Notes

Use only tires recommended by the factory. Attention should be paid to our tire recommendations particularly in the case of light-alloy wheels.

When replacing or converting, provide all wheels with tires of the same construction, same makes and version. Combinations of radial-ply tires with cross-ply tires, steel-belted tires with textile-belted tires and winter tires (mud and snow tires) with summer tires are not approved by us.

For replacement, tires approved for higher speeds can of course be used in place of the tires specified for the respective model. (Example: Belted tires 195/70 R 14 90 H instead of 195/70 R 14 90 S.)

When using 15" tires of series 65 for replacement, ensure that tires with match point are used. This will ensure the most favorable tire position relative to the rim and proper concentricity of the wheel.

When replacing tires, include spare wheel as road wheel only if tire tread depth and tire version correspond. Do not allow tires to become too old!

For tube-type tires use only new tubes of the same make and specified designation.

For tubeless tires, insert valves of specified version in the rims (40–120).

When replacing a tire, also replace rubber valve for safety reasons. Before inserting the new rubber valve, clean contact surfaces on the rim. If necessary, remove rust and repaint surfaces.

On the valves, fit only metal or hard plastic valve caps with rubber seals, part no. 007 757 008 600.

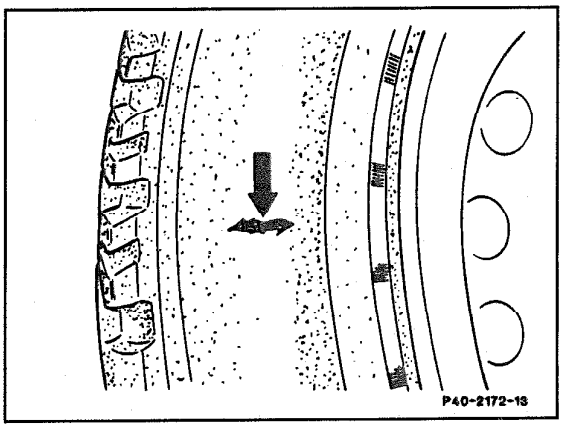
On steel wheels it is necessary to mount wheel covers to support the rubber valve.

If vehicles are converted to another tire size approved by the factory, country-specific rules and regulations must be observed prior to the conversion!

New tires must be run in before subjecting them to maximum load. Approx. 100 km driven at moderate speed is sufficient. Avoid brisk acceleration and sharp braking.

Tire damage by cleaning with high-pressure cleaning equipment

Investigations have shown that the cleaning of tires with high-pressure cleaning equipment can lead to damage if certain basic rules are not observed. These damages occur especially in the area of the tire sidewalls. The pulsating water jet causes the tire to vibrate at the point of impact. The friction heat created at this point cannot be dissipated quickly enough, leading to local overheating and melting damage. This type of damage can also occur when cleaning with cold water.

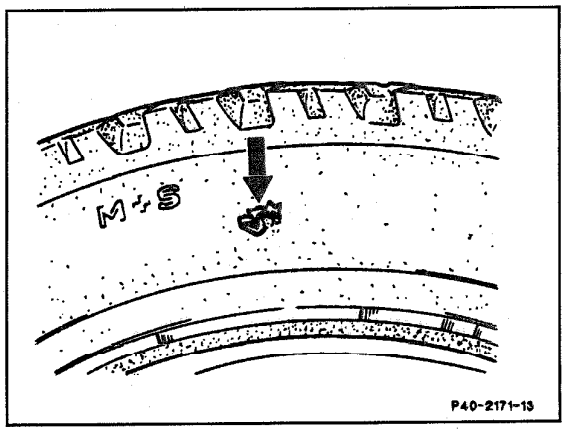


P40-2172-13

Cause of damage:

1. Do **not** use round jet nozzles. They can cause damage even at an action time of less than 1 second and a distance below 700 mm.

2. When using 25° flat spray nozzles, maintain a minimum distance of 300 mm. It is not permitted to concentrate the nozzle on a point or directly onto the tire surface for a prolonged period of time. The nozzle or water jet must be moved slowly to and fro while cleaning.



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⚠ WARNING!

When damage resulting from high-pressure cleaning equipment is detected, replace the tires.

Tire storage rooms should be dark, cool and dry. Draft should be avoided if possible as oxygen accelerates the aging of the rubber compound.

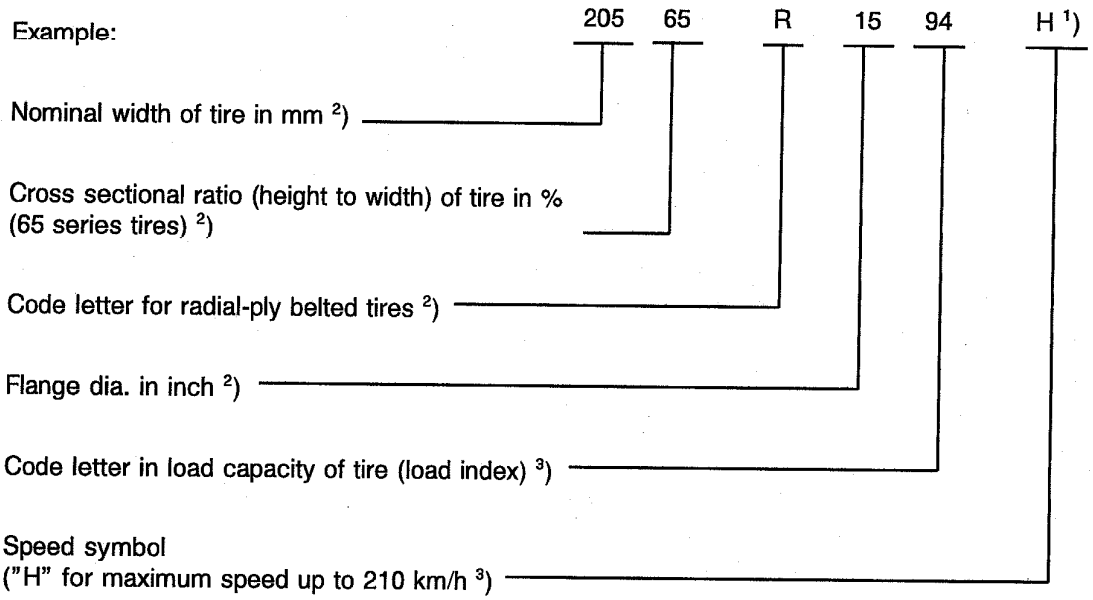
Lower tire inflating pressure to approx. 1.0 bar and store the wheels upright in a shelf (at least 10 cm ground clearance) or in sets on wooden racks lying on top of one another.

On dismantled tires, dust lightly pumped-up inner tubes with talc powder and place in the tires. Ensure that tires do not come in contact with gasoline, oil or greases.

Protect against fire hazard!

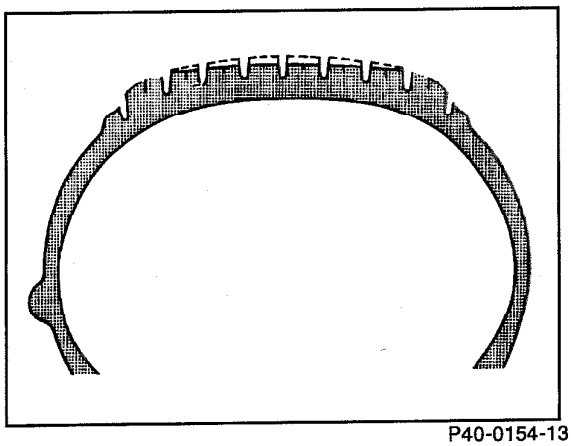
Tire designations

1. Tire designation



1) To designate tires according to ECE regulation no. 30 (as of 1978) the operating identification, i.e. the code figure for the load capacity (load index) and the speed symbol for the maximum permissible speed is specified as a suffix to the tire size with the exception of tires in previous VR and current ZR version.
2) Designation of tire size.
3) Designation of operating identification.

B = Nominal width of the tire in mm
D = Tire outer dia.
d = Wheel dia. in inch



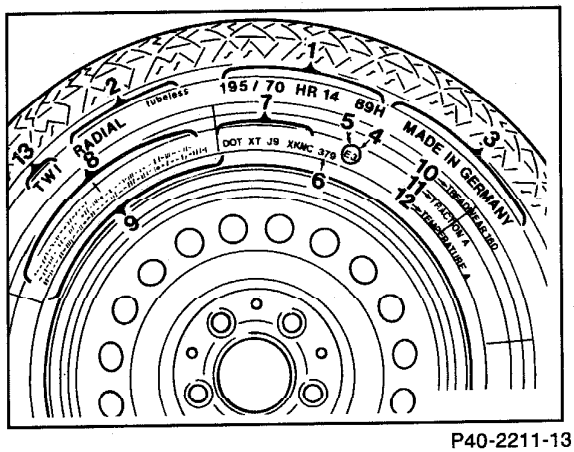
P40-0154-13

2. Tire additional designations
   Radial = Designation for radial-ply tires
   tube type = Tube-type tires or mounting with tube
   tubeless = Tires in tubeless construction
   M + S = Mud and snow tires

3. Manufacturing country

4. Country-specific code figure for registration number
   Example:
   3 = Italy, 1 = Germany, 2 = France.
   0132239 = Registration number for type test

5. Europe registration code figures
   E = Europe



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6. Manufacturing date code
The 3-digit code or manufacturing code figure is found at the end of the alphanumeric sequence starting with DOT provided in the bead area of the tire outer flank.
Figures 1 and 2 = Production week
Figure 3 = Last figure of production year

7. (USA) registration code figure
DOT = Certificate of the "Department of Transportation"
XT = Manufacturer's code
J9 = Size code
XKNC = Type or construction code

8. (USA) identification of tire construction
Example:
SIDEWALL 2 PLIES RAYON = The side wall of the carcass consists of 2 plies of rayon cord.
TREAD AREA 2 PLIES RAYON + 2 PLIES STEEL + 1 PLY NYLON = The running surface zone has 2 layers of rayon cord of the carcass and 2 plies steel cord + 1 ply nylon of the belt.

9. (USA) identification for maximum wheel load and maximum air pressure
Example:
MAX. LOAD RATING 1340 LBS =
Max. permissible wheel load 1340 pounds
MAX. PERM. INFL. PRESS 36 PSI =
Max. permissible air pressure 36 pounds per square inch

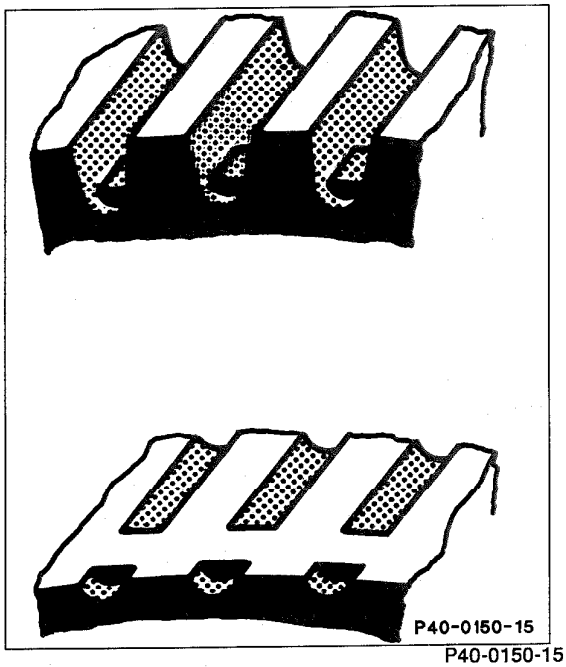
10. (USA) identification for tread wear
TREAD WEAR 160 = Abrasion code figure in % of an average comparable US tire. The tread wear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course.
For example, a tire graded 160 would wear 1.6 times as well on the government course as a tire graded 100. The relative performance of tires depends upon the actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices and differences in road characteristics and climate.

11. (USA) identification for braking traction
TRACTION A = The traction grades, from highest to lowest, are "A", "B", and "C", and they represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked "C" may have poor traction performance.

12. (USA) identification for temperature resistance
TEMPERATURE A = The temperature grades are "A" (the highest), "B", and "C", representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade "C" corresponds to a level of performance which all passenger car tires must meet under the Federal Motor Vehicle Safety Standard No.109. Grades "B" and "A" represent higher levels of performance on the laboratory test wheel than the minimum required by law.

13. Tire wear limit
    The wear limit of the tire tread of 1.6 mm specified in the US and recently in various other countries has been made visible for some years by a "TWI" (tread wear indicator) on the tire.

    These 1.6 mm high humps embedded in the tread depth at 6 points of the circumference are visible as transverse stripes in the tire running surface when the wear limit has been reached.



P40-0150-15

Permissible maximum speed for passenger car radial-ply tires

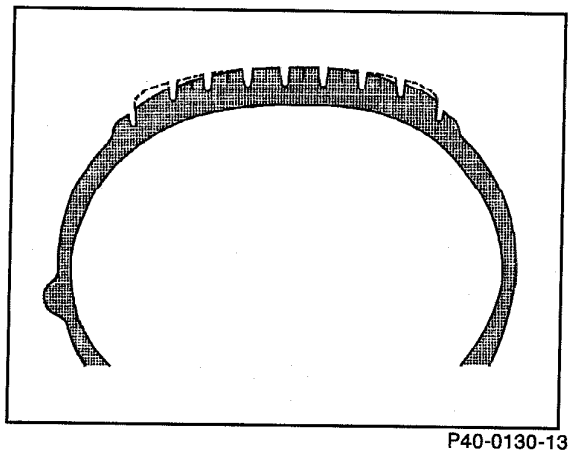
Speed symbol	Permissible max. speed
Q	up to 160 km/h
R	up to 170 km/h
S	up to 180 km/h
T	up to 190 km/h
H	up to 210 km/h
V phased-in from 1988	up to 240 km/h
VR tires up to 1988	over 210 km/h
ZR tires phased-in from 1988	over 240 km/h

Tire wear

When assessing the tire wear patterns, observe the following:

Front axle

A slightly greater wear of the tire shoulders compared with the center of the running surface is normal on the front wheels, while the wear on the tire shoulder facing the road center (e.g. left wheel outside, right wheel inside) can be more pronounced.



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Causes of increased tire wear:

1. Inadequate tire inflating pressure, having a similar effect on the outer and inner shoulders.

2. Mainly city or highway operation and aggressive driving style. A driving style including taking the foot of the accelerator in curves can also lead to increased shoulder wear. Wear is mostly more pronounced on the outer shoulders, especially on the left front wheel.

3. Deviations in the wheel toe. Even minor deviations from the normal tolerance range can lead to increased wear of the tire shoulders on both wheels especially with wide tires (from 70 series).
   Increased wear resulting from inadequate wheel toe is noticed on the inner shoulders or, with excessive wheel toe on the outer shoulders. With wheel toe deviations considerably outside the tolerance limits the wear may extend from the tire shoulder almost to the center of the running surface, the running surface may appear rough.

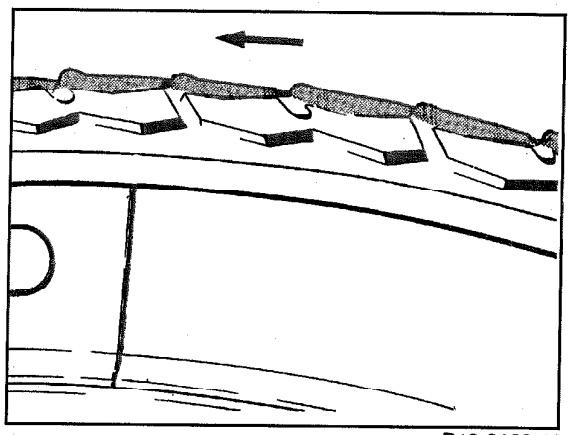
   Excessive deviation of the ball point position from the nominal value can lead to increased shoulder wear on both wheels or only one wheel, as considerable wheel toe changes occur during spring compression. For example if the ball point position is much too low, the toe is changed in the negative direction during spring compression. If the ball point is much too high, a toe change in the negative direction may occur during spring expansion.

   If the track differential angle deviates considerably, an unfavorable wheel position would lead to increased shoulder wear.

   Depending on the wear condition (the empirical value is between 5000 and 10 000 km), wheels with summer and winter tires should be rotated maintaining the same direction of rotation and, tires not bound to a specific direction of rotation, should be rotated even diagonally. However, rotating the tires should take place before a clear pronouncement of the characteristic tire wear pattern, as the driving characteristics deteriorate if rotation is carried out too late.

4. Dependent on tire version and tire tread, the wear on the shoulders may occur mainly on the outside in saw-tooth pattern.
   This wear pattern is particularly pronounced on tires with open shoulder area to the outside, e.g. high performance summer tires and mud and snow tires.

   Saw-tooth wear occurs mainly on the front axle, to a lesser degree also on the rear axle.



Saw-tooth type wear on front wheel tires

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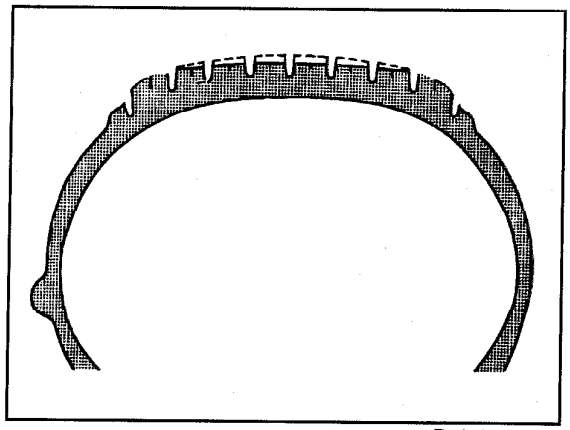
Rear axle

The wear on the rear wheels is usually distributed over the entire tire running surface, it can however be slightly larger in the center of the running surface than on the shoulders.



P40-0154-13

Causes of increased wear

1. Depending on the load on the vehicle rear end (on vehicles without level compensation with high load increased negative camber) the wear is greater on the running surface inside than on the outside.

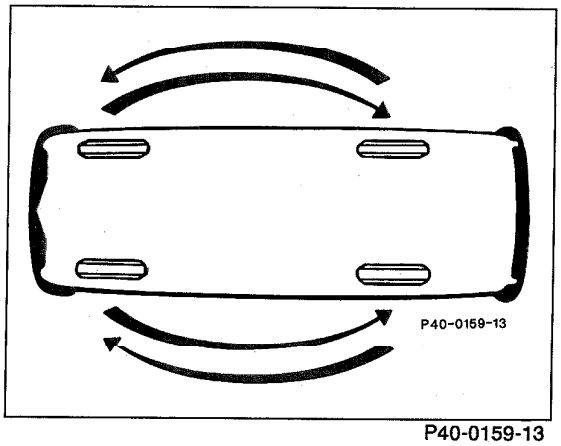
2. With wrongly adjusted wheel toe the same applies as described in the chapter "Front axle".

Rotating the wheels

Summer tires and winter tires (mud and snow tires):

For maximum road performance and simultaneous retention of sound driving characteristics.

Depending on the wear condition of the tires (the empirical value is between 5000 and 10 000 km), rotate wheels maintaining the direction of rotation, or rotate also diagonally if tires are not limited to one direction of rotation.



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However, wheels must be rotated before a clearly pronounced characteristic wear pattern is established, otherwise the driving characteristics deteriorate. However, optimum driving characteristics can result only if the wheels are left in their respective positions or are rotated in very short intervals (running performance).

Depending on driving style, wear pattern and condition of tires it may be necessary to rebalance the wheels.

After rotating the wheels, correct tire inflating pressure (40–106).