Hunting Your Car's Caster

Gus gives a practical lesson in adjusting the front wheels

By Martin Bunn

Gus Wilson's annual visit to his upstate relatives had a way of developing into a busman's holiday.

On this particular trip, his hopes for a workless vacation were shattered the second morning of his stay. This time it was Bill, his eldest nephew, who upset his plans for a week of rest.

"Uncle Gus," the young man began timidly, as the gray-haired auto mechanic propped his morning paper against the sugar bowl and leisurely poured himself a second cup of coffee, "will you show me how to check the steering gear on my car while you're here?"

"What seems to be wrong?" asked Gus good-naturedly.

"The car keeps running to the right," explained Bill, "I have to wrestle with the steering wheel to keep it on the road."

A grunt was Gus's only answer as he followed his nephew to the front curb where the car was parked.

"First of all, we'll have to find a good place to work," said Gus after a hasty inspection. "How about running the front wheels onto the driveway outside your garage? While I move the car around there, you go to your Dad's workshop and see if you can hunt up a couple of lengths of wood lathing, a hammer, a saw, some nails, and a large steel square. And, say, if you can find one of those adjustable spirit levels bring that along too."

Gus finished parking the car just as Bill, his arms laden, emerged from the cellar door.

"What are you going to do with all this stuff, Uncle Gus?" asked Bill as he piled the tools and lumber on the car's running board. "All I want to know is how to check the steering gear."

"I don't think the steering gear has much to do with your trouble," replied Gus as he picked up the two long sticks and slipped along the first one and then the other. "Sounds like unequal caster."

"Unequal what?" asked Bill.

"Caster," repeated Gus. "Don't you know what that is?"

"No relation to the oil, is it?" grinned Bill.

Gus shook his head. "Nope, it's an angle and it's one of three important front-wheel adjustments. There's camber..."

As I can see, camber and toe-in are pretty much the same thing, except one is horizontal and the other is vertical."

"Right," agreed Gus, "and if either the caster or the camber are wrong, they'll upset the toe-in. That's why toe-in is a check on them all. If the toe-in measures O.K., you can be pretty sure that the camber and caster are right."

"Sounds like an awful lot of measuring to me," observed Bill. "How would you check all those angles?"

"Well, the best way is to use regular measuring instruments that are made for the work. All good repair shops and service stations have them. Of course, in a case like this, you can put together some tools that will do a good enough job."

"For instance, camber fits the front wheels out at the top, like this," Gus explained, indicating the angle with his hands. "Well, we can check that by placing a large steel square flash against the hub and measuring the distances between the rim and the vertical edge of the square at the top and at the bottom of the wheel. If the...

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WHAT AILED STEFFINS' CAR?

Announcing the Prize Winner

In the January issue of Popular Science Monthly, Martin Bunn described the troubles Fred Steffins, one of Gus Wilson's customers, was having with his car. A prize of twenty-five dollars was offered for the best letter explaining the difficulty and telling how it could be remedied.

Many readers submitted solutions, a large number stating correctly that a worn timing chain or a slipping fiber timing gear was the cause of the trouble. In the opinion of the judges, Richard F. Lawson, Detroit, Mich., wrote the best letter diagnosing the trouble and describing the remedy and Mr. Lawson was awarded the prize.
HUNTING YOUR CAR'S CASTER AND CAMBER

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wheel has camber, the distance at the top should be less than the bottom distance.

'Too-in can be measured with a tape measure and a large pair of inside calipers made from a couple of lengths of lathing. You have to measure the distances between the inside edges of the tire or rim at the front and at the rear.'