BEAR

Operating Instructions

MODEL NO. 29 MAGNETIC GAUGE

INTRODUCTION

The Bear No. 29 Magnetic Gauge is used to mechanically check camber, caster and steering axis inclination angles on passenger vehicles as well as on trucks. The gauge body can be used with the Bear No. 53395 Wheel Rim Clamp on all wheels, but is especially convenient on Magnesium and Sport-type wheels. The gauge can be used on alignment racks, portable wheel stands or on the floor, using either full-floating or semi-floating turning radius gauges.

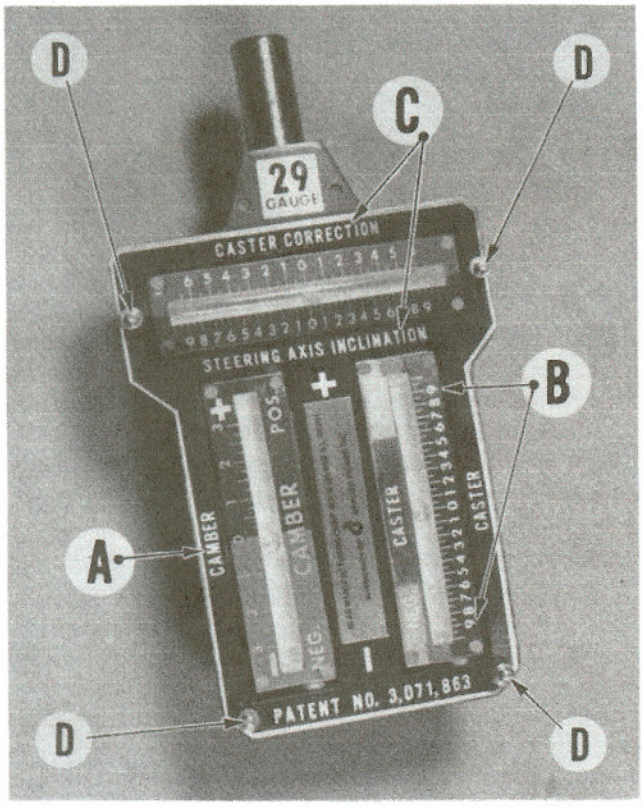

Fig. 1

On the gauge body, Fig. 1, please note the following features:

(a) Read camber to fractions of a degree on easy to read camber scale.

(b) Read as much as 18° on caster scale. For instance: adjust center of bubble at 9° negative: if center bubble then moves to 9° positive, it records 18° of caster.

(c) Caster correction and steering axis inclination scales located on same vial. Caster correction scale makes it convenient to watch the amount of caster change as caster is adjusted.

(d) Four locating pins to hold the patented Bear Check-o-Matic templates. These locating pins can be easily replaced.

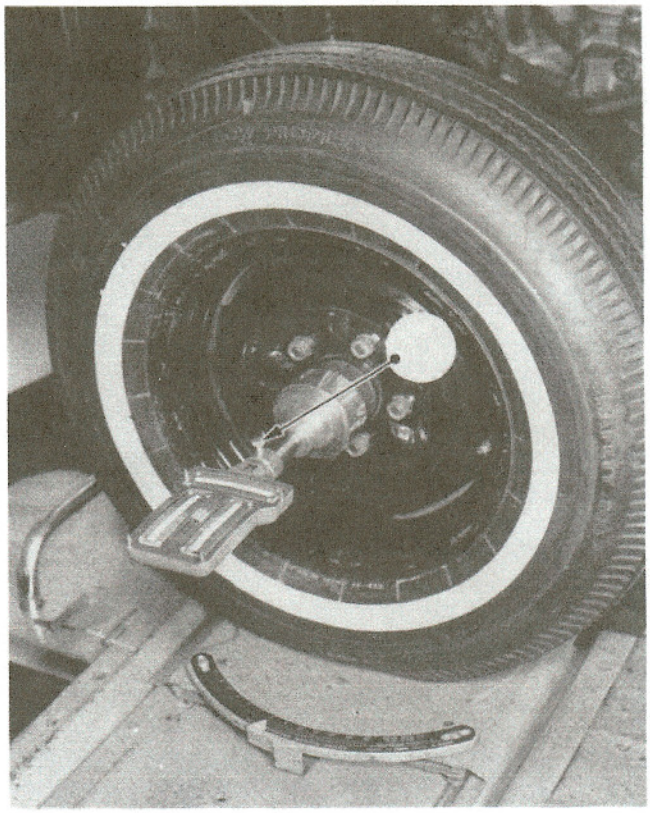

Fig. 2

PRELIMINARY INSTRUCTIONS

Place vehicle front wheels on turning radius

gauges, wheels straight ahead, Figure 2.

When using No. 44 Turning Radius Gauges (full-floating turn tables), it is recommended to *lock all four wheels with brake pedal depressor.* When using No. 41 Turning Radius Gauges (semi-floating turn tables), *do not lock wheels with brake pedal depressor.*

Check and inflate all four tires to proper pressure. Remove hub and dust caps, wipe off excess grease from end of spindle and clean face of wheel hub.

Remove turning radius gauge lock pins from both sides of vehicle. Settle vehicle by grasping front bumper at the center and working front of vehicle up and down several times to place front springs and shock absorbers in their normal position.

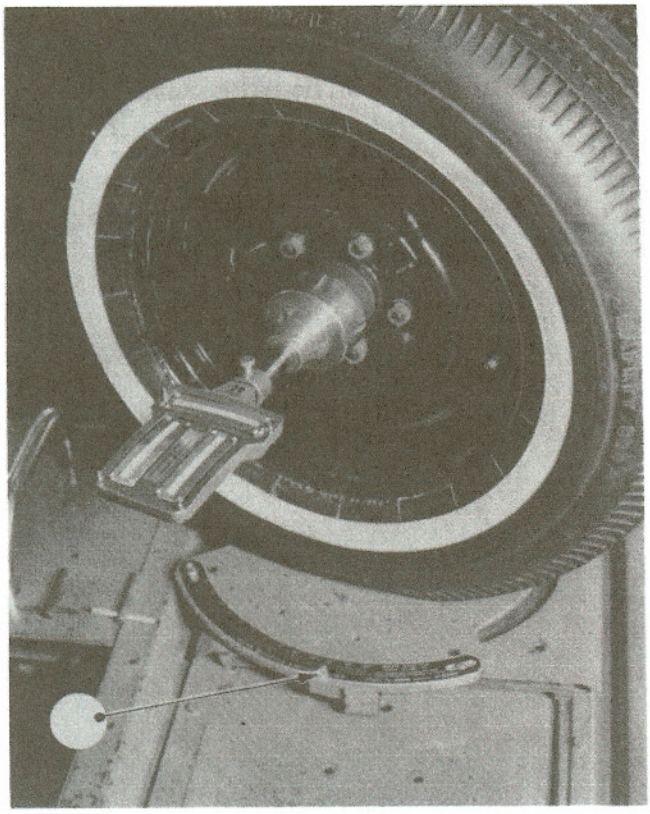

Fig. 3

CHECKING CAMBER

Attach gauge to magnetic adapter, tighten thumb screw holding gauge in clamp, Figure 2. On left front wheel center gauge on spindle with centering pin and attach gauge to wheel hub in a horizontal plane, scale side up, Figure 2. Read camber on camber scale located to the left of spirit level bubble—outer scale. Repeat same procedure on right front wheel.

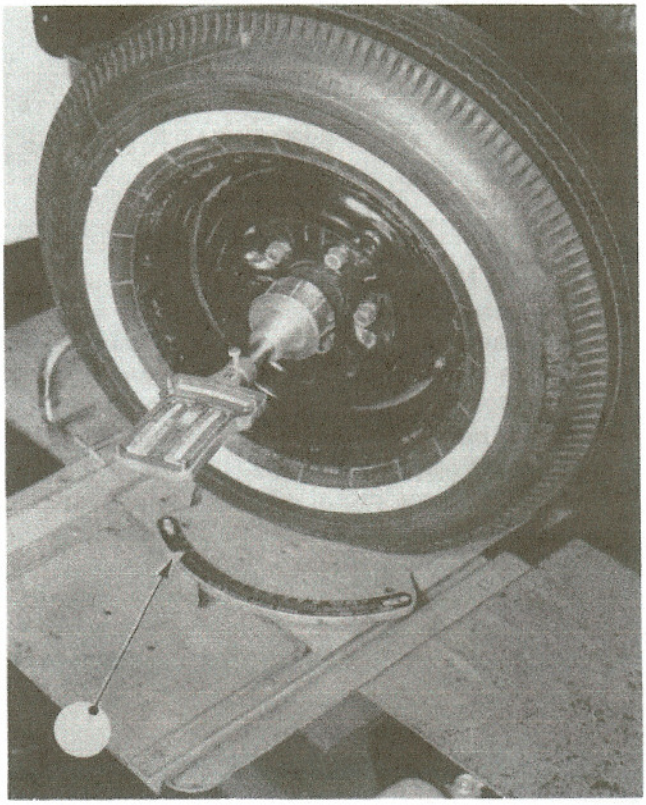

Fig. 4

CHECKING CASTER

Start the caster check by turning front of wheel in toward center of vehicle, as outlined in the following instructions. On left front wheel set turning radius scale on turning radius gauge so gauge pointer reads zero. Turn wheel in toward center of vehicle until turning radius scale reads 20°, Figure 3. With adjustable thumb screw located on underside of gauge body, adjust caster level until bubble reads zero. Turn wheel out from center of vehicle until turning radius scale reads 20°, Figure 4. Read caster on caster scale located to the right of spirit level—blue scale. Positive caster is indicated if the bubble has moved toward "Pos." marking on scale. Negative caster is indicated if bubble has moved toward "Neg." marking on scale. Repeat same procedure on right front wheel.

CHECKING STEERING AXIS INCLINATION

Place front wheels in straight ahead position. On left front wheel set turning radius scale on turning radius gauge so gauge pointer reads zero.

Turn wheel in toward center of vehicle until turning radius scale reads 20°. With adjustable thumbscrew located on underside of gauge body, adjust steering axis inclination level until bubble reads zero.

Turn wheel out from center of vehicle until turning radius scale reads 20°. Read steering axis inclination on steering axis inclination scale, blue scale.

Repeat same procedure on right front wheel.

NOTE: Both readings of caster and steering axis inclination can be obtained at the same time. Follow the instructions as outlined before, setting both caster and steering axis inclination levels so bubbles read zero.

CORRECTING CAMBER AND CASTER

Correction should be made in two steps. For shim-type suspension adjustments, adjust the caster angle first, then, camber. For example, assume one 1/16" shim was to be removed from the rear mounting bolt and added to the front in order to correct caster and two 1/16" shims were to be removed from both the front and the rear to correct camber. Usually, unless an extreme condition necessitates considerable changes of shims, both caster and camber may be corrected at the same time.

For those cars with mechanical adjustment means, caster is also adjusted first, then, camber. Place front wheels in straight ahead position. Adjust caster correction level, red scale, until bubble reads zero. Adjustment is then made to bring the bubble the desired amount of caster correction. Camber is then corrected on the camber scale. In this manner, it is usually possible to correct both caster and camber in the same operation.

NOTE: It is advisable to recheck camber and caster after correction is made, follow instructions as outlined for checking.