

Revision: Stationary runout measuring instrument (Fig. 1) added.

Test Values for Disc Wheels and Tires

Disc wheel		Mounted tire	
Perm. vertical runout	Perm. lateral runout	Perm. vertical runout	Perm. lateral runout
Steel disc wheel			
1.0	1.5	1.5	2.5
Light alloy disc wheel			
0.6	1.0	1.5	2.0

Conventional Tools

Runout measuring instrument for wheels and tires, stationary, for attachment to wheel balancing machine	e. g. made by Hofmann, Darmstadt Order No. 331/85
Runout measuring instrument for wheels and tires, mobile	e. g. made by Beissbarth, Munich Order No. P 2

Note

For measuring the vertical and lateral runout of both the disc wheel and the complete wheel on the tire, a stationary measuring instrument attached to wheel balancing machine is recommended (Fig. 1), as well as a mobile instrument, by means of which measurements can be made on the vehicle (Fig. 2).

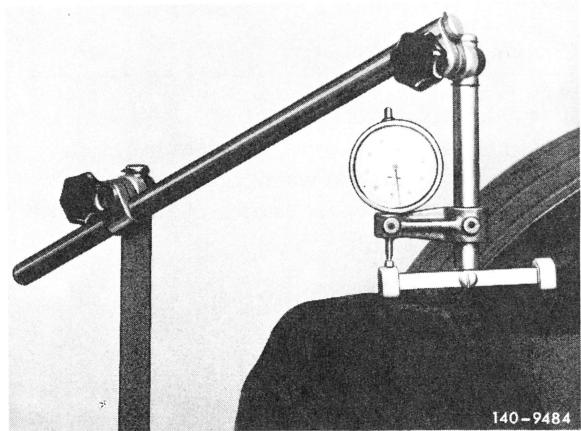


Fig. 1

Runout measuring device, stationary

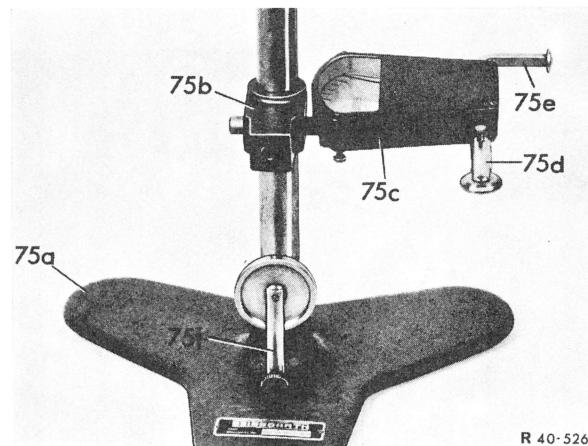


Fig. 2

Runout measuring device, mobile

- 75a Upright
- 75b Dial gauge holder
- 75c Dial gauge
- 75d Roller holder with crowned roller of 30 mm dia. for measurements on disc wheel
- 75e Offset roller holder, with crowned roller of 20 mm dia. for measurements on disc wheel
- 75f Roller holder with flat roller of 60 mm dia. for measurements on tires

Measuring runout on used tires will be significant only when tire has no flat spots whatsoever.



If a tire flexing machine is available, treat used tires as specified (required for belted textile tires only).

Attention! Store warm tires only in horizontal position, not upright.

If no tire flexing machine is available, inflate used tires to approx. 4 bar gauge pressure (atü) and leave in paintwork drying cabin at a normal drying temperature of approx. 80° C for at least 4 hours.

If no paintwork drying cabin is available, run wheels warm at adequate speed for at least 15 km. Then jack-up vehicle immediately since the stopped wheel will develop flat spots within a minute or so.

at its upper limit, turn tire into the most favorable position in relation to disc wheel. The method cannot be used for light alloy disc wheels, since these wheels are machined at the tire contact areas and are practically without vertical runout. On high-speed tires, the manufacturers are already marking the most favorable spot for low vibrations by a green dot on the disc wheel and the tire. When mounting the tires, the dots should be brought into alignment.

Light alloy disc wheels have no identifying mark, since they are practically without vertical runout due to the machining of their tire contact surfaces.

If a tire equalizing machine is available, refinish tires which are out-of-true or are showing flat brake spots.

Checking the Complete Wheel

1 Measure for vertical tire runout with roller attachment (75f) in center of tire tread (Fig. 3).

Attention! Watch out for possible flat braking spots, if any!

2 Measure for lateral tire runout at approx. medium height of side wall (Fig. 4).

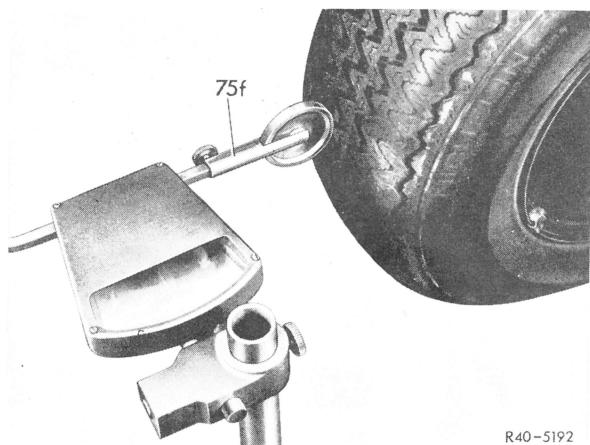


Fig. 3

75f Roller attachment with flat roller of 60 mm dia. for measuring tire on treads

Note: When measuring for vertical runout, note that tires may have a permissible vertical runout of up to 1.5 mm, which might result in vibrations. In such cases, determine vertical runout of respective disc wheel (refer to next section "Checking the Disc Wheel"). If the vertical runout of the disc wheel is

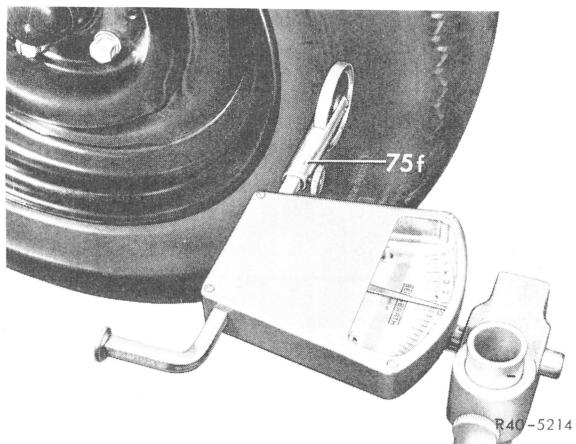


Fig. 4

75f Roller attachment with flat roller of 60 mm dia. for measuring tire on sides

Checking the Disc Wheels

3 For an accurate checkup of disc wheel vertical runout, always probe inside on seat of tire bead. Measure runout outside seat of tire bead on rim with the tire mounted only for a coarse checkup of steel disc wheels (Fig. 5).

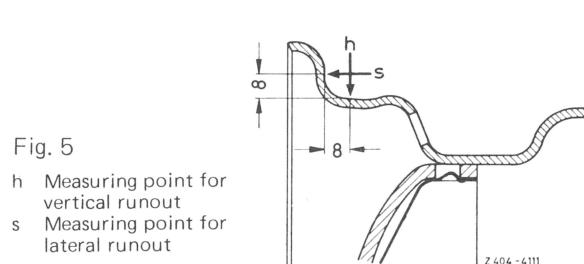


Fig. 5

h Measuring point for vertical runout
s Measuring point for lateral runout

Attention! Light alloy disc wheels can be checked for runout only with their wheels removed, since they are machined at inside of wheel.

4 For probing the rim at the measuring points for vertical runout shown in Fig. 5, use roller attachment (75d), for lateral runout use roller attachment (75e) (Fig. 6 and 7).

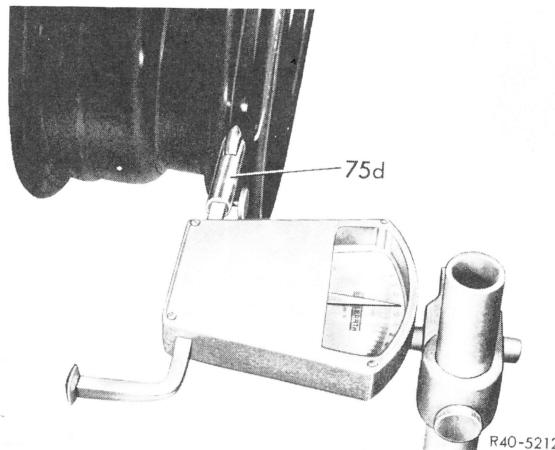


Fig. 6

75d Roller attachment with crowned roller of 30 mm dia. for measuring on disc wheel

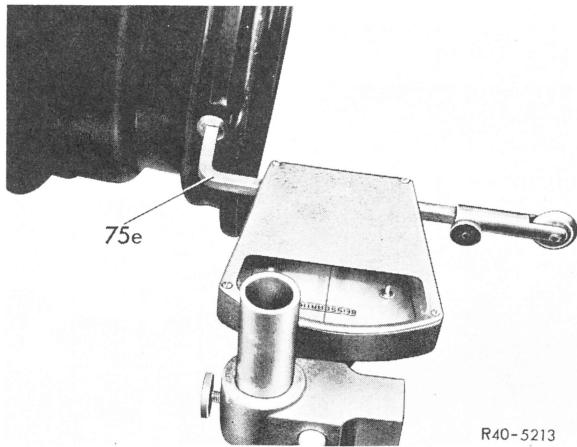


Fig. 7

75e Offset roller attachment with crowned roller of 20 mm dia. for measurements on disc wheel

5 For checking steel disc wheels with the tire mounted, use offset roller holder (75e) for vertical runout and roller holder (75d) for lateral runout, each time applied outside at measuring points (h) or (s) (Fig. 5, 8 and 9).

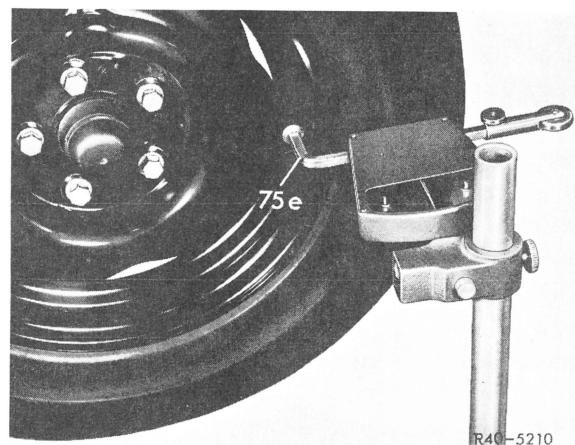


Fig. 8

75e Offset roller attachment with crowned roller of 20 mm dia. for measurements on disc wheel

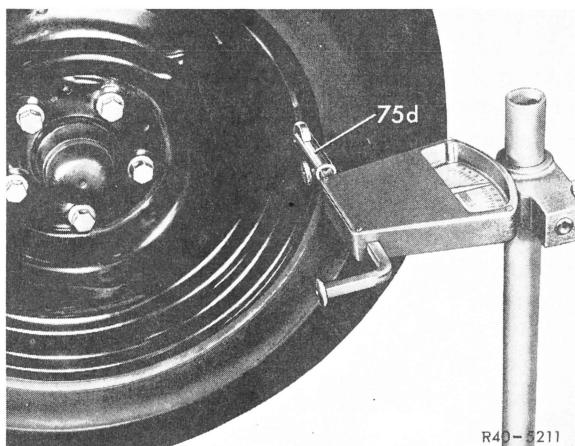


Fig. 9

75d Roller holder with crowned roller of 30 mm dia. for measurements on disc wheel