Brake discs with wheel bearing and impulse ring | HELLA

General information

As a result of the extreme variety of axle constructions produced by all the different car manufacturers, wheel bearings and impulse rings of the anti-lock braking system (ABS) are also integrated into the brake discs.

Variations

Depending on the model of the ABS braking system, the design of the brake disc and the type of impulse wheel can vary.

Example 1 (Fig.1):

Brake disc without wheel bearing but with permanently fixed impulse ring and vertically positioned toothed segments (A).

Example 2 (Fig.2):

Brake disc with wheel bearing (B) and with permanently fixed impulse ring and horizontally positioned toothed segments (A).

A multipole ring can also be used as an impulse wheel (encoder wheel), while at the same time being integrated into the sealing ring of the wheel bearing. Magnets with changing polarity are inserted in this sealing ring.

When preparing to carry out brake repairs, it is always important to check the construction of the wheel brake as there are so many different models on the market. Wheel bearings and impulse rings are not always integral parts of the brake disc or they are not always included in the purchased parts package. In such a case the necessary parts can be taken from the old brake disc and reworked on the new one. Or, if required, such components can be ordered and then used as replacements.



Fig. 1

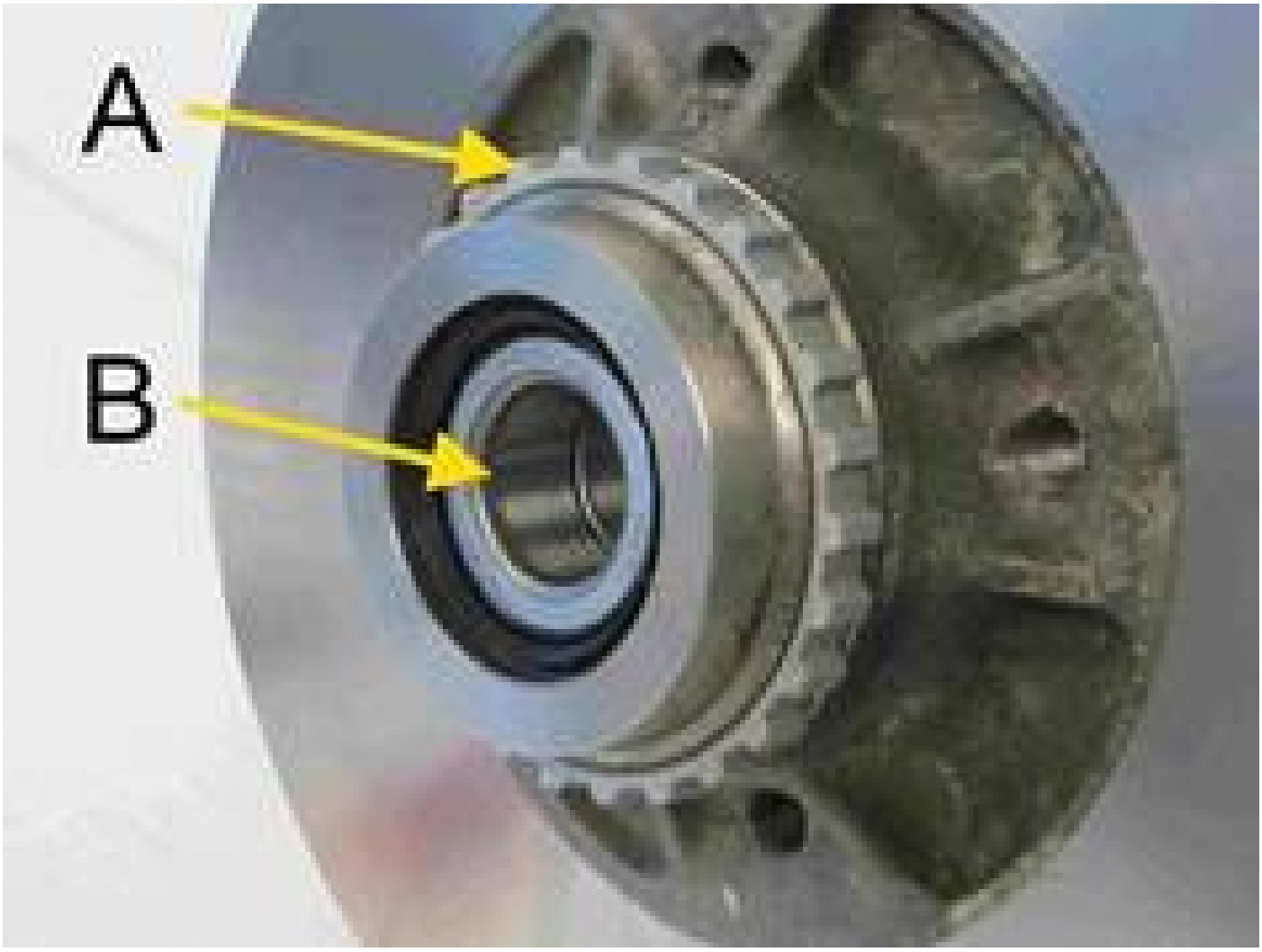


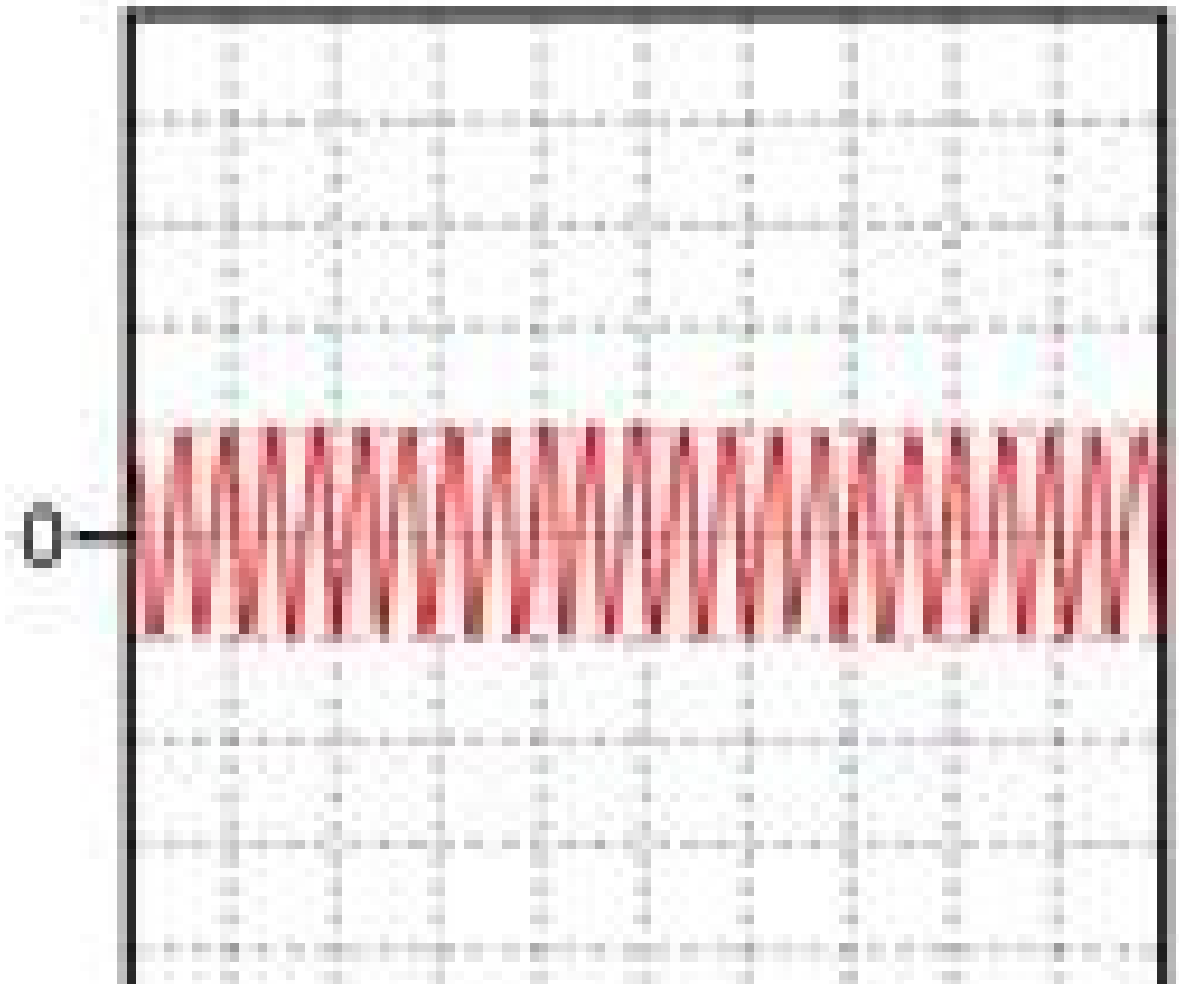
Fig. 2

Purpose of the impulse ring

The impulse ring attached to the brake disc serves as a signalling device for the wheel revolution sensor. These passive sensors illustrated in our example are fixed directly above the impulse wheel (see picture). The rotation of the impulse wheel and the resulting switching from tooth to tooth space brings about a change in the magnetic flow. Such a varying magnetic field is then forwarded to the control unit as a signal via the wheel revolution sensor. This signal's frequency and amplitude are in relation to the wheel's revolutions.

Detailed information on the functioning of the various wheel revolution sensors can be found in the Hella brochure entitled "Wheel Revolution Sensors in Motor Vehicles."




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Purpose of the wheel bearing

The wheel bearing is a constituent part of the chassis. Its function is to guide and support the axles and the shafts. It also simultaneously bears the axial and radial forces exerted upon it.

The radial forces brought about by the rotary movement have an effect on the bearing at right angles to the longitudinal axle. Axial forces, in contrast, have an effect on the wheel bearing towards the longitudinal axle, for example, when bends are being taken. In this situation, a very high level of strain is placed on the wheel bearing.

Mounting instructions

Such brake disc models require of the mechanic a great deal of extra care and precision when repairs are being carried out.

Any incorrect installation can lead to damage being caused to bearings and impulse rings.

Installation errors influence the length of a wheel bearing's service life or they can cause malfuntion of the anti-lock braking system.

Therefore mounting instructions of the brake manufacturer and those of the car producer always have to be observed in each individual case.

Important safety note

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