TIRES

General

Good tire condition not only improves driving qualities but also increases safety. It depends greatly on perfectly balanced wheels and tires. Therefore it is of importance that special care and maintenance of tires and wheels be practised.

Due attention to tire care will lengthen tire life and reduce wear to a minimum.

Abnormal wear may be due to improper tire pressure, bad driving habits or poor road conditions.

The car should not be overloaded. Tires must be protected from undue solar radiation, fuel and oil.

Size of tires: For vehicles

356 B/1600
356 B/1600 Super (75 PS) } 5.60–15 Sport (upon special request only 165–15 Belt)

356 B/1600 Super-90
356 B/1600 GS (Carrera) } 165–15 Braced tread tire (upon special request only 5.90–15 Supersport)

Dimensions of Tires

	5.60–15 Sport approx. mm	165–15 Braced-tread approx. mm	5.90–15 Supersport approx. mm
Outer diameter	652	654	665
Tire width	152	163	152
Effective static radius	304	301	312
Effective dynamic radius	309	313	318

Tire pressures (recommended)

	High-speed roads				Country roads			
	front		rear		front		rear	
Tires	atü	psi	atü	psi	atü	psi	atü	psi
5.60–15 Sport	1,5	21.5	1,8	25.5	1,3	18.5	1,6	23
165–15 Braced-tread	1,8	25.5	2,0		1,6	23	1,8	25.5
5.90–15 Supersport	1,4	20	1,7	24	1,2	17	1,5	21.5

Mounting and Dismounting Tires and Tubes

21 Ti

General

Every repair or assembly of tire and tube should be carried out very carefully. Damages occur when tube is pinched by tire tool or when it is improperly seated in the casing, and can result in early breakdown. Correct positioning of tube in casing is extremely important.

Dismounting

1. Unscrew valve cap and screw out valve. Detach retaining spring for tube valve.
2. Place wheel flat on ground with the inner side downward and loosen tire bead from rim.
3. The side opposite the valve should be pressed into the drop center of the rim, and the other side pryed (without force) over the rim edge. Proceed around rim.

4. Pull out tube.

5. Check valve and tube for leaks. Damaged spots or hole should be marked and entire tube checked for signs of chafing. Check inside of casing for fabric breaks and damages; check outside of casing for cuts, foreign bodies and signs of wear.

Mounting

Assemble and mount in reverse order, observing the following points:

1. Dust inside of tire lightly and evenly with talcum.
2. Be careful not to damage bead by prying forcibly.
3. Before inserting tube in casing make certain that it is dry and that no dirt particles cling to it. Tube should be inserted in casing so that the valve lines up with the red dot painted on the casing. On tires with two dots valve should be centred between them.
4. Tube should be semi-inflated after insertion in casing so that it will remain in proper position during assembly.
5. Before insclating tire, make sure that the tire beads are positioned properly against the rims.
6. Inflate tire to prescribed pressure.
7. Remember valve cap with rubber gasket.

22 Ti

Mounting Retaining Spring for Tube Valve

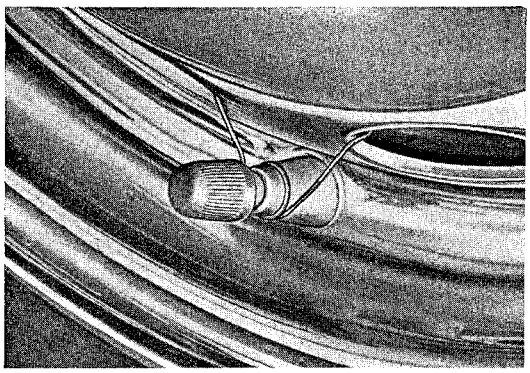

Fig. 40

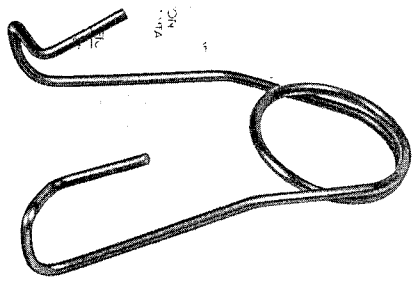

Fig. 41

General

The retaining spring serves to keep the rubber valve in its normal position against centrifugal force even at high speed. A subsequent mounting of the retaining spring is possible with all standard rims 4,5 J x 15.

Removal

1. Unscrew valve cap.
2. Detach retaining spring on both ends, stretch somewhat apart and remove from rubber valve.

Installation

1. Grip retaining spring on both free ends, stretch somewhat apart and push over rubber valve.
2. Attach free ends of retaining spring in the slotted disc rim.
3. Screw on valve cap.

Checking Tires

23 Ti

General

Tires should be checked for correct pressure, wear, cuts, grease deposits, fabric breaks and foreign bodies frequently, in any case during maintenance inspections and before starting on longer trips.

Tire Pressure

To increase the life of tires and to insure the best riding qualities of Porsche sports cars, it is important that the prescribed tire pressure be maintained at all times. The tire pressure should therefore be checked regularly, at least, however, once a weak and above all before starting on a long trip, use an accurate pressure gauge for this purpose. A gradual loss of air is normal and is due to the presence of acids in the air which attack the walls of the tube and allow air to seep through the walls of the tube. Pressure should be checked when the tire is cool. If the tire is checked after the tire pressure has increased due to heating up after a speed run, it must on no account be decreased, as otherwise the pressure will be too low after the tire has cooled down.

Note

Tire pressure gauges should be checked after they have been used for a longer period to make sure that they indicate correctly. Worn out gauges (varying $^1/_{10}$ in accuracy) cause over- od under-pressure which results in abnormal tire wear and life span. It is therefore important that the gauge is checked periodically for accurate indication of the pressure.

The effectiveness of the valve can easily be checked by moistening the finger and placing it lightly over the valve opening. The appearance of small bobbles indicate that the valve is not seating properly. If necessary, replace the valve.

Abnormal Wear

Some causes for abnormal wear are:

Tire pressure too low or too high
Bad driving habits
Overloading vehicle
Bad roads
Improper wheel alignment

Pressure too low

Heavy wear occurs on the side of the tread due to increased friction of the soft tire against the road. The resultant overheating affects the fabric structure of the tire. Damage to the fabric will appear first as two black parallel lines inside the casing (at an angle to the direction of rotation). This means that the cords of the fabric are beginning to separate from each other. Continuing to drive under this condition will eventually cause rupture of the fabric and render the tire completely unserviceable.

If the tire pressure is too low, the entire load is placed on the shoulders of the tread and extreme friction then results in rapid wear of the center of the tread.

Pressure too high

This results not only in hard riding qualities, but also in excessive spring action, and rapid wear on the center of the tread.

Driving habits

Average driving speeds have greatly increased during recent years, and tire damage and wear have increased proportionally. Such damage and wear are caused by higher tire temperature due to friction and to violent variations of load due to road shock and by taking curves at high speed, as well as by the heavier braking actions. Heavy brake application increases tire wear, due to the grinding action of the tire against the road surface. This is particularly true if the brakes are applied hard enough to skid the wheels. Wear and damage are also increased if braking action is uneven due to faulty or defective brake shoes, linings and drums.

Overloading the car

The weight of the car is supported by the air in the tires. The compressability of the air gives a cushioning effect to small bumps and absorbs road shocks. Tire pressure, air volume and weight are directly related.

Each tire size is designed to support a given normal load and is constructed to sustain that load according to a specified air pressure and to sustain overload for short periods of time. Heavy overloading over a longer period may result in serious damage of the tire. This

Dynamic balance depends on even distribution of weight through the center line of the wheel. Stagger or wobble of a wheel indicate a lack of dynamic balance.

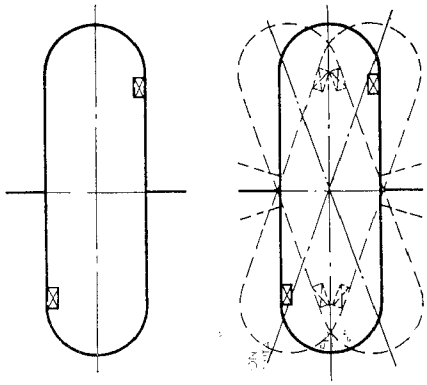

Fig. 43

The static balance can be checked by improvised methods. For checking dynamic balance one must use a balancing machine. Such machines are made by several manufacturers. Balancing is done in several ways, depending upon the design of the machine, and different sizes of lead weights are used. The location of the places on a wheel where weights should be fastened can be learned by reading the instructions supplied with the machine.

Note:

The lightest spot of the tires is marked by the manufacturer with one or two coloured dots, which should align with the valve when assembling tires.

This will already bring about a certain balance.

Balancing weights required for balancing wheels are made of lead and supplied in various sizes.

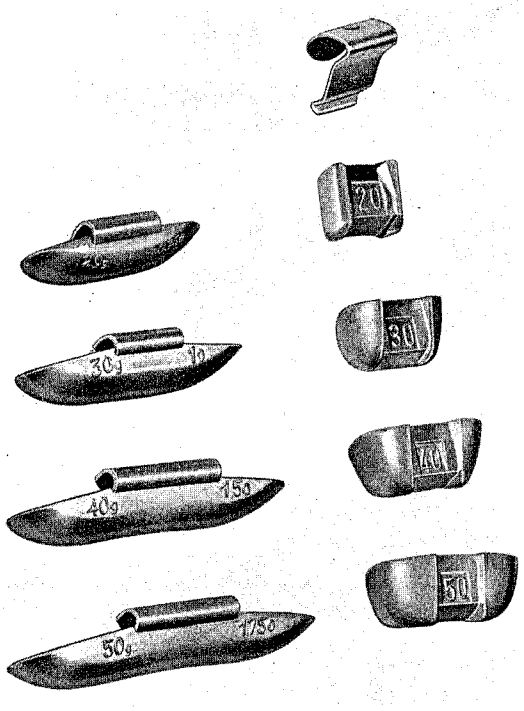

Fig. 44

Version a) (see fig. 44 on the left)

is only used for painted steel rims. The weight is positioned at the rim flange and secured by tapping it with a hammer. The tire need not be compressed for this purpose.

Version b) (see fig. 44 on the right)

can be used for all commercial rims, is however mainly installed in chromium-plated and light-alloy rims. When mounting this type of weight, the tire must be compressed at the respective place with a clamp, so that the balancing weight can be secured in position.
Prior to balancing, the rims must be checked for permissible vertical and lateral out-of-true.

Vertical out-of-true	**max. .0591" (1.5 mm)**
Lateral out-of-true	**max. .0787" (2 mm)**

Balancing dynamically

1. Fasten complete inflated wheel with all five wheel nuts to the hub of the balancing machine.

2. Rotate wheel rapidly.

3. Determine size and point of location of balancing weight.

4. Stop rotation of wheel, compress tire at the place where the weight shall be mounted to the outer rim flange, usine a clamp. Insert balancing weight in rim flange and clamp with spring. Make clamping spring to contact by tapping with a hammer.

5. Remove clamp.

6. Rotate wheel again rapidly and check whether dynamic out-of-balance is corrected.

   Max. permissible dynamic lack of balance 10 g.

Note:

If the balancing weight is found to be placed incorrectly, it may be moved in either direction on the rim flange without being removed after the tire has been compressed.

For removing the balancing weights of both types special commercial pliers should be used.

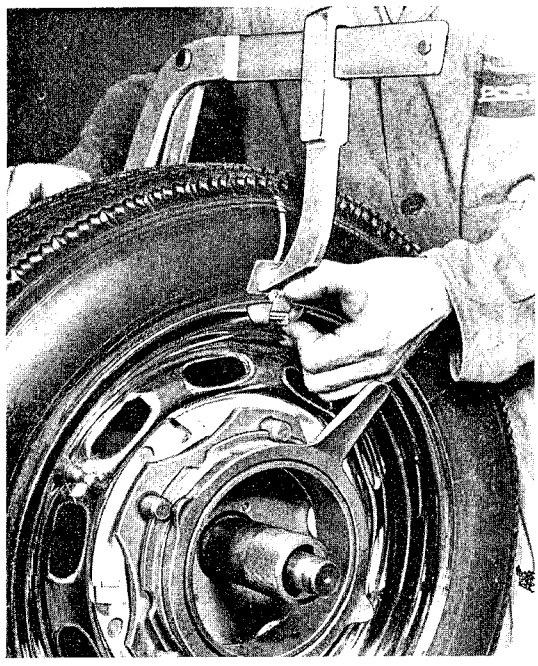

Fig. 45

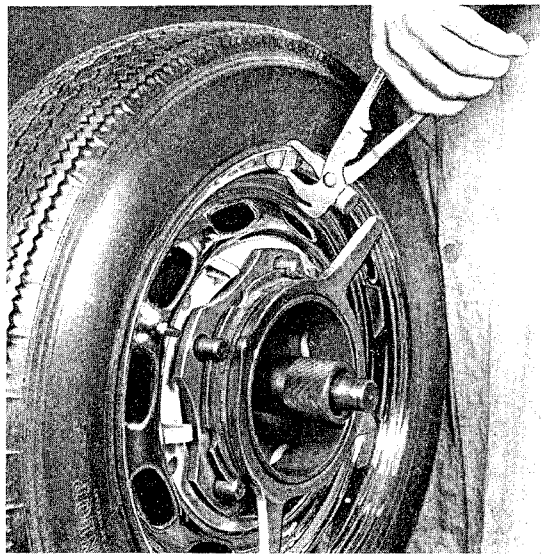

Fig. 46

Balancing statically

1. The dynamically balanced wheel which is still clamped on the balancing machine should then be rotated and allowed to stop gradually. (Axis of rotation of balancing machine must allow free movement.)

2. Mark the lightest weight point of the wheel at the rim edge with chalk, i.e. directly above the center of rotation while the wheel is at standstill.

   Fit selected magnetic weight to the determined point on the rim flange and turn the wheel by 90 °. If the wheel comes to rest, the size and weight is correct.

   If the wheel is revolving downward, the weight selected is too heavy. If the wheel revolves upward, the weight must be increased.

Fig. 47

If no magnetic weights are available or if wheels with light-alloy rims have to be balanced, the size of the balancing weights has to be determined by fitting various weights.

3. Fit balancing weight of equal size as magnetic weight to the inner rim flange.

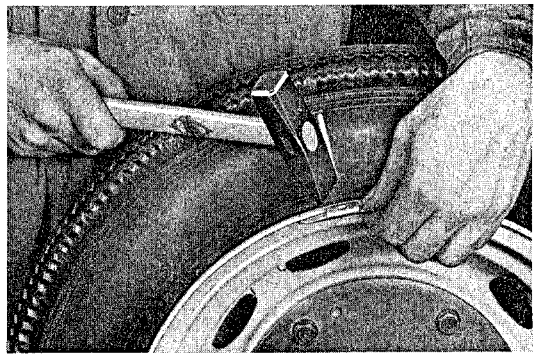

Fig. 48

Static balance of the wheel is correct if the wheel stops in any position.