



UNITED STATES MARINE CORPS  
2D MARINE AIRCRAFT WING  
U. S. MARINE CORPS FORCES, COMMAND  
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DSS  
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WING ORDER 5100.8C

From: Commanding General, 2d Marine Aircraft Wing  
To: Distribution List

Subj: 2D MARINE AIRCRAFT WING (2D MAW) ERGONOMICS PROGRAM (EP)

Ref: (a) DON Safety Memorandum of 6 July 2009, Department of  
the Navy Safety Vision for 2009 and Beyond  
(b) SECNAVINST 5100.10J  
(c) OPNAVINST 5100.23G  
(d) MCO 5100.8  
(e) MCO P5102.1B W/CH 1  
(f) WgO 5100.29B

Encl: (1) Ergonomics Program Procedural Guide  
(2) Definitions

1. Situation. This Order amplifies or clarifies existing higher headquarters directives and provides guidance for the EP where no instructions are published. This revision contains a number of changes and should be thoroughly reviewed.

2. Cancellation. WgO 5100.8B.

3. Mission. The Secretary of Defense, Chief of Naval Operations and the Commandant of the Marine Corps set a goal of achieving a 75 percent reduction in work related-injuries and worker's compensation payments within the Marine Corps. The references will be used for guidance for implementation of the EP within 2d MAW.

4. Execution

a. Commander's Intent. The purpose of the EP is to reduce work related injuries and worker's compensation payments through ergonomic injury prevention training, media and workspace designs.

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distribution is unlimited.

b. Concept of Operations. This Order delineates guidance required for the effective execution of the EP. Participation in this program is mandatory for all 2d MAW personnel.

5. Administration and Logistics. Recommendations for changes to this Order are invited and should be submitted to the Director, Safety and Standardization, 2d MAW, via the chain of command.

6. Command and Signal

a. Command. This Order is applicable to all units assigned or attached to 2d MAW.

b. Signal. This Order is effective the date signed.

  
R. W. REGAN  
Chief of Staff

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ERGONOMICS PROGRAM PROCEDURAL GUIDE

1. Purpose. This enclosure establishes the elements of an EP. The EP seeks to prevent injuries and illnesses by identifying, evaluating, and controlling ergonomic hazards within the workplace.

2. Discussion. A Work-related Musculoskeletal Disorder (WMSD) is a musculoskeletal disorder caused or escalated by the work environment. A WMSD can cause severe and debilitating symptoms such as pain, numbness, and tingling; reduced worker productivity; lost time from work; temporary or permanent disability; inability to perform job tasks; and an increase in workers compensation costs. Ergonomics is the science of fitting workplace conditions and job demands to the capabilities of workers. Ergonomics seeks to adapt the job and workplace to personnel by evaluating tasks, tooling, and equipment and ensuring that workplace design and equipment within reason are within the capabilities and limitations of personnel.

3. Responsibilities

a. Group and Squadron/Battalion Commanders shall:

(1) Ensure group personnel who are at risk of being exposed to musculoskeletal hazards or report musculoskeletal disorders receive appropriate preventative training.

(2) Allocate sufficient resources to ensure ergonomic considerations become a fundamental aspect of process improvement.

(3) Ensure coordination of the medical aspects of the EP with the cognizant medical personnel and treatment facilities.

b. Group Safety Officers shall:

(1) Provide ergonomics awareness training to all personnel initially and annually thereafter.

(2) Oversee the safety aspects of the ergonomics effort.

(3) Report suspected hazardous tools/equipment or operations related to WMSDs whenever WMSD risks are identified or employee complaints are voiced.

(4) Incorporate fundamental ergonomic principles into new or existing workstations.

(5) Ensure upper management support, recognition of contributions, and availability of resources.

(6) Any medically diagnosed WMSD, regardless if further treatment is needed, must be reported under the Web-Enabled Safety System (WESS).

c. Group and Squadron/Battalion Supply Officers (Contracting and Purchasing) shall:

(1) Ensure integration of ergonomic considerations into the purchase of new equipment.

(2) Ensure all equipment (furniture, tools, workstations, material handling devices, etc.) have been evaluated to meet the ergonomic requirements recommendations prior to purchase.

d. Supervisors shall:

(1) Ensure all personnel receive ergonomics training initially and annually thereafter.

(2) Request assistance from the group/unit Safety Officer or the wing ergonomics safety officer when assessing ergonomic risk factors.

e. Personnel shall:

(1) Receive appropriate preventative training prior to exposure to tasks with potential to cause WMSD.

(2) Request supervisory assistance when identifying potential WMSD exposures.

(3) Report unsafe work conditions to supervisor.

(4) Provide knowledge and feedback on any proposed or implemented process changes.

(5) Recognize the early symptoms and causes of WMSDs and report them to the supervisor.

f. 2d MAW Department of Safety and Standardization (DSS)  
shall:

(1) Appoint in writing a 2d MAW Ergonomics Safety Officer to oversee all aspects of the EP throughout 2d MAW.

(2) Review Flash Reports and Mishap Investigation Reports related to musculoskeletal disorders, and consult with group safety officers on trend analysis.

(3) Provide ergonomic training and education as requested.

g. The Wing Inspector: Shall monitor unit compliance with this Order during periodic inspections.

4. Ergonomics Program Elements. The elements of this program include management commitment and employee involvement, workplace analysis, hazard prevention and control, health care management, case management, preventive education and training, program evaluation and review, and material acquisition. These elements are defined as follows:

a. Management Commitment and Personnel Involvement. A synergistic collaborative partnership between all working levels is essential to prevent musculoskeletal disorders. Command emphasis, management, commitment, and demonstrated visible involvement provide the organizational resources and motivation necessary to implement a sound EP. ALL HANDS involvement is the key for preventing musculoskeletal disorders by risk identification and by developing an effective means for hazard abatement.

b. Workplace Analysis. The purpose of workplace analysis (ergonomic hazard evaluation) is to identify existing hazards that may cause musculoskeletal disorders. Identification of jobs with ergonomic risk factors will assist in determining where detailed job analysis and intervention priorities are needed. This workplace data here analysis requires review of mishap logs, federal employee compensation claims, personnel complaints and suggestions, safety inspections, and industrial hygiene surveys for musculoskeletal disorders. This analysis should be conducted in the same manner as operational risk analysis. The survey should include the body part involved, nature of injury/illness, lost workdays, light/restricted duty days, and medical and compensation case costs.

Enclosure (1)

Where mishap reveal a prevalence of musculoskeletal disorders, prioritize areas by the incidence rate, the severity of risk and by depth engineering support needed. Schedule jobs for detailed analysis based on priority. Detailed analysis characterizes risk factors, and recommends and prioritizes corrective action.

c. Ergonomic Hazard Prevention and Control:

(1) Effective design or redesign of a task or workstation is the preferred method of preventing and controlling harmful stresses.

(2) The methods of intervention (in order of priority) to be used are: process elimination, engineering controls; substitution, work practices, and administrative controls; e.g., adjustment of work-rest cycles, slowing work pace, task rotation.

(3) The Department of Defense does not recognize back support belts or wrist splints as personal protective equipment, or support the use of these devices in the prevention of back or wrist injuries.

(4) When appropriate, musculoskeletal hazards shall be assigned a Risk Assessment Code (RAC) using the safety RAC scoring system.

d. Facility Modification, New Construction, or Material Acquisition. Before purchasing any equipment or tool, building a new facility, or modifying an existing one, consider ergonomic design criteria within reason.

5. Training. Ergonomics awareness training shall be provided to all Marine Corps personnel at least annually (i.e., safety stand-down). Formal EP training for safety reps is available through the Naval Safety Center quota request for EP training (CIN: A-493-0085). The training shall enable each person to recognize ergonomic hazards, as well as understand the procedures to be followed to minimize these risks.

a. The awareness training shall be conducted by a competent person and shall include:

(1) Ergonomics definition and concepts.

(2) Anatomy and physiology of musculoskeletal system.

Enclosure (1)

(3) How to recognize and report early warning signs and symptoms associated with various musculoskeletal disorders.

(4) How to prevent musculoskeletal disorders by recognizing ergonomic risk factors and identifying the basic elements of an effective design.

(5) Understand the components of installation/unit ergonomics program and their role in it.

(6) Wellness/Semper Fit Program.

b. Training requirement target audiences:

(1) Safety Reps - enable them to be able to interpret safety, health, and compensation data to make informed program and management decision. Understand ergonomic issues in order to support the program with adequate resources.

(2) Workers - report stressful/strenuous work situations to their supervisors and cooperate with intervention measures.

c. Training shall be documented. A copy shall be provided to the group/unit Safety Officer.

d. Retraining will be conducted. When assigned to a different job with different inherent risks, or when risks are newly identified in a job.

6. Support. The Director of Safety and Standardization, 2d MAW Industrial Hygienist shall provide support for all 2d MAW units.

## Definitions

Abate: To eliminate or reduce a hazard.

Administrative Control: Procedures and methods, set up by the employer, that significantly reduce exposure to risk factors by altering the way in which work is performed; examples include employee rotation, job task enlargement, and adjustment of work pace. Administrative controls should not be solely implemented to control ergonomic hazards.

Awkward Posture: Awkward posture is associated with an increased risk for injury. It is generally considered that the more a joint deviates from the neutral (natural) position, the greater the risk of injury.

Cumulative Trauma Disorders: Cumulative trauma disorders or CTDs (also termed repetitive motion injuries or RMI's), are disorders of the musculoskeletal and nervous systems that may be caused or aggravated by repetitive motions, forceful exertions, vibration, mechanical compression, sustained or awkward postures, all occurring over extended periods of time.

Engineering Control: A physical change to the work site/job that controls exposure to risk or injury. Engineering controls act on the source of the hazard and control employee exposure to the hazard without relying on the employee to take self-protective action or intervention. Examples include: changing the handle angle of a tool, using a lighter weight part, providing a chair that has adjustability, task lighting, etc.

Ergonomics: The field of study that seeks to fit the job to the person, rather than the person to the job. Includes the evaluation and design of workplaces, environments, jobs, tasks, equipment, and processes in relationship to human capabilities and interactions in the workplace.

Ergonomic Design: The applied science of equipment design, as for the workplace, intended to maximize productivity by reducing operator fatigue and discomfort.

Ergonomic Furnishings: A piece of equipment necessary or useful for comfort or convenience, e.g. furniture, appliances, and other movable articles in an office, shop, motor vehicle etc.

Ergonomic Program: A systematic method of preventing, evaluating, and managing Work-Related Musculoskeletal Disorders. The four elements of the ergonomics program described in this guideline are:

- worksite analysis
- hazard prevention and control
- medical management
- training and education

Hazard: Any real or potential condition that can cause injury, illness, or death to personnel or damage to or loss of equipment or property, mission degradation, or damage to the environment.

Human Engineering: A term synonymous with 'ergonomics' is the branch of this science that began in the United States and focuses on cognitive performance of humans.

Manual Material Handling: Lifting, carrying, and moving materials without a mechanical aide.

Musculoskeletal Disorders (MSD): Injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal disc. Examples include carpal tunnel syndrome, rotator cuff tendonitis, and tension neck syndrome.

Occupational Safety and Health Administration (OSHA): The mission of the OSHA is to save lives, prevent injuries and protect the health of America's workers.

Process Elimination: Analysis of an ergonomic problem into alternative possibilities followed by the systematic elimination of unacceptable alternatives.

Risk Assessment: A structured process to identify and assess hazards. An expression of potential harm, described in terms of hazard severity, accident probability, and exposure to hazard.

Risk Assessment Code (RAC): An expression of the risk associated with a hazard that combines the hazard severity and accident probability into a single Arabic numeral.

Segmental Vibration (Hand-Arm Vibration): Vibration applied to the hand/arms through a tool or piece of equipment. This can cause a reduction in blood flow to the hands/fingers (Reynaud's disease or vibration white finger). It can also interfere with sensory receptor feedback leading to increased handgrip force to hold the tool. Further, a strong association has been reported between carpal tunnel syndrome and segmental vibration.

Workplace Risk Factors (Ergonomics): Actions in the workplace, workplace conditions, or a combination thereof, which may cause or aggravate a pre-existing or work-related MSD. Workplace risk factors include, but are not limited to: repetitive, forceful or prolonged exertions; frequent or heavy lifting; pushing, pulling, or carrying of heavy objects; a fixed or awkward work posture; contact stress; localized or whole-body vibrations; cold temperature; and poor lighting. These workplace risk factors can be intensified by work organization characteristics such as: inadequate work-rest cycles; excessive work pace and/or duration, unaccustomed work; lack of task variability; machine work; and piece rate.

Work-Related Musculoskeletal Disorder (Ergonomic): An injury or illness of the muscles, tendons, ligaments, peripheral nerves, joints, cartilage (including inter-vertebral discs), bones and/or supporting blood vessels in either the upper or lower extremities, back or neck, that is associated with workplace musculoskeletal risk factors and include but are not limited to: cumulative trauma disorders; repetitive strain injuries or illnesses; repetitive motion injuries or illnesses; and repetitive stress injuries or illnesses. Refers collectively to signs, persistent symptoms, or clinically diagnosed work-related musculoskeletal disorders when they are caused or aggravated by exposure to workplace risk factors.