

Give Your Car These SIMPLE SAFETY TESTS

By MARTIN BUNN

WILLIS DONAN stared disgustedly at a car that started off from the Model Garage just as he pulled in.

"Some heap of junk, that, eh?" he snorted to Gus Wilson, half owner of the establishment, as the clattering din of the departing car faded into the distance.

"Sure looks it and sounds it," Gus admitted with a grin.

"That's the kind of car they ought to rule off the road," Donan growled indignantly. "Those old rattletraps are a menace to everybody. It's a wonder there aren't more crashes, with the roads full of such crates."

"Because a car's old and noisy, and looks a bit moth-eaten, is no proof that it's a menace on the road," Gus protested. "Take Fred Oakes's car, for example. He's the fellow who just drove away. I'll bet you a good cigar his car's just as safe on the road as yours—and maybe a little bit safer!"

"You're crazy!" Donan exclaimed, his eyes straying proudly over the sleek, well-polished exterior of his year-old model. "How could that old wreck possibly be in a class with this car for safety?"

"Wait a minute," said Gus, disappearing through the open door of the garage. After rummaging around inside for a while, he returned with a small block of wood in his hand. "How are your brakes?" he asked, walking over to the side of Donan's car.

"Didn't you hear me slide my wheels when I pulled in?" Donan snapped. "If you think my brakes aren't as good as those on that old kettle, you've got another think coming!"

"Let's try them, anyway," Gus suggested mildly, as he climbed into the seat beside Donan.

The latter backed his car out. When he got it turned around and headed down the road, Gus placed the small block of wood on the floor between his feet. "Now stop her as quick as you can," he directed.

Donan slammed on his brakes; there was a squeal of rubber scraping, and the block of wood gently toppled over.

"Now try it again," said Gus, as he stood the block up again, this time edgewise to the direction of travel of the car.

As soon as he reached twenty-five miles an hour, Donan jammed both pedals to the floor with a vicious kick. The tire squealed as before, but the block did not fall over.

"Not so good," grumbled Gus. "Fred Oakes, now, in that 'old rattletrap,' can tip that block over from either position. Your brakes are only fair."

"I don't see how that can be," argued Donan. "I'm sliding my wheels, and that's all any brakes can do."

"Trouble is," Gus corrected, "you're only sliding one wheel. The brakes on the other wheels can't be doing much. That's worse than having them all working weakly, because one tight brake will make you skid like all get-out on slippery going."

"How do you know only one wheel is sliding?" Donan asked.

"Look back," replied Gus. "You can see the rub mark on one side of the road and not on the other; if both wheels on the same side locked, and the others weren't holding, the car would slue around enough that the mark would be wider than one tire could make."

Donan got out and carefully examined the tire mark on the pavement. "You win, Gus," he grunted, fishing a huge cigar out of his pocket.

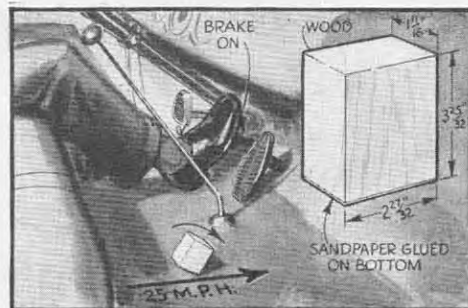
"I never saw brakes tested that way before. Where'd you get this block?" he asked, picking it up and looking it over. "And how do you know it really tells anything about the brakes?"

"I made it," Gus replied, "but a man connected with the National Safety Council worked out the idea—and it's a clever one, too."

"Made of fir, I see," Donan commented. "How do you load it inside so it will tip over at just the right brake pressure?"

"It isn't loaded, and the kind of wood hasn't anything to do with it," Gus explained, taking the block in his hand. "It could just as well be made out of pine, or oak, or mahogany, for that matter. Even the size doesn't make any difference, so long as the height, width, and thickness bear a certain relation to each other. The thickness has to be just forty-four and six tenths percent of the height and the width should be seventy-five percent of the height. The block has to be squared up nicely, and you have to have this piece of sandpaper (Continued on page 120)

How to test the efficiency of your brakes with a small block of wood. Dimensions of the block are shown



"I'll bet a good cigar," said Gus, "that Fred Oakes's car, there, is just as safe on the road as yours—maybe safer."



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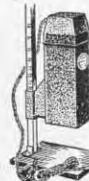
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glued to the bottom end so the block won't just slide along on the floor instead of tipping over."

"Gosh!" Donan exclaimed. "I don't want to do all that figuring. Give me the actual dimensions of this block, and I'll make one just like it." He pulled out a notebook and a pencil.

"This is just a piece cut off an ordinary fir two-by-four exactly three and twenty-five thirty-seconds inches long. I sawed a slice off one edge to get the width down to exactly two and twenty-seven thirty-seconds of an inch. The usual dressed thickness of a two-by-four is one and eleven sixteenths of an inch, and if you'll check those dimensions you'll find they fit the specifications so near that the difference doesn't matter."

"I'll take your word for it," Donan laughed, as he finished writing down the figures. "I'm going to make me a block like that right away—and, believe me, I'm going to see that my brakes are kept so I can roll that block over any time from the edgewise position. How about adjusting those brakes right now?"

"Your saying that old crock was maybe safer than my car, kind of got under my skin," Donan observed, as Gus got his tool kit and set to work on the brakes. "Anyhow, the motor in that old baby isn't as safe as this one."

"Certainly it is," Gus grunted, as he jacked up the rear of the car. "So long as the motor isn't so loose in the frame that it's likely to drop out in the road, it doesn't matter how rotten it runs or how much noise it makes—from a safety standpoint. All it can do is stop, and while that may be a blamed nuisance, it won't put your life in peril unless you happen to be crossing a desert or something like that."

"No," Gus continued, "the fact that the motor is on the blink, the paint is peeling off, the mud guards are full of dents, and the upholstery is sprouting whiskers, have nothing to do with safety. Safety hinges on the mechanical condition of the running gear—especially the steering part of it—and of the brakes."

"It's a pity there aren't some simple ways to test the running gear like this block you use for testing brakes," Donan remarked.

"Some of the tests you can make yourself are even simpler," Gus answered, as he lowered the rear of the car and pushed the jack under the center of the front axle.

"**L**OOSENESS in the steering gear may be a sign of coming trouble," he added, as he left the jack and came around to the side of the car. "Anybody can test for steering-gear looseness just by jiggling the steering wheel back and forth like this while you watch the front wheel to note the point where the slack is taken up and the wheel just starts to turn. If there is much over an inch to an inch and a half of play with the wheels in the straight-ahead position, then watch out, especially if the play develops quite suddenly. It may mean that something is coming loose in the steering mechanism, maybe a ball joint coming apart, or a loosening of the adjusting nuts on the rod that links the wheels and holds them in line. Of course, if the looseness is really due only to natural wear of the parts, and if it isn't too bad, it won't cause an accident, unless you're in the habit of driving fast. In that case, you won't have as close control over the steering as you should, and the looseness may favor the development of shimmying."

"Let me see how much play there is now," Donan said, as he reached for the steering

wheel. "Then I'll be able to judge if any more play develops."

"Here's another simple test," Gus said, as he started to raise the jack very slowly. "Watch the wheels, now. If the king-pin bearings are tight, and the wheel bearings perfectly adjusted, the wheels will move up just as though they were solidly attached to the axle. If either one sags, then you should grab the tire at the top after you get it clear of the ground, and shake it in and out to find out whether the looseness is in the king-pin bearing or in the wheel bearing. A little looseness in either bearing doesn't necessarily mean danger, but it is well to check it once in a while to see that it isn't getting worse."

"I can do that with my own jack just as well, can't I?" Donan asked.

"Sure," Gus replied. "Take one side at a time."

"**T**HERE'S another test you can make up when you have the front wheel jacked up. That is to spin it to see that the front-axle bearings are in good shape. If the wheel spins freely, with only a faint, smooth kind of a roar from the bearing, then everything is probably in fine shape, but if you hear any sounds of grinding or grating, especially if the wheel seems to catch here and there as it spins, then it's quite likely that one of the roller bearings has cracked. Often a roller bearing can go all to pieces without jamming the wheel, but once in a while a broken bearing locks the wheel. If that occurs suddenly while you're going fast, lots of unpleasant things can happen."

"How do you adjust a front-wheel bearing when it gets loose?" Donan asked.

"That's simple enough," Gus explained. "Just pull the cotter pin and turn the castellated nut on the end of the axle till the bearing just begins to bind, then back it off enough so that the next slot in the nut will line up with the cotter-pin hole in the axle—and don't forget to replace the cotter pin!"

"While we're on the subject of axles," Gus went on, "the seating of the rear hubs on the tapered ends of the rear axles should be checked once in a while. There shouldn't be any looseness at all. If there is, the continual banging the key gets, every time you take your foot off the throttle and put it on again, will eventually shear off the key and you'll have to be towed home. Or, what is still worse, it may snap the axle—and losing a wheel doesn't make for safety!"

"**A**NYTHING else that can affect your safety?" Donan asked, as Gus finished with the brake adjusting.

"No car is safe with a windshield wiper that is on the verge of not operating at all," Gus grumbled, as he put away his tools.

"But how can you check the condition of a windshield wiper? Either it works or it doesn't, I'd say."

"What's the matter with testing it now and then, to see how much pull it has?" Gus suggested. "If your wiper has power enough to drag the rubber blade back and forth across a dry windshield, you can bank on its working in the rain. But be sure to clean the windshield before you test the wiper on the dry glass, or the grit will make troublesome scratches."

"That's a good tip," Donan agreed. "I'm going to test my wiper every time I get the windshield cleaned."

"And don't forget your lights," Gus added, as a parting suggestion.

"Now you're kidding, Gus!" Donan laughed. "Anyone who drives with rotten lights certainly is putting an awful strain on his own good luck!"