

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE INSTRUCTION 11-290

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Flying Operations

**COCKPIT/CREW RESOURCE
MANAGEMENT PROGRAM**



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Instruction implements AFPD 11-4, *Aviation Service*, and AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*. It establishes the USAF cockpit/crew resource management program and is applicable to all units assigned to or gained by major commands (MAJCOMs) and applies to commanders, operations supervisors, and aircrews assigned or attached to all flying activities of these commands. This publication applies to the Air Force Reserve (AFR) and the Air National Guard (ANG). This Instruction may be supplemented. Coordinate supplements with AF/A3O-AI prior to publication. Submit suggested improvements to this Instruction on AF Form 847, *Recommendation for Change of Publication*, through training channels, to AF/A3O-AI, afa3oai.workflow@pentagon.af.mil. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms//afirms/afirms/rims.cfm>.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Format is revised and procedural guidance is reduced throughout the AFI to place emphasis on MAJCOM/FOA/DRU program oversight. Program goals are updated ([paragraph 1.1](#)), program requirements are modified ([paragraph 2](#)), Steering Committee and Working Group information is updated ([paragraph 6](#) and [paragraph 7](#)), oversight responsibility is specified ([paragraph 8](#)) and waiver guidance is added ([paragraph 9](#)). Updates reflect administrative changes and prescribed format requirements.

Section A—CRM Program Description

1. General. The Air Force Cockpit/Crew Resource Management (CRM) program provides crewmembers with performance-enhancing knowledge and skills directly applicable to their roles in the aerospace mission of the Air Force. CRM training is a key component of a combined effort to identify and manage threats to safe and effective mission operations. The CRM program begins with crewmembers' initial Air Force flying training and is continuously built upon throughout their operational careers. Training objectives will be tailored to the knowledge and skill level of the aircrew member. As the aircrew member becomes more proficient, CRM training should emphasize performance skills more than academic objectives. Lead commands define "crewmember" in terms of their own operational mission requirements.

1.1. The CRM program goals are:

1.1.1. Maximize operational effectiveness and combat capability.

1.1.2. Preserve personnel and material resources.

1.1.3. Ensure the safety of non-combatant civilians.

1.1.4. Facilitate mishap reduction by providing skills, processes, tools and techniques to aircrew members to effectively identify threats and mitigate errors in aviation operations.

1.2. CRM training will be designed and managed to accomplish the following objectives:

1.2.1. Develop aircrew skills in recognizing and responding to the conditions and/or threats that lead to aircrew error.

1.2.2. Develop aircrew proficiency in CRM skills to anticipate conditions and/or threats and minimize their impact in order to safely and effectively meet mission requirements.

2. Program Requirements. MAJCOMs, field operating agencies (FOAs) and HQ USAF direct reporting units (DRUs) are responsible for establishing and managing their respective programs in accordance with this Instruction. CRM programs are mandatory for aircrew members.

2.1. Lead Commands will publish guidance in AFI 11-2 mission design series (MDS) specific vol. 1 and vol. 2 AFIs (*Note*: guidance may also be published in a Ready Aircrew Program (RAP) tasking memo or similar product), regarding CRM requirements, currency, tracking, and evaluation, to include:

2.1.1. Establishing training frequency, required attendees, and method for tracking crewmember currencies.

2.1.2. Use of AF Form 4031, *CRM Skills Criteria Training/Evaluation Form*, or MAJCOM/FOA/DRU- approved substitute, to establish the skills training/evaluation criteria.

2.1.3. If using a contract vehicle, provide a uniform CRM program via a contract vehicle that covers all applicable units to include units gained from AFRC or ANG.

2.2. Each MAJCOM, FOA and DRU CRM training program must:

2.2.1. Provide training to develop and improve CRM knowledge and skills based on **paragraph 3** and AF Form 4031. MAJCOM/FOA/DRU- approved substitute may be used in lieu of AF Form 4031.

2.2.2. Be updated annually to incorporate: "real-world" operational experiences, sanitized mishap data, research data, critiques, and flight evaluation trends.

2.2.3. Identify the process for gathering, analyzing and incorporating trend data from MAJCOMs into existing training and evaluation programs.

2.2.4. MAJCOM, FOA and DRU CRM managers will ensure continuity of course content with AETC's introductory courses.

2.2.5. Ensure that data collected and/or generated through CRM and trend gathering processes is not used for monitoring aircrew performance to initiate punitive or adverse action.

2.2.6. Provide proportional funding as necessary to support the lead MAJCOM CRM program.

2.3. CRM skills will:

2.3.1. Be integrated into flight briefings and debriefings.

2.3.2. Be integrated into training syllabi.

2.3.3. Be evaluated during initial qualification and recurring evaluations.

3. CRM core curricula. Core curricula will include the following knowledge and skill sets:

3.1. Communication. Includes knowledge of common errors, cultural influences, and barriers (i.e., rank, age, experience, position, etc.). Skills will encompass listening, feedback, precision and efficiency of communication with all members and agencies (i.e., Crewmembers, Wingmen, Weather, ATC, Intelligence, etc.).

3.2. Crew/Flight Coordination. Knowledge and skills required within (internal) and outside the crew/flight members (external) for mission coordination, flight/mission integrity contracts, team-building, leadership, command authority, responsibility, behavioral styles, assertiveness, persistence, conflict resolution, hazardous attitudes, legitimate avenues/methods of dissent, and solution driven statements.

3.3. Mission Analysis. Includes pre-mission analysis and planning, briefing, ongoing mission evaluation, and post mission debrief. Analysis instruction will include specific Threat and Error Management tools and techniques. Debrief instruction will include aircrew responses and outcomes to threats and errors.

3.4. Risk Management (RM)/Decision Making. Includes risk assessment, the risk management processes (Deliberate, Real Time RM)/tools, breakdowns in judgment and flight discipline, problem-solving, evaluation of hazards, and control measures.

3.5. Situational Awareness. Includes knowledge and skill objectives for identifying errors, preventing the loss of situational awareness, recognizing the loss of situational awareness, and techniques for recovering from the loss of situational awareness.

3.6. Task Management. Includes establishing priorities, overload, under-load, complacency, management of automation, available resources, checklist discipline, and standard operating procedures.

4. CRM Training Phases. Each phase of training should prepare individuals to apply the knowledge and skills acquired in their specialty and motivate participants for the next phase of training.

4.1. **Introductory or Awareness Training.** Normally conducted in a formal training environment by AETC. Trainees learn standard CRM terminology and core concepts. Lesson plans will include a description of the building block approach to CRM training the individual will participate in throughout their operational career.

4.2. **Formal Training Unit (FTU)/Combat Crew Training School (CCTS) CRM Training.** Students learn to apply knowledge and skills related to their assigned aircraft. Academic training is complemented during aircraft/simulator training. Emphasis should be placed on preflight planning, briefing, in-flight utilization, and debrief techniques for CRM. This should include a brief review of CRM core concepts identified in **paragraph 3**. Mission-Oriented Simulator Training (MOST) sessions or other simulated or actual operational scenarios may be used as an integral part of CRM training. Evaluate students for technical expertise, as well as the skills based on the six core concepts. If aircrew training devices are not available, students should participate in group problem-solving exercises.

4.3. **Mission-Specific Continuation Training.** MAJCOMs, FOAs and DRUs are responsible for CRM continuation training. This training will reinforce the aircrew's CRM academic knowledge and refocus on skills to accomplish the mission. It also helps aircrews identify and respond to the conditions and/or threats that lead to error.

4.3.1. Emphasize CRM skills in the mission qualification and continuation training programs so they become inseparable parts of operational practices.

4.3.2. Frequency for recurring CRM continuation training is defined in the AFI 11-2 MDS specific volumes 1, a RAP tasking memorandum, or a similar product. Lead commands are responsible for providing guidance to standardize CRM MDS specific training policy and requirements. All aircrew require Mission-Specific Continuation Training. Separating training by crew position should be avoided. However, it is not mandatory to conduct this training with a complete aircrew.

4.4. **Flight Instructor Training.** All flight and simulator instructors will complete instructor specific CRM training. This training will normally be accomplished as part of instructor upgrade program. Courseware must build upon the previous blocks of training, both to acquaint candidates with CRM fundamentals and to maintain continuity of terminology and techniques. MAJCOMs, FOAs and DRUs develop courseware related to instructing and evaluating key skills that apply to command and aircraft-specific missions. Personnel may conduct this training at operational units, flying training units, or a combination, as required. Training will include, but is not limited to, proper use of AF Form 4031 (or approved substitute).

4.4.1. CRM instructor or evaluator training will be included into instructor upgrade programs.

4.4.2. CRM instructors and evaluators must be highly proficient in all CRM skills and be experts in the recognition, observation, and reinforcement of these skills as they are applied by aircrew members in a mission environment.

4.5. Facilitator Training. Formal CRM academic curricula must be delivered by a trained CRM facilitator. Facilitator training will include training in running exercises, structured crew observation, and effective academic feedback.

5. Supporting Information. HQ Air Force Safety Center, MAJCOM, FOA, and DRU safety staffs will screen mishap reports for human performance errors. This safety information should be available for use at all phases of CRM training, either as part of simulator scenarios or for CRM case studies. Sanitized “Limited Use” information will be provided to CRM program managers in a timely manner by command/unit safety staff(s) according to AFI 91-204, *Safety and Investigation Reports*.

Section B—Program Management

6. The USAF CRM Steering Committee. The Steering Committee standardizes CRM program requirements and terminology.

6.1. Steering Committee Membership:

6.1.1. AF/A3O-AI, Chair.

6.1.2. AF/A3O-AC

6.1.3. AF/A3O-AM

6.1.4. AF/A3O-AS

7. USAF CRM Working Group. The CRM Working Group will consist of members of the Steering Committee, AFSEC/SE representative, plus MAJCOM/FOA/DRU A3 (or equivalent) representatives and additional personnel as designated by the Steering Committee. The working group reviews program execution and policy issues and will meet in conjunction with Aircrew Management Executive Council (AMEC) meetings.

8. Oversight. Oversight of Air Force CRM programs will rest within the MAJCOM, FOA and DRU operations directorates. MAJCOM, FOA and DRU safety and surgeon general directorates will act as advisors and respective subject matter experts to the operations directorates for providing input to course content and delivery.

8.1. Each MAJCOM, FOA and DRU will appoint a CRM program manager within the operations (or equivalent) function. The program manager is responsible for:

8.1.1. Ensuring Lead Command’s AFI 11-2 MDS specific vol. 1 and vol. 2 publications (or RAP tasking memo/similar product) provide CRM policy guidance.

8.1.2. Implementing Lead Command CRM policy guidance.

8.1.3. Ensuring each applicable CRM training phase (paragraph 4) is implemented and evaluated.

8.1.4. The forwarding of AF Form 4031 (or approved substitute) trend data to CRM Instructors/Facilitators.

8.1.5. Ensuring a system is in place to collect performance data (i.e. Stan/Eval trends (Skills criteria), sanitized mishap data, Hazardous Air Traffic Reports (HATR), and Inspector General reports), and send to CRM instructors and facilitators.

8.1.6. Evaluating contractor implementation of CRM program objectives. Where discrepancies are identified, initiate corrective actions.

8.1.7. Ensuring Quality Assurance Representatives (QARs) and IGs have current evaluation guidance to evaluate CRM program objectives. Where discrepancies are identified, initiate corrective actions.

8.1.8. Providing feedback to CRM Working Group regarding program status covering: Training Continuum, Standardization, and Research and Development needs.

8.1.9. Interacting with MAJCOM, FOA or DRU CRM advisors (Safety, Aerospace Physiology, etc.) ensuring CRM training is effective and minimizes redundancies with other programs given by Safety, Aerospace Physiology, etc.

8.2. Command Steering Committees. MAJCOMs, FOAs and DRUs may establish command steering committees to identify the most effective methods for delivering and administering CRM programs.

9. Waivers.

9.1. AF/A3O is the waiver authority for provisions of this Instruction. Request waivers through applicable channels to MAJCOM/A3 (or equivalent). As applicable, MAJCOM/A3s will forward requests to AF/A3O, with an info copy to AF/A3O-AI.

9.2. Waiver authority for supplemental guidance will be as specified in the supplement and approved through higher level coordination authority.

9.3. Waiver authority for MAJCOM/DRU/FOA CRM guidance is the MAJCOM/FOA/DRU A3 or equivalent.

BURTON M. FIELD, Lt Gen, USAF
DCS, Operations, Plans and Requirements

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 11-4, *Aviation Service*, 1 Sep 2004

AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 19 Jan 2012

AFI 11-403, *Air Force Aerospace Physiological Training Program*, 20 Feb 2001

AFI 91-204, *Safety Investigations and Reports*, 24 Sep 2008

Prescribed Form

AF Form 4031, *CRM Skills Criteria Training/Evaluation Form* (MAJCOM/FOA/DRU-approved substitute may be used in lieu of AF Form 4031.)

Adopted Form

AF Form 847, *Recommendation for Change of Publication*.

Abbreviations and Acronyms

AMEC—Aircrew Management Executive Council

CCTS—Combat Crew Training School

CRM—Cockpit/Crew Resource Management

DRU—Direct Reporting Unit

FOA—Field Operating Agency

HATR—Hazardous Air Traffic Report

MAJCOM—Major Command

MDS—Mission Design Series

MOST—Mission-Oriented Simulator Training

RAP—Ready Aircrew Program

QAR—Quality Assurance Representative

RM—Risk Management

SA—Situational Awareness

TEM—Threat and Error Management

Terms

Cockpit/Crew Resource Management (CRM)—The effective use of all available resources-- people, weapon systems, facilities, and equipment, and environment -- by individuals or crews to safely and efficiently accomplish an assigned mission or task. The term "CRM" will be used to refer to the training program, objectives, and key skills directed to this end. MAJCOMs may

implement their programs as either "cockpit" or "crew" resource management based on their respective missions.

Communication—The act of sharing information with others to cause some kind of action: to direct, to inform, to question, or to persuade.

Coordination—As used in this Instruction the act of working with all the members of the crew/flight to accomplish the tasks of the mission.

Crew—As used in this Instruction, any collection of Air Force personnel who routinely work together to accomplish an Air Force mission. For example, an air task order-designated team of fighter pilots and airborne battle managers prosecuting an interdiction mission uses "crew" skills to maximize its effectiveness.

Decision Making—The ability to choose a course of action using logical and sound judgment based on available information.

Errors—Actions or inactions that lead to deviations from organizational or flight crew intentions or expectations. Unmanaged and/or mismanaged errors can lead to undesired aircraft states. Errors in the operational context tend to reduce the margins of safety and increase the probability of adverse events.

Flight Discipline—The judgment and actions exercised by AF personnel to adhere to the spirit, intent, and written word of governing guidelines in the presence of temptation to do otherwise, while executing the Air Force flying mission. It also includes the prioritization of tasks based on crew responsibilities to ensure safe mission accomplishment while demonstrating the highest degree of integrity in the performance of flight duties.

Flight Integrity—Utilizing all the members of a flying package to accomplish the mission at hand.

Mission Debrief—Reviewing and discussing mission accomplishment looking at what was achieved, what barriers were encountered and how the mission could be accomplished better next time.

Mission-Oriented Simulator Training (MOST)—Training presented as a part of a CRM program in a realistic, operationally-based simulator environment in real time.

Mission Planning—Taking all of the information for a mission and developing short term, long term, and contingency plans to coordinate, allocate, and monitor crew/flight and aircraft resources. Effective planning leads to flight conduct that removes uncertainty, increases mission effectiveness and enhances safety.

Risk Management—The systematic process of identifying hazards, assessing risk, making control decisions, implementing control decisions and supervising/reviewing the activity for effectiveness for both on- and off-duty missions/activities.

Situational Awareness (SA)—In flying, this refers to a aircrew member's continuous perception of self and aircraft in relation to the dynamic environment of flight, threats, and mission, and the ability to forecast, then execute, tasks based upon that perception.

Skills Criteria—Defined skills used as the basis for operational training and evaluation. The characteristics of the skill are that they are easily identifiable and offer consistency in grading evaluation.

Task Management—The ability to alter a course of action based on new information, maintain constructive behavior under pressure, and adapt to internal and external environment changes.

Threat—An event or error that occurs outside the influence of the aircrew (i.e., it was not caused by the crew), increases the operational complexity of a flight, and requires crew attention and management if safety margins are to be maintained.

Threat and Error Management—Crews and flight members proactively using a combination of CRM skills and automation to address internal and external threats to avoid, trap or mitigate their impacts on mission safety and effectiveness.