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Flying Operations

HIGH ALTITUDE AIRDROP MISSION SUPPORT CAPABILITY PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This manual implements Department of the Air Force Policy Directive 11-4, *Aviation Service*. It governs the High Altitude Airdrop Mission Support (HAAMS) Capability Program. This manual establishes guidance and procedures for the operations and duties of personnel who perform HAAMS operations. This publication applies to all members of the Department of the Air Force (DAF), including all civilian employees and uniformed members of the Regular Air Force, the Air Force Reserve, the Air National Guard, the Civil Air Patrol when conducting missions as the official Air Force Auxiliary. This publication does not apply to the United States Space Force (USSF). Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed 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) listed above using the Air Force (AF) Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate chain of command. This publication may be supplemented at any level, but all supplements must be routed to the OPR of this publication for coordination prior to certification and approval. The authorities to waive wing/unit level requirements in this publication are identified with a Tier (i.e., T-0, T-1, T-2, T-3) number following the compliance statement. See Department of the Air Force Instruction (DAFI) 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 or the authority identified in **paragraph 1.4** in this publication for non-tiered compliance items. Compliance with **Attachment 2** in this publication is mandatory.

SUMMARY OF CHANGES

This document has been revised to incorporate changes to the Aerospace Physiology Program Manager (PM) (43A) and Functional Manager (4MOX1) career field designators as directed by Program Action Directive (PAD) 20-02, *Aerospace Physiology Enterprise Transition*, 17 June 2021. Major change is the correction at **paragraph 2.5** to reflect transition of the current 43A (Aerospace Physiologist) and 4M (Aerospace Physiology Technician) AFSCs to 13H (Aerospace Physiologist) and lH (Aerospace Physiology Technician) AFSCs, respectively. A margin bar(|) indicates newly revised material.

Chapter 1

PROGRAM OVERVIEW

1.1. General. This manual provides roles and responsibilities, and guidance for AF HAAMS capability. It is the source document for HAAMS capability.

1.2. AF Program Goal. Squadron Commanders (Sq/CC) of HAAMS personnel ensure all X-prefix HAAMS personnel obtain and maintain the certification/qualification and proficiency needed to support the HAAMS capability. HAAMS personnel provide in-flight physiological support to aircrews, mission essential personnel (MEP), and parachuting operations performed in un-pressurized flights at or above FL180 Mean Sea Level (MSL) or as requested. G-series commanders, mission commanders, and/or aircraft commanders may direct more stringent requirements (lower altitude threshold to pre-breathe, longer pre-breathe, etc.) for any mission as they deem appropriate.

1.3. Overview. United States Air Force (USAF) HAAMS personnel are specially trained and qualified by Air Mobility Command (AMC) HAAMS, located at Joint Base Charleston, SC. The HAAMS Director, Superintendent, Program Manager (PM), Standardization and Evaluation personnel, and training cadre should be co-located, identified and assigned (duty title and base location) as needed by the AFMAN OPR (AMC/A3) based on operational requirements. HAAMS staff are trained by mission ready HAAMS personnel per the HAAMS syllabus and HAAMS formal course. HAAMS personnel and operations are budgeted and equipped by the Operations Group Commander responsible for the unit assigned, and provide operational support including meeting short-notice tasking(s), if necessary. AMC HAAMS (Joint Base Charleston) serves as the pilot unit for HAAMS and HAAMS Unit Type Codes.

1.4. Waivers.

1.4.1. HAAMS personnel fly as Non-Rated Officer and Non-Career Enlisted Aircrew (X-prefix) under the guidance of AFMAN 11-202 Volume (V) 1, *Aircrew Training*, and AFMAN 11-202 Volume (V) 3, *General Flight Rules*. More stringent requirements may be included in the AFMAN 11-2 Mission Design Series (MDS)-specific Volume 1 and Volume 3 publications. Requests for waivers to aircraft specific requirements or qualifications should be routed to the waiver authority identified in the applicable MDS-specific guidance.

1.4.2. Consult the HAAMS Director to clarify operational requirements and/or responsibilities. The HAAMS Director should coordinate on waiver requests as appropriate.

1.4.3. When guidance in this publication conflicts with other documents, the most restrictive guidance takes precedence. Waiver authority for non-tiered items is this manual's OPR, with concurrence from AF/A3S for personnel parachute operations. For tiered waiver authority, see DAFI 33-360.

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Deputy Chief of Staff, Operations (AF/A3). Provides fiscal and administrative support, oversight and policy guidance needed to carry out the AF HAAMS capability. Designates AMC/A3 as the AF HAAMS Manpower and Equipment Force Packaging Responsible Agency.

2.2. AF Surgeon General (AF/SG). Advises as necessary on policy and requirements related to HAAMS capability from a medical perspective.

2.3. Aerospace Physiology Officer and Enlisted Career Field Manager(s). Advises AF/A3 on HAAMS capability, policy, operational requirements, and any other matters related to HAAMS capability. Ensures HAAMS Program is appropriately manned to support contingency and non-contingency tasking(s).

2.4. Air Mobility Command, Director of Operations (AMC/A3). Responsible for AF-wide management of the HAAMS Program. Works with Headquarters Air Force (HAF) and other Major Commands (MAJCOM) to accomplish HAAMS capability. Serves as the manning and equipment force packaging responsible agency for the HAAMS Program. Provides fiscal and administrative support needed to carry out the HAAMS mission. Approves mission capability changes. Serves as the contingency tasking authority within AMC.

2.5. AMC Aerospace Physiology Program Manager (PM) (13H) and AMC Functional Manager (1HOX1). Provides oversight and advocacy of the HAAMS Program. Acts as liaison between HAF and MAJCOMs, contingency tasking authority, and HAAMS Director with the goal of maximizing program effectiveness, to ensure personnel receive the equipment and maintain continuation training established in the HAAMS Program syllabus to maintain proficiency and mission ready status.

2.6. Group Commanders. Ensure personnel are organized, trained, equipped, and ready for deployment and/or short-notice tasking(s). Manage and direct resource activities as well as interprets and enforces policies and applicable directives. Also, recommend or initiates actions to improve organizational effectiveness and efficiency. Additionally, resolves issues between subordinate squadrons, other groups, wing staff, and outside agencies.

2.7. Squadron Commanders (Sq/CC). Provide fiscal and administrative support. Ensure successful training, operations, pre-deployment planning, deployment, re-deployment, and after-action reporting. Additionally, ensure HAAMS capability is equipped with oxygen systems used for upgrade and proficiency training on various missions and aircraft. Guidance to conduct aircrew training is provided in AFMAN 11-403, *Aerospace Physiological Training Program*.

2.8. AF HAAMS Director. The Director should be a mission ready instructor and evaluator. The Director is responsible to the Sq/CC on all matters related to HAAMS and ensures the HAAMS Program is conducted per the guidance of this AFMAN. Manages the HAAMS formal course to ensure personnel meet requirements outlined in the HAAMS Program syllabus. Responsible for oversight of tracking all HAAMS capability training and proficiency. Within AMC is responsible for the HAAMS budget, operations, and evaluations. Works with MAJCOM and HAF Staffs to ensure functions are supported. Serves as the non-contingency tasking authority for HAAMS in AMC. Should coordinate on tasking recommendations for other MAJCOMs as requested. Provides program and global tasking status to commanders, MAJCOM/A3s, HAF Aerospace

Physiology PM and Career Field Manager, and the MAJCOM Aerospace Physiology PM/Functional Manager as requested. Interfaces with AMC/A3 on HAAMS capabilities and evolving technologies to assure proper manning, utilization and procurement of assets during training and/or contingency operations. Coordinates with Department of Defense agencies and other user groups requests. Appoints a HAAMS mission ready Unit Safety Representative (USR) or Flight Safety Officer to work closely with and assist the Wing or Squadron Flight Safety Officer to help manage an aviation safety program under the guidance of AFI 91-202, *The US Air Force Mishap Prevention Program* and AFMAN 91-223, *Aviation Safety Investigations and Reports*. The HAAMS USR is to assist the Squadron Flight Safety Officer with the unique HAAMS mission. Under the guidance of AFI 91-202 and AFI 91-223 the HAAMS USR should identify and report potentially hazardous practices, equipment, or procedures based on a particular event or practice and disseminate that information to the Wing or Squadron Flight Safety Officer, user, supported unit or other applicable organizations to prevent similar hazardous conditions for future operations.

Chapter 3

OPERATIONS

3.1. Overview. All unpressurized missions at or above FL180 MSL require trained HAAMS personnel under the guidance of this AFMAN. **(T-2)**. The references in USSOCOM 350-3, *Special Operations Forces Baseline Interoperable Airborne Operations (Parachuting) Training Standards*; Training Circular 18-11, *Special Forces Military Free-Fall and Double-Bag Static Line Operations;* and applicable 11-2C-MDS Volume 3 AFIs and Manuals cite this publication as the authority for HAAMS support. HAAMS personnel should conduct pre-flight or pre-jump brief detailed in **Attachment 2** and will conduct pre-breathe requirements for any mission scheduled for an altitude at or above FL180. **(T-2)**. Aircraft Commanders, with assistance from HAAMS personnel shall mitigate decompression sickness by following oxygen pre-breathe and altitude exposure limits in **Table 3.1**. **(T-2)**. Missions include, but are not limited to, Department of Defense special operations personnel, double-bag static line operations, high altitude low opening and high altitude high opening. Additional missions include equipment drops, psychological operations, equipment testing, research operations, and humanitarian aid operations.

3.2. HAAMS Personnel Description. HAAMS capability personnel are specially trained technicians and officers in accordance with the HAAMS syllabus and HAAMS formal course.

3.3. Ratio Requirements.

3.3.1. A minimum of two HAAMS personnel will be on all airdrops conducted at or above FL180 MSL. **(T-2)**. **Exception:** One HAAMS individual is required for single-level airframes where there is no separation between the flight deck and rear area (non split-deck aircraft) and number of personnel (aircrew, parachutists, MEP etc.) on board the aircraft does not exceed 16. **(T-2)**.

3.3.1.1. One AF mission ready HAAMS individual is required for each 16 personnel (aircrew, parachutists, MEP etc.) on board the aircraft for all unpressurized missions conducted at or above FL180 MSL. **(T-2)**. Example: C-17 with a planned drop at FL299 with 4 flight deck crew, 2 load masters, and 22 parachutist require 3 HAAMS personnel, 1 HAAMS individual on the flight deck and 2 HAAMS personnel in the cargo area.

3.3.1.2. See **paragraph 3.8.3** for additional ratio requirements above FL300 MSL.

3.3.2. A flight evaluator's main objective is to conduct evaluations with limited distractions to meet intent of evaluation objectives outlined in the HAAMS syllabus. One flight evaluator and one non-mission ready HAAMS individual being evaluated count as 1 mission ready HAAMS individual in regard to ratio requirements. The flight evaluator will not perform primary HAAMS duties during the evaluation except to correct a safety of flight issue. **(T-2)**. Example: During an evaluation and the number of individuals onboard the aircraft requires 2 mission ready HAAMS personnel, 3 HAAMS personnel are required on the aircraft (1 mission ready, 1 evaluator, and 1 non-mission ready). In this instance, the evaluator serves as the second mission ready individual although the non-mission ready is performing duties under the evaluator's supervision.

3.3.3. To mitigate risk, support for high altitude missions below FL180 may be requested and is highly recommended.

3.4. Requesting HAAMS Support.

3.4.1. All Continental United States and outside the Continental United States non-contingency requests for HAAMS support should be made to the HAAMS capability location workflow; "USAF JB Charleston 437 Airlift Wing Mailbox HAAMS" email address: **usaf.jbcharleston.437-aw.mbx.haams@mail.mil** or by calling DSN 673-8900 or Comm 843-963-8900. Non-contingency HAAMS support outside of AMC can be tasked out to other MAJCOMs that have capability to support.

3.4.2. Contingency tasking(s) will be formally tasked through AMC Air Operations Center channels. **(T-2)**.

3.5. High Altitude Airdrop Oxygen Requirements.

3.5.1. HAAMS personnel provide support on various types of aircraft, both military and civilian. Regardless of the type or origin of the aircraft, guidance on oxygen requirements is provided in AFMAN 11-202V3 and this AFMAN.

3.5.2. Supplemental Oxygen.

3.5.2.1. Aircrew use supplemental oxygen within the guidance of AFMAN 11-202V3. For pre-breathing requirements and cabin altitude time limits aircrew will follow **Table 3.1** of this AFMAN. **(T-1)**.

3.5.2.2. Parachutists and tandem passengers may perform unpressurized operations between 10,000 feet MSL and 12,999 feet MSL without supplemental oxygen for a period not to exceed 30 minutes. **(T-1)**. Parachutists will use an approved individual helmet and mask with a continuous supply of supplemental oxygen for unpressurized flight above 13,000 feet MSL, or exceeding the 30-minute envelope between 10,000 and 12,999 feet MSL. **(T-1)**.

3.5.3. Mission ready HAAMS personnel will inspect and install United States Army Natick Soldier Systems Center flight safety approved portable oxygen systems (e.g., oxygen consoles, hoses, masks, CRU-79 etc.) in the aircraft when the aircraft oxygen system does not provide sufficient oxygen regulators for all personnel. **(T-2)**. Mission ready HAAMS personnel will inspect oxygen equipment for functionality and outlet pressure. **(T-2)**. Ensure sufficient oxygen for the planned mission is available to all occupants before takeoff. **(T-2)**.

3.6. Pre-breathe Requirements for Missions at or Above FL180.

3.6.1. All personnel on the aircraft will pre-breathe 100 percent oxygen below 16,000 feet MSL cabin altitude on any mission scheduled for an exposure at or above FL180 for times shown in **Table 3.1** **(T-1)**.

3.6.2. Aircrew and jumpers will conduct pre-breathing with a personally-fitted oxygen mask attached to an approved helmet and personal oxygen system. **(T-1)**. **Note:** Emergency equipment not fitted for individual personal use (e.g., MA-1, quick-don/smoke mask etc.) is not approved for pre-breathing.

3.6.3. The Aircraft Commander, with recommendations from the assigned HAAMS personnel and primary jumpmaster (if applicable), will determine the course of action for a break in pre-breathing. **(T-2)**.

3.7. Restrictions.

3.7.1. Accumulative Total Time. Aircraft Commander, with assistance from HAAMS personnel, will monitor and be responsible for oxygen and pre-breathe requirements, and altitude block time exposure limitations above FL180 listed in **Table 3.1**. **(T-2)**. Altitude monitoring and restrictions begin when cabin altitude ascends at or above FL180 and ends when cabin altitude descends below FL180. Additional flying may be conducted below FL180.

3.7.2. Maximum Block Exposure Time. Aircraft cabin altitude time limits are categorized into blocks of altitude and are listed in **Table 3.1** Additional flying may be conducted at lower blocks of altitude.

3.7.3. The accumulative total or block time (if applicable) of allowable duration is reset to the maximum when the aircraft lands between sorties, and the time on the ground equals or exceeds the time spent at or above a cabin altitude of FL180.

3.7.4. Aircrew and HAAMS personnel will do no more than three pre-breather sorties in a 24-hour period (take-off to landing). **(T-2)**. This may be further restricted. Consider limiting pre-breather sorties to one in a 24-hour period. After exposures to FL250 and above, consider maximizing time at ground level up to 72 hours.

3.7.5. Aircrew and HAAMS personnel will allow at least 24 hours between exposures at or above FL300. **(T-2)**.

3.7.6. Aircrew and HAAMS personnel will not be subjected to more than three exposures at or above FL300 in a 7-day period. **(T-2)**.

3.7.7. Aircraft Commanders will not exceed aircraft climb rates beyond 5,000 ft/min while unpressurized. **(T-2)**.

Table 3.1. Aircrew and Parachutist Oxygen (O2)/Pre-breathing Requirements, and Exposure Limits.

Altitude (Note 1)	Oxygen Requirement	Pre-breathe Time	Maximum Block Exposure Time (Note 2)
10,000 ft - 12,999 ft	Supplemental (Note 3, 4)	Not Applicable (N/A)	Unlimited
13,000 ft - 17,999 ft	Supplemental (Note 3, 4)	N/A	Unlimited
FL180 - FL249	100% O2	30 Minutes	110 Minutes

FL250 - FL299	100% O2	30 Minutes	60 Minutes
FL300 - FL 349	100% O2	45 Minutes	30 Minutes
FL350 or above	100% O2	75 Minutes	30 Minutes

NOTES:
1. Altitudes listed in MSL.
2. Aircraft must descend to a lower block (or below FL180) once the maximum block exposure time is met. **(T-2)**. Example: – Planned drops at FL399, FL299, and FL249; time begins passing through FL180 and is limited to 30 minutes at FL399, descend to FL299 for 30 minutes (60 minutes accumulative), descend to FL249 for 50 minutes (110 minutes accumulative).
3. Aircrew follow supplemental oxygen requirements within the guidance of AFMAN 11-202V3 (see **paragraph 3.5.2.1**).
4. Parachutists use supplemental oxygen (see **paragraph 3.5.2.2**).

3.8. Operations Above FL250 MSL.

3.8.1. A waiver to AFMAN 11-202V3 is required from AF Flight Standards Agency for unpressurized flights when conducting airdrops FL250 MSL and above. **(T-1)**. **Exception:** Air Force Special Operations Command aircraft and special operations C-17 aircrews conducting MAJCOM/A3 approved high altitude airdrop missions.

3.8.2. Aircraft Commander will ensure MA-1 portable oxygen units equipped with A-21 regulators (or equivalent) and serviceable web-carrying straps are provided for each person aboard and be readily available except for parachutists who all possess on their person ready and usable personal O2 equipment.**(T-1)**.

3.8.3. One USAF mission ready HAAMS individual is required for each 12 personnel (aircrew, parachutists, MEP, etc.) in the cargo area of the aircraft for all unpressurized missions conducted at or above FL300 MSL. **(T-2)**. For sorties above FL300, flight deck personnel do not count towards the above ratio, an additional USAF mission ready HAAMS individual is required on the flight deck at all times. **(T-2)**. **Exception:** Single-level airframes where there is no separation between the flight deck and rear area (non split-deck aircraft).

3.9. Physiological Incidents. The assigned HAAMS personnel should follow guidance in **Attachment 2** of this AFMAN and make every attempt to resolve the issue(s) and make recommendations to the Aircraft Commander regarding any physiological incidents. Guidance on reporting physiological incidents to the Aircraft Commander and/or host installation Wing Safety Office is provided in AFI 91-204, *Safety Investigations and Reports* and AFMAN 91-223.

JOSEPH T. GUASTELLA, Lt Gen, USAF
Deputy Chief of Staff, Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFMAN 11-202 Volume 1, *Aircrew Training*, 27 September 2019

AFMAN 11-202 Volume 3, *Flight Operations,* 10 June 2020

AFMAN 11-403, *Aerospace Physiological Training Program,* 13 August 2020

AFMAN 91-223, *Aviation Safety Investigations and Reports,* 14 September 2018

AFI 91-202, *The US Air Force Mishap Prevention Program*, 12 March 2020.

AFI 91-204, *Safety Investigations and Hazard Reporting,* 27 April 2018

AFI 33-322, *Records Management and Information Governance Program,* 23 March 2020

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

DAFPD 11-4, *Aviation Service,* 12 April 2019

TC 18-11, *Special Forces Double-Bag Static Line Operations*, 28 April 2020

ATP 3-18.11, *Special Forces Military Free-Fall Operations*, 28 April 2020

USSOCOM 350-3, *Special Operations Forces Baseline Interoperable Airborne Operations (Parachuting) Training Standards,* 14 September 2017

Prescribed Forms

None

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AMC—Air Mobility Command

FL—flight level

HAAMS—high altitude airdrop mission support

HAF—Headquarters Air Force

MAJCOM—major command

MDS—mission design series

MEP—mission essential personnel

MSL—mean sea level

N/A—not applicable

O2—Oxygen

OPR—Office of Primary Responsibility

PM—program manager

SG—Surgeon General

SQ/CC—Squadron Commander

USSOCOM—United States Special Operations Command

USAF—United States Air Force

USR—unit safety representative

Terms

Decompression Sickness—Generalized barotrauma, refers to injuries caused by a change in the surrounding pressure of either air or water. It occurs during deep-sea diving and high-altitude or unpressurized air travel.

Denitrogenation—Using oxygen to filter out nitrogen contained in the lungs after breathing ambient air.

Ear Block—Condition that *blocks* the eustachian tube or limits its function.

Hyperventilation—Breathe or cause to breathe at an abnormally rapid rate, so increasing the rate of loss of carbon dioxide.

Hypoxia—Deficiency in the amount of oxygen reaching the lungs or tissues of the body.

Pre-breathe—To breathe oxygen to purge the nitrogen content in preparation for an activity that involves exposure to a significant change in pressure which might otherwise cause decompression sickness.

Sinus Block—Air pressure in the sinus does not equalize with the aircraft cabin pressure.

Trapped Gas—Gas inside the body that is unable to ventilate.

Valsalva—*M*aneuver in which a person tries to exhale forcibly with a closed glottis.

Attachment 2

AIRCREW/JUMPER BRIEFING OUTLINE

A2.1. All Personnel

A2.1.1. The Aircraft Commander is responsible for, and final authority to, the operation of the aircraft under the guidance of AFMAN 11-202V3 and this AFMAN.

A2.1.2. Notify HAAMS personnel immediately of any concerns, oxygen equipment, or physiological symptoms.

A2.1.3. HAAMS personnel should maintain the official sortie sheet (i.e., time keeper) and give time warnings.

A2.1.4. HAAMS personnel should notify the Aircraft Commander of any physiological related issues and advise on the safest course of action.

A2.1.5. Duties not including flying and general health that are incompatible with high altitude flying - cold/sinus condition(s).

A2.1.6. High altitude is high risk and physiologically demanding - hydrate, nutrition, sleep.

A2.2. Aircrew Only.

A2.2.1. Recommend constant communication between aircrew and HAAMS by having at least one HAAMS individual on intercom throughout the duration of the flight.

A2.2.2. Oxygen discipline:

A2.2.2.1. Remain on supplemental oxygen in accordance with AFMAN 11-202V3 and this AFMAN.

A2.2.2.2. Keep eyes open while breathing oxygen.

A2.2.3. Decompression Sickness:

A2.2.3.1. Follow directed exposure and denitrogenation time limits.

A2.2.3.2. Symptoms: bends, central nervous system, chokes, skin manifestations.

A2.2.4. Denitrogenation:

A2.2.4.1. Use 100% oxygen according to **Table 3.1**.

A2.2.4.2. Completed below 16,000 feet MSL in accordance with **paragraph 3.6.1**.

A2.2.4.3. If possible, start pre-breathe at 1,500 feet Above Ground Level or above to prevent ground egress hazards and to conserve oxygen.

A2.2.5. Factors limiting effective denitrogenation.

A2.2.5.1. Disconnecting from oxygen regulator.

A2.2.5.2. Moving regulator diluter lever from 100% to normal.

A2.2.5.3. Breaking mask seal.

A2.2.5.4. If pre-breathe is broken – the Aircraft Commander, with recommendations from the HAAMS personnel, determine the best course of action.

A2.2.5.5. If possible, explain/demonstrate procedures for mask swap.

A2.2.6. Decompression sickness treatment:

A2.2.6.1. Immobilize affected area.

A2.2.6.2. Administer 100% oxygen via tight fitting oxygen mask, (**Note:** if available, don't use same mask individual used for operations).

A2.2.6.3. Cabin altitude to sea level or field elevation of evacuation site as soon as possible.

A2.2.6.4. HAAMS personnel advise Aircraft Commander to contact Flight Surgeon on-call through appropriate channels (e.g., command post, air traffic control, airfield management, base operations, etc.) of situation and coordinate treatment actions.

A2.2.6.5. Monitor and record vital signs/symptoms until relieved by a Flight Surgeon or local emergency medical service.

A2.2.7. Delayed decompression sickness reactions:

A2.2.7.1. Report any post-flight symptoms immediately. Provide contact numbers (e.g., HAAMS personnel, command post, Flight Surgeon on-call).

A2.2.7.2. Watch for symptoms up to 12 hours after sortie.

A2.2.7.3. Limit post-flight physical activity as much as possible for 12 hours.

A2.2.7.4. Intoxication may cover symptoms of decompression sickness.

A2.2.8. Hypoxia and Hyperventilation:

A2.2.8.1. Review signs & symptoms.

A2.2.8.2. Early recognition.

A2.2.8.3. Watch for signs in other aircrew (e.g., glassy eyes, lack of communication, disoriented).

A2.2.9. Hypoxia Treatment.

A2.2.9.1. HAAMS personnel identify the problem and swap equipment as necessary.

A2.2.9.2. HAAMS personnel notify the Aircraft Commander of the situation and advise on the safest course of action.

A2.2.10. Trapped Gases:

A2.2.11. Ear and sinus blocks:

A2.2.11.1. Normally seen on descent.

A2.2.11.2. Assist as requested on methods of clearing (valsalva, jaw movement, neck stretch, regulator pressure, etc.). HAAMS personnel may provide nasal spray (oxymetazoline or phenylephrine) as required as a get me down only. **Note:** Guidance on returning to flying status is provided in AFI 11-2C-MDS Volume 3.

A2.2.11.3. No valsalvas on ascent.

A2.2.11.4. Delayed ear block treatment.

A2.2.12. Gastrointestinal tract:

A2.2.12.1. Eat foods and drink beverages that do not promote gas formation.

A2.2.12.2. Relieve gas at lower altitudes.

A2.2.12.3. Keep cargo bay heat off to avoid dehydration, thermal stresses, sweating, etc.

A2.2.13. Pressure breathing: (If applicable).

A2.2.13.1. Altitudes (FL280 and above).

A2.2.13.2. Proper technique (threat of hyperventilation).

A2.2.13.3. Communication difficulty and techniques.

A2.3. Parachutists and Other MEP.

A2.3.1. Compressed air diving prior to jump operations (ATP 3-18.11, *Special Forces Military Free-Fall Operations*).

A2.3.2. Communication.

A2.3.2.1. Establish in-flight hand signals with jumpers/MEP to identify problems.

A2.3.2.2. Use written messages on note pad or dry erase board if necessary.

A2.3.3. Oxygen discipline.

A2.3.3.1. Keep eyes open while breathing oxygen.

A2.3.3.2. Remain on supplemental oxygen until <13,000 feet MSL.

A2.3.4. Denitrogenation:

A2.3.4.1. Use 100% oxygen according to **Table 3.1**.

A2.3.4.2. Completed below 16,000 feet MSL in accordance with **paragraph 3.6.1**.

A2.3.4.3. If possible, start pre-breathe at 1,500 feet Above Ground Level or above to prevent ground egress hazards and to conserve oxygen.

A2.3.4.4. Coordinate pre-breathe completion with time warnings.

A2.3.5. Factors Limiting Effective Denitrogenation:

A2.3.5.1. Disconnecting from oxygen console.

A2.3.5.2. Breaking mask seal.

A2.3.5.3. If pre-breathe is broken – the Aircraft Commander, with recommendations from the HAAMS personnel, determine the best course of action.

A2.3.5.4. If possible, demonstrate procedures for mask/oxygen bottle swap.

A2.3.6. Decompression Sickness:

A2.3.6.1. Follow directed exposure and denitrogenation time limits.

A2.3.6.2. Symptoms: bends, central nervous system, chokes, skin manifestations.

A2.3.7. Decompression Sickness Treatment:

A2.3.7.1. Immobilize affected area.

A2.3.7.2. Administer 100% oxygen via tight fitting oxygen mask (**Note:** if available, don't use same mask individual used for operations).

A2.3.7.3. HAAMS personnel advise Aircraft Commander to contact Flight Surgeon on-call through appropriate channels (e.g., command post, air traffic control, airfield management, base operations, etc.) of situation and coordinate treatment actions.

A2.3.7.4. Monitor and record vital signs/symptoms until relieved by a Flight Surgeon or local emergency medical service.

A2.3.8. Delayed reactions:

A2.3.8.1. Report any post-flight symptoms immediately. Provide contact numbers (e.g., HAAMS personnel, command post, Flight Surgeon on-call).

A2.3.8.2. Watch for symptoms up to 12 hours after flight.

A2.3.8.3. Limit post-flight physical activity as much as possible for 12 hours.

A2.3.8.4. Intoxication may cover symptoms of decompression sickness.

A2.3.9. Hypoxia and Hyperventilation:

A2.3.9.1. Review signs & symptoms.

A2.3.9.2. Early recognition.

A2.3.9.3. Watch for signs of hypoxia in others (i.e., glassy eyes, lack of communication, disoriented).

A2.3.9.4. Hypoxia & hyperventilation symptoms very similar.

A2.3.10. Hypoxia Treatment.

A2.3.10.1. HAAMS personnel identify the problem and swap equipment as necessary.

A2.3.10.2. HAAMS personnel notify the Aircraft Commander and Jump Master of the situation and advise on the safest course of action.

A2.3.11. Trapped Gases:

A2.3.12. Ear and sinus blocks:

A2.3.12.1. Advise as needed or requested on methods of clearing (valsalva, jaw movement, neck stretch, etc.) HAAMS personnel may provide nasal spray as a get me down only. **Notes:** AFI 11-2C-MDS Volume 3 provides guidance on the administration of nasal spray (oxymetazoline or phenylephrine); returning to flying status, and guidance if parachutists are or are not allowed to jump if administered nasal spray (oxymetazoline or phenylephrine).

A2.3.12.2. No valsalvas on ascent.

A2.3.13. Delayed ear blocks treatment.

A2.3.14. Gastrointestinal tract:

A2.3.14.1. Eat foods and drink beverages that do not promote gas formation.

A2.3.14.2. Relieve gas at lower altitudes.

A2.3.15. Thermal stresses:

A2.3.15.1. Effects heat/cold have on situational awareness.

A2.3.15.2. Proper clothing and protection.

A2.3.16. Ground egress: Disconnect from consoles and follow aircraft evacuation procedures.