

**BY ORDER OF THE COMMANDER  
AIR FORCE GLOBAL STRIKE COMMAND**

**AIR FORCE INSTRUCTION 11-403**



**AIR FORCE GLOBAL STRIKE COMMAND  
SUPPLEMENT**

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Flying Operations**

**AEROSPACE PHYSIOLOGICAL  
TRAINING PROGRAM**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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AFI 11-403, *Aerospace Physiological Training Program*, dated 20 February 2001 is supplemented as follows: It provides necessary guidance regarding the operations and maintenance of the Reduced Oxygen Breathing Device training for all qualified Air Force Global Strike Command (AFGSC) Aerospace and Operational Physiology personnel to ensure effective and efficient training to all AFGSC bomber aircrew. This supplement applies to all AFGSC bomber aircrew participating in Aerospace Physiology refresher training in accordance with (IAW) AFI 11-403. It also applies only to those Air National Guard (ANG) and Air Force Reserve Command (AFRC) members currently flying CAF bomber aircraft. Ensure that all records created as a result of the processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/gcss-af61a/afirms/afirms/>. Contact supporting records managers as required. Refer recommended changes and questions about this publication, using AF Form 847, *Recommendation for Change of Publication*, to HQ AFGSC /SGPF; 162 Dodd Boulevard, Suite 10, Langley AFB VA 23665-1995.

**SUMMARY OF CHANGES**

This document is substantially revised and must be completely reviewed: Added Chapter 13 which provides guidance regarding the Reduced Oxygen Breathing Device as a suitable training platform substitute for the Type 4 Chamber requirement for aerospace physiological training refresher IAW AFI 11-403 paragraph 6.5.1.4.

**1.2.7. (Added)** The Command Surgeon General (HQ AFGSC/SG) supports the Aerospace and Operational Physiology Training Teams (AOPT) as a wing-level medical asset.

**1.4. Medical Unit Commander.** The Medical Treatment Facility's Aerospace and Operational Physiology personnel will accomplish the tasks of this supplement [normally through the Chief, Aerospace Medicine (SGP)] in coordination with the affected squadron medical elements, in order to enhance the performance of Air Force Global Strike Command (AFGSC) operational assets. The SGP provides human performance enhancement support to base operations in accordance with this instruction.

**1.5.8. (Added)** Ensures the local AOPT mission is properly resourced, staffed, and oversees its functioning in compliance with this publication.

**1.5.8.1. (Added)** Ensures the AOPT serves as a mentoring bed for training/qualifying junior personnel for AOPT participation.

**1.6.** The AOPT is composed of personnel in Air Force Specialty Code (AFSC) 43A3, Aerospace and Operational Physiologist, and AFSC 4M05, Aerospace and Operational Physiology Technician. The AOPT is a full member of "Team Aerospace" and promotes human performance enhancement at the operational level, under the direction of the local SGP, in a coordinated effort with the squadron medical element, Aircrew Flight Equipment (AFE), safety offices, and other agencies as appropriate. The AOPT is assigned to the flight medicine function at wing-level. An AOPT may affiliate with a regional unit for the purpose of records management and other assistance, as directed in Paragraph 3.5 and with approval of the MAJCOM coordinator and regional APTF commander.

**1.6.1.** AOPT instructs aircrew members and non-flying warfighters on physiological stresses and human factors to include, but not limited to, implications of aviation and worldwide deployments.

**1.6.2.** Briefings may include (but are not limited to) the following areas:

**1.6.2.1. (Added)** Spatial disorientation, night vision devices, crew/fighter resource management, laser threat and protection, and acceleration hazards.

**1.6.2.2. (Added)** Occupational hazards; nuclear, biological and chemical; shift work; sleep management; fatigue countermeasures; and mission planning.

**1.6.2.3. (Added)** Thermal stress related to local environmental conditions or personal protective equipment.

**1.6.2.4. (Added)** Nutrition, hydration or endemic conditions that effect human performance and combat capability.

**1.6.2.5. (Added)** Psychological and mission imposed stress factors.

**1.6.2.6. (Added)** Cognitive performance issues to include situational awareness, attention management, risk management, perception, and decision-making.

**1.6.5.** Prepares and annually budgets for AFGSC-directed consultant services for physiological and human factor investigation and analysis of military aircraft mishaps.

**1.6.6.** Provides documentation of AFI 11-403 academic training to regional Aerospace and Operational Physiology Training Flight (AOPTF) for completion of altitude chamber and

recording of completed training on AF forms 699, *Physiological Training Record*; AF Form 702, *Individual Physiological Training Record*; and AF Form 1274, *Physiological Training*.

**1.6.9.1. (Added)** Participates with exercise evaluation teams to identify potential human performance issues as they relate to deployments, if and when requested. May participate as a member of the wing disaster control group, wing exercise evaluation team, and survival recovery center.

**1.6.10.1. (Added)** Assigned duties in wing flying squadrons with flying duties in accordance with AFI 11-401, *Aviation Management*.

**1.6.10.1.1. (Added)** Participates in night flying and ground operations to identify operational physiological and human performance hazards. Conducts training and evaluation of night vision devices in concert with AFE offices. Assists squadron medical element in establishing wing guidance for night operation scheduling to maximize performance and safety. Conducts training to wing personnel on human performance issues during changing shift schedules.

**1.6.10.2. (Added)** Conducts periodic review of crew resource management (CRM) during preflight briefing, in-flight operations and post flight debrief IAW AFI 11-290. Collects information for local safety briefings conducted during squadron aircrew academics.

**1.6.10.3. (Added)** Conducts crew resource management (CRM) responsibilities in accordance with AFI 11-290\_AFGSCSUP

**1.6.10.4. (Added)** Provides evaluation of fatigue management strategies during long duration, night operations, and high ops tempo sorties. Supplements squadron medical element efforts to minimize fatigue impact on operations by evaluating non-medication interventions to fatigue management and conducts local briefings as necessary in support of squadron medical elements.

**1.6.10.5. (Added)** Evaluates mission and MDS specific spatial disorientation threats to high performance aircraft and briefs appropriate countermeasures during squadron/wing academics.

**1.6.10.6. (Added)** Evaluates other human performance issues as required and in coordination with the squadron medical element.

**1.6.10.7. (Added)** AOPT members flying in assigned aircraft must maintain currency in all applicable aircrew training such as AFE, egress, and flying requirements.

**1.6.11.** The AOPT member in AFSC 43A3 is authorized to perform duties for the CRM program office if assigned by the local operations group commander. The member assists the program office in fulfilling requirements for CRM training and evaluation. IAW AFI 11-290, the Aerospace Physiologist may provide the local organization with the following:

**1.6.11.1. (Added)** Schedules of formal courses and coordination with instructors.

**1.6.11.2. (Added)** Conduct of quarterly/monthly unit and wing level CRM training during safety briefings or special topics presentations.

**1.6.11.3. (Added)** Employment of aeromedical safety expertise to formulate trends and identify performance deficiencies obtained from flight safety information applicable to CRM academics and briefings.

**1.6.11.4. (Added)** Function as a qualified CRM facilitator for conducting training in accordance with AFI 11-290, *Cockpit/Crew Resource Management Training Program*, Paragraph 8.5. In the

event ACC has procured contractor provided CRM instruction, the wing Aerospace and Operational Physiologist may provide training in lieu of the contractor if the following conditions are met:

**1.6.11.4.1. (Added)** Contractor services are unavailable in a timely manner necessary to ensure compliance with AFI 11-290 requirements. The local OG/CC will determine necessity. This “stop-gap” training may be considered following attempts to obtain contractor services.

**1.6.11.4.2. (Added)** Attended a certified CRM facilitator's course. The ACC/SGPT MAJCOM Aerospace and Operational Physiology Consultant will determine course certification.

**1.6.11.4.3. (Added)** Certified as an instructor by OG/CC (with recommendation for certification from ACC SGPT). Initial certification requires physiologist to observe several contractor provided courses followed by practice teaching and a performance review by a contract instructor.

**1.6.11.4.5. (Added)** Physiologist maintains currency through annual instructor evaluation. The OG/CC will determine evaluation authority. At a minimum, annual participation in contractor provided training is required for currency. Failure to maintain currency requires re-accomplishment of initial certification requirements. Documents ensuring compliance will be maintained locally as part of the standard evaluation process in the physiologists training record.

**1.6.11.5. (Added)** Integrates CRM , Maintenance Resource Management (MRM), and Operational Risk Management programs into aviation support community such as air traffic control, aircraft maintenance etc. Facilitates safety programs and investigates operational hazards.

**1.6.12. (Added)** Participates in night vision goggle academics in accordance with MDS specific 11-2 Volume 1 publications to aviators. Must be a graduate of the Air Force night vision goggle (NVG) training course. Evaluates avionics lighting and NVG compatibility issues and investigates hazards and recommends solutions. Develops and teaches initial and refresher NVG academics to the non-aircrew war fighter as required.

**1.6.13. (Added)** Assists AFE as requested by the local Operations Support Squadron Commander (OSS/CC).

**1.6.13.1. (Added)** Advises AFE personnel on physiological and performance issues pertaining to personal protective equipment and deployed theater requirements.

**1.6.13.2. (Added)** Provides physiological and performance evaluation of AFE and employment.

**1.6.14. (Added)** Conducts shop surveys, consultations and briefings to local support personnel on human performance issues. Augments Bioenvironmental Engineering shop surveys by addressing human performance issues and advising on areas for improvement of human factors.

**1.6.15. (Added)** Supports mental health and family support agencies' efforts to address psychological and mission imposed stress factors, which may negatively affect human performance and combat capability.

**3.6.2.** Aerospace Physiologists assigned to an AOPT should attend the NVG instructor course provided by the Air Education and Training Command at Randolph AFB.

**3.6.3.** AOPTs performing a flying and or jump mission [Example: high altitude airdrop mission support (HAAMS), parasail training and test jumps] must project needed quotas for airborne (parachutist), combat survival training and water survival--parachuting courses annually. AOPTs supporting HAAMS should schedule their parachute qualified personnel to attend the military freefall parachutist course.

**3.6.4.** In addition to the courses listed above, aerospace and operational physiologists assigned to an AOPT, should attend either the Aircraft Mishap Investigation Course (WCIP05A) or the Aircraft Mishap Investigation and Prevention Course (B30ZY43A3 002), the Human Performance Enhancement Course (B30ZY43A3 001), and the Aviation Human Performance Course (WCIP07K).

**5.8. (Added)** AOPT training sessions may include informal briefings conducted in squadron settings and formal briefings conducted to large audiences.

## **Chapter 13 (Added)**

### **REDUCED OXYGEN BREATHING DEVICE OPERATIONS**

#### **13.1. (Added) General Overview.**

**13.1.1. (Added) Overview.** The ROBD aircrew training system provides hypoxia recognition and emergency recovery procedures training for a loss of aircraft cabin pressurization, malfunctioning oxygen equipment and other emergencies that result in the need for supplemental or emergency oxygen. The ROBD shall be used in conjunction with a flight simulator or ROBD Hypoxia Familiarization Trainer (HFT) to train aircraft-specific hypoxia emergency recovery procedures. The ROBD is an approved aircrew training system alternative to the low-pressure chamber in AFI 11-403 Paragraphs 5.6 and 6.5.1.4 for Combat Air Force fighter and bomber aircrew as part of refresher physiological training.

**13.1.2. (Added) Description.** The ROBD produces normobaric hypoxia by delivering a precise mixture of nitrogen and reduced oxygen from attached pressurized cylinders or from an oxygen/nitrogen extraction system. The reduced oxygen gas mixture is delivered to an aviator's oxygen mask to accurately simulate the equivalent oxygen concentration at altitudes from sea level to 34,000 feet. The instructor controls the altitude and concentration of oxygen in the gas mixture via the ROBD control interface by selecting the appropriate training profile. The training profile is a pre-programmed menu that consists of desired altitudes and simulated ascent rates. The instructor may start, change, or stop the training profile from the ROBD control interface. For emergency hypoxia recovery, the instructor initiates 100% oxygen with positive pressure from the control panel via the „Oxygen Dump“ switch.

**13.2. (Added) Objectives and Demonstrations.** IAW AFI 11-403 Paragraph 6.5, all training requirements must be fulfilled for fighter and bomber aircrew (with exception of paragraph 6.5.2) where the Type 4 low pressure chamber flight will be replaced with the ROBD. The following objectives and demonstrations will be performed during ROBD training.

**13.2.1. (Added)** The following training objectives are required for ROBD hypoxia recognition and recovery training:

**13.2.1.1. (Added)** Experience the symptoms of hypoxia while in a simulated flight/mission environment.

**13.2.1.2. (Added)** Perform the appropriate aircraft-specific hypoxia emergency procedures without assistance.

**13.2.1.3. (Added)** Demonstrate the correct positive pressure breathing technique during emergency oxygen activation.

**13.2.1.4. (Added)** Demonstrate proper pre-flight, in-flight, emergency and post-flight checks and configuration of oxygen equipment.

**13.2.1.5. (Added)** Recognize and correct night vision deficiencies resulting from decreased oxygen.

**13.2.2. (Added)** All ROBD aircrew training profiles will be programmed for a 25,000 feet hypoxia demonstration.

**13.2.3. (Added)** All ROBD training will utilize aircrew flight helmet and mask. Oxygen panel will be configured per the aircraft technical order (T.O.).

**13.3. (Added) Personnel Requirements and Qualifications.**

**13.3.1. (Added)** Minimum Personnel Requirements for ROBD: Only designated Aerospace Operational and Physiology Officers, AFSC 43A, and Aerospace Operational and Physiology Technicians, AFSC 4MOX, may operate the ROBD. As a minimum, an Aerospace Operational and Physiology Officer must be present for all ROBD training and may concurrently be an instructor/operator. If several ROBDs (two or more devices) are being used in the same location, each device will have a qualified and dedicated Instructor/Operator.

**13.3.2. (Added)** Qualifications: All personnel will be graduates of the ACC ROBD Operator Qualification Course, ACC syllabus ROBD2OQT, **and/or** will successfully complete local ROBD upgrade training program.

**13.3.2.1 (Added)** All AOPT units will develop a local ROBD upgrade training program for new personnel incorporating the ACC ROBD Operator Qualification Course, ACC syllabus ROBD2OQT as the primary source document for establishing qualification criteria. All upgrade training will be performed by a qualified 43A/4MO ROBD instructor and documented in the individual's OJT/instructor records, prior to operating the ROBD or supervising ROBD operations.

**13.3.2.2. (Added)** All personnel successfully completing local ROBD upgrade training will be documented via certification letter, signed by the individual's squadron commander, endorsed by ACC/SGPT, and maintained in the individual's OJT/instructor records, prior to operating the ROBD or supervising ROBD operations.

**13.3.2.3. (Added)** All personnel operating and/or supervising ROBD operations must have current basic life support and automated external defibrillator (AED) certifications and must be current in AFI 11-403 aerospace physiology training.

**13.3.3. (Added)** Responsibilities: This section covers the duties and responsibilities of the ROBD Aerospace and Operational Physiology Officer and ROBD Instructor/Operator.

**13.3.3.1. (Added) Aerospace Operational and Physiology Officer (AOP).** The AOP is responsible for all phases of ROBD training and shall be present during ROBD operations. The AOP will ensure that the Flight Surgeon (FS) has been notified of training start and finish. The AOP is the go/no-go decision authority for remedial ROBD training following any unsuccessful completion of the training objectives outlined in Paragraph 13.2. The AOP is responsible for the safety of the student participating in the ROBD training and the management of any reactors. In the event of an emergency or unusual reaction during ROBD training, the AOP will ensure all appropriate emergency procedures are executed and that the injury/reaction is documented on AF Form 361, *Chamber Reactor/Treatment Report*, IAW AFI 11-403 Paragraph 11.2. Following student recovery from any reaction, the AOP, with concurrence from the FS, will be the go/no-go decision authority for repetition of training if required.

**13.3.3.2. (Added)** Instructor-Operator (I/O). The I/O is responsible for guiding and conducting student ROBD training. The I/O will contact the FS for notification of training session start and finish. The I/O ensures the correct ROBD configuration for training, operates the ROBD during the system self-test, selects and controls the training profiles, activates the ROBD emergency

oxygen for student recovery and directly supervises the student's training session and completion of training objectives. The I/O as the first responder to any usual student reactions will ensure appropriate emergency procedures are executed and will assist the AOP with reactor management.

#### **13.4. (Added) Operating and Maintenance Procedures.**

##### **13.4.1. (Added) ROBD General Safety and Operating Procedures.**

**13.4.1.1. (Added)** AOP/IO will ensure all scheduling/medical requirements are complete IAW 11-403 Paragraph 7.2. Additionally, prior to any ROBD training event the AOP/IO will verify with the student that their health (physical condition) is unchanged from their last documented physical. If there are changes in the students health the AOP/IO will refer the student to the flight surgeon for medical clearance prior to ROBD training event.

**13.4.1.2. (Added)** The "on call" Flight Surgeon (FS) will be notified before and after all ROBD training sessions to ensure immediate availability of medical coverage when training is conducted at an approved ROBD training unit. In the event of an emergency, notify the emergency medical response by calling 911 and then contact the FS on call. The AOP will have positive control over the student and provide basic first aid until relieved by emergency response personnel.

**13.4.1.3. (Added)** The following restrictions apply to personnel participating in ROBD training:

**13.4.1.3.1. (Added)** Training profile altitude shall not exceed 25,000 feet and duration not longer than 10 minutes or blood O2 saturation below 60% (whichever comes first). Programmed rates of ascent shall not exceed 12,000 feet per minute.

**13.4.1.3.2. (Added)** No more than five exposures to simulated altitudes over 15,000 feet per individual in a 24-hour period.

**13.4.1.3.3. (Added)** The ROBD training session shall be terminated if the student loses consciousness or becomes incoherent and incapable of performing emergency procedures. Subsequent flights may be performed, but only after the student has recovered fully (i.e., absence of symptoms and blood O2 saturation greater than 95%).

**13.4.1.3.4. (Added)** Any time a training session needs to be terminated while a low-oxygen gas mixture is being delivered to the student, utilize 100% O2 via the Oxygen Dump switch to terminate the training profile. For example, if the student's blood O2 saturation drops below 60% or the student loses consciousness or becomes incapable of performing hypoxia recovery emergency procedures, then the training session should be terminated via activation of the Oxygen Dump switch by the IO.

**13.4.2. (Added) ROBD Flight Profiles.** Flight simulator scenarios and ROBD flight station profiles shall meet the ROBD training objectives outlined in Paragraph 13.2 of this publication and shall be relevant to the wing flying mission. All flight simulator scenarios will be approved by the owning OG/CC or their designated representative and forwarded through the ACC TRSS Human Performance Office (ACC TRSS/HP) and the ACC Aerospace and Operational Physiology Branch (HQ ACC/SGPT) who in turn will forward to the Air Force Medical Support Agency Aerospace and Operational Physiology Office (AFMSA/SG3PT). All ROBD HFT

scenarios and ROBD profiles will be coordinated and approved by the ACC TRSS and HQ ACC/SGPT who in turn will forward to AFMSA/SG3PT.

**13.4.3. (Added) ROBD and Hypoxia Familiarization Trainer Maintenance.** ROBD user/unit-level periodic and emergency maintenance will be limited to fan filter cleaning and Oxygen Sensor replacement. These procedures will be performed strictly IAW ROBD technical manuals and associated checklists. All other maintenance requirements will be the responsibility of the ACC TRSS and/or appropriate sustainment organization.

**13.4.3.1. (Added)** Any time the ROBD training system is non-operational due to maintenance, user must notify ACC TRSS/HP, HQ ACC/SGPT, HQ AFGSC/SGPF the OG/CC through the OSS/CC and the Aerospace Medicine Squadron Commander (AMDS/CC) to report lost/reduced training capacity. This notification must take place within 24 hrs of ROBD unit non-operational status so that any students awaiting training can be redirected to an altitude chamber facility or that a waiver of physiological training can be pursued IAW AFI 11-403, Paragraph 2.6.

**13.4.3.2. (Added)** User/Unit will be required to prepare and ship ROBD unit and any associated equipment to the repair facility IAW ACC TRSS/HP instructions and sustainment funding guidelines.

**13.4.3.3. (Added)** Hypoxia Familiarization Trainer. Notify ACC TRSS/HP, HQ ACC/SGPT, and HQ AFGSC/SGPF of any malfunctions that render the HFT non-operational. At no time shall user/unit perform maintenance or otherwise make alterations to HFT without express approval and guidance from ACC TRSS Det 1 and ACC TRSS/HP.

**13.4.3.4. (Added)** User must prepare an operations and maintenance report monthly. This report will be submitted through HQ ACC/SGPT, HQ AFGSC/SGPF and to ACC TRSS/HP within 10 days of the first of the following month. For instance, the operations and maintenance report is due on the 10th of the month for the previous month's utilization and maintenance period. If utilization is not monthly, report may be submitted quarterly. The report shall take the form of the ROBD utilization/inspection and maintenance log and will be submitted electronically and will also be submitted as an attachment to the HQ ACC/SGPT monthly report IAW AFI 11-403 which in turn will be submitted to AFMSA/SG3PT.

**13.5. (Added) Emergency Procedures.** This section establishes the specific procedures to be followed during ROBD reactions and other potential emergency and mechanical failures. In order to provide the highest degree of safety for all aircrew participating in ROBD training, the following emergency procedures will be performed by all ROBD crewmembers. The ROBD I/O will be the first responder to all reactions, with guidance as necessary from the APO. NOTE: The ROBD AOP is responsible for the safety of the training and students, and will always be notified of any ROBD reactions and respond IAW Paragraph 13.5.4. A ROBD reaction plan is required, it will be separate from altitude chamber reaction plan, and will include the following reactions and treatment responses.

**13.5.1. (Added) ROBD AOP.** The AOP is responsible for the review of the pre-flight student screening and referring any students with a suspected condition that might adversely affect the student during training to the FS. He/she is responsible for all activities occurring during ROBD training up to and including the management of ROBD reactors. The ROBD AOP is responsible for the reactor and will supervise care, first aid, and transport until relieved by medical response

personnel, will ensure FS notification of all reactions and ensure an AF Form 361 is initiated, as required IAW Paragraph 13.5.4.

**13.5.2. (Added) ROBD Instructor/Operator (I/O).** Ensures the ROBD training system equipment is functioning properly before any ROBD training is to occur. The I/O notifies the FS office before and after ROBD training to ensure immediate availability of medical coverage. In the event of an emergency, I/O will activate the emergency response system by calling 911 as directed and then notifying the FS on call. The I/O will assist the APO in reactor management.

**13.5.3. (Added) General Procedures for ROBD Reactions.** A reaction is defined as a severe or unusual physical, physiological or psychological response during ROBD training. For ROBD reactions the AOP and I/O will activate the 911 response system and then call the on-call FS, provide basic emergency life saving skills if required until relieved by emergency response personnel. ROBD training staff and emergency response personnel shall adhere to the procedures outlined in this instruction when an ROBD reaction occurs.

**13.5.3.1. (Added)** For a medical emergency, activate the local emergency medical services (EMS) response by calling 911 and then contact the on-call FS.

**13.5.3.2. (Added)** For a non-medical emergency reaction, refer student to the flight surgeon's office with accompanying documentation on Standard Form 600, *Medical Record--Chronological Record of Medical Care*.

**13.5.3.3. (Added)** An AF Form 361 must be completed and processed IAW AFI 11-403 Paragraph 11.2.

#### **13.5.4. (Added) ROBD Reactions and Emergencies.**

**13.5.4.1. (Added) Apprehension and Claustrophobia.** Apprehension and claustrophobia should be minimal as training occurs in a familiar environment with experienced aircrew. However, training is normally not accomplished while in a reduced oxygen environment, so apprehension and claustrophobia are still possible. Professionalism and sensitivity by Aerospace and Operational Physiology personnel can help alleviate problems and limit/minimize hyperventilation reactions. If the student appears to be apprehensive, work with them prior to accomplishing ROBD training by practice breathing off of the device before training event is to begin. The student should not be rushed or crowded. If the student insists on leaving the ROBD training site/simulator, the student should be allowed to leave and shall be referred to his/her commander or FS as required. If ROBD is determined not appropriate for training then all efforts will be made to schedule the student at a chamber location where the training requirement can be achieved.

**13.5.4.2. (Added) Hyperventilation.** Hyperventilation can result from apprehension, positive pressure breathing and/or hypoxia. If student exhibits signs of hyperventilation, the I/O will activate the oxygen dump switch, monitor, and encourage the student to slow their breathing rate and depth. If the reactor cannot control rate and depth of breathing adequately and or blood O2 saturation levels begin to drop after activation of 100% O2, the I/O will remove the student from the ROBD training system and will notify the AOP. The AOP will refer the reactor to the FS for further evaluation. If the reactor becomes unconscious or unresponsive for more than 30 seconds, place the student on the floor in a horizontal position (if practical) and follow procedures listed under loss of consciousness IAW Paragraph 13.5.4.5.

**13.5.4.3. (Added) Suffocation.** When a reactor reports the feeling of suffocation, have the reactor immediately lower his/her mask and check connections. If connections-check is good, check ROBD system state for correct mode of operation and remedy if required IAW ROBD Operations Checklist. If the ROBD passes ops test then inspect reactor's mask and have him/her exchange equipment life support or provide student with a properly fitted training mask if available.

**13.5.4.4. (Added) Hypoxia.** If during the non-hypoxia stage of the training the student becomes hypoxic, immediately activate the oxygen dump switch on the ROBD. Monitor O2 sensor and heart rate to ensure appropriate recovery. If hypoxia symptoms do not subside, instruct the student to disconnect the mask from the right side of his/her helmet and allow them to recover breathing ambient air; however, recovery from hypoxia will be delayed without 100% oxygen under pressure. Continue to monitor for recovery and ensure no further degradation of consciousness occurs. If reactor becomes unresponsive or unconscious, follow procedures under loss of consciousness IAW Paragraph 13.5.4.5.

**13.5.4.5. (Added) Loss of Consciousness.** Loss of consciousness is considered a medical emergency and the EMS system should be activated immediately by calling 911 and then calling the on-call FS. Ensure the student is on 100% Oxygen (ROBD Oxygen Dump Switch activated) and place the reactor in a supine position on the floor and monitor respiration, pulse, and O2 levels via the student's pulse oximeter until directed otherwise by emergency response personnel. Vital signs must be taken initially and at least every two minutes thereafter unless otherwise directed by emergency response personnel. Continue to provide basic emergency life saving skills and AED if available until relieved by emergency response personnel.

### **13.5.5. (Added) Mechanical/Electrical Emergencies.**

**13.5.5.1. (Added) Power Loss.** If electrical power is lost during hypoxia portion of ROBD training, I/O will instruct the student to disconnect the mask from the right side of his/her helmet and allow them to recover breathing ambient air. If electrical power is lost during non-hypoxia portion of ROBD training, student will disconnect mask and wait for instructions from I/O. Training can be restarted once electrical power is restored and the I/O has performed an ROBD self-test IAW ROBD operations checklist. Training will commence from the beginning of the profile following an equipment check/retest.

**13.5.5.2. (Added) Electrical Fire.** If an electrical fire is detected, cease all training activities and follow local emergency fire procedures. If not the source of the electrical fire, turn off the ROBD power switch and close all cylinder valves but do not disconnect any hoses.

**13.5.5.3. (Added) Loss of Oxygen, Nitrogen, or Air.** If Oxygen source is inadequate during hypoxia recovery portion of ROBD training, the ROBD Oxygen alarm will sound. Disconnect student from ROBD by instructing the student to disconnect the mask from the right side of his/her helmet and allow them to recover breathing ambient air; however, recovery from hypoxia will be delayed without 100% oxygen under pressure. If air and nitrogen sources are inadequate, the ROBD will disable hypoxia training and automatically activate 100% oxygen. Discontinue training until bottles are professionally serviced.

**13.6. (Added) Required Recurring Emergency Procedure Training.**

**13.6.1. (Added)** Emergency procedures must be exercised no less than quarterly and can be scheduled concurrently with wing/medical group (MDG) exercises or inspections. Each of the categories below must be exercised at least once per year. These exercises should be conducted where ROBD training is located to include simulator facilities. The senior Aerospace and Operational Physiology staff member will ensure all training events are documented and routed through appropriate agencies to ensure the opportunity for exercise feedback from all responders.

**13.6.1.1. (Added) Unconscious/Unresponsive Reactor.** The 911 system will be activated and all appropriate agencies, including FS, must respond.

**13.6.1.2. (Added) Mechanical/Physical Emergency.** This may be fire, electrical or equipment failure, or weather. Fire exercises must include Fire Department response. The Fire Department response must be exercised at a minimum of annually.

**13.6.1.3. (Added) Hyperventilation, Anxiety/Claustrophobia.** These actions should be exercised to include removal of student from ROBD training system.

**13.7. (Added) ROBD Training System Management.** This section describes the roles and responsibilities for ROBD training system management and sustainment.

**13.7.1. (Added) Air Command Combat.**

**13.7.1.1. (Added)** Until such time as a MAJCOM SGPT can be established ACC SGPT will serve as the MAJCOM AOP Consultant to AFGSC/SG and function as the command focal point, and SGs representative for aerospace and operational physiology, human factors, and aviation safety related issues IAW AFI 11-403 para 1.2.4. Those ACC/SGPT responsibilities defined throughout this instruction will convert to the AFGSC 43A4 upon standup of the MAJCOM 43A4 position.

**13.7.1.3. (Added)** Until such time as a Lead Command (LC), System Program Office (SPO), System Program Manager (SPM) and Item Manager (IM) can be established for physiological training systems, in coordination with ACC/SGPT, ACC TRSS will serve in these capacities and execute the requirements of ROBD aircrew training system management IAW AFI 36-2251, *Management of Air Training Systems*. This applies to both the ROBD training system and the Hypoxia Familiarization Trainer.

**13.7.1.2.1. (Added)** ACC TRSS will plan, program and budget for all acquisition and life cycle management requirements for the ROBD training system. This includes initial issue of the training system and support equipment, emergency and periodic maintenance requirements and supplies, and equipment/system replacement plans.

**13.7.1.2.3. (Added)** ACC TRSS will conduct and chair a semi-annual Training Planning Team (TPT) meeting. The TPT will ensure all user requirements are being met by the training system. It will serve as a forum for discussion of current utilization and maintenance issues and upgrades and modifications to improve training system performance objectives. Members of the TPT will include OG representatives, Aerospace Medicine, Aerospace and Operational Physiology, Flight Safety and other appropriate members.

**13.7.1.2.4. (Added)** ACC TRSS will ensure ROBD training system configuration control through an annual Staff Assistance Visit (SAV) coordinated through the OG/CC and MDG/CC. All efforts must be made to conduct ROBD training system SAVs in conjunction with bi-annual AFI 11-403 Curriculum and Training Management (CATM) SAVs and inspections to minimize unit impact. ACC TRSS will forward all SAV reports to HQ AFGSC/SGPF and HQ ACC/SGPT. ROBD training system configuration changes must be coordinated through the OG/CC, HQ ACC/SGPT, and approved by ACC TRSS.

**13.7.1.2.5. (Added)** ACC TRSS will forward an annual ROBD Training System Utilization and Maintenance Report to the HQ ACC/SGPT, HQ AFGSC/SGPF, and AFMSA/SG3PT by January 15th for the preceding calendar year.

**13.7.2. (Added) Wing.**

**13.7.2.1. (Added)** All ROBD training system components will be placed on the base level R-14 Custodian Authorization Custody Receipt Listing (CA-CRL) Equipment Account. See authorized equipment list in Table 13.1 (Added).

**13.7.2.2. (Added)** All materials required for the operation of the ROBD that are considered HAZMAT must have authorization, approval and control IAW AFI 32-7086, *Hazardous Materials Management*.

**13.7.2.3. (Added)** Coordinate movement and disposition of any ROBD training system components with ACC TRSS and HQ ACC/SGPT. Allow enough lead time to enable proper planning, programming and funding.

**13.7.2.4. (Added)** Facilitates approval for security requirements required for simulator facility access.

**Table 13.1. (Added) ROBD2 Authorized Equipment List.**

NSN	PART/STOCK NO.	Nomenclature	QTY	UI	PRICE
	Series 6202	ROBD2	4	ea	\$17,355.50
	8069492-01-XB with CGA 346 (Air) connector; 8069402-01-XC with CGA 580 (Nitrogen) connector; 8068401-01-XA with CGA 540 (Oxygen) connector	Color Coded Pressure Reduction Regulators and Color Coded Braided Metal Gas Hoses, 10 feet	12	6	\$1,211.69
	8069492-01-XB with CGA 346 (Air) connector; 8069402-01-XC with CGA 580 (Nitrogen) connector; 8068401-01-XA with CGA 540 (Oxygen) connector	Color Coded Pressure Reduction Regulators and Color Coded Braided Metal Gas Hoses, 20 feet	12	6	\$1,345.83

	8069492-01-XB with CGA 346 (Air) connector; 8069402-01-XC with CGA 580 (Nitrogen) connector; 8068401-01-XA with CGA 540 (Oxygen) connector	Color Coded Pressure Reduction Regulators and Color Coded Braided Metal Gas Hoses, 30 feet	12	6	\$1,511.59
	8069492-01-XB with CGA 346 (Air) connector; 8069402-01-XC with CGA 580 (Nitrogen) connector; 8068401-01-XA with CGA 540 (Oxygen) connector	Color Coded Pressure Reduction Regulators and Color Coded Braided Metal Gas Hoses, 10 feet	12	6	\$1,211.69
	XJ007	Pulse Oximeter	4	ea	\$300.00
601282512		Heavy Duty Shipping Case w/Wheels	4	ea	\$1,338.89
	SG6230	4 Cylinder Gas Cart	4	ea	\$625.33
		ROBD2 Cart	4	ea	\$207.97
	120115	Cylinder, Medical Compressed Gas, Oxygen	12	ea	
	120211	Cylinder, Medical Compressed Gas, Air	12	ea	
	120146	Cylinder, Medical Compressed Gas, Nitrogen	12	ea	
	W-73	Wrench, O2 Regulators	4	ea	\$112.30
	VWOW-50RL	Velcro Straps	50	50	\$17
8030-00-889-3535		Teflon Tape	4	ea	\$1.10
6850-00-621-1820		Leak Test Fluid	4	ea	\$3.22
7920-00-282-9246		Wire Brush	4	ea	\$2.80
910L000533C		Hypoxia Familiarization Trainer	2	ea	\$9,286.00

### 13.7.3. Operations Group.

**13.7.3.1. (Added)** Provides location and space for ROBD training system and AOP personnel to conduct aircrew physiological training requirements IAW AFI 11-202 Volume 1, *Aircrew Training*, and AFI 11-403.

**13.7.3.2. (Added)** Approves all simulator profiles utilized with ROBD training. Enables close coordination between simulator instructors/operators and AOP personnel to ensure ROBD training objectives are met with the most efficient use of personnel and simulator systems.

**13.7.3.3. (Added)** Plans, programs and budgets requirements for ROBD training system resupply of consumables; e.g., resupply of compressed gases, leak test fluid, and training supplies used in the execution of AFI 11-403 aircrew and operational physiological training.

**13.7.3.4. (Added)** Provides AOP personnel access to aircrew flight scheduling processes and information to include flight simulator training schedules to enable advance planning for aircrew physiological training sessions.

**13.7.4. (Added) MDG.**

**13.7.4.1. (Added)** Provides qualified AOP personnel to conduct ROBD training for wing aircrew. Provides qualified aerospace medicine personnel and equipment for emergency response during AFI 11-403 ROBD aircrew training.

**13.7.4.2. (Added)** Executes quarterly emergency response reviews for ROBD reactors. At least two of these emergency response reviews must be fully exercised with local EMS and Aeromedical response teams. Documentation and participation of emergency response reviews shall be IAW MDG Health Services inspection criteria.

**13.7.4.3. (Added)** Ensures AOP personnel manpower billets have appropriate security clearance requirements for access to flight simulators and training facilities.

**13.7.5. (Added) Aerospace and Operational Physiology Training Flights (AOPTF) and Aerospace and Operational Physiology Teams (AOPT).**

**13.7.5.1. (Added)** Coordinates closely with flying squadrons and OSS units to ensure aircrew are offered adequate opportunity to complete refresher physiological training IAW this supplement and AFI 11-403. Due to the use of ROBD in flight simulators at some locations, close coordination with aircrew flight simulator training schedules is vital to utilize training systems with utmost efficiency and within contractual utilization limits.

**13.7.5.2. (Added)** Conducts and documents aircrew physiological training IAW AFI 11-403 and this supplement. Due to the MDS-specialized capability of wing-based physiological training, Trainer, Attack, Reconnaissance, Fighter (TARF) and Tanker, Transport, Bomber (TTB) refresher physiological training academic topics shall be adapted to meet wing aircrew MDS requirements, however all AFI 11-403 Paragraph 6.5 requirements must be met. All 11-403 refresher training using the ROBD will be documented on the AF Form 702 as follows: Type of training will include an asterisk before TARF or TTB REF and include the following statement in the remarks section found on the AF Form 702 "ROBD hypoxia recognition and recovery training accomplished."

**13.7.5.3. (Added)** AOPTF/AOPT personnel are responsible for local management of ROBD training systems, Hypoxia Familiarization Trainers, and will ensure all technical manuals, associated checklists, and procedures are properly followed for storage, operation and maintenance.

**13.7.5.4. (Added)** Prepares/Submits annual budget to OSS/CC through their owning squadron commander for ROBD aircrew training consumables requirements. Prepares/submits ROBD Training System Utilization and Maintenance Report IAW Paragraph 13.4.3.4.

**13.7.5.5. (Added)** A ROBD reaction plan is required and ensures emergency procedures training is being accomplished and documented IAW Paragraph 13.6.1 of this supplement.

**13.7.5.6. (Added)** AOPT personnel will HQ ACC/SGPT (who in turn will notify AFMSA/SG3PT, ACC TRSS) and OG/CC through appropriate chain of command any time the ROBD or Hypoxia Familiarization Trainer is non-operational due to maintenance or otherwise not an available training option for wing aircrew IAW paragraph 13.4.3.1.

**13.7.6. (Added) Site-Specific ROBD Procedures.** This section shall be filled in by the ROBD training site as appropriate and be reviewed by ACC TRSS and HQ ACC/SGPT during the annual site visits and or CATM inspections. The information/policies in this section should address site-specific situations and shall not contradict policies contain within this instruction or higher authority.

**13.8. (Added) Adopted IMTs/Forms.**

Standard Form 600, *Medical Record--Chronological Record of Medical Care*  
AF Form 847 - *Recommendation for Change of Publication*

**Attachment 1 (Added)**  
**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION**

**SGP** - Chief, Aerospace Medicine

**AFE** - Aircrew Flight Equipment

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