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Measuring Caster, Camber and SAI/KPI on a Non-Level Surface

When the vehicle is not on a level surface, the procedure is somewhat different. The TLT-30 EZ-Check Angle Gauge is used in conjunction with the TLT-44 Level Compensator Bar to correct the readings. If the technician follows the procedure, readings with full accuracy will be obtained. Even though the measurements are accurate, the ground should be reasonably near level to assure that the vehicle suspension is not affected.

When the calibration procedure is complete, measurement of camber is done as follows:

1. Mount TLT-28 Wheel Clamps on front wheels (both sides).
2. Raise wheel and adjust run-out using the standard procedure (both sides).
3. Lower wheel onto turn table and remove locking pin (both sides).

To Measure Camber on a Non-Level Surface

1. Place TLT-44 Level Compensator Bar (that has been assembled to match the tread width and is calibrated) in front of wheels as shown in Figure 20.
2. Beginning on the left side, hang TL-30 EZ-Check Angle Gauge on the mounting disk on the left side of the Level Compensator Bar and adjust camber zero knob to zero the camber bubble.
3. Measure camber on the same left of the vehicle.
4. Repeat steps 2 and 3 on the right side.

Note: Remember to zero the camber gauge each time before you measure camber.



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To Measure the Side to Side Tilt for SAI/KPI

SAI/KPI readings are affected by the side to side tilt of the vehicle. The following procedure compensates for the tilt to give full accuracy SAI/KPI readings. You can make the SAI/KPI readings first, or after this procedure.

1. Place the bar in front of the wheels with the red side on the right side.
(refer to Figure 20)
 2. Hang the gauge on the red side and zero the camber bubble using the camber zero adjust knob. (refer to Figure 9)
 3. Hang the gauge on the black side and read the camber.
 4. Adjust the bubble half way back using the camber zero adjust knob. The camber gauge now reads the tilt on the ground.
-
1. Place the gauge on the red side and read the tilt of the ground. Whatever the SAI/KPI readings are, add the ground tilt reading on the right side, and subtract the reading on the left side. IE... If the tilt of the ground is 1deg and the right side reading is 12 degree, and the left side reading is 14 degree, the corrected readings would be 13 degree on the right and 13 degree on the left.



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To Measure Front to Rear Tilt for Caster

Caster readings are affected by front to rear tilt of the vehicle. The following procedure compensates for the tilt to give full accuracy caster readings. You can measure caster first by following this procedure.

1. Place the bar along the side of the vehicle. Make sure the ground is reasonably flat (not level) so the bar is tilting about the same as the vehicle. Place the bar on the driver side of the vehicle with the red side toward the front.
2. Hang the gauge on the red side and zero the camber bubble using the camber zero adjust knob (refer to Figure 9).
3. Hang the gauge on the black side and read the camber.
4. Adjust the bubble half way back using the camber zero adjust knob. The camber gauge now reads the tilt on the ground.

Place the gauge on the red side and read the tilt of the ground. Whatever the caster readings are, add the ground tilt reading to the caster reading.

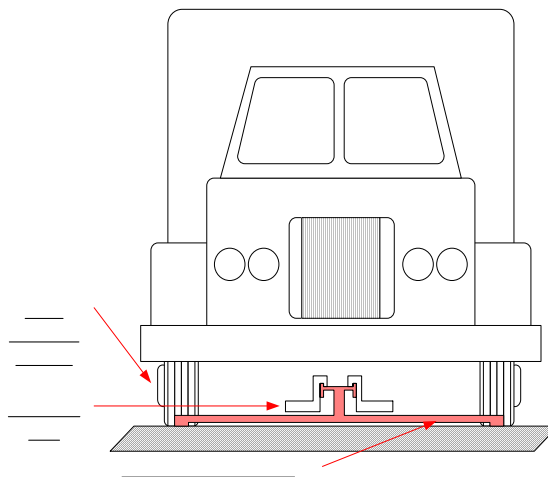


Figure 20



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Calibration: TLT-44 Level Compensator

To calibrate TLT-44 Level Compensator it must be assembled. Figure 20 shows the bar placed under the front wheels of the vehicle to be measured. Since the bar rests near the front wheels, it is tilted the same amount as the vehicle. The compensation procedure that follows corrects for the tilt. After assembly, the bar is calibrated according to the following procedure.

1. Place the bar on a firm surface. One side of the bar has a red dot (called the red side). Place the bar with the red side on the left.(Fig. 8)

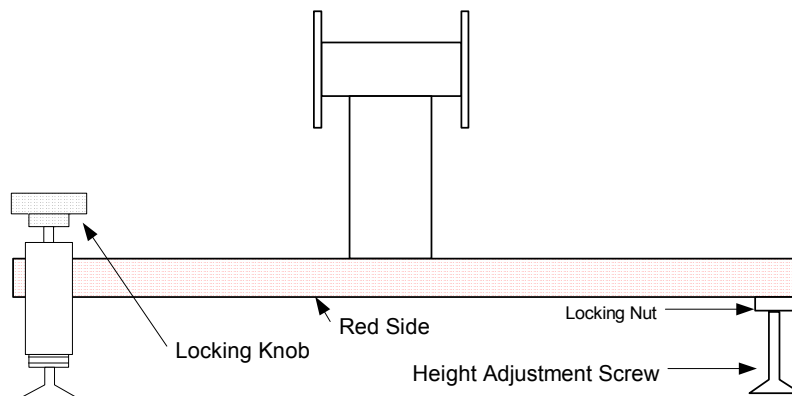


Figure 8



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2. Hang the TL-30 EZ-Check Angle Gauge on the red side disk in the normal way and zero the caster bubble using the caster zero knob. (Fig. 9)

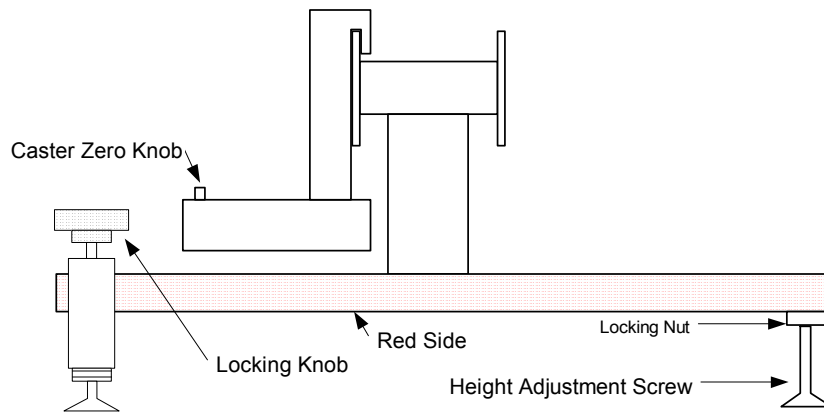


Figure 9

3. Reverse the bar on the ground so that the foot nearest the red side is now the black side. Place the gauge on the black side which is now on the left. Read the caster bubble and note the reading. (Fig. 10)

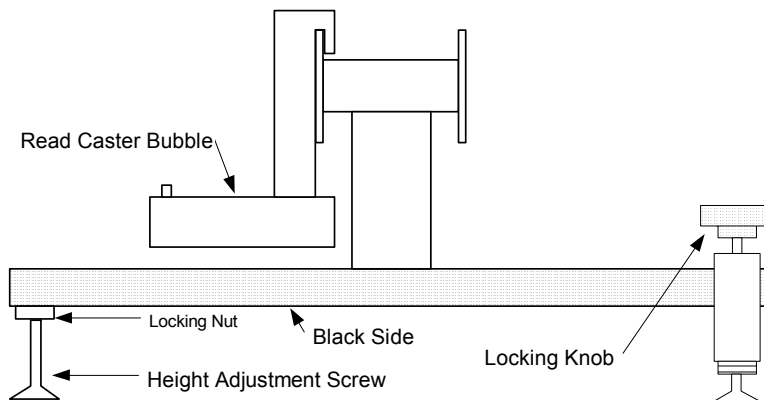


Figure 10



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4. Loosen the nut to adjust the height. Adjust the screw until the caster bubble is one half of the way back to zero. Lock the nut until tight. Do not over tighten.(Fig. 11)

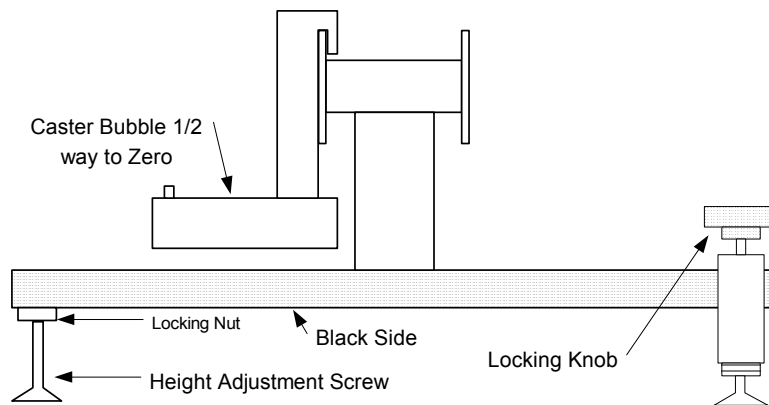


Figure 11

If the bar is properly calibrated, the caster reading will be the same on both sides.

Once the bar is calibrated, it should not require recalibration. Even so, it is wise to periodically verify the calibration.