

"Why aren't modern cars fitted with built-in heating systems?" the real-estate man asked. "Ask me something easy," Gus growled in reply

By
MARTIN
BUNN



Don't Drive a Rolling Ice Box

"ARE you afraid those sandwiches will run away if you don't eat 'em quick enough?" Gus Wilson, veteran auto mechanic of the Model Garage asked his partner, Joe Clark, as the latter emptied his lunch kit at record-breaking speed.

"Have you forgotten that real-estate man is due here at twelve-thirty?" countered Joe, between mouthfuls. "Remember, you promised to give that house he's trying to sell me the once-over. The missus says she won't even look at it till you say it's built sound enough to be a good buy."

"It had slipped my mind," Gus confessed. "Here he is now," he added, as a shiny new sedan of the latest type stopped in front of the window of the little office of the Model Garage.

A few minutes later, the two garage-men were sitting in the sedan while Harkins, the real-estate man, piloted it into a new residential development just outside the town.

"There you are—the niftiest little place in this part of the state," Harkins exclaimed, as they pulled up in front of a neat-looking five-room bungalow. "Yes, sir, that's a real, up-to-date home. An honest job all the way through—no jerry-built junk. Why, that house is just as modern as this car is, in every way!"

"Humph!" Gus grunted. "I don't think you really mean that, mister, because if you do, you're telling us that the house you're trying to sell my partner, here, hasn't any heating plant!"

"Well—er—no heating plant!" stuttered Harkins. "I never thought of it that way, but, by George, you're right! The house

has a heating plant—and a mighty good one, as you'll see. Come to think of it, why aren't modern cars fitted with built-in heating systems, too?"

"Ask me something easy," growled Gus. They got out of the car and strolled around the house to get a view of the outside appearance.

"Most bungalows have no cellars; this has one," said Harkins as he led them in through a cellar door.

Gus examined the heating plant with care. "One-pipe steam," he observed. "Boiler looks plenty big enough and there's an automatic thermostat control, too. Speaking of automobiles again," Gus went on, "the first manufacturer to put out a car with a real, built-in heating system thermostatically controlled like this house-heating plant, will find, I'm thinking, that he's got a feature that will be a lot more popular than some of the gadgets they've played around with so far!"

"I'd fall for it quick," Harkins agreed, as they started up the cellar stairs. "Sure would be fine to be able to drive without even a hat or overcoat in zero weather."

The subject of car heating did not crop up again while they were inspecting the bungalow, but it was evident that Harkins was mulling over the idea.

"I suppose," he observed, as he drove Gus and Joe back to the garage, "that would cost more to run a car that was heated as warm as your house in very cold weather. It would take a lot of heat."

"It shouldn't add a penny to the cost," said Gus, buttoning his overcoat up under his throat. "You're throwing away, all the time you drive, enough heat to keep the air in the car at least seventy degrees

—and with plenty of ventilation, too.

"More than enough heat to keep a full-sized house radiator good and hot is going out your exhaust pipe all the time and the air that flows through the engine-cooling system carries away enough heat to do the same job all by itself."

"Yes, I can see how that can be," Harkins agreed. "All the energy of the gasoline that you don't actually use in driving the car has to go somewhere and wasted heat is where it goes. I suppose I've often thought of having a heater in the car, but they give a lot of trouble, don't they?"

"Not if you get a good one and have it installed right," Gus answered as they pulled up in front of the Model Garage. "Stop in a few minutes and get warmed up while I show you some good ones—and bad ones!"

Joe ducked into the office to phone his wife about the house while Gus led Harkins back to an old limousine in the rear of the garage.

"Speaking of heater trouble," said Gus as he pulled open the door and pointed to a brass affair on the floor, "here's the kind of a heater you are sure to have trouble with—and mighty serious trouble—if anything really goes wrong. In this outfit there's a special valve in the exhaust pipe of the car and when you move it to one position, a part of the hot exhaust gases flow through the piping in this brass gadget. If anything happens and the piping inside the car springs a leak, somebody is likely to get knocked out by carbon monoxide poisoning.

"Then, there's always a possible chance for a fire with this kind of an outfit, because, if the (Continued on page 116)

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**ARE YOU DRIVING A
ROLLING ICE BOX?**

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motor happens to be running on a pretty thick mixture, the heater pipes may get nearly red hot after a long pull up a mountain road, and if anything that'll burn is touching 'em, off she goes!"

"Doesn't look as if it's really safe to use exhaust heat, then, does it?" Harkins commented.

"Not unless you can get rid of those two possibilities. One way would be to use the exhaust heat to boil water and send the steam through a small radiator."

"I WAS thinking of installing a hot-water heater in the car I had last year," said Harkins, "but a friend of mine put one in his car and it didn't work so well. On fairly warm days he got too much heat, and on cold days there was hardly any. Then, another fellow put one in and he didn't get any heat to speak of in any kind of weather. I guess the hot-water heaters may be safe but not so good at heating."

"You're all wrong there," Gus maintained. "Till the car makers get wise to the fact that every car used anywhere in this country except the South ought to have a built-in heating system, one of the best solutions is the hot-water heating units that are sold separately for installation in any car."

"Come over here and I'll show you why those two outfits you mention didn't work," said Gus as he led the way to a sedan, opened the door to the driver's compartment, and lifted the hood on one side.

"Now, here," he explained, pointing to a rectangular fitting under the dash, "is the hot-water radiator that heats up the air in the car. It looks like a small edition of the radiator on the front of the car and, in fact, that's exactly what it is. There are a lot of different styles of these hot-water heaters made at all kinds of prices. Any of them will give you heat, but, of course, the more expensive models are better made and will last longer."

"They all have a built-in electric fan that operates from the car's battery—takes very little juice—and most of them have shutters of one type or another so you can control the direction and strength of the blast of hot air blown through the fins of the heater."

"What makes the water circulate through those pipes to the heater?" Harkins inquired, as he peered under the hood and noted the two pipes that led forward from the heater and connected into the cooling system. "Seems to me that heating radiator is below the level of the top of the car's radiator. Besides, the pipes sag down so far there couldn't be any natural circulation as there is in a hot-water house-heating plant."

"I WAS just coming to that," Gus went on, "and the answer is right in this fitting." He placed his fingers on a tubular metal section connected into the upper hose of the motor's cooling system above the junction of one of the pipes from the heater unit.

"Water can flow through this thermostatic valve," he explained, "only when it gets up to a certain heat. During cold weather, which is the only time you want the heater to do business, the valve never stays open all the way. That means the water pressure developed by the circulating pump forces some of the hot water from the cylinder jackets through the car-heater coils."

"My engine has a thermostatic control, so I won't need one of those," Harkins observed.

"You certainly will," Gus asserted, "The thermostat on your car is fitted into the top of the engine block and there's no way of connecting the pipe to the car heater so that thermostat (Continued on page 117)

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will divert any water into the heater pipe. "Look here," he went on. "If the flow of water is shut off by the thermostat before it starts to flow into the hose, there certainly can't be any pressure to force water into a branch line. Probably the lack of a properly placed thermostat was what was wrong with your friend's car—the fellow who got heat on hot days and none on cold days."

"Of course, when a car is going reasonably fast, there is enough pressure in the upper hose connection of the engine to cause a little circulation through the heater, so when the regular thermostat opened all the way on a warm day, the heater got busy. On a real cold day, when he needed heat, the thermostat didn't open all the way, there was less pressure in the upper hose and the little bit of hot water that still circulated didn't do any good."

"IF YOU get water circulation through the heater when you're going at fair speed and the thermostat is open all the way, why not just take out all the thermostats and let it go at that?" Harkins suggested.

Gus smiled. "That would spoil things for fair. On cold days when you wanted heat, the fast water circulation would keep all the water, and the engine as well, so cold you wouldn't get enough heat out of the outfit to warm a flea."

"Now I begin to see it," Harkins said. "If you have a special thermostat on the job you actually get a little more circulation of hot water—and the thermostat will make sure it is hot—through the car heater on cold days than you do on warm days. Is that how it works out?"

"That's the general effect," Gus agreed. "Of course, you control the amount of heat you get in the car by regulating the shutters and by turning on and off the electric fan that blows air through the heater. And it shouldn't be much of a job to have the fan operation controlled thermostatically, too."

"How about the fellow I mentioned who didn't get any heat at all in any kind of weather? What was the matter with his outfit?" Harkins asked.

"Assuming it was properly installed, and one of the feed pipes wasn't clogged up," Gus replied, "then it's pretty sure that the heater itself was airlocked. Every one of these hot-water heaters has a little valve at the top to let out the air, the same as you have at the top of every hot-water radiator in the house-heating system. You have to let the accumulated air out every so often or the circulation stops."

"I THOUGHT to have figured out it was something like that," said Harkins, a bit sheepishly. "I'll bring the car in next week, when I can spare it, and have you put in one of those heaters."

"You won't regret it," Gus smiled. "I never saw a man yet who once owned a car with a real heater who was willing to go back to a rolling ice box again!"

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