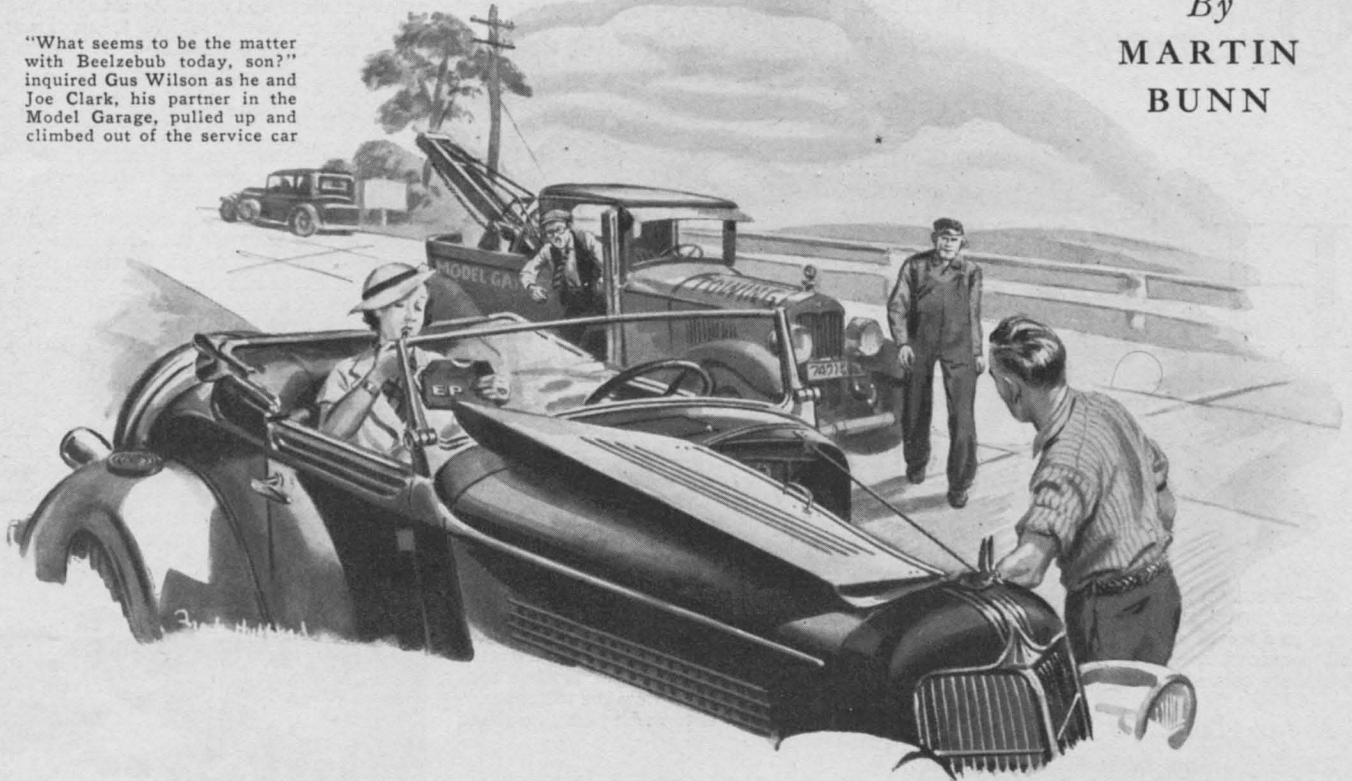


"What seems to be the matter with Beelzebub today, son?" inquired Gus Wilson as he and Joe Clark, his partner in the Model Garage, pulled up and climbed out of the service car

By  
MARTIN  
BUNN



DO YOUR  
**Spark Plugs**  
MATCH YOUR DRIVING?

"CONFOUND you, Beelzebub! I wish I knew what was making you miss so." Young George Armstrong stared disgustedly at the motor in his beloved red roadster and wondered what test to try next.

"But, George," ventured the girl in the car, "it doesn't seem to miss when you don't go so fast. Why not drive a little slower and forget about it?"

"Huh!" George grunted. "That's just like a woman! You'd drive a car till the wheels fell off, without ever trying to find out what's the matter with it."

The girl offered no more suggestions, and George went on with his tinkering. "Can't be a spark plug, because I just cleaned them," he muttered. "Besides, it doesn't seem to be all in one cylinder. I've cleaned the timer contacts and they look good. Maybe it's water in the carburetor."

He looked up at this point in his speculations and caught sight of a service car coming down the road. He shouted and waved. "Hey, Gus! Got a minute to see what's the matter with my bus?"

"Sure have, young feller," grinned Gus Wilson, as he and Joe Clark, his partner in the Model Garage, pulled up and climbed out of the service car.

The veteran auto mechanic greeted the girl in the car. Then: "What seems to be the matter with Beelzebub today, son?" he inquired.

"Soon as I get to rolling, she starts to miss, especially if it's a bit of an up grade and I've got the throttle pretty well open," young Armstrong explained. "I've cleaned the spark plugs and the timer contacts, and I've tested the spark. It's fully a quarter of an inch long, and nice and blue. I was just about to pull the carburetor

apart to see if there's some water in it."

Gus never took anything for granted. He removed the spark plugs and carefully inspected them. Then he asked the girl to step on the starter pedal while he watched the timer make and break contact. At the same time he observed the spark jump from the coil high-tension wire which he held, by means of insulated pliers, about a quarter of an inch from the cylinder head.

"Why use those trick pliers?" Armstrong asked. "Is the wire so old you think it will leak and give you a shock?"

"What's the use of taking a chance with high-tension current?" Gus countered. "There may be a bad spot in the wire, and then you're due for a swift jolt that will make you jump like a jack rabbit even though it won't do any real damage."

"And besides," Gus went on, as he carefully measured the spark-plug gaps, "if the hand you use to grab the high-tension wire is damp and your other hand is resting on a metal part of the car, you can get a bit of shock even if the wire is perfect. That's because your hand acts like one plate of a condenser, with the wire inside the insulation acting as the other. Any radio shark will tell you high-frequency current, and that's what spark plug current really is, will travel between the plates of a condenser no matter what's in between."

"Anything the matter with those spark plugs?" Armstrong asked, as Gus put the

last one down and spread out several blades of his thickness gauge, preparatory to determining the exact width of the openings of the timer contacts.

Gus did not reply until he had finished this measurement. "I don't blame you for getting fooled this time, son," he grinned, as he stood up and stretched himself to straighten the kinks out of his spine.

"There's a lot of little things the matter with your ignition. Not one of them would cause any trouble by itself, but when they gang up on you the result is nearly no spark at high speed. Take those plugs, for instance. They're clean and in perfect shape, only the points have burned away a little so the gaps are a little wide. The breaker points, too, have a clean, gray surface that shows they're making good contact, but they're set so they open too far. That means that they don't stay in contact quite long enough at high speed. On top of that, this is a high-compression motor and there's some carbon deposit that raises the compression still higher. And the coil, while it isn't so bad, is not as peppy as it might be."

"Fix any one of those things," Gus concluded, "and you'd stop a lot of the missing. Fix two of them and I doubt if it would miss at all—for a while, anyhow."

Gus adjusted the breaker points while Armstrong finished the plug points. The last two garage men saw of Beelzebub was a red dot disappearing down the road to the accompaniment of a smoothly buzzing exhaust.

"Nice kid, that young Armstrong," Gus observed to Joe Clark, as he turned the last bend in the road and caught sight of the garage. Standing in front of the building he saw a (Continued on page 68B)

**MUTT AND JEFF NEARLY LOSE THEIR JOBS -**



**"I'LL NEVER JOKE ABOUT A BLOW-OUT AGAIN"** says **BUD FISHER**  
Famous Creator of Mutt and Jeff



**PLAY SAFE WITH SILVERTOWNS!**

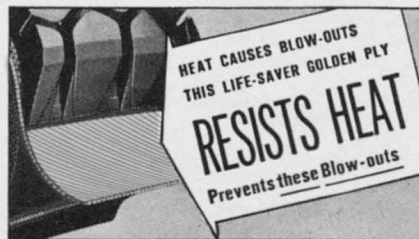
"MANY a time I've joked about a blow-out," says **BUD FISHER**, "but never again! On the way to Saratoga for the races, my car was completely overturned due to a blow-out. I was compelled to spend several months in the hospital, during which I had plenty of time to think of how important a part tires play in the safety of motoring. I'm not taking any more chances. I've equipped my car with Goodrich Silvertowns."

At today's high speeds, the *inside* of the tire gets as hot as boiling water. Sooner or later, this internal heat must escape. And it does. A tiny blister forms on the inside of the tire—between the rubber and fabric!—This blister grows bigger—BIGGER, until, BANG! A blow-out!

To protect motorists, **GOODRICH** engineers invented the amazing Life-Saver Golden Ply—which resists internal tire

heat and protects against these treacherous, *high-speed blow-outs*.

And examine the husky-cleated tread on these big Silvertowns. Then you'll see why they keep your car "straight-in-line" on wet slippery roads and give you months of extra "trouble-free" mileage! Equip your car with **GOODRICH** Safety Silvertowns. *They cost not a penny more than other standard tires.*



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The **NEW Goodrich Safety Silvertown** WITH LIFE-SAVER GOLDEN PLY

**DO YOUR SPARK PLUGS MATCH YOUR DRIVING?**

(Continued from page 54)

shiny blue sedan, and a man waiting by it. "Well!" he exclaimed, "Old Fussbudget Maxon's waiting for us. Probably got a bumblebee stuck in his radiator, or something just about as important."

"Say, Gus!" Maxon called out, even before the service car stopped rolling. "This motor doesn't seem to idle as smooth as it should. Listen a minute and you'll hear it miss a beat now and then. Would you look it over?"

**GUS** went through the same routine in testing Maxon's motor that he had followed in analyzing Armstrong's car. Watching him, Joe noted, however, that in this case the spark-plug points were exactly the right distance apart and the breaker contacts opened precisely the amount the motor manufacturer recommended. The coil gave a strong, nearly white spark, instead of the thin blue one Gus had drawn from the coil in Armstrong's car.

Therefore, Joe was surprised at Gus's next move. The veteran mechanic took the end of a screw driver and bent open the plug points until they were fully fifty percent farther apart than the manufacturer specified. He put them back in the cylinders and Maxon started the motor. After it warmed up, it idled with a steady ticking that brought a smile to Maxon's face.

"I'll be jiggered if I can figure that out," Joe Clark remarked after the customer had driven off. "First, you fix a miss in Armstrong's red speedboat by pushing the spark plugs close together, then you fix a miss in Maxon's bus by spreading them so far apart you could almost jump between them yourself—and darned if it doesn't work right in both cases! What's the answer, Gus?"

"Simple enough, if you know what makes the spark and what it's supposed to do," Gus grinned. "In the first place, the plug-point gap spacing the makers recommend is no sacred camel. The motor will run with it bigger or smaller than specified. As a matter of fact, a slightly wider gap will give better performance at all speeds, when everything else about the ignition system is in perfect shape. The makers have to allow for the fact that the average car owner doesn't keep his car that way for long. Carbon collects in the cylinders and raises the compression, which has the same effect as widening the plug gaps. The timer contacts get burned and rough, and that makes the spark weaker. Coils aren't absolutely uniform; some are weaker or stronger than the average—or, if they are right to start with, age doesn't make them any better. That goes for condensers, too. Spark-plug wires leak current, and so on.

"A MISS that is caused by too-wide plug gaps," Gus continued, "or by something wrong in the ignition system that weakens the spark, always shows up first at high speed. That's because when you have the throttle open, the compression is high and at the same time the breaker contacts don't make contact long enough to get the full flow of current through the coil. That was what was the matter in Armstrong's case. And, as you know, he's a speed hound. So if you give him ignition that won't miss at high speed, he's satisfied.

"On the other hand, Maxon would throw a fit if he ever saw the speedometer hit forty. Besides that, he's a bug on gas economy and smooth running at low speed. You don't have to worry about his ignition cutting capers at high speed; he'll never get going fast enough. You can open up the plugs quite a way, and the longer spark gives better ignition when the mixture is thin and the compression is low because the throttle is nearly closed."