

How to Justify Changing Hours of Work for Pilots



Outline

- Background
 - Change in ICAO standards
 - Requires a change in our current regulations – based on science
 - A working group is formed
 - What science is there?
 - What could we use?

- How we approached this issue

Background

- Effective November 2009, the International Civil Aviation Organization (ICAO) introduced a new Standard relating to flight and duty times
- ***“...regulations shall be based upon scientific principles and knowledge...”***

Background

- Current Canadian fatigue regulations written in 1996
- Divided into “big” and “small”
- Limit duration of work day
- Limit flight hours
- Require rest periods
- Time free from work

Background

- Limit duration of work day
 - 14 hours (any time of day or night)
- “big” – 72 hours per week
- “small” – 98 hours per week

Background

- Limit flight hours
- “big” – 40 flight hours per week (\approx 60 work hours)
- “small” – 60 flight hours per week (\approx 80 – 90 work hours)

Background

- Require rest periods
 - Opportunity for 8 hours of sleep

Background

- Time free from work
- “big” – 36 consecutive hours off per week
- “small” – 3 periods of 24 consecutive hours per month / 13 periods per quarter

Background

- “big” – room for improvement – perhaps “in the ballpark”
- “small” – not good an managing fatigue

Transportation Safety Board

- In the period 1 January 2002 to 5 July 2012, the “small” segment of our industry accounted for
 - 91% of commercial air fatalities

The Working Group

- To respond to the ICAO change
- Transport Canada formed a working group to study the issue and make recommendations
- 42 days of meeting over a period of 18 months

What science is available?

- There are aviation specific fatigue studies
 - A few dozen
- Long haul flights (15 hour flights) lots of data
- Other studies – specific operations

Reaction to these studies

- These studies were under a different regulatory framework
- The environment is different than in Canada
- We're different
- There are not enough aviation studies
- We need Canadian studies

Captain duty hours and accidents by length of duty

Hour in duty period	Captain's hours	Exposure proportion	Accidents	Accident proportion	Accident proportion relative to exposure proportion
1 – 3	430,136	0.35	15	0.27	0.79
4 – 6	405,205	0.33	15	0.27	0.84
7 – 9	285,728	0.23	14	0.25	1.11
10– 12	109,820	0.09	8	0.15	1.65
13 or more	12,072	0.01	3	0.05	5.62
Total	1,242,961	1.00	55	1.00	1.00

What to do?

- The aviation fatigue studies – not sufficient to be accepted
- Take a broader approach – look at human fatigue
- Sleep science & working time
- This opens the door to hundreds of studies

What we found

- Sleep
 - Shift length
 - Night work
 - Overtime / Excessive hours of work
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- Maintain performance & health

Sleep

- 8 hours each day maintains performance
- At home 12 hours to get 8 hours of sleep

Shift length

- 8 hour benchmark
- Risk grows exponentially as shift length increases
- The research points to 12 hours as a good limit

Night work

- Humans not suited for being awake at night
- On successive nights, performance degrades
- Rest during the night duty helps

Overtime / Excessive Hours of Work

- Cumulative effects
- 48 hours
- Reduced performance
- Long term health effects

Working Group Report

- The Working Group discussed all the science we had found
- 26 recommendations in the Report
- 7 recommendations that didn't have consensus the science used to determine recommendation

Proposed Regulation

- In September, the proposed regulation was published in order to receive comments (consultation)
- 94 comments received
 - 1/3 fully opposed
 - 1/3 supportive with concerns
 - 1/3 fully supportive

What next?

- To be determined



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Mark.Laurence@tc.gc.ca



Table 1 - Maximum Daily FDP

		Columns				
		A	B	C	D	E
		Number of Sectors				
		1-3	4	5	6	7+
Rows	Start of FDP	Maximum FDP (hours)				
1	2300-0429	10.0	9.5	9.0	9.0	9.0
2	0430-0459	10.5	10.0	9.5	9.0	9.0
3	0500-0529	11.0	10.5	10.0	9.5	9.0
4	0530-0559	11.5	11.0	10.5	10.0	9.5
5	0600-0629	12.0	11.5	11.0	10.5	10.0
6	0630-0659	12.5	12.0	11.5	11.0	10.5
7	0700-1259	13.0	12.5	12.0	11.5	11.0
8	1300-1459	12.5	12.0	11.5	11.0	10.5
9	1500-1659	12.0	11.5	11.0	10.5	10.0
10	1700-1859	11.5	11.0	10.5	10.0	9.5
11	1900-2059	11.0	10.5	10.0	9.5	9.0
12	2100-2259	10.5	10.0	9.5	9.0	9.0