

Aviation MX Human Factors Quarterly Newsletter

The Aviation MX Human Factors Quarterly is no longer published but was written by maintenance human factors professionals dedicated to identifying and optimizing the factors that affect human performance in maintenance and inspection and is still relevant.

2021

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Past Issues of the MX Fatigue Focus Newsletters

- [MX Fatigue Focus, vol. 1, issue 1, 2009](#) (PDF)
- [MX Fatigue Focus, vol. 2, issue 1, 2010](#) (PDF)
- [MX Fatigue Focus, vol. 2, issue 2, 2010](#) (PDF)
- [MX Fatigue Focus, vol. 2, issue 3, 2010](#) (PDF)
- [MX Fatigue Focus, vol. 2, issue 4, 2010](#) (PDF)
- [MX Fatigue Focus, vol. 3, issue 1, 2011](#) (PDF)
- [MX Fatigue Focus, vol. 4, issue 1, 2011](#) (PDF)airc

[Human Factors Industry News](#)

Human Factors Industry News provides relevant news stories on the latest news and information associated with human factors education in the aviation maintenance industry.

[Nuts and Bolts](#)

Nuts and Bolts is a FAAST newsletter written by mechanics for mechanics.

[Aircraft Maintenance Technology](#)

Aircraft Maintenance Technology is titled the official publication for AMT society written by aircraft maintenance professionals for the professional maintenance team. AMT is the aircraft maintenance professional's source for technological advancements, maintenance alerts, news, articles, events, and careers.

[Aviation Maintenance](#)

Aviation Maintenance magazine supported by Aviation Today covers maintenance technology for military and commercial aircraft including those operated by regional airlines and business aircraft, globally.

[ICAO Journal](#)

ICAO Journal's objective is to provide a concise account of the activities of the International Civil Aviation Organization and to feature additional information of interest to Contracting States and the international aeronautical world.

[International Civil Aviation Organization \(ICAO\)](#)

Articles

General Fatigue

[Fatigue Countermeasures in Aviation \(2009\)](#) (PDF)

This position paper reviews the relevant scientific literature, summarizes applicable U.S. civilian and military flight regulations, evaluates various in-flight

and pre-/post-flight fatigue countermeasures, and describes emerging technologies for detecting and countering fatigue. Following the discussion of each major issue, position statements address ways to deal with fatigue in specific contexts with the goal of using current scientific knowledge to update policy and provide tools and techniques for improving air safety. **Authors:** Caldwell, J.A., Mallis, M.M., Caldwell, L., Paul, M.A., Miller, J.C., Neri, D.F.

[The NTSB and FAA Address Fatigue in Aviation Operations \(2008\)](#)

Discusses the 2008 NTSB safety recommendations, FAA's response to date, and current standards for flight crews and maintenance personnel. **Authors:** Nemsick, J.R., Antonecchia, M.L.

[Sleep, Circadian Rhythms, and Psychomotor Vigilance \(2005\)](#) (PDF)

Examines how the homeostatic and circadian rhythm processes, and napping effect athletic performance and how sleep restriction practiced on a chronic basis can induce cumulative performance deficits of the same magnitude as total sleep deprivation. There are also considerable individual differences in the degree of vulnerability to performance impairment from sleep loss. **Authors:** Van Dongen, H.P.A., Dinges, D.F.

[Patterns of performance degradation and restoration during sleep restriction and subsequent recovery: a sleep dose-response study \(2003\)](#)

The results of this study suggest that the brain adapts to chronic sleep restriction. In mild to moderate sleep restriction this adaptation is sufficient to stabilize performance, although at a reduced level. These adaptive changes are hypothesized to restrict brain operational capacity and to persist for several days after normal sleep duration is restored, delaying recovery. **Authors:** Belenky, G., Wesensten, N. J., Thorne, D. R., Thomas, M. L., Sing, H. C., Redmond, D. P., Russo, M. B., Balkin, T. J.

[Coping with Shift Work \(2004\)](#) (PDF)

Offers tips for working shiftwork, enhancing work performance, driving home after shiftwork, and adapting to shiftwork. **Author:** CoxHealth Regional Sleep Disorders Center

[Fatigue in aviation sustained operations, the utility of napping, and the problem of sleep inertia \(2002\)](#) (PDF)

Discusses the use of napping as a fatigue countermeasure: how it should be implemented and specific steps that can be taken to reduce the probability that sleep inertia will be severe or persistent. **Authors:** Caldwell, J.A., Prazinko, B.F., Caldwell, J.L.

[Plain Language About Shiftwork \(1997\)](#) (PDF)

Gives basic information about shiftwork and talks about ways to make shiftwork life easier. **Authors:** Rosa, R.R., Colligan, M.J.

Maintenance Fatigue

[An Evaluation of Aviation Maintenance Fatigue Countermeasures \(2013\)](#) (PDF)

Discusses FAA conducting an evaluation of aviation maintenance fatigue countermeasures training. Results indicated that the training was effective in increasing employees' general fatigue knowledge. Training also had an immediate positive affect on employees' awareness of the importance in and commitment toward managing fatigue; however, their commitment, motivation, and self-efficacy toward fatigue management significantly declined six weeks following training. **Authors:** Banks, J., Wenzel, B., Avers, K., Hauck, E.

[Fatigue Risk Management in Aviation Maintenance: Current Best Practices and Potential Future Countermeasures \(2011\)](#) (PDF)

Reviews best practices for fatigue risk management in the aviation maintenance industry. Provides recommendations for employees and employers on how to mitigate fatigue risk currently. Suggests potential future countermeasures that may be used to improve the safety of aviation maintenance. **Authors:** Hobbs, A., Avers, K. B., Hiles, J. J.

[Fatigue Solutions for Maintenance: From Science to Workplace Reality](#) (PDF)

The Maintenance Human Factor Chief Scientist Technical Advisor workshop utilized a multi-disciplinary approach involving mechanics, industry managers, government, scientists, safety inspectors, and aircraft accident investigators to

develop science-based solutions to core challenges in aviation maintenance. The workshop provided new insight into the practical application of fatigue research in the aviation maintenance industry. More importantly, it prioritized the action items that need to be pursued to reduce fatigue-related risk in maintenance and provides guidance for continued fatigue research.

[Working to the Limit \(2008\)](#) (PDF)

Briefly discusses fatigue and its causes within the aviation maintenance environment. Also explores what can be done about fatigue including FRMS. **Author:** Werfelman, L.

[Evaluation of Aviation Working Environments, Fatigue, and Maintenance Errors/Accidents \(2006\)](#) (PDF)

Examined environmental issues such as noise, working temperatures, and lightening. Specialties within aviation maintenance were examined to determine if there were meaningful differences in the working environment. **Authors:** Bosley, G.C., Miller, R.M., Watson, J.

[Tired Techs Countering Fatigue with Common Sense \(2005\)](#) (PDF)

A realistic look at the maintenance industry. The article reviews some fatigue basics and offers suggestions for managers. **Author: Gamauf, M.**

[Fatigue Evaluation Indicates Most Aviation Maintenance Personnel Obtain Insufficient Sleep \(2001\)](#) (PDF)

This study presents findings that maintenance personnel often obtain insufficient sleep and experience fatigue and negative performance effects due to fatigue. **Author:** Flight Safety Foundation Editorial Staff

[Evaluation of Aviation Maintenance Working Environments, Fatigue, and Human Performance \(2001\)](#) (PDF)

Discusses selected environmental conditions of the aviation maintenance workplace and the amount of sleep obtained by maintenance personnel. **Authors:** Johnson, W.B., Mason, F., Hall, S., Watson, J.

Fatigue Risk Management

[Return on Investment Tool for Assessing Safety Interventions \(2012\)](#) (PDF)

This paper describes the process to predict and/or measure the safety and financial return-on-investment for safety interventions. **Authors:** Johnson, B., Avers, K.

[NTSB Safety Recommendation \(2008\)](#) (PDF)

Reviews aviation accidents where fatigue was a contributing factor and NTSB support of industry initiatives. Also examines existing Fatigue Management Systems, necessary guidance for implementation, and difficulty of evaluation. **Author:** Rosenker, M.V.

[FRMS for the Canadian Aviation Industry: An Introduction to Managing Fatigue \(2007\)](#)

Intended for employees, this booklet provides introductory material to raise awareness about fatigue. **Authors:** McCulloch, K., Baker, A., Ferguson, S., Fletcher, A., Dawson, D.

[FRMS for the Canadian Aviation Industry: Fatigue Management Strategies for Employees \(2007\)](#)

Intended for employees, this workbook provides the knowledge and skills required to apply appropriate fatigue management strategies at the individual level. **Authors:** McCulloch, K., Baker, A., Ferguson, S., Fletcher, A., Dawson, D.

[FRMS for the Canadian Aviation Industry: Employee Training Assessment \(2007\)](#)

Intended for use by trainers, this optional module provides an assessment of employee competence in topics covered in the Fatigue Management Strategies for Employees workbook. **Authors:** McCulloch, K., Baker, A., Ferguson, S., Fletcher, A., Dawson, D.

[FRMS for the Canadian Aviation Industry: Developing and Implementing a Fatigue Risk Management System \(2007\)](#)

Intended for managers, this guide explains how to manage the risks associated with fatigue at the organizational level within a safety management system framework. **Authors:** McCulloch, K., Baker, A., Ferguson, S., Fletcher, A., Dawson, D.

[FRMS for the Canadian Aviation Industry: Policies and Procedures Development Guidelines \(2007\)](#)

Intended for managers, this guide proposes a policy structure and provides examples and guidelines to help organizations through the process of designing fatigue risk management policies and procedures. **Authors:** McCulloch, K., Baker, A., Ferguson, S., Fletcher, A., Dawson, D.

[FRMS for the Canadian Aviation Industry: Trainer's Handbook \(2007\)](#)

In addition to a training presentation on fatigue, fatigue management systems, and individual fatigue management strategies, this package includes background information for delivery of a workshop, learning outcomes, and questions frequently asked by participants. **Authors:** McCulloch, K., Baker, A., Ferguson, S., Fletcher, A., Dawson, D.

[Fatigue Risk Management for Employees \(2007\)](#)

A PowerPoint version of the presentation discussed in the Trainer's Handbook. **Authors:** McCulloch, K., Baker, A., Ferguson, S., Fletcher, A., Dawson, D.

[If You Don't Snooze, You Lose. \(2006\)](#) (PDF)

Explores why a traditional prescriptive hours of service approach is not adequate for control of fatigue. Examines a defenses in-depth approach to managing fatigue as part of a Safety Management System. **Author:** Werfelman, L

[Fatigue Management in the New Zealand Aviation Industry \(2006\)](#) (PDF)

A study aimed at identifying how New Zealand aviation organizations are managing fatigue. Responses from management, rostering, and line pilots are provided. **Authors:** Signal, L., Ratieta, D., Gander, P.

Resources

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