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Tactical Doctrine

**SPECIAL OPERATIONS FORCES
AEROSPACE AND OPERATIONAL PHYSIOLOGY**

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PURPOSE: The Air Force Tactics, Techniques, and Procedures (AFTTP) 3-42 series of publications is the primary reference for medical combat support capability. This document, AFTTP 3-42.63, provides tactics, techniques, and procedures (TTP) for Special Operations Forces (SOF) Aerospace and Operational Physiology. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, Management of Records, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF IMT 847, Recommendation for Change of Publication. Route AF IMT 847 through the appropriate chain of command and parent MAJCOM.

APPLICATION: This publication applies to active duty Air Force, Air Force Reserve, and Air National Guard personnel on flying status, passengers in certain types of aircraft, and other personnel who perform high altitude airdrop missions, emergency evacuation hyperbaric stretcher (EEHS) operations, enhance human operational performance, provide critical aircrew training, and support mishap prevention and investigation efforts. The doctrine in this document is authoritative but not directive.

SCOPE: Special operations missions are conducted by specially organized, trained and equipped military forces to achieve military, political, economic or psychological objectives by unconventional means in hostile, denied, or politically sensitive areas. The primary mission of the SOF Aerospace and Operational Physiology Team (AOPT) is to provide in-flight physiological support IAW AFI 11-409, *High Altitude Airdrop Mission Support Program*, to aircrews performing unpressurized airdrop operations at 20,000 feet mean sea level (MSL) and above, employment and operation of the EEHS and performing human performance (HP) enhancement and sustainment threat assessments and recommendations. These airdrops could be, but are not limited to: DoD Special Operations High Altitude Low Opening (HALO)/High Altitude High Opening (HAHO) personnel and equipment drops, Military Information Support Operations (MISO-formally PsyOps), equipment testing and research operations, and humanitarian aid operations.

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Chapter 1

MISSION

1.1. AFSOC Medical Mission Statement. Deploy with and in support of (ISO) Special Operations Forces (SOF) in order to (IOT) deliver SOF combat medical support and to modernize and advance SOF medical capabilities, medical technologies IOT maximize war-fighter performance. Provide high quality, state-of-the-art prevention-based health care for Air Force Special Operations Command (AFSOC) members, families and beneficiaries.

1.2. AFSOC Medical Capabilities. AFSOC medics provide a comprehensive medical platform for SOF personnel across the health care continuum--prevention through intervention and rehabilitation. SOF medics ensure deployable AFSOC forces via the employment of AFSOC medical unit type codes (UTCs). AFSOC medics deploy with SOF IOT provide preventive healthcare, routine healthcare, urgent/emergent point-of-injury trauma care, forward resuscitative/stabilization surgery, intensive care, casualty evacuation (CASEVAC) and critical care casualty evacuation. Additionally, SOF medics provide medical support for humanitarian operations, noncombatant evacuation operations (NEO), civil affairs (CA) missions, irregular warfare (IW), unconventional warfare (UW) missions, foreign internal defense (FID) missions, healthcare engagement, healthcare capacity building and health care infrastructure development capabilities ISO counterinsurgency (COIN) operations, stability/security operations, and medical support for other unique US Special Operations Command (USSOCOM) missions/taskings.

1.3. The Challenge of AFSOC Medicine. Provide the highest quality healthcare/health service support for AFSOC and joint special operations forces, frequently without the benefit of additional pillars of health services support, and often without the benefit of fully developed traditional echelons of care in areas of significantly higher medical and operational threat/risk.

1.4. SOF Aerospace and Operational Physiology Team (AOPT) Mission.

The primary mission of SOF AOP is to fly in support of High Altitude Airdrop Mission Support (HAAMS) operations, determine employment of the EEHS, enhance human operational performance through analyses of SOF facilities and operations, provide critical aircrew training, and support mishap prevention and investigation efforts.

Chapter 2

INTRODUCTION

2.1. Purpose. This document describes the tactics, techniques, and procedures for UTCs FFQE5, SOF AOPT, and FFQEP, SOF AOP Equipment. IAW AFI 11-409, HAAMS personnel are specially trained Aerospace and Operational Physiologists (43A3) and Physiology Technicians (PTs) (4M0X1). PTs provide in-flight physiological support to aircrews performing unpressurized airdrop operations at 20,000 feet MSL and above (or upon aircraft commander's request). These airdrops could be, but are not limited to: DoD Special Operations High Altitude Low Opening (HALO)/High Altitude High Opening (HAHO) personnel and equipment drops, MISO, equipment testing and research operations, and humanitarian aid operations. Any unpressurized airdrop missions at 20,000 feet MSL and above require Air Force HAAMS trained/certified PTs IAW AFI 11-409, AFI 11-403, *Aerospace Physiological Training Program*, AFI 11-2C-17V1, *C-17 Aircrew Training*, AFI 11-2C-17V3, *C-17 Operations Procedures*, AFI 11-2C-130V1, *C-130 Aircrew Training*, AFI 11-2C-130V3, *C-130 Operations Procedures*, and Army FM 3-05.211, *Military Free-fall Parachuting Tactics, Techniques and Procedures*. SOF AOP personnel are also responsible for evaluation and employment of the emergency evacuation hyperbaric stretcher (EEHS). The EEHS allows for the evacuation and treatment of individuals suffering from decompression sickness or acute mountain sickness. SOF AOP teams assist the treating physician with the operation of the EEHS during treatment and transportation of the patient in the EEHS. SOF AOP teams conduct human performance (HP) analyses at SOF locations, provide critical aircrew training, support mishap prevention and investigation efforts, and make recommendations to deployed commanders to improve performance enhancement and sustainment efforts.

2.2. Background. The SOF operations tempo and diverse operating locations makes it necessary to enhance the physiological and performance mission support. SOF AOP teams are specially trained and equipped to understand, assess and implement performance enhancement and sustainment measures required by SOF operations. The HAAMS Program has been in existence for well over forty years and its technicians have successfully provided high altitude physiological and technical support from the Vietnam War to our most recent conflicts in Operation Enduring Freedom.

2.3. Roles and Responsibilities.

2.3.1. Surgeon General. HQ AF/SG provides medical, technical, fiscal, and administrative supervision needed to carry out the AF Aerospace and Operational Physiology Program. AF/SG delegates the operational and MEFPK management of the SOF AOP program to AFSOC/SG and administrative program management of the AF Aerospace and Operational Physiology Program and management is delegated through AFMSA/SG3PT to the Air Mobility Command, Chief 4M0X1 Functional Manager, HQ AMC/SG, 203 West Losey Street, Scott AFB, IL 62225.

2.3.2. Major Command. AFSOC/SG provides command oversight of the SOF AOP Program, is responsible for operational and MEFPK management of the SOF AOP program, and will provide technical, fiscal, and administrative supervision needed to promote Human Performance

Optimization initiatives and human-machine interface designs through Human Systems Integration (HSI).

2.3.2.1. AFSOC 43A Consultant for Aerospace and Operational Physiology (AOP) will ensure the training, regulatory, fiscal, and resource requirements of SOF AOP personnel are met.

2.3.2.2. AFSOC 4M0X1 Consultant for AOP (NCOIC). The SOF AOP NCOIC receives and reviews non-contingency standard mission requests from the Wing Plans office (SOW/XP) via USSOCOM Form 111 and AF HAAMS Program Manager (Little Rock, AFB). He/she determines the number of PTs needed based on aircraft and mission requirements and whether trainees will be sent, then selects PTs to support missions. He/she then briefs PTs selected on type of mission, location, requirements and security classification. The AOP NCOIC then coordinates with the AOP NCO to obtain Aeronautical Orders from Aviation Records Management Office (Flight Records) for PTs upon receipt of tasking letter from the NCOIC, AF HAAMS Program Manager. He/she ensures individual team members have appropriate flight equipment, line badges, passports, approved standardized paperwork, and oxygen equipment needed to perform mission. The AOP NCOIC provides input to unit budget for HAAMS and forecasts annual man-months requirements to the NCOIC, AF HAAMS Program Manager. He/she ensures adequate training of new PTs and conducts final upgrade evaluation and certification of PTs. The AOP NCOIC performs formal evaluations on all HAAMS team members every 18 months, or as necessary to ensure proficiency and currency and ensures Readiness Skills Verification (RSV) training is conducted and documented for PTs on mobility status. He/she conducts training periodically with all HAAMS team members to ensure uniform coverage of all critical items. When deployed, duties include facilitating all aspects of HAAMS operations, performing in-flight PT duties, evaluating employment, repairing and replacing of EEHS units, and performing HP threat assessments. These NCOs must meet or exceed the qualification and training requirements of a Primary PT and be in the grade of Technical Sergeant (E-6) or higher.

2.3.3. Squadron Commander. Provides fiscal and administrative support required at base level.

2.3.4. Commander, Operations Support Medical (OSM) Flight. Ensures the SOF AOP Program is conducted IAW AFI 11-403 and this publication. Selects qualified PTs to fill UTC requirements as established by AF/SGX and/or as dictated by global taskings. Ensures qualified SOF PTs that fill UTC requirements also fill a manpower position within the OSM flight. Ensures PTs performing aircrew duties are afforded pre/post mission crew rest from unit, as appropriate for TDY mission location and duration. Ensures the unit Financial Plan (budget) reflects all projected SOF AOP requirements.

2.3.5. SOF AOP Officer. These officers are appointed by the OSM commander based on documented HAAMS, EEHS, and human factors assessment training and operational experience. Duties include facilitating all aspects of HAAMS operations, performing in-flight PT duties, evaluating employment, and replacing EEHS units, providing critical aircrew training, and supporting mishap prevention and investigation efforts. These officers must meet or exceed the qualification and training requirements of a Primary PT and be in the grade of Captain (O-3) or higher.

2.3.6. SOF AOP NCO. The SOF AOP NCO receives and reviews non-contingency standard mission requests from the Wing Plans office (SOW/XP) via USSOCOM Form 111 and AFSOC 4M0X1 Consultant for AOP. The AOP NCO coordinates Aeronautical Orders with Aviation Records Management Office (Flight Records) for PTs upon receipt of tasking letter. He/she ensures individual team members have appropriate flight equipment, line badges, passports, approved standardized paperwork, and oxygen equipment needed to perform mission. The AOP NCO provides input to unit budget for HAAMS and forecasts annual man-months requirements to the AFSOC 4M0X1 Consultant for AOP. When deployed, duties include facilitating all aspects of HAAMS operations, performing in-flight PT duties, evaluating employment, and replacing of EEHS units, and performing HP threat assessments. These NCOs must meet or exceed the qualification and training requirements of a Primary PT and be in the grade of Staff Sergeant (E-5) or higher

2.3.7. Primary PT. The Primary PT coordinates mission-specific requirements with aircrew and/or parachutists prior to HAAMS operations. They brief aircrew and additional personnel prior to first mission on physiological considerations, the importance of proper oxygen discipline and pre-breathing, and other human factors using the *HAAMS Briefing Guide* (Attachment 2). They advise the aircraft commander and crew on use of oxygen equipment, depressurization schedules, and preflight supplemental oxygen equipment. They advise and assist loadmasters in loading, positioning, and securing mission-specific oxygen equipment. The PT flight duty station will be required to monitor crewmembers, additional personnel, and oxygen equipment. A minimum of one PT will be on interphone at all times. They will monitor and record pre-breathing times and exposure times at or above 10,000 ft, 20,000 ft, and peak altitude on trip report. They advise aircraft commander and/or jumpmaster and manage the disposition of any in-flight or post-flight physiological incident until relieved by Flight Surgeon or appropriate medical personnel. All physiological incidents will be reported to the appropriate safety agency and into the Air Force Safety Automated System (AFSAS) IAW AFMAN 91-223 and AFI 91-204. They acquire copy of AFTO Form 781, AFORMS Aircrew/Mission Flight Data Document, signed by the aircraft commander, for each sortie flown.

2.3.8. Deployed Commander. Depending on the contingency, the deployed SOF AOP team will work directly or indirectly for the Air Force Air Operations Commander in the Area of Responsibility (AOR). When possible, the deployed commander will provide the necessary resources to establish HAAMS Operations in the AOR. If the contingency requires long term sustainment, HAAMS Operations should be located at an established military location for logistical support. Coordinate and report physiological events (i.e. DCS) to the appropriate safety agency IAW AFMAN 91-223.

2.4. Threats. The tactical advantage of conducting airdrop operations at high altitudes is that it minimizes potential attacks from ground launched ordinances and/or enemy combatant forces and improves overall mission flight safety. Deployed PTs are uniquely trained to ensure optimal safety of aircrew, parachutists, and other passengers are observed during unpressurized high altitude operations.

Chapter 3

CAPABILITY AND DESCRIPTION

3.1. SOF Aerospace and Operational Physiology Team Equipment Capability and Tasks.

The primary mission of SOF AOP is to fly in support of High Altitude Airdrop Mission Support (HAAMS) operations, determine employment of the EEHS, enhance human operational performance through analyses of SOF facilities and operations, provide critical aircrew training, and support mishap prevention and investigation efforts. This mission includes delivery of pre-flight briefings on the physiological/physical hazards of the mission, pre-breathing procedures, effects of environmental stresses, proper use of in-flight supplemental oxygen equipment, and any other special physiological considerations depending on the mission profile to all aircrew, parachutists, and additional passengers prior to mission. PTs monitor aircrew, parachutists, and additional passengers during mission and manage in-flight physiological reactions until relieved by flight surgeon. PTs advise aircraft command and jumpmaster on safe decompression schedules, altitude and time restrictions, and the disposition of in-flight decompression sickness reactors requiring hyperbaric treatment. PTs also advise and assist aircrew and jumpmasters on aircraft high altitude operation equipment rigging and in-flight operation/monitoring of supplemental oxygen consoles and aircrew/parachutists' portable oxygen equipment. SOF PTs advise on the operational need for and coordinate the employment of the EEHS. PTs provide all recurrent training pertaining to the EEHS IAW AFSOCI 48-112, *Decompression Sickness Treatment Program*.

3.2. SOF Aerospace and Operational Physiology Team

3.2.1. Mission Capability Statement (MISCAP). This two person team (UTC FFQE5) with a corresponding equipment/supply package (UTC FFQEP) provides oversight, management, and operational capabilities relating to human performance factors in deployed environments (i.e. High Altitude Airdrop Mission Support [HAAMS], hyperbaric medicine, mishap investigation, etc). This personnel UTC provides the personnel for 2-man HAAMS, employment of EEHS, and human performance threat assessments teams. They are responsible for monitoring aircrew and jumper personnel in-flight for physiological incidents; act as an adviser to the aircraft commander and jumpmaster; and also perform human performance threat assessments and make recommendations. They deploy with FFQEP for sustained operations up to 30 days before resupply.

3.2.2. SOF Aerospace and Operational Physiology Team Equipment (UTC FFQEP). This UTC provides equipment and supplies for 2-man high altitude airdrop mission support HAAMS team. These air drop missions include but are not limited to: DOD HALO/ HAHO parachutist; leaflet; equipment; MISO; and humanitarian airdrops. It can remain operational for 30 days without resupply. This UTC is used in conjunction with FFQE5 which provides the support personnel.

3.2.2.1. FFQE5 is fully capable of deploying with the FFQEP equipment package or independently to be permanently assigned as aircrew members to support a deployed, forward-based, and/or other fixed airbase operation.

3.2.2.2. The SOF AOP UTC can be deployed independently, in combination with other UTCs and HAAMS Liaison Officers (HLOs), or fragmented at the discretion of the AOR Commander. FFQE5 members operate under the control of the deployed commander and follow crew rest requirements outlined in AFI 11-202, Vol 3, *General Flight Rules*.

Chapter 4

OPERATIONS

4.1. Introduction. The Air Force Surgeon General's Office provides medical, technical, fiscal, and administrative supervision needed to carry out the HAAMS Program to ensure peacetime HAAMS operations produce highly qualified and skilled PTs to support world-wide contingencies. This program applies to active duty Air Force, Air Force Reserve, and Air National Guard personnel on flying status, passengers in certain types of aircraft, and other personnel who perform high altitude airdrop missions. During contingency operations, HAAMS operations are considered any Joint Airborne/Air Transportability (JA/ATT) mission, Special Assignment Airlift Mission (SAAM), or other flight operation that involves the use of PTs or AOPs to support unpressurized aircraft flight, to include HALO/HAHO personnel and equipment drops, equipment testing and research, humanitarian aid operations, and MISO. Use of the EEHS by the USAF has only recently been utilized. The EEHS can be used to treat and transport aircrew and personnel with diagnoses such as decompression sickness, acute mountain sickness, and carbon monoxide poisoning. SOF PTs are AFSOC's EEHS experts and trainers. SOF PTs will assist the treating physician with operations of the EEHS during treatments and transportation of patients. SOF PTs are well trained in human factors affecting the SOF community and can assist commanders in optimizing factors such as the physical layout of facilities, coordinating personnel schedules, and determining nutritional and fitness strategies to enhance or preserve performance of deployed personnel.

4.2. Employment. High altitude personnel and equipment airdrop procedures may be employed during clandestine operations or in areas where small arms threats preclude conventional low-altitude deliveries. Airdrops above 3,000 feet above ground level (AGL) are considered high altitude drops. Only personnel who have accomplished appropriate physiological training described in AFI 11-403 are permitted on mission aircraft for unpressurized operations above 10,000 feet MSL. At least one SOF PT is required per 16 personnel, or as required by mission design series (MDS)-specific instructions, for all unpressurized high altitude missions conducted at or above 20,000 feet MSL. It is recommended that at least two PTs be assigned to each mission, at least one of which must be a primary PT. PTs also may support high altitude airdrop missions below 20,000 feet MSL, when requested by an air tasking order, the aircrew, or the responsible user's operations mission planner. All HAAMS operations will be conducted IAW AFI 11-409. The EEHS is relatively small and can be positioned at forward operating locations where the threat of DCS or AMS are most likely. Use of and personnel qualifications must be IAW AFSOCI 48-112. SOF PTs can be employed at any SOF operating location to assess for HP optimization and provide input to the deployed location on mechanisms and strategies for HP enhancement and sustainment.

4.3. Mission Planning and Coordination.

4.3.1. Preliminary Planning and Coordination. Have current regulations, instructions, and briefing guide for review.

4.3.2. Prior to First Mission Sortie. PTs will be placed on operational support aeronautical orders and receive required intelligence threat briefings based on mission. PTs will brief and coordinate procedures for transfer of reactors to hyperbaric facility. Brief Aircrew Commander and OIC/NCOIC user group on handling procedures of in flight equipment and medical emergencies (e.g. transfer of reactors to hyperbaric facility) using the briefing guide in attachment 2, brief both flight crew and user group prior to any drop at or above 20,000 feet MSL.

4.3.3. During Mission Sorties. The PTs will provide adequate support to crew and jumpers during flight(s). Maintain oxygen discipline and monitor and record times and altitudes to which crew and jumpers were exposed.

4.3.4. Post Mission. The team leader is responsible for accomplishing post-mission checklist and briefs other HAAMS members on overall mission.

4.3.5. Mission Folder. All HAAMS PTs will maintain a mission folder which will contain, at a minimum, the following items: Current AF Form 1887, *Aeronautical Order (PA) Aviation Service*, AF Form 1042, *Medical Recommendations for Flying for Special Operational Duty*; AF Form AF Form 702, *Individual Physiological Training Record* or AF Form 1274, *Physiological Training*; AFTO 781, *ARMS Aircrew/Mission Flight Data Document* (blank); AFI 11-403, AFI 11-409, AFI 11-410, High Altitude Airdrop Procedures Section of Applicable Aircraft 11-2C-XV3, Oxygen Requirements Section of AFI 11-202V3, FM 31-19 Chap 5 & 7, (Approved) Checklists, Forms, Reports, HAAMS Program Manager's Emergency Contact Numbers, and, if applicable, line badge and passport.

Chapter 5

ADDITIONAL INFORMATION

5.1. Command and Control. When activated, SOF PTs will report directly to the Air Operations Center for specific guidance on how they can support the high altitude operation. OPCON, ADCON, and TACON, should be addressed in operational planning process

5.2. Intelligence Support. SOF AOP personnel can perform site surveys and gather medical intelligence information for operational deployments when required. SOF PTs submit medical intelligence reports to HQ AFSOC/SG for review and forwarding to the National Center for Medical Intelligence (NCMI) and other pertinent agencies as required.

5.3. Communications/Information Systems Support. A landline (telephone), secure telephone instrument (STI), or radio must be supplied to facilitate communication between the PTs and the primary flying organization requesting high altitude airdrop support. The ranking PT and/or HLO should have access to a Secret Internet Protocol Network (SIPRNET) account and secure telephone equipment to facilitate communication.

5.4. Integration/Interoperability with Other Systems. The PTs and HLO integrate directly with the organization supporting high altitude operations and are considered additional aircrew members.

5.5. Training. All PT and HLO training requirements are outlined in AFI 11-409, AFI 11-403, AFSOCI 48-101, and AFSOCI 48-112.

5.6. Logistics. Depending on the contingency, FFQEP will be deployed to provide necessary logistical support and sustainment. SOF AOPT will need to coordinate local procurement of aviator's oxygen, compressed air and medical supplies with host medical treatment facility.

5.7. SOF AOP Mission Essential Task Lists (METLS). SOF AOP METLS are listed in Attachment 3.

CHARLES B. GREEN
Lieutenant General, USAF, MC, CFS
Surgeon General

Attachment 1

GLOSSARY AND REFERENCES

Abbreviations and Acronyms

AFB	Air Force Base
AFSOC	Air Force Special Operations Command
AGL	Above Ground Level
AOP	Aerospace and Operational Physiology
AOPT	Aerospace and Operational Physiology Training
CASEVAC	casualty evacuation
DCS	Decompression Sickness
DNIF	Duty Not Involving Flying
DoD	Department of Defense
EEHS	evacuation hyperbaric stretcher
FL	Flight Level
HAAMS	High Altitude Airdrop Mission Support
HALO	High Altitude Low Opening
HAHO	High Altitude High Opening
HLO	HAAMS Liaison Officer
HP	Human Performance
HQ	Headquarters
JA/ATT	Joint Airborne/Air Transportability Tasking
MAJCOM	Major Command
MDS	mission design series
MEFPAK	Manpower Equipment Force
METLs	Mission Essential Tasks Lists
MISO	Military Information Support Operations
MSL	Mean Seal Level
NCOIC	Noncommissioned Officer in Charge
OPR	Office of Primary Responsibility
OSM	Operations Support Medical Flight
P/B	Pre-Breathing
PT	Physiological Technician
RSV	Readiness Skills Verification
SAAM	Special Assignment Air Mission
SGPT	Aerospace Physiology Office Symbol
TDY	Temporary Duty
UTC	Unit Type Code
USAF	United States Air Force
USSOCOM	United States Special Operations Command

References

AFPD 11-4, *Aviation Service*, 1 Sep 2004
AFI 11-2C-17V1, *C-17 Aircrew Training*, 25 Jun 2010
AFI 11-2C-17V3, *C-17 Operations Procedures*, 16 Nov 2011
AFI 11-2C-130V1, *C-130 Aircrew Training*, 30 Apr 2010
AFI 11-2C-130V3, *C-130 Operations Procedures*, 14 Mar 2006
AFI 11-202, V3, *General Flight Rules*, 22 Oct 2010
AFI 11-401, *Flight Management*, 10 Dec 2010
AFI 11-403, *Aerospace Physiological Training Program*, 20 Feb 2001
AFI 11-409, *High Altitude Airdrop Mission Support Program*, 1 Dec 1999
AFMAN 33-363, *Management of Records*, 1 Mar 2008
AFSOCI 48-112, *Decompression Sickness Treatment Program*, 9 Oct 2009
AFSOCI 48-101, *Aeromedical Special Operations*, 15 Jun 2009
FM 31-19, *Military Free-fall Parachuting Tactics, Techniques and Procedures*, 18 Feb 1993
USASOC Regulation 350-2, *Training Airborne Operations*, 27 Sep 2001

Forms Utilized

AFTO 781 (blank),
AF Form 702, *Individual Physiological Training Record*
AF Form 1042, *Medical Recommendations for Flying for Special Operational Duty*
AF Form 1274, *Physiological Training*
AF Form 1887, *Aeronautical Order (PA) Aviation Service*
AFTO 781, *ARMS Aircrew/Mission Flight Data Document*

Attachment 2

HAAMS BRIEFING GUIDE

A2.1. This briefing will be given to all personnel participating in any unpressurized airdrop operations conducted at or above 20,000 feet MSL, prior to the first sortie flown. Additional briefings will be given, as required, for new personnel not briefed previously and during extended missions for refresher purposes. PTs also should brief personnel on any special interest items or problem areas which may impact the mission.

A2.2. All personnel on any flight during which cabin altitude will exceed 10,000 MSL will be current in physiological training. Check for currency by questioning personnel, insuring that any untrained personnel are not allowed on the mission/sortie.

A2.3. Ensure all personnel have the proper oxygen equipment available. Proper equipment includes helmet with mask or strap-harness assembly; Quick-Don assemblies are not authorized.

BRIEFING OUTLINE

A2.4. Medical Considerations and Restrictions:

A2.4.1. Grounded/DNIF

A2.4.2. General health (colds, GI tract, medications, joint injury, etc....)

A2.4.3. Allergies to nasal sprays (Afrin)

A2.4.4. Compressed air diving within last 24 hours (see exceptions in AFI 11-403)

A2.4.5. Immunizations within last 24 hours

A2.4.6. Blood donation or dental work within last 72 hours

A2.4.7. Any prior experiences with decompression sickness

A2.4.8. Pregnant

A2.5. Hypoxia and Hyperventilation:

A2.5.1. Symptoms & Signs

A2.5.2. Remember & recognize symptoms early!

A2.5.3. Watch for signs of hypoxia in other personnel i.e. glassy eyes, disoriented, etc....

A2.5.4. Hypoxia & hyperventilation symptoms very similar

A2.5.5. Notify the PT, jumpmaster or aircraft commander immediately if symptoms occur

A2.5.6. Hold arm out horizontal to signal any problem (use intercom if available)

A2.5.7. Handling of reactions:

A2.5.7.1. PT will monitor the reactor and attempt to resolve the problem

A2.5.7.2. PT will advise the aircraft commander and jumpmaster if the affected individual should jump, depending on the type and severity of the reaction

A2.5.7.3. If the reaction cannot be resolved, it may be necessary to abort the pass or sortie

A2.6. Hypoxia and night vision - benefits of oxygen to eyes

A2.7. Pressure breathing: (If applicable)

- A2.7.1. Altitudes (FL280 and above) or equipment
- A2.7.2. Proper technique (possible hyperventilation)
- A2.7.3. Communications technique

A2.8. Trapped Gases:

- A2.8.1. Ear and sinus blocks:
 - A2.8.1.1. Don't fly or jump with cold or sinus condition (don't self-medicate - see PT/Medic!) (Self-medication can cause additional problems)
 - A2.8.1.2. Methods of clearing (Valsalva, jaw movement, neck stretch, regulator pressure, etc.)
PT may use nasal spray to clear problem at altitude
- A2.8.2. Delayed ear blocks: Cause and treatment
- A2.8.3. GI tract:
 - A2.8.3.1. Watch diet
 - A2.8.3.2. Eat something - don't go on an empty stomach
 - A2.8.3.3. Eat foods and drink beverages that do not promote gas formation
 - A2.8.3.4. Relieve gas at lower altitudes (abdominal massage)

A2.9. Evolved gases: (Decompression Sickness)

- A2.9.1. Causes:
 - A2.9.1.1. Pressure reduction by one-half (1/2) atmosphere or more (18,000 feet MSL)
 - A2.9.1.2. Rate of ascent
 - A2.9.1.3. Time at or above 20,000 feet MSL
 - A2.9.1.4. Amount of physical activity at altitude
 - A2.9.1.5. How hydrated/dehydrated individual is
- A2.9.2. Report any in-flight symptoms immediately!

A2.10. Denitrogenation procedures (pre-breathing - P/B):

- A2.10.1. Denitrogenation must be accomplished using 100% oxygen
- A2.10.2. Time required below 16,000 feet MSL
- A2.10.3. If possible, start P/B at 1,500 feet AGL to prevent ground egress hazards, minimize heat load on both aircrew and jumpers, conserves oxygen versus starting at ground level prior to take-off
- A2.10.4. Coordinate P/B completion with the 10 or 20 minute warning (attempt to minimize time at altitude and on oxygen)
- A2.10.5. Keep cargo compartment as comfortable as possible in regards to temperature
- A2.10.6. Upon completion of P/B, cabin depressurization rate will not exceed 3,000 feet/min

A2.11. Oxygen discipline:

- A2.11.1. Eyes must be kept open at all times. No sleeping while on oxygen.
- A2.11.2. If having problems, do not break mask seal or remove mask unless absolutely necessary - Notify PT/Oxygen Technician of problem
- A2.11.3. If P/B is broken - (See paragraph 2.4. for guidance)
- A2.11.4. If applicable, explain procedures for changing bad mask, oxygen bottle, etc....
- A2.11.5. On descent, remain on oxygen until below 10,000 feet MSL (Helps prevent low grade hypoxia)
- A2.11.6. Jumpers not required to be on oxygen between 10,000 feet and 13,000 feet MSL as long as exposure does not exceed 30 minutes (above 13,000 feet MSL must use oxygen)

A2.12. Factors limiting effective denitrogenation:

- A2.12.1. Body positions that limit good circulation i.e. crossed legs, etc....
- A2.12.2. Equipment straps and clothing that limit good circulation
- A2.12.3. Cold temperatures may cause decreased blood flow to extremities
- A2.12.4. Dehydration - decreased blood fluid base (avoid carbonated/alcoholic beverages - drink plenty of water!)
- A2.12.5. Disconnecting from oxygen console or aircraft regulator
- A2.12.6. Moving regulator automix lever from 100% to normal
- A2.12.7. Breaking mask seal

A2.13. Delayed reactions:

- A2.13.1. Report any post-flight symptoms immediately to the PT/HLO and/or local flight surgeon. (Provide phone numbers for PT/HLO and local flight surgeon)
- A2.13.2. Be alert for delayed symptoms up to 12 hours post flight
- A2.13.3. Limit post-flight physical activity as much as possible for 12 hours to avoid possible injuries that may mimic DCS
- A2.13.4. Stay well hydrated
- A2.13.5. Avoid excessive alcohol intake; alcohol and caffeine can result in dehydration, and any alcohol intake may mask symptoms of DCS

A2.14. Thermal stresses:

- A2.14.1. Frostbite hazard:
 - A2.14.1.1. Need for proper clothing and protection (temperature drops 3.6 degrees F for every 1,000 feet above ground level)
 - A2.14.1.2. Properly warmed hands and feet
- A2.14.2. Heat hazard:
 - A2.14.2.1. Hydrate body well prior to boarding aircraft and start of denitrogenation
 - A2.14.2.2. Keep cargo compartment temperature as comfortable as possible to avoid sweating, dehydration, etc....

A2.15. Communications:

- A2.15.1. Aircrew:
 - A2.15.1.1. At least 1 PT must be on intercom
 - A2.15.1.2. Call will be "PT" or "PT 1", "PT 2", etc. if more than 1 on intercom
- A2.15.2. Jumpers:
 - A2.15.2.1. Jumpmaster may be on intercom
 - A2.15.2.2. Establish appropriate in-flight hand signals with jumpers to identify problems, etc....
 - A2.15.2.3. Use written messages if intercom not available with jumpers

A2.16. Ground egress:

- A2.16.1. If enough warning is given, help jumpers disconnect from consoles and shut down consoles
- A2.16.2. If there is not enough warning - follow aircraft evacuation procedures
- A2.16.3. Follow all other ground egress training procedures as briefed during pre-flight

A2.17. Physiological incidents:

A2.17.1. Evaluate situation and advise the jumpmaster and/or aircraft commander on best course of action

A2.17.2. If reaction is suspected DCS:

A2.17.2.1. Immobilize effected area of individual (if applicable, place individual in horizontal position)

A2.17.2.2. Administer 100% oxygen via aviators mask (don't use same mask individual used for operation)

A2.17.2.3. Cabin altitude to sea level or field elevation of evacuation site as soon as possible

A2.17.2.4. If possible, advise the flight surgeon at operating location via radio, command post, or any other mode of communications of situation and coordinate treatment actions.

A2.17.2.5. Transport to nearest hyperbaric treatment facility (if applicable)

A2.17.2.6. Monitor and record vital signs and all symptoms

NOTE: Must not over fly a facility with a flight medical officer (military or civilian) if situation is an IFE (in-flight emergency).

Attachment 3

SOF AOP MISSION ESSENTIAL TASK LISTS (METLS)

1. Provides oversight, management, and operational capabilities relating to human performance factors.
2. Responsible for monitoring aircrew and jumper personnel in-flight for physiological incidents.
3. Serves as adviser to the aircraft commander and jumpmaster.
4. Perform human performance threat assessments and make recommendations.
5. Provide aircraft mishap response/investigation capabilities.