Plain Clues to MotorILLS

Many Things You Can Learn About an Engine by Using Your Eyes and Ears

Young Henry Canton jabbed his toe viciously at the starter button. A feeble whirr was the only response. "It's no use, Hank," insisted Gus Wilson who was standing with one foot poised on the running board. "Your battery's dead or the ammeter is wrong with the roads. "Hold your horses," broke in Gus. "No sense getting excited. Let's find out a few things first."

The veteran garage man switched the headlights on and off several times. Then he asked casually, "Who put the battery in for you?"

"I did, of course," Canton replied proudly. "And I tightened the cables tighter than a drum."

Gus merely shrugged his shoulders as he switched the headlights on again. "Maybe so, but take a squint at that, Hank," he said, jerking his horn thumb in the direction of the dashboard as the tiny ammeter needle swung from its off position to the charge side of the dial.

Canton craned his neck.

"It takes a better battery than any I've seen to register 'charge' when the lights are on and you're standing still," Gus added, grimly. "You tightened the cable clamps all right, but you tightened them on the wrong terminals. Don't you know a battery has a plus and a minus?"

Canton scratched his head as a flush mounted to his cheeks. "Gosh, that's right, too," he mumbled sheepishly.

"You just drained all the pep out of your battery," said Gus. "With the battery and generator connected up wrong, they bucked each other every time you ran the car. The battery couldn't store up any current, but a good charging will fix that up."

"How about the generator?" put in Canton. "Was that hurt?"

"May have burned the cut-out points a bit, but I can fix them in a jiffy," Gus told him.

A half hour later. Gus had installed a rental battery, and announced that the car was as good as new.

"Well, that's one on me," said Canton. "If I had looked at that ammeter, everything would have been O. K."

"Sure, but you could stumble over a gold brick if you didn't know what to look for," Gus reminded him. "Here, I'll show you what I mean."

Gus led the way across the garage driveway to a small pile of old tires.

"What would you say about this?" he asked as he selected one and pointed to a large worn spot on the otherwise solid tread.

"Looks like it was weak to begin with. Probably something wrong with the rubber," Canton guessed.

"Gus replied. "That's just what the owner of the tire claimed. He swore up and down that I knew it was a bum shoe when I sold it."

"But, any time you see a tire that's got a single worn spot like that," he went on, "you can blame it on the brake on that particular wheel. Either the drum is out of round or there's something wrong that makes the wheel stop in the same spot every time you jam on the brakes. Naturally the tire's going to wear. As far as stopping goes, it's only using about one-fifth of its tread."

"And that's not the only clue your tires can give you," Gus continued as they strolled back to Canton's car. "Take the front tires. If the outer edges are rounded and the inner edges are worn so they're jagged or fringed, it's a sign the wheels toe in too much."

"On the other hand, if only one of the tires in front shows this kind of wear, it's not the toe-in but a sprung axle or steering knuckle. Then again, if they both wear, but one wears faster than the other, it's probably the camber."

"That reminds me," said Canton when Gus had finished. "A friend of mine has a front tire that looks like it's been through a seige of smallpoos. Big pieces are gouged out of the tread all the way around. Does that mean anything besides (Continued on page 98)"
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hand use or running over sharp rocks?"
"You bet it does," declared Gus. "Either
a wheel bearing is worn or else some-
thing is loose in the transmission gear.
Either trouble would make the wheel wobble
and grind itself to pieces on the pavement.
Then take your lights," Gus continued.
"They're doing an odd sort of thing. Be-
 tween your lights and your ammeter, you
ought to be able to find out anything you
want to know about your ignition system.
Flickering lights, for example, are a
pretty good indication that there's a short
some place in the lighting circuit. To find
it, all you've got to do is turn on your head-
lights, then your dome and dashboard
lights. If the lights flicker in all three cases,
you've traced the short to the tail light. If
they only flicker when the head-lights are
on, look in the head-light circuit. The same
thing holds true for the side lights and
inside lights.
"If the lights flicker every time you
switch on the ignition, look in the igni-
tion circuit. Lights that flare up when you
speed up the motor mean that there's a loose
connection somewhere in the battery and
generator circuit.
"Is there anything in all this stuff about
smokey exhausts meaning trouble?" Canton
asked.
"In a way, yes," agreed Gus. "Of course,
you're going to have a certain amount of
exhaust smoke when the motor is cold, but
when it starts to pull out in clouds, watch
out.
"If it's white or light blue, you've proba-
ably got too much oil in the crankcase or else
the oil you're using is too thin. A black
smoke that smells strongly of the petrol that
seems to come from the carburettor set too rich
a mixture and a gray smoke shows a combina-
tion of both troubles.
"But the exhaust isn't the only place
where smoke will give a tip about the con-
dition of your engine," Gus continued. "The
blue vapor that sometimes pulls out of the
exhaust is caused by theDAp
ike and
GAS TANK CAP MUST BE
CHOSSEN TO FIT CAR
If you lose the screw cap on your gas
tank, be careful what type you buy to
replace it. Just because it fits, it doesn't
necessarily follow that it is the right cap for
your car. Two types are manufactured—one
with a small vent hole and one without the
hole. The vented cap is used with vac-
uum tanks and the unvented cap for cars
equipped with fuel pumps.