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SECRETARY OF THE AIR FORCE**

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***Nuclear, Space, Missile, Command and
Control Operations***

SPACECREW OPERATIONS



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This publication implements Air Force Policy Directive (AFPD) 13-6, Space Policy, and governs the Headquarters Air Force (HAF) and Major Command (MAJCOM) responsibilities directing and executing spacecrew operations, in support of Air Force objectives. It applies to individuals at all levels, to all United States Air Force military and civilian personnel, including the Air Force Reserve and Air National Guard, except where noted otherwise. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual 33-363, Management of Records, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Forms 847 from the field through the appropriate functional chain of command. This Air Force Instruction (AFI) may be supplemented at any level, but all supplements that directly implement this publication must be routed to AF/A3O for coordination prior to certification and approval. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestors commander for non-tiered compliance items.

Chapter 1

ROLES AND RESPONSIBILITIES

1.1. General. This AFI provides broad guidance with regard to spacecrew operations and cannot address every operational situation. Spacecrews will use approved procedures according to Air Force Doctrine (AFD), Annex 3-14, *Counterspace Operations* in order to conduct Counterspace Operations in a safe and effective manner as well as their best judgment. The on-duty Crew Commander, regardless of rank, is responsible for the operation of the system. **(T-1)**.

1.2. Compliance. The Crew Commander ensures compliance with Combatant Commander and Service Level instructions to include Technical Orders (TOs), permanent procedures, local procedures, temporary procedures and crew information files.

1.3. Waiver Authority. Units will follow the applicable waiver authority for their chain of command as detailed in AFI 33-360. For any non-tiered paragraph, the waiver authority reverts to the AFI OPR. **(T-1)**.

1.4. Roles and Responsibilities. For a comprehensive list of roles and responsibilities, see AFI 13-602 Vol 1, *Ready Spacecrew Program*, Chapter 1.

1.4.1. HAF Space Operations Division (AF/A3OS) Roles and Responsibilities include:

1.4.1.1. Develop and posture Unit Type Codes for forces assigned to Combatant Commanders in accordance with (IAW) AFI 10-401, *Air Force Operations Planning and Execution*.

1.4.1.2. Coordinate with MAJCOMs and Air Reserve Component staff to assess new Unit Type Code constructs and match associated units' force presentation across components.

1.4.1.3. Coordinate with MAJCOMs on manpower and personnel issues affecting missions supported by the Air Reserve Component.

1.4.2. MAJCOM Roles and Responsibilities include:

1.4.2.1. Assess current and future alignment of Air Reserve Component forces across MAJCOMs and make adjustments, when required.

1.4.2.2. Ensure units are equipped with adequate trainers/simulators and coordinate space range resources to accomplish training mandated by Ready Spacecrew Program/Space Mission Force requirements.

1.4.2.3. Act as the approval authority for current assignment/tour extension Assignment Availability Code 55 waivers for periods greater than 12 months.

1.4.3. Wings, Groups, Squadrons/Detachments Roles and Responsibilities include, at a minimum:

1.4.3.1. Develop and implement a debrief process and ensure incorporation of Weapons and Tactics Programs into unit training and evaluation programs. **(T-3)**.

1.4.3.2. Review all new or modified systems, publications, procedures and processes for impacts on operations. Ensure documentation is accurate and approved prior to implementation. Ensure applicable training and evaluation products and materials are accurate and approved prior to implementation.

1.4.3.3. Define and refine robust intelligence requirements (i.e., Priority Intelligence Requirements and Essential Elements of Information) in order to meet operational and training needs in the face of a Contested, Degraded and Operationally-limited environment for space operations. Submit requests for information to Senior Intelligence Officers to ensure crews have current intelligence for operations.

Chapter 2

MISSION PLANNING AND DEBRIEFING

2.1. Mission Planning, Debriefing and Mission Reports.

2.1.1. Mission Planning and Debriefing. Units determine appropriate mission planning and debriefing needs to meet mission requirements, plan operations to the maximum extent possible and ensure issues are analyzed to determine root cause, appropriate lessons documented and recommended corrective actions.

2.1.1.1. Mission Planning. Spacecrews will execute mission planning before each operational shift to develop a plan-of-action that takes into account mission tasking, safety of operations, current system status, communications status, status of supporting systems/units, expected events, situation of supported friendly forces, intel on adversary actions and threats, terrestrial and space weather with potential operational impact and potential branches and sequels to the anticipated plan. Mission planning will be influenced by tasking orders, special instructions, technical orders (TOs), applicable MAJCOM/Combatant Commander guidance, Air Force Tactics, Techniques and Procedures Volumes, Mission Design Series Volumes, operational objectives, debriefing guidance and if possible, consider opportunities for crew training and combat drills. **(T-3)**.

2.1.1.2. Debriefing. Spacecrews will debrief after each operational shift or event. **(T-3)**.

2.1.1.2.1. The debrief is designed to capture observations leading to lessons learned from mission planning and execution.

2.1.1.2.2. Units should make every effort to include all personnel involved in the shift/event in the debrief. Units will incorporate applicable lessons learned into training, tactics development and procedures development to ensure continuous improvement of the mission. **(T-3)**.

2.1.2. Mission Reports. Attached/assigned intelligence personnel will submit Mission Reports after every shift/event during combat operations (Mission Reports will not be delegable to any other career field for submission). Mission Report reporting will be exercised on a recurring basis to refine reporting and identify new requirements that provide data to the intelligence community and enhance battlespace awareness. **(T-1)**.

2.2. Safety of Operations.

2.2.1. Spacecrew Proficiency. Commanders at every level ensure spacecrew performing operational missions are capable of safely and effectively operating the weapon system. Crew Commanders are responsible for their crews' proficiency and should make every effort to identify and correct substandard proficiency within their crew, utilizing all resources available including directed study and additional training. If necessary, Crew Commanders make recommendations to the Squadron Commander for supplemental evaluations or changes to experience levels.

2.2.2. Crew Rest Requirements. To ensure mission success and personnel safety, operators will have the opportunity for eight hours of uninterrupted rest prior to assuming an operational shift. **(T-3)**.

2.2.3. Orbital Safety. For space units with orbital assets, units will conduct a Space Safety and Mishap Prevention Program IAW AFI 91-202, *The US Air Force Mishap Prevention Program*. (T-2).

2.2.4. Operations Review Boards. Units will conduct an Operations Review Board to determine the cause of any abnormal system response. (T-3).

2.2.4.1. Abnormal system responses requiring an Operations Review Board include, but are not limited to: adversary action negatively impacting a system; major system degradation; indications of erroneous system response/procedures with significant mission impact; and significant events where the cause cannot be determined by initial assessment or when corrective action is beyond minimal retraining or minor procedural changes.

2.2.4.2. The Operations Review Board convening authority is the responsible unit commander. Inform the next higher organizational level when convening an Operations Review Board. In addition, if the abnormal system response potentially impacts operations outside the unit where the abnormal response occurred, the convening authority will also provide a memorandum to their respective Numbered Air Force, Director of Operations (NAF/A3), as well as to MAJCOM/A3 and MAJCOM Safety office. (T-2).

2.2.4.3. Operations Review Board composition is at the discretion of the convening authority. A safety representative, as defined in AFI 91-202, *The US Air Force Mishap Prevention Program*, is a mandatory participant for all Operations Review Boards. (T-2).

2.2.4.4. The safety representative may determine their participation is not required after the initial convening of the Operations Review Board.

2.2.4.5. The Operations Review Board will issue a report which will contain the following information in official memorandum format:

2.2.4.5.1. Date the Operations Review Board convened and topic. (T-2).

2.2.4.5.2. Personnel participating in the Operations Review Board. Include rank, name, duty title, and telephone number. If the safety representative determines their involvement is unnecessary, document the name and other required information of the individual making the determination and in parentheses state “determined safety involvement not necessary.” (T-2).

2.2.4.5.3. Sequence of events (time, locations, etc.). Use crew/duty positions instead of individual names. (T-2).

2.2.4.5.4. Mission impact. Include a brief description of event impact on the primary or secondary mission. (T-2).

2.2.4.5.5. Findings. Explain the cause(s) of the incident. (T-2).

2.2.4.5.6. Recommendations/Action Items. (T-2).

2.2.4.5.7. Conclusion. Include a broad summary of the cause(s) of the incident. (T-2).

2.2.4.6. Units will provide status updates on all action items to the Operations Review Board convening authority every 30 days after submission of initial report, until closed.

(T-2). If applicable, units may combine multiple updates into one report and forward by the end of each month until closed.

2.3. Technical Orders.

2.3.1. General. Operational space systems are operated IAW published technical data and operations procedures. Technical Orders (TOs), Operating Instructions, and Tactics, Techniques and Procedures (TTPs) should be designed to work in concert with one another to achieve mission success while ensuring safety and proper operation of the system. TOs and Space Operations Procedures capture the necessary steps to ensure proper operation of the system within acceptable safety and system limits and are directive in nature. TTPs capture non-prescriptive guidance to identify best practices and recommended actions to employ the system in a wide range of situations and adversary actions. TTPs will not violate the TO nor published system limitations but may recommend the use of specific procedures or procedure combinations. (T-1). TTPs may also supplement steps within procedures with situation-specific recommendations.

2.3.1.1. Systems are operated IAW published TOs, where available. TOs will be maintained IAW TO 00-5-1, *Air Force Technical Order System*, and other applicable technical orders. (T-1).

2.3.1.2. Units may develop operations manuals and local procedures to supplement TOs as necessary. Locally developed guidance will not conflict with nor violate the TO. (T-1). Local procedures will be developed as Operating Instructions as specified below.

2.3.1.3. Development of Operating Instructions. Units operating systems without formally published technical data will develop Operating Instructions to ensure proper weapon system employment. Contractor-developed procedures are produced and delivered according to the specifications in the governing contract. The implementing wing will review these contractor documents to assess any procedural impacts. (T-3).

2.3.1.3.1. If only one unit is responsible for the operations of a system, that unit will be the lead unit for instruction development and validation. For Total Force Integration associated units, the host unit will be the lead unit. For procedures affecting more than one unit, MAJCOMs will confer with affected units and work to specify a lead unit. (T-2).

2.3.1.3.2. In coordination with affected unit commanders, lead unit commanders will validate Operating Instructions using off-line systems/simulators and Special Mission Certifications to the maximum extent possible prior to operational use. (T-3).

2.3.1.3.3. Operating Instructions will be approved by the lead unit commander in coordination with affected unit commanders prior to operational use. For instructions affecting more than one unit, each unit commander retains the responsibility of ensuring procedures are sound before operational use within their unit. (T-3).

2.3.1.3.4. The responsible Squadron Commander determines the appropriate level of validation and training required before a new or changed procedure is implemented.

2.3.1.3.5. Operating Instructions are identified as permanent or temporary. Temporary procedures are rescinded once they are no longer required.

2.3.1.3.6. Locally prepared checklists are formatted IAW TO 00-5-1, MIL-PRF-38314, *Manuals, Technical: Operation and Associated Checklist (Space Systems), Preparation of* and MIL-STD-38784, *Standard Practice for Manuals - Technical, General Style and Format Requirements*.

2.3.1.3.7. Instructions are updated as needed to keep pace with changes to the system and operational employment. The coordination and implementation process of new/updated procedures ensures technical accuracy and adherence to established standards and training requirements. Any changes to instructions are categorized according to the urgency for their implementation. The three categories of changes are emergency, urgent and routine.

2.3.1.3.7.1. Emergency changes require immediate action on a deficiency, which, if not corrected, would result in a fatality or serious injury to personnel, extensive damage or destruction of equipment or property or inability to achieve or maintain the mission. Emergency procedure changes are approved and implemented by the unit commander as soon as possible. Appropriate coordination occurs after-the-fact.

2.3.1.3.7.2. Urgent changes require action on a deficiency, which, if not corrected, could cause one or more of the following: personnel injury; damage to equipment or property; reduction in operational efficiency; or could jeopardize the safety or success of mission accomplishment. Urgent procedure changes are approved by the unit commander as soon as possible while ensuring the unit training office has the opportunity to identify and implement any supplemental training necessary for implementation.

2.3.1.3.7.3. Routine changes address any required change not falling into the emergency or urgent categories. Routine procedures are fully coordinated as necessary prior to implementation.

2.3.1.3.8. Units will review Operating Instructions at least annually to ensure accuracy, currency and applicability. Any changes to Operating Instructions will first be reviewed by the Squadron Commander prior to approval by the applicable Chief, Operations Group Standardization and Evaluation. This review will be documented and maintained for two years in a MAJCOM-approved database. **(T-1)**.

2.3.1.3.9. All permanent instructions are maintained in the appropriate work center or issued to all personnel performing duties in the work center. No new or changed instructions will be used for operations until properly approved, coordinated (according to category) and spacecrew trained as required. **(T-3)**.

2.3.1.3.10. Units will forward a copy of all approved permanent instructions and related training material to the unit providing system Initial Qualification Training. **(T-2)**.

2.3.1.4. Supplemental instructions are used to amplify/augment existing permanent procedures or TOs without altering them. Units using supplemental instructions will develop and implement a process for coordination, approval and periodic review prior to use. **(T-3)**.

2.3.1.5. TTPs. Operations personnel incorporate and apply TTPs while conducting mission operations to effectively posture and defend the weapon system and employ it to maximum effectiveness based on current situation, tasking, priorities, limitations and constraints. Spacecrew members should maintain vigilance and an appropriate state of readiness to respond to threats and unforeseen events.

2.3.1.5.1. Spacecrews are expected to develop new and improved TTPs in the course of training and operations. When conditions permit, these TTPs are documented, submitted as Tactics Improvement Proposals to the squadron Weapons and Tactics flight and reviewed prior to operational use. However, the nature of combat may require a spacecrew to implement new tactics prior to full coordination or testing to keep a system safe or to accomplish the mission in the face of adversary action or unanticipated scenarios. Spacecrews taking actions using untested or undocumented TTPs should at all times adhere to sound risk management principles, known system limitations and established Rules of Engagement.

2.3.1.5.2. MAJCOM, NAF and wings will execute the complete Weapons and Tactics model. This includes Threat Assessments, Realistic Training Review Boards, threat-based exercises and training events, Weapons and Tactics conferences, Tactics Review Boards, a Tactics Improvement Process and operational testing; all for the purpose of improving combat capability in a Contested, Degraded and Operationally-limited environment. **(T-2)**.

2.3.1.6. Operations Logs. Units will maintain a log of operational spacecrew activities. At a minimum, the log will annotate the names and positions of Mission Ready/Combat Mission Ready personnel conducting operations duties, significant events to include changes in tasking, major system actions, adversary actions and results and any system degradation or anomaly. Operations logs may be electronic or hard copy and will be maintained for a minimum of two years. **(T-3)**.

2.3.1.7. Prior to system operational test activities and/or initial operations, the responsible unit commander will ensure operations, training, standardization, evaluation and crew force management programs are developed and managed to provide adequate support to the new or upgraded system operations. The approving official's authentication/signature block is the last entry before the attachments pertaining to the new or updated material. **(T-3)**. Special Mission Certifications may be used to conduct operations on new or upgraded systems prior to operational acceptance.

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

AFD Annex 3-14, *Counterspace Operations*, 27 August 2018

AFPD 13-6, *Space Policy*, 13 August 2013

AFI 10-401, *Air Force Operations Planning and Execution*, 7 December 2006

AFI 13-602 Volume 1, *Ready Spacecrew Training Program*, 6 September 2019

AFI 14-1020 AFSPC Supplement, *Intelligence Mission Qualification and Readiness*, 5 November 2018

AFI 16-401, *Designating and Naming Defense Military Aerospace Vehicles*, 16 May 2014

AFI 33-360, *Publications and Forms Management*, 1 December 2015

AFI 91-202, *The US Air Force Mishap Prevention Program*, 24 June 2015

AFMAN 33-363, *Management of Records*, 1 March 2008

MIL-PRF-38314, *Manuals, Technical: Operation and Associated Checklist (Space Systems) Preparation of*, 18 August 1997

MIL-STD-38784, *Department of Defense Standard Practice for Manuals - Technical, General Style and Format Requirements*, 25 August 2011.

TO 00-5-1, *Air Force Technical Order System*, 14 June 2016

Prescribed Forms

None

Adopted Forms

AF Form 679, *Air Force Publication Compliance Item Waiver Request/Approval*

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AFD—Air Force Doctrine

AFI—Air Force Instruction

AFPD—Air Force Policy Directive

HAF—Headquarters Air Force

IAW—In Accordance With

MAJCOM—Major Command (for the purposes of this AFI, includes NGB)

NGB—National Guard Bureau

OPR—Office of Primary Responsibility

TO—Technical Order

TTP—Tactics, Techniques, and Procedures

Terms

Advanced Training—Set of formal training requirements, beyond weapon system qualification and Continuation Training, designed to advance the skills, knowledge, and competencies required to ensure mission accomplishment through a Contested, Degraded, and Operationally-limited environment. Advanced Training is focused on responding to and defeating current and future threats.

Assignment Availability Code 55—Applies to officers assigned to a CONUS Minimum Stabilized Tour, controlled by HQ USAF and HQ AFPC. Tour length begins with the date assigned, plus the number of years authorized, to ensure personnel do not move prior to completing the assigned tour.

Basic Mission Capable—Applies to Combat Mission Ready, Mission Ready and Non-Mission Ready units. A spacecrew member who satisfactorily completed Initial Qualification Training/Mission Qualification Training, or upgrade training as required, but is not fully Mission Ready/Combat Mission Ready. Standards and currencies for Basic Mission Capable will be set to ensure a Basic Mission Capable spacecrew member can achieve full Mission Ready/Combat Mission Ready status within 30 days when directed.

Combat Mission Ready—Space operations personnel who have satisfactorily completed Initial Qualification Training/Mission Qualification Training and maintain qualification and currency in both Continuation Training and Advanced Training in the unit's combat mission and assigned position.

Continuation Training—Provides crew members with the volume, frequency, and mix of training necessary to maintain proficiency in their assigned position and experience level.

Debrief—The debrief is the process in which a crew can determine root causes leading to lessons learned and fix actions in order to increase spacecrew proficiency and knowledge. Spacecrew members debrief after training events, evaluations, or real-world events.

Evaluation—This includes positional and written examinations used to determine proficiency as prescribed by governing directives.

Initial Qualification Training—Training needed to qualify for basic spacecrew duties in an assigned crew position for a specific space Mission Design Series.

Lessons Learned—An observation that, when validated and resolved, becomes an evaluated insight resulting in an improvement in military operations or activities at the strategic, operational, or tactical level. It results in long-term, internalized change to an individual or an organization.

Mission Design Series (MDS)—The official designation for aerospace vehicles used to represent a specific category of aerospace vehicles for operations, support, and documentation purposes, as defined in AFI 16-401, *Designating and Naming Defense Military Aerospace Vehicles*. In the context of space operations, this may also include ground-based systems.

Mission Ready—This term only applies to non-Combat Mission Ready units. Spacecrew members who have satisfactorily completed Initial Qualification Training/Mission Qualification

Training and maintain qualification and currency in Continuation Training in the unit's mission and assigned position. This term is usually used for units without assigned Combatant Commander missions.

Mission Qualification Training—Training to qualify spacecrew members in assigned spacecrew positions to perform the command or unit mission.

Ready Spacecrew Program—Akin to the Ready Aircrew Program, Ready Cybercrew Program, and Ready Intelligence Program, the Ready Spacecrew Program continually improves the skills of space mission forces as spacecrew operating in a Contested, Degraded, and Operationally-limited environment. The Ready Spacecrew Program includes Continuation Training and Advanced Training, and leverages the Weapons and Tactics process to continuously develop, test, and train innovative warfighting TTPs.

Spacecrew—Members qualified to perform duties on space systems comprise a spacecrew. While spacecrews also actively participate in the Space Mission Task Force, this is a general term used to encompass the entire body of qualified space professionals, similar to an aircrew. The total complement of Mission Ready/Combat Mission Ready personnel responsible for the safe operation of ground and on-orbit space systems and associated infrastructure may include 13S, 1C6, 14N, 1NX, 17X, 3DX, 6X, civilian or contractor personnel, either on the operations floor or in the Mission Planning Cell.

Space Mission Force—Akin to the Air Expeditionary Force, the Space Mission Force prepares and presents space forces, primarily those operating from in-garrison, as a ready force capable of operating in a Contested, Degraded, Operationally-limited environment.

Space Operations—All activities that involve the operation of satellites, or the performance of missions that primarily utilize or support space-based systems, to include space control, space surveillance, space-based intelligence, surveillance, and reconnaissance, satellite communications, space-based missile warning, space-based missile defense, spacelift, space-based environmental monitoring, space weather, and space-based positioning, navigation, and timing.

Special Mission Certification—Spacecrew member designated to build procedures and administer training and evaluations for significant changes to systems or procedures requiring new Mission Ready/Combat Mission Ready or Basic Mission Capable qualification, or Requalification Training.

Standardization—Interrelated efforts conducted at the MAJCOM, Numbered Air Force, Wing, Group and unit levels to develop, adopt, use and maintain policy, procedures, or equipment similar in design or operational use philosophy and/or specifics. The goal is to streamline training, evaluating and operating procedures to ensure the spacecrew force maximizes mission effectiveness using standardized TTPs.

Task—An independent unit of work selected to reflect mission needs. Tasks are parents to subtasks.