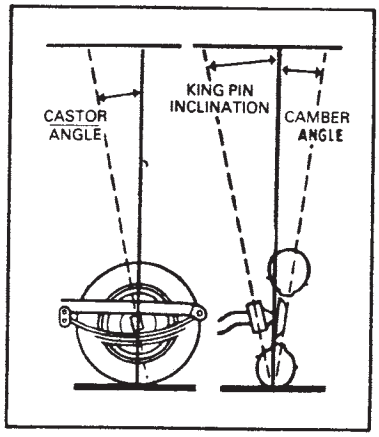
Part #3128

CAR WHEEL CAMBER CASTOR, KING PIN GAUGE AND STEERING TURNTABLE KIT



OPERATING INSTRUCTIONS

The CG/4-5 Gauge consists of two separate instruments and is an essential contribution to vehicle maintenance and greater motoring efficiency. It is a scientifically designed, easy-to-use gauge, with which Camber and Castor angles and King Pin inclination can be measured accurately.

CG/4 is quick and simple gauge for measuring Camber angles and floor level.

CG/5 gauge checks Castor angles and King Pin inclination in one operation. It can be attached to the stub axle nut, to a wheel stud or to a centre-lock wheel.

CG/6 is a set of two 30 cwt capacity steering turntables complete with run-on-ramps to facilitate measurement of Castor angles and King Pin inclination and for checking Toe-out on Turns, Wheel Lock angles and also Full Lock angles (Lock to Lock). The CG/6 should be ordered with the CG/4-5 gauge if not already in use.

FIG 1

TO MEASURE CAMBER

Check that the vehicle is on a flat level surface with the front wheels pointing straight ahead, and that tyre inflation pressures are correct.

The floor level should be checked with the CG/4 Camber Gauge (Fig. 1) by placing the gauge on the floor in the direction to be checked, adjusting the dial (B) to centre the bubble in spirit level (C). The angle of inclination is read from the scale on dial (B).

It is possible to work on a floor with a small slope and correct the Camber reading obtained. Where the slope is from side to side of the vehicle with the nearside of vehicle high, measure the angle of slope and subtract from offside Camber reading and add to nearside reading. The reverse applies for vehicles on a side to side slope with the offside high. If the floor slopes front to rear of the vehicle no correction is required.

Apply the long edge of the gauge to the tyre side-wall holding the gauge upright but avoiding that part of the tyre which bulges due to deflection (Fig. 2). A small departure of the gauge from upright will not affect the reading seriously.

Adjust dial (A) until bubble in level (D) is central, read Camber Out or Camber In from scale on dial (A).

NOTE: The Camber angle scale is additive i.e., if the dial is rotated half a revolution and the spirit level bubble has not centred, continue turning the dial until the bubble is centred. The total angle measured is obtained by counting the number of graduations through which the dial has been rotated.

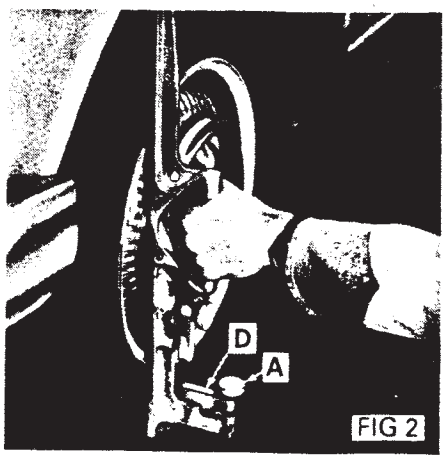


FIG 2

TO MEASURE CASTOR ANGLE AND KING PIN INCLINATION

Follow the same procedure for checking floor level as when measuring Camber angle. If the floor level slopes from side to side, correction of Castor gauge reading is not required. When checking King Pin inclination on such a slope with the nearside of the vehicle high, the angle of slope should be added to the offside reading and subtracted from the nearside reading. The reverse applies if the vehicle is on the slope with offside high. Should the floor slope front to rear with front of the vehicle high, the angle should be subtracted from positive castor readings both offside and nearside and added to negative readings. On floors sloping front to rear with front of vehicle low, the reverse applies. No correction of King Pin inclination is required.

Place one Steering Turntable, with locking pin in position and adjustable scale set centrally with pointer at zero, in front of the centre of each front wheel, with shorter run-on-ramps in position at rear of turntables. Place the longer ramps in front of each rear wheel so that the back of the car will be raised to the same height as the front.

With locking pins still in position drive the vehicle carefully on to the turntables until the centres of the front wheels are positioned over the centres of the respective turntables (Fig 3).

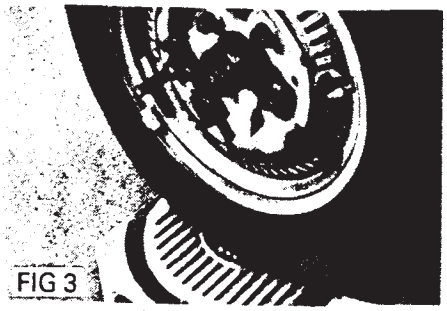


FIG 3

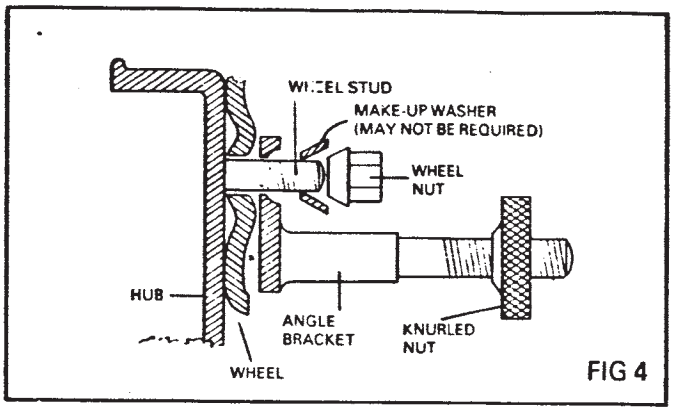


FIG 4

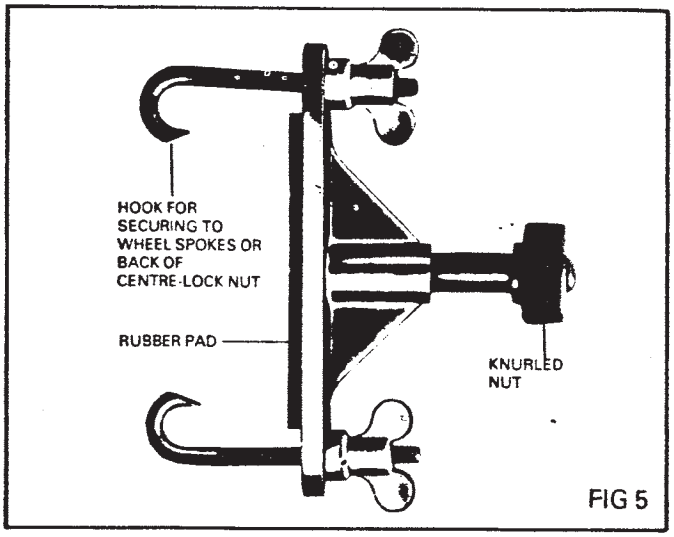


FIG 5

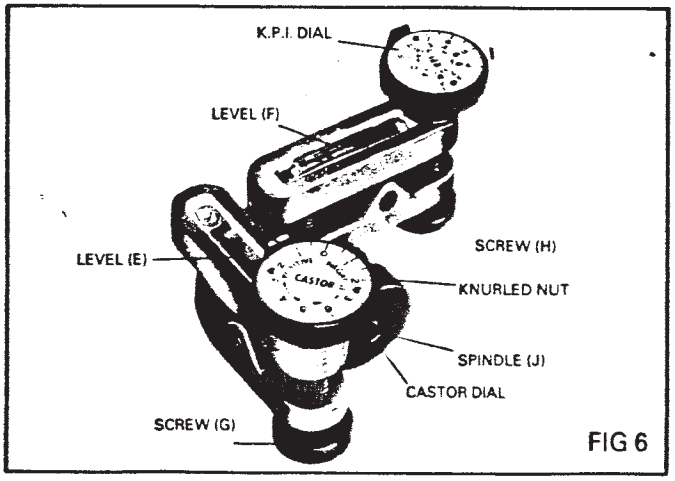


FIG 6

WHEN STUB AXLE BUT IS AVAILABLE

To avoid the possibility of the wheels rotating when checking front wheel drive cars it is essential to apply the foot brake using a brake pedal depressor or similar means.
Attach special clamping device and tighten securely by means of tommy bar provided (Fig. 3).

WHEN WHEEL STUDS ONLY ARE AVAILABLE

To avoid the possibility of the wheel turning during this check apply the foot brake. Select the correct size of angle bracket, dependent on stud diameter, and clamp to wheel stud using vehicle wheel nut (Fig 4).

CENTRE LOCK WHEELS

For centre lock wheels use special clamp (Fig. 5) and attach by means of wheel spoke securing hooks.

Remove turntable locking pins and adjust turntable scales until pointer is at zero.
Fit the CG/5 gauge, with castor dial on left, to spindle 'J' and secure with knurled nut (Fig. 6). The gauge should be set approximately horizontal.
Steer the wheel to be checked 20° IN, i.e. Right hand wheel steered to left and Left hand wheel steered to right. Set Castor and King Pin inclination dials to zero at pointer then centre the bubbles in the Castor and King Pin inclination spirit levels (E) and (F) respectively by turning lower knurled screws (G) and (H) (Fig. 6).
Steer the wheel being checked 20° OUT, i.e. opposite lock. Centre the bubbles in spirit levels (E) and (F) by turning Castor and King Pin inclination dials respectively and read the Castor angle and King Pin inclination.
Note: The Castor angle and King Pin inclination scales are additive, i.e. if the dial is rotated a full revolution (or in the case of the castor dial half a revolution) and the spirit level bubble is not centred, continue turning the dial until the bubble is centred. The total angle measured is obtained by counting the number of graduations through which the dial has been rotated.

TOE OUT ON TURNS MEASUREMENT

Remove turntable locking pins and centre turntable scales until pointer is at zero.
Steer the front wheels 20° Left Lock (reading from turntable scale on right hand wheel). Take reading on left hand scale and subtract 20° to obtain toe out on left lock.
Steer front wheels 20° Right Lock (reading from turntables scale on left hand wheel). Take reading on right hand scale and subtract 20° to give toe out on right lock. CHECK WITH THE VEHICLE MANUFACTURER'S RECOMMENDATIONS.

WHEEL LOCK ANGLE MEASUREMENT

Remove turntable locking pins and centre turntable scales until pointer is at zero. Steer front wheels 20° Left Lock (reading from turntable scale on right hand wheel). Take reading on left hand turntable scale.
Steer the front wheels 20° Right Lock (reading from turntable scale on left hand wheel). Take reading on right hand turntable scale.
Compare the results, which should be 20° plus or minus the limits set by the vehicle manufacturer.

FULL LOCK MEASUREMENT

Remove turntable locking pins and centre turntable scales until pointer is at zero. Steer front wheels to FULL LEFT LOCK and take reading from turntable scale on right hand wheel.
Steer front wheels to FULL RIGHT LOCK and take reading from turntable scale on left hand wheel. Compare readings and check with vehicle manufacturer's recommendations.