THE CASE OF BESSIE BUICK

Based on a case from
Northeastern Ohio Universities
College of Medicine

Adapted by: Chip Celestino, M.D.
THE CASE OF BESSIE BUICK

SCENARIO

Bessie, a nine year old Buick Skylark is brought to your repair shop by its doting owner who states that it is “running rough”.

The owner first noted the problem about two weeks ago when he was driving home from work. The car seemed to be “vibrating”. It has not improved since then and that is why he has consulted you.

TASKS

What are your initial hypotheses as to what is wrong with poor Bessie?

What additional information (history) would be helpful?

How will you obtain the additional information?
SCENARIO CONT’D

The owner states that this problem has never happened to Bessie before. He has taken care of Bessie since her “birth” nine years ago. “I try to keep up with her check-ups but it’s hard sometimes and she’s having more and more trouble”. The vibration started suddenly and is noticeable whenever he drives the car. The owner doesn’t recall recently hitting any curbs or large pot holes. He hasn’t changed brands of gas recently, although he did fill up the tank three or four days ago. He hasn’t had any recent mechanical work -- the last service was at your shop for a simple oil change two months ago. The last complete tune-up was 20 months ago according to your service records. “I’ve tried to do Bessie’s maintenance on my own at regular intervals according to the manufacturer’s specifications but I may have missed a few.”

TASKS

How does this new information help you in your problem-solving?

Are you able to reprioritize your original hypotheses?

Are the owner’s possible lapses in Bessie’s upkeep grounds for reporting him to the local “Car Protective Services” agency?

What additional information, if any, would be helpful?

What specifically are going to look for on general physical examination?

STOP / COMPLETE THE TASK LIST BEFORE GOING TO THE NEXT PAGE
ROAD TEST/PHYSICAL EXAMINATION

Bessie has a four cylinder, fuel injected engine. The car steers normally. It has one-half of a tank of gas. The vibration is noted when the car is moving as well as standing still. No unusual noises are appreciated. There is no excessive moisture or steam coming from the tail pipe. The engine oil level is within normal limits. There is no unusual tread wear on any of the tires. On casual observation, there seems to be nothing specifically wrong with the suspension. The wheel lugnuts were all on securely.

TASKS

How does this new information help you reprioritize your original hypotheses?

What additional testing would you now need?
**DIAGNOSTIC TESTS**

A fuel sample from the fuel line was negative for moisture. (moisture might occur if there were a cracked cylinder head or blown gasket where water from the cooling system was getting into the cylinder head.) The distributor cap was removed and checked for cracks. None were noted. The contacts inside the distributor cap were negative for carbon build-up. Electronic computerized evaluation of the generator, alternator, and battery revealed no problems. Computerized fuel injection testing was also unremarkable. A timing light was attached to each spark plug wire and it showed that each wire was sending current to operate each plug. However, the insulation of the wires was cracked and frayed in multiple places. A visual examination of each spark plug revealed a small crack in the porcelain insulation of the #3 plug and heavy carbon build-up on the electrode of that plug. Examination of the front end alignment revealed no significant problems.

**TASKS**

Were all of the above tests indicated and appropriate? What about their costs?

What do you believe the problem is? How should this problem best be handled?

The owner now tells you that he wants nothing “extraordinary done” and wonders whether the cost of these repairs will lead to any improved quality of life for dear Bessie, considering how old she is? How will you respond to him?

You remind him that in order for the car to function reasonably well for the short-term, all four spark plugs and wires will need to be replaced. The owner considers the cost of the repairs to be excessive, especially since he was laid off from work last week. What will you do now?
POTENTIAL LEARNING ISSUES
THE CASE OF BESSIE BUICK

CLINICAL:
- differential dx of “running rough” and of “vibrating”
- car health maintenance schedules

ANATOMY:
- suspension, front-end alignment, steering, engine, and fuel systems
- electrical system, especially the synapses

PHYSIOLOGY:
- engine function
- front-end alignment
- suspension system

BIOCHEMISTRY:
- combustion of gasoline
- alternative fuels
- composition and molecular action of oil-based lubricants

GERONTOLOGY:
- age-related changes in engine, suspension, and electrical systems

PHARMACOLOGY:
- mechanism of action of various fuels and oils

ETHICS:
- advance directives
- cost of care
- practicing “defensive” car care

PSYCHOSOCIAL:
- indications for contacting “Car Protective Services”
- car abuse and neglect