

A. Wheels

The standard Model 190 is fitted with 13" disk wheels. 15" disk wheels can also be fitted as optional equipment on export models.

The rim type numbers are

standard version $4\frac{1}{2} K \times 13—B$,
modified version, optional, SA 10 174/1 $4\frac{1}{2} K \times 15—A$.

The type number is made up as follows:

$4\frac{1}{2}$ = Rim width in inches
K = Shape of wheel flange
× = Well base rim
13 or 15 = Diameter of rim in inches
A = Symmetrical rim
B = Asymmetrical rim

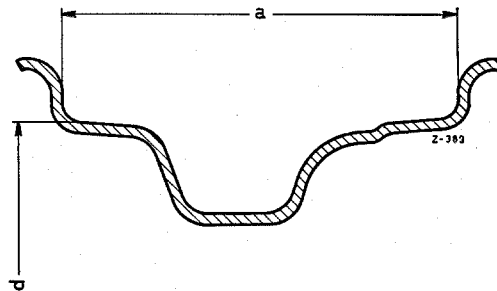


Fig. 40—0/1

a = Rim width
d = Diameter

Recently, in order to avoid any confusion of the two types, the model number of the car has been stamped on the wheel in addition to the rim type number. This stamping is on the bolt hole circle.

The standard rim $4\frac{1}{2} K \times 13—B$ can be used for all tires in the special range 6.40—13 and 6.70—13, in addition to the standard 6.40—13 tires, 4-ply. In the case of 6.40—15 tires, type $4\frac{1}{2} K \times 15—A$ rim should be fitted (see also Section B. Tires).

Test Values for the Wheels in mm

Rim size	Rim width a	Rim diameter d	Measured circum- ference $\pi \cdot d$	Permissible eccentricity	Permissible run-out	Permissible unbalance
$4\frac{1}{2} K \times 13—B$ (standard)	114.3 ± 1	328.7	1032.6 ± 1	1.5	1.5	750 cmg
$4\frac{1}{2} K \times 15—A$ (optional SA 10 174/1)	114.3 ± 1	379.5	1192.2 ± 1.2	1.5	1.5	750 cmg

The wheel consists of the dished wheel disk and the rim which are welded together.

When testing the disk wheels, particular care must be taken to ensure that the rims, and in particular the edges of the rims, are not damaged. Slight imperfections at the outer edge can be put right by reshaping. But if there is any extensive damage or an abnormal degree of run-out or eccentricity,

considerable ovality etc., the wheels must be replaced. Distorted rims must not under any circumstances be straightened. If damaged wheels have been repaired, they must in all cases be tested for eccentricity and run-out.

B. Tires

A) General

The following tires can be fitted to Model 190:

Standard:	Low-pressure tire 6.40 — 13, 4-ply
Optional (SA 887/1 — 120):	Low-pressure tire 6.40 — 13, 6-ply
Optional (SA 10 215):	Low-pressure tire 6.70 — 13, 4-ply
Optional (SA 10 135/1):	Low-pressure tire 6.70 — 13, 6-ply
Optional (SA 10 173):	Low-pressure tire 6.70 — 14, 6-ply
	— transport type —
Optional (SA 10 174/1):	Low pressure tire 6.40 — 15, 4-ply

The type number is made up as follows:

6.40 or 6.70 = Rated width of tire in inches
13 or 15 = Rim diameter in inches.

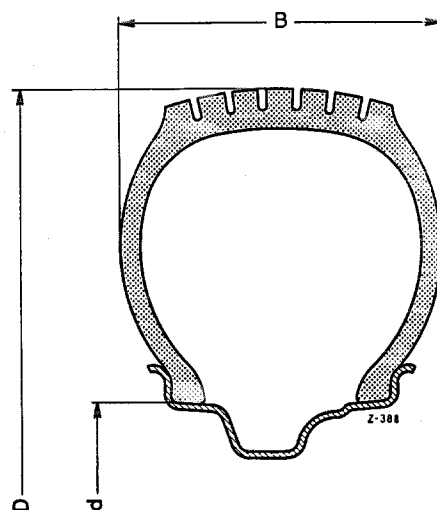


Fig. 40 — 0/2

B = Rated width of tire
D = Tire diameter
d = Rim diameter

The figures given for the rated width B and the diameter D refer to tires which are inflated but not under load.

In addition to these values the effective radii, both static and dynamic, are usually given.

The effective static radius is understood to be the distance from the center of the wheel to the plane surface on which the wheel is standing, when the tire is carrying the maximum permissible load and is inflated to the specified air pressure for this load.

The effective dynamic radius is determined by dividing the distance travelled per revolution of the wheel at a speed of 60 km/h by 2π . Again the tire must be carrying the maximum permissible load and must be inflated to the specified air pressure.

At higher speeds the effective dynamic radius is increased, due to the expansion of the tire resulting from the centrifugal force and the heat developed.

Effective Dynamic Radius for Tire Size 6.40 — 13:effective radius, dynamic, at 60 km/h = 299 mm \pm 3effective radius, dynamic, at 100 km/h = 305 mm \pm 3effective radius, dynamic, at 140 km/h = 314 mm \pm 3**Effective Dynamic Radius for Tire Size 6.70 — 13:**effective radius, dynamic, at 60 km/h = 307 mm \pm 3effective radius, dynamic, at 100 km/h = 313 mm \pm 3effective radius, dynamic, at 140 km/h = 319 mm \pm 3**Effective Dynamic Radius for Tire Size 6.40 — 15:**effective radius, dynamic, at 60 km/h = 326 mm \pm 3effective radius, dynamic, at 100 km/h = 331 mm \pm 3effective radius, dynamic, at 140 km/h = 338 mm \pm 3**Permissible Axle Load for various Types of Tire:**

Type of tire	Permissible axle load kg	Specified tire pressure atm.
6.40 — 14, 4-ply	approx. 880	1.9
6.40 — 13, 6-ply	approx. 900	2.0
6.70 — 13, 4-ply	approx. 950	1.8
6.70 — 13, 6-ply	approx. 1000	2.0
6.70 — 13, 6-ply — transport type —	approx. 1100	2.25
	approx. 1150	2.50
	approx. 1200	2.75
	approx. 1250	3.00
6.40 — 15, 4-ply	approx. 900	1.7

b) Tire Pressures

The maintenance of the tire pressures as specified by us is of considerable importance for the preservation of the tires and also for the riding qualities of the car. Tire pressures are usually given for cold tires. The kneading action of the tires increases the temperature and also the pressure. Thus, when checking tire pressures with the tires warm, the pressures must not be decreased to the pressures specified for cold tires.

Specified Tire Pressures

For normal driving				For continuous fast freeway driving	
	Cold tires	Increases after prolonged city driving or limited highway travel to	Increases after fast highway travel to	Cold tires	Increases after fast freeway travel to
Front wheels	1.7 atm.	1.8 atm.	1.9 atm.	1.9 atm.	2.1 atm.
Rear wheels and spare wheel	1.8 atm.	2.0 atm.	2.1 atm.	2.0 atm.	2.3 atm.

Note: If the car is fully loaded (6 persons and luggage), the rear wheel tire pressure must be increased to 1.9 atm. with tires cold. The tire pressure for special tires with increased load is shown in the Table in Section a) Tires.

Tire-pressure checking, at least once a week and particularly before starting on a long journey, is of considerable importance. If the pressure of the cold tire decreases by more than 0.2 atm. within the space of a week, there is leakage at the valve or in the inner tube and this must be put right at once. The regular checking of tire pressures goes a long way toward preventing sudden tire trouble whilst on a journey. At the same time, it helps to prevent damage to inner tubes and covers and to reduce the possibility of accidents. If a nail penetrates the tire, it does not often lead to sudden, complete loss of pressure because the inner tube hugs the nail and very little air escapes from the tire. It is only after a prolonged period of travel that the kneading action of the tire increases the damage so that the tire can go down suddenly.

In order to maintain the exact tire pressures specified by us, service station air pressure gages should be regularly checked with a master air pressure gage and if necessary, re-calibrated.

In order to obtain equal wear on all tires, and to make sure that the tires last as long as possible, the wheels, including the spare, must be interchanged on the rotation principle (Fig. 40 — 0/3) every 8,000 km. In abnormally hot weather and if the car is normally driven very fast, the wheels should be interchanged every 4,000 km.

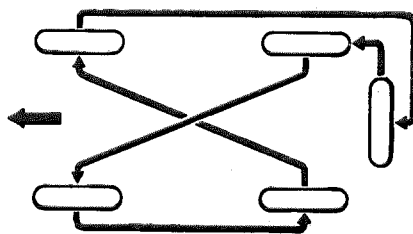


Fig. 40 — 0/3

c) Approved Makes of Tire

Normal Tires

The makes of tire approved by us are always published in the service bulletins. The Central Service Department (Abteilung Zentralkundendienst) should be consulted when in doubt.

Tubeless Tires

If required, cars can be supplied from the Sindelfingen works, already fitted with tubeless tires. These tubeless tires can also be fitted subsequently without any difficulty.

The difference between tubeless tires and the hitherto conventional tires is in the construction of the beads which are forced against the wheel flange and the shoulder of the rim by the air pressure in the tire. The main seal is formed by the bead and the shoulder of the rim. On both the bead and the inside surface of the tire an elastic layer of rubber is vulcanized to prevent the air from escaping.

The advantage of tubeless tires is that the air cannot suddenly escape if the tire is damaged by the penetration of any foreign body (for example, a nail).

The tubeless tires approved by us are also published in the service bulletin. In cases of doubt, the Central Service Department (Abteilung Zentralkundendienst) should be consulted.

Winter Tires

When advising customers about tires for use in winter, it should be noted that special winter tires (M u. S = slush and snow tires) have no particular advantages under normal snow and ice conditions. It is only on roads which are deep in snow that the M u. S tires are a satisfactory substitute for snow chains.

The "All-weather, Snow and Ice" Wyresoles tires, apart from being suitable for general winter conditions, have good anti-skid qualities on roads made slippery by snow and ice. The Wyresoles tire has a steel wire spiral vulcanized into the surface which bites into the ice on the road. But these tires can only be made by resoling the tire.

Approved winter tire types are also published in the service bulletins.

d) Snow chains

Snow chains are to be recommended when deep snow is lying, grades have to be negotiated and normal winter tires are inadequate. Only fine-link track chains which ensure a good edge-grip, should be used. Snow chains should be fitted and checked over before they are actually needed.