MORE THAN A HUNCH

When your instincts tell you there's something's wrong, listen. Name withheld

Rob Fox: Photo for illustrative purposes only

Pressure check: A pre-flight check revealed a fuel abnormality on the F27 before it was ferried to Sydney for return to service.

Twenty years ago I was a junior check captain with an airline. One of the tasks meted out to us check pilots was post-maintenance test flights. This incident occurred on one such flight. My mount was the venerable F27 – the 20-ton dog whistle – but this incident could have involved any reasonably complex aircraft.

One of the before-start checks involved pressurising the fuel system on one side, then opening the crossfeed valve to check that the pressure was transmitted across to the other engine. Then the lines were depressurised by switching off the pumps and opening the high-pressure fuel cock to allow the fuel to vent into the engine.

This time the pressure did not dissipate when the pumps were switched off. No amount of shuttling the HP cock would cause the pressure to drop. Unusual, but not alarming.

I called a licensed aircraft maintenance engineer (LAME) over to discuss the problem. He didn't seem too concerned, and went away to bleed the crossfeed lines, after which the pressure dropped a little more (though it still wasn't normal). The LAME appeared so casual about it all that I felt silly raising the subject again.

The flight test required a regime of checks to be completed, including sequentially feathering and relighting each engine. The old Dart engines were fuel guzzlers and very noisy, but also very rugged and dependable. The flight test schedule did not call for a check of the fuel crossfeed system, nor did we use it during the flight.

With the tests completed, the engineer departed (he had accompanied us on the test) and we prepared to ferry the F27 to Sydney where it was due to return to service. The fuel crossfeed pressure check was a "first flight of the day" event, but out of curiosity I repeated it before starting engines. Again the pressure would not relieve. I felt uneasy about it and told the co-pilot that we would not use the cross-feed system in flight for any reason – feasible on such a flight, as there were many suitable airports enroute that we could use if a fuel imbalance arose.

After landing in Sydney, I made a note in the maintenance log about the fuel pressure abnormality.

Imbalance: The plane flew its scheduled services for the remainder of the day. Next morning another crew experienced the same problem on its pre-flight. But again, the engineers saw nothing really amiss and no reason to delay departure.

You can probably guess what comes next. Later that day the crew noted a fuel imbalance and set up the crossfeed to tidy-up the situation. As soon as they switched off the pumps on the low-quantity side, the engine failed.

Fortunately they were quick to restore a normal fuel system configuration and carry out an emergency relight – which functioned perfectly.

It was only then that the fuel pressure residing in the lines was taken seriously. It turned out to be trapped air.

Although I suspected things were not normal, the attitude of the engineers made me feel uneasy about badgering them further on the subject. This was a lesson to me to trust my instincts.

Even qualified LAMEs can fail to appreciate a potentially hazardous situation. When things don't feel right it is time to look deeper, because almost certainly something is out of place. Don't assume that all is well just because other people are not as concerned as you.

$500 **Highly commended**

ANALYSIS
SPOT ON

Steve Tizzard

We can all learn something from this incident and the author's analysis.

Many pilots have recorded an apparent defect in the maintenance log (or maintenance release) only to see the fault cleared by an engineer along the lines of "ground tested, serviceable" or "fault could not be found". In this case, the fuel system was not working as it should have and a fault was evident. It appears the engineer who cleared or accepted the fault was unaware of the possible consequences of failing to ensure that the fault was rectified.

It's significant that subsequent crew(s) accepted the fuel system unserviceability; perhaps they were influenced by the fact that previous crew(s) had accepted the problem too.

Pilots are generally reluctant to cancel flights, however in some cases it is the only sensible option. The inconvenience of a grounded aircraft is nothing compared to the potentially disastrous consequences of an in-flight emergency.

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