

• **NEW Reference Series** •



Critical Essays on HUMAN FACTORS IN AVIATION

Series Editor: EDUARDO SALAS, Department of Psychology,
Institute of Simulation and Training,

This series reprints the most important journal articles and papers in the field of human factors in aviation. Each volume is introduced by a well known scholar in the field. The series offers an overview of the subject from its beginnings to the current day, giving scholars and students unique access to the discipline's history and conceptual development.

Titles in the Series:

Human Error in Aviation

Edited by R. KEY DISMUKES

Crew Resource Management

*Edited by EDUARDO SALAS,
KATHERINE A. WILSON, and ELEANA EDENS*

Decision Making in Aviation

Edited by JUDITH ORASANU and UTE FISCHER

Modeling, Simulation and Training in Aviation

Edited by FLORIAN JENTSCH, MICHAEL CURTIS and EDUARDO SALAS



Critical Essays on Human Factors in Aviation

Series Editor

EDUARDO SALAS,
Department of
Psychology, Institute
of Simulation and
Training, University of
Central Florida, USA

Visit our website

www.ashgate.com

*for more information on Ashgate's
series in*

Human Factors and Aviation:

- *Ashgate Studies in Human Factors for Flight Operations*
- *Ashgate Studies in Resilience Engineering*
- *Human Factors in Defence*
- *Human Factors in Rail and Road Transport*

Human Error in Aviation

Edited by R. KEY DISMUKES, NASA Ames Research Center, USA

Critical Essays on Human Factors in Aviation

The papers selected for this volume have strongly influenced modern thinking about why skilled experts make errors and how to make aviation error resilient, and are based on recent human factors research which reveals that errors made by skilled human operators - such as pilots, controllers, and mechanics - are not root causes but symptoms of the way industry operates.

CONTENTS AND CONTRIBUTORS INCLUDE: Introduction;

PART I CONCEPTUAL FRAMEWORKS FOR THINKING ABOUT HUMAN ERROR: The contribution of latent human failures to the breakdown of complex systems, **J. Reason**; Widening the search for accident causes: a theoretical framework, **Daniel E. Maurino, James Reason, Neil Johnston** and **Rob B. Lee**; Converging themes: the deep structure of accidents, **R. Key Dismukes, Benjamin A. Berman** and **Loukia D. Loukopoulos**; Human error and commercial aviation accidents: an analysis using the human factors analysis and classification system, **Scott Shappell, Cristy Detwiler, Kali Holcomb, Carla Hackworth, Albert Boquet** and **Douglas A. Wiegmann**; Illusions of explanation: a critical essay on error classification, **Sidney W.A. Dekker**; The paradoxes of almost totally safe transport systems, **R. Amalberti**.

PART II SPECIFIC ASPECTS OF SKILLED HUMAN PERFORMANCE: Human workload in aviation, **Barry H. Kantowitz** and **Patricia A. Casper**; Attentional models of multitask pilot performance using advanced display technology, **Christopher D. Wickens, Juliana Goh, John Helleberg, William J. Horrey** and **Donald A. Talleur**; Pilot interaction with cockpit automation II: an experimental study of pilots' model and awareness of the flight management system, **Nadine B. Sarter** and **David D. Woods**; Pilots' monitoring strategies and performance on automated flight decks: an empirical study combining behavioral and eye-tracking data, **Nadine B. Sarter, Randall J. Mumaw** and **Christopher D. Wickens**; Toward a theory of situation awareness in dynamic systems, **Mica R. Endsley**; Risk perception and risk management in aviation, **Judith Orasanu, Ute Fischer** and **Jeannie Davison**; The evolution of crew resource management, **Robert L. Helmreich, Ashleigh C. Merritt** and **John A. Wilhelm**; Crews as groups: their formation and their leadership, **Robert C. Ginnett**; Predictors of threat and error management: identification of core nontechnical skills and implications for training systems design, **Matthew J.W. Thomas**; The importance of crew resource management behaviors in mission performance: implications for training evaluation, **Robert T. Nullmeyer** and **V. Alan Spiker**.

PART III FACTORS AFFECTING SKILLED PERFORMANCE: Fatigue in aviation, **John A. Caldwell**; Pilot performance and stress, **Alan Stokes** and **Kirsten Kite**; Assessing cognitive aging in piloting, **Pamela S. Tsang**; The role of situation assessment and flight experience in pilots' decisions to continue visual flight rules flight into adverse weather, **Douglas A. Wiegmann, Juliana Goh** and **David O'Hare**; Organizational factors associated with safety and mission success in aviation environments, **Ron Westrum** and **Anthony J. Adamski**; The link between safety attitudes and observed performance in flight operations, **J. Bryan Sexton** and **James R. Klinect**.

PART IV BEYOND THE COCKPIT: A review of human error in aviation maintenance and inspection, **Kara A. Latorella** and **Prasad V. Prabhu**; Errors of memory in air traffic control, **Steven T. Shorrock**. Name Index.

INCLUDES 24 PREVIOUSLY PUBLISHED JOURNAL ARTICLES

MARCH 2009 604 PAGES HARDBACK
978-0-7546-2831-6 £145.00 \$275.00

Crew Resource Management

Critical Essays

Edited by EDUARDO SALAS, University of Central Florida, USA, KATHERINE A. WILSON, University of Central Florida, USA and ELEANA EDENS, Federal Aviation Administration, USA

Critical Essays on Human Factors in Aviation

Crew Resource Management (CRM) training was first introduced in the late 1970s as a means of combating an increased number of accidents in which poor teamwork in the cockpit was a significant contributing factor. Since then, CRM training has expanded beyond the cockpit, for example to cabin crews and maintenance crews, and has also developed and acquired a host of methodologies and tools which have allowed the community to better study and measure its effect on team performance and ultimately safety. This volume brings together key articles which depict these developments in CRM research and training and provides an invaluable forum for researchers and practitioners alike.

CONTENTS AND CONTRIBUTORS INCLUDE: Introduction;

PART I HISTORY OF CRM: The Naval Safety Center's aircrew coordination training, R.A. Alkov; 18 years of the CRM wars: a report from headquarters, D. Maurino; The evolution of crew resource management training in commercial aviation, R.L. Helmreich, A.C. Merritt and J.A. Wilhelm; Crew resource management: a time for reflection, D. Maurino.

PART II THEORETICAL DEVELOPMENTS: Dyads and triads at 35,000 feet, H.C. Foushee; Why crew resource management? Empirical and theoretical bases of human factors in aviation, R.L. Helmreich and H.C. Foushee; Training and research for teamwork in the military aircrew, C. Prince and E. Salas.

PART III METHODOLOGICAL TOOLS AND DEVELOPMENTS: Cockpit management attitudes. Human factors, R.L. Helmreich; LOFT: full mission simulation as crew resource management training, R.E. Butler; A methodology for enhancing crew resource management training, E. Salas, C. Prince, C. Bowers, R. Stout, R. L. Oser and J.A. Cannon Bowers; System safety and threat and error management: the line operations safety audit (LOSA), R.L. Helmreich, J.R. Klinect and J.A. Wilhelm; Methods used to evaluate the effectiveness of flightcrew CRM training in the UK aviation industry, P. O'Connor, R. Flin, G. Fletcher and P. Hemsley; Development of the NOTECHS (non-technical skills) system for assessing pilot's CRM skills, R. Flin, L. Martin, K. Goeters, H. Hormann, R. Amalberti, C. Valot and H. Nijhuis.

PART IV EVALUATION OF CRM TRAINING: Does CRM training improve teamwork skills in the cockpit? 2 evaluation studies, E. Salas, J.E. Fowlkes, R.J. Stout, D.M. Milanovich and C. Prince; Team training in the skies: does crew resource management (CRM) training work?, E. Salas, C.V.S. Burke, C.A. Bowers and K.A. Wilson; Techniques used to evaluate crew resource management training: a literature review, P. O'Connor, R. Flin and G. Fletcher; Does CRM training work? An update, extension, and some critical needs, E. Salas, K.A. Wilson, C.S. Burke and D.C. Wightman.

PART V CRM: BEYOND AVIATION: Anesthesia crisis resource-management training: teaching anesthesiologists to handle critical incidents, S.K. Howard, D.M. Gaba, K.J. Fish, G. Yang and F.H. Sarnquist; Simulation-based training in anaesthesia crisis resource management (ACRM): a decade of experience, D.M. Gaba, S.K. Howard, K.J. Fish, B.E. Smith and Y.A. Sowb; 4 generations of maintenance resource management programs in the United States: an analysis of the past, present, and future, J.C. Taylor and M.S. Patankar; Crew resource management training for offshore oil production teams, P. O'Connor and R. Flin; Name Index.

INCLUDES 21 PREVIOUSLY PUBLISHED JOURNAL ARTICLES

MAY 2009 448 PAGES HARDBACK
978-0-7546-2829-3 £110.00 \$225.00

TO BE PUBLISHED IN 2010

Decision Making in Aviation

Edited by JUDITH ORASANU, NASA Ames Research Center, USA and UTE FISCHER, Georgia Institute of Technology, USA

2010 c. 500 PAGES
HARDBACK 978-0-7546-2867-5
c. £125.00 c. \$250.00

Modeling, Simulation and Training in Aviation

Edited by FLORIAN JENTSCH, MICHAEL CURTIS and EDUARDO SALAS, University of Central Florida, USA

2010 c. 500 PAGES
HARDBACK 978-0-7546-2887-3
c. £125.00 c. \$250.00

ALSO OF INTEREST

Strategic Management in Aviation: Critical Essays

Edited by THOMAS C. LAWTON, Imperial College London, UK

'...an excellent companion to strategic management textbooks for students of the subject and a ready reference work for academics and practitioners.'

Aerlines Magazine

'...strongly recommend it to airline researchers, students, consultants and policymakers as a very good source of reference.'

Journal of Air Transport Management

This volume reprints the most important and influential journal articles and papers on aviation management, with an extensive introduction by the editor.

INCLUDES 28 PREVIOUSLY PUBLISHED JOURNAL ARTICLES

2007 416 PAGES HARDBACK
978-0-7546-2651-0 £120.00 \$225.00

Order form

Return to: Ashgate Publishing Direct Sales, Bookpoint Limited, 130 Milton Park, Abingdon, Oxon, OX14 4SB, UK or telephone: +44 (0)1235 827730, fax: +44 (0)1235 400454 or email: ashgate@bookpoint.co.uk **quoting ref: S9AZR** or visit **www.ashgate.com** to order with our 10% online discount

Please send me:

_____ COPY/IES OF	<i>HUMAN ERROR IN AVIATION</i>	978-0-7546-2831-6	£145.00	\$275.00	_____
_____ COPY/IES OF	<i>CREW RESOURCE MANAGEMENT</i>	978-0-7546-2829-3	£110.00	\$225.00	_____
_____ COPY/IES OF	<i>DECISION MAKING IN AVIATION</i>	978-0-7546-2867-5	c. £125.00	c. \$250.00	_____
_____ COPY/IES OF	<i>MODELING, SIMULATION AND TRAINING IN AVIATION</i>	978-0-7546-2887-3	c. £125.00	c. \$250.00	_____
_____ COPY/IES OF	<i>STRATEGIC MANAGEMENT IN AVIATION</i>	978-0-7546-2651-0	£120.00	\$225.00	_____

SUBTOTAL _____ **(PLEASE ADD POSTAGE: £3.95 UK/£7.50 EXPORT)** **TOTAL** _____

Payment

Please do not send payment for books with approximate prices, your order will be recorded and an invoice sent on publication

- I enclose a cheque made payable to: **Bookpoint Limited**
- Please invoice me/my company/institution (delete as appropriate)
- Please charge my VISA/MasterCard/American Express (delete as appropriate)

Account number _____

Expiry date _____ Signature _____

Please supply the address at which your card is registered if it differs from the delivery address below

Delivery

Name _____ Position _____

Company/institution _____

Address _____

Postcode & Country _____

Telephone _____ Email _____

Date _____

IVA/VAT number* _____

* Applies to companies/institutions within Europe, excluding UK. Failure to provide this may result in considerable delay

Library Recommendation: I recommend that you purchase the titles written above

Name _____ Position/Department _____

Course(s) for which title(s) would be useful _____

Small print

Prices, publication dates and contents are correct at the time of going to press, but are necessarily provisional and subject to change without notice. We endeavour to despatch all orders within 5 working days. In the event a product is not available, your order will be recorded and the product despatched as quickly as possible. Ashgate Publishing Limited or other organizations may mail offers reflecting your preferences. Tick if you do not wish to receive offers from us or from other organizations