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Popular Science

Monthly

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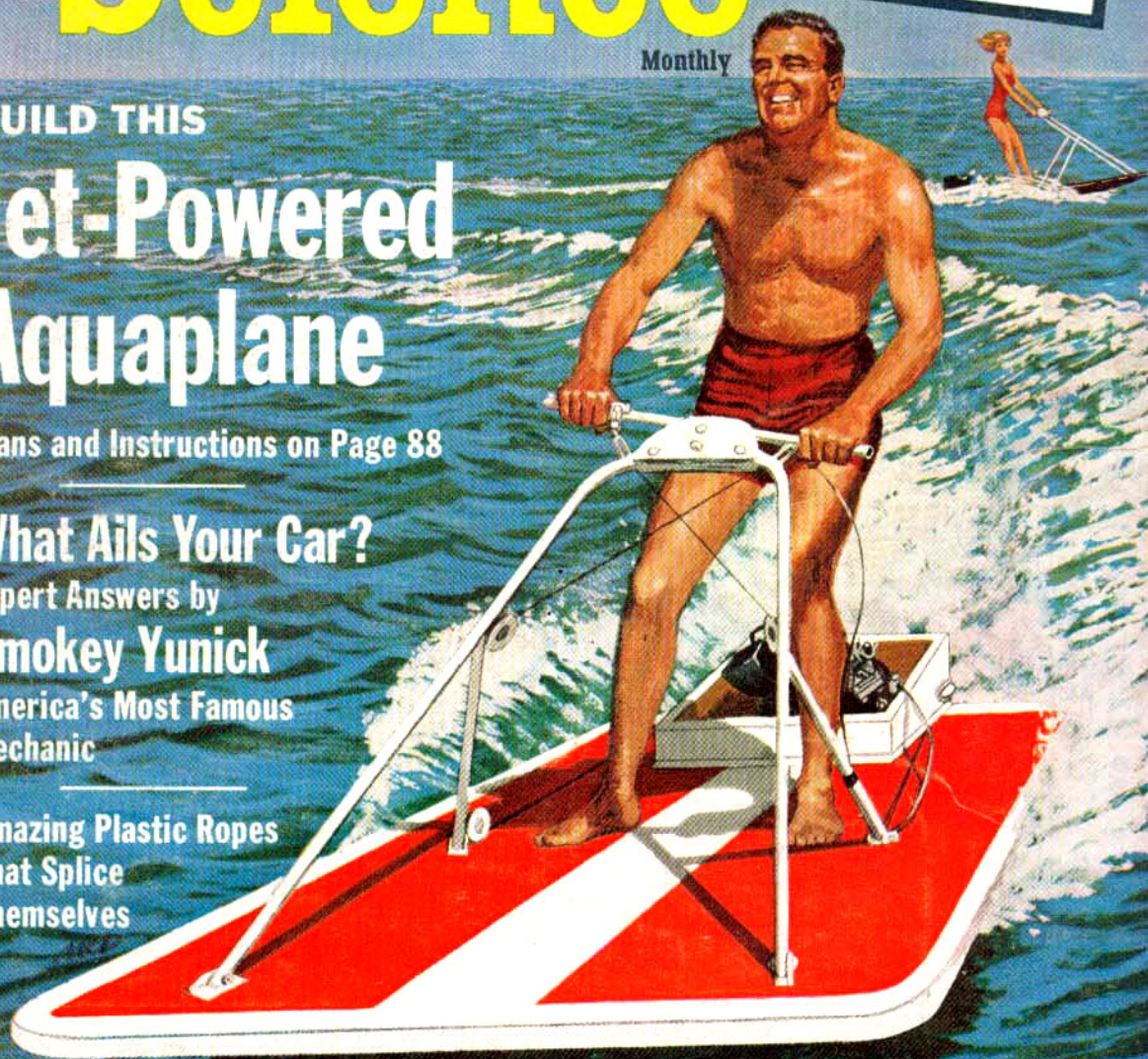
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Gus Takes a Spin at

OUTSIDE the Model Garage there was a brief squeak of brakes. Gus Wilson for once not in coveralls, but wearing slacks and a plaid shirt, picked up a bulging duffel bag and a tackle box.

"Ah-h-h, trout with French fries!" sighed his assistant, Stan.

"If I don't get out there fast, it'll be hamburgers," remarked Gus as a horn blared outside. Sticking his fishing rod under one arm, he propelled himself and his luggage to the curb.

An old Chrysler convertible with Florida plates stood there. The driver's tanned face split into a grin.

"Gus, you son of a gun. All set to pester the fish again?"

"Just going along with a slick salt-water

fisherman from down south—to make sure his stories stay honest."

Tom Dolan chuckled. "Those big marlin we catch do spoil us for your fresh-water minnows. But I thought I'd remind myself how the other half has to live."

Gus got in. He shook his head as the car moved off. "I can hardly believe it. I was sure some job would crop up at the last minute and cancel the trip."

"Relax," ordered Dolan. "You're with an expert at relaxation. I won't let you touch a wrench."

After a couple of hours on the turnpike, Dolan took an older state highway. Less smooth than the six-laner, it brought out a few squeaks and rattles in the car. None of



Russian Roulette

By
Martin Bunn

which, thought Gus lazily, mattered at all. His only business for the next three days was fun.

It wasn't quite a rattle—halfway between that and a squeak. As soon as it stopped, you waited for it to start again. And it always did. Was it metal on metal or . . .

"Forget it," advised Dolan.

"Huh? I didn't say anything."

"You've been trying to figure out that noise for the last five minutes. Strictly against fishermen's rules, Gus. Besides, I know what it is."

Gus subsided with a grunt. The noise continued, apparently from low down on the driver's side. Five minutes passed.

"Okay," exploded Gus. "So tell me."

Dolan chuckled. "It nearly drove me and

a few mechanics nuts before the agency had the answer. The steering shaft is vibrating against the column. When I get back, they'll pull the shaft and realign it."

Gus resumed his comfortable slouch.

He woke with a start as Dolan decelerated sharply. The car stood alongside a gas pump. Adjoining the station was a diner.

A burly youth attacked the dirty windshield, then raised the car hood.

"Gas first, Ken. Check the oil while the hose is running." The speaker came into view, a small man in white coveralls. "New boy, training for a summer job," he explained to Dolan. "Fill it up?"

Dolan nodded. Ken put in the gas hose.

"If you're not too busy," remarked Dolan, "how about rotating my tires while we have lunch? They're overdue for it."

The small man pursed his lips. "Yup, we can do it. Put it on the body lift."

When the boy had checked the oil and removed the hose, Dolan drove onto the lift and explained how he wanted the tires switched. The station owner carefully chalked them accordingly.

"Watch the marks, Ken," he instructed the lad as Gus and Dolan walked off. "Keep it neat. Don't toss stuff all over the floor. You can use the air wrench."

The first *rat-tat-tat* of the pneumatic wrench came as Gus entered the diner.

"Do we take route 73 over to Sutton?" asked Dolan over the soup course.

"There's a new road cuts off eight miles," said Gus. "I'd like to show you on the new map I left in the car."

He left the diner to get the map. At the rear of the car, Ken had stacked all four hubcaps neatly and was lifting a wheel into place. The noise of the air wrench began again as Gus returned to the table and spread out the map.

"The young fellow's having a good time with that power wrench," said Dolan.

"I guess so," agreed Gus, vaguely uneasy. "He's finished now. Let's roll."

Only a few miles from camp, Dolan parked before a hardware store whose

Dolan drove as fast as he dared. On one turn the car slithered out of control, its right front wheel fetching up solidly against a fallen tree.



gingerbread trim contrasted with chrome kitchenware and colorful power mowers.

"Swanson's has a good line of tackle. Need anything, Gus?"

"Come to think of it, yes," said Gus as they ambled in.

While Dolan added to his assortment of lures, Gus wandered off with a clerk and bought three small items.

On their way again, they found the last four miles little more than a potholed trail. But they reached their camp well before dusk.

Trout, bass, and perch rose to their lures during the next two days. Once, when Dolan left camp to try another spot, Gus stayed behind. Mixing two of the ingredients he'd bought, he busied himself briefly around Dolan's car. Then he, too, went fishing.

Heavy rain began the morning they were to leave. By the time they had the camp ship-shape and had put up the convertible's top, the site had turned into a swamp.

"Let's go," muttered Dolan. "Half an hour from now the road will be afloat."

Puddles stood in the potholes, small lakes in the dips. Eager to reach better road, Dolan drove as fast as he dared. On one turn the car slithered out of control, its right front wheel fetching up solidly against a fallen tree.

He drove more slowly after that. It seemed to Gus that he saved at the wheel more than necessary. But eventually the primitive road ended. Back on the state highway, Dolan put on speed.

In the first turn, the car slewed oddly. Dolan's knuckles showed white on the wheel, which seemed to buck in his hands. Gus wondered if he were ill.

A town-limit sign came up, with a sharp curve just beyond. The car negotiated it in a series of lurches. Tight-lipped, Dolan slowed to five miles an hour.

"There's a bad front-end shimmy," he

said. "I think the crack against that tree at the camp damaged something."

A gas station just ahead brought to Gus a flashback of four stacked hubcaps, and a clear floor.

"Better pull in here," he said quietly.

Under the shelter of the station, a mechanic jacked up the front of the car. As the wheels lifted, the right-hand one hung askew.

"Wheel bearing shot?" asked Dolan.

"No," muttered Gus. "But I should be, for not preventing this from happening."

He snapped off the hubcap, then grasped the wheel at top and bottom. It shook freely on the studs, for the nuts stood well out. He fingered them, pulled one off.

"So that's it—that young fellow forgot to tighten them," said Dolan.

"No, he tightened them," declared Gus. "You said he was having a good time with that air wrench, remember? The reason he worked it so hard was that he drove on the wrong nuts."

"The boss told him to keep things neat. I should have caught on when I saw he'd stacked the hubcaps and there were no nuts on the floor. I'd bet he laid all 20 in the top cap, never realizing

that this car has left-hand nuts on the left-side wheels, right-hand nuts on the right. To remove them, he simply flipped the air-wrench control whichever way would loosen them, but couldn't see which way they turned because the wrench hid them.

"When he put the nuts back, he forced on any one that came to hand. The power wrench had no feel to tip him off, but just mangled the threads until the nuts looked as if they were on. All five studs are stripped on this wheel. That rough camp road did the rest. There are sure to be wrong nuts on some other wheels, too. It's like Russian roulette, only the odds are even worse."



Checking up on TV viewers

British owners of television sets who see one of these marked cars in the neighborhood had better be quick to turn off the set if they haven't paid their license fee. The rotating aerial, with two fixes from different locations, spots as a blip even the room in which a set is operating and the channel it's receiving. The \$11 license fee finances BBC television programs.

When the rear wheels were jacked up, the right one—surprisingly—held five right-hand nuts. Both left-hand wheels, though still tight, had two or three wrong nuts and stripped studs.

"Can you get new studs pressed into the drums?" Gus asked the service man.

"Nearest shop for that's seven miles away," he answered. "I'll yank the drums and lend you my car to take them over."

"I don't understand," said Dolan as they rode the seven miles. "Why does this car have left- and right-hand nuts? My last car had right-hand ones all around."

"The idea back of using left-hand threads on left-hand wheels is to keep wheel rotation from loosening the nuts," explained Gus. "It's vital with the single big nuts that hold knock-off wheels on sports and racing cars. A right-hand nut on a left wheel would work loose because of its inertia; every time the wheel started to roll, there'd be a loosening twist against the dead weight of the nut."

Dolan thought for a moment. "I see that, but five lug nuts located off the wheel center aren't going to loosen just because the wheel turns left."

"They don't, on Fords and Chevies, and other cars with right-hand nuts on all four wheels. Besides being off center, the nuts are lighter, so inertia has less effect. Yet until recently many makes, including Chrysler, Rambler, and Cadillac, stuck to left-hand threads on left wheels. Lay it to habit or prejudice—engineers are only human. Maybe it's their way of knocking on wood. Now some models have switched to all right-hand nuts.

"If you have to change a flat and don't know which way the nuts loosen, remember that right-hand wheels always have right-hand nuts. They loosen counterclock-

wise. On a left-hand wheel, see if the ends of the studs are marked 'L' for left. If not, try counterclockwise first."

The rain had ceased. Headed for home again, Gus slumped in his seat.

"Hey!" cried Dolan. "Hear that?"

"Not a thing," said Gus lazily.

"That's it! The steering shaft has quit rattling, ever since we left camp."

"Seems so," agreed Gus.

"Could switching the wheels have fixed it? Think one of them made that noise?"

Gus shook his head.

"Something's different," insisted Dolan. "The whole car seems to run quieter. You did something, didn't you? But how could you, without even a pair of pliers?"

Reluctantly Gus rummaged in the glove compartment. He held up a small brush.

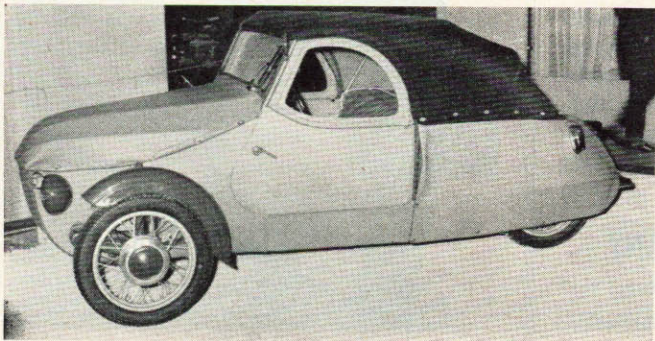
"You don't mean you fixed a rattling steering shaft with that?" demanded Dolan.

"No, because it wasn't the shaft. I used a dodge told me by an old hand in the car business—fellow named Shaw. It saved him a lot of headaches when customers complained of noises he couldn't trace.

"You mix a little powdered graphite with banana oil to the thickness of paint, and brush this on door guides and latches, trunk and hood locks, and bumpers—any place there's moving contact. The graphite paint dries and won't rub off—it lasts a year or more. The noise stopped, so it must have come from some spot I painted. You can forget the steering shaft."

"So that's what you bought at Swanson's, you old fox. This saves me more than that wheel-nut mixup cost. Thanks. Only why did you bother to fix a noise in *my* car when you were on vacation?"

Gus slouched down sleepily. "The racket was keeping me awake." ■ ■



A dentproof car— but don't bump it!

Like a canoe, the Czech Velorex has canvas panels stretched over a tubular frame. Stud fasteners on the rear permit removal for access to a tail-mounted 16-hp. engine driving a single rear wheel. The fabric top detaches for open-air motoring. Running gear is made of motorcycle and sidecar parts. The three-wheeler weighs 655 pounds, and can hit 50 miles an hour.