Case Study Comment 5
by Dragan Milanovski

Often, reading a magazine article about an event or topic well known to you makes you think this could not be further away from the truth. On the other hand, we tend to believe almost everything else we read. Is it because one could be biased, a different point of view or something else? It is an interesting "phenomenon"…

It is not too difficult to conclude that a simple transponder failure was the main factor that caused this serious incident. Clearly, this was not an "odd" case to be blamed on human factors, although human factors played a significant role in it. Unfortunately, there are other examples where a similar failure played a major role in incidents or accidents even with catastrophic outcomes (for example the 2006 mid-air collision over Brazil). The question is how a minor and relatively insignificant technical failure can lead to such a big incident.

The crew of the 747 could have done more to anticipate potential problems and think of possible actions long before the failure took place. Having in mind the technical problems before departure, the reaction to the fault transponder light was inappropriate and difficult to understand. The crew should have asked ATC immediately whether their transponder was transmitting or not. This would have enabled an early identification of the problem and probably prevented the incident. I have no doubt that an experienced Captain understands the potential consequences of a transponder failure and that you need a "bit" more than just engines to fly an aircraft safely. Working for an airline that does not value safety culture, where "cutting corners" here and there is part of daily operations, can probably make professionals act less "professionally" over time and start taking safety for granted.

Controllers learn and practice how to handle flights with transponder failure (with or without primary radar) – we all know it is not a big deal. But the skill did not get used in this case and ABC654 disappeared from the screen of a busy sector without being noticed. You might be thinking that the controllers manning the west sector made a mistake – they should have detected the situation a lot earlier and dealt with it. True, however there were a few factors that significantly contributed to this omission that are important to consider.

The controllers on the west sector were extremely busy dealing with a lot of weather avoidance due to thunderstorm and possibly overloaded, while the area controller had very little to do. Was the sector split done properly? I would expect that when this is the case, the workload is more evenly spread amongst the

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various sectors (I know… most of the time it does not feel like that).

It also looks like a dangerous culture of not using the restrictions has been introduced even when everybody felt they were needed with the excuse that efficiency measured by the performance indicator mattered most. What happened to "safety first"?

The primary radar was removed prior to the incident. Was this another mistake of the management motivated by financial efficiency? Usually it is not, if the change is managed properly and if the associated risks are mitigated. From the story we can not tell all details, but can be expected that the controllers were subject to an awareness campaign about the removal of the primary radar and the effect and changes it might bring to their daily job, the new threats and how to deal with them.

The area controller was not busy and had plenty of time. She was working on her own at the time of the incident, but I do not think this had a significant impact. Based on the workload described in the story, she could have looked at traffic about to enter the sector and potentially detected an aircraft that was overdue. Well… probably because this was not part of her daily routine, it did not happen. Her planner may have had a better chance, but we can not be absolutely sure about that.

A RECOMMENDATION

Most ATC systems have tools which help controllers detect situations like this by initiating a warning when a target correlated with an active flight plan disappears from the screen, or when an aircraft about to enter a sector is overdue. The management of the ANSP should have considered introducing something like this before the decision was taken to remove the primary radar. Even with primary radar, a tool like this definitely adds another safety barrier – immediate detection of a transponder failure is not always straightforward for controllers.

Those of you who feel that I have proved the point I made at the beginning of this article, well… in this case it is just a different point of view.