special regulations.

4.17 The illuminating surface of a light-signalling device other than a retro- reflector is determined as follows:

4.27

b) above are not applicable.