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## Cars Can Catch Colds

... SAYS GUS WILSON

IT HAD come on cold during the night—the first real cold snap of the winter. So Gus Wilson and Joe Clark had come down to the Model Garage earlier than usual that morning. They knew that they had a busy day ahead of them.

"Yes," Gus agreed with his partner as he pulled on his overalls in the snug little office, "when winter comes a lot of automobile grief comes with it. Some of it is unavoidable, of course, but more of it isn't. Most drivers in this town are careless. Take cold-weather starting trouble, for example. I'd say that ninety percent of it is caused by the lack of a good hot spark. Well, to get a hot spark you've got to have a fully charged battery. Batteries are likely to run down quickly when it is cold—they don't function as efficiently as they do in warmer weather, and they have harder work to do. How many of our customers do you suppose pay any more attention to their batteries in winter than they do in summer?

Darn few of them! Most of them don't even bother to throw out the clutch when they step on the starter on a cold morning. They run their batteries down by making them turn over the transmission countershaft gears in the stiff, almost solid lubricant in the transmission case. They don't seem to realize that . . ."

"All right, all right!" Joe interrupted. "If people drove cars the way you think they should, we'd soon have to go out of business for lack of customers. Now, the way I look at it . . ."

Gus was grinning; it was his turn to interrupt. "Don't you hear that telephone ringing?" he demanded, and went into the shop. A little later he heard his partner telling Harry, the grease monkey, to take the wrecker and bring in a car.

Inside of fifteen minutes Harry was back with Dave Sledd's sedan in tow. Dave got out and grinned at Gus. "You like mysteries," he said, "so I've brought you one. Why

does this car run with four, five, six or seven spark plugs in, but go dead with all eight of them in? Figure it out. Quick now!"

"Sounds more like a riddle than a mystery," Gus said. "What's the big idea?"

Dave lit a cigarette. "Here's the sad story," he said. "This is the third winter I've had this car, and until last night I never had a bit of trouble getting it started. Yesterday evening I drove down to my married sister's with the old bus running swell, and parked in front of her house about half past eight. We got into a bridge game, and it was after twelve when I came out. By that time it had turned bitter cold. When I stepped on the starter the engine turned over a few times in a sluggish sort of way, and then quit.

"I kept on stepping on the starter, and the engine kept on starting and quitting, until I'd run down my battery. By that time Vic—he's my brother-in-law—had come out. He got his car and pushed me for a block. Same result. Then he pushed my car back to his garage.

"Vic is a good amateur mechanic, and he knows something about automobiles. His garage is heated enough to be comfortable, so we really went to work on my bus. We took the battery out of his car and put it in mine, and then we checked the wiring and the distributor and the gas line, but we couldn't find anything wrong.

"Finally we decided to check up on the spark plugs. When I had four of them out, Vic stepped on the starter, and the engine took off. It made a lot of racket, but it kept on running.

"We thought we had the trouble licked then; that it was caused by a defective spark plug. All the four I'd taken out looked O.K., but Vic had some new ones, so we put them in. But when I stepped on the starter the engine just turned over a couple of times, and then by golly it stopped again!

"Then we started experimenting. We tried the engine with five and six and seven plugs in, and it ran. But every time we put in the eighth plug, it would stop as soon as it got started.

"By that time it was after one o'clock, and we were feeling hungry, so we went in the kitchen to see what we could find in the refrigerator. My sister came down and made us some coffee, and I guess we were

in there for about half an hour. Vic said he wasn't going to need his car today, so I could have it. But before we put the battery back in his car, I gave mine one more kick—and it started right away and ran smooth as sirup!

"It was too late to do any more trouble shooting, so I put my battery in the back of my car to bring around to you for recharging, and drove home. When I got there I started to look things over again, but my garage isn't heated, and in a few minutes my fingers were all thumbs. I couldn't figure out what the dickens had been the matter, but so long as the engine was running again I decided to leave well enough alone, and went to bed.

"This morning I didn't think anything about the car until I stepped on the starter. Then the same thing happened—the engine turned over and then went dead. I tried it several times, but the same thing always happened. I didn't want to run Vic's battery down the way I had mine, so I gave you people a buzz on the phone. Now it's your headache."

Gus raised the hood and took out one of the spark plugs. "I doubt if this is what I'd call a headache," he said. "Step on her."

The engine started promptly and ran noisily. "I told you that it would do that," Dave said. "As soon as you put the plug back it will stop."

Gus walked around to the back of the car and stood there for a few seconds, then went over to his workbench and fired up a blowtorch. Then he replaced the plug, closed the hood, and went back to the rear end of the car.

Dave followed him. "What are you going to do?" he wanted to know.

"Get your engine running right for you, of course," Gus told him. He began playing the blowtorch flame over the muffler outlet pipe, and in a few seconds water began dripping

from it. "Your only trouble is that water condensed from the exhaust fumes has collected in the muffler pipe and frozen. The pipe is plugged solid with ice. The exhaust can't get out, so of course it sets up a back pressure which kills the engine. Taking one of the plugs out leaves a hole through which the back pressure can escape, so your engine runs. Savvy?"

Water was trickling

## It's an Ill Wind That Blows Nobody Good, and Winter's First Icy Blast Sends Ailing Cars to Gus's Model Garage

By MARTIN BUNN



out of the pipe in a stream now. Gus got an old file from his bench, and worked it up into the pipe a few times. Then he picked several chunks of ice out.

Dave Sledd's face got red. "I'm a bone-head," he said bitterly. "Why, last night I had the explanation right under my eyes, but I was too dumb to dope it out."

Gus laughed. "You mean that you noticed a pool of water on the garage floor under the rear end of your car when you came out from that free-lunch session in your sister's kitchen," he guessed. "Naturally, the ice in the muffler melted after the car had been standing in a heated garage for a couple of hours. That was a tip-off, of course, but—well, every man to his trade. Try her now."

**T**HE engine ran smoothly and quietly. "That's fine," Dave said. "But how can I keep the same thing from happening again?"

"Well, I fixed one last year by drilling a small hole in the underside of the muffler," Gus told him. "That let most of the water drain out. But to be on the safe side, in really cold weather race your engine for a few seconds just before you switch it off. That will blow out the condensed moisture before it has a chance to freeze."

Ten minutes after Dave Sledd had driven on his way, Joe brought an elderly man whom Gus didn't know into the shop. "This is Mr. Sinclair," he said. "George Knowles sent him around to us. He's having a little starting trouble."

"That's putting it too mildly," Sinclair protested. "I'm having a lot of starting trouble. It's this cold weather, I suppose. I'm a salesman, and I stayed here in town last night. Left my car parked in that lot back of the hotel. When I tried to get it going this morning the starter worked, but I couldn't get even a cough out of my motor. After I'd tried for a while, and my battery was getting weak, the fellow who runs the parking lot gave me a push with his car, and after a block the motor took hold and ran all right. Thinking that I wouldn't have any more trouble, I went into George Knowles's store, and sold him a bill of goods. When I came out and stepped on the starter, it was the same as it had been before—not a cough. George got me going by pushing me, and suggested that I'd better come in and see you. My car's outside, with the motor running. I was afraid that if I shut it off I couldn't get it started again."

Harry drove the car into the shop. The engine was running

normally. "Cut it off," Gus told him. "All right. Now step on it."

The engine wouldn't start. Gus tilted his cap over one eye as he reflectively scratched behind his right ear. Then he looked over the coil, switch, and wiring. Everything seemed to be in good order, but there wasn't any spark.

"I had a new switch installed, and the wiring gone over, only a week ago. Everything was all right then," Sinclair said.

Gus nodded and began to examine the distributor. "Here's the cause of your starting trouble," he said after less than a minute. "And the cold weather hasn't anything to do with it. Take a look at these screws—the ones that hold down this plate to which one of the points is fastened. Notice that they are a little loose? Some one who was working on your car forgot to tighten them thoroughly and they gradually worked so loose that now there isn't any electrical connection, so, of course, you can't get a spark." He cleaned the part of the plate under the screw heads carefully, and then tightened the screws. "Step on her, Harry," he directed. The engine started promptly.

"That's quick work," Sinclair said. "But there is one thing which I suppose is clear to you, but which just doesn't make sense to me. You say that it was because those screws were loose that I couldn't get a spark to start my motor. I'm willing to take your word for that. But I'd like to know how the dickens I got a spark to keep the motor running after some one had started my car by pushing it."

**T**HAT'S easy. Vibration," Gus explained. "As soon as your engine began turning over fast, it set up vibrations in the distributor that caused contact. Then so long as your engine was running you had an electrical connection, and a spark. As soon as you shut it off, you lost both. Well, it's all right now."

Jobs came into the Model Garage fast that cold day, and Gus and Harry were busy thawing frozen radiators and adjusting carburetors while Joe played a merry tune on the cash register. But for once, it didn't make Joe look very happy.

"What's eating you?" Gus finally asked. "Oh, as soon as real winter steps in, I get a cold." Joe grumbled in complaint.

"So!" observed Gus. "Kind of sore because you've got to give Doc Marvin a few of your hard-earned dollars? Remember, there's one consolation. In this weather, cars can catch cold, too!"

