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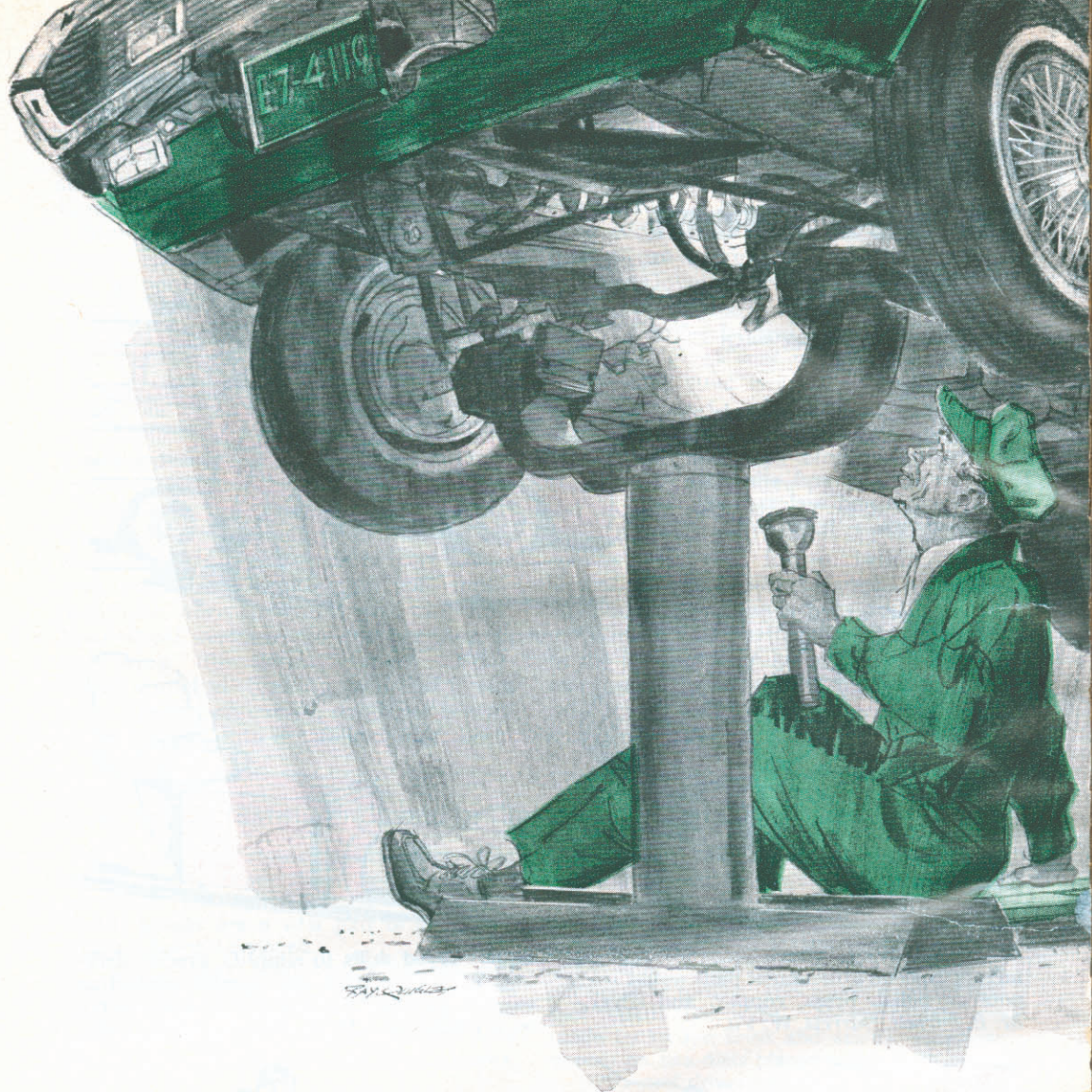
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# Gus Takes the Worry Out of a Warranty

By MARTIN BUNN

**"H**ere comes No. 17!" called one of the three young men seated at a table set up in front of the Model Garage. A small group of spectators nearby watched as a 1969 Cougar hardtop braked to a quick stop. Its young driver slid out and trotted over to the table.

"Car 17 checking in," he said, and

added anxiously: "Right on time, I hope."

The middle man of the trio glanced at a bank of timers. "You're 73.2 seconds late," he said sternly, and then added with a grin, "but that's the best time so far this morning."

Gus Wilson, owner of the Model Garage, watched the check-in ceremony through the office window.

"To tell the truth," said Stan Hicks,





Sliding under the lifted car on a creeper, Gus aimed the beam of his flashlight at the back end of the massive crankshaft.

ILLUSTRATION BY RAY QUIGLEY

## Carl Williams' new car had known only tender loving care. Why should it burn a quart of oil every 200 miles?

his assistant, "I prefer the black-and-white checkered flags and roaring crowds. Those timers and tally sheets make it look more like a rocket-launching than a road race."

"Uh-uh, Stan," said Gus. "It's a rally, not a race. A rally is a test of driving precision, not fast driving."

"I know all about it," said Stan, holding up a booklet. "I quote the Center-

ville Rally Club's official publication: "Each car must cover a complex course over public roads, at legal speeds, following a precise timetable. For this reason, each car carries a navigator as well as a driver. The aim is to arrive at the check points on schedule . . ."

One of the timekeepers poked his head through the office door. "Two cars still to come, Mr. Wilson," he called. "Then we'll get out of your way. Our club sure appreciates the use of your place as final check-in point. I hope we haven't interfered any with business."

"Not much business on Sunday morning," answered Gus. He looked up at the sky. "Especially when it's going to rain."

"You're about to get some business from Carl Williams—that's me," a youthful voice said glumly. It belonged to the Cougar's driver.

"Gas? Oil? Or both?" asked Stan.

"Plenty of both—and I'd like you to take the engine apart."

The young man smiled at Stan's and Gus's startled expressions. "This car burns oil like crazy, almost a quart every 200 miles. Maybe you can tell me why."

Gus shook his head. "You've got a new car—oil consumption is a warranty problem. Your dealer should handle the repairs, and the diagnosis."

"That's my *real* problem," Carl said. "My dealer claims that the warranty doesn't cover the car since—uh—since I go in for rally driving."

"That's odd," said Gus. "Racing a new car does void the warranty. But since rallies aren't really races . . ."

Carl sighed. "My dealer says they are races—especially the long-distance kind I like to enter. He warned me about the warranty question when I first painted the rally stripe on the body—that was 10 rallies ago."

Gus chewed on his pipe stem thoughtfully. "Still, though, if the oil consumption were caused by a mechanical flaw," he began, "rather than wear and tear . . ."

"Right!" said Carl. "If you could prove that, then my dealer would have to honor the warranty."

"Hold everything . . ." said Gus.

"Mr. Wilson," Carl interrupted, "I've driven the car hard for the past few

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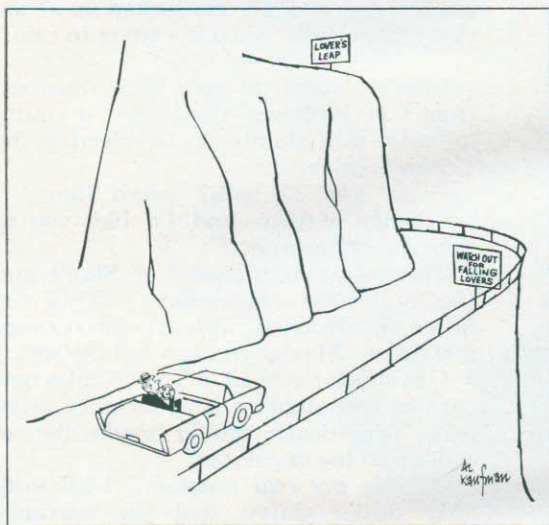


months, but I know I haven't abused the engine. You'll see when you examine it. I'll drive the car onto the lift."

"Whoa!" shouted Gus, with absolutely no effect. Carl raced from the office.

Stan chuckled. "And you were going to spend today getting your gear in shape for the fishing season." He looked out at the rain now pelting down, then at the Cougar backing toward the open door. "I guess I'll brave the elements and get us all sandwiches and coffee for lunch."

**The Cougar** sat on the lowered lift



blades, its hood raised, its big V-8 idling smoothly. Gus reached into the engine compartment and pushed the accelerator linkage for a moment.

When the roar died down, Gus turned to Carl. "If the engine was burning a quart of oil every 200 miles, the exhaust would be full of blue smoke. As you can see, the exhaust is clear—even at high r.p.m. More likely, the problem is an oil leak somewhere."

Stan raised the car a bit, and scampered underneath. In a few seconds he called, "I've found it, Gus—it looks like the rear main crankshaft's oil seal."

"But I haven't seen any oil puddles on my driveway," Carl protested. "Just a few drops—not enough to matter."

"That's because it takes high engine r.p.m. to pump oil past the seal. Most of the leakage occurs when you're on the

road," explained Stan. "Your driveway gets just what drips off the oil pan."

"Sounds logical," Carl agreed.

Stan's explanation triggered a bell in Gus's mind, but his train of thought was interrupted by a beeping horn.

A '57 Olds sedan rolled through the gap left by the open overhead door.

"My ignition system is acting up in this rain, Gus," shouted John Burke. "Sell me a can of waterproofing spray, quick." He pointed to several florist's boxes on the rear seat. "I figured I'd deliver these flowers myself on the way home from the shop. They're due at a wedding in 40 minutes."

Gus bowed. "Anything to speed the town's cupid on his romantic rounds."

Burke wielded the aerosol can under the hood like a man spray-painting a room. When he yanked the spark-plug leads loose, Gus erupted.

"John!" he yelled. "Those are fragile cables, not weeds. Better let me check . . ."

"No time, Gus," Burke bellowed, spraying the plug insulators and quickly replacing the connector clips.

The engine coughed to life—back-firing once or twice—and the car backed out hesitantly as Burke floored the accelerator.

Gus watched the Olds turn onto Main Street, hiccough its way for another block, and stop dead. A moment later, Burke emerged, raised the hood, and began moving frantically around the front of the car.

Gus shook his head sadly. "Drop the oil pan on Carl's car and check the rear seal," he told Stan. "I'd better rescue our heavy-handed horticulturist."

**Working deftly** with a wire cutter and a special crimping tool, Gus fashioned a new set of high-voltage spark-plug cables for the Olds in less than 15 minutes. As he worked, a glum John Burke sat next to him inside the tow truck. Finally, Burke spoke.

"Okay, Gus, what did I do wrong?"

Gus held up one of the old cables he was using as a length gauge. "This kind



of ignition cable," he explained, "uses a thin carbon filament—not a metal wire—as the center conductor. The filament is fragile. When you yanked the cables loose from the plugs, you pulverized the filament, opening up all kinds of internal gaps. It's surprising that the engine started—from the sound of it, it was running on only a few cylinders.

"The short bumpy ride finished the job—the little gaps became big gaps, too wide for the high-voltage ignition pulses to jump across, and the engine died."

Gus installed the new cables, and the engine roared to life. "If you hurry," he said, "you'll get there for the first note of 'Here Comes the Bride.'"

"The oil seal looks okay," said Stan, as he handed the engine's rear main-bearing cap to Gus. "No sign of wear on the seal, and the crankshaft is smooth as a whistle where it contacts the seal."

Realizing that Carl was peering over his shoulder, Gus pointed out the seal element.

"The complete seal forms a tight-gripping circle around the rear end of the crankshaft. It's designed to keep the oil that's splashing around the crankcase from leaking out of the engine. Half the seal fits into this bearing cap; the other rests in a groove in the engine block."

Gus scratched his chin and looked quizzically at Stan. "Could the leak be somewhere else?" he asked. "And the oil travel to the back of the oil pan?"

"I checked that," Stan said. "The rest of the engine is spotless."

"Must be magic," said Carl, firmly.

Stan and Gus were jolted out of their puzzled state. They both said "What?" almost simultaneously.

"What else but magic could pump oil past a perfectly good oil seal?"

The little bell in Gus's mind began to ring again. He turned to Carl. "The answer is obvious," he said in a delighted voice. "An oil pump, of course!"

Through Gus's memory flashed the details in a service bulletin he'd read last fall. It described one of the strangest factory goofs he had ever heard of. Sliding under the lifted car on a creeper, he aimed his flashlight beam at the back end of the massive crankshaft. In a moment he was back out, a grin on his face.

"Break out the extra creepers, Stan," he said. "You'll both want to get a look at this one."

Under the car, Gus pointed to a narrow band of diagonal lines cut into the crankshaft near its rear end.

"That band of knurling," he explained, "is supposed to act like a rudimentary oil pump that works whenever the crankshaft is turning. You'll notice that the band is located just ahead of the oil seal. The knurls are supposed to catch drops of oil that are sliding down the shaft towards the oil seal, and hurl them away—sort of like a tiny turbine.

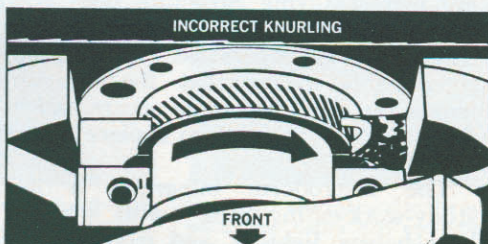
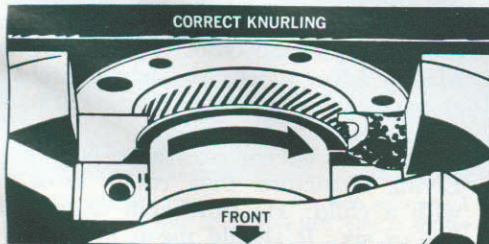
"Unfortunately, the machine that made this crankshaft cut the grooves backward—they're pitched toward the oil seal, not away from it. As a result, oil drops are hurled directly at the seal—and are actually pumped through it. The seal was never designed to withstand that kind of treatment, so it leaks oil."

"What's the cure?" asked Carl, after the trio slid out from under the car.

"There's only one," answered Gus. "A new crankshaft."

"And there's no doubt," Gus added, "that this is a factory-caused flaw and should be repaired under warranty. I'm sure your dealer will agree."

"How can he refuse?" asked Stan. "One bad turning deserves another." PS



The crankshaft grooves were cut backward—pitched toward the oil seal, not away from it.