

HUMAN FACTORS NEWS

Issue 13

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THEME — STRESS

Welcome

In this issue we look at stress. This topic has been brought into focus by recent events, in particular, the Germanwings accident.

Stress is good for you if it motivates you, but bad for you if it wears you down. Continual stress can lead to depression and serious mental health problems.

One of the problems with stress is that the extent of it can be difficult to recognise in yourself. For this reason, it is vital that we all keep a lookout for symptoms in our friends and colleagues. If someone you know

seems fragile, the least you can do is listen to them and let them know they have your support.



Captain Under Stress

In September 2005, a Ryanair jet had a close call on a flight between the German airport of Niederrhein and Ciampino, Rome.

The crew had been forced to weave a path around storms during a prolonged attempt to land at Ciampino. But instead of diverting to its alternate, Pescara, the crew opted for an unplanned diversion to Rome Fiumicino.

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The First Officer had 300 hours on type and a total time of 475 hours. He had never flown in the type of adverse weather conditions experienced on this sector.

The crew failed to brief properly for the diversion, and did not update the flight

management system during the turbulent conditions, resulting in the pilots rapidly losing situational awareness. Loss of situational awareness meant the Captain, already in a poor psychological state, was forced to concentrate solely on flying the aircraft, with the co-pilot able to provide only limited support, although the F/O prompted the final decision to abort the highly unstable approach into Fiumicino.

The aircraft was 11km south of the runway, at just 370ft before the Captain finally abandoned the approach and diverted to Pescara.

Ryanair changed its operations manual following the incident to **emphasise the flight safety implications of personal trauma, and the importance of notification to flight operations management.**

Chronic Stress After Divorce

In 2007, a Boeing 737 crew departed Perth for Sydney on the last leg of a 4 day trip from Sydney / Perth / Jakarta / Perth / Sydney. About 2 hours 40 minutes into the flight, the master caution light illuminated, indicating low output pressure in the aircraft's main tank fuel pumps.



Photo: ATSB

The pilot in command noticed that the centre tank fuel pump switches were selected to the OFF position. He immediately selected them to the ON position. The flight crew could not recall who selected the main tank fuel pumps to the ON position, and the co-pilot could not recall selecting the centre tank fuel pump switches to the ON position.

The flight crew discussed the problem and confirmed that the total fuel remaining would not be a concern. The flight continued on the planned route and landed safely in Sydney.

The investigation determined that the pilot in command was suffering from chronic stress and it was probable that this stress affected his ability to operate as a pilot in command. **It also determined he was unlikely to be aware of this.**

The pilot reported that he was experiencing stress from separation and divorce proceedings that had been ongoing for 3 years, and a significant financial problem relating to the divorce.

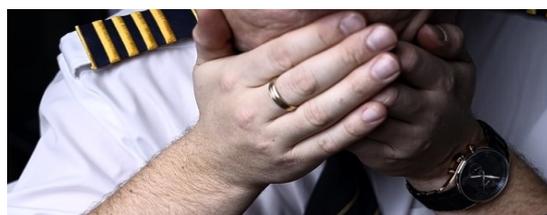
Settling matters related to his ongoing divorce after returning to Perth from the overnight Jakarta sectors resulted in the pilot being awake for 38 hours before the 7 hours sleep obtained immediately before the incident flight.

The pilot engaged some countermeasures to reduce the effects of fatigue he was experiencing. He informed his co-pilot that he was fatigued. He had a controlled rest on the Perth-Jakarta sector, and acted as the pilot not flying on the two overnight sectors. He also drank coffee before the incident flight during flight preparation.

Stress can have many effects on a pilot's performance. These include cognitive affects such as narrowed attention, decreased search activity, longer reaction time to peripheral cues, decreased vigilance, and increased errors on operational procedures.

Flight crew and operators need to be aware of pilots' fitness to operate after sustained wakefulness and personal stress, and have a practical way for pilots to disqualify themselves from operation if they feel the need to do so.

(Read the full report: **ATSB** Occurrence Investigation Report AO-2007-036)



Research into the Effects of Stress

In a self-report study of US Coast Guard crews, pilots indicated that as the level of home stress increased, self-perceptions of flying performance decreased, especially the sense of 'not feeling ahead of the game'

Studies by Green and Neubauer show that while pilots may be good at compartmentalization (putting aside distractions to concentrate on the job at hand), there are some situations that cause pilots to think about stressors. The work of a pilot involves long periods of relative inactivity coupled with short periods of highly intense workload. A stressor, such as anger or worry, may eat into the inactivity period and cause delays in response time when tasks demand attention.

When pilots make choices at decision speed or decision height, they utilize a range of cognitive functions, such as recall

of episodic memory or executive functioning, to succeed. Stress affects these cognitive abilities. Stressed pilots are more prone to Plan Continuation Error, which is the decision to continue according to the existing plan, even when the situation demands other action measures. This is easier to cope with and hence more attractive to the stressed pilot whose cognitive functioning is already sluggish.



Changes to the LMS and the HF for Flight Ops course

A recent review of our Learning Management System (LMS) highlighted that we have outgrown its capabilities. We will shortly be moving to Talent LMS. With the new LMS, we will be able to develop branches for each operator. The Branch Administrator will be able to more easily create status reports for students and courses, and students will be able to review the status of each course and to print their own certificate at any time after completion.

We are confident that you will enjoy working with the new system.

One consistent feed-back topic is the length of the HF course for Flight Operations. We have therefore developed a 10 module initial HF course, which covers all the topics suggested by ICAO and required by CASA to comply with current regulations. This course has been updated with new images and animations to be more student friendly. The feedback from operators using this new course is very positive so we have decided to transfer our current clients over and then terminate the 16 module HF course by the end of this year.

Holmes and Rahe Stress Scale

Psychiatrists Thomas Holmes and Richard Rahe surveyed more than 5,000 medical patients and asked them to say whether they had experienced any of a series of 43 life events in the previous two years. From this, they calculated which life events were likely to increase the chance of illness or injury. That is, they determined which stressors impacted most heavily on people.



Holmes and Rahe devised a test which can be used to predict the probability that a person will become ill or injured because of stress. You can take the test at:

<http://www.stress.org/holmes-rahe-stress-inventory/>

While this test is a well-known tool for measuring the amount of stress you have been under in the previous 12 months, the results are only an approximation at best. For example, differences in the circumstances, interpretations, goals, personality, values and resources vary greatly from one person to the next. But the test does give you an idea of the types of events which can cause stress.

If you have any concerns about stress, you should talk to a suitably qualified health professional.

New course - Fatigue Management for Flight Crew Members

We are proud to present our new online Fatigue Management training course. This course has been developed for non-augmented Flight Crew Members and is based on ICAO's FRMS Guide for Operators and the FRMS Manual for Regulators.

Fatigue still contributes to high risk situations, so it is important to understand the science behind it and to develop some strategies for successful fatigue management. Please visit our website or contact us at info@hfts.com.au to find out more.



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