TYRES AND WHEELS

CONTENTS

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TYRE EXAMINATION

Tyres should be examined regularly for:—

Inflation pressures.

Small objects embedded in the treads, such as flints and nails.

Degree and regularity of tread wear.

Misalignment.

Cuts and penetrations.

Damage due to impacts with kerbs, etc.

Oil and grease.

Oil and grease should be removed by using petrol sparingly. If oil or grease on the tyres results from over-lubrication or defective oil sealing, suitable corrective action should be taken.

TYRE AND WHEEL BALANCE

In the interests of smooth riding, precise steering and high speed stability all tyres are balance checked to predetermined limits. Coloured spots may be found on one bead indicating the lightest part of the tyre, and should be fitted near the valve or, where inner tubes are fitted, in line with the coloured spots on the tube.

Some tyres may be found to have small balance correction patches affixed internally, which should on no account be disturbed.

Where balance weights have been fitted to the wheel rims, it is advisable to detach them before tyre removal to avoid the possibility of their inadvertently falling inside the tyre. If the same tyre is subsequently to be refitted, the positions and amounts of these balance weights as well as the position of the tyre on the wheel should be marked with chalk on the rim, so that subsequent replacement may restore the original balance as far as possible.

The original degree of balance is not necessarily maintained in service, as it may be affected by uneven tread wear, by cover or tube repairs or by tyre removal and replacement. Normal wear of moving parts may even render the car more sensitive to unbalance.

Rebalancing of tyre and wheel assemblies should be carried out with the aid of approved equipment capable of measuring both static and dynamic balance. It is important to note that this does not constitute a remedy for wheel distortion.

PRESSED STEEL WHEELS

Distortion.

Wheel lift and wobble. On a truly mounted and revolving wheel the difference between the high and low points measured at any location on either tyre seat (Fig. 1 at "A") should not exceed 0·070 in. (1·8 mm.). The lateral variation measured on the vertical inside face of the flange (Fig. 1 at "B" should not exceed 0·070 in. (1·8 mm.). The positions " C and D" may be used when the tyre is mounted on the rim.

Radial eccentricity greater than this figure may give rise to static unbalance and irregular tyre wear, while excessive lateral variation will affect dynamic balance.

It is impracticable to true distorted pressed steel wheels, and they should be replaced.

Fig. 1. *Check for wheel distortion at "A" and "B" but "C" and "D" when tyre is mounted*

Tightening. Wheel nuts should be free on their studs. When fitting a wheel all the nuts should initially be screwed up lightly, ensuring that their conical faces engage in the seatings in the wheel.

Final tightening should be done progressively by short turns of diagonally opposite nuts to obtain centralization and avoid distortion.

Wheels with damaged or elongated stud holes, resulting from slack nuts, should be replaced.

WIRE WHEELS

Occasionally the wheels should be removed and cleaned for the examination.

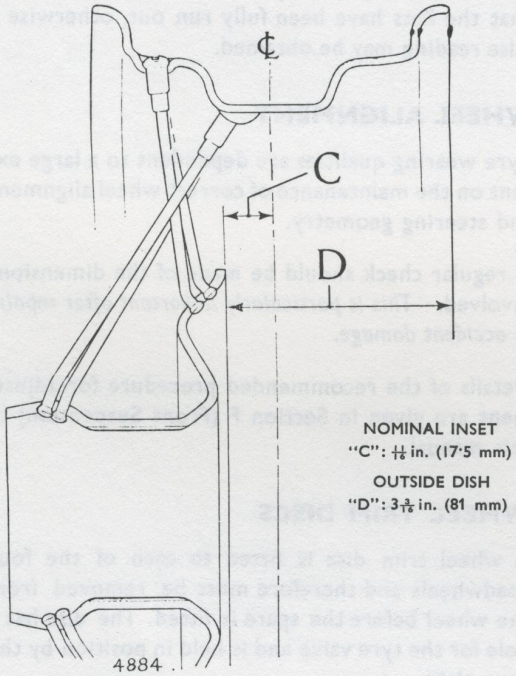

Fig. 2. *Wire wheel alignment—rim to hub*

The wire wheels fit on splined hubs and are secured by a nut. On earlier cars, lug–type hub nuts were fitted, whilst from chassis number B9101257, cars were fitted with octagonal hub nuts. When the latter type of nut is fitted, a spanner is provided in the tool kit for removal purposes.

Hub nuts on the right-hand side of the car are removed by turning them **clockwise**, those on the left-hand side by turning them **anti-clockwise**. The nuts should be loosened slightly before the car is jacked up, and finally tightened with the car on the ground. If possible the car should be run a short distance to settle the wheels on the splines and the nuts re–tightened.

Extreme care must be taken to ensure that the 'O' ring on the conical seat of the hub is not damaged in any way when removing or refitting the wheels.

On removing the wheels, the following items should be examined:—

Spokes. Wire wheels are built with a predetermined spoke tension, which provides a very slight amount of flexibility under running conditions; it is important that this tension is maintained in service and should be checked at regular intervals.

Looseness can be corrected and damaged spokes replaced, but care must be taken not to affect the alignment of the rim relative to the hub shell (See Fig. 2). Spoke tensioning should be carried out with the tyre and tube removed so that any protruding spoke heads may be filed off flush to the nipple.

If the condition of the wheel is in doubt, or if extensive trueing or re-spoking is required, it is strongly recommended that a wheel specialist be consulted.

Hub tapers and serrations. Any surface corrosion should be cleaned off, and the extent of wear noted. Wear at the serrations can be minimised by regularly ensuring that the hub caps are fully tightened. A light coating of grease should be applied to the serrations both to protect them from corrosion and to facilitate the removal and replacement of the wheel.

It is very important to ensure that the tapers are clean before the wheel is fitted. If necessary, the tapers should be emeried and polished to remove all dirt and rust; all mating faces should then be well greased.

CHANGING POSITION OF TYRES

Road and traffic conditions and driving methods may produce a tendency to irregular tread wear or different rates of wear between one tyre and another.

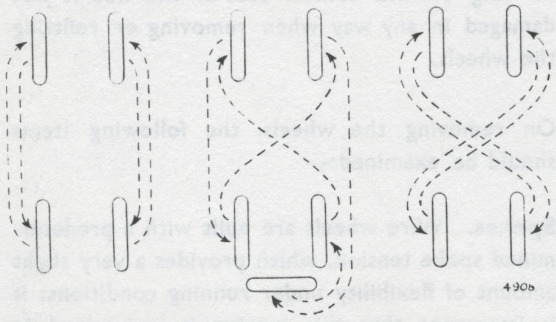

Fig. 3. *Methods of interchanging wheels and tyres*

Steeply cambered roads, for instance, tend to cause more rapid wear of the near-side front tyre than of the others.

To minimise such effects, it is recommended that front tyres be interchanged with rear tyres at regular intervals. Diagonal interchanging provides the most satisfactory first change because it reverses the directions of rotation.

Subsequent interchanging of front and rear tyres should be as indicated by their appearance, with the object of keeping the wear of all treads even and uniform. Change tyres round without removing from wheels.

Methods of interchanging tyres and wheels are illustrated in Fig. 3. It should be noted that where wire wheels are fitted, the offside hub should never be fitted to the nearside and vica versa. The offside hubs are marked RHS and the nearside LHS.

NYLON TYRES

Nylon tyres may develop temporary flatting after standing for some time and cooling off, following a long run during which high temperatures have been reached.

These flat spots can be run out quite quickly but it may be necessary to approach the speeds and temperatures which have led to the flatting. For example, flats on tyres which have developed after a long fast run may be difficult to remove if the car is then used for local "pottering" especially if the weather has become colder and wetter.

Before balancing nylon tyres it is desirable to ensure that the flats have been fully run out, otherwise a false reading may be obtained.

WHEEL ALIGNMENT

Tyre wearing qualities are dependent to a large extent on the maintenance of correct wheel alignment and steering geometry.

A regular check should be made of the dimensions involved. *This is particularly important after repairs to accident damage.*

Details of the recommended procedure for adjustment are given in Section F (Front Suspension) of this manual.

WHEEL TRIM DISCS

A wheel trim disc is fitted to each of the four roadwheels and therefore must be removed from the wheel before the spare is fitted. The disc has a hole for the tyre valve and is held in position by the nave plate.

To remove and refit

1. Remove the nave plate from the roadwheel.
2. Ease the wheel trim disc from three nave plate studs.
3. Refitting is the reverse of the removal.