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Research Reports - Office of Aviation Research **Research And Human Factors Divisions From April** 1995 To Present Research Reports- Office of Aviation Research Airport/Aircraft Safety and Aviation Security Divisions From April 1995 To Present

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11-February-2001

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Federal Aviation Administration 800 Independence Ave., S.W Washington, D.C. 20591

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Re: Freedom of Information Act (FOIA) Request 2001-003126

The list of research reports originated by the Federal Aviation Administration (FAA), Office of Aviation Research (AAR), that you requested in your letter of February 11 is enclosed. The Office of Aviation Research was established within the FAA in April 1995; therefore, the list contains reports dated from then to the present.

The list is separated into two parts: (1) reports generated by and/or for our Research Division and Human Factors Division; and (2) reports generated by and/or for our Airport and Aircraft Safety Division and Aviation Security Division.

There will be no search nor copy fees associated with your FOIA request.

Sincerely,

Mary Powers Fing Herman A. Rediess, Ph.D.

Director, Office of Aviation Research

Enclosure

RESEARCH REPORTS - OFFICE OF AVIATION RESEARCH RESEARCH AND HUMAN FACTORS DIVISIONS FROM APRIL 1995 TO PRESENT

Jentsch, F., Abbott, D., & Bowers, C. (1998). <u>Difficulty evaluation of Line-Oriented Simulations</u> (Technical report submitted to the Naval Air Warfare Center Training Systems Division and the Office of the Chief Advisor for Human Factors at the Federal Aviation Administration, AAR-100). Orlando, FL: University of Central Florida.

Jentsch, F., Hitt, J. M., Bowers, C., Oser, R. (2000). <u>Identifying training areas for advanced automated aircraft:</u> <u>Application of an information-processing model</u> (Technical report submitted to the Naval Air Warfare Center Training Systems Division and the Federal Aviation Administration, AAR-100). Orlando, FL: University of Central Florida.

Jentsch, F., Irvin, J., & Bowers, C. (1997). <u>Development and testing of a diagnostic and training tool for pilot-not-flying backup behaviors</u> (Technical report submitted to the Naval Air Warfare Center Training Systems Division and the Office of the Chief Advisor for Human Factors at the Federal Aviation Administration, AAR-100). Orlando, FL: University of Central Florida.

Jentsch, F., Martin, L., & Bowers, C. (1997). <u>Identifying critical training needs for junior first officers</u> (Technical report submitted to the Naval Air Warfare Center Training Systems Division and the Office of the Chief Advisor for Human Factors at the Federal Aviation Administration, AAR-100). Orlando, FL: University of Central Florida.

Prince, C. (1997). <u>Guidelines for situation awareness training</u> (Technical report submitted to the Naval Air Warfare Center Training Systems Division and the Office of the Chief Advisor for Human Factors at the Federal Aviation Administration, AAR-100). Orlando, FL: NAWCTSD/FAA/UCF Partnership for Aviation Team Training Research at the University of Central Florida.

Jentsch, F., Ho, R., Berry, D., Dougherty, W., & Bowers, C. (2000). <u>Rapidly reconfigurable LOE (RRLOE)</u> software – User handbook. Orlando: University of Central Florida.

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Sarter, N.B. and Nikolic, M.I. (2000). Error Management: A Review And Research Agenda. Technical Report prepared for the Federal Aviation Administration. December.

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Olson, W.A. and Sarter, N.B. (2000). Automation Management Strategies: Pilot Preferences and Operational Experiences. International Journal of Aviation Psychology, 10(4), 327-341.

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Olson, W.A. and Sarter, N.B. (1998). As Long As I'm In Control: Pilot Preferences For And Experiences With Different Forms of Automation Management. Proceedings of the Fourth Symposium on Human Interaction With Complex Systems (HICS) (pp. 63-72). Dayton, OH. March. Human Factors Guide for Aviation Maintenance (1998), Office of the Chief Scientist for Human Factors, Washington, DC

FAA/AAM Human Factors in Aviation Maintenance and Inspection Research Phase Reports (1995-1999), Office of the Chief Scientist for Human Factors, Washington, DC

Human Factors Issues in Aircraft Maintenance and Inspection Meeting Proceedings (1995-1998), Office of the Chief Scientist for Human Factors, Washington, DC

Learning From our Mistakes: A Review of Maintenance Error Investigation and Analysis Systems (with recommendations to the FAA), Office of the Chief Scientist for Human Factors, Washington, DC (1998)

AMT/AMT-T Curriculum An Alternative Method of Compliance with Federal Aviation Regulation Part 66, Office of the Chief Scientist for Human Factors, Washington, DC (1998)

Comparative Study of Personnel Qualifications and Training at Aviation Maintenance Facilities, Office of the Chief Scientist for Human Factors, Washington, DC (1998)

Maintenance Resource Management Handbook, Office of the Chief Scientist for Human Factors, Washington, DC (1998)

Evaluating the Effects of Maintenance Resource Management (MRM) Interventions in Airline Safety, Office of the Chief Scientist for Human Factors, Washington, DC (1998)

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Driskill, W.E., Weissmuller, J.J., Quebe, J., Hand, D.K., & Hunter, D.R. (1998). Evaluating the decision-making skills of general aviation pilots. (DOT/FAA/AM-98/7). Washington, DC: Federal Aviation Administration Office of Aviation Medicine.

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CAMI 01/2McLean, G.A: Access to egress: Defining the appropriate passageway configuration leading from the transport airplane center isle to the type-III overwing exit.

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CAMI 00-3 Hilton, T.F., Hart, I.S., Farmer, W.L., Thompson, J.J., Behn, L.D: The FAA Health Awareness Program: Results of the 1998 customer service assessment survey. ADA373761

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CAMI 00-9Chaturvedi, A.K., Smith, D.R., and Canfield, D.V: Blood carbon monoxide and cyanide concentrations in the fatalities of fire and non-fire associated civil aviation accidents.

CAMI 00-10Della Rocco, P.S., Comperatore, C., Caldwell, L., and Cruz, C.E: The effects of napping on night shift performance.

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CAMI 00-13 DeJohn, C.A., Véronneau, S.J.H., Wolbrink, A.M., and Larcher, J.G: The evaluation of in-flight medical care aboard selected U.S. air carriers: 1996 to 1997. ADA377878

CAMI 00-14Thompson, R.C., Joseph, K.M., Bailey, L.L., Worley, J.A., and Williams, C.A: Organizational change: An assessment of trust and cynicism.

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CAMI 00-16Vu, N.T., Chaturvedi, A.K., Canfield, D.V., Soper, J.W., Kupfer, D.M., and Roe, B.A: DNA-based detection of ethanol-producing microorganisms in postmortem blood and tissues by polymerase chain reaction.

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CAMI 00-19Nakagawara, V.B., Wood, K.J., and Montgomery, R.W: Refractive surgery in aircrew members who fly for scheduled and non-scheduled civilian airlines.

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CAMI 00-21 Canfield, D.V., Hordinsky, J., Millett, D.P., Endecott, B., and Smith, D: Prevalence of drugs and alcohol in fatal civil aviation accidents between 1994 and 1998. ADA379272

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CAMI 00-32 Fiedler, E.R., Della Rocco, P.S., Schroeder, D.J., and Nguyen, K: The relationship between aviators' home-based stress to work stress and self-perceived performance. ADA384889

CAMI 00-33Nicholas, J., Copeland, K., Duke, F., Friedberg, W., and O'Brien, K: Galactic cosmic radiation exposure of pregnant aircrew members II.

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Broach, D., Joseph, K., & Schroeder, D. (2000). Pilot age and accident rates report 4: An analysis of professional ATP and commercial pilot accident rates by age. (Unpublished Civil Aeromedical Report prepared for U.S. Congress). Oklahoma City, OK: FAA Civil Aeromedical Institute Human Resources Research Division.

CAMI 99-1 Collins, W.E., and Wayda, M.E: Index of FAA Office of Aviation Medicine Reports: 1961 through 1998. ADA360592

CAMI 99-2 Della Rocco, P.S., (Editor): The Role of Shift Work and Fatigue in Air Traffic Control Operational Errors and Incidents. ADA360730

CAMI 99-3 Durso, F.T., Hackworth, C.A., Truitt, T.R., Crutchfield, J., Nikolic, D., and Manning, C.A: Situation awareness as a predictor of performance in en route air traffic controllers. ADA360807

CAMI 99-4Garner, R.P: Concepts providing for physiological protection after aircraft cabin decompression in the altitude range of 60,000 to 80,000 feet above sea level. ADA360727

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CAMI 99-7Rakovan, L., Wiggins, M.W., Jensen, R.S., and Hunter, D.R: A survey of pilots on the dissemination of safety information. ADA361233

CAMI 99-8Milburn, N.J., and Mertens, H.W: Optimizing blink parameters for highlighting an air traffic control situation display. ADA316258

CAMI 99-9 Joseph, K., Jahns, D., Nendick, M., and St. George, R: A usability survey of GPS avionics equipment: Some preliminary findings. ADA362193

CAMI 99-10McLean, G.A., George, M.H., Funkhouser, G.E., and Chittum, C.B: Aircraft evacuations onto escape slides and platforms II: Effects of exit size. ADA362480

CAMI 99-11Chaturvedi, A.K: First seven years (1991-1998) of the FAA's postmortem forensic toxicology proficiency testing program. ADA362556

CAMI 99-12Pounds, J., and Bailey, L.L: Cognitive style and learning: Performance of Adaptors and Innovators in a novel dynamic task. ADA363458

CAMI 99-13 Williams, K.W: GPS user-interface design problems.

CAMI 99-14Vu, N.T., Chaturvedi, A.K., and Canfield, D.V: Urinary genotyping for DQA1 and PM loci using PCR-based amplification: Effects of sample volume, storage temperature, preservatives, and aging on DNA extraction and typing. ADA363461

CAMI 99-15Lewis, R.J., Huffine, E.F., Chaturvedi, A.K., Canfield, D.V., and Mattson, J: Formation of an interfering substance, 3,4-dimethyl-5-phenyl-1,3-oxazolidine, during a pseudoephedrine urinalysis. ADA363777

CAMI 99-16Broach, D., Farmer, W.L., and Young, W.C: Differential prediction of FAA Academy performance on the basis of race and written Air Traffic Control Specialist aptitude test scores. ADA363587

CAMI 99-17 Joseph, K.M., Thompson R.C., Bailey, L.L., Williams, C.A., Worley, J.A., and Schroeder, D.J: The influence of ergonomics interventions on employee stress and physical symptoms. ADA364891

CAMI 99-18Heil, M.C: An investigation of the relationship between chronological age and job performance for incumbent Air Traffic Control Specialists. ADA364893

CAMI 99-19Behn, L.D., Thompson, R.C., and Hilton, T.F: Follow-up assessment of the Federal Aviation Administration's Logistics Center safety climate. ADA365569

CAMI 99-20Gilliland, K., Schlegel, R.E., and Nesthus, T.E.: Effects of antihistamine, age, and gender on task performance. ADA366860

CAMI 99-21 Morrow, D.G., and Prinzo, O.V: Improving pilot/ATC voice communication in General Aviation. ADA367894

CAMI 99-22 Milke, R.M., Becker, J.T., Lambrou, P., Harris, H.C., and Schroeder, D.J: The effects of age and practice on aviation-relevant concurrent task performance. ADA367887

CAMI 99-23Heil, M.C: The relationship between ATCS age and cognitive test performance. ADA368670

CAMI 99-24Bailey, L.L., Broach. D.M., Thompson, R.C., and Enos, R.J.: Controller Teamwork Evaluation and Assessment Methodology: A Scenario Calibration Study. ADA370417

CAMI 99-25 Worley, J.A., Bailey, L.L., Thompson, R.C., Joseph, K.M, and Williams, C.A: Organizational communication and trust in the context of technology change. ADA370769

CAMI 99-26 Williams, K.W: GPS user-interface design problems: II. ADA363331

CAMI 99-27Thompson, R.C., Bailey, L.L., Joseph, K.M., Worley, J.A., and Williams, C.A: Organizational change: Effects of fairness perceptions on cynicism. ADA371588

CAMI 99-28Sirevaag, E.J., Rohrbaugh, J.W., Stern, J.A., Vedeniapin, A.B., Packingham, K.D., and LaJonchere, C.M: Multi-dimensional characterizations of operator state: A validation of oculomotor metrics.

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CAMI 98-4Wolf, M.B., and Garner, R.P: Effect of an airplane cabin water spray system on human thermal behavior: A theoretical study using a 25-node model of thermoregulation. ADA339365

CAMI 98-5 Canfield, D.V., Smith, M.D., Adams, H.J., and Houston, E.R: Selection of an Internal Standard for Postmortem Ethanol Analysis. ADA339340

CAMI 98-6 Jensen, R.S., Guilkey, J.E., and Hunter, D.R: An Evaluation of Pilot Acceptance of the Personal Minimums Training Program for Risk Management. ADA340338

CAMI 98-7Driskill, W.E., Weissmuller, J.J., Quebe, J., Hand, D.K.; and Hunter, D.R: Evaluating the Decision-Making Skills of General Aviation Pilots. ADA341118

CAMI 98-8Thompson, R.C., Agen, R.A., and Broach, D.M: Differential Training Needs and Abilities at Air Traffic Control Towers: Should All Controllers Be Trained Equally? ADA340829

CAMI 98-9 Wreggit, S.S., and Marsh, D.K., II Cockpit Integration of GPS: Initial Assessment-Menu Formats and Procedures. ADA341122

CAMI 98-10Sanders, D.C., Chaturvedi, A.K., and Hordinsky, J.R., Aeromedical Aspects of Melatonin--An Overview. ADA341726

CAMI 98-11 Gowdy, R.V., and DeWeese, R: Evaluation of Improved Restraint Systems for Parachutists. ADA342643

CAMI 98-12 Williams, K.W: GPS Design Considerations: Displaying Nearest Airport Information. ADA346043

CAMI 98-13 Shehab, R.L., Schlegel, R.E., and Palmerton, D.A: A Human Factors Perspective on Human External Loads. ADA350729

CAMI 98-14Rodgers, M.D., Mogford, R.H., and Mogford, L.S: The Relationship of Sector Characteristics to Operational Errors. ADA350717

CAMI 98-15 Mills, S.H: The combination of flight count and control time as a new metric of air traffic control activity. ADA350504

CAMI 98-16Gronlund, S.D., Ohrt, D.D., Dougherty, M.R.P., Perry, J.L., and Manning, C.A: Aircraft importance and its potential relevance to situation awareness. ADA350417

CAMI 98-17Prinzo, O. V., An Analysis of Voice Communication in a Simulated Approach Control Environment. ADA350523

CAMI 98-18Chaturvedi, A.K., Vu, N.T., Ritter, R.M., and Canfield, D.V., DNA Profiling as an Adjunct Quality Control/Quality Assurance in Forensic Toxicology. ADA379287

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| AR-97/90 | Network Architecture Study for Domestic Positive Passenger Baggage Matching (PPBM) System Airline Computer Infrastructure |
| AR-97/91 | U.S. Domestic Aviation Industry Operational Effects of Positive Passenger Baggage Matching (PPBM), Phase lib (Analysis of Live Test Data) Final Report |
| AR-97/92 | RFID Based Positive Passenger Baggage Match (PPBM) Commercial Technology Assessment Summary Report |
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| AR-97/99 | Fire-Resistant Materials: Research Overview |
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| AR-97/102 | Aviation Security Research and Development Division - Operational Test Report of Commercially Available Radio Frequency Identification (RFID) Test Systems for Potential Positive Passenger Bag Match (PPBM) Applications |
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| AR-00/57 | Test and Evaluation for the Rapiscan Dual View X-Ray Machine |
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| AR-TN00/59 | Experimental Design for Evaluating X-Ray Threat Detection of Explosives at Different Sub-Certification Weights |
| AR-00/60 | Evaluation of L-3 Examiner Initial Training at Dallas-Fort Worth International Airport |
| AR-00/61 | Underwriter's Laboratory (UL) Certification Feasibility Study |
| AR-00/62 | Realistic Radio Communications in Pilot Simulator Training |
| AR-00/63 | Evaluation of Integrated Z-Scan and L# Installation Aeroporti di Roma (ADR) 9U) |
| AR-00/64 | Turbine Rotor Material Design |
| AR-00/65 | Test and Evaluation Report for the Image Scan Holdings Axis-3D TM X-Ray Machine |
| AR-00/66 | Test and Evaluation Plan: Interface and Usability Assessment for Portal Explosive Trace Detector Systems |
| AR-00/67 | Rescue and Firefighting Research Program |
| AR-00/68 | Certification Test and Evaluation Report for the InVasion Technologies CTX 5500 S (Software version r7. 9. 7A1 with Inspection i10 . 6 . 2- sure + Patch 35) Explosives Detection System |
| AR-00/69 | Effectiveness of the VIS-M System at Explosives Detection in Break- Bulk Cargo |

| REPORT NO. | REPORT TITLE |
|---------------|---|
| AR-00/70 | Test and Evaluation Report: Modified Directed Trace and Nondirected Trace Procedures, Epply Airport |
| AR-00/71 | Checkpoint On-the-Job Training Scripts and Storyboards |
| AR-00/73 | Directed Trace Effectiveness Test and Evaluation Report |
| AR-00/74 | Assessment of Probabilistic Certification Methodology for Composite Structures |
| AR-TN01/2 | Airport Pavement Marking Evaluation for Reducing Runway Incursion |
| AR-TN01/4 | Aircraft Rescue and Firefighting Training Fuel Comparative Evaluation |
| AR-01/5 | Test and Evaluation Plan for the East Trac Automated Door System |
| AR-01/9 | Certification Test and Evaluation Report for the InVision Technologies CTX 2500 (Software version r7.9.7A1 with Inspection i12.1.2-sure + Patch 34) Explosives Detection System |
| AR-01/10 | Certification Test and Evaluation Report for the InVision Technologies CTX 9000 Dsi (Software version 4.4.1 with Inspection v1.5b-cert) Explosives Detection System |
| AR-01/11 | Certification Test and Evaluation Report for the L3 Communications eXaminer 3DX 3000 (Software version eX99B.1_60_3000) Explosives Detection System |
| AR-01/12 | Certification Test and Evaluation Report for the L3 Communications eXaminer 3DX 6000 (Software version eX99B.1_60) Explosives Detection System |
| AR-01/14 | Certification Test and Evaluation Report for the L3 Communications eXaminer 3DX 3000 (Software Version eX99C_61_3000) Explosives Detection System |
| AR-01/15 | Certification Test and Evaluation Report for the L3 Communications eXaminer 3DX 6000 (Software Version eX99C_61) Explosives Detection System |
| AR-01/16 | Test and Evaluation Report: Modified Directed Trace and Nondirected Trace Procedures, Stewart International Airport |
| AR-01/17 | Final Report: Modified Directed Trace and Nondirected Trace Procedures, Eppley Airfield and Stewart International Airport |
| AR-01/19 | Management Plan for Explosives Detection System Certification Testing |

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