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Do Your Own
HOME WIRING

Gus Puts a Stop to

By Martin Bunn

ON HIS way to get a wrench, Stan Hicks happened to look out the shop door of the Model Garage. Instantly he veered off toward Gus Wilson.

"Boss, I'd like to start my vacation."
Startled, Gus looked up. "Right now?"

Stan nodded eagerly as the murmur of an engine entered the shop. Recognizing the car and its driver, a pretty, middle-aged woman in a fruit-basket hat, Gus grinned.

"The answer," he said, "is no. Get out there and find out what Mrs. Allen wants."

Stan smote his forehead in mock dismay and walked over to the 1964 Ford Galaxie.



With the throttle blocked wide open, Gus inserted the compression-gauge nozzle in the spark-plug hole.

a Swap

It looked like an ideal trade—a car with more m.p.g. for a car with more hp.—till Gus upset the whole deal

"Morning, Mrs. Allen. Need air? Or a lube job, maybe?" he asked hopefully.

"Oh, no," replied Daisy Allen. "But the car is using more gas than it used to, and before I trade it to that nice Mr. Fleming I'd like you to fix it."

"What makes you think it's using more gas, Mrs. Allen?" asked Stan.

"I have to stop at my gas station more often!" she said triumphantly. "Ever since it ran out of gas two months ago, it takes more than it did before."

"Maybe you're driving more."

The colorful hat shook vigorously. "Oh, no. All my clubs meet the same days, and I still do my shopping twice a week, at the very same stores. But I *do* have to get the tank filled more often."

"I'll check it out," murmured Stan.

Fuel connections were tight. The fuel pump, fuel lines, and carburetor showed no signs of leakage. The automatic choke was wide open.

Stan attached a vacuum gauge, then rolled out the exhaust analyzer and coupled its pickup to the exhaust pipe. At idle, the

needle indicated a reasonable 12:1 fuel-air ratio. At moderate cruising speed, the indication went to a leaner 12.7 ratio. Stan detached the instruments.

"I'd better test-drive it," he said.

"I'll make a phone call meanwhile," said Daisy Allen.

She relinquished the wheel and headed for the phone booth. Stan drove out. The automatic transmission upshifted at the proper points, notched down at the right speed. The engine returned to idle at every stop. He returned to the shop. Mrs. Allen was volubly engaged at the phone.

Driving onto a lift, Stan got the car off the ground and turned each wheel by hand. No brake drag was apparent. Tire pressure was just right. Knowing how Mrs. Allen drove, he didn't believe poor mileage was due to a heavy throttle foot. He lowered the car and hooked up an ignition scope. Its oscilloscope pattern showed the uniform crests characteristic of clean, correctly gapped plugs.

"All those funny little spiked lines," remarked a feminine voice at his elbow. "Are they what's wrong?"

"No, ma'am," said Stan. "They show that your ignition is okay. So is the carburetor and everything else. Your gas mileage should be as good as it ever was."

"But I ran out of gas! Wouldn't that make a difference? Once, when I had a dog, I unexpectedly stayed at a friend's overnight, so he didn't get fed that day. Ever after that he seemed hungrier. See what I mean?"

"Uh—I'll look into it," muttered Stan.

"The friend I phoned is coming to take me to a sale, so you just take your time," said Daisy Allen brightly. "I'll feel better about trading cars if you fix it first."

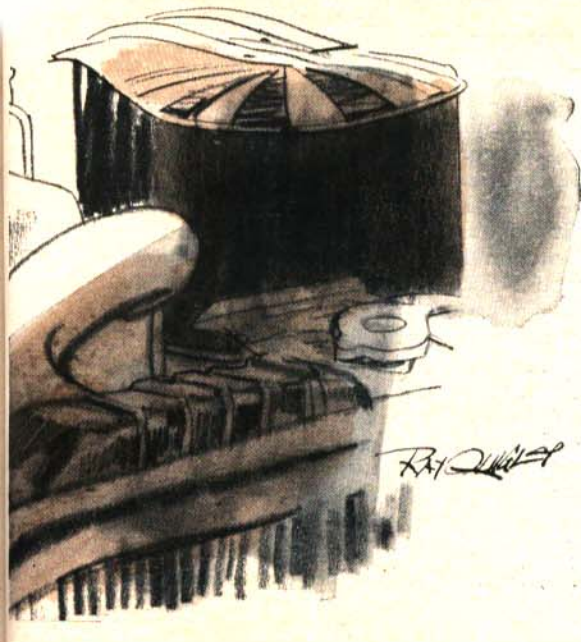
She fluttered out.

"She *thinks* it uses more gas," grumbled Stan, "because it ran out once."

"Could be," remarked Gus.

"Aw, no, Boss. Not you, too!"

"It wouldn't be the first time Daisy Allen told us where to find the trouble," said Gus. "Like the tank, maybe."



Without a word Stan got a crawler and rolled under the car. He was back quickly.

"The tank bottom's caved in," he said in a thin voice. "It doesn't hold as much. She *did* have to fill up oftener."

"Uh-huh. Bet you she says 'fill it up' and 'charge it,' so she doesn't realize that she's buying less gas each fill," said Gus. "And her gas gauge probably shows about a quarter of a tank less than it should—all since she ran out of gas."

"You're kidding!"

Gus shook his head. "No, that happens with '64 Mercs and Galaxies. So long as the fuel pump pulls gas, the cap vent is big enough to let in enough air. But when gas runs low and the pump begins to draw air, the vent can't let air in fast enough. Pump suction then pulls up the bottom of the tank. That buckles the fuel-level sending mechanism. Afterwards, the gauge reads an eighth to a quarter of a tank lower than the true level."

"I'll put in a new sending unit," said Stan, "so the gauge'll read right. But I won't have to explain the whole thing to that goof—to Mrs. Allen, will I?"

"You sure will," retorted Gus, "unless you blow out the dent in that tank. If you don't, she'll still have to stop for gas more often than before, and she'll be back to tell you so. To make sure the tank doesn't collapse again next time she runs out of gas, you better drill some extra vent holes in the cap."

Disconnecting the fuel line, Stan plugged the opening, then wrapped cloth around the nozzle of an air hose to make a tight fit in the filler neck. Cautious application of air pressure eventually resulted in a clanging pop. He inspected the tank again. The dent remained only as a ghostly outline.

After reconnecting the fuel line, Stan removed the sending unit. Its float linkage was deformed. He put in a new unit, and the gas gauge promptly read higher. In the brass diaphragm under the filler cap he drilled two $\frac{1}{16}$ " holes. They would admit enough air to prevent pump suction from collapsing the tank again.

An hour later, Mrs. Allen was back inquiring about her car.

"It checks out fine," said Stan. "You won't have to stop for gas so often."

"Oh, that's just wonderful!" she said as she turned on the engine. "You didn't put in any gas, did you?"

"Not a drop, ma'am," replied Stan.

"Well, then you've certainly done a fine job of making it use less. The gauge already shows more than it did when I came in."

Stan swallowed. "But how could—yes, ma'am," he amended quickly. "That's what I meant when I said it checks out."

It was near closing time when a 1963

Chevrolet six drove into the shop. The man who got out was tall and had a prominent Adam's apple. Sad eyes and flabby jowls gave him the lugubrious look of a bloodhound.

"I know it's late," he said apologetically. "But can you spare a minute?"

"Of course," said Gus.

"My name's Jeff Fleming. I live near the Allens, who're customers of yours. I'd been wanting a more powerful car, and my wife must have told this kookie dame—I mean Mrs. Allen. She came around a couple of days ago and said her car was using too much gas, so she'd trade it for

mine and a cash difference. Before I say yes, how much would a valve-and-ring job cost on mine?"

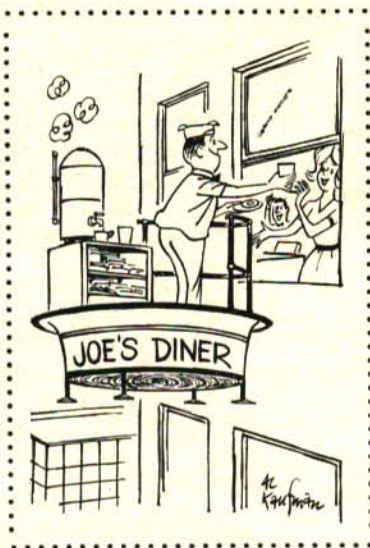
Gus consulted a rate book and gave Fleming an estimate.

"Well, I don't know," the man mused. "It wouldn't be a bad deal, even if I paid that and the difference she asked. But it would cost more than I first thought. Maybe I'd better forget the deal. Anyway, it could be risky—dealing with Daisy."

Gus opened the hood. The engine was clean, the whole car well cared for.

"What makes you think it needs a valve-and-ring job?" he asked.

Fleming massaged his throat. "I saw this '64 Ford I liked at a dealer's. He talked a pretty fair trade-in figure, but then wanted to try my car out. After he did, he said it had no pep and chances



were the compression was poor, so his mechanic would have to check it.

"The mechanic took out the spark plugs and turned the engine over with a gauge in the plug holes. He wrote down what it said, I was watching and here's what it read."

Gus took the smudged card he was offered. The penciled figures read:

Cyl 1—76, Cyl 2—160, Cyl 3—162,

Cyl 4—160, Cyl 5—110, Cyl 6—62.

"The dealer asked me what I thought of an engine with low compression in three cylinders. He explained the highest and lowest shouldn't be more than 20 pounds apart."

"He's right there," admitted Gus.

"Yeah. He said the motor definitely needed a carbon-valve job and most likely a ring job, too, so he took 200 bucks off the trade-in figure. It would be different if I traded the car to a stranger, but this Allen woman—well, she's a friend of my wife's. Besides, it would be like taking candy from a baby," concluded Fleming.

"Suppose I make a compression test?" suggested Gus. "Might find out whether it's just valves, or if you need a ring job."

Fleming agreed. Gus pulled off the spark-plug wires and loosened each plug one full turn. He started the engine at a fast idle. Turning it off after a short run, he removed the plugs and the air cleaner. With the throttle blocked wide open, he inserted the nozzle of a compression gauge in the number one cylinder, and using a jump switch made the starter turn the engine over several times.

The gauge needle went to 158 pounds. On number two cylinder it hit 162, on three 161, on number four 160, on number five 154, and on number six 155 pounds.

Fleming's eyes popped. "Hey, did you fix it just by loosening the plugs and running the engine?"

"Didn't the other mechanic do that?"

"Uh-uh. He just took the plugs out."

Gus shook his head. "Unscrewing them usually loosens bits of carbon. If just one gets under a valve, it can hold it open and give you a low compression reading. That's why we break the plugs free first, then run the engine so it will blow out any loose carbon particles."

"I'll bet that dealer knew that."

"I guess he did," chuckled Gus. "But your compression is okay in all cylinders. If it were low in any, we'd pour in a little oil and check it again. If the reading came up, that would mean worn or stuck rings. If it stayed the same, we'd suspect sticking or leaky valves."

"Guess I can trade with that woman after all," said Fleming. "How much do I owe?"

Gus replaced the plugs and their cables, and made out a small bill.

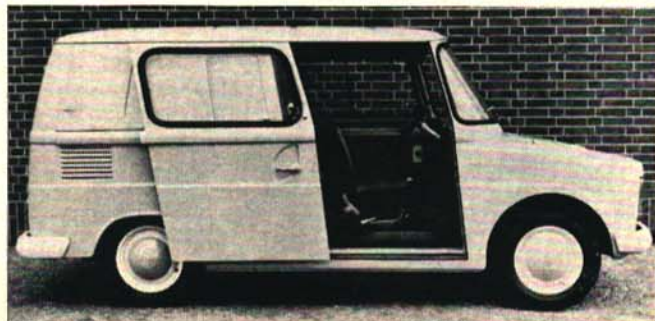
Early next morning Fleming walked into the shop, his doleful face longer than ever. "Morning," greeted Gus. "Your car okay?"

"Yeah," was the glum reply. "It's outside. I just want to ask you a question. Mrs. Allen told me you did something to her car that put gas back in the tank. Did you, or is she mixed up as usual?"

"Partly," agreed Gus. "But the gauge did read higher. Stan here can explain how it happened."

Stan did. "She wanted it fixed so you wouldn't be getting a lemon. The car's all right. You needn't be afraid to trade."

"Who's afraid?" returned Fleming morosely. "When I went over to close the deal, it suddenly hit her that since the bum gas mileage was fixed, and that was her only reason for swapping, why should she trade for an older car? The deal's off. Like I told my wife, that Allen dame may be kookie, but she's not so dumb." ■ ■



Volkswagen pickup truck

Mounted on a Volkswagen 1200 chassis, the body of the little pickup at left was built in Westphalia, West Germany, by Franz Knoebel and Sons in cooperation with the VW factory in Wolfsburg. Thirteen feet long and 5½ feet wide, it has a rear cargo door and sliding doors at the sides. The truck's 40-hp. VW engine gives it a top speed of 62 miles an hour.