



DEPARTMENT OF THE NAVY
COMMANDER
TRAINING AIR WING FIVE
7480 USS ENTERPRISE STREET SUITE 205
MILTON, FLORIDA 32570-6017

IN REPLY REFER TO:
3710
Ser N7/1209
3 Nov 16

From: Commander, Training Air Wing FIVE
To: Commanding Officer, Training Squadron TWO
Commanding Officer, Training Squadron THREE
Commanding Officer, Training Squadron SIX
Officer-in-Charge, Fixed-Wing Instructor Training Unit

Subj: READ AND INITIAL 16-18: ACTUAL OR SUSPECTED HYPOXIC EVENTS

Ref: (a) NAVAIR A1-T6BAA-FCL-100

Encl: (1) Training Squadron TWENTY SEVEN Hazard Report T-6B PHYSEP: Student Had Hypoxic Symptoms Shortly After Takeoff, Class HAZARD FLIGHT, PHYSEP HAZARD – PHYSIOLOGICAL EPISODE

1. Recently there have been a number of physiological events in the T-6 in which one of the aircrew experienced possible symptoms of hypoxia. The events have differed in circumstances and outcomes, but the underlying risk of improper aircraft control, poor decision-making and possible incapacitation in the aircraft is serious. Refer to enclosure (1), HAZREP from VT-27.

2. Hypoxia can be difficult to diagnose during flight operations. It can occur even at low altitudes and can occur without the illumination of any Engine Indication and Crew Alerting System (EICAS) warnings such as the On Board Oxygen Generating System (OBOGS) FAIL light. Possible symptoms include:

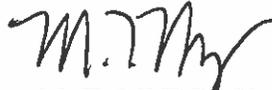
- Dizziness or light-headedness
- Confusion
- Rapid heartrate and/or rapid breathing
- Difficulty focusing
- Discoloration in the extremities (i.e. fingertips, lips, etc.)
- Slow response times

3. If either member of the crew experiences hypoxic symptoms or if hypoxia is suspected for any reason (with or without EICAS messages) that crewmember SHALL:

- a. PULL the Emergency Oxygen Handle (GREEN RING)

Subj: READ AND INITIAL 16-18: ACTUAL OR SUSPECTED HYPOXIC EVENTS

- b. Execute the OBOGS INOPERATIVE procedures per reference (a)
 - c. Land as soon as practical
4. All crews will continue to discuss hypoxia symptoms and risks and the need for good Crew Resource Management if symptoms exist during flight briefs.
5. The primary point of contact is TRAWING FIVE T-6B NATOPS Program Manager, Lieutenant Commander Marion Spencer, USN, who can be reached at 850-623-7480.



M. T. MURRAY

Copy to:
TW-5 T-6B Program Manager
Cubic

TRAINING SQUADRON 27 - VT-27 (N0406A)
ALL TEXAN AIRCRAFT ACTIVITIES ()
Classification: UNCLASSIFIED FOR OFFICIAL USE ONLY (FOUO)

From: TRAINING SQUADRON 27 - VT-27 N0406A
Subject: HAZARD REPORT OF, T-6B PHYSEP: Student Had Hypoxic Symptoms Shortly After Takeoff, Class
HAZARD FLIGHT, PHYSEP HAZARD - PHYSIOLOGICAL EPISODE

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References:

A. OPNAVINST 3750.6 SERIES

1. General Information:

A. Hazard Severity: HAZARD, Classification: FLIGHT HAZARD - PHYSIOLOGICAL EPISODE

B. WESS Serial Number: 1471358984144

C. Local Serial Number: 61-16

D. RAC: 03 - MODERATE RISK

E. Endorser:

F. Event: The Hazard Aircrew (HAC) was conducting an instrument training flight. Prior to takeoff, the Hazard Student Naval Aviator (HSNA) had difficulty securing his oxygen mask. The HSNA also had to forcibly exhale several times before the exhalation valve cleared. As the HAC waited about five minutes for departure, the HSNA started to feel a little anxious and "not normal." The HSNA did not tell the Hazard Instructor Pilot (HIP) about these abnormalities. The HSNA simply thought it was nerves prior to departing for a flight. Shortly after take off the HSNA missed the call to switch to departure. The HIP responded and instructed the HSNA to make the appropriate check in. The HSNA did not respond. The HIP waited approximately 5 seconds then checked in with departure. The HAC was passing approximately 1200' MSL and was given a left turn 040 continue climb to 4000' MSL. The HSNA again did not give any acknowledgment to the call or start the turn. At this time, the HSNA voiced, "Sir, something is wrong, I've never felt this way before." The HIP took the controls and requested vectors for an ASR to a full stop. On downwind, the HIP told the HSNA to select MAX oxygen on the OBOGS regulator. The student immediately felt better and the crew elected to not pull the green ring. The HIP landed the HA without incident.

On debrief the HSNA informed the HIP that from the time he secured his mask until selecting MAX oxygen he felt disoriented, tingly and had lower situational awareness. The HSNA informed the HIP that he heard the radio calls but was unable to understand what was said or what action to take.

The HAC immediately informed the command, aircraft issue and the on duty flight doctor. The HAC was seen that evening and the HSNA was seen again the following day for an additional check up. No abnormalities were noted from the medical examiners.

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Ref: SECNAVINST 5720.42, OPNAVINST 3750.6 Series and OPNAVINST 5102.1 Series.

G. Hazard Date, Local: August 10, 2016

H. Hazard Time, Local: 2020

I. Time Zone: S

J. Condition: NIGHT

2. Data:

A. Reporting Activity: TRAINING SQUADRON 27 - VT-27 N0406A

B. Aircraft or UAV:

B1.

(1) Aircraft: T-6B

(2) BUNO: 166014

(3) Reporting Custodian: N52812 - TRAINING AIR WING 4

(4) Controlling Custodian: CNATRA

(5) Departure Location: CORPUS CHRISTI NAS

(6) Destination:

(7) # Aircrew:

(8) # Injured Aircrew:

(9) # Passengers:

(10) # Injured Passengers:

(11) TMR: 1D1

(12) VMC/IMC U

3. Environment:

A. Hazard Location Description:

B. Hazard Country: UNITED STATES

C. Hazard State: TEXAS

D. Latitude: 27 41 34 N

E. Longitude: 097 17 25 W

F. Location: KNGP - CORPUS CHRISTI NAS

4. Weather:

A. Briefed By: NOT APP

B. Briefing Utilization: NOT APP

C. Air Temp: F

D. Relative Humidity:

E. Dewpoint: F

F. Water Temp: F

G. Wind Direction:

H. Wind Gust:

I. Ceiling Agl (100s ft):

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- J. Sky Condition:
- K. Horizon: UNKNOWN
- L. Visibility Statute Miles:
- M. Altimeter Setting:
- N. Icing: N
- O. Obstruction of Vision:
- P. Precipitation:
- Q. Extreme WX:
- R. Briefing Accuracy: NOT APPL

5. Damage and Hazard Cost:

- A. Non-DoD Damaged/Destroyed Property: \$0.00
- B. DoD Damaged/Destroyed Property: \$0.00
- C. Total Hazard Cost: \$0.00

6. Personnel Information:

A. Crew 1 T-6B

- (1) Crew Duty: STUDENT/UNDER INSTRUCTION
- (2) Injury:
- (3) Gender: MALE
- (4) Age: 0
- (5) Grade: O01
- (6) Service: NAVY
- (7) MOS:
- (8) Parent Organization: TRAINING SQUADRON 27 - VT-27
- (9) NVD: UNUSED
- (10) Crew Hours:

B. Crew 2 T-6B

- (1) Crew Duty: INSTRUCTOR
- (2) Injury:
- (3) Gender: MALE
- (4) Age: 0
- (5) Grade: O03
- (6) Service: MARINE
- (7) MOS:
- (8) Parent Organization: TRAINING SQUADRON 27 - VT-27
- (9) NVD: UNUSED
- (10) Crew Hours:

7. Factors:

7A. ACCEPTED CAUSE FACTORS

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A. HumanFactor - Dirty oxygen mask led to stuck exhalation valve

(1) Analysis: Following medical evaluations, the HSNA went to the paraloft to inspect the condition of the life support system. They found no discrepancy with his gear. The wing aeromedical safety officer said this is frequently the case with dirty valves. Students fail to properly clean them and as their flights progress the valve reaches a point where it begins to stick. This causes a restriction in the HSNA ability to breathe and can cause a hyperventilation state. The symptoms between hypoxia and hyperventilation can be nearly identical. Restricted breathing combined with the increased breathing rate due to the workload and stress of a flight likely combined to cause hyperventilation, which resulted in symptoms that appeared like hypoxia. This happened despite low cabin pressure. Once controls were passed, the workload and stress level decreased resulting in the subsiding of physiological symptoms.

Maintenance inspected the aircraft and found no discrepancies. An OBOGS purge and Ops check was completed IAW T6 MIM CH 35-10-00 with no discrepancies noted.

(a) Act: AE103 - Procedure not followed correctly. HSNA failed to properly clean his oxygen mask

8. Recommendations:

A. Recommendation: #1

(1) Description: Brief to all T-6 aircrew

(2) Remarks: Students should be trained on how to properly clean their oxygen mask on FAM-0 and continue to clean it on each subsequent flight.

(3) Action Agency: ALL TEXAN AIRCRAFT ACTIVITIES

(4) Applies To:

(a) Type: HUMAN FACTOR

(b) Statement: Dirty oxygen mask led to stuck exhalation valve

9. CO Comments:

A. N0406A - TRAINING SQUADRON 27 - VT-27

(1) Recognizing what are routine nerves and what are abnormal physiological symptoms can be difficult for both the student and the instructor. Clear and constant communication on the part of the student is crucial to alert the instructor. The crew did a nice job of discontinuing the flight and coming back around for a full stop, however, this situation could have been prevented had the SNA spoken up sooner. The OBOGS system is complex and there has recently been a number of issues with it including contamination. Pulling the green ring and getting 100% oxygen eliminates the risk of OBOGS contamination. If there is ever any doubt to the cause of hypoxic symptoms, the best solution is to pull the green ring.

10. Point of Contact:

A. Name:Levi Lundell

B. Phone:361-961-3815, DSN:

C. Email:levi.lundell@navy.mil

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