FRONT SUSPENSION AND STEERING GEOMETRY

In the following paragraphs, detailed instructions are given for checking and adjusting the front wheel alignment, and for checking camber, castor and steering axis inclination angles.

Under normal service conditions, the only item requiring attention is the front wheel alignment (toe-in). A full geometry check should only be necessary following the rectification of repair damage to the front suspension or steering.

Nevertheless it is advisable to carry out a full geometry check, if excessive tyre wear is evidenced or steering difficulties are experienced.

The only angles which are adjustable are those for the steering alignment, the others are set in production and are non-adjustable.

Because of the varying conditions imposed on the front suspension and steering components in service, there arises the need to work to a fixed datum when carrying out the geometry checks. A fixed datum can be achieved by loading the car onto gap gauges.

The procedure for carrying out this work and details of the necessary equipment are fully described in the following paragraphs. The angles covering the front suspension and steering geometry are given in "General Data".

It will be noted that two sets of camber and swivel pin inclination figures are given, for the original suspension and for the low pivot suspension. These may be readily distinguished by checking the dimension from the centre of the wishbone pivot bolts (B on Fig. 4) upwards to the top face of the front bracket (A), which is:

Original suspension— ·8 in. (21 mm.)
Low pivot suspension—1·8 in. (46mm.)

EQUIPMENT REQUIRED

A wide range of equipment is available for checking front suspension and steering geometry, but only a reputable brand should be selected and the maker's instructions carefully observed.

For the geometry checking procedures outlined in this Section, the following items of equipment will be required.

1. Front wheel alignment gauge.

2. Camber, castor and steering axis inclination gauges, usually supplied in combination.

3. Front wheel turntable gauges with rear wheel ramps to suit. The ramps are used to keep the car on a level plane but will not be necessary if the turntable gauges are flush with the floor.

4. Front and rear gap gauges, two of each required. The front gap gauges are available from V.L. Churchill & Co. Ltd., under reference RG.408. The rear gap gauges can be made in service workshops by following the instructions given in Fig. 17.

5. Two 56 lb. (25 kg.) weights, each having some means of suspension such as an integrally fitted link or supporting bar.

PREPARATION OF VEHICLE

When checking any angle or dimension included in the front suspension and steering geometry, the following procedure must be carried out with absolute care and precision:—

1. Place the vehicle on a perfectly level floor and in a position that will permit some forward movement, the latter being necessary for certain types of wheel alignment gauges.

2. Inflate the tyres to the normal running pressures and ensure that they have the same amount of wear. See under "Wheels and Tyres"—General Data Section.

3. Check that the front hub bearings have the correct amount of end-float. See under "Front Suspension"—General Data Section.