OPNAV INSTRUCTION 3750.6R

From: Chief of Naval Operations

Subj: NAVAL AVIATION SAFETY PROGRAM

Ref: (a) SECNAVINST 5720.42F
(b) DOD 5400.7-R of Sep 98 (NOTAL)
(c) DOD 6055.7 of 3 Oct 00 (NOTAL)

Encl: (1) Naval Aviation Program

1. Purpose. To issue policies and provisions of the Naval Aviation Safety Program. The format, scope and content of this revision differ so significantly from superseded instruction that it would not be practical to identify added, deleted or changed material in the text. A complete review of this entire instruction is therefore recommended upon receipt.

2. Cancellation. OPNAV Instruction 3750.6Q.

3. Action. All naval aviation personnel shall familiarize themselves with this instruction and other safety directives applicable to them and their assigned duties. All naval aviation activities shall establish and maintain an aggressive aviation safety program, which includes the detection, investigation, and elimination of hazards in naval aviation.

4. Reports and Forms

a. Symbol OPNAV 3750-19 is assigned to the Hazard Report required by paragraph 404.

b. Symbol OPNAV 3750-20 is assigned to the Mishap Data Report required by paragraph 503.

c. Symbol OPNAV 3750-21 is assigned to Direct Enemy Action Mishap Report required by paragraph 515.

d. Symbol OPNAV 3752-1 is assigned to the Mishap Investigation Report required by paragraph 703.

e. These reports per SECNAVINST 5214.2B.

f. Safety Investigation Report SIR 3750/1 through SIR 3750/16 are included in appendix N. Forms may be reproduced locally.

F. M. DIRREN, JR.
Special Assistant for Safety Matters

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FOREWORD

The material in this instruction is arranged to facilitate its use and understanding. Chapter 1 provides a general description of the Naval Aviation Safety Program. Subsequent information is arranged in the sequence in which it is normally needed. The first few chapters contain instructions regarding Command Aviation Safety Programs, premishap planning, and reporting of hazards. Following in order are chapters which describe actions to be taken in case of an aircraft mishap; mishap classification, initial required reports, mishap investigations, reporting of investigations, endorsement of reports, and monitoring of corrective actions to eliminate hazards.

Appendixes which contain material applicable to a particular chapter are placed directly at the end of that chapter. Appendixes which have a more general application are placed at the end of the instruction.

The following abbreviations are used in the instruction:

AA	-	Aeromedical Analysis
AGM	-	Aviation Ground Mishap
AMB	-	Aviation Mishap Board
BASH	-	Bird and Animal Strike Hazard
CAD	-	Collective Address Designator
DEA	-	Direct Enemy Action
FM	-	Flight Mishap
FRM	-	Flight Related Mishap
HFACS	-	Human Factors Analysis and Classification System
HR	-	Hazard Report
SIR	-	Safety Investigation Report
MDR	-	Mishap Data Report
MISREC	-	Mishap Report Recommendation
NMAC	-	Near Midair Collision
RAC	-	Risk Assessment Code

As used in this directive, the terms below have meanings as follows:

"Government" means U.S. Federal government
"Naval" means both Navy and Marine Corps
"Shall" connotes a mandatory action
"Should" connotes standard policy and deviation is discouraged
"May" and "need not" connote optional actions
"Will" indicates futurity and does not infer required action

Recommended changes to this instruction are welcome from any source and may be submitted directly to:

Commander
Naval Safety Center (Code 10)
375 A Street
Norfolk, Virginia 23511-4399

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CHAPTER ONE

GENERAL INFORMATION

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This Chapter provides a general description of the Naval Aviation Safety Program.

101. PROGRAM POLICY

The Director, Air Warfare Division (N78), Office of the Deputy Chief of Naval Operations (Resources, Warfare Requirements and Assessments) carries out the Naval Safety Program under the auspices of this instruction. This instruction applies to all military and civilian personnel in every Navy and Marine Corps aviation activity throughout naval aviation. Because safety is an inherent responsibility of command, the Naval Aviation Safety Program is implemented by, and carried out through, the chain of command.

102. PURPOSE OF THE PROGRAM

The Naval Aviation Safety Program enhances operational readiness when it preserves the lives and enhances the well-being of its members by protecting the equipment and material they need to accomplish their mission. The Naval Aviation Safety Program supports every aspect of naval aviation. Knowledge gained here may assist other safety efforts. The program may, therefore, yield benefits and preserve resources far beyond its intended scope.

103. OBJECTIVE OF THE PROGRAM

The Naval Aviation Safety Program succeeds by preventing damage and injury. Potential causes of damage and injury under human control are termed hazards. The goal of the Naval Aviation Safety Program is to eliminate or control hazards.

104. SCOPE OF THE PROGRAM

The Naval Aviation Safety Program encompasses all activities which detect, contain, or eliminate hazards in naval aviation. These activities include:

a. Aircraft and Unmanned Aerial Vehicle (UAV) design, research, development, test, evaluation, procurement, modification, maintenance, servicing, and operations.

b. Aircraft and UAV support equipment, facilities, supplies, and weapons.

c. Personnel selection, training, education, clothing, and equipment.

d. Policies, procedures, instructions, directives, and publications.

However, to be truly effective, this program must transcend these boundaries and become part of the culture that is Naval Aviation. An effective safety program requires everyone associated with naval aviation to shun the minimum requirements and adopt an active safety culture; one that is constantly renewed by fresh ideas.

105. PROGRAM CONCEPTS

The Naval Aviation Safety Program is based on the concept of necessitarianism which teaches us that mishaps are the inevitable result of their antecedent causes which preceded them in time. (Nothing "just happens.") Thus, it should be clear that we can prevent mishaps when we eliminate their causes beforehand. Preventing injury to people and damage to equipment, requires that we eliminate the hazards that cause damage and injury. The goal of the program is, therefore, to eliminate causes of damage and injury: to eliminate hazards.

a. Damage and Injury. Damage and injury is divided into two categories: the first results from the proximate causes of

the mishap. The second entails avoidable or additional damage and injury from factors not associated with the causes of the mishap. If the total damage and injury in an event exceeds an established severity threshold, that event is called a mishap.

b. For example: an improperly designed engine forces an aircraft to crash-land resulting in mishap-level damage. After landing, the aircraft burns because its fuel system was not crashworthy, and some occupants are burned because their flight clothing was not flame-resistant. In this case we not only have a mishap with its associated cause, we also have both damage and injury occurring during a mishap. Both the damage and the injury has its associated cause, neither of which was a cause of the mishap. Although there was only one mishap, there are three hazards which resulted in damage and injury. Under the program all of them must be addressed.

c. Causes of Damage and Injury (Hazards). The word "hazard" may be used interchangeably with "mishap causal factor" and "casual factors of damage or injury."

(1) Mishap Causal Factors. Most mishaps result from two or more causal factors. Without either one of them there would be no mishap. There is no reason, therefore, to rank causal factors as direct, primary, principal, or contributing. The determination of appropriate causal factors can be a difficult task. (Refer to subparagraph 607d(2)(a).) The proper evaluation of the significance of causal factors is called "risk assessment" and is described under "Program Priorities" in paragraph 105d.

(2) Causal Factors of Damage and Injury. A causal factor of damage occurring during a mishap is any hazard which causes avoidable or additional damage. A causal factor of injury occurring during a mishap is any hazard which causes avoidable or additional injury. Although these hazards did not cause the mishap, they added to its severity by causing additional damage or injury. Most mishaps will have correctable damage and injury causal factors that involve such areas as aircrew escape and survival equipment, aircraft or UAV design, or runway construction, to name a few.

(3) Environmental Conditions. Environmental conditions do not cause mishaps. Human beings have no control over daylight, darkness, sea state, hurricanes, tidal waves, or tornadoes. Inadequate weather forecasts or improper weather

avoidance procedures may cause a mishap, but not thunderstorms, turbulence, or lightning.

d. Prevention of Damage and Injury. Eliminating the hazards which cause them will eliminate mishaps. It's when we fail in this effort that mishaps occur.

e. Risk Management. A very effective tool for controlling and eliminating hazards is Risk Management. Risk management is a decision-making aid, available to all levels in the chain of command, to help identify and reduce risk to the lowest level consistent with mission accomplishment. Risk management applications range from hasty, on-the-run considerations of risks, to working groups studying the application of qualitative and quantitative techniques of mishap prevention. Applied beforehand, it will prevent a mishap. Applied afterward, it will prevent its recurrence. There are five steps in the risk management process.

(1) Identify Hazard. Ask yourself: What is there in the operating environment with the potential to adversely affect the cost of achieving your objective? The most efficient and direct detection of hazards is accomplished by individuals or commands with firsthand knowledge of the circumstances attendant to the hazard. But Aviation Safety Programs at all levels in the chain of command must include methods for hazard detection.

(a) Hazard Detection Before a Mishap. Analyzing data, observing near-mishaps, safety surveys, reviewing command plans, policies, procedures and instructions will all help detect hazards before a mishap.

(b) Hazard Detection After a Mishap. It is vital to the aviation safety program that we discover the hazards which cause mishaps. Permanent Aviation Mishap Boards (AMBs), established at the reporting custodian level, have the primary responsibility of detecting hazards through mishap investigation.

(2) Assess Hazards. Rank the severity and the probability of the identified hazards. Appendix B tells you how to evaluate the level of risk and assign Risk Assessment Codes (RACs) to quantify the degree of risk for any given hazard.

(3) Make Risk Decisions. Starting with the most threatening, select controls that reduce the risk to the minimum

acceptable level consistent with the mission or tasking. Controls may include:

(a) Engineering Controls. Controls such as system redesign or airframe changes reduce hazards or risks through design, material selection or substitution.

(b) Administrative Controls. Limiting the number of personnel or the length of time they are exposed to a hazard, providing warnings, conducting training or making changes to written policies such as NATOPS, are all examples of administrative controls.

(c) Personnel Protective Equipment. Controls that use items such as clothing, helmets and other protective equipment to reduce risk.

(4) Implement Controls. Select the most effective risk control options from the previous step. Now, with those controls in place, one must decide if the benefit of the operation outweighs the risk. If risk outweighs benefit, consider new control options or get help from the chain of command.

(5) Supervise. To maintain their effectiveness, be sure risk controls are working as expected. Constantly evaluate the success of the controls you have put in place.

f. Risk Management rules to remember:

(1) Operational necessity is only invoked when mission’s success is more important to the nation than the lives and equipment of those undertaking it.

(2) There is no such thing as operational necessity in a training environment.

(3) Manage by planning. Risks are most easily managed in the planning stage of an operation.

(4) Avoid unnecessary risk. Accept only those that can be controlled and contribute to the success of your mission.

(5) Make risk decisions at the right level - where the decision-maker has the experience and maturity to make a good decision. This is normally at the level of the leader

directly responsible for the operation. The greater the risk, the higher the authority required to approve taking the risk.

(6) We may accept controlled risks when their benefits outweigh their potential cost. Nothing humans do is completely risk free, especially where aviation is concerned. Risk management is an effective decision-making tool for reducing risk.

g. Hazard Elimination. Eliminating hazards is a three-step process: (1) Reporting of hazards (a safety function). (2) Taking action to correct hazards (rarely a safety function). (3) Monitoring of corrective actions (a safety function).

(1) Reporting Hazards. Every command, every individual, in naval aviation has an obligation to report hazards. Reporting hazards is one form of administrative control that warns similarly-equipped, similarly-tasked commands of new-found dangers. Your Aviation Safety Program must encourage and reward hazard reporting.

(a) Hazard Reporting Before a Mishap. The medium for highlighting hazards before they contribute to a naval aviation mishap is the Hazard Report (HAZREP). Submit HAZREPs whenever the potential for damage or injury exists.

(b) Hazard Reporting After a Mishap. The program provides for reporting hazards which cause mishaps and damage or injury occurring during mishaps via the Safety Investigation Report (SIR). However, a sanitized Hazard Report issued before the SIR is published will often provide the fleet with a timely warning of a potential source of damage or injury. A sanitized Hazard Report excludes the aircraft bureau number and date of incident. See paragraph 404f for specific procedures.

(2) Remedial Action to Correct Hazards. Both Hazard Reports and SIRs have provisions for recommendations to eliminate hazards. Both require endorsements if they are reporting a severe hazard or recommending corrective action by another command. When no additional action is required, the commanding officer's comments may serve as final endorsement on Hazard Reports. Corrective action on Hazard Reports is essentially the same, whether it is identified and reported on before or after a mishap.

(3) Monitoring Corrective Action. Continuous monitoring of corrective actions is necessary to be sure hazards

do not languish uncorrected. All command safety programs must monitor corrective actions required within the command. The Commander of the Naval Safety Center (COMNAVSAFECEN) monitors corrective actions resulting from all mishaps and most hazards that require endorsement above the squadron level. (See paragraph 905.)

h. Program Priorities. Appendix B discusses risk assessment codes (RACs) which indicate the significance of the threat each hazard poses. RACs are assigned based on the potential severity of damage or injury and the chance that the hazard will result in a mishap. The degree of effort spent to eliminate a hazard should be tailored to the assessed risk assigned. The program includes provisions for the assignment of RACs to hazards so efforts can be focused first on eliminating those hazards which are most severe.

i. The Concept of Privilege. Military and federal courts grant protection under Executive Privilege to information given under promises of confidentiality, and to the analysis, conclusions and recommendations of the AMB and endorsers. Witness statements of those given a promise of confidentiality and deliberative analyses of the AMB are privileged. Any information which would not have been discovered but for information provided under a promise of confidentiality is also privileged. Information directly calculated by the AMB, or developed at the specific request of the AMB, is privileged when disclosing that information would reveal the AMB's deliberative process. Promises of confidentiality may be given by members of the AMB. Members must judge whether confidentiality is necessary to insure that witness' full cooperation. The promise of confidentiality must be explicitly given. When granted, the protected witness must sign the form at appendix 6A-1. Maintain all witness-statements, related documents and records with other mishap documents. The Naval Aviation safety program has long benefited from the willingness of our personnel to confide in AMBs and ASOs. The intent of this restriction is not to erode this free flow of information. Most military members should still warrant being given confidentiality. The fact that the promise will be explicitly given or withheld will strengthen those promises that are given. Witnesses not given promises of confidentiality will sign the form at appendix 6B-1. Information taken from these witnesses remains subject to restrictions on its use and release per this instruction.

(1) Privileged Information. Privileged information shall not be used:

(a) In any determination affecting the interest of an individual making a statement under assurances of confidentiality.

(b) As evidence or to get evidence in making a misconduct or line-of-duty determination.

(c) As evidence to determine the susceptibility of personnel to discipline.

(d) As evidence in claims on behalf of the government.

(e) As evidence to determine the liability of the government for property damage caused by a mishap.

(f) As evidence before administrative bodies, such as Naval Aviator and Naval Flight Officer Evaluation Boards or Field Flight Performance Boards.

(g) As evidence before, or as any part of, a Judge Advocate General (JAG) Manual Investigation Report.

(h) In any other punitive or administrative action taken by the Department of the Navy.

(i) In any investigation or report other than aviation mishap safety investigations and aviation SIRs.

(j) As evidence in any court, civilian or military.

(2) The Purpose of Designating Information as Privileged. The actions above will:

(a) Overcome an individual's reluctance to reveal complete and candid information about the circumstances surrounding a mishap.

(b) Encourage AMBs and endorsers of aircraft SIR messages to provide complete, open and forthright information, opinions, and recommendations about a mishap.

(3) Rationale. Privilege allows us to tell the truth, safe from fear of retribution. If privileged information was

allowed to be used for purposes other than safety, vital safety information might be withheld.

(a) Witnesses are not sworn. Requiring them to do so is prohibited. Advise them, in writing, why they are providing their statement and of the limitations placed on its release. Witnesses need not limit their statements to matters to which they could testify in court. Invite them to express opinions and speculate on possible causes of the mishap.

(b) In one respect, the rationale for designating mishap investigative information as privileged is more important than the rationale for encouraging witnesses. AMB's and endorser's must feel free to develop information which could be vital for mishap prevention without fear that it could be used for other than safety purposes. Every SIR involves AMB members and endorsers. Not every mishap has witnesses who would require an assurance of privilege as encouragement to make a statement.

(c) Individuals may be reluctant to reveal information pertinent to a mishap because they believe that information could embarrass themselves, their fellow service members, their command, their employer, or others. They may also elect to withhold information by exercise of their constitutional right to avoid self-incrimination. Members of the armed forces must be assured that they may confide in others for the mutual benefit of fellow service members without incurring personal jeopardy in the process.

(4) Protection of Privileged Information. To continue the revelation, development, and submission of privileged information in aviation SIRs and endorsements, everyone in naval aviation must keep faith with the promises we make while gathering it. Repeated violations of this trust will destroy the credibility of the Naval Aviation Safety Program which has always depended for its success on its ability to protect privileged information. The following safeguards will help protect privileged information:

(a) Witness Statements. Do not share witness statements with any one or any organization except as authorized in this instruction.

(b) Investigations. The distinction between aviation mishap safety investigations and other investigations is important and must be understood. Aviation mishap safety investigations shall be independent of, and separate from, all

other investigations. The safety investigation is the primary investigation and shall initially control all witnesses and evidence unless there is clear evidence that criminal activity caused the mishap. Parallel investigations may be conducted and the sharing of non-privileged information between investigations is encouraged. The safety investigation shall ensure that other investigations are given access to factual information and documents not derived from privileged safety information and witnesses. Whenever evidence of criminal activity which is causal to the mishap is discovered, the safety investigators shall suspend their investigation, preserve the evidence, and immediately notify the safety convening authority. The convening authority will contact the Naval Safety Center for further guidance.

1. Inter-service participation in aviation mishap investigations (authorized by COMNAVSAFECEN or higher authority) is the only time information and opinion may be shared outside the AMB. Cooperation between investigative boards may include division of labor, joint review of evidence, exchange of witness' statements, and joint deliberations.

2. Occasionally mishaps involving naval aircraft, facilities and personnel will meet the reporting criteria of more than one mishap reporting system. When that happens, reporting custodians shall send their initial mishap report and describe, in paragraph 7, the unusual circumstances they have encountered. COMNAVSAFECEN and the controlling custodian, will determine which mishap reporting system will be used.

3. Aviation mishap boards and investigations may require the help of other activities. Requests for help are not privileged and must be carefully reviewed to be sure they do not contain privileged information. Technical specialists working with AMBs are not board members. Exclude them from deliberations and deny them access to the content of the SIRs (except as authorized elsewhere in this instruction).

(c) Investigators. Members of AMBs shall not, nor may they be requested to, divulge their opinion or any information which they arrived at, or to which they became privy, in their capacity as a member of an AMB. Do not assign members of AMBs to any other investigation of the same mishap. Do not assign AMB members to a JAG Manual Investigation or Naval Aviator or Naval Flight Officer Evaluation Board, or Field

Flight Performance Board, convened as a result of the same mishap.

(d) Independence of Safety Investigation Reports

1. The SIR package consists of two parts. Part A includes nonprivileged data; Part B includes privileged. Do not append parts A and B of the SIR package or extracts from parts A and B to, or include them in, JAG Manual Investigation Reports, Fleet Naval Aviator or Naval Flight Officer Evaluation Board Reports, Field Flight Performance Board Reports, nor any other report. Do not include Navy JAG as an addressee on SIRs.

2. Likewise, to prevent any inference of association with disciplinary action, do not append reports of JAG Manual Investigations, Fleet Naval Aviator or Naval Flight Officer Evaluation Board Reports, and Field Flight Performance Board Reports to any SIR.

(e) Administrative Safeguards

1. Material from part A which is not privileged, may be disclosed by COMNAVSAFECEN. The privileged material in part B will not be released for any purpose, except aviation safety. COMNAVSAFECEN is the only releasing authority for material in either part A or part B. The same nonprivileged material is available in the original source documents for the JAG Manual Investigation.

2. Distribution of any part, including documents or forms, from an SIR to any person or any command not specified in this instruction or authorized by Chief of Naval Operations (CNO), is strictly prohibited. Only the Secretary of the Navy may authorize release to other than aviation safety organizations.

3. Use Standard Subject Identification Code (SSIC) 3752 on all SIR messages and endorsements to help receiving commands limit internal distribution. Commands must strictly limit the distribution of SIRs to those who require the report for safety purposes.

4. Privileged reports and endorsements required by this instruction shall include:

SUBJ/NAVAL AVIATION SAFETY INVESTIGATION REPORT (SIR) (REPORT SYMBOL OPNAV 3752-1)//

After the initial heading with its identification of the mishap, and directly after RMKS/ the following caption will be inserted in SIR messages and their endorsements.

****

FOR OFFICIAL USE ONLY

THIS IS A PRIVILEGED, LIMITED-USE, LIMITED-DISTRIBUTION, SAFETY INVESTIGATION REPORT. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY MILITARY PERSONNEL IS A CRIMINAL OFFENSE PUNISHABLE UNDER ARTICLE 92, UNIFORM CODE OF MILITARY JUSTICE. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY CIVILIAN PERSONNEL WILL SUBJECT THEM TO DISCIPLINARY ACTION PURSUANT TO CIVILIAN PERSONNEL INSTRUCTION 752. THIS REPORT MAY NOT BE RELEASED, IN WHOLE OR IN PART, EXCEPT BY THE COMMANDER, NAVAL SAFETY CENTER.
****

5. Do not readdress SIR messages to activities outside the DON, unless specifically authorized by CNO, Commandant of the Marine Corps (CMC), or COMNAVSAFECEN. Controlling custodians, CNO, CMC, or COMNAVSAFECEN may readdress SIRs and endorsements to DON addressees for endorsement or remedial action.

6. Transmit SIR messages and their endorsements only through military electronic communications facilities.

(f) Special Handling. The term "special handling" assures that access to these privileged documents is strictly limited to those individuals concerned with naval aviation safety. Apply common sense to determine exactly what handling actions would be appropriate. For example:

1. Uncontrolled distribution of SIRs (such as placing them in reading racks, on general access message boards, or on bulletin boards) is altogether inappropriate. Distributing SIR’s on Local Area Networks (LAN) or bulletin board systems (BBS) shall be controlled and authorized only by the commander, commanding officer or safety officer.

2. Routing SIRs in file folders, which ensures only those who need to know their content for safety purposes, would be appropriate.

3. Addressees on Collective Address Designator (CAD) messages must be closely controlled. Only commands or agencies routinely flying a specific aircraft or in the endorsing chain for mishaps of that aircraft or UAV which have an ASO billet assigned, will be included.

(g) For Official Use Only. All reports required by this instruction must be labeled FOR OFFICIAL USE ONLY (FOUO). Check SECNAVINST 5720.42F for instructions on handling FOUO material.

(5) Dissemination of Essential Safety Information. COMNAVSAFECEN will share safety information gleaned from reports received under this instruction. At a minimum, distribution will be made to the controlling custodians. The privileged status of a SIR will never inhibit the swift dissemination of this essential information. COMNAVSAFECEN shall, in order of preference:

(a) Extract essential safety information from the report and disseminate that information through an article in a periodical, flight safety advisory message, analyst newsletter, or correspondence concerning recommended corrective action.

(b) Expunge from the report all data which could reveal the identity of any person, organization, or event, then provide the essential safety information which remains. (Sanitized Reports)

(c) Readdress the SIR message.

106. AUTHORITY TO, AND ACCOUNTABILITY FOR RELEASING INFORMATION ABOUT NAVAL AVIATION SAFETY

Absent specific authorization from the CNO, Naval Aviation Safety Program information shall be released only as specified in this paragraph. These rules are regulatory orders which apply to all DON personnel without further implementation. A violation of these provisions by military personnel is punishable under the Uniform Code of Military Justice (UCMJ), and forms the basis for disciplinary action against civilian employees.

a. Release of Privileged Information About Individuals. Do not maintain privileged information in a system of records from which information may be retrieved using the name of a

person or by some number, symbol, or other identifier assigned to a person. Requests for privileged information about an individual may be sent to COMNAVSAFECEN.

b. Release by an Individual Having Knowledge of Safety Investigation Reports. It is forbidden for anyone with knowledge of the content of an SIR, to release that information, except as this instruction permits. Report immediately any request for such information to the Naval Safety Center (DSN 564-3520 Ext 7226/COML (757) 444-3520 Ext 7226).

c. Release to Other U.S. Military Services. Safety program information may be shared between U.S. military forces through their respective safety centers. Control all such information in a manner that will prevent the compromise of privileged information.

d. Release to the News Media. Mishap information derived from the MDR message may be released to news media pursuant to DON Public Affairs Regulations (SECNAVINST 5720.44A). We must, when dealing with the press, protect the privileged status of SIRs.

e. Release Based on the Privacy Act of 1974. Persons desiring information collected in a system of records subject to the Privacy Act shall forward requests to COMNAVSAFECEN, Attn: Code 03.

f. Release Based on the Freedom of Information Act (FOIA). Forward any requests for information that either expresses or implies they are based on the Freedom of Information Act to COMNAVSAFECEN, Attn: Code 03.

g. Release to the Congress. Forward requests for information from the Congress, its committees, or members to CNO or CMC, as appropriate.

h. Release to Relatives of Persons Involved in Aviation Mishaps. The Naval Military Personnel Manual and the Marine Corps Casualty Procedures Manual define how to notify relatives of persons involved in aviation mishaps. Make no reference to causal factors of a mishap. Do not provide classified information. Do not show, discuss, or give an aviation SIR to the next of kin or their representative.

i. Subpoenas for Information. Refer any subpoenas for aviation mishap information to the Navy JAG (Code 34), 1322

Patterson Avenue SE, Suite 3000, Washington Navy Yard, DC 20374-5066 with copy to COMNAVSAFECEN, Attn: Code 03.

j. Release to North Atlantic Treaty Organization (NATO) Nations. Standardized Agreement (STANAG) 3101 FS, Dissemination of Aircraft/Missile Accident Information (NOTAL) authorizes COMNAVSAFECEN to exchange Naval Aviation Safety Program information with NATO nations operating common types of aircraft and missiles. Forward any such requests for information to COMNAVSAFECEN, Attn: Code 101.

k. Release to Technical Representatives and Contractors. Send any requests for mishap information from technical representatives, manufacturers, and contractors, or their agents, to COMNAVSAFECEN via COMNAVAIRSYSCOM (AIR-5.0F) for endorsement and certification of the legitimacy of such requests. COMNAVSAFECEN will then furnish the information and stipulate that it can be used only for safety purposes and shall not be released further.

l. Release to Navy, Marine Corps, and Other DON Activities. Forward all requests for mishap information from Navy, Marine Corps, and other DON activities to COMNAVSAFECEN (Code 101).

m. Release to Foreign Governments. Send all requests for information from foreign governments outside NATO to CNO (N33F).

n. Release of Privacy Information. Handle the names of individuals not involved in the mishap and the Social Security Numbers of all individuals in the report as directed by the applicable sections of reference (a). To protect the privacy rights of surviving family members, do not release photographs of human remains included in the Aeromedical Analysis (AA) or autopsy reports.

o. Unspecified Cases. Forward all requests for information not covered above to COMNAVSAFECEN (Code 101).

107. PROGRAM RESPONSIBILITIES

This paragraph describes the Naval Aviation Safety Program responsibilities of:

Director, Air Warfare
Deputy Chief of Staff for Aviation, Headquarters, U.S. Marine Corps

Director, Safety Division, Headquarters, U.S. Marine Corps
Chief, Bureau of Medicine and Surgery
Action Agencies for Mishap Safety Investigation Report Recommendations (MISRECs)
Commander, Naval Safety Center
Director, School of Aviation Safety, Naval Postgraduate School (NAVPGSCOL)
Commanders of Organizations Requiring Aviation Safety Officer Billets
Aircraft or UAV Controlling Custodians (defined below)
Commanders of Naval and Marine Corps Air Stations and Facilities
Government Flight Representatives (GFRs)
Aircraft or UAV Reporting Custodians (defined below)
Aviation Safety Officers
Aviation Safety Specialists
Senior Member, Aviation Mishap Boards
Members, Aviation Mishap Boards
All Naval Aviation Personnel

NOTE: Commands may discover they have responsibilities under more than one category. A Naval Air Station, for example, may have responsibilities as an organization with an ASO billet, as an airfield, and as a reporting custodian.

a. Director, Air Warfare Division (N78) shall:

(1) Implement, direct, and supervise the Naval Aviation Safety Program within the office of CNO.

(2) Coordinate with the Deputy Chief of Staff for Aviation, Headquarters, U.S. Marine Corps, on matters which affect Marine aviation safety.

b. Deputy Chief of Staff for Aviation, Headquarters, U.S. Marine Corps shall:

(1) Coordinate with the Director, Air Warfare Division on matters which affect Marine aviation safety.

(2) Perform, for CMC, the responsibilities of Controlling Custodian for selected non-Fleet Marine Force (FMF) Marine aviation activities.

(3) Coordinate with the Director, Safety Division, U.S. Marine Corps, on matters which affect Marine aviation safety.

c. Director, Safety Division, Headquarters, U.S. Marine Corps shall:

(1) Advise and assist the Deputy Chief of Staff for Aviation, Headquarters, U.S. Marine Corps on matters which affect Marine aviation safety.

(2) Provide policy and direction for Marine Corps aviation safety programs.

d. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Advise and assist in support of medical investigations into naval aviation mishaps.

(2) Provide pathology services to process tissue from aviation mishaps as directed by this instruction, and BUMEDINST 6510.2F.

(3) Train flight surgeons thoroughly in medical pre-mishap planning, medical investigation of aviation mishaps, and their role as members of aviation mishap boards.

(4) Provide all aircrew with timely and complete medical services from properly trained and designated flight surgeons.

e. Action Agencies for Mishap Safety Investigation Report Recommendations (MISRECs). These activities are most often CNO, CMC, and COMNAVAIRSYSCOM, but may be any naval activity senior to, or external to, commands of controlling custodians. These activities shall respond to reports per chapter 9 of this instruction.

f. Commander, Naval Safety Center shall:

(1) Advise and assist CNO/CMC in the formulation, administration, and monitoring of the Naval Aviation Safety Program.

(2) Under exceptional circumstances, waive or change the investigation and reporting requirements of this instruction.

(3) Conduct final review, evaluation, and classification of all naval aviation SIRs.

(4) Analyze and distribute safety information received in reports required by this instruction.

(5) Maintain a repository for all reports and related data submitted per this instruction.

(6) Administer a system for accountability of naval aviation mishaps and mishap exposure data.

(7) Release mishap data as directed.

(8) Develop standards and publish procedures for aviation mishap investigation.

(9) In special cases, initiate and conduct naval aviation mishap investigations under the authority of CNO.

(10) Administer the Mishap and Hazard Tracking (MISTRAC) Program per Chapter 9 of this instruction.

(11) Liaise with safety organizations in the other armed services, the Department of Defense (DOD), Director, Aviation Safety Programs Naval Postgraduate School (NAVPGSCOL), naval aviation commands at all levels, and offices and bureaus within the DON.

(12) Advise and assist CNO and CMC in the administration of the naval aviation safety awards program.

(13) Research, study, compile and analyze naval aviation safety statistics.

(14) Sponsor and attend conferences, symposia, seminars, and ad hoc groups in the furtherance of safety.

(15) When invited, conduct aviation safety surveys.

(16) Publish naval aviation safety magazines, and explore and exploit any other media which will strengthen and support the Naval Aviation Safety Program.

(17) Help review and evaluate aviation system safety engineering efforts, acquisitions, and modifications to current equipment. Participate selectively on boards, at conferences, in studies, and design reviews.

(18) Selectively participate in engineering proposal evaluations and maintenance feasibility inspections of new aviation production systems and equipment, and in production improvement conferences.

(19) Assist appropriate offices, commands, and agencies prepare operating instructions.

(20) Maintain membership on NATOPS boards and councils.

(21) Act as technical advisor on aviation safety for all naval education and training courses, films, training aids, and devices.

(22) As necessary, request support from the Armed Forces Institute of Pathology.

g. Director, School of Aviation Safety, Naval Postgraduate School shall:

(1) Advise COMNAVSAFECEN on the education and training aspects of the Naval Aviation Safety Program.

(2) Develop and conduct courses to prepare personnel for duty in safety-related billets to include:

(a) An Aviation Safety Officer (ASO) Course.

(b) An Aviation Safety Command (ASC) Course.

(3) Develop and conduct appropriate courses of instruction to educate, train, and raise safety awareness of personnel in billets which effect the Naval Aviation Safety Program.

(4) Develop and implement appropriate graduate education policies and programs to provide qualified subspecialists to meet the needs of the CNO/CMC, and COMNAVSAFECEN.

(5) Advise and assist COMNAVSAFECEN in safety-related research projects.

(6) Assist COMNAVSAFECEN and aviation organizations in support of the Naval Aviation Safety Program.

h. Commands with ASO Billets Assigned. These activities include Type Wings, Marine and Navy aircraft wings, Marine air groups, air stations, Training Wings, and all activities that are reporting custodians. Commanders of these organizations with ASO billets shall:

(1) Assign only graduates of the Aviation Safety School who are naval aviators or naval flight officers to the primary duty of Aviation Safety Officer. Make every effort to assign an officer who has been to the school in the past 4 years or provide that officer with ASO training.

(2) Structure the command in a way that assures the ASO has either direct access to the Commander or the Commanding Officer or access via the Safety Department Head or the Section Head.

(3) Assign an Enlisted Aviation Safety Specialist as an assistant to the ASO. This person must be a graduate of the Aviation Safety Specialist Course (A-493-0065), taught by the Naval Occupational Safety and Health Training Center (NAVOSHENVTRACEN), or attend within 6 months of the assignment.

(4) Establish and maintain a Command Aviation Safety Program per chapter 2 of this instruction.

(5) Refrain from assigning the ASO to punitive or disciplinary duties such as Administrative Discharge Boards or JAG Manual Investigations.

i. Controlling Custodians. For purposes of this instruction and without effecting command relationships established for other purposes, controlling custodians are:

CNO
CMC
Commander, Naval Air Force U.S. Atlantic Fleet (COMNAVAIRLANT)
Commander, Naval Air Force U.S. Pacific Fleet (COMNAVAIRPAC)
Commander, U.S. Marine Forces Atlantic (COMMARFORLANT)
Commander, U.S. Marine Forces Pacific (COMMARFORPAC)
Chief of Naval Air Training (CNATRA)
Commanding General, 4th Marine Aircraft Wing (CG FOURTH MAW)
Commander, Naval Air Reserve Force (COMNAVAIRESFOR)
Commander, Naval Air Systems Command (COMNAVAIRSYSCOM)

Controlling custodians shall:

(1) Establish and maintain a Command Aviation Safety Program, per this instruction, managed by a trained ASO.

(2) Advise and help subordinate commands conduct their Command Aviation Safety Programs.

(3) Define endorsing chains for subordinate commands.

j. Commanders of Naval and Marine Corps Air Stations, air facilities, and expeditionary airfields shall:

(1) Establish and maintain a Command Aviation Safety Program.

(2) Maintain a pre-mishap plan coordinated with those of near by commands.

(3) Report aviation mishaps occurring within their area of responsibility.

(4) Secure aircraft or UAV wreckage within their area of responsibility.

(5) Support AMBs and mishap investigations of other services, including wreckage recovery, transportation and salvage.

(6) Manage relations with local authorities, the public, and the press.

(7) Investigate and process claims originating from aviation mishaps.

(8) Provide access to, or a list of, environmental experts capable of coordinating the removal of environmental wastes and contaminants from a crash site and determining the extent of environmental damage.

(9) Stock tools and equipment not normally carried in squadron investigation kits, such as: Tyvex suits, positive breathing apparatuses, picks, shovels, gas-driven circular saws, tri-walls, pallets, camping gear for site security, foul-weather gear, water buffalo, sanitation equipment, food, communication

equipment, floor wax (to dampen composite materials), and flood lights.

k. Government Flight Representatives (GFR) shall:

(1) Liaise between the manufacturer to whom they are assigned and COMNAVSAFECEN.

(2) Forward all requests for naval aviation safety information to COMNAVSAFECEN via COMNAVAIRSYSCOM (AIR-5.0F) who will certify its legitimacy.

(3) Insure those who request naval aviation safety information understand that data from the Naval Safety Center is for safety purposes only and shall not be released by the requester.

(4) Ensure that SIRs are neither revealed nor released to unauthorized personnel.

l. Reporting Custodians are commanding officers of Navy and Marine Corps aviation organizations who are responsible to account for, or otherwise provide information about, assigned aircraft or UAV. OPNAVINST 5442.2G (NOTAL) also contains information about aircraft and UAV custody.

Reporting Custodians shall attend the Aviation Safety Command Course and:

(1) Appoint and maintain a standing AMB per this instruction.

(2) Establish and maintain a pre-mishap plan.

(3) In case of a naval aviation mishap involving aircraft or UAV's in their custody,

(a) Direct their AMB to investigate or request relief from mishap investigation and reporting responsibilities per this instruction.

(b) Ensure composition of their AMB is appropriate for the circumstances of the mishap.

(c) Request planning and estimator services necessary to determine severity of aircraft or UAV damage.

(d) Request engineering assistance in support of the investigation.

(e) Request other service personnel as observers to unit AMB.

(f) Request investigative assistance.

(g) Request help to recover wreckage.

m. Aviation Safety Officers shall:

(1) Act as principle advisor to the commanding officer on all aviation safety matters.

(2) Advise and assist the commanding officer in establishing and managing the Command Aviation Safety Program per this instruction.

(3) Maintain appropriate aviation safety records and mishap statistics.

(4) Coordinate safety matters among the organization's staff.

(5) Occupy a primary billet assignment.

n. Aviation Safety Specialists (safety petty officer or non-commissioned officer) shall:

(1) Assess risks.

(2) Train work center personnel in mishap prevention.

(3) Maintain records of the use, storage, labeling, and disposal of hazardous material.

(4) Monitor surveillance programs applicable to hearing and sight conservation and respiratory protection.

(5) Teach new people about specific safety hazards.

(6) Identify and mark properly all hazard areas.

(7) Oversee the selection, care and use of personal protective equipment.

(8) Ensure machine guards are in place and safety precautions posted.

(9) Investigate and maintain records of all injuries and mishaps.

(10) Investigate in-house hazard reports.

(11) Evaluate Navy occupational safety and health (NAVOSH) performance. Coordinate safety programs, such as motor vehicle, recreation and home safety.

o. Senior Member, Aviation Mishap Boards shall:

(1) Train the AMB.

(2) Equip and keep ready the command mishap investigation kit.

(3) Test the command pre-mishap plan.

(4) When appropriate, recommend the appointing authority:

(a) Augment the AMB, replace its members, or change its composition to comply with this instruction.

(5) Supervise investigations conducted by the AMB and publish their findings.

(6) Know this instruction, the Technical Manual (NOTAL), Safety Investigation Techniques (NAVAIR 00-80T-116) (NOTAL), the Command Aviation Safety Program, and the command pre-mishap plan.

(7) Lead the AMB through consensus. All members have an equal voice. No one has a veto.

p. Aviation Mishap Board Members shall:

(1) Know this instruction, the Technical Manual (NOTAL), Safety Investigation Techniques (NAVAIR 00-80-T-116) (NOTAL), the Command Aviation Safety Program, and the command pre-mishap plan.

(2) As directed by the AMB senior member, participate in the investigation of hazards and mishaps. Help prepare the reports required by this instruction.

q. All Naval Aviation Personnel shall:

(1) Know those safety regulations and directives applicable to them and to their assigned duties.

(2) Follow established safety standards.

(3) Report hazards and mishaps in accordance with their Command Aviation Safety Program and this instruction.

108. ACCOUNTABILITY FOR AVIATION MISHAPS

a. General Rule. The COMNAVSAFECEN assigns each naval aviation mishap to one reporting custodian. As a result, accountability can be consistently determined regardless of a mishap's causal factors. This prevents lengthy delays and avoids the dilemma wherein causal factors are attributed to two or more reporting or controlling custodians, or to activities which are not naval aircraft or UAV custodians. This rule assures proper accountability and valid mishap statistics.

b. Exceptions to the General Rule

(1) Multi-Aircraft Mishaps. When mishaps involve aircraft from more than one custodian, the general rule could result in double-counting a single event. To avoid this, COMNAVSAFECEN will assign one reporting and one controlling custodian for each mishap. (See paragraphs 513 and 605f.)

(2) Interservice Aviation Mishaps are those which involve aircraft or UAV's of one military service and the aircraft or UAV's, personnel, services, facilities, or equipment, of another. In such cases the general rule could again result in double-counting a single event. Only one service will assume accountability and DOD reporting responsibility for the mishap, its attendant costs, and injuries. The Commanders of the military safety centers from the services involved will jointly determine accountability. If agreement cannot be reached, each service shall report its own losses for the mishap.

(3) Naval Aviation Depot Mishaps. Assign mishaps involving naval aircraft in the custody of a Naval Aviation Depot to COMNAVAIRSYSCOM.

(4) Chief of Naval Air Training (CNATRA) Mishaps. When the Training Wing Commander is the reporting custodian for a training command aircraft involved in a mishap, the commanding officer of the training squadron involved will undertake the responsibilities of the reporting custodian pursuant to this instruction. If more than one squadron is involved, the senior commanding officer will commence the mishap investigation. (See paragraph 605f) CNATRA Instruction 3750.23K, Naval Air Training Command Aircraft Mishap and Hazard Reporting (NOTAL) refers.

(5) Contractor Mishaps. Assign mishaps to aircraft or UAVs in the physical custody of a commercial contractor to the controlling custodian who oversees the writing and administration of the contract.

(6) Aircraft or UAVs Temporarily Assigned to Another Reporting Custodian. Controlling custodians may approve temporary loan of aircraft or UAVs between reporting custodians. The receiving custodians may assume responsibility for mishaps occurring while the aircraft or UAV is in their possession.

c. Unclear Cases. COMNAVSAFECEN will determine accountability in any case where it is unclear. See paragraph 819 for absolution of a mishap.

109. OTHER APPLICABLE DIRECTIVES

a. NWP 3-50.1A, Search and Rescue (SAR) Manual (NOTAL). The SAR manual requires a rescue report whenever a rescue involving naval rescue personnel, rescue vehicles, ships, or aircraft is attempted.

b. NAVAIR 00-80T-116-Vols 1-4 Technical Manual, Safety Investigation Techniques (NOTAL). This handbook helps naval aircraft mishap investigators conduct a thorough and comprehensive investigation. It also contains some guidance for pre-mishap plans.

c. NAVAIR 00-80T-67, Aircraft Safety Engineering Accident Prevention Guide (NOTAL). This instruction guides Cognizant Field Activity (CFA) engineering personnel in the performance of field investigations and engineering investigations at depot level facilities, manufacturing plants, or technical activities.

d. OPNAVINST 1650.24B, Chief of Naval Operations Aviation-Related Awards (NOTAL). This instruction contains the policy and procedures for selecting the annual winners of the CNO Aviation Safety Awards, the "Readiness Through Safety Award," the "Admiral James S. Russell Naval Aviation Flight Safety Award," the "Admiral Flatley Memorial Award" and the "Grampaw Pettibone Award." The instruction also provides for absolving reporting custodians of mishap accountability.

e. OPNAVINST 3100.6G, Special Incident Reporting (OPREP-3, Navy Blue and Unit SITREP) Procedures (NOTAL). OPREP 3 reports have precedence over all others when an aviation mishap meets the criteria of OPNAVINST 3100.6G. Do not construe this as obviating other reporting requirements. While some preliminary reports required by the Naval Aviation Safety Program (except the 60-minute telephone report to COMNAVSAFECEN) will temporarily yield precedence to OPREP-3 reporting, submit them as soon as possible thereafter. The OPREP-3 system relieves only the command submitting OPREP-3 reports from submitting other reports. A command, therefore, is not relieved of the reporting requirements of this instruction when another activity or agency submits the OPREP-3 report for the incident.

f. MCO P3500.14A, Aviation Training and Readiness Manual (NOTAL). This manual standardizes the aviation training syllabi of the Marine Corps and describes specific requirements for aircrew qualifications.

g. OPNAVINST 3710.7R, NATOPS General Flight and Operating Instructions (NOTAL). This directive prescribes general flight and operating instructions and procedures for all naval aircraft and related activities.

h. NAVAIR 00-80T-114, Air Traffic Control Facilities Manual (NOTAL). This manual describes how to operate and administer Navy and Marine Corps air traffic control facilities ashore. Sections of it are applicable to: shipboard carrier air traffic control centers (CATCCs), helicopter direction centers (HDCs), tactical air control squadrons (TACRONs), and fleet area control and surveillance facilities (FACSFACs). It also lists other directives pertinent to operating air traffic control facilities.

i. OPNAVINST 3750.16B, Participation in a Military or Civil Aircraft Accident Safety Investigation (NOTAL). This joint regulation is common to all armed forces. It provides for

military participation in certain National Transportation Safety Board (NTSB) investigations, NTSB or Federal Aviation Administration (FAA) participation in certain military investigations, and the release of certain information related to military aviation mishap investigations to the NTSB and FAA. The instruction requires notification of an FAA facility when the FAA is involved in naval aviation mishaps.

j. NAVAVNLOGCENINST 4710.1, Establishment of Procedures for the Recovery, Repair, and Salvage of Defective and Damaged Naval Aircraft (NOTAL). This instruction describes procedures for the recovery, repair, and salvage of damaged naval aircraft.

k. OPNAVINST 4790.2G, The Naval Aviation Maintenance Program (NAMP) (NOTAL). This directive describes how to dispose of aircraft logs and records, and submit Hazardous Material Reports (HMRs), Quality Deficiency Reports (QDRs), Technical Publication Deficiency Reports (TPDRs), Explosive Mishap Reports (EMRs), and requests for Engineering Investigations (EIs). Occasionally, reports may be required by both OPNAVINST 4790.2G and this instruction, for example: Explosive Mishap Reports. Caution: Reports and requests submitted under OPNAVINST 4790.2G are not privileged. Exercise special care to be sure those reports and requests are free of privileged information. More naval aviators read OPNAVINST 3750.6R hazard reports than maintenance reports. To reach the widest possible aviator audience, submit a HAZREP.

l. BUMEDINST 5100.11, Aeromedical Safety Officer (AMSO) Program (NOTAL). Describes the mission and function of the Aeromedical Safety Officer. The instruction identifies and assigns billets for Flight Surgeons, Aviation Physiologists, and Aviation Psychologists to Navy and Marine Corps aviation establishments.

m. OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program for Forces Afloat (NOTAL). This instruction tells afloat commands how to administer, organize, and train for the NAVOSH program. Further, it describe hazard control techniques and the safety requirements for the program.

n. MCO 5101.8, Marine Corps Ground Mishap Reporting (NOTAL). Although this Order tells how to report ground mishaps, it also outlines reporting requirements for Marine Corps aviation facilities. These reports include the Mishap and Injury Report, the Investigation Report of Motor Vehicle

Accidents, the Consolidated Mishap Report, and the Quarterly Report of Occupational Injuries and Illnesses.

o. OPNAVINST 5102.1C, Mishap Investigation and Reporting. While Aviation Mishap Investigations are not conducted under this instruction, it does require naval aviation activities to submit the Accidental Injury or Death Report, the Material (Property) Damage Report, the Explosive Mishap Report, the Motor Vehicle Accident Report, SAFETYGRAMS, and the Report of Navy Civilian Occupational Injuries and Illnesses.

p. SECNAVINST 5211.5D, Department of the Navy Privacy Act (PA). This instruction guides the DON in the implementation of the Privacy Act of 1974. It describes how the DON will collect, maintain, and safeguard privacy act information.

q. SECNAVINST 5212.5D, Disposal of Navy and Marine Corps Records. This instruction prescribes policies and procedures for records disposal. Paragraph 110 in this document describes how to retain and dispose of safety records.

r. BUMEDINST 5360.1, Decedent Affairs Manual. This manual is used with current directives concerning casualty reporting, casualty notification, casualty assistance, and burial honors.

s. SECNAVINST 5720.42F, Department of the Navy Freedom of Information Act (FOIA) Program. This instruction outlines the policies and procedures to follow when disclosing naval records. It establishes time limits for responding to requests to inspect or obtain copies of DON records.

t. JAGINST 5800.7C, Manual of the Judge Advocate General (NOTAL). This manual regulates DON legal matters. It defines the differences between JAG Manual Investigations of aviation mishaps and an aviation mishap safety investigation. The manual also tells what to do if an AMB member becomes the subject of a service of process or subpoena arising from official duties.

u. BUMEDINST 6510.2F, Aviation Pathology Program (NOTAL). This instruction describes the Aviation Pathology Program in the DON. It requires naval medical facilities and the Armed Forces Institute of Pathology to cooperate. It gives general guidance on aviation pathology sample collection, handling, and processing.

110. RETENTION OF RECORDS

a. Squadrons and Staffs shall retain reports and endorsements required by this instruction 2 years from the mishap date, then destroy them. COMNAVSAFECEN shall retain and destroy reports and endorsements in accordance with chapter 3 of SECNAVINST 5212.5D, Records Disposal Manual.

b. Statements, diagrams, photographs, and notes, gathered by an AMB during an investigation, but not included in the SIR, shall be retained by the AMB's appointing authority until the date of SIR’s last endorsement. Absent any action involving these documents at that time, destroy them. AMB members shall not keep a personal copy of the SIR. If Navy legal authorities tell you of pending legal action, store source documents used in the investigation in a secure area until the legal process has run its course. Call COMNAVSAFECEN Staff Judge Advocate at DSN 564-3520 Ext 7047 or COML (757) 444-3520 Ext 7047 for guidance.

c. File SIRs by aircraft or UAV type and date of mishap. Do not file SIRs according to any person's name or other personal identifier. Do not retrieve information from SIR files by an individual's name or other personal identifier.

d. Ship aircraft logs and records of destroyed aircraft to Washington National Records Center, 4205 Suitland Road, Suitland, MD 20023, per OPNAVINST 4790.2G.

e. Dispose of service and health records of missing or deceased naval personnel instructions like the service record. (NAVMILPERS Manual, Section 5030141 or USMC Individual Record/Administrative Manual, refers.) Dispose of all other records locally. Aviator's log books may be given to the next of kin.

f. Make every effort to purge files quickly. SIRs may be retained as a training aid only after you expunge every trace of identifiable data which could connect the report to an individual, organization, or a particular mishap from the record. Protect these training SIR's just like other privileged documents. Mark them conspicuously.

111. NATO STANDARDIZED AGREEMENTS (STANAGS)

It is important for Allies to standardize the way they operate with each other. The NATO Allies have expanded this standardization into aviation safety. When operating with NATO nations you should check to see if the nation has ratified the STANAG or ratified with reservations. The STANAGs that relate

to aviation safety and the U.S. Navy's implementing document are:

a. STANAG 3117 FS - Aircraft Marshalling Signals-Aircraft Signals NATOPS Manual (NOTAL).

b. STANAG 3379 FS - In-Flight Distress Signals-Aircraft Signals NATOPS Manual (NOTAL).

c. STANAG 3531 FS - Investigation of Aircraft Accidents-OPNAVINST 3750.6Q (NOTAL). (See paragraph 610.)

d. STANAG 3533 FS - Safety Rules for Flying Displays-OPNAVINST 3710.7Q (NOTAL).

e. STANAG 3564 FS - Rules for Live Air Weapons Demonstrations- OPNAVINST 3710.7Q (NOTAL).

f. STANAG 3750 FS - AIRMISS Reporting and Investigation-OPNAVINST 3750.6R (NOTAL).

g. STANAGs and other standardization documents may be obtained by:

(1) Telephone orders. A touch-tone phone is required. Call the Defense Printing Office at commercial (215) 597-1187 through 1198 (yes, 12 lines are available) or DNS 442-1187 through 1198. This will connect the caller to a computerized telephone system that will ask several questions about the request(s). The appropriate responses need to be punched into the telephone. IMPORTANT: Replace the letter "Q" with the number "7" and the letter "Z" with the number "9" as these letters are not on the telephone. When the caller reaches the point of punching in the requested document, please enter as shown in the examples below:

(a) ASCC Air Standard (AIR STD) or Advisory Publication (ADV PUB) are normally identified by phone, enter without spaces and slashes; i.e., AIR STD 20/14F becomes AIRSTD2014F.

(b) NATO Standardization Agreements (STANAGs) are ordered by punching in, for example STANAG3000. Note there are no spaces.

(c) If requested document is not available the computerized telephone system will immediately inform the

caller. If it is in stock, the requester will be asked to confirm the order a second time. Delivery takes 2 to 4 weeks.

(d) NATO Allied Publications (AAP, ACP, ATP, etc.), order directly from any U.S. Air Force Publications Distribution Office (PDO). These offices are located on every major Air Force base. A complete listing of Allied Publications available through the PDO as in AF index 0-4.

(2) Mail/Fax orders. Send or fax letter to the Defense Printing Office with requested document(s) listed or identified to the following address or fax number:

Standardization Documents Order Desk
Bldg. 4D
700 Robbins Avenue
Philadelphia, PA 19111-5094

FAX: Commercial (215) 697-2978
DSN 442-2978

CHAPTER TWO

COMMAND AVIATION SAFETY PROGRAMS

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This chapter describes the Command Aviation Safety Program and lists those naval organizations required to adhere to its requirements.

201. GENERAL

A Command Aviation Safety Program consists of written policies, procedures, and plans, coupled with the attitudes and practices which promote aviation safety. Its only purpose is to preserve human lives and material resources and, thereby, to enhance readiness. An effective Command Aviation Safety Program supports the objectives of the Naval Aviation Safety Program. Their goals are parallel: to eliminate hazards and enhance the safety awareness of all hands. To accomplish this we must detect and eliminate hazards, concentrate on safety awareness training, and enforce the highest possible standards of conduct and performance.

202. COMMAND AVIATION SAFETY PROGRAM REQUIREMENTS

Those organizations which must establish and maintain a Command Aviation Safety Program are:

a. Aircraft Controlling Custodians as defined in this instruction.

b. Aircraft Reporting Custodians as defined in this instruction.

c. Commands with Aviation Safety Officer (ASO) Billets.

d. Naval and Marine Corps Air Stations.

e. All activities supporting aircraft launch and recovery operations.

203. COMMAND AVIATION SAFETY PROGRAM FUNCTIONS

The success of Naval Aviation Safety programs depends on balancing several elements. Positive leadership, aggressive risk assessment, proactive risk management and the informed, thoughtful, management of the Command Aviation Safety Program itself will ensure the primacy of hazard detection, hazard elimination, and safety education and awareness throughout Naval Aviation. These functions are effective regardless of command size, seniority, mission, or resources.

a. Hazard Detection. Command Aviation Safety Programs shall include procedures to detect hazards. Hazards may exist because of a bad design, improper or unprofessional work or operational practices, poor training or inadequate preparation, out-of-date instructions and publications, or because the environment itself is both demanding and unforgiving. Everyone in the command must be charged with supporting risk management by identifying and reporting hazards to the appropriate authorities.

b. Hazard Elimination. Like hazard detection, hazard elimination is an all-hands effort. Some hazards are readily identifiable and easy to correct. Others, just the opposite. An example of the former is requiring a co-worker without it, to wear the proper protective equipment. An easy fix. An example of the latter is, discovering a design deficiency which causes a part to fail prematurely. The redesign, testing and manufacture of a replacement will prove both costly and time-consuming. The key to hazard elimination is an effective risk management program - one which raises hazard awareness, provides risk controls, and maintains their effectiveness through proper supervision.

c. Safety Education and Awareness. Every command's Aviation Safety Program must contain a safety education and awareness element designed not only to educate its members on

the proper management of safety information, but also teach them how to identify, report, and correct hazards. This educational effort includes the requirement for certain, designated personnel to attend formal U.S. Navy aviation and other safety-related courses of instruction. Unit safety training shall encompass, routinely, all safety subjects, including aeromedical safety, and the principles and practical applications of risk management. Training in the proper management of safety information shall include:

(1) Collection of Safety Information. How to properly receipt and care for safety message traffic, correspondence, publications, films, and other safety materials.

(2) Distribution of Safety Information. How to distribute safety message traffic, safety correspondence, periodicals, and other safety materials. Who is required to attend safety conferences, symposia, committees and councils. The value of liaison with other commands for the purpose of exchanging safety information.

(3) Control of Safety Information. The proper control of certain information is critical to the success of the Naval Aviation Safety Program. This instruction prescribes the proper distribution, handling, use, retention, and release of this information. See paragraph 606d(3) for additional guidance on protection of safety information by AMB members.

204. COMMAND AVIATION SAFETY PROGRAM DIRECTION.

The commander who exhibits a positive attitude toward his/her Aviation Safety Program has already overcome a major obstacle to a successful command aviation safety effort. Establishing clearly defined safety goals and objectives, setting high safety standards, then enforcing them equitably, creating an environment which rewards hazard detection and elimination and promotes safety education and training are equally important elements of a successful Command Aviation Safety Program.

205. COMMAND AVIATION SAFETY PROGRAM ELEMENTS.

Prerequisites for a successful Command Aviation Safety Program include:

a. Command Climate. What concerns leaders absolutely fascinates their subordinates. Knowing this, wise commanders will champion the idea that eliminating hazards through

aggressive risk management is a worthy effort. They will establish clear, achievable goals and they will monitor and reward their command's progress toward those goals. The wise commander intuitively understands the imperative to protect the free flow of safety information at all levels of their command. Successful leaders know that a deep-seated safety awareness, and uncluttered communications channels running up and down the chain of command will foster a genuine sense of ownership of the safety process by all hands and produce, thereby, an effective command safety culture.

b. Command Safety Goals. Commanders should establish a clear set of aviation safety goals and set forth an aviation safety policy which defines how their personnel may attain these goals.

c. Command Safety Organization. Commanders shall describe their command's safety organization, define its requirements, and delineate the functions of each member of their safety organization. They shall assign their flight surgeon or the wing flight surgeon who serves their command with the responsibility for the aeromedical aspects of the Command Safety Program.

d. Aviation Safety Council. Squadrons, air stations, and other large commands shall form an Aviation Safety Council which will set goals, manage assets, review safety-related recommendations, and keep records of their meetings. The council, with the aviation and ground safety officers and the flight surgeon as permanent members, should review command plans, policies, procedures, conditions and instructions to ensure their currency, correctness and responsiveness to safety recommendations.

e. Enlisted Aviation Safety Committee. Enlisted representatives from every work center in the command (including the Medical Department and Aircraft Intermediate Maintenance Department (AIMD)) shall form an Enlisted Aviation Safety Committee. In monthly meetings they shall discuss safety deficiencies and provide recommendations for improving safety practices and awareness. Members shall keep a record of attendance and discussion topics. The commanding officer will respond to their recommendations in a timely manner.

f. Human Factors Review. Commanding officers have two methods by which they may stay apprised of the physical condition, the psychological well-being, the attitudes, and the

motivation of their aircrews. The first is a regular, proactive, informal, human factors review of all officer and enlisted aircrew. The second is a formal review conducted whenever the commanding officer thinks it is necessary. Commanders shall undertake their human factors review process as directed by Joint TYCOM instructions on the subject.

(1) Informal reviews will be conducted by a Human Factors Council that includes, as a minimum, either the commanding or executive officer, the ASO, the operations officer, the training officer, the NATOPS Officer, and the Flight Surgeon. The information generated is for the commanding officer's use only for the enhancement of safety. It shall be kept in confidence and shall not be used for disciplinary or administrative action. No official record or report is required, however, personal notes may be produced and retained by the commanding officer.

(2) Human Factors Boards will conduct a formal review of any area of an aircrew member's performance, training, health, attitude or motivation felt by the commanding officer to be relevant. The Human Factors Board should include, as a minimum, the ASO, Flight Surgeon, and any additional officers of the commanding officer's choosing. The Human Factors Board should be proactive. It is to be convened early on, once a significant problem is discovered. Its goal is to identify the specific problem(s) and provide a course of action for resolution. A formal report with conclusions and recommendations should be produced and forwarded to the commanding officer for determination of final action.

(3) Human Factors Board and Council reports, notes, materials or other work-product shall not be appended or made an enclosure, in whole or part, to any SIR or safety investigation file. The information contained in these documents or gained from interviews with Board or Council members may be used in an SIR. This information would be privileged.

g. Safety Standdown. Commands shall conduct periodic safety standdowns devoted to providing dedicated time for safety training, awareness, and enhancement of the command safety climate.

h. Safety Surveys. Safety surveys should be conducted periodically to assess the command's safety program. These may accomplished internally by squadron personnel, or externally through the services of a sister aviation command, by a

NAVPGSCOL Aviation Safety Officer's class, or a through a formal survey by a COMNAVSAFECEN survey team. Request formal surveys from COMNAVSAFECEN biannually, regardless of any other surveys conducted in the interim.

i. Command and Cultural Assessments. Cultural Workshops provide a tool for commands to gain insight into the attitudes of their members. This voluntary, multi-day workshop format is facilitated by senior reserve aviators. The process is designed to provide a strictly confidential external assist in aiding command leadership in identifying and mitigating risks associated with human behavior. Requests for workshops should be directed to the TYCOM.

j. Safety Training. Commanders shall ensure safety training is conducted and properly documented. Lacking a waiver from higher authority, every effort shall be made to properly train those individuals who occupy a position for which formal safety instruction is mandatory.

k. Exchange of Safety Information. Encourage the exchange of safety information. Require command personnel attend safety council meetings. Liaise with senior staffs, nearby commands, and subordinate activities on safety-related matters. Write safety articles; submit them for publication.

l. Investigation of Suspected Hazards. Investigate and recommend corrective action on all hazards discovered and reported.

m. Reporting of Hazards. The command shall report hazards. It is required by this instruction, OPNAVINST 4790.2G, and other applicable directives. Reporting hazards enhances safety awareness, helps get problems corrected, and improves procedures, processes, and materials.

n. General Safety. The command shall establish the NAVOSH and general safety programs required by OPNAVINSTs 5100.19D, 5100.23E and 5102.1C. These include: Hearing and Sight Conservation, Traffic Safety, Flight Deck and Flight Line Safety, Respiratory Protection, Home Safety, and Hazardous Materials.

o. ANYMOUSE Reporting. All command safety programs shall provide a system for anonymously reporting hazards.

206. AVIATION MISHAP BOARDS

Each aircraft reporting custodian shall maintain at least one standing Aviation Mishap Board (AMB).

a. Appointment of AMBs. The aircraft controlling custodian or the designated appointing authority shall appoint AMB members by name and in writing. On all Class A Mishap Investigations, appoint the senior member from commands not involved in the mishap - preferably from outside the expected endorsing chain. The senior member will be a Naval Aviator or Naval Flight Officer (A commander or lieutenant colonel or above), a graduate of the ASO or Aviation Command Course, or have other suitable training or qualifications acceptable to the aircraft controlling custodian. On other mishaps the senior member may be from the reporting custodian and of any rank. Appendix 2A at the end of this chapter contains a sample appointing letter.

b. Basic AMB Composition. The following applies to AMBs under all conditions, except direct enemy action:

(1) Members of Aviation Mishap Boards shall be drawn from the ranks of commissioned officers on active duty in the U.S. Navy or U.S. Marine Corps. Officers on Exchange Duty from other services (U.S.A. or foreign) may serve on AMBs, but may not be the senior member. Chapter 6 describes the requirements for inter-service participation on AMBs. Enlisted personnel with the rank of E-6 and above may serve on AMBs for UAVs.

(2) Minimum AMB membership shall consist of four officers drawn from the command's standing board: an ASO (NAVPGSCOL ASO course graduate), a flight surgeon, an officer well-qualified in aircraft maintenance, and an officer well-qualified in aircraft operations.

(3) The senior member of each AMB shall be a Naval Aviator or Naval Flight Officer. The senior member of a Class A mishap board has message releasing authority for Mishap Data Reports and SIRs. All other senior member functions will remain the same as outlined in this instruction.

(4) Sometimes an appointing authority may not have enough qualified personnel in the command, may be operating in a remote location, or for other reasons be unable to field a complete AMB. In such cases, one may appoint AMB members from outside the command. For instance, with no flight surgeon

assigned, it is altogether proper to borrow one from another command.

(5) In unusual or complex mishaps, the AMB may benefit from having officers with specific expertise as members. In such cases the senior member should request the appointing authority assign these additional members (a flight deck officer, perhaps, or an aerospace physiologist) to the AMB.

c. Required Changes to Composition of AMBs. The following may require adjustments in the membership of the AMB by the appointing authority, depending on the circumstances of a mishap under investigation:

(1) The senior member of each AMB shall be senior to the pilot in command and mission commander involved. The appointing authority, with the concurrence of controlling custodian, may waive this requirement in isolated cases where compliance would require unreasonable measures.

(2) For manned aircraft mishaps, at least one member of the AMB shall be a pilot who is NATOPS-qualified in the model aircraft involved.

(3) Personnel directly involved in a mishap shall not serve on an AMB conducting an investigation of that mishap.

(4) Members whose personal interest in a mishap might conflict with the objective and impartial performance of their duties shall not serve on the AMB investigating that mishap.

(5) Do not allow someone who may be called upon to endorse the SIR to sit on the AMB investigating the mishap.

d. Insufficient AMB Membership

(1) Sometimes AMB members are involved in mishaps. Address plans for such eventualities (particularly important for detachment operations) in pre-mishap planning.

(2) When, despite their best efforts, appointing authorities find themselves with too few members to constitute a board, they may: request relief or waiver from investigating and reporting the mishap, or request help with the investigation from the controlling custodian. See chapter 6.

207. PRE-MISHAP PLANS

A pre-mishap plan describes - in advance - the steps that must be taken when a mishap occurs. Anticipate all reasonable eventualities and devise measures to cope with them. Deficiencies may be identified through periodic drills designed to ensure the plan's smooth execution when a mishap occurs. A checklist of items to consider when formulating a pre-mishap plan is in appendix 2B at the end of this chapter. While the contents of a pre-mishap plan is largely at the option of the command, plans for Navy and Marine Corps airfields and aircraft operating facilities must address:

a. Coordination with local news media, area law enforcement officials, civil fire and rescue agencies, the Environmental Protection Agency (EPA), and the FAA. Plans for medical services including casualty treatment, evacuation, and retrieval of remains. Liaison with armed forces medical facilities, local civilian medical centers, medical examiners, coroners, and other county, state and federal medical agencies. (Local EPA offices can help notify proper personnel in the event of a mishap, even if the mishap is not in the local area.)

b. Coordination with tenant commands to be sure required support for engineering services, supply, medical assistance, and hazardous material disposal will be available.

c. Coordination with nearby military aviation facilities to clearly describe the geographic boundaries of responsibilities for immediate responses to an aviation mishap

d. Provisions for an immediate telephone report to the reporting custodian of aircraft mishaps within the airfield's area of cognizance. If this is impossible, and a Navy or Marine aircraft is involved, submit an initial Mishap Data Report per this instruction. If the aircraft belongs to another military service, let the nearest activity of the service involved know of the mishap, then notify COMNAVSAFECEN. If the aircraft involved is either a civilian or foreign (military or civilian) aircraft tell the nearest FAA facility, then notify COMNAVSAFECEN.

e. Plans to protect aircraft wreckage so that it remains undisturbed for at least 24 hours. The only exception to this requirement to keep the crash sight inviolate would be to protect life, limb, or property, to facilitate mishap

investigations or to protect the wreckage from loss or further damage.

f. Provisions for explosive ordnance disposal (EOD) services which will render explosives in the aircraft wreckage safe and provide authorized storage facilities. Do not send EOD personnel into a crash site before a qualified mishap investigator has given permission. Valuable evidence may be lost through actions designed to make the area safe.

APPENDIX 2A

SAMPLE AMB APPOINTMENT

FOR OFFICIAL USE ONLY (When filled in at bottom.)

From: (Commanding Officer, Commander, etc.)
To: (Rank, Name, Service, SSN, etc.) (U.S. Navy) OR (Rank, Name, SSN, Service, etc.) (U.S. Marine Corps)
Via: (Command of the appointed member if different from the appointing authority)

Subj: APPOINTMENT AS MEMBER OF (ORGANIZATIONAL) AVIATION MISHAP BOARD

Ref: (a) OPNAVINST 3750.6R
(b) NAVAIR 00-80T-116 VOLs 1-4
(c) Organizational Safety Directive (Pre-Mishap Plan, etc.)

1. Based upon your professional experience and knowledge, I appoint you as (a member) (the senior member) of the (organization) Aviation Mishap Board. You shall follow the provisions of references (a), (b), and (c) in the performance of your duties. You shall maintain complete familiarity with the content of these publications.

2. I direct your attention to the provisions of reference (a) which concern privileged information. You shall properly safeguard all privileged information to which you become privy as a member of the Aviation Mishap Board.

3. When investigating and reporting an aviation mishap, your duties as a member of the Aviation Mishap Board shall take precedence over all other duties.

4. The responsibility inherent in this appointment extends beyond loyalties you may hold to this command. All of naval aviation depends on the efforts of Aviation Mishap Boards to identify and eradicate the causes of injury to our people and damage to our equipment. The sole objective of an Aviation Mishap Board is to improve safety. Therefore, your efforts should include a complete, open, and forthright expression of your views. To this end I assure you that the aviation Safety Investigation Report you produce shall be used within this command, and elsewhere within the Department of the Navy, only for safety purposes.

5. Should any circumstances arise which would prevent the proper performance of your duties as a member of the Aviation Mishap Board you shall let me know.

APPENDIX 2B

PRE-MISHAP PLAN CHECKLIST

Pre-mishap plans are simply descriptions of who is responsible for doing what, both before and after an aircraft mishap. Pre-mishap plans will vary widely, depending on the mission, resources, environment and personnel of the publishing command. Try to write pre-mishap plans so that they will remain valid during deployments. Incorporate an abbreviated pre-mishap plan into a Letter of Instruction (LOI) or implementing instructions for detachments. Other changes may be required when the command moves on or off a ship. The following list provides some items for consideration in compiling a pre-mishap plan.

References

* OPNAVINST 3750.6R, Naval Aviation Safety Program
* The directives listed in paragraph 109 of this instruction
* OPNAVINST 5090.1B, Environmental and Natural Resources Program Manual
* STANAG 3531 (if in a NATO command)
* Pertinent safety directives of senior commands
* Pertinent safety directives of local commands

Text and Enclosures

Potential Pre-Mishap Items

* Provisions for periodic drills of the pre-mishap plan
* Staff/department head pre-mishap responsibilities, including Flight Surgeon/medical
* AMB task organization
* Responsibilities for transportation preparations
  - Precut travel orders
  - Passports
  - Identified means of local transportation
* Description of arrangements for obtaining photographic coverage of mishaps
* Description of coordination with local Explosive Ordinance Disposal (EOD) and crash units
* Description of arrangements and coordination to deal with hazardous material
* Description of coordination with local Environmental Protection Agency (EPA)
* Description of coordination with local Public Affairs Office (PAO) organization

* Description of coordination with local civil/military medical activities
* Responsibilities for maintenance of mishap investigation kit
* Listing of contents of mishap investigation kit
* Plans/schedule for squadron duty officer (SDO) training

Potential Post-Mishap Items

* Plans/schedule for AMB training
* Responsibilities of SDO (or equivalent duty personnel)
* Procedures for notification of overdue aircraft to airfield operations
* Listing(s) of personnel/commands to be notified (including names, telephone numbers, and addresses)
* Procedures for use of local crash plan/notification system
* Procedures for recording information on aircraft mishaps
* Procedures for requesting emergency assistance
* Procedures and criteria for notification of FAA
* Responsibilities of CO/XO
* Responsibilities of staff/department heads (including assistance to the AMB)
* Investigative responsibilities of each AMB member
* Guide(s) to mishap classification and serialization
* Checklist of reports required by OPNAVINST 3750.6R and other directives
* Formats of required OPNAVINST 3750.6R reports (completed in advance insofar as possible)
* Sources of assistance to the AMB; i.e., Naval Aviation Physiologist, etc. (list type of assistance available, command or individual, telephone number, address)
* Plans for wreckage:
  - Location assistance
  - Recovery assistance
  - Security measures
  - Hazardous material procedures
  - Transportation assistance
  - Reconstruction site
  - Engineering investigation
  - Release procedures
  - Disposal procedures
  - Material Safety Data Sheet

APPENDIX 2C

COMMAND AVIATION SAFETY PROGRAM
References

* OPNAVINST 3120.32C Chapters 3 and 7
* OPNAVINST 5100.19D
* OPNAVINST 5100.23E

An Aviation Safety Program shall be published for each command. As a minimum, the following topics shall be detailed:

1. Command Safety Department

    a. Manning
    b. Organization chart
    c. Billet descriptions, duties, and responsibilities

2. Responsibilities and Programs For

    a. Flight safety
    b. Maintenance safety
    c. Personal safety

3. Officer Safety Council

    a. Composition
    b. Meeting frequency
    c. Records keeping
    d. Follow-on action requirements/procedures

4. Enlisted Safety Committee

    a. Composition
    b. Meeting Frequency
    c. Records keeping
    d. Follow-on action requirements/procedures

5. Safety Surveys

    a. Internal/external programs
    b. Frequency
    c. Follow-on action requirements/procedures

6. Training

    a. Aviation Mishap Boards/watch personnel
    b. Officer personnel

c. Enlisted personnel

7. General Safety/NAVOSH

a. Hearing conservation program
b. Traffic safety program
c. Land/sea survival
d. Flight deck/flight line
e. Recreation, athletic and home safety
f. Hazardous material control and management
g. Respiratory protection program
h. Sight conservation program
i. Electrical safety
j. Personal Protective Equipment (PPE) Program
k. Radiation and laser safety
l. General shipboard safety

CHAPTER 3

MISHAP AND INJURY CLASSIFICATION

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This chapter describes how to classify naval aviation mishaps and injuries.

301. GENERAL

Aircraft mishap classification is a complex process. Initial reports of an aircraft mishap will be both muddled and confused. The earliest information will be limited and incomplete and require guesses from the reporting custodian as to the extend of damage and injury. Knowing this, the reporting system provides ample opportunity to correct initial estimates. The mishap severity class (A, B, C) together with the mishap category (flight mishap (FM), flight-related mishap (FRM), or aircraft ground mishap (AGM)) constitute the mishap classification such as, "Class B Flight Mishap" or "Class A Aviation Ground Mishap." If you suspect an naval aviation mishap has occurred:

a. Check paragraphs 302 and 303 which define naval aircraft and UAVs and list the exceptions to those definitions. If naval aircraft or UAVs are not involved, there is no need to

report under provisions of this instruction. OPNAVINST 5102.1C, OPNAVINST 5100.19D (NOTAL) OPNAVINST 5100.23E or MCO 5101.8 describe other reporting requirements which may apply in that case. If a naval aircraft or UAV is involved, continue this checklist.

b. Read paragraphs 304 and 305 which define naval aviation mishaps and exceptions. If no defined naval aviation mishap has occurred, there is no need to report the under provisions of this chapter. However, see chapter 4 for hazard reporting. If a naval aviation mishap has occurred, continue with this checklist.

c. Determine the aviation mishap category: FM, FRM, or AGM. Paragraph 312 describes these categories. They are diagrammed in appendix 3A. You'll need to answer the following questions to determine the mishap category:

(1) Did intent for flight, as described in paragraph 306, exist for the aircraft or UAV involved in the mishap?

(2) Did the damage to the aircraft or UAV involved exceed the $10,000 mishap threshold?

d. Paragraph 313 and the diagram in Appendix 3B define the severity classifications. For mishaps which require summing costs of property damage see paragraph 314.

302. NAVAL AIRCRAFT AND UAV DEFINED

The term "naval aircraft or UAV" refers to those aircraft and UAVs of the U.S. Navy, U.S. Naval Reserve, U.S. Marine Corps, and U.S. Marine Corps Reserve for which the naval aircraft accounting system requires accountability. Included in this definition are all manned, weight-carrying, devices supported in flight by buoyancy or dynamic action, man-rated aircraft when operated remotely as drones with no live operator on board (NOLO), and all UAVs. Only after aircraft have been formally accepted from the manufacturer may they be defined as naval aircraft or UAVs. If the government has assumed ground and flight risk for aircraft bailed to non-naval organizations, those aircraft are naval aircraft or UAVs. In addition, aircraft or UAVs undergoing testing by naval activities, including aircraft or UAVs furnished by a contractor or another government agency, when operated by a naval aircrew in an official status, conducting tests for U.S. Naval use, are naval aircraft. Aircraft leased by the U.S. Navy or U.S. Marine Corps

are naval aircraft or UAVs, if the Navy or Marine Corps has exclusive use of them.

303. EXCEPTIONS TO THE DEFINITION

The following are neither naval aircraft nor UAVs. Mishaps occurring to them are not reportable under the provisions of this instruction, however, CNO may decide to participate in mishap investigations involving them. Conduct JAG Manual Investigations whenever litigation against or by the U.S. Government is expected.

a. Aircraft or UAVs leased or loaned to non-DOD organizations when the lessor or borrower has assumed the risk of loss.

b. Civil aircraft owned by civil operators engaged in contract air missions for the U.S. Navy or U.S. Marine Corps.

c. New production aircraft or UAVs, not formally accepted by the government. Report mishaps which involve such aircraft or UAVs as contractor mishaps. COMNAVAIRSYSCOM shall investigate mishaps involving aircraft or UAVs owned by government contractors in which there is damage to DOD property, or injury to other DOD personnel. Send the record of the mishap investigation to COMNAVSAFECEN for review, recordkeeping, and statistical recording.

d. Unmanned target drone aircraft and ballistic or semiballistic vehicles.

e. Navy Flying Club and skydiving club aircraft. These are reportable under OPNAVINST 1710.2E (NOTAL).

304. NAVAL AVIATION MISHAP DEFINED

a. A naval aviation mishap is an unplanned event or series of events, directly involving naval aircraft or UAVs which result in any of the following:

(1) Damage in the amount of ten thousand dollars or more to naval aircraft or UAVs, other aircraft (DOD or non-DOD), or property (DOD or non-DOD). Property damage includes costs to repair or replace facilities, equipment or material.

(2) An injury as defined in paragraph 307.

(3) Damage incurred as a result of salvage efforts do not count as mishap costs on that aircraft or UAV; however, other damage such as corrosion or fire that happen while the aircraft is awaiting salvage must be included.

b. A diagram of naval aviation mishap classifications is in appendix 3C and includes:

(1) Three mishap categories: FM, FRM, and AGM; all defined in paragraph 312.

(2) Three classes of mishap severity: A, B, and C - all defined in paragraph 313 and applicable to each of the mishap categories described above.

305. EXCEPTIONS TO THE NAVAL AVIATION MISHAP DEFINITION

The following are not naval aviation mishaps and are not reportable under this instruction. (See chapter 4 for hazard reporting instructions.)

a. Intentional or expected damage to DOD equipment, property, aircraft, or UAVs, incurred during authorized testing or combat training. Unexpected or unintentional damage to equipment, property, aircraft or UAVs under these circumstances is reportable.

b. Intentional, controlled jettison or release, during flight, of canopies, cargo, doors, drag chutes, hatches, life rafts, auxiliary fuel tanks, missiles, target drones, rockets, conventional munitions, and externally carried equipment not essential to flight, when there is no injury, no reportable damage ($2000) to the aircraft or other property, and in the case of missiles, drones or munitions, the reason for jettison is not due to a malfunction of the launch or release system. A good test of this exception is to question the intent of the aircrew. You have a reportable incident if the object was accidentally jettisoned or dropped.

c. Malfunction or failure of parts due to normal wear provided: (1) the malfunction or failure is the only damage, and (2) the sole action is to replace or repair the part. This exception does not apply if the cost for damage resulting from the failure of one part exceeds $2000 to another component. For example: when the failure of a jet turbine inflicts more than $2000 worth of damage to the aircraft fuselage, a blown tire causes over $2000 damage to the wheelwell or aircraft structure, or a blown tire FODs an engine you have a reportable incident.

Internal material failure of an engine in which the damage is confined to the engine itself is not reportable as a mishap. (See OPNAVINST 4790.2G (NOTAL)). Incidents involving damage more than internally indicated engine FOD, or involving injury require both a SIR and an engine FOD incident report.

d. Foreign Object Damage (FOD) to aircraft engines, air-breathing missiles, or drone engines when not caused by aircrew or maintenance personnel action or bird strike. The intent is to avoid safety reports on engine failures and FOD incidents for which there is no known cause and no significant damage to other aircraft components. However, when the engine is damaged by human error (for instance, a tool left in the intake) or material failure of another aircraft part such as a tire failure), a Hazard Report or SIR is the first step in raising awareness and beginning corrective actions. When other components or structures of the aircraft are damaged the $2000 rule applies.

e. Occupational illness is any abnormal physical condition or disorder, other than one resulting from an injury, caused by repeated exposure (of more than 1 day's duration) to environmental factors associated with the work environment. Report these illnesses per OPNAVINST 5102.1C (NOTAL) or MCO 5101.8 (NOTAL).

f. An injury sustained during a planned aircraft egress (such as parachute jumping or rappelling) if the aircraft or aircrew actions did not contribute to the injury. Send a Hazard Report.

g. Property damage as a result of vandalism, riots, civil disorders, sabotage or felonious acts such as arson.

306. INTENT FOR FLIGHT DEFINED

The following criteria apply to DOD aircraft and UAVs involved in aircraft mishaps. Intent for flight is a prerequisite for the classification of a naval aviation mishap as a FM or FRM.

a. Intent for flight exists when the aircraft or UAV's brakes are released or takeoff power is applied to begin an authorized flight. For catapult takeoffs, flight begins at first motion of the catapult after pilot has signaled readiness for launch. For UAV rocket-assisted takeoff (RATO), flight begins at the first sign of RATO bottle ignition. For UAV pneumatic launches, flight begins at first sign of pneumatic

launcher motion after the pilot has signaled readiness for launch.

b. Intent for flight continues until:

(1) The aircraft or UAV taxies clear of the runway or landing area.

(2) Helicopter or vertical takeoff and landing (VTOL), flight ends when the aircraft has alighted at the termination of the flight and the landing gear supports the aircraft weight. Touch-and-go or stop-and-go landings are not terminations of flight.

(3) UAV flights end in the net or when captured by another recovery system.

307. INJURY DEFINED

a. A reportable injury is any bodily harm such as a cut, fracture, burn, or poisoning received while involved with naval aircraft or UAVs, so long as these injuries - updated until the final endorsement message has been sent - result from a single or one-day exposure to an external force, toxic substance, or physical agent, and result in a:

(1) Fatality, regardless of the time between injury and death.

(2) Permanent total disability.

(3) Permanent partial disability.

(4) Lost workday injuries - defined as causing the loss of 5 or more workdays (not including the day of injury). An incident is not reportable if the injury results in 4 or less lost workdays and damage to the aircraft or UAV does not exceed $10,000. A Hazard Report would be appropriate in such cases.

b. Consider only these injuries in determining the severity classification of a naval aviation mishap:

(1) All injuries to active duty, on or off-duty, DOD military personnel (including reservists).

(2) All injuries to on-duty DOD civilian personnel, including Foreign Nationals attached to the DOD.

(3) Fatal injuries to anyone.

308. DOD PERSONNEL AND NON-DOD PERSONNEL DEFINED

These definitions apply when determining mishap severity. While non-DOD personnel injuries are reported, they shall not be used to determine mishap severity, except that any fatality will result in a Class A mishap.

a. DOD Personnel

(1) Civilian On Duty. General Schedule and Wage Grade employees (including National Guard and reserve technicians, unless in military duty status), nonappropriated fund employees (except military members employed part time), Corps of Engineers Civil Works employees, youth or student assistance program employees, foreign nationals employed by DOD components, and military exchange employees.

(2) Military. All U.S. military personnel on active duty, U.S. Military Reserve or National Guard personnel on active duty or in drill status, service academy cadets, Reserve Officer Training Corps cadets when engaged in directed training activities, foreign national military personnel assigned to DOD components

b. Non-DOD Personnel. Off-duty DOD civilian personnel, persons employed by other Federal agencies, and other civilians and foreign nationals not employed by DOD.

309. DUTY STATUS DEFINED

These definitions are for mishap reporting purposes only and have no relation to compensability or line of duty determination.

a. On Duty. When DOD personnel are:

(1) Physically present at any location to perform their officially assigned work. (This includes those activities incident to normal work activities which occur on DOD installations, such as lunch or coffee breaks and all activities aboard vessels.)

(2) Being transported by DOD or commercial conveyance to perform officially assigned work. (This includes reimbursable travel for temporary duty performed in private motor vehicles, but not routine travel to and from work.)

(3) Participating in compulsory sports or physical training activities.

b. Off Duty. All other times not defined in paragraph 309 a. above.

310. LOST WORKDAY DEFINED

Lost workdays are those workdays (consecutive or not) on which DOD personnel would have worked, but could not work because of injury. Excluded are the day of the injury and days that personnel did not work even though able to work.

311. INJURY CLASSIFICATION

Injury classifications (defined below) are: fatal injury, permanent total disability, permanent partial disability, lost workday, first aid injury, no injury, lost at sea, missing or unknown.

a. Fatal Injury. An injury which results in death from a mishap or the complications arising therefrom, regardless of the time between the mishap and the death.

b. Permanent Total Disability is any injury which, in the opinion of competent medical authority, permanently incapacitates someone to the extent they cannot pursue gainful employment. In addition, the amputation of, or the loss of use, of both hands, or both feet; or loss of, or blindness in, both eyes, or a combination of any of these injuries as a result of a single mishap constitutes a permanent total disability.

c. Permanent Partial Disability. An injury which does not result in death or permanent total disability, but, in the opinion of competent medical authority, results in permanent impairment or loss of any part of the body, the loss of the great toe, the thumb, or an unrepairable inguinal hernia, with the following exceptions:

- Teeth
- The four smaller toes
- Distal phalanx of any finger
- Distal two phalanges of the little finger
- Repairable hernia
- Hair, skin, nails, or any subcutaneous tissue

d. Lost Workday Injury. An injury which does not result in death, permanent total disability or permanent partial disability, but results in 1 or more lost workdays, not including the day of injury. Lost workday injuries are further divided into major lost workday injury, (5 or more lost workdays) and minor lost workday injury, (more than one, but less than 5 lost workdays.) Only a major lost workday injury requires a report; however, if a mishap report is submitted as a result of $20,000 or more aircraft damage, then include all injury classifications.

e. First Aid Injury. An injury with no lost workdays. Used when individuals are treated and released.

f. No injury.

g. Lost at sea.

h. Missing or unknown.

NOTE: Lost at sea and missing or unknown injuries equate to a fatality for mishap severity-level classification. Paragraph 313 defines mishap severity levels.

312. NAVAL AVIATION MISHAP CATEGORIES include:

a. Flight Mishaps (FM). This category encompass those mishaps which result in $20,000 or more damage to a DOD aircraft or UAV or, the loss of a DOD aircraft or UAV - when intent for flight for DOD aircraft or UAV existed at the time of the mishap. Other property damage, injury or death is irrelevant to this classification.

b. Flight-Related Mishaps (FRM). Those mishaps which result in less than $20,000 damage to a DOD aircraft or UAV - when intent for flight existed at the time of the mishap and, additionally, $20,000 or more total DOD and non-DOD damage or a reportable injury or death occurred.

c. Aviation Ground Mishap (AGM). Those mishaps in which the intent for flight did not exist but a DOD aircraft or UAV was lost, or more than $20,000 damage was sustained by a DOD aircraft or UAV, or DOD or non-DOD property was damaged in the amount of $20,000 or more, or a reportable injury occurred.

313. NAVAL AVIATION MISHAP SEVERITY CLASSES

The following mishap severity classes, based on personnel injury and property damage, apply to all three categories of mishaps listed above. To determine mishap costs see paragraph 314.

a. Class A Severity. A Class A mishap is one in which the total cost of damage to property or aircraft or UAVs exceeds $1,000,000, or a naval aircraft is destroyed or missing, or any fatality or permanent total disability results from the direct involvement of naval aircraft or UAV. Loss of a UAV is not a Class A unless the cost is $1,000,000 or greater.

b. Class B Severity. A Class B mishap is one in which the total cost of damage to property or aircraft or UAVs is more than $200,000 but less than $1,000,000, or a permanent partial disability or the hospitalization of three or more personnel results.

c. Class C Severity. A Class C mishap is one in which the total cost of damage to property or aircraft or UAVs is $20,000 or more, but less than $200,000, or an injury requiring five or more lost workdays results.

d. Any occurrence in which the total cost of property or aircraft or UAV damage is less than $20,000 and there are no reportable injuries is not an aviation mishap. Report these events as hazards. (See Chapter 4.)

314. DETERMINING AIRCRAFT OR UAV MISHAP COSTS

The aviation mishap board calculates aviation mishap costs by totaling the cost of property and aircraft or UAV damage. The Naval Safety Center will add injury costs to the total.

a. DOD Property Costing

(1) The intent of this paragraph is to account for the cost of parts lost or damaged during a mishap. Compute the cost of damage to DOD property using the best known cost of repair or replacement. Base these cost estimates on the price of materials and man-hours necessary to repair the damage. Use figures provided by the cognizant aviation depot. Do not change them. If man-hour cost estimates are not available, use $60 per depot-level man-hour. For intermediate and organizational level, use $18 per man-hour for labor costs. Report direct man-hours spent removing and replacing damaged components. Direct man-hours are the cumulative man-hours - expended at any maintenance level - to effect complete repair of the aircraft or UAV and restore it to serviceable condition. Aircraft parts

which may be damaged and which require removal from the aircraft for intermediate or depot level inspection to ascertain the extent of damage should be reported via MDR if the potential cost exceeds $20,000. If the inspection shows the damage to be less than $20,000, send a message downgrading the incident.

(2) When a component (excluding engines) is economically repairable and sent to an intermediate level or higher maintenance facility, and planning and estimate (P&E) information is not available, calculate the cost of repair by computing 15 percent of the item's initial cost - not turn-in cost. Report man-hours spent removing and replacing the damaged part.

(3) Base cost estimates on damaged engines sent to intermediate or higher level maintenance facilities for repair on engine repair cost information from the NAVSAFECEN. If this information is not available, use 17 percent of the original engine cost as your estimate. Report man-hours spent in removing and replacing the engine(s).

(4) Include in your cost estimates the man-hours spent removing undamaged parts to gain access to those that are damaged. Do not report man-hours spent removing or disassembling undamaged parts to gain access to areas where damage is suspected unless damage is found. Count those efforts as direct man-hours if damage is found. Include those man-hours spent in anticorrosive work following salt water immersion, as the result of an aviation mishap. Do not include those man-hours consumed setting up maintenance stands or other support equipment in preparation for the repair effort. It is a violation of the intent of this instruction to remove a damaged assembly and replace it with a new one in an attempt to decrease the number of man-hours spent on repairs and, thereby, lower the mishap classification.

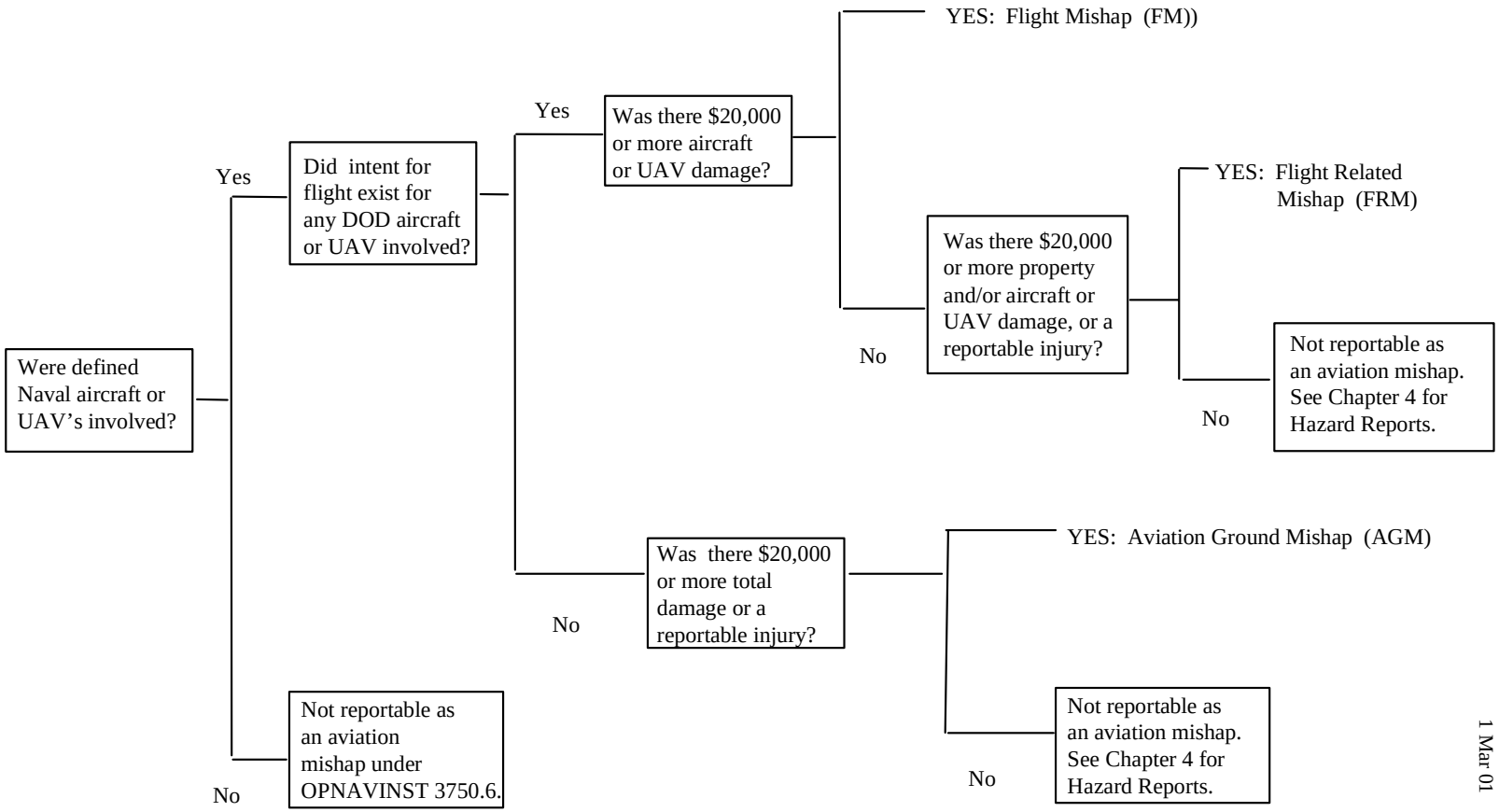
(5) If an aircraft or a UAV is destroyed, the originator of the report need only state that fact in the aircraft or UAV damage section of reports and COMNAVSAFECEN will enter the costs in the appropriate records.

(6) Include in your cost estimates only that damage sustained as a direct result of the mishap. Do not include costs of any further damage resulting from rescue or salvage efforts. Do not include the cost of intentionally jettisoned or released equipment, (described in subparagraph 305b) unless the jettison or release damages the aircraft or UAV.

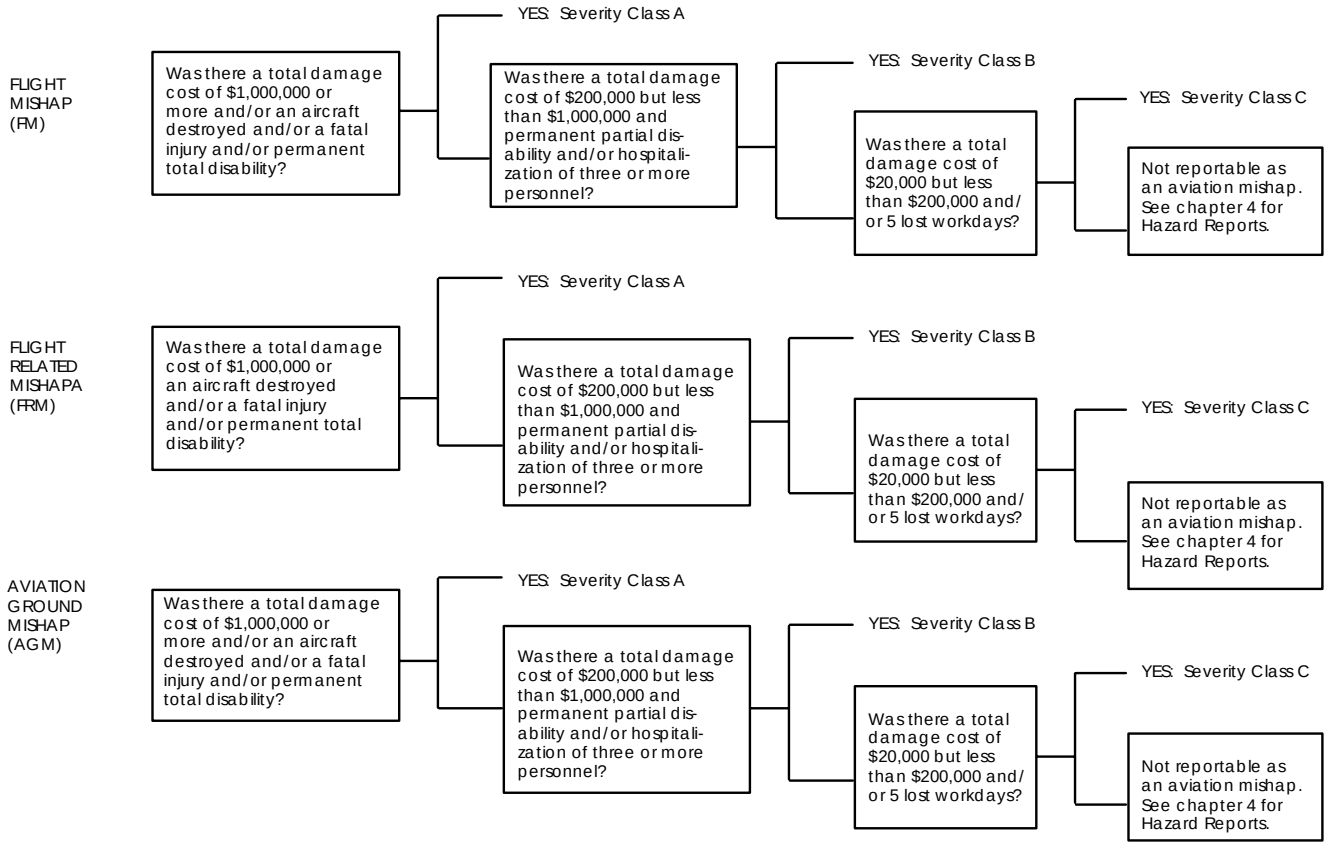
(7) Cost as new any parts acquired from salvage for repair.

b. Non-DOD Property Costing. Information about the actual cost of damage to non-DOD property shall be provided by a representative from the claims section of the nearest naval activity or a representative from the nearest naval legal service office. Use their best estimates until this information is available. Determine non-DOD property damage costs from the damage sustained as a result of the mishap and include any further damage which results from rescue or salvage efforts. The cost of environmental cleanup at the crash site is part of the mishap total cost. If the actual cost is unavailable, use the best estimate.

APPENDIX 3A MISHAP CATEGORY DECISION TREE



APPENDIX 3B MISHAP SEVERITY DECISION TREE



APPENDIX 3C MISHAP CLASSIFICATION MATRIX

	SEVERITY CLASS		
MISHAP CATEGORY	**A**	**B**	**C**
FLIGHT MISHAP (FM) Intent for flight existed, and $20,000 or more DOD aircraft/UAV damage occurred.	Total damage cost is $1,000,000 or more and/or aircraft destroyed and/or fatal injury and or permanent disability	Total damage cost is $200,000,000 but less than$1,000,000 and/or permanent partial dis-ability and/or hospitaliza-tion of three or more . personnel.	Total damage cost is $20,000 but less than $200,000 and/or five lost workdays injury.
FLIGHT-RELATED MISHAP (FRM) Intent for flight existed with less than $20,000 DOD aircraft or UAV damage	Total damage cost is $1,000,000 or more and/or fatal injury and or permanent disability	Total damage cost is $200,000 but less than $1,000,000 and/or permanent partial disability and/or hospitalization of three or more personnel.	Total damage cost is $20,000 but less than $200,000 and/or five lost workdays injury.
AVIATION GROUND MISHAP (AGM) No intent for flight existed.	Total damage cost of $1,000,000 or more and/or aircraft destroyed and/or fatal injury and/or permanent total disability.	Total damage cost is $200,000 but less than $1,000,000 and/or permanent partial disability and/or hospitalization of three or more personnel.	Total damage cost is $20,000 but less than $200,000 and/or five lost workdays injury.

CHAPTER FOUR

HAZARD REPORTS

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Appendixes

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This chapter defines hazards and describes hazard detection and reporting. This chapter does not include instructions for reporting a naval aviation mishap. See Chapter 3 for the definition of a naval aviation mishap.

401. GENERAL

A hazard is a potential cause of damage or injury that is under human control. The Naval Aviation Safety Program identifies and eliminates hazards before they result in mishaps. If this were completely successful, which it isn't, there would be no mishaps. Therefore, the following subparagraphs explain how to detect and report hazards before a mishap occurs.

a. Hazard Detection Before A Mishap. Analyzing, observing near-mishaps and incidents, conducting safety surveys, and reviewing command plans, policies, procedures and instructions will aid in detecting hazards before a mishap occurs. Risk management, applied in the planning stages of an operation will identify hazards at the earliest possible opportunity. Individuals or commands with direct, first-hand knowledge of the circumstances surrounding a hazard are the most effective ways of detecting hazards. All Command Safety Programs should include Risk Assessment/Risk management, review of operating procedures, analysis of equipment failures, etc., for hazard detection. Two vital parts of hazard detection are: classifying the hazard according to the expected damage, and the severity probability based on the likelihood that the identified hazard will result in the category of hazard severity assigned. Hazard Report deadlines and message precedence vary, depending on the risk assessment of the hazard being reported.

b. Hazard Reporting. Everyone associated with Naval Aviation has an obligation to report hazards. Command Safety Programs must foster hazard reporting. Once identified, the attendant risk should be assessed both for mishap probability and severity. Hazards which threaten people or organizations outside the command must be reported to higher authority. Reports may include descriptions of corrective action (risk control options) undertaken by the command which would benefit other commands facing similar problems. Five hazards require specially formatted reports: bird/animal strikes, near-midair collisions, physiological episodes, embarked landing hazards, and air traffic control hazards. When these hazards occur but do not cause an aviation mishap, submit a Hazard Report in the prescribed format. The quality of Hazard Reports depends directly on the quality of the investigation into its attendant circumstances. Using Aviation Mishap Boards to investigate and report hazards keeps the board's skills honed and produces excellent results. Risk management techniques simplify the assessment of risks and help determine the best risk control options. Discussing what risk management procedures proved helpful during a hazard investigation is appropriate in the remarks section of the Hazard Report. Investigations into physiological episodes should include the services of a flight surgeon. Use paragraph 607c(3) of this instruction as a guideline. Success of the Naval Aviation Safety Program depends on the complete, open and forthright exchange of information and opinions about safety matters. Any effort on the part of seniors in the chain of command to edit, change, or censor, in any way, the content of reports is contrary to the spirit of the

program and will not be tolerated. A senior's endorsement is the only acceptable method of expressing disagreement with the basic report.

c. Anonymous Hazard Reports. Activities or individuals reluctant to identify themselves or their command may post, or E-mail, or send Hazard Report messages with COMNAVSAFECEN as the sole addressee. These methods are attractive when unique situations or embarrassing circumstances exist. COMNAVSAFECEN protects the confidentiality of these anonymous reports, sanitizes them, then redistributes the information as necessary.

402. PURPOSE OF HAZARD REPORTS

The four purposes for Hazard Reports are:

a. To report a hazard and the remedial action taken, so others may take similar action.

b. To report a hazard and recommend corrective action to others.

c. To report a hazard so some other organization may determine appropriate corrective action.

d. To document a continuing hazard in order to establish risk severity.

403. Remedial Action to Correct Hazards. Hazard Reports and SIRs are the media for recommending corrective action to eliminate hazards. Both require endorsements when they address a severe hazard or recommended corrective action by another command. Regardless of whether the hazard is identified and reported before or after a mishap, corrective action is essentially the same.

404. SUBMISSION CRITERIA

a. General Submission Criteria. A hazard is anything possessed of the potential to cause damage or injury. Submit Hazard Reports whenever a hazard is detected or observed or whenever an event occurs that should have been a mishap but for luck, quick reaction, procedure, or similar reason, no loss occurred. Keep in mind that the reports submitted under this instruction are the only consistent source of data for the aviation portion of the Navy's Safety Information Management System (SIMS). Unreported hazards do not get into the safety

data base. The same thing is true of reports submitted under other directives, such as the Naval Aviation Management Program, OPNAVINST 4790.2G. Sending an HMR instead of an aviation Hazard Report deprives the safety community of long-term trend information, data, and documentation useful in mishap prevention. Additionally, HMRs lack the visibility of a Hazard Report. They are a maintenance report and do not require chain of command endorsement. It is never inappropriate to issue both a Hazard Report and an HMR concerning the same event.

b. Special Submission Criteria. Whenever electromagnetic interference is encountered, submit a hazard report.

(1) Electromagnetic Interference (EMI) Defined. Electromagnetic interference has the potential to cause damage or injury and is associated with an in-flight or on-the-ground interruption or loss of aircraft or UAV instruments, flight controls, radio communication, navigation, electrical equipment, etc., in which electrical interference is experienced or suspected. EMI includes:

- Radio frequency interference
- Electrical storm interference
- Electrical noise
- Precipitation static

(2) EMI exists when undesirable voltages or currents influence adversely the performance of an electronic device. The extent to which it degrades performance depends on the level of interference encountered. These levels are:

(a) Mild. Detectable, but one that does not hamper the detection and interpretation of a desired signal.

(b) Medium. Interferes with the detection and interpretation of a desired signal. This level causes partial breakup or masking of the desired signal with some loss of signal content.

(c) Severe. Causes a complete loss of a desired signal.

(3) There are two types of interference:

(a) Intrasystem Interference: The source of the interference is on the same aircraft as the affected victim system.

(b) Intersystem Interference: The source of the interference is external to the aircraft. Atmospheric interference including lightning, precipitation static, and St. Elmo's fire are in this classification.

c. Special Criteria Used in the Submission of Hazard Reports Involving Unintentional Incidences of Out-of-Control-Flight

(1) Unintentional out-of-control flight includes: Mishaps and near-mishaps encountered during air combat maneuvering (ACM), guns defense, air intercept control (AIC), or other flight regimes. These mandatory reports highlight the risks associated with high angle of attack (AOA), low airspeed flight. Unplanned departures from controlled flight or unintentional out-of-control flight are hazards to naval aircraft and their crews. Any unbriefed or unexpected departure from controlled flight, deliberately or unintentionally entered into is an out-of-control flight incident. Pre-briefed departure recognition training or high AOA and low airspeed flight excursions deliberately conducted for training need not be reported.

(2) The reporting custodian shall submit a general use naval aviation Hazard Report whenever an of out-of-control-flight incident occurs. Include the following information:

- Circumstances leading to the departure
- Maneuver causing the departure
- Aircraft configuration (external tanks, missiles, etc.)
- Approximate gross weight
- Airspeed
- Throttle setting
- AOA
- G loading
- Angle of bank/pitch/roll
- Engine stall, before or after departure
- Automatic maneuvering devices used
- Type and direction of departure entered
- Tactical Tape/Operational Flight Program (OFP) software installed
- Aircrew flight time: total, last 7/30/90 days
- Formal out of control flight (OOCF) training
- Phase of Operations (post-cruise, FFARP, COMPTUEX).

d. Reporting of Hazard Reports Containing Human Factors

(1) Naval Aviators have done a commendable job of detecting, analyzing, understanding, and correcting mechanical defects and faulty design features in the aircraft they fly. We have, however, been considerably less successful at understanding and combating those failings of a human kind which continue to constitute upwards of 80% of the cause factors in Naval Aviation mishaps. These human factors - personal and professional stress, physiological impairment, lapses of attention, confusion, and willful violations of flying regulations, to name but a few - stand as the last great barrier between today's commendable mishap rates and a genuine breakthrough in Naval Aviation Safety. Our ability to accomplish the mission of Naval Aviation in the future will depend in large measure on how well we understand and control these aspects of human behavior in our aircrews and our maintenance personnel today.

(2) No one need be embarrassed by a Human Factors Hazard Report. Where the anonymity of an individual or organization is a concern, send the Hazard Report from a senior command, or use the provisions available in the paragraph covering Anonymous Hazard Reports. But, above all, never fail to report.

(3) The requirement to analyze and report human factors in the WHO/WHAT/WHY format is now a requirement in Hazard Reports.

e. Related Aviation Reports

(1) Incidents which meet the criteria in OPNAVINST 4790.2G for submission of Hazardous Material Reports, aviation-related Explosive Mishap Reports, Technical Publication Deficiency Reports, and Quality Deficiency Reports may also require OPNAVINST 3750.6R Reporting if there is a safety of flight or other significant safety issue. The Hazardous Material Reporting System does not reach the same audience as the Safety Reporting System. The Safety Reporting System requires endorsements by action agencies and tracking of corrective action.

(2) Submit deficiencies in other publications which have established procedures for changes (NATOPS, Naval Warfare Publications, etc.) as recommended changes to those publications.

f. Submission by an AMB Investigating a Mishap

(1) Occasionally, an AMB will discover, among their cause factors, severe hazards which require immediate attention. In such cases, review the restrictions concerning privileged information described in paragraph 410, then promptly submit a Hazard Report. Include no information - no names, bureau numbers, dates, locations, or any other details - which could be traced to a specific mishap. Take care not to divulge any privileged information from the SIR process, while describing the hazard. Be sure the analysis, conclusions and recommendations contained in the Hazard Report clearly define the hazard and possible corrective actions. Hazard Reports submitted under these circumstances do not relieve you of the responsibility for submission of a complete SIR.

(2) During an investigation, the AMB may detect hazards which are not themselves causal factors in the mishap under investigation Report such findings under this chapter, and not in the SIR. Do not include recommendations for corrective action of these hazards in the SIR. Resist the temptation to use the SIR as a vehicle to address unrelated hazards (however severe) which are not causal factors in the mishap under investigation.

g. Format. The Hazard Report form has been significantly revised. Change ROMEO includes the requirement for collecting additional information in a standardized format. This reflects the expanded data collection capabilities of the Safety Information Management System (SIMS) which will enable better data analysis and trending.

405. ORIGINATOR

Anyone can initiate a Hazard Report, but investigating hazards and preparing Hazard Report should be left to members of the AMB. While hazard reports are usually submitted by the reporting custodian involved, any naval activity may do so.

406. RISK ASSESSMENT

Originators of Hazard Reports shall assign a Risk Assessment Code (RAC) which best describes the risk associated with the report hazard, i.e., RAC 1, RAC 3, etc. Refer to appendix B at the end of this instruction for information on RACs.

407. DEADLINES

a. There are no time limits for submitting Hazard Reports. Try to forward reports of hazards with a severe RAC within 24 hours of detecting the hazard. Submit all other Hazard Reports within 30 days following detection of the hazard.

b. Air Traffic Control Hazard Reports that fall into the category as described in paragraph 421a(1) and (2) shall within three (3) work days, be reported by message to those agencies identified in appendix 4B, NOTE 1. All other ATC hazard reports shall be submitted per guidelines outlined in paragraph 407a.

b. Complete reports that require information from tape recordings of air traffic control (ATC) communications or radar video in a timely manner. ATC erases these tapes after 15 days unless investigators request otherwise.

408. METHOD OF SUBMISSION

Forward Hazard Reports via military electronic communications facilities.

409. DISTRIBUTION

Address Hazard Reports in accordance with appendixes 4A and 4B. Any naval command may readdress and redistribute Hazard Reports.

410. NONPRIVILEGED STATUS

Hazard Reports are not privileged. Do not give promises of confidentiality. Although Hazard Reports may only be used by the Navy and Marine Corps for safety purposes, the contents may be divulged to outside agencies in response to FOIA requests. Avoid the identification of specific individuals.

411. FOR OFFICIAL USE ONLY

Hazard Reports are FOUO. See reference (b) for instructions on their handling.

412. SECURITY CLASSIFICATION

Normally, Hazard Reports are unclassified. Omit any portion of the report that warrants classification and substitute the word "classified" in its place. In the unlikely event that a meaningful report cannot be produced in this fashion, submit a classified report.

413. MESSAGE PRECEDENCE

Send RAC I or RAC II Hazard Reports via priority message. Send all other Hazard Reports routine.

414. MINIMIZE

Hazard Reports are exempt from minimize. See: ACP121(d) US SUPP (B-1) (NOTAL).

415. HAZARD REPORT SERIALIZATION

Serialize Hazard Reports sequentially through each fiscal year by the originator. Serialize the reports, not the hazard, in the fiscal year in which the hazard occurs. For example, VF-99 discovers a hazard in September 1993 (FY-93) but reports it in October 1993 (FY-94). That hazard, assuming it was their third, would be serialized: "VF-99, 03-93."

416. HAZARD REPORT FORMAT

Submit all Hazard Reports, (except for bird/animal strike, near-midair collision (NMAC), physiological episode, and embarked landing hazard reports) as outlined below:

a. Addressees. See appendixes 4A and 4B at the end of this chapter.

b. Text. Use this format for the text.

(1) Repeat all double-underlined material in the format below verbatim in the text of the report.

(2) When information required by the format of the report is not applicable enter "NA" in the space for that information. Subparagraphs under those marked "NA" may be omitted.

(3) Use as much space as necessary to explain the hazard, support a conclusion, or recommend a corrective action. Reports on complex hazards often run to several pages. Simple, well-defined hazards might require but a page or two.

(4) Refer to Navy Tactical Publication (NTP) 3, Telecommunications Users Manual, for guidance about message

formats. Exercise care and follow all US Message Text Format (USMTF) rules.

UNCLAS FOUO //N03750// THIS IS A GENERAL USE NAVAL AVIATION HAZARD REPORT (“UAV” hazards involving UAVs only)(command submitting the hazard report, report serial number, date of occurrence, model/series aircraft or UAV, buno, as applicable) REPORT SYMBOL OPNAV 3750-19

MSGID/GENADMIN/originator/message serial number (not report serial number)/month//

SUBJ/AVIATION HAZREP//

REF/A/DOC/OPNAVINST 3750.6R/-//

REF/B/(Other references as appropriate)//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS . . . (List other references.)//

POC/(name of the point of contact who can answer questions about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")E-Mail:(E-Mail address)//

RMKS/
1. THIS REPORT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION (-UAV hazards involving UAV's only). RAC (1, 3, etc.). If the criteria in paragraph 804 requires endorsement of the report, include the following: (next endorser) ENDORSEMENT REQUESTED IAW REF A. Otherwise write: FURTHER ENDORSEMENT NOT REQUIRED. Summarize the hazard. Be brief. SUMMARY:

2. NARRATIVE: Put your chronological summary of the facts, events, and circumstances surrounding the hazard here. Tell what lead to, what happened during, and what happened afterward. Your analysis and conclusions come later.

3. CATEGORY: INTENT FOR FLIGHT (did or did not) EXIST. Select one. Paragraph 306 defines the choices. When more than one aircraft is involved, intent for flight exists for all if intent for flight existed for one.

4. DATA: Provide:

A. REPORTING ACTIVITY:

(1) NAME: Short title

(2) UIC: Unit Identification Code (UIC) of the reporting activity. Use squadron or DET short title and UIC, do not use ship short title or UIC. If reporting activity is a detachment, provide:

(3) PARENT NAME: Parent squadron

(4) PARENT UIC: UIC of parent squadron.

B. AIRCRAFT OR UAV: If multiple aircraft are involved, number this subparagraph "(B1) AIRCRAFT OR UAV:" for the first aircraft, followed by "(B2) AIRCRAFT OR UAV:" for second aircraft, etc. Do not list multiple aircraft in the same subparagraphs. For each aircraft identified, list details under the respective subparagraphs by the following scheme:

(1) TMS: Model and series (SH-60F)

(2) BUNO: Bureau number

(4) CUST: Reporting custodian (this aircraft or UAV)

(5) CUST UIC: UIC (this aircraft or UAV)

(6) ORIGIN: State the name of the departure ship or airfield. If takeoff was neither from a ship nor an airfield, give the latitude and longitude in the form: "DDMMSS N (or S)/DDDMMSS E (or W)." If lack of precise departure location dictates, fill right spaces with Xs to indicate that the position is an estimate.

(7) MISSION: Clearly state aircraft or UAV mission.

(8) TMR: Total Mission Requirement Code of the planned flight. Use codes listed in OPNAVINST 3710.7R. Provide training and readiness codes if assigned.

(9) FLIGHT PLAN: Type of flight plan. VFR, IFR, DVFR, and, if known, the meteorological conditions at the time of the hazard.

(10) DEST: Destination. List next intended point of landing in the same manner as (6) above.

(11) EVOLUTION:

(A) PHASE OP: Phase of flight. Choose either: PARKED, TURNUP, TAXI, TAKEOFF, CLIMB, CRUISE, LOW-LEVEL CRUISE, TACTICAL MANEUVERING, DESCENT, APPROACH, LANDING PATTERN, TOUCHDOWN, UNKNOWN, or specify another.

(B) HDG: Magnetic heading in degrees in 3 digit format. Use leading zeros for headings less than 100 degrees.

(C) KIAS: Indicated airspeed in knots.

(D) AGL: Altitude AGL in feet.

(E) ELEVATION: Terrain elevation in feet.

(F) MSL: Altitude MSL in feet.

(G) ROUTE: Describe route of flight and general intentions as applicable.

(12) PERSONNEL: Provide information on personnel in the aircraft directly involved in the hazard or the incident. You may omit information on personnel present in the aircraft but not directly involved. At the least, record information on personnel causing the hazard or exposed to injury. Use "NA" whenever information is omitted. Omit subparagraphs to fields marked "NA" entirely. If information is unknown, state "UNKNOWN."

(A) SOULS: Record the number of people aboard this aircraft.

(B) CREW: State the total number of aircraft or UAV crewmembers. Complete the remaining subordinate paragraphs to this subparagraph for each crewmember involved. (UAVs include EP - external pilot, IP - internal pilot and PO - payload operator.)

(1) CREW DUTY: Indicate the crew position assigned: HAC, COPILOT, FLIGHT ENGINEER, MAINTENANCE WORKER, for the "crew duty" heading for the first member of the crew and indicate whether at the controls at the time of the hazard, if applicable. Examples: "(1) PILOT AT CONTROLS:", "(1) COPILOT NOT AT CONTROLS:", "(1) SENSO:". Followed by:

(A) RANK/RATE: Of first listed crewmember. Use standard abbreviations: "LCDR", "AE3." Do not list names or social security numbers in HAZREP messages.

(B) DESIG: NEC/designator/MOS, as appropriate

(C) SVC: Service

(D) ORG: Parent organization

(E) STATUS: Duty status (see Chapter 3)

(F) INJURIES: Although hazard reports by definition exclude reportable injuries, a crewmember may have sustained injuries below a reportable threshold. Describe any such injuries or report: "NO INJURY".

(G) NVD: State if NVDs were used.

(H) EXPERIENCE: Complete the items below if applicable to the hazard. Otherwise, state "NA" and omit subordinate subparagraphs.

(1) TOTAL TIME: Total flight hours (pilot/copilot/special crew) in hours and tenths

(2) MODEL TIME: Total time in model in hours and tenths

(3) PILOT TIME: Total pilot time in hours and tenths

(4) PILOT MODEL TIME: Total pilot model time in hours and tenths

(5) TOTAL LANDINGS: Total landings

(6) TOTAL MODEL LANDINGS: Total landings in model

(7) TOTAL EMBARKED LANDINGS: Total embarked landings

(8) TOTAL EMBARKED MODEL LANDINGS: Total embarked landings in model

(I) QUALS: Indicate level of NATOPS and any other qualifications that might be pertinent to the hazard.

(2) CREW DUTY: Substitute crew position assigned for "crew duty" heading of second member of the crew and repeat subparagraphs (A) through (I).

(3) CREW DUTY: Repeat crew position for other crew members, as required.

(C) PASSENGERS: List the number of passengers. Briefly describe their involvement in the hazard. Include minor injuries and any other appropriate information. If there were no passengers, state "NA."

(13) LIGHTING: Describe status of aircraft lighting - if applicable to the circumstances surrounding the hazard - or state: "NA."

(A) LANDING LIGHT: On, off, not installed or unknown.

(B) STROBE LIGHT: Strobe/anticollision light. On, off, not installed or unknown.

(C) OTHER LIGHTING: Describe lighting configuration of any other aircraft pertinent to the hazard.

(14) EQPT: Name the aircraft or UAV parts involved in the hazard. If multiple parts are involved, number this subparagraph "(14A) EQPT:" for the first piece of equipment, followed by "(14B) EQPT:" for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified give these details:

(A) MODEL: Model

(B) MAKE: Make

(C) PART NO: Part number

(D) EQPT CODE: Equipment code (as applicable)

(E) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(F) WUC: Workunit code

(G) DAMAGE: Although, by definition, a hazard report means there is no reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(H) RMKS: Any other remarks needed for clarity.

(15) OFP: Indicate which operational flight program (if any) this aircraft or UAV carries.

(16) FCS: Flight Control System (FCS) and software version (if applicable to this aircraft or UAV).

C. OTHER PERSONNEL: Indicate here how many others (who were not in the aircraft) were involved in the hazard and describe how they were involved, or how they were injured, or any other appropriate information. If no others were involved, state "NA."

D. OTHER EQPT: Name any other support equipment, tools, etc., involved in the hazard. If multiple parts are involved, number this subparagraph “(D1) OTHER EQPT:” for the first piece of equipment, followed by “(D2) OTHER EQPT:” for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(1) MODEL: Model

(2) MAKE: Make

(3) PART NO: Part number

(4) EQPT CODE: Equipment code (as applicable).

(5) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(6) WUC: Workunit code

(7) DAMAGE: Although, by definition, a hazard report means there is no reportable damage, minor damage below a

reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(8) RMKS: Any other remarks needed for clarity

E. ENVIRONMENT: List

(1) DATE: Date

(2) TIME: Local time

(3) ZONE: Local time zone

(4) CONDN: Day or night

(5) LOCN: Describe the location geographically. Use geographic area, body of water, nearest city, town, or a significant landmark. (Examples: San Diego, CA; Eastern Med.) If the location is aboard a ship, give the geographic location of the vessel here; not the identity of the ship.

(A) LATD: Latitude in 6 digit format, DDMMSS, followed by a space and "N" or "S." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits.

(B) LONG: Longitude in 7 digit format, degrees, minutes, seconds (DDDMMSS), followed by a space and "E" (east) or "W" (west). When either minutes or seconds cannot be determined, then use “X” not “0,” i.e., 085XXXX W.

(C) STATE: State, province, or political subdivision (Kansas, Manitoba, or Fukuoka Prefecture) where hazard is located.

(D) COUNTRY: Self-explanatory

(E) FACILITY: Where the facility is a ship, include name, followed by a slash and class - hull number. (Example: USS KENNEDY/CV-67, NAS OCEANA VA.) If hazard did not occur in vicinity of an identifiable facility, state "NA."

(F) NAVAID: Identifier of nearest named airfield, air navigation facility (NAVAID), or ship. Use ICAO identifier where applicable.

(G) BRG: Bearing/radial from NAVAID above

(H) DIST: Distance in NM from NAVAID above

(I) AIRSPACE: Type of airspace (if airspace is a designated or numbered, Warning, Alert, a military operating area, or the like, include the number designation). If hazard occurred with intent for flight (as defined in paragraph 306) before the aircraft left the ground, state type of airspace immediately overhead. If the hazard occurred on the ground without intent for flight, state "ON DECK."

(6) WX AS BRIEFED. In the following subparagraphs, provide data regarding forecast weather and brief utilization as requested for the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) BRIEFED BY: Select one from the following: FORECASTER; BRIEFER; PILOT; OTHER: (Describe); UNKNOWN; NOT APPLICABLE.

(B) BRIEFING UTILIZATION: Select one from the following: USED; NOT USED; NOT AVAILABLE; UNKNOWN; NOT APPLICABLE.

(C) AIR TEMP: Provide the forecast ambient air temperature in degrees Fahrenheit.

(D) RELATIVE HUMIDITY: State the forecast percentage of relative humidity.

(E) DEWPOINT: Provide the forecast dewpoint in degrees Fahrenheit.

(F) WATER TEMP: Provide the forecast or briefed water/sea surface temperature in degrees Fahrenheit, or state "NA".

(G) WIND DIRECTION: Provide the forecast wind direction in degrees; if light and variable, state "0".

(H) WIND VELOCITY: Provide the forecast wind velocity in knots; if light and variable, state "0".

(I) WIND GUSTS: Provide the forecast velocity of wind gusts or "NONE FORECAST", as appropriate.

(J) CEILING: Provide, in hundreds of feet, the forecast altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none is forecast state "NONE FORECAST".

(K) SKY CONDITION: Describe, in weather sequence format, the forecast altitude and type of all cloud layers.

(L) HORIZON: Describe the forecast horizon conditions by selecting one from the following: VISIBLE; OBSCURED; PARTIALLY OBSCURED; UNKNOWN; NOT APPLICABLE.

(M) VISIBILITY: State the forecast visibility in statute miles. If CAVU or unrestricted, state "99".

(N) OBSTRUCTIONS TO VISION: Describe all forecast/briefed obstructions by selecting from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(O) ALTIMETER SETTING: Provide the forecast altimeter setting in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(P) ICING: Provide any forecast icing conditions or state "NONE FORECAST".

(Q) PRECIPITATION: Provide all forecast/briefed precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(R) EXTREME WX: Provide any forecast/briefed extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(S) BRIEFING ACCURACY: Indicate whether the actual weather varied substantially from the forecast conditions by selecting one from the following: SUBSTANTIALLY CORRECT; CONSIDERABLY BETTER THAN FORECAST; CONSIDERABLY WORSE THAN FORECAST; UNKNOWN; NOT APPLICABLE.

(7) WX - PREVAILING. In the following subparagraphs, provide data to define the actual prevailing weather conditions at the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) AIR TEMP: Provide the prevailing ambient air temperature in degrees Fahrenheit.

(B) RELATIVE HUMIDITY: State the percentage of relative humidity.

(C) DEWPOINT: Provide the prevailing dewpoint in degrees Fahrenheit.

(D) WATER TEMP: Provide the water/sea surface temperature in degrees Fahrenheit, or state "NA".

(E) WIND DIRECTION: Provide the prevailing wind direction in degrees; if light and variable, state "0".

(F) WIND VELOCITY: Provide the prevailing wind velocity in knots; if light and variable state "0".

(G) WIND GUSTS: Provide the prevailing velocity of wind gusts or "NONE PRESENT", as appropriate.

(H) CEILING: Provide, in hundreds of feet, the altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none exists, state "NONE PRESENT".

(I) SKY CONDITION: Describe, in weather sequence format, the altitude and type of all cloud layers.

(J) HORIZON: Select one from the following: VISIBLE; PARTIALLY OBSCURED; OBSCURED; UNKNOWN; NOT APPLICABLE.

(K) VISIBILITY: Provide the prevailing visibility in statute miles. If CAVU or unrestricted, state "99".

(L) OBSTRUCTIONS TO VISION: Select from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(M) ALTIMETER SETTING: Provide the barometric pressure in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(N) ICING: Provide any icing conditions present or state "NONE PRESENT".

(O) PRECIPITATION: Describe the prevailing precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(P) EXTREME WX: Describe any existing extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(Q) RUNWAY CONDITION: Describe the takeoff/landing surface condition by selecting from the following all that apply: NOT APPLICABLE; DRY; WET; SLUSH; LOOSE SNOW; PACKED SNOW; ICE; PATCHY; SANDED; OILY; UNPREPARED; OTHER: (specify); UNKNOWN.

(R) METEOROLOGICAL COMMENTS: Briefly describe any additional environmental/meteorological information deemed pertinent to the hazard.

(8) RMKS: Include all available identifying information in this paragraph in order to fix the hazard in time and space for future reference. Giving a ship's name with no geographic location or LATD/LONG is useless. Ships move. Analysis requires all available information in order to fully understand the time, location, or environment of the report. Similarly, when a hazard occurs aboard a facility and LATD/LONG

is omitted or environmental information is missing, the report's, value is markedly lessened and the permanent record lacks important analytical data. Unreported information, regardless of how intuitive it may seem to the originator, is unrecoverable.

5. SPECIAL DATA: If neither EMI or OOC flight is involved state "NA". If either EMI or OOC flight is involved, include the following paragraphs as appropriate:

A. EMI:

(1) TYPE: As defined in paragraph 404b(1).

(2) LEVEL: As defined in paragraph, 404b(2).

(3) CLASSIFICATION: As defined in paragraph 404b(3).

B. OOC FLIGHT: Incidents of unintentional Out-of-Control-Flight require special care in reporting. In the narrative paragraph, (paragraph 2, 4-10) describe fully the events leading to the departure. Insure the correct OFP/FSC software version is recorded.

(1) MANEUVER: Maneuver at moment of departure, or maneuver that caused the departure.

(2) CONFIG: Describe the aircraft's external configuration.

(3) GW: Approximate gross weight

(4) THROTTLE: Throttle setting

(5) AOA: Self-explanatory

(6) LOADING: G loading

(7) ATTITUDE: Describe the aircraft's attitude in terms of:

(A) ROLL: In degrees right/left wing down

(B) PITCH: In degrees nose up/down

(C) YAW: In degrees left/right

(8) ENGINE STALL: Describe any engine stall before or after departure.

(9) MANV DEVICE: Describe automatic maneuvering devices used.

(10) TYPE: Describe type and direction of departure entered.

(11) EXPERIENCE: State aircrew flight time for last 7/30/60/90 days for each crewmember.

(12) TRAINING: Describe what formal OOCF training the crew had undergone prior to this incident.

(13) CYCLE: Describe Inter-Deployment Training Cycle (IDTC) phase, using the IDTC values from page N-1.

6. ANALYSIS: Offer your analysis of the information in the narrative and data paragraphs here. Although Hazard Reports do not require the depth of analysis expected of an SIR, using that same process of deductive reasoning will lead to a fuller understanding of how and why the hazard occurred and help prevent a reoccurrence. (see paragraph 607.) If it helps clarify your analysis, feel free to report those cause factors which you considered and rejected during your investigation. Include the WHO/WHAT/WHY or COMP/MODE/AGENT format as applicable to your analysis.

7. CONCLUSIONS: Describe the likely consequence if the hazard is not corrected.

8. RECOMMENDATIONS: Recommend corrective actions and propose an action agency to eliminate the hazard. If the originator has the action, describe the corrections you have undertaken so others may make a similar effort. Use the guidelines for composition of recommended corrective action contained in appendix C at the end of this instruction.

9. REMARKS: Content of this paragraph is at the discretion of the originator.

10. CO'S ENDORSEMENT: There is no separate message for the CO’s endorsement to a Hazard Report. The CO’s comments are to be included here instead and are required if further endorsement is requested.

417. BIRD/ANIMAL STRIKE HAZARD REPORT

a. Bird/Animal Strike Defined. We have expanded the scope of the bird strike reporting system to include collisions with other animals. The term "bird/animal strike" is now the correct terminology for referring to incidents involving collision between any of nature's creatures and a naval aircraft, even though "bird strike" is the category into which most of these reports will fall. An animal strike occurs anytime a naval aircraft collides with a wild or domesticated beast and the resultant damage is below the threshold of a naval aviation mishap - alpha damage to the critter notwithstanding.

b. Normal Report. Use the "Bird/Animal Strike Hazard Report" (appendix N pages 49-50) to report these incidents. The forms may be reproduced locally and need not be serialized. Mail the completed report to:

COMNAVSAFECEN (Code 15R)
375 A Street
Norfolk, VA 23511-4399

c. Special Message Reports. Report, via message, only those unique instances or unusual occurrences of bird and animal strikes which may be of special interest to a specific aviation community or geographic area. For message reports, use this format:

(1) Addressees. See appendixes 4A and 4B at the end of this chapter.

(2) Text.

(a) Repeat, verbatim, all double-underlined material below in the text of the message.

(b) Enter "NA" if any information required by the format is not appropriate for the reported hazard. Omit subparagraphs to NA'd data.

UNCLAS FOUO //N03750// THIS IS A GENERAL USE NAVAL AVIATION BIRD/ANIMAL STRIKE HAZARD REPORT ("UAV" hazards involving UAVs only)(command submitting the hazard report, report serial number, date of occurrence, model/series aircraft or UAV, buno) REPORT SYMBOL OPNAV 3750-19

MSGID/GENADMIN/originator/message serial number (not report serial number)/month//

SUBJ/AVIATION BIRDSTK //

REF/A/DOC/OPNAVINST 3750.6R/-//

REF/B/(Other references as appropriate)//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF/B IS . . . . (List other references as appropriate)//

POC/(name of primary point of contact to answer inquiries about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")E-Mail:(E-Mail address)//

RMKS//
1. THIS REPORT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION (-UAV hazards involving UAVs only). RAC (1, 3, etc.). If the criteria in paragraph 804 requires endorsement of the report, include the following phrase: (next endorser) ENDORSEMENT REQUESTED IAW REF A. Otherwise include the phrase ENDORSEMENT NOT REQUIRED. Succinctly summarize the hazard, what or how the hazard occurred, beginning with SUMMARY:

2. NARRATIVE: Put your chronological summary of the facts, events and circumstances surrounding the hazard here. Tell what led to, what happened during and what happened afterward. Your analysis and conclusions come later.

3. CATEGORY: INTENT FOR FLIGHT (did or did not) EXIST. Select one. Paragraph 306 defines the choices. When more than one aircraft is involved, intent for flight exists for all if intent for flight exists for one.

4. DATA: Provide:

A. REPORTING ACTIVITY:

(1) NAME: Short title

(2) UIC: UIC of the reporting activity. Use squadron or DET short title and UIC. If reporting activity is a detachment, provide:

(3) PARENT NAME: Parent squadron

(4) PARENT UIC: UIC of parent squadron

B. AIRCRAFT OR UAV: If multiple aircraft are involved, number this subparagraph "(B1) AIRCRAFT OR UAV:" for the first aircraft, followed by "(B2) AIRCRAFT OR UAV:" for second aircraft, etc. Do not list multiple aircraft in the same subparagraphs. For each aircraft identified, list details under the respective subparagraphs by the following scheme:

(1) TMS: Model and series (SH-60F)

(2) BUNO: Bureau number

(4) CUST: Reporting custodian (this aircraft or UAV)

(5) CUST UIC: UIC (this aircraft or UAV)

(6) ORIGIN: State the name of the departure ship or airfield. If takeoff was neither from a ship nor an airfield, give the latitude and longitude in the form: "DDMMSS N (or) S/DDDMMSS E (or W)." If lack of precise departure location dictates, fill right spaces with Xs to indicate that the position is an estimate.

(7) MISSION: Clearly state aircraft or UAV mission.

(8) TMR: Total Mission Requirement Code. Use codes listed in OPNAVINST 3710.7R. Provide training and readiness codes if assigned.

(9) FLIGHT PLAN: Type of flight plan: VFR, IFR, DVFR and, if known, the meteorological conditions at the time of the hazard.

(10) DEST: Destination. List next intended point of landing in the same manner as (6) above.

(11) EVOLUTION:

(A) PHASE OP: Phase of flight. Chose either: PARKED, TURNUP, TAXI, TAKEOFF, CLIMB, CRUISE, LOW-LEVEL CRUISE, TACTICAL MANEUVERING, DESCENT, APPROACH, LANDING PATTERN, TOUCHDOWN, UNKNOWN, or specify another.

(B) HDG: Magnetic heading in degrees in 3 digit format. Use leading zeros for headings less than 100 degrees.

(C) KIAS: Indicated airspeed in knots.

(D) AGL: Altitude AGL in feet

(E) MSL: Altitude MSL in feet

(F) ROUTE: Describe route of flight and general intentions as applicable.

(12) PERSONNEL: Provide information on personnel in the aircraft directly involved in the hazard or the incident. You may omit information on personnel present in the aircraft but not directly involved. At the least, record information on personnel causing the hazard or exposed to injury. Use "NA" whenever information is omitted. Omit subparagraphs to fields marked "NA" entirely. If information is unknown, state, "UNKNOWN."

(A) SOULS: Record the number of people aboard this aircraft.

(B) CREW: State the total number of aircraft or UAV crewmembers. Complete the remaining subordinate paragraphs to this subparagraph for each crewmember involved. (UAV crews include: EP - external pilot; IP - internal pilot; PO - payload operator.)

(1) CREW DUTY: Indicate the crew position assigned: HAC, COPILOT, FLIGHT ENGINEER, MAINTENANCE WORKER for THE "crew duty" heading for first member of the crew and indicate whether at the controls at the time of the hazard, if applicable. Examples: "(1) PILOT AT CONTROLS:", "(1) COPILOT NOT AT CONTROLS:", "(1) SENSO:".) Followed by:

(A) RANK/RATE: Of first listed crewmember. Use standard abbreviations: "LCDR", "AE3". Do not list names or social security numbers.

(B) DESIG: NEC/designator/MOS, as appropriate

(C) SVC: Service

(D) ORG: Parent organization

(E) STATUS: Duty status (see Chapter 3)

(F) INJURIES: Although hazard reports by definition exclude reportable injuries, a crewmember may have sustained injuries below a reportable threshold. Describe any such injuries or report: "NO INJURY."

(G) Night Vision Devices (NVD): State if NVDs were used.

(H) EXPERIENCE: Complete the items below if applicable to the hazard. Otherwise, state "NA" and omit subordinate subparagraphs.

(1) TOTAL TIME: Total flight hours (pilot/copilot/special crew) in hours and tenths.

(2) MODEL TIME: Total time in model in hours and tenths

(3) PILOT TIME: Total pilot time in hours and tenths

(4) PILOT MODEL TIME: Total pilot model time in hours and tenths

(5) TOTAL LANDINGS: Total landings

(6) TOTAL MODEL LANDINGS: Total landings in model

(7) TOTAL EMBARKED LANDINGS: Total embarked landings

(8) TOTAL EMBARKED MODEL LANDINGS: Total embarked landings in model

(I) QUALS: Indicate level of NATOPS and any other qualifications that might be pertinent to the hazard.

(2) CREW DUTY: Substitute crew position assigned for "crew duty" heading of second member of the crew and report subparagraphs (A) through (I).

(3) CREW DUTY: Repeat crew position for each crewmember.

(C) PASSENGERS: List the number of passengers. Briefly describe their involvement in hazard. Include minor injuries and any other appropriate information. If there were no passengers, state "NA."

(13) LIGHTING: Describe status of aircraft lighting - if applicable to the circumstances surrounding the hazard - or state: "NA."

(A) LANDING LIGHT: On, off, not installed, or unknown.

(B) STROBE LIGHT: Strobe/anticollision light. On, off, not installed, or unknown.

(C) OTHER LIGHTING: Describe any other aircraft lighting pertinent to the hazard.

(14) EQPT: Name the aircraft or UAV parts involved in the hazard. If multiple parts are involved, number this subparagraph "(14A) EQPT:" for the first piece of equipment, followed by "(14B) EQPT:" for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified give these details:

(A) MODEL: Model

(B) MAKE: Make

(C) PART NO: Part number

(D) EQPT CODE: Equipment code (as applicable)

(E) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(F) WUC: Workunit code

(G) DAMAGE: Although, by definition, a hazard report means there has been no reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here.

(H) RMKS: Any other remarks needed for clarity.

(15) OFP: Indicate which Operational Flight Program (OFP) version (if any) this aircraft or UAV carries.

(16) FCS: FCS and software version (if applicable to this aircraft or UAV).

C. OTHER PERSONNEL: Indicate here how many others (who were not in the aircraft) were involved in the hazard and describe how they were involved, or how they were injured, or any other appropriate information. If no others were involved, state "NA."

D. OTHER EQPT: Name any other support equipment, tools, etc., involved in the hazard. If multiple parts are involved, number this subparagraph “(D1) OTHER EQPT:” for the first piece of equipment, followed by “(D2) OTHER EQPT:” for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(1) MODEL: Model

(2) MAKE: Make

(3) PART NO: Part number

(4) EQPT CODE: Equipment code (as applicable)

(5) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(6) WUC: Workunit code

(7) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(8) RMKS: Any other remarks needed for clarity

E. ENVIRONMENT: Environmental information is an important element in the bird/animal strike data base. List the:

(1) DATE: Date

(2) TIME: Local time

(3) ZONE: Local time zone

(4) CONDN: Day or night

(5) LOCN: Describe the location geographically. Use geographic area, body of water, nearest city, town, or a significant landmark. (Examples: San Diego; Eastern Med.) If the location is aboard ship, give its geographic location here; not the identity of the ship.

(A) LATD: Latitude in 6 digit format, DDMMSS, followed by a space and "N" or "S." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits.

(B) LONG: Longitude in 7 digit format, DDDMMSS, followed by a space and "E" or "W." Fill left and right most digits with zeros when appropriate similar to LATD.

(C) STATE: State, province, or political subdivision (Kansas, Manitoba, or Fukuoka Prefecture) where hazard is located.

(D) COUNTRY: Self-explanatory

(E) FACILITY: Where the facility is a ship, include name, followed by a slash and class - hull number. (Example: USS KENNEDY/CV-67, NAS OCEANA VA.) If hazard did not occur in vicinity of an identifiable facility, state "NA."

(F) NAVAID: Identifier of nearest named airfield, NAVAID, or ship. Use ICAO identifier where applicable.

(G) BRG: Bearing/radial from NAVAID above

(H) DIST: Distance in NM from NAVAID above

(I) AIRSPACE: Type of airspace (if designated or numbered, Warning, alert, a military operating area, or the like, include the number designation.). If hazard occurred with intent for flight (as defined in paragraph 306) before the aircraft left the ground, state type of airspace immediately overhead. If the hazard occurred on the ground without intent for flight, state "ON DECK."

(6) WX AS BRIEFED. In the following subparagraphs, provide data regarding forecast weather and brief utilization as requested for the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) BRIEFED BY: Select one from the following: FORECASTER; BRIEFER; PILOT; OTHER: (Describe); UNKNOWN; NOT APPLICABLE.

(B) BRIEFING UTILIZATION: Select one from the following: USED; NOT USED; NOT AVAILABLE; UNKNOWN; NOT APPLICABLE.

(C) AIR TEMP: Provide the forecast ambient air temperature in degrees Fahrenheit.

(D) RELATIVE HUMIDITY: State the forecast percentage of relative humidity.

(E) DEWPOINT: Provide the forecast dewpoint in degrees Fahrenheit.

(F) WATER TEMP: Provide the forecast or briefed water/sea surface temperature in degrees Fahrenheit, or state "NA".

(G) WIND DIRECTION: Provide the forecast wind direction in degrees; if light and variable, state "0".

(H) WIND VELOCITY: Provide the forecast wind velocity in knots; if light and variable, state "0".

(I) WIND GUSTS: Provide the forecast velocity of wind gusts or "NONE FORECAST", as appropriate.

(J) CEILING: Provide, in hundreds of feet, the forecast altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none is forecast state "NONE FORECAST".

(K) SKY CONDITION: Describe, in weather sequence format, the forecast altitude and type of all cloud layers.

(L) HORIZON: Describe the forecast horizon conditions by selecting one from the following: VISIBLE; OBSCURED; PARTIALLY OBSCURED; UNKNOWN; NOT APPLICABLE.

(M) VISIBILITY: State the forecast visibility in statute miles. If CAVU or unrestricted, state "99".

(N) OBSTRUCTIONS TO VISION: Describe all forecast/briefed obstructions by selecting from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(O) ALTIMETER SETTING: Provide the forecast altimeter setting in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(P) ICING: Provide any forecast icing conditions or state "NONE FORECAST".

(Q) PRECIPITATION: Provide all forecast/briefed precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(R) EXTREME WX: Provide any forecast/briefed extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(S) BRIEFING ACCURACY: Indicate whether the actual weather varied substantially from the forecast conditions by selecting one from the following: SUBSTANTIALLY CORRECT; CONSIDERABLY BETTER THAN FORECAST; CONSIDERABLY WORSE THAN FORECAST; UNKNOWN; NOT APPLICABLE.

(7) WX - PREVAILING. In the following subparagraphs, provide data to define the actual prevailing weather conditions at the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) AIR TEMP: Provide the prevailing ambient air temperature in degrees Fahrenheit.

(B) RELATIVE HUMIDITY: State the percentage of relative humidity.

(C) DEWPOINT: Provide the prevailing dewpoint in degrees Fahrenheit.

(D) WATER TEMP: Provide the water/sea surface temperature in degrees Fahrenheit, or state "NA".

(E) WIND DIRECTION: Provide the prevailing wind direction in degrees; if light and variable, state "0".

(F) WIND VELOCITY: Provide the prevailing wind velocity in knots; if light and variable state "0".

(G) WIND GUSTS: Provide the prevailing velocity of wind gusts or "NONE PRESENT", as appropriate.

(H) CEILING: Provide, in hundreds of feet, the altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none exists, state "NONE PRESENT".

(I) SKY CONDITION: Describe, in weather sequence format, the altitude and type of all cloud layers.

(J) HORIZON: Select one from the following: VISIBLE; PARTIALLY OBSCURED; OBSCURED; UNKNOWN; NOT APPLICABLE.

(K) VISIBILITY: Provide the prevailing visibility in statute miles. If CAVU or unrestricted, state "99".

(L) OBSTRUCTIONS TO VISION: Select from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(M) ALTIMETER SETTING: Provide the barometric pressure in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(N) ICING: Provide any icing conditions present or state "NONE PRESENT".

(O) PRECIPITATION: Describe the prevailing precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(P) EXTREME WX: Describe any existing extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(Q) RUNWAY CONDITION: Describe the takeoff/landing surface condition by selecting from the following all that apply: NOT APPLICABLE; DRY; WET; SLUSH; LOOSE SNOW; PACKED SNOW; ICE; PATCHY; SANDED; OILY; UNPREPARED; OTHER: (specify); UNKNOWN.

(R) METEOROLOGICAL COMMENTS: Briefly describe any additional environmental/meteorological information deemed pertinent to the hazard.

(8) RMKS: Include all available identifying information in this paragraph in order to fix the hazard in time and space for future reference. Giving a ship's name with no geographic location or LATD/LONG is useless. Ships move. Similarly, when a hazardous occurs aboard a facility and LATD/LONG is omitted or environmental information is missing, the report's, value is markedly lessened and the permanent record lacks important analytical data. Unreported information, regardless of how intuitive it may seem to the originator, is unrecoverable.

5. SPECIAL DATA:

A. SPECIES: Identify the species of bird or animal that hit the aircraft.

B. NUMBER: Indicate the number of birds or animals that hit the aircraft (SINGLE, MULTIPLE, UNKNOWN)

C. IMPACT POINT: List the point(s) of impact where the bird or animal hit the aircraft.

D. BIRD ADVISORY: Indicate whether a bird advisory was issued prior to this incident.

E. RADAR: Indicate whether radar was ON, OFF or UNKNOWN.

F. FIRE: Indicate whether a fire occurred as a result of the strike.

G. CLOUD CONDITIONS: Identify the cloud conditions in relation to the aircraft (choose the most appropriate from ABOVE CLOUDS, BELOW CLOUDS, IN CLOUDS, BETWEEN CLOUD LAYERS, CLEAR OF CLOUDS, CAVU or UNKNOWN).

6. ANALYSIS: Offer your analysis of the information in the narrative and data paragraphs here. Although Hazard Reports do not require the depth of analysis expected of an SIR, using that same process of deductive reasoning will lead to a fuller understanding of how and why the hazard occurred and help prevent a reoccurrence. (See paragraph 607.) If it helps clarify your analysis, feel free to report those cause factors which you considered and rejected during your investigation. Include the WHO/WHAT/WHY or COMP/MODE/AGENT format is all that is required.

7. CONCLUSIONS: It is appropriate to conclude "NO FAULT ASSIGNED" for a birdstrike if the elements of paragraph 607 pertaining to birdstrikes are met. Otherwise, explain exactly how the hazard could result in damage or injury and what the causes (FACTORS) would be.

8. RECOMMENDATIONS: Recommend corrective actions and propose an action agency to eliminate the hazard. If the originator has the action, describe the corrections you have undertaken so others may make a similar effort. Use the guidelines for composition of recommended corrective action contained in appendix C at the end of this instruction.

9. REMARKS: Content of this paragraph is at the discretion of the originator.

10. CO'S ENDORSEMENT: Severe hazards require further endorsement, (see paragraph 105d(2).) The CO's comments may close out the Hazard Report if no action is required outside the command.

418. NEAR-MIDAIR COLLISION HAZARD REPORT (NMAC)

a. Near-Midair Collision Defined. Near-midair collisions occur when aircraft pass close-by one another in the air and, as a result, the pilot-in-command feels the safety of his/her aircraft or UAV was in jeopardy. Use these criteria in determining when to report:

(1) A collision was avoided by chance rather than by a conscious act on the part of the pilot.

(2) A collision would have occurred had no action been taken.

(3) Two aircraft passed closer that 500 feet.

b. Pilot Actions. Pilots involved in a near-midair collision must:

(1) Report the incident by radio to an FAA air traffic facility or flight service station. Tell them you will file a written NMAC hazard report. Then,

(2) At the next point of landing, call the nearest FAA air traffic facility or flight service station and report the incident. Tell them you will file a written NMAC report. Then,

(3) Pursuant to this instruction, file a written, formal NMAC Hazard report.

c. Format. Use this format:

(1) Addressees. See appendixes 4A and 4B at the end of this chapter.

(2) Text.

(a) Repeat, verbatim, all double-underlined material below in the text of the report.

(b) Enter "NA" if any information required by the format is not appropriate for the reported hazard. Omit subparagraphs to NA'd data.

UNCLAS FOUO //N03750// THIS IS A GENERAL USE NAVAL AVIATION NEAR-MIDAIR COLLISION HAZARD REPORT (-UAV hazards involving UAVs only)(command submitting the hazard report, report serial number, date of occurrence, model/series aircraft, buno) REPORT SYMBOL OPNAV 3750-19

MSGID/GENADMIN/originator/message serial number (not report serial number)/ month//

SUBJ/AVIATION NMAC //

REF/A/DOC/OPNAVINST 3750.6R/-//

REF/B/(Other references as appropriate)//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS . . . (List other references as appropriate.//

POC/(name of primary point of contact to answer inquiries about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/E-Mail:(E-Mail address)//

RMKS//
1. THIS REPORT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION(-UAV hazards including UAV's only). RAC (1, 3, ETC.). If the criteria in paragraph 804 requires endorsement of the report, include the following phrase: (next endorser) ENDORSEMENT REQUESTED IAW REF A. Otherwise include the phrase: FURTHER ENDORSEMENT NOT REQUIRED. Summarize the hazard. Be brief. SUMMARY:

2. NARRATIVE: Put your chronological summary of the facts, events and circumstances surrounding the hazard here. Tell what led to, what happened during and what happened afterward. Your analysis and conclusions come later.

3. CATEGORY: INTENT FOR FLIGHT DID EXIST.

4. DATA: Provide:

A. REPORTING ACTIVITY:

(1) NAME: Short title

(2) UIC: UIC of the reporting activity. Use squadron or DET short title and UIC, do not use ship short title or UIC. If reporting activity is a detachment, provide:

(3) PARENT NAME: Parent squadron

(4) PARENT UIC: UIC of parent squadron

B. AIRCRAFT OR UAV: If multiple aircraft are involved, number this subparagraph "(B1) AIRCRAFT OR UAV:" for the first aircraft, followed by "(B2) AIRCRAFT OR UAV:" for second aircraft, etc. Do not list multiple aircraft in the same subparagraphs. For each aircraft identified, list details under the respective subparagraphs by the following scheme:

(1) TMS: Model and series. For example: SH-60F.

(2) BUNO: Bureau number

(4) CUST: Reporting custodian (this aircraft or UAV)

(5) CUST UIC: UIC (this aircraft or UAV)

(6) ORIGIN: State the name of the departure ship or airfield. If takeoff was neither from a ship nor an airfield, give the latitude and longitude in the form "DDMMSS N (or S)/DDDMMSS E (or W)." If lack of precise departure location dictates, fill right spaces with Xs to indicate that the position is an estimate.

(7) MISSION: Clearly state aircraft or UAV mission.

(8) TMR: Total Mission Requirement Code of the planned flight. Use codes listed in OPNAVINST 3710.7R. Provide training and readiness codes if assigned.

(9) FLIGHT PLAN: Type of flight plan: VFR, IFR, DVFR and, if known, the meteorological conditions at the time of the hazard.

(10) DEST: Destination. List next intended point of landing in the same manner as (6) above.

(11) EVOLUTION:

(A) PHASE OP: Phase of flight or operation. Choose one: PARKED, TURNUP, TAXI, TAKEOFF, CLIMB, CRUISE, LOW-LEVEL CRUISE, TACTICAL MANEUVERING, DESCENT, APPROACH, LANDING PATTERN, TOUCHDOWN, UNKNOWN, or specify another.

(B) HDG: Magnetic heading in degrees in 3 digit format. Use leading zeros for headings less than 100 degrees.

(C) KIAS: Indicated airspeed in knots.

(D) AGL: Altitude AGL in feet

(E) MSL: Altitude MSL in feet

(F) ROUTE: Describe route of flight and general intentions as applicable.

(12) PERSONNEL: Provide information for personnel in the aircraft directly involved in the hazard or the incident. You may omit information on personnel present in the aircraft but not directly involved. At the least, record information on personnel causing the hazard or exposed to injury. Use "NA" whenever information is omitted. Omit subparagraphs to fields marked "NA" entirely. If information is unknown, state, "UNKNOWN."

(A) SOULS: Record the number of people aboard the aircraft.

(B) CREW: State the total number of aircraft or UAV crewmembers. Complete the remaining subordinate paragraphs to this subparagraph for each crewmember involved. (UAVs include EP - external pilot. IP - internal pilot and PO - payload operator.)

(1) CREW DUTY: Indicate the crew position assigned. HAC, COPILOT, FLIGHT ENGINEER, MAINTENANCE WORKER for the "crew duty" heading for each member of the crew and indicate whether at the controls at the time of the hazard, if applicable. Examples: "(1) PILOT AT CONTROLS:", "(1) COPILOT NOT AT CONTROLS:", "(1) SENSO:". Followed by:

(A) RANK/RATE: Of first listed crewmember. Use standard abbreviations: "LCDR", "AE3." Do not list names or social security numbers on HAZREP messages.

(B) DESIG: NEC/designator/MOS, as appropriate

(C) SVC: Service

(D) ORG: Parent organization

(E) STATUS: Duty status (see Chapter 3)

(F) INJURIES: Although hazard reports by definition exclude reportable injuries, a crewmember may have sustained injuries below a reportable threshold. Describe any such injuries or report: "NO INJURY."

(G) Night Vision Devices (NVD): State if NVDs were used.

(H) EXPERIENCE: Complete the items below if applicable to the hazard. Otherwise, state "NA" and omit subordinate subparagraphs.

(1) TOTAL TIME: Total flight hours (pilot/copilot/special crew) in hours and tenths.

(2) MODEL TIME: Total time in model in hours and tenths

(3) PILOT TIME: Total pilot time in hours and tenths

(4) PILOT MODEL TIME: Total pilot model time in hours and tenths

(5) TOTAL LANDINGS: Total landings

(6) TOTAL MODEL LANDINGS: Total landings in model

(7) TOTAL EMBARKED LANDINGS: Total embarked landings

(8) TOTAL EMBARKED MODEL LANDINGS: Total embarked landings in model

(I) QUALS: Indicate level of NATOPS and any other qualifications that might be pertinent to the hazard.

(2) CREW DUTY: Substitute crew position assigned for "crew duty" heading of second member of the crew and repeat subparagraphs "(A)" through "(I).

(3) CREW DUTY: Repeat crew duty sequence for other crewmembers.

(C) PASSENGERS: List the total number of passengers. Briefly describe their involvement in the hazard. Include minor injuries and any other appropriate information. If there were no passengers, state "NA."

(13) LIGHTING: Describe status of aircraft lighting - if applicable to the circumstances surrounding the hazard - or state: "NA."

(A) LANDING LIGHT: ON, OFF, NOT INSTALLED, or UNKNOWN.

(B) STROBE LIGHT: Strobe or anticollision light. ON, OFF, NOT INSTALLED, or UNKNOWN.

(C) OTHER LIGHTING: Describe lighting of any other aircraft involved.

(14) EQPT: Name the aircraft or UAV parts involved in the hazard. If multiple parts are involved, number this subparagraph "(14A) EQPT:" for the first piece of equipment, followed by "(14B) EQPT:" for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(A) MODEL: Model

(B) MAKE: Make

(C) PART NO: Part number

(D) EQPT CODE: Equipment code (as applicable)

(E) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(F) WUC: Workunit code

(G) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(H) RMKS: Any other remarks needed for clarity.

(15) OFP: Indicate which operational flight program (if any) this aircraft of UAV carries.

(16) FCS: FCS and software version (if applicable to this aircraft or UAV).

C. OTHER PERSONNEL: Indicate here how many others (who were not in the aircraft) were involved in the hazard and describe how they were involved, or how they were injured, or any other appropriate information. If no others were involved, state "NA."

D. OTHER EQPT: Name any other support equipment, tools, etc., involved in the hazard. If multiple parts are involved, number this subparagraph “(D1) OTHER EQPT:” for the first piece of equipment, followed by “(D2) OTHER EQPT:” for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(1) MODEL: Model

(2) MAKE: Make

(3) PART NO: Part number

(4) EQPT CODE: Equipment code (as applicable)

(5) CONFIG: Configuration (DCBs or ASCs installed, version, etc)

(6) WUC: Workunit code

(7) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(8) RMKS: Any other remarks needed for clarity.

E. ENVIRONMENT: List:

(1) DATE: Date

(2) TIME: Local time

(3) ZONE: Local time zone

(4) CONDN: Day or night

(5) LOCN: Plain language description of location in terms of geographic area, or proximity to a body of water, nearest city, town, or significant landmarks. (Examples: Norfolk, VA; Eastern Med.) If the location is aboard a ship, give its geographic location here, and not its identity.

(A) LATD: Latitude in 6 digit format, DDMMSS, followed by a space and "N" or "S." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits.

(B) LONG: Longitude in 7 digit format, DDDMMSS, followed by a space and "E" or "W." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits.

(C) STATE: State, province, or political subdivision (Kansas, Manitoba, Fukuoka Prefecture) where hazard is located.

(D) COUNTRY: Self-explanatory

(E) FACILITY: Where the facility is a ship, include name, followed by a slash and class - hull number. (Example: USS KENNEDY/CV-67, NAS OCEANA VA.) If hazard did not occur in vicinity of an identifiable facility, state "NA."

(F) NAVAID: Identifier of nearest named airfield, NAVAID, or ship. Use ICAO identifier where applicable.

(G) BRG: Bearing/radial from NAVAID above.

(H) DIST: Distance in NM from NAVAID above.

(I) AIRSPACE: Type of airspace (if designated or numbered, Warning, alert, a military operating area, or the like, include the number designation.). If hazard occurred with intent for flight (as defined in paragraph 306) before the aircraft left the ground, state type of airspace immediately overhead. If the hazard occurred on the ground without intent for flight, state "ON DECK."

(6) WX AS BRIEFED. In the following subparagraphs, provide data regarding forecast weather and brief utilization as requested for the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) BRIEFED BY: Select one from the following: FORECASTER; BRIEFER; PILOT; OTHER: (Describe); UNKNOWN; NOT APPLICABLE.

(B) BRIEFING UTILIZATION: Select one from the following: USED; NOT USED; NOT AVAILABLE; UNKNOWN; NOT APPLICABLE.

(C) AIR TEMP: Provide the forecast ambient air temperature in degrees Fahrenheit.

(D) RELATIVE HUMIDITY: State the forecast percentage of relative humidity.

(E) DEWPOINT: Provide the forecast dewpoint in degrees Fahrenheit.

(F) WATER TEMP: Provide the forecast or briefed water/sea surface temperature in degrees Fahrenheit, or state "NA".

(G) WIND DIRECTION: Provide the forecast wind direction in degrees; if light and variable, state "0".

(H) WIND VELOCITY: Provide the forecast wind velocity in knots; if light and variable, state "0".

(I) WIND GUSTS: Provide the forecast velocity of wind gusts or "NONE FORECAST", as appropriate.

(J) CEILING: Provide, in hundreds of feet, the forecast altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none is forecast state "NONE FORECAST".

(K) SKY CONDITION: Describe, in weather sequence format, the forecast altitude and type of all cloud layers.

(L) HORIZON: Describe the forecast horizon conditions by selecting one from the following: VISIBLE; OBSCURED; PARTIALLY OBSCURED; UNKNOWN; NOT APPLICABLE.

(M) VISIBILITY: State the forecast visibility in statute miles. If CAVU or unrestricted, state "99".

(N) OBSTRUCTIONS TO VISION: Describe all forecast/briefed obstructions by selecting from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(O) ALTIMETER SETTING: Provide the forecast altimeter setting in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(P) ICING: Provide any forecast icing conditions or state "NONE FORECAST".

(Q) PRECIPITATION: Provide all forecast/briefed precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(R) EXTREME WX: Provide any forecast/briefed extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(S) BRIEFING ACCURACY: Indicate whether the actual weather varied substantially from the forecast conditions

by selecting one from the following: SUBSTANTIALLY CORRECT; CONSIDERABLY BETTER THAN FORECAST; CONSIDERABLY WORSE THAN FORECAST; UNKNOWN; NOT APPLICABLE.

(7) WX - PREVAILING. In the following subparagraphs, provide data to define the actual prevailing weather conditions at the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) AIR TEMP: Provide the prevailing ambient air temperature in degrees Fahrenheit.

(B) RELATIVE HUMIDITY: State the percentage of relative humidity.

(C) DEWPOINT: Provide the prevailing dewpoint in degrees Fahrenheit.

(D) WATER TEMP: Provide the water/sea surface temperature in degrees Fahrenheit, or state "NA".

(E) WIND DIRECTION: Provide the prevailing wind direction in degrees; if light and variable, state "0".

(F) WIND VELOCITY: Provide the prevailing wind velocity in knots; if light and variable state "0".

(G) WIND GUSTS: Provide the prevailing velocity of wind gusts or "NONE PRESENT", as appropriate.

(H) CEILING: Provide, in hundreds of feet, the altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none exists, state "NONE PRESENT".

(I) SKY CONDITION: Describe, in weather sequence format, the altitude and type of all cloud layers.

(J) HORIZON: Select one from the following: VISIBLE; PARTIALLY OBSCURED; OBSCURED; UNKNOWN; NOT APPLICABLE.

(K) VISIBILITY: Provide the prevailing visibility in statute miles. If CAVU or unrestricted, state "99".

(L) OBSTRUCTIONS TO VISION: Select from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(M) ALTIMETER SETTING: Provide the barometric pressure in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(N) ICING: Provide any icing conditions present or state "NONE PRESENT".

(O) PRECIPITATION: Describe the prevailing precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(P) EXTREME WX: Describe any existing extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(Q) RUNWAY CONDITION: Describe the takeoff/landing surface condition by selecting from the following all that apply: NOT APPLICABLE; DRY; WET; SLUSH; LOOSE SNOW; PACKED SNOW; ICE; PATCHY; SANDED; OILY; UNPREPARED; OTHER: (specify); UNKNOWN.

(R) METEOROLOGICAL COMMENTS: Briefly describe any additional environmental/meteorological information deemed pertinent to the hazard.

(8) RMKS: Include all available identifying information in this paragraph in order to fix the hazard in time and space for future reference. Giving a ship's name with no geographic location or LATD/LONG is useless. Ships move. Similarly, when a hazard occurs aboard a facility and LATD/LONG is omitted or environmental information is missing, the report's, value is markedly lessened and the permanent record lacks important analytical data. Unreported information,

regardless of how intuitive it may seem to the originator, is unrecoverable.

5. SPECIAL DATA: NA There are no special elements for a NMAC Hazard Report.

6. ANALYSIS: Offer your analysis of the information in the narrative and data paragraphs here. Although Hazard Reports do not require the depth of analysis expected of an SIR, using that same process of deductive reasoning will lead to a fuller understanding of how and why the hazard occurred and help prevent a reoccurrence. (See paragraph 607.) If it helps clarify your analysis, feel free to report those cause factors which you considered and rejected during your investigation. Include the WHO/WHAT/WHY or COMP/MODE/AGENT format is all that is required.

7. CONCLUSIONS: Describe the likely consequence if the hazard is not corrected.

8. RECOMMENDATIONS: Recommend corrective actions and propose an action agency to eliminate the hazard. If the originator has the action, describe the corrections you have undertaken so others may make a similar effort. Use the guidelines for composition of recommended corrective action contained in appendix C at the end of this instruction.

9. REMARKS: Content of this paragraph is at the discretion of the originator.

10. CO'S ENDORSEMENT: Severe hazards require further endorsement, (see paragraph 105d(2).) The CO's comments may close out the Hazard Report if no action is required outside the command.

419. PHYSIOLOGICAL EPISODE HAZARD REPORT

a. Physiological Episode Defined. Physiological episodes occur whenever any of the following conditions exist outside of a naval aviation mishap:

- Hypoxia proven or suspected.

- Carbon monoxide poisoning or other toxic exposure.

- Decompression sickness due to evolved gas (bends, chokes, neurocirculatory collapse), or severe reaction to trapped gas resulting in incapacitation.

- Hyperventilation.

- Spatial disorientation or distraction resulting in unusual attitude.

- Loss of consciousness for any cause.

- An unintentional rapid decompression which exposes personnel to cabin altitudes above FL 250, regardless of whether dysbarism or hypoxia occurs.

- Other psychological, pathological or physical problems manifest during or after actual flight or simulated flight in any aviation physiological or water survival training devices. No need to report trapped gas expansion and hyperventilation episodes in the hypobaric chamber or GLOC episodes in the centrifuge. Recompression therapy for aviation-related incidences will no longer be reported per OPNAVINST 5102.1C. Appendices H and I will be used for hypobaric chamber profiles.

- Training devices or simulators that cause personnel injury or fail to function as designed.

b. Format. Hazard Reports submitted on the occasion of a physiological episode shall be submitted per the following:

(1) Addressees. See appendixes 4A and 4B at the end of this chapter.

(2) Text. Use this format for all Physiological Episode Hazard Reports:

(a) All material double underlined in the format below shall be repeated verbatim in the text of the report.

(b) If any information required by the format of the report is obviously not appropriate for the hazard being reported, enter "NA" in the space for that information. Subparagraphs to NA'D data may be omitted.

UNCLAS FOUO //N03750// THIS IS A GENERAL USE NAVAL AVIATION PHYSIOLOGICAL EPISODE HAZARD REPORT (-UAV hazards involving UAVs

only)(command submitting the hazard report, report serial number, date of occurrence, model/series aircraft or UAV, buno)
REPORT SYMBOL OPNAV 3750-19

MSGID/GENADMIN/originator/message serial number (not) report serial number/month//

SUBJ/AVIATION PHYSEPS //

REF/A/DOC/OPNAVINST/3750.6R/-//

REF/B/(Other references as appropriate)//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS . . . (List other references as appropriate.)//

POC/(name of primary point of contact to answer inquiries about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/E-Mail:(E-Mail address)//

RMKS//
1. THIS REPORT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION(-UAV hazards involving UAVs only). RAC (1, 3, ETC.). If the criteria in paragraph 804 requires endorsement of the report, include the following phrase: (next endorser) ENDORSEMENT REQUESTED IAW REF A . Otherwise include the phrase ENDORSEMENT NOT REQUIRED. Summarize the hazard. Be brief. SUMMARY:

2. NARRATIVE: Put your chronological summary of facts, events, and circumstances surrounding the hazard here. Tell what lead to, what happened during, and what happened afterward. Your analysis and conclusions come later.

3. CATEGORY: INTENT FOR FLIGHT (did or did not) EXIST. Select one. Paragraph 306 defines choices. When more than one aircraft is involved, intent for flight exists for all if intent for flight existed for one.

4. DATA: Provide:

A. REPORTING ACTIVITY:

(1) NAME: Short title

(2) UIC: UIC of the reporting activity (use squadron or DET short title and UIC, do not use ship short title or UIC.) If reporting activity is a detachment, provide:

(3) PARENT NAME: Parent squadron

(4) PARENT UIC: UIC of parent squadron.

B. AIRCRAFT OR UAV: If multiple aircraft are involved, number this sub-paragraph "(B1) AIRCRAFT OR UAV:" for the first aircraft, followed by "(B2) AIRCRAFT OR UAV:" for second aircraft, and followed by "(B3, 4, etc.)" for subsequent aircraft. Do not list multiple aircraft in the same subparagraphs. For each aircraft identified, list details under the respective subparagraphs by the following scheme:

(1) TMS: Model and series, (e.g., SH-60F)

(2) BUNO: Bureau number

(4) CUST: Reporting custodian (this aircraft or UAV)

(5) CUST UIC: UIC (this aircraft or UAV)

(6) ORIGIN: State the name of the departure ship or airfield. If takeoff was neither from a ship nor an airfield, give the latitude and longitude in the form "DDMMSS N (or S)/DDDMMSS E (or W)." If lack of precise departure location dictates, fill right spaces with Xs to indicate that the position is an estimate.

(7) MISSION: Clearly state aircraft or UAV mission.

(8) TMR: Total Mission Requirement Code of the planned flight. Use codes listed in OPNAVINST 3710.7R. Provide training and readiness codes if assigned.

(9) FLIGHT PLAN: Type of flight plan. State VFR, IFR, DVFR, and (if known) the meteorological conditions present at the time the hazard occurred.

(10) DEST: Destination. List next intended point of landing in the same manner as (6) above.

(11) EVOLUTION:

(A) PHASE OP: Phase of flight. Choose one of the following: PARKED, TURNUP, TAXI, TAKEOFF, CLIMB, CRUISE, LOW-LEVEL CRUISE, TACTICAL MANEUVERING, DESCENT, APPROACH, LANDING PATTERN, TOUCHDOWN, UNKNOWN, or specify another.

(B) HDG: Magnetic heading in degrees in 3 digit format. Use leading zeros for magnitudes less than 100 degrees.

(C) KIAS: Indicated airspeed in knots

(D) AGL: Altitude AGL in feet

(E) MSL: Altitude MSL in feet

(F) ROUTE: Describe route of flight and general intentions as applicable.

(12) PERSONNEL: Provide information on personnel in the aircraft directly involved in the hazard or the incident. You may omit information on personnel present in the aircraft but not directly involved. At the least, record information on personnel causing the hazard or exposed to injury. Use "NA" whenever information is omitted. Omit subparagraphs to fields marked "NA" entirely. If information is unknown, state "UNKNOWN."

(A) SOULS: Record the number of people a board this aircraft.

(B) CREW: State the total number of aircraft or UAV crewmembers. Complete the remaining subordinate paragraphs to this subparagraph for each crewmember involved. (UAVs include EP - external pilot. IP - internal pilot and PO - payload operator.)

(1) CREW DUTY: Indicate the crew position assigned: HAC, COPILOT, FLIGHT ENGINEER, MAINTENANCE WORKER, for the "crew duty" heading for the first member of the crew and indicate whether at the controls at the time of the hazard, if applicable. Examples: "(1) PILOT AT CONTROLS:", "(1) COPILOT NOT AT CONTROLS:", "(1) SENSO:". Followed by

(A) RANK/RATE: Of first listed crewmember. Use standard abbreviations: "LCDR", "AE3." Do not list names or social security numbers in HAZREP messages.

(B) DESIG: NEC/designator/MOS, as appropriate

(C) SVC: Service

(D) ORG: Parent organization

(E) STATUS: Duty status (see chapter 3)

(F) INJURIES: Although hazard reports by definition exclude reportable injuries, a crewmember may have sustained injuries below a reportable threshold. Describe any such injuries or report: "NO INJURY."

(G) NVD: State if NVDs were used.

(H) EXPERIENCE: Complete the items below if applicable to the hazard. Otherwise, state "NA" and omit subordinate subparagraphs.

(1) TOTAL TIME: Total flight hours (pilot/copilot/special crew) in hours and tenths

(2) MODEL TIME: Total time in model in hours and tenths

(3) PILOT TIME: Total pilot time in hours and tenths

(4) PILOT MODEL TIME: Total pilot model time in hours and tenths

(5) TOTAL LANDINGS: Total landings

(6) TOTAL MODEL LANDINGS: Total landings in model

(7) TOTAL EMBARKED LANDINGS: Total embarked landings

(8) TOTAL EMBARKED MODEL LANDINGS: Total embarked landings in model

(I) QUALS: Indicate level of NATOPS and any other qualifications that might be pertinent to the hazard.

(2) CREW DUTY: Substitute crew position assigned for "crew duty" heading of second member of the crew and repeat subparagraphs "(A)" through "(I)."

(3) CREW DUTY: Repeat crew duty sequence for subsequent crew members as required.

(C) PASSENGERS: List the total number of passengers. Briefly describe their involvement in the hazard. Include minor injuries and any other appropriate information. If there were no passengers, state "NA."

(13) LIGHTING: Describe status of aircraft lighting - if applicable to the circumstances surrounding the hazard - or state: "NA."

(A) LANDING LIGHT: ON, OFF, NOT INSTALLED, or UNKNOWN.

(B) STROBE LIGHT: Strobe/anticollision light. ON, OFF, NOT INSTALLED, or UNKNOWN.

(C) OTHER LIGHTING: Describe the lighting configuration of any other aircraft.

(14) EQPT: Name the aircraft or UAV parts involved in the hazard. If multiple parts are involved, number this subparagraph "(14A) EQPT:" for the first piece of equipment, followed by "(14B) EQPT:" for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(A) MODEL: Model

(B) MAKE: Make

(C) PART NO: Part number

(D) EQPT CODE: Equipment code (as applicable)

(E) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(F) WUC: Workunit code

(G) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(H) RMKS: Any other remarks needed for clarity.

(15) OFP: Indicate which operational flight program (if any) this aircraft of UAV carries.

(16) FCS: FCS and software version (if applicable to this aircraft or UAV).

C. OTHER PERSONNEL: Indicate here how many others (who were not in the aircraft) were involved in the hazard and describe how they were involved, or how they were injured, or any other appropriate information. If no others were involved, state "NA."

D. OTHER EQPT: Name any other support equipment, tools, etc., involved in the hazard. If multiple parts are involved, number this subparagraph “(D1) OTHER EQPT:” for the first piece of equipment, followed by “(D2) OTHER EQPT:” for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(1) MODEL: Model

(2) MAKE: Make

(3) PART NO: Part number

(4) EQPT CODE: Equipment code (as applicable)

(5) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(6) WUC: Workunit code

(7) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(8) RMKS: Any other remarks needed for clarity

E. ENVIRONMENT: List

(1) DATE: Date

(2) TIME: Local time

(3) ZONE: Local time zone

(4) CONDN: Day or night

(5) LOCN: Plain language description of location in terms of geographic area, proximity to body of water, nearest city, town, or significant landmark. (Examples: Norfolk, VA; Eastern Med.) If the location is aboard a ship, give its geographic location here, and not its identity.

(A) LATD: Latitude in 6 digit format, DDMMSS, followed by a space and "N" or "S." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits.

(B) LONG: Longitude in 7 digit format, DDDMMSS, followed by a space and "E" or "W." Fill left and right most digits with zeros when appropriate similar to LATD.

(C) STATE: State, province, or political subdivision (Kansas, Manitoba, or Fukuoka Prefecture) where hazard is located.

(D) COUNTRY: Self-explanatory

(E) FACILITY: Where the facility is a ship, include name, followed by a slash and class - hull number. (Example: USS KENNEDY/CV-67, NAS OCEANA VA.) If hazard did not occur in vicinity of an identifiable facility, state "NA."

(F) NAVAID: Identifier of nearest named airfield, NAVAID, or ship. Use ICAO identifier where applicable.

(G) BRG: Bearing/radial from NAVAID above

(H) DIST: Distance in NM from NAVAID above

(I) AIRSPACE: Type of airspace (if designated or numbered, Warning, alert, a military operating area, or the like, include the number designation.). If hazard occurred with intent for flight (as defined in paragraph 306) before the aircraft left the ground, state type of airspace immediately overhead. If the hazard occurred on the ground without intent for flight, state "ON DECK."

(6) WX AS BRIEFED. In the following subparagraphs, provide data regarding forecast weather and brief utilization as requested for the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) BRIEFED BY: Select one from the following: FORECASTER; BRIEFER; PILOT; OTHER: (Describe); UNKNOWN; NOT APPLICABLE.

(B) BRIEFING UTILIZATION: Select one from the following: USED; NOT USED; NOT AVAILABLE; UNKNOWN; NOT APPLICABLE.

(C) AIR TEMP: Provide the forecast ambient air temperature in degrees Fahrenheit.

(D) RELATIVE HUMIDITY: State the forecast percentage of relative humidity.

(E) DEWPOINT: Provide the forecast dewpoint in degrees Fahrenheit.

(F) WATER TEMP: Provide the forecast or briefed water/sea surface temperature in degrees Fahrenheit, or state "NA".

(G) WIND DIRECTION: Provide the forecast wind direction in degrees; if light and variable, state "0".

(H) WIND VELOCITY: Provide the forecast wind velocity in knots; if light and variable, state "0".

(I) WIND GUSTS: Provide the forecast velocity of wind gusts or "NONE FORECAST", as appropriate.

(J) CEILING: Provide, in hundreds of feet, the forecast altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none is forecast state "NONE FORECAST".

(K) SKY CONDITION: Describe, in weather sequence format, the forecast altitude and type of all cloud layers.

(L) HORIZON: Describe the forecast horizon conditions by selecting one from the following: VISIBLE; OBSCURED; PARTIALLY OBSCURED; UNKNOWN; NOT APPLICABLE.

(M) VISIBILITY: State the forecast visibility in statute miles. If CAVU or unrestricted, state "99".

(N) OBSTRUCTIONS TO VISION: Describe all forecast/briefed obstructions by selecting from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(O) ALTIMETER SETTING: Provide the forecast altimeter setting in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(P) ICING: Provide any forecast icing conditions or state "NONE FORECAST".

(Q) PRECIPITATION: Provide all forecast/briefed precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(R) EXTREME WX: Provide any forecast/briefed extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(S) BRIEFING ACCURACY: Indicate whether the actual weather varied substantially from the forecast conditions by selecting one from the following: SUBSTANTIALLY CORRECT; CONSIDERABLY BETTER THAN FORECAST; CONSIDERABLY WORSE THAN FORECAST; UNKNOWN; NOT APPLICABLE.

(7) WX - PREVAILING. In the following subparagraphs, provide data to define the actual prevailing weather conditions at the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) AIR TEMP: Provide the prevailing ambient air temperature in degrees Fahrenheit.

(B) RELATIVE HUMIDITY: State the percentage of relative humidity.

(C) DEWPOINT: Provide the prevailing dewpoint in degrees Fahrenheit.

(D) WATER TEMP: Provide the water/sea surface temperature in degrees Fahrenheit, or state "NA".

(E) WIND DIRECTION: Provide the prevailing wind direction in degrees; if light and variable, state "0".

(F) WIND VELOCITY: Provide the prevailing wind velocity in knots; if light and variable state "0".

(G) WIND GUSTS: Provide the prevailing velocity of wind gusts or "NONE PRESENT", as appropriate.

(H) CEILING: Provide, in hundreds of feet, the altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none exists, state "NONE PRESENT".

(I) SKY CONDITION: Describe, in weather sequence format, the altitude and type of all cloud layers.

(J) HORIZON: Select one from the following: VISIBLE; PARTIALLY OBSCURED; OBSCURED; UNKNOWN; NOT APPLICABLE.

(K) VISIBILITY: Provide the prevailing visibility in statute miles. If CAVU or unrestricted, state "99".

(L) OBSTRUCTIONS TO VISION: Select from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(M) ALTIMETER SETTING: Provide the barometric pressure in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(N) ICING: Provide any icing conditions present or state "NONE PRESENT".

(O) PRECIPITATION: Describe the prevailing precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(P) EXTREME WX: Describe any existing extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(Q) RUNWAY CONDITION: Describe the takeoff/landing surface condition by selecting from the following all that apply: NOT APPLICABLE; DRY; WET; SLUSH; LOOSE SNOW; PACKED SNOW; ICE; PATCHY; SANDED; OILY; UNPREPARED; OTHER: (specify); UNKNOWN.

(R) METEOROLOGICAL COMMENTS: Briefly describe any additional environmental/meteorological information deemed pertinent to the hazard.

(8) RMKS: Include all available identifying information in this paragraph in order to fix the hazard in time and space for future reference. Giving a ship's name with no geographic location or LATD/LONG is useless. Ships move. Similarly, when a hazardous occurs aboard a facility and LATD/LONG is omitted or environmental information is missing, the report's, value is markedly lessened and the permanent record lacks important analytical data. Unreported information, regardless of how intuitive it may seem to the originator, is unrecoverable.

5. SPECIAL DATA: Provide the following data specific to a Physiological Episode:

A. TYPE: As defined in paragraph 419a.

B. CABIN ALT: Cabin altitude in feet MSL

C. CABIN TIME: Time at cabin altitude in hours and tenths

D. FLT DURATION: Length of flight or operation prior to episode in hours and tenths of hours

E. IMC DURATION: Length of IMC flight prior to episode or "NA" if not applicable.

F. PERSONNEL: Indicate personnel information below.

(1) CREW DUTY: Indicate the crew position assigned: HAC, COPILOT, FLIGHT ENGINEER, MAINTENANCE WORKER, for the "crew duty" heading for the first member of the crew and indicate whether at the controls at the time of the hazard, if applicable. Examples: "(1) PILOT AT CONTROLS:", "(1) COPILOT NOT AT CONTROLS:", "(1) SENSO:". Followed by

(A) DIAGNOSIS: In plain language.

(B) SEX:

(1) MENSTRUAL: Days since beginning of last menstrual cycle, if applicable. Otherwise, omit.

(C) AGE: In years/months

(D) WT: Weight in pounds

(E) HT: Height in inches

(F) FAT: Percent body fat

(G) PRECOND: Prior injury or concern

(H) HYDRATION: Hydration-level, if applicable

(1) COLOR: By urine color: CLEAR, CLEAR STRAW, CLEAR AMBER, DARK

(2) SPECGRAV: Specific gravity from the lab report

(I) SLEEP: Amount of sleep 24 hours prior to episode

(J) EXERCISE: Type and level of exercise 24 hours prior to episode.

(K) POST-EXERCISE: Type and level of exercise 12 hours post-episode, if delayed reaction; otherwise, NA.

(L) DIVING: Time diving within 24 hours prior to episode in hours and tenths

(M) ALCOHOL: In plain language describe alcohol intake 24 hours prior to episode.

(N) MEDICATION: In plain language describe medication or drugs taken 24 hours prior to episode.

(O) HYPOXIC/HYPOBARIC INFO:

(1) HIALT TIME: Time above 18,000 feet MSL in minutes

(2) OFF OXY: Time off oxygen in minutes (during hypoxia demonstration or, as applicable)

(3) PREOX TIME: Preoxygenation time in minutes

(4) PRIOR EPISODE: Describe any prior episodes of decompression sickness or hypoxia. For decompression sickness, describe when, type, and whether aviation or diving; describe treatment received--observation, surface oxygen, recompression (if not recompression, provide short summary). Otherwise, "NA."

(5) RECOMPRESSION: Recompression started (month/day/hour/min/depth).

(6) FIRST RELIEF: First relief (month/day/hour/min/depth)

(7) MAX DEPTH: Reached maximum treatment depth (month/day/hour/min/depth)

(8) COMPLETE RELIEF: Time of complete relief (month/day/hour/min/depth)

(9) TABLE: Treatment table used (include any extensional)

(10) COMPLETION: Completion of treatment (month/day/hour/min)

(11) RECURRENCE: Recurrence number (0 would indicate no recurrence)

(12) DRUGS: Type of drugs used in treatment

(13) OUTCOME: Treatment outcome (complete relief, substantial relief, no relief, etc.)

(P) WORK LOST: Number of days away from work (expected)

(Q) FLIGHT LOST: Number of days restricted from flying (expected)

(R) REMARKS: Any additional important information concerning treatment or disposition.

6. ANALYSIS: Offer your analysis of the information in the narrative and data paragraphs here. Although Hazard Reports do not require the depth of analysis expected of an SIR, using that same process of deductive reasoning will lead to a fuller understanding of how and why the hazard occurred and help prevent a reoccurrence. (see paragraph 607.) If it helps clarify your analysis, feel free to report those cause factors which you considered and rejected during your investigation. Include the WHO/WHAT/WHY or COMP/MODE/AGENT format is all that is required.

7. CONCLUSIONS: Describe the likely consequence if the hazard is not corrected.

8. RECOMMENDATIONS: Recommend corrective actions and propose an action agency to eliminate the hazard. If the originator has the action, describe the corrections you have undertaken so others may make a similar effort. Use the guidelines for composing corrective actions contained in appendix C at the end of this instruction.

9. REMARKS: Content of this paragraph is at the discretion of the originator.

10. CO'S ENDORSEMENT: Severe hazards require further endorsement, (see paragraph 105d(2).) The CO's comments may close out the Hazard Report if no action is required outside the command.

420. EMBARKED LANDING HAZARD REPORT

a. Embarked Landing Hazard Defined. An embarked landing hazard is a potential cause of damage or injury directly associated with an embarked landing. Events which require an investigation and an Embarked Landing Hazard Report include, but are not limited to:

- Ramp strikes (a part of an aircraft hits on or below the round down).

- A part of the aircraft other than the landing gear or hook strikes the landing area.

- An aircraft collides with other aircraft, personnel or equipment on the flight deck.

- Low visibility approaches for helicopters and emergency low visibility approaches (ELVAs).

NOTE: Forward PLAT tapes of embarked landing hazards to the U. S. Navy LSO School, NAS Oceana, Virginia Beach, VA 23460-5129, with each Embarked Landing Hazard Report.

b. Format. Hazard Reports submitted on the occasion of an embarked landing hazard shall be submitted per the following:

(1) Addressees. See Appendixes 4A and 4B at the end of this chapter.

(2) Text. The format below shall be used for the text of all Embarked Landing Hazard Reports.

(a) All material double underlined in the format below shall be repeated verbatim in the text of the report.

(b) If any information required by the format of the report is obviously not appropriate for the hazard being

reported, enter "NA" in the space for that information. Subparagraphs to NA'D DATA may be omitted.

UNCLAS FOUO //N03750// THIS IS A GENERAL USE NAVAL AVIATION EMBARKED LANDING HAZARD REPORT (command submitting the hazard report, report serial number, date of occurrence, model/series aircraft, buno) REPORT SYMBOL OPNAV 3750-19

SUBJ/AVIATION EMBLAND //

MSGID/GENADMIN/originator/message serial number (not report serial number/ month//

REF/A/DOC/OPNAVINST 3750.6R/-//

REF/B/(Other references as appropriate)//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS . . . (List other references as appropriate.)//

POC/(name of primary point of contact to answer inquiries about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/E-Mail:(E-Mail address)//

RMKS//
1. THIS REPORT CONCERNS (routine or severe) HAZARD TO NAVAL AVIATION. RAC (1, 3, ETC.). If the criteria in paragraph 804 requires endorsement of the report, include the following phrase: (next endorser) ENDORSEMENT REQUESTED IAW REF A. Otherwise include the phrase NO FURTHER ENDORSEMENT REQUIRED. Summarize the hazard, what or how the hazard occurred, beginning with SUMMARY:

2. NARRATIVE: Put your chronological summary of facts, events, and circumstances surrounding the hazard here. Tell what led to, what happened during, and what happened afterward. Your analysis and conclusions come later.

3. CATEGORY: INTENT FOR FLIGHT DID EXIST. It is assumed that intent for flight exists in an Embarked Landing Hazard.

4. DATA: Provide:

A. REPORTING ACTIVITY:

(1) NAME: Short title

(2) UIC: UIC of the reporting activity (use squadron or DET short title and UIC, do not use ship short title or UIC. If reporting activity is a detachment, provide:

(3) PARENT NAME: Parent squadron

(4) PARENT UIC: UIC of parent squadron

B. AIRCRAFT OR UAV: If multiple aircraft are involved, number this sub-paragraph "(B1) AIRCRAFT OR UAV:" for the first aircraft, followed by "(B2) AIRCRAFT/ UAV:" for second aircraft, etc. Do not list multiple aircraft in the same subparagraphs. For each aircraft identified, list details under the respective subparagraphs by the following scheme:

(1) TMS: Model and series (SH-60F)

(2) BUNO: Bureau number

(4) CUST: Reporting custodian (this aircraft or UAV)

(5) CUST UIC: UIC (this aircraft or UAV)

(6) ORIGIN: State the name of the departure ship or airfield. If takeoff was neither from a ship nor an airfield, give the latitude and longitude in the form "DDMMSS N (or S)/DDDMMSS E (or W)." If lack of precise departure location dictates, fill right spaces with Xs to indicate that the position is an estimate.

(7) MISSION: Clearly state aircraft or UAV mission.

(8) TMR: Total Mission Requirement Code. Use codes listed in OPNAVINST 3710.7R. USMC also use training and readiness (T & R) Codes.

(9) FLIGHT PLAN: Type of flight plan. State VFR, IFR, DVFR, and if known the meteorological conditions at the time of the hazard.

(10) DEST: Destination. List next intended point of landing in the same manner as (6) above.

(11) EVOLUTION:

(A) PHASE OP: Phase of flight. Choose either: PARKED, TURNUP, TAXI, TAKEOFF, CLIMB, CRUISE, LOW-LEVEL CRUISE, TACTICAL MANEUVERING, DESCENT, APPROACH, LANDING PATTERN, TOUCHDOWN, UNKNOWN, or specify another.

(B) HDG: Magnetic heading in degrees in 3 digit format. Use leading zeros for magnitudes less than 100 degrees.

(C) KIAS: Indicated airspeed in knots

(D) AGL: Altitude AGL in feet

(E) MSL: Altitude MSL in feet

(F) ROUTE: Describe route of flight and general intentions as applicable.

(12) PERSONNEL: Provide information on personnel in the aircraft directly involved in the hazard or the incident. You may omit information on personnel present in the aircraft but not directly involved. At the least, record information on personnel causing the hazard or exposed to injury. Use "NA" whenever information is omitted. Omit subparagraphs to fields marked "NA" entirely. If information is unknown, state "UNKNOWN."

(A) SOULS: Record the number of people aboard this aircraft.

(B) CREW: State the total number of aircraft or UAV crewmembers. Complete the remaining subordinate paragraphs to this subparagraph for each crewmember involved. (UAVs include EP - external pilot. IP - internal pilot and PO - payload operator.)

(1) CREW DUTY: Indicate the crew position assigned: HAC, COPILOT, FLIGHT ENGINEER, MAINTENANCE WORKER, for the "crew duty" heading for the first member of the crew and indicate whether at the controls at the time of the hazard, if applicable. Examples: "(1) PILOT AT CONTROLS:", "(1) COPILOT NOT AT CONTROLS:", "(1) SENSO:". Followed by

(A) RANK/RATE: Of first listed crewmember. Use standard abbreviations: "LCDR", "AE3". Do not list names or social security numbers in HAZREP messages.

(B) DESIG: NEC/designator/MOS, as appropriate

(C) SVC: Service

(D) ORG: Parent organization

(E) STATUS: Duty status (see to chapter 3).

(F) INJURIES: Although hazard reports by definition exclude reportable injuries, a crewmember may have sustained injuries below a reportable threshold. Describe any such injuries or report: "NO INJURY."

(G) NVD: State if NVDs were being used.

(H) EXPERIENCE: Complete the items below if applicable to the hazard. Otherwise, state "NA" and omit subordinate subparagraphs.

(1) TOTAL TIME: Total flight hours (pilot/copilot/ special crew) in hours and tenths

(2) MODEL TIME: Total time in model in hours and tenths

(3) PILOT TIME: Total pilot time in hours and tenths

(4) PILOT MODEL TIME: Total pilot model time in hours and tenths

(5) TOTAL LANDINGS: Total landings

(6) TOTAL MODEL LANDINGS: Total landings in model

(7) TOTAL EMBARKED LANDINGS: Total embarked landings

(8) TOTAL EMBARKED MODEL LANDINGS: Total embarked landings in model

(I) QUALS: Indicate level of NATOPS and any other qualifications that might be pertinent to the hazard.

(2) CREW DUTY: Substitute crew position assigned for "crew duty" heading of second member of the crew and repeat subparagraphs (A) through (I).

(3) CREW DUTY: Repeat crew duty sequence for subsequent crewmembers, as required.

(C) PASSENGERS: List the total number of passengers. Briefly describe their involvement in the hazard. Include minor injuries and any other appropriate information. If there were no passengers, state "NA."

(13) LIGHTING: Indicate status of aircraft lighting - if applicable to circumstances of hazard - or "NA."

(A) LANDING LIGHT: ON, OFF, NOT INSTALLED, or UNKNOWN.

(B) STROBE LIGHT: Strobe/anticollision light. ON, OFF, NOT INSTALLED, or UNKNOWN.

(C) OTHER LIGHTING: Describe status of any other aircraft lighting pertinent to the hazard or "NA."

(14) EQPT: Name the aircraft or UAV parts involved in the hazard. If multiple parts are involved, number this subparagraph "(14A) EQPT:" for the first piece of equipment, followed by "(14B) EQPT:" for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(A) MODEL: Model

(B) MAKE: Make

(C) PART NO: Part number

(D) EQPT CODE: Equipment code (as applicable)

(E) CONFIG: Configuration (DCBs or ASCs installed, version, etc.)

(F) WUC: Workunit code

(G) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(H) RMKS: Any other remarks needed for clarity.

(15) OFP: Indicate which operational flight program (if any) this aircraft of UAV carries.

(16) FCS: FCS and software version (if applicable to this aircraft or UAV).

C. OTHER PERSONNEL: Indicate here how many others (who were not in the aircraft) were involved in the hazard and describe how they were involved, or how they were injured, or any other appropriate information. If no others were involved, state "NA."

D. OTHER EQPT: Name any other support equipment, tools, etc., involved in the hazard. If multiple parts are involved, number this subparagraph “(D1) OTHER EQPT:” for the first piece of equipment, followed by “(D2) OTHER EQPT:” for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(1) MODEL: Model

(2) MAKE: Make

(3) PART NO: Part number

(4) EQPT CODE: Equipment code (as applicable)

(5) CONFIG: Configuration (DCBs or ASCs installed, version, etc),

(6) WUC: Workunit code

(7) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(8) RMKS: Any other remarks needed for clarity.

E. ENVIRONMENT: List:

(1) DATE: Date

(2) TIME: Local time

(3) ZONE: Local time zone

(4) CONDN: Day or night

(5) LOCN: Describe the location geographically. Use geographic area, body of water, nearest city, town, or a significant landmark. (Examples: San Diego; Eastern Med.) If the location is aboard ship, give its geographic location here; not the identity of the ship.

(A) LATD: Latitude in 6 digit format, DDMMSS, followed by a space and "N" or "S." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits.

(B) LONG: Longitude in 7 digit format, DDDMMSS, followed by a space and "E" or "W." Fill left and right most digits with zeros when appropriate similar to LATD.

(C) STATE: State, province, or political subdivision (Kansas, Manitoba, or Fukuoka Prefecture) where hazard is located.

(D) COUNTRY: Self-explanatory

(E) FACILITY: Where the facility is a ship, include name, followed by a slash and class - hull number. (Example: USS KENNEDY/CV-67, NAS OCEANA VA.) If hazard did not occur in vicinity of an identifiable facility, state "NA."

(F) NAVAID: Identifier of nearest named airfield, NAVAID, or ship. Use ICAO identifier where applicable.

(G) BRG: Bearing/radial from NAVAID above

(H) DIST: Distance in NM from NAVAID above

(I) AIRSPACE: Type of airspace (if designated or numbered, warning, alert, a military operating area, or the like, include the number designation.).

(6) WX AS BRIEFED. In the following subparagraphs, provide data regarding forecast weather and brief utilization as requested for the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) BRIEFED BY: Select one from the following: FORECASTER; BRIEFER; PILOT; OTHER: (Describe); UNKNOWN; NOT APPLICABLE.

(B) BRIEFING UTILIZATION: Select one from the following: USED; NOT USED; NOT AVAILABLE; UNKNOWN; NOT APPLICABLE.

(C) AIR TEMP: Provide the forecast ambient air temperature in degrees Fahrenheit.

(D) RELATIVE HUMIDITY: State the forecast percentage of relative humidity.

(E) DEWPOINT: Provide the forecast dewpoint in degrees Fahrenheit.

(F) WATER TEMP: Provide the forecast or briefed water/sea surface temperature in degrees Fahrenheit, or state "NA".

(G) WIND DIRECTION: Provide the forecast wind direction in degrees; if light and variable, state "0".

(H) WIND VELOCITY: Provide the forecast wind velocity in knots; if light and variable, state "0".

(I) WIND GUSTS: Provide the forecast velocity of wind gusts or "NONE FORECAST", as appropriate.

(J) CEILING: Provide, in hundreds of feet, the forecast altitude AGL of the lower boundary of the first cloud

layer classified as either broken or overcast. If none is forecast state "NONE FORECAST".

(K) SKY CONDITION: Describe, in weather sequence format, the forecast altitude and type of all cloud layers.

(L) HORIZON: Describe the forecast horizon conditions by selecting one from the following: VISIBLE; OBSCURED; PARTIALLY OBSCURED; UNKNOWN; NOT APPLICABLE.

(M) VISIBILITY: State the forecast visibility in statute miles. If CAVU or unrestricted, state "99".

(N) OBSTRUCTIONS TO VISION: Describe all forecast/briefed obstructions by selecting from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(O) ALTIMETER SETTING: Provide the forecast altimeter setting in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(P) ICING: Provide any forecast icing conditions or state "NONE FORECAST".

(Q) PRECIPITATION: Provide all forecast/briefed precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(R) EXTREME WX: Provide any forecast/briefed extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(S) BRIEFING ACCURACY: Indicate whether the actual weather varied substantially from the forecast conditions by selecting one from the following: SUBSTANTIALLY CORRECT; CONSIDERABLY BETTER THAN FORECAST; CONSIDERABLY WORSE THAN FORECAST; UNKNOWN; NOT APPLICABLE.

(7) WX - PREVAILING. In the following subparagraphs, provide data to define the actual prevailing weather conditions

at the time and location of the hazard. Provide either surface or aloft data as deemed most appropriate to the hazard's location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) AIR TEMP: Provide the prevailing ambient air temperature in degrees Fahrenheit.

(B) RELATIVE HUMIDITY: State the percentage of relative humidity.

(C) DEWPOINT: Provide the prevailing dewpoint in degrees Fahrenheit.

(D) WATER TEMP: Provide the water/sea surface temperature in degrees Fahrenheit, or state "NA".

(E) WIND DIRECTION: Provide the prevailing wind direction in degrees; if light and variable, state "0".

(F) WIND VELOCITY: Provide the prevailing wind velocity in knots; if light and variable state "0".

(G) WIND GUSTS: Provide the prevailing velocity of wind gusts or "NONE PRESENT", as appropriate.

(H) CEILING: Provide, in hundreds of feet, the altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none exists, state "NONE PRESENT".

(I) SKY CONDITION: Describe, in weather sequence format, the altitude and type of all cloud layers.

(J) HORIZON: Select one from the following: VISIBLE; PARTIALLY OBSCURED; OBSCURED; UNKNOWN; NOT APPLICABLE.

(K) VISIBILITY: Provide the prevailing visibility in statute miles. If CAVU or unrestricted, state "99".

(L) OBSTRUCTIONS TO VISION: Select from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE;

SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(M) ALTIMETER SETTING: Provide the barometric pressure in inches of mercury for either the time and location of the hazard or for the location of the nearest official weather facility.

(N) ICING: Provide any icing conditions present or state "NONE PRESENT".

(O) PRECIPITATION: Describe the prevailing precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(P) EXTREME WX: Describe any existing extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(Q) RUNWAY CONDITION: Describe the takeoff/landing surface condition by selecting from the following all that apply: NOT APPLICABLE; DRY; WET; SLUSH; LOOSE SNOW; PACKED SNOW; ICE; PATCHY; SANDED; OILY; UNPREPARED; OTHER: (specify); UNKNOWN.

(R) METEOROLOGICAL COMMENTS: Briefly describe any additional environmental/meteorological information deemed pertinent to the hazard.

(8) RMKS: Include all available identifying information in this paragraph in order to fix the hazard in time and space for future reference. Giving a ship's name with no geographic location or LATD/LONG is useless. Ships move. Similarly, when a hazardous occurs aboard a facility and LATD/LONG is omitted or environmental information is missing, the report's, value is markedly lessened and the permanent record lacks important analytical data. Unreported information, regardless of how intuitive it may seem to the originator, is unrecoverable.

5. SPECIAL DATA: Provide the following data specific to an Embarked Landing Hazard:

A. INVOLVED EQUIPMENT

(1) VLA: Indicate Visual Landing Aid (VLA) used and settings; hook to ramp indicated/basic angle/roll angle.

(2) STAB: Indicate stabilization mode; PT/line/class.

(3) CCA: Indicate CCA status, SPN-41/42 and glideslope used.

(4) CONSOLE: List equipment not in proper working order on LSO Console.

(5) COMMS: Communications. List EMCON/ZIP-LIP/or other communications/radio problems.

(6) LIGHTING: Indicate type of lighting in use (landing area, strobes, drop light conditions, etc.).

B. PERSONNEL:

(1) LSO: List the controlling LSO’s/LSE’s Qualifications and unit attached.

(2) ASST LSO: List the assistant LSO's qualifications and unit attached.

C. RECOVERY: State case recovery.

6. ANALYSIS: Offer your analysis of the information in the narrative and data paragraphs here. Although Hazard Reports do not require the depth of analysis expected of an SIR, using that same process of deductive reasoning will lead to a fuller understanding of how and why the hazard occurred and help prevent a reoccurrence. (See paragraph 607.) If it helps clarify your analysis, feel free to report those cause factors which you considered and rejected during your investigation. Include the WHO/WHAT/WHY or COMP/MODE/AGENT format is all that is required.

7. CONCLUSIONS: Describe the likely consequence if the hazard is not corrected.

8. RECOMMENDATIONS: Recommend corrective actions and propose an action agency to eliminate the hazard. If the originator has the action, describe the corrections you have undertaken so others may make a similar effort. Use the guidelines for

composition of recommended corrective action contained in appendix C at the end of this instruction.

9. REMARKS: Content of this paragraph is at the discretion of the originator.

10. CO'S ENDORSEMENT: Severe hazards require further endorsement, (see paragraph 105d(2).) The CO's comments may close out the Hazard Report if no action is required outside the command.

421. AIR TRAFFIC CONTROL HAZARD REPORT

The Air Traffic Control Facility Officer, in order to maintain an effective ATC facility organization, must identify any and all deficiencies and take appropriate corrective action.

a. Air Traffic Control Hazard Defined. An air traffic control hazard is an occurrence attributed to an element of the air traffic control system that:

(1) Results in less than the applicable separation minima between two or more aircraft, or between an aircraft and terrain or obstacles, as required by FAA Order 7110.65 and supplemental instructions. Obstacles include vehicles/equipment/personnel on runways; or

(2) Aircraft lands or departs on a runway closed to aircraft operations after receiving air traffic control authorization.

b. Also considered reportable hazard is a controlled occurrence where applicable minimal separation, as referred to in paragraph 421a above, was maintained, but:

(1) Less than the applicable separation minima existed between an aircraft and protected airspace without prior approval.

(2) An aircraft penetrated airspace that was delegated to another position of operation or another facility without prior coordination and approval.

(3) An aircraft penetrated airspace that was delegated to another position of operation or another facility at an altitude or route contrary to the altitude or route requested

and approved in direct coordination or as specified in a letter of agreement, precoordination, or internal procedures.

(4) An aircraft, vehicle, equipment, or personnel encroached upon a landing area that was delegated to another position of operation without prior coordination and approval.

c. Hazard reports submitted on the occasion of air traffic control occurrence shall be submitted per the following:

(1) Addressees. See appendixes 4A, plus Note 1 of appendix 4B at the end of this chapter.

(2) Text. Use this format for all Air Traffic Control Hazard Reports:

(a) All material double underlined in the format below shall be repeated verbatim in the text of the report.

(b) If any information required by the format of the report is obviously not appropriate for the hazard being reported, enter "NA" in the space for that information. Subparagraphs to NA'd data may be omitted.

UNCLAS FOUO //3750//THIS IS A GENERAL USE NAVAL AVIATION AIR TRAFFIC CONTROL HAZARD REPORT (Command submitting the hazard report, date of occurrence, model/series aircraft or UAV), REPORT SYMBOL OPNAV 3750-19

MSGID/GENADMIN /originator/report serial number/month//

SUBJ/AVIATION ATC//

REF/A/DOC/OPNAVINST/3750.6R/-//

REF/B/ (Other references as appropriate)//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS…(List other references.)//

POC/(name of the point of contact who can answer questions about the report)/ (rank)/ (code)/ (location)/TEL:(phone number or “deployed”) E-mail: E-Mail address)//

RMKS/
1. THIS REPORT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION. RAC (1, 3 etc.). If the criteria in paragraph 804

requires endorsement of the report, include the following phrase: (next endorser) ENDORSEMENT REQUESTED IAW REF A. Otherwise write: NO FURTHER ENDORSEMENT REQUIRED. Summarize the hazard. Be brief. SUMMARY:

2. NARRATIVE: Put your chronological summary of the facts, events, and circumstances surrounding the hazard here. Tell what lead to, what happened during, and what happened afterward. Your analysis and conclusions come later.

3. CATEGORY: INTENT FOR FLIGHT (did or did not) EXIST. Select one. Paragraph 306 defines the choices. When more than one aircraft is involved, intent for flight exists for all if intent for flight existed for one.

4. DATA: Provide :

A. REPORTING ACTIVITY:

(1) NAME: Short Title

(2) UIC: Unit Identification Code (UIC) of the reporting activity

(3) PARENT NAME: N/A

(4) PARENT UIC: N/A

B. AIRCRAFT OR UAV: If multiple aircraft are involved, number this subparagraph "(B1) AIRCRAFT OR UAV:" for the first aircraft, followed by "(B2) AIRCRAFT OR UAV:" for second aircraft, etc. Do not list multiple aircraft in the same subparagraphs. For each aircraft identified, list details under the respective subparagraphs by the following scheme:

(1) TMS: Model and series (SH-60F)

(2) BUNO: Bureau number if known; else state N/A.

(4) CUST: Reporting custodian (this aircraft or UAV)

(5) CUST UIC: UIC (this aircraft or UAV) if known; else state N/A.

(6) ORIGIN: State the name of the departure ship or airfield if known; else state N/A. If takeoff was neither from

a ship nor an airfield, give the latitude and longitude to the nearest minute in the form: "DDMM N (or S)/DDDMM E (or W)."

(7) MISSION: Clearly state aircraft or UAV mission if known; else state N/A.

(8) TMR: Total Mission Requirement Code of the planned flight, if known; else state N/A. Use codes listed in OPNAVINST 3710.7R. Provide training and readiness codes if assigned.

(9) FLIGHT PLAN: Type of flight plan. VFR, IFR, DVFR, and, if known, the meteorological conditions at the time of the hazard.

(10) DEST: Destination. List next intended point of landing in the same manner as (6) above if known; else state N/A.

(11) EVOLUTION:

(A) PHASE OP: Phase of flight. Choose either: PARKED, TURNUP, TAXI, TAKEOFF, CLIMB, CRUISE, LOW-LEVEL CRUISE, TACTICAL MANEUVERING, DESCENT, APPROACH, LANDING PATTERN, TOUCHDOWN, UNKNOWN, or specify another.

(B) HDG: Magnetic heading in degrees in 3 digit format. Use leading zeros for headings less than 100 degrees.

(C) KIAS: Indicated airspeed in knots.

(D) AGL: Altitude AGL in feet.

(E) ELEVATION: Terrain elevation in feet.

(F) MSL: Altitude MSL in feet.

(G) ROUTE: Describe route of flight and general intentions as applicable.

(12) PERSONNEL: Provide information on personnel in the aircraft directly involved in the hazard or the incident. You may omit information on personnel present in the aircraft but not directly involved. At the least, record information on personnel causing the hazard or exposed to injury. Use "NA" whenever information is omitted. Omit subparagraphs to fields

marked "NA" entirely. If information is unknown, state "UNKNOWN."

(A) SOULS: Record the number of people aboard this aircraft, if known.

(B) CREW: State the total number of aircraft or UAV crewmembers, if known.

1. CREW DUTY: N/A

2. CREW DUTY: N/A

(C) PASSENGERS: List the number of passengers if known; else state “N/A” or “Unknown” as applicable.

(13) LIGHTING: Describe status of aircraft lighting - if applicable to the circumstances surrounding the hazard - or state: "NA."

(A) LANDING LIGHT: ON, OFF, NOT INSTALLED, or UNKNOWN.

(B) STROBE LIGHT: Strobe/anticollision light. ON, OFF, NOT INSTALLED, or UNKNOWN.

(C) OTHER LIGHTING: Describe lighting configuration of any other aircraft pertinent to the hazard.

(14) EQPT: N/A

(15) OFP: N/A

(16) FCS: N/A

c. OTHER PERSONNEL: N/A

D. OTHER EQPT: Name any other support equipment, tools, etc., involved in the hazard. If multiple parts are involved, number this subparagraph “(D1) OTHER EQPT:” for the first piece of equipment, followed by “(D2) OTHER EQPT:” for the second piece of equipment, etc. No more than one part per subparagraph. For each part identified, give these details:

(1) MODEL: Model

(2) MAKE: Make

(3) PART NO: Part number

(4) EQPT CODE: Equipment code (as applicable)

(5) CONFIG: Configuration (DCBs or ASCs installed, version, etc),

(6) WUC: Workunit code

(7) DAMAGE: Although by definition, a hazard report means there is not reportable damage, minor damage below a reportable threshold may be involved. Describe any such damage or malfunction of this equipment here. If no damage, so state.

(8) RMKS: Any other remarks needed for clarity.

E. ENVIRONMENT: List:

(1) DATE: Date

(2) TIME: Local time

(3) ZONE: Local time zone

(4) CONDN: Day or night

(5) LOCN: Describe the location geographically. Use geographic area, body of water, nearest city, town, or a significant landmark. (Examples: San Diego; Eastern Med.) If the location is aboard ship, give its geographic location here; not the identity of the ship.

(A) LATD: Latitude in 6 digit format, DDMMSS, followed by a space and "N" or "S." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits.

(B) LONG: Longitude in 7 digit format, DDDMMSS, followed by a space and "E" or "W." Fill left and right most digits with zeros when appropriate similar to LATD.

(C) STATE: State, province, or political subdivision (Kansas, Manitoba, or Fukuoka Prefecture) where hazard is located.

(D) COUNTRY: Self-explanatory

(E) FACILITY: Where the facility is a ship, include name, followed by a slash and class - hull number. (Example: USS KENNEDY/CV-67, NAS OCEANA VA.) If hazard did not occur in vicinity of an identifiable facility, state "NA."

(F) NAVAID: Identifier of nearest named airfield, NAVAID, or ship. Use ICAO identifier where applicable.

(G) BRG: Bearing/radial from NAVAID above

(H) DIST: Distance in NM from NAVAID above

(I) AIRSPACE: Type of airspace (if designated or numbered, warning, alert, a military operating area, or the like, include the number designation.).

(6) WX AS BRIEFED. N/A

(7) WX - PREVAILING. N/A

(8) RMKS: Include all available identifying information in this paragraph in order to fix the hazard in time and space for future reference. Giving a ship's name with no geographic location or LATD/LONG is useless. Ships move. Similarly, when a hazardous occurs aboard a facility and LATD/LONG is omitted or environmental information is missing, the report's, value is markedly lessened and the permanent record lacks important analytical data. Unreported information, regardless of how intuitive it may seem to the originator, is unrecoverable.

5. SPECIAL DATA: Provide the following data specific to an Embarked Landing Hazard:

A. WHETHER OR NOT AIRCRAFT WAS UNDER RADAR CONTROL. (Indicate type of radar in use, i.e., AN/GPN-27 (Primary only, Secondary only, both primary and secondary), etc.)

B. RADAR STATUS OF AIRCRAFT. (Whether or not under radar surveillance or within an area of radar coverage.)

C. IN ADDITION, REPORT THE FOLLOWING:

(1) SECTOR/FACILITY STAFFING (Including combined operating positions.)

(2) CONTROLLER EXPERIENCE LEVEL (Position title, grade, number of years/months as a controller, number of years/months qualified.

(3) IF APPLICABLE, TRAINEE EXPERIENCE LEVEL (Grade, number of months in training)

(4) VOLUME OF TRAFFIC (Discuss number of aircraft being controlled, and specifics of service being provided; e.g., three instrument departures, two on vectors to satellite airports, two in handoff status to ARTCC, etc.)

(5) EQUIPMENT STATUS

6. ANALYSIS: Offer your analysis of the information in the narrative and data paragraphs here. Although Hazard Reports do not require the depth of analysis expected of an SIR, using that same process of deductive reasoning will lead to a fuller understanding of how and why the hazard occurred and help prevent a reoccurrence. (See paragraph 607.) If it helps clarify your analysis, feel free to report those cause factors which you considered and rejected during your investigation. Include the WHO/WHAT/WHY or COMP/MODE/AGENT format is all that is required.

7. CONCLUSIONS: Describe the likely consequence if the hazard is not corrected.

8. RECOMMENDATIONS: Recommend corrective actions and propose an action agency to eliminate the hazard. If the originator has the action, describe the corrections you have undertaken so others may make a similar effort. Use the guidelines for composition of recommended corrective action contained in appendix C at the end of this instruction.

9. REMARKS: Content of this paragraph is at the discretion of the originator.

10. CO'S ENDORSEMENT: Severe hazards require further endorsement, (see paragraph 105d(2).) The CO's comments may close out the Hazard Report if no action is required outside the command.

APPENDIX 4A

ADDRESSEES FOR HAZARD REPORTS WHEN CAD ASSIGNED

ACTION ADDRESSEES	WHEN
CNO WASHINGTON DC CMC WASHINGTON DC//-A/SD// COMNAVSAFECEN NORFOLK VA//00/10/11/FILE//	Always
COLLECTIVE ADDRESS DESIGNATOR (CAD)*	Always (see Note 1 page 4A-2)
OTHER COMMANDS IN ENDORSING CHAIN (if not contained in CAD)	
COMMANDING OFFICER OF NAVAL OR MARINE CORPS AIRFIELD, SHIP OR FACILITY	Personnel, equipment or facilities of that command are involved
OTHER ACTIVITIES	Corrective action recommended to be taken by that activity

---

INFORMATION ADDRESSEES (or action addressees if action is recommended to be taken by the addressee)

LSO SCHOOL NAS OCEANA VA	Embarked landing hazard reports
HELSUPPRON EIGHT HELSUPPRON THREE (LSE SCHOOLS)	Helicopter shipboard mishap involving LSE
COMNAVAIRWARCENWPNDIV CHINA LAKE CA ALL AEROMEDICAL ACTIVITIES	Aeromedical matters or aviation life support systems are involved
HQ AFSC KIRTLAND AFB NM//SEF// CDRUSASC FT RUCKER AL//DESC-Z// COMDT COGARD WASHINGTON DC//G-KSE// (as appropriate)	Common aircraft/engine (see Appendix H) or any aircraft, personnel, or facilities of that service is involved
NAVAIRWARCENACDIV PATUXENT RIVER MD	All EMI Hazard Reports
NASA AMES MOFFETT FEDERAL AIRFIELD CA//ASRS//	All NMAC Hazard Reports

* When no aircraft CAD is assigned, use appendix 4B.

ADDRESSEES FOR HAZARD REPORTS WHEN CAD ASSIGNED (CONT'D)

INFORMATION ADDRESSEES	WHEN
COMNAVMETOCCOM STENNIS SPACE CENTER MS	Unusual weather is involved
NAVAIRWARCENTRASYSDIV ORLANDO FL	When simulator sickness is involved
APPROPRIATE FAA NAVREP (SELECT ONE) NAVREPEANE FAA BURLINGYON MA NAVREPSO ATLANTA GA NAVREPSW FT WORTH TX NAVREPWP LOS ANGELES CA	NMAC occurred in FAA region
NORTHNAVFACENGCOM LESTER PA//1831// HQ AFSC KIRTLAND AFB NM//SEFW//	All special (message) Bird/Animal Strike Hazard Reports
NAVTRANSSUPCEN NORFOLK VA COMNAVSUPSYSCOM MECHANICSBURG PA	Hazardous or improperly prepared or improperly shipped cargo
NAVSURFWARCENDIV INDIAN HEAD MD//5320//	CAD and AEPS devices of aircrew escape systems are involved
NAVICP PHILADELPHIA PA//052//	Aviation equipment involved
OTHER INFORMATION OR ACTION ADDRESSEES	Directed by controlling custodian or custodian considered appropriate by the originator

Note 1. NMAC and Bird/Animal Strike Hazard Reports shall be sent action only to: CNO WASHINGTON DC, CMC WASHINGTON DC, COMNAVSAFECEN NORFOLK VA, and appropriate info addressees shown in Appendix 4A. Other addressees may be added at the option of aircraft controlling custodians.

APPENDIX 4B

ADDRESSEES FOR HAZARD REPORTS WHEN CAD NOT ASSIGNED

ACTION ADDRESSEES	**WHEN**
CNO WASHINGTON DC CMC WASHINGTON DC//-A/SD// COMNAVSAFECEN NORFOLK VA//00/10/11/FILE// ENDORSING CHAIN CHAIN OF COMMAND TO FIRST FLAG LEVEL	Always (see Note 1 page 4A-2)
REPORTING CUSTODIAN	If reporting custodian is not the originator of the report
PARENT COMMAND	A detachment is reporting custodian
COMMANDING OFFICER OF NAVAL OR MARINE CORPS AIRFIELD, SHIP, OR FACILITY	Personnel, equipment or facilities of that command are involved
OTHER ACTIVITIES	Corrective action recommended to be taken by that activity

---

INFORMATION ADDRESSEES (or action addressees if action is recommended to be taken by the addressee)

COMNAVAIRSYSCOM PATUXENT RIVER MD COMNAVSEASYSCOM WASHINGTON DC COMNVAIRLANT NORFOLK VA COMNAVAIRPAC SAN DIEGO CA COMMARFORLANT//ALD// COMMARFORPAC//SAFETY// CG FOURTH MAW COMNAVAIRESFOR NEW ORLEANS LA CNATRA CORPUS CHRISTI TX BUMED WASHINGTON DC NAVAEROPMEDINST PENSACOLA FL NAVPGSCOL MONTEREY CA//10// NAVSTKWARCEN FALLON NV COMNAVAIRWARCENACDIV PATUXENT RIVER MD NAVAIRWARCENACDIV LAKEHURST NJ	Always
COMMAND OF AIRCREW INVOLVED	If that command is not the reporting custodian of the aircraft involved
LSO SCHOOL NAS OCEANA VA	Carrier landing mishap involved

ADDRESSEES FOR HAZARD REPORTS WHEN CAD NOT ASSIGNED (CONT'D)

ACTION ADDRESSEES	WHEN
HELSUPPRON EIGHT HELSUPPRON THREE (LSE schools)	Helicopter shipboard mishap involving LSE
COGNIZANT FIELD ACTIVITY (CFA) (see Appendixes E, F, and G)	Cognizant aircraft, engines or aviation life support systems are involved
HQ AFSC KIRTLAND AFB NM//SEF// CDRUSASC FT RUCKER AL//PESC-Z// COMDT COGARD WASHINGTON DC//G-KSE//	Common aircraft/engine (see Appendix H) or any aircraft, personnel, or facilities (as appropriate) of that service is involved
COMAIRWARCENWPNDIV CHINA LAKE CA ALL AEROMEDICAL ACTIVITIES	Aeromedical matters or aviation life support/ systems are involved
COMNAVMETOCCOM STENNIS SPACE CENTER MS	Unusual weather is involved
NAVAIRWARCENTRASYSDIV ORLANDO FL	When simulator sicness is involved
NASA AMES MOFFETT FEDERAL AIRFIELD CA//ASRS//	All NMAC Hazard Reports
NORTHNAVFACENGCOM LESTER PA//1831//	All special (message) Bird/Animal Strike Hazard Reports
APPROPRIATE FAA NAVREP (select one) NAVREPEANE HANSCOM AFB MA NAVREPSO ATLANTA GA NAVREPSW FT WORTH TX NAVREPWP LOS ANGELES CA	NMAC occurred in FAA region
NAVTRANSSUPPCEN MECHANICSBURG PA COMNAVSUPSYSCOM WASHINGTON DC	Hazardous or improperly prepared or improperly shipped cargo

ADDRESSEES FOR HAZARD REPORTS WHEN CAD NOT ASSIGNED (CONT'D)

ACTION ADDRESSEES	WHEN
NAVSURFWARCENDIV INDIAN HEAD MD//5320//	CAD and AEPS devices of aircrew escape systems are involved
NAVICP PHILADELPHIA PA//052//	Aviation equipment involved
OTHER INFORMATION OR ACTION ADDRESSEES	Directed by controlling custodian or custodian considered appropriate by the originator

NOTE 1: Air Traffic Control Hazard Reports shall be sent only to CNO Washington DC, CMC Washington DC, COMNAVSAFECEN Norfolk VA, the respective Type Commander, local squadrons (as determined by the Commanding Officer) and appropriate Info Addees shown in appendix 4A. Other addees may also be included

at the discretion of the Commanding Officer. Include the appropriate NAVREP when an air traffic control hazard report involves a civilian aircraft.

CHAPTER FIVE

MISHAP DATA REPORTS

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501. GENERAL

This chapter describes the Mishap Data Report (MDR). It explains who submits the report and when, how, and why it is sent. You may submit MDRS by telephone or by message. While the telephone Mishap Data Report provides COMNAVSAFECEN with timeliest information about the mishap and starts action for NAVSAFECEN's possible participation in the investigation, a message Mishap Data Report gets the information to other interested commands. Amended message Mishap Data Reports enhance and correct information submitted in previous message Mishap Data Reports.

502. PURPOSE OF MISHAP DATA REPORTS (MDRS)

MDRs inform interested commands of a naval aviation mishap. They also present preliminary information, and describe mishap investigation progress. Reporting custodians may request help

with their investigations relief from investigative responsibilities, or extension of deadlines for SIRs. Do not use MDRs to submit hazard elimination information, such as causal factors, or corrective actions. Paragraph 404 tells how to submit this kind of safety information immediately following a mishap.

503. SUBMISSION CRITERIA

All Class A mishaps require a telephone MDR. All classes of mishaps require a Message MDR. Any naval command may submit an MDR.

504. ORIGINATOR

Submitting MDRs is the responsibility of the reporting custodian of the naval aircraft or UAV involved in a mishap. When commands assume responsibility for investigating and reporting of a mishap from the reporting custodian, the appointing authority of the AMB assumes responsibility for any further reporting. If aircraft of more than one reporting custodian are involved, the senior command does all the reporting. Commands must make every effort to immediately notify the reporting custodian so they can commence their mishap reporting responsibilities. However, if a reporting custodian will be unable to submit required MDRs within the deadlines, the first command which becomes aware of the mishap shall submit the reports or assure themselves the reports will be submitted. Any doubt? Submit the reports. Pre-mishap plans of commanders of Navy and Marine Corps air stations must include procedures for submitting telephone and initial message reports for reporting custodians who cannot be contacted right away following a mishap in the air station's area of cognizance.

505. DEADLINES

a. Initial Telephone Mishap Data Reports. Within 60 minutes of their occurrence, submit initial telephone MDRs on all Class A mishaps to COMNAVSAFECEN. Provide additional information in subsequent calls as it becomes available.

b. Initial Message Mishap Data Reports. Submit initial message MDRs within 4 hours of the mishap for Class A and B mishaps. Submit a first amended message MDR, if necessary, and all Class C initial reports, within 24 hours of the mishap.

c. Amended Message Mishap Data Reports. Submit additional amended MDRs as needed to update or correct data in the previous MDR. Amended MDRs help inform the endorsing chain of the progress of the investigation. Include only new or corrected information. Always repeat heading and summary paragraphs.

506. METHODS OF SUBMISSION

a. Mishap Data Reports. Submit MDRs by telephone and message.

b. Telephone Mishap Data Reports. Include this information in your telephone MDR to COMNAVSAFECEN:

- Reporting Custodian(s)
- Aircraft Type and Bureau Number
- Mishap Location
- Brief Narrative
- Damage
- Injuries and Fatalities
- Points of Contact

Call (DSN) 564-2929, or (collect) 757-444-2929 to report a mishap. For other calls to COMNAVSAFECEN, refer to appendix D.

507. DISTRIBUTION

Address MDRs as appendix 5A or 5B, at the end of this chapter, directs. Any naval command may readdress or redistribute MDRs. AMBs must remember that addressees of SIRs are different from addressees of MDRs.

508. NONPRIVILEGED STATUS

MDRs are not safety investigation reports; they are not limited-use reports, and must not contain any privileged information. They must contain neither the source of any information, nor any information from statements made to an AMB, nor any information discovered as a result of statements made to an AMB, nor any analysis, conclusions or recommendations of an AMB, nor any known, probable, or possible causal factors of a mishap.

509. FOR OFFICIAL USE ONLY

MDRs are FOUO. Reference (b) provides guidance.

510. SECURITY CLASSIFICATION

Normally, mishap MDRs and amended mishap MDRs are unclassified. Omit any portion of the report that warrants classification and substitute the word "classified" in its place. If no meaningful report can be submitted in this fashion, submit a classified report.

511. MESSAGE PRECEDENCE

Send MDRs required within 24 hours via priority message, and all others routine.

512. MINIMIZE

Mishap MDRs are exempt from the MINIMIZE restrictions found in ACP 121 (D) US SUPP (B-1) (NOTAL).

513. MISHAP SERIALIZATION

a. Assign mishap serial numbers sequentially through each fiscal year for each mishap severity class (Class A, B or C), regardless of category. Example: VP-99 has a Class C Flight Mishap in October 1993, it is their first Class C of the fiscal year. The serial number would be: "VP-99 CLASS C 01-94 FM." In February 1994 they have a Class C ground mishap. That mishap serial number would be: "VP-99 CLASS C 02-94 AGM."

b. When mishaps involve the aircraft or UAVs of more than one reporting custodian, temporarily assign the appropriate serial numbers of each of the reporting custodians involved. Example: In FY-93 an A-6 aircraft lands well to the right of the centerline on a carrier landing and hits two parked aircraft - one F-14 and one S-3. The A-6 received Class B damage, the F-14 received Class A damage and the S-3 received Class C damage. Report as: "VA-97 CLASS A 01-93 FM (their first Class A FM of the fiscal year), VF-98 CLASS A 03-93 FM (their third Class A FM of the fiscal year); and VS-99 CLASS A 02-93 FM (their second Class A FM of the fiscal year)." COMNAVSAFECEN or the controlling custodian will assign the final serial numbers after accountability for the mishap is determined through the endorsement process. In the example above, accountability for the mishap rests with VA-97 and the mishap serial number would be: "VA-97 CLASS A 01-93 FM." Although VF-98 and VS-99 are not accountable for the mishap, they cannot use their serial numbers again that year.

c. To change the severity or the category of a mishap, submit an amended MDR with the new classification and explain the change in paragraph 7. Example: HC-55 has their third Class C FRM of the fiscal year; HC-55 CLASS C FRM 03-98. The initial MDR states, "Estimate $180,000 DOD property damage and $7000 A/C damage." However, the P&E team calculates $21,000 A/C damage (now a FM). This revised calculation changes the total to $201,000 (now a Class B mishap, their first). An amended MDR would read, "XXX HC-55 Class B FM 01-98 XXX," and contain The AMB's explanation for the revision in paragraph 7.

514. MISHAP DATA REPORT FORMAT

Use this format to submit MDRs:

a. Addressees. See appendixes 5A or 5B at the end of this chapter.

b. Text. Include only the information shown in the format below. See paragraph 508 for constraints on the content of MDRs.

(1) Repeat all material double underlined verbatim in the text of the report.

(2) Use "NA" for any information required by the format which is obviously inappropriate (such as altitude for a ground mishap).

(3) Use "TBA, TBD, or UNK' for any information that is unavailable when the message is released.

(4) Use the term "ESTIMATED" when appropriate.

(5) Submit amended reports whenever new or corrected information become available. Include paragraph 1 as initially reported plus only those other paragraphs that have changed. Precede and follow all new or corrected material in the text by the symbol XXX.

(6) Always refer to Navy Tactical Publication (NTP) 3, Telecommunications Users Manual, for the latest message format. Exercise care and follow all US Message Text Format (USMTF) rules.

UNCLAS FOUO //N03750// THIS IS AN (initial, first amended, second amended) GENERAL USE NAVAL AVIATION MISHAP DATA REPORT (-

UAV for UAV mishaps only) (reporting custodian(s), mishap classification, mishap serial number(s), date of occurrence, model(s)/series aircraft or UAV, buno(s))/REPORT SYMBOL OPNAV 3750-20 (See Chapter 3 for mishap classification.)

MSGID/GENADMIN/originator/message serial number (not report serial number)/month//

SUBJ/AVIATION MDR/ //

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/DOC/JAGINST 5800.7C/-//
REF/C/(Other references as appropriate).//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS THE JAG MANUAL. REF C (list other references as appropriate)//

POC/(name of primary point of contact to answer inquiries about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/E-MAIL:(E-Mail address)//

RMKS//
1. SUMMARY. Succinctly summarize the content of the report, and provide a brief description of the mishap, such as: aircraft crashed into the water; gear up landing; midair collision; ran off runway on takeoff; settled into water after cat shot; etc. Do not disclose suspected cause factors.

2. DATA. List the following information:

A. REPORTING ACTIVITY. Provide the (1) short title, and (2) UIC of the reporting activity (use squadron or DET short title and UIC, do not use the ship's short title or UIC). If reporting activity is a detachment or composite squadron, provide (3) parent squadron, (4) parent squadron's UIC.

B. AIRCRAFT OR UAV. List all aircraft or UAVs involved in the mishap by (1) model/series (for example SH-60F), (2) bureau number, , (4) reporting custodian (this aircraft or UAV), (5) UIC (this aircraft or UAV), (6) Operational Flight Program (OFP) and software version (if applicable to this aircraft or UAV), (7) Flight Control System (FCS) and software version (if applicable to this aircraft or UAV), (8) engine type/model/series, (9) engine serial number. For DoD aircraft, state in item 10 which of the listed safety systems were installed in the aircraftusing the format "INSTALLED/OPERATIVE" to indicate whether each was installed and, if so, whether the

system was operative and available for use. Comments regarding system involvement in the mishap shall not be placed here but in SIR paragraphs 10, 11, and 12; and indicated as privileged. (10) GPWS (an Ground Proximity Warning Systems using altitude measuring devices and computer generated information to predict and warn of impending ground/water collision, CAS (collision avoidance warning systems - e.g., TCAS), PREDICTIVE MATERIAL FAILURE WARNING SYSTEM (any system installed to monitor the health of aircraft equipment and warn of impending failure prior to flight or in time to safely land), SURVIVABLE FLIGHT INFORMATION COLLECTION SYSTEM (data, voice, and video recorders that either deploy prior to impact, are hardened to survive impact, or provide continuos telemetry to a ground station), NAVIGATION SYSTEM INTEGRATED GPS (systems where GPS is integrated with the aircraft's navigation computer). If the involved aircraft is in a composite squadron, including the following (11) parent squadron/reporting custodian, (12) UIC of parent squadron/reporting custodian.

C. INVOLVED EQUIPMENT. Name of aircraft or UAV parts and other equipment (not aircraft or UAV parts) involved in the mishap: (1) model, (2) make, (3) part number, (4) equipment code (as applicable), (5) configuration (DCBs or ASCs installed, version, etc), (6) workunit code, (7) any other remarks needed for clarity.

D. ENVIRONMENT. List

(1) DATE: Date

(2) TIME: Local time

(3) ZONE: Local time zone

(4) CONDN: Day or night

(5) LOCN: Describe the location geographically. Use geographic area, body of water, nearest city, town, or a significant landmark. (Examples: San Diego, CA; Eastern Med.) If the location is aboard a ship, give the geographic location of the vessel here; not the identity of the ship.

(A) LATD: Latitude in 6 digit format, DDMMSS, followed by a space and "N" or "S." Fill left-most "DD" digits with zeros when appropriate and fill right most positions with X's where the precision of the figure does not extend the full six digits. Acceptable examples: 091212 N, 0912XX N, 451522 S.

(B) LONG: Longitude in 7 digit format, degrees, minutes, seconds (DDDMMSS), followed by a space and "E" (east) or "W" (west). When either minutes or seconds cannot be determined, then use “X” not “0,” i.e., 085XXXX W. Acceptable examples: 1122310 W, 08523XX E.

(C) STATE: State, province, or political subdivision (Kansas, Manitoba, or Fukuoka Prefecture) where mishap is located.

(D) COUNTRY: Self-explanatory

(E) FACILITY: Where the facility is a ship, include name, followed by a slash and class - hull number. (Example: USS KENNEDY/CV-67, NAS OCEANA VA.) If mishap did not occur in vicinity of an identifiable facility, state "NA."

(F) NAVAID: Identifier of nearest named airfield, air navigation facility (NAVAID), or ship. Use ICAO identifier where applicable.

(G) BRG: Magnetic bearing/radial from NAVAID above

(H) DIST: Distance in NM from NAVAID above

(I) AIRSPACE: Type of airspace (if airspace is a designated or numbered, Warning, Alert, a military operating area, or the like, include the number designation). If mishap occurred with intent for flight (as defined in paragraph 306) before the aircraft left the ground, state type of airspace immediately overhead. If the mishap occurred on the ground without intent for flight, state "ON DECK."

(J) MISHAP SITE ELEVATION: Terrain elevation above mean sea level in feet; depth of water if submerged.

(K) MISHAP/EMERGENCY ALTITUDE: MSL/AGL. Provide altitudes as appropriate for the mishap location, of other than at the surface, or for the location at the time of onset of the emergency precipitating the mishap.

(6) WX AS BRIEFED: Provide data regarding forecast weather and brief utilization for the time and location of the mishap. Provide either surface or aloft data as deemed most

appropriate to the mishap location. Note that the value "Not Applicable", where provided as a selection, is primarily intended for use in reporting hazardous events/conditions not involving flight or flight planning/preparation for which environmental conditions were not pertinent.

(A) BRIEFED BY: Select one from the following: FORECASTER; BRIEFER; PILOT; OTHER: (Describe); UNKNOWN; NOT APPLICABLE.

(B) BRIEFING UTILIZATION: Select one from the following: USED; NOT USED; NOT AVAILABLE; UNKNOWN; NOT APPLICABLE.

(C) AIR TEMP: Provide the forecast ambient air temperature in degrees Fahrenheit.

(D) RELATIVE HUMIDITY: State the forecast percentage of relative humidity.

(E) DEWPOINT: Provide the forecast dewpoint in degrees Fahrenheit.

(F) WATER TEMP: Provide the forecast or briefed water/sea surface temperature in degrees Fahrenheit, or state "NA".

(G) WIND DIRECTION: Provide the forecast wind direction in degrees; if light and variable, state "0".

(H) WIND VELOCITY: Provide the forecast wind velocity in knots; if light and variable, state "0".

(I) WIND GUSTS: Provide the forecast velocity of wind gusts or "NONE FORECAST", as appropriate.

(J) CEILING: Provide, in hundreds of feet, the forecast altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none is forecast state "NONE FORECAST".

(K) SKY CONDITION: Describe, in weather sequence format, the forecast altitude and type of all cloud layers.

(L) HORIZON: Describe the forecast horizon conditions by selecting one from the following: VISIBLE; OBSCURED; PARTIALLY OBSCURED; UNKNOWN; NOT APPLICABLE.

(M) VISIBILITY: State the forecast visibility in statute miles. If CAVU or unrestricted, state "99".

(N) OBSTRUCTIONS TO VISION: Describe all forecast/briefed obstructions by selecting from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify).

(O) ALTIMETER SETTING: Provide the forecast altimeter setting in inches of mercury for either the time and location of the mishap or for the location of the nearest official weather facility.

(P) ICING: Provide any forecast icing conditions or state "NONE FORECAST".

(Q) PRECIPITATION: Provide all forecast/briefed precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify).

(R) EXTREME WX: Provide any forecast/briefed extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(S) BRIEFING ACCURACY: Indicate whether the actual weather varied substantially from the forecast conditions by selecting one from the following: SUBSTANTIALLY CORRECT; CONSIDERABLY BETTER THAN FORECAST; CONSIDERABLY WORSE THAN FORECAST; UNKNOWN; NOT APPLICABLE.

(7) WX - PREVAILING. Provide data defining the actual prevailing weather conditions at the time and location of the mishap. Provide either surface or aloft data as deemed most appropriate to the mishap's location. Note that the value "Not Applicable", where provided as a selection, is intended for use in reporting mishaps not involving flight or flight planning/preparation and for which environmental conditions were not pertinent. E.g., during aircraft wash person falls and receives permanent partial disability. Weather and flight planning were not applicable. For Initial reports, use "TBD" if a current observation is not yet available.

(A) AIR TEMP: Provide the prevailing ambient air temperature in degrees Fahrenheit.

(B) RELATIVE HUMIDITY: State the percentage of relative humidity.

(C) DEWPOINT: Provide the prevailing dewpoint in degrees Fahrenheit.

(D) WATER TEMP: Provide the water/sea surface temperature in degrees Fahrenheit, or state "NA".

(E) WIND DIRECTION: Provide the prevailing wind direction in degrees; if light and variable, state "0".

(F) WIND VELOCITY: Provide the prevailing wind velocity in knots; if light and variable state "0".

(G) WIND GUSTS: Provide the prevailing velocity of wind gusts or "NONEPRESENT", as appropriate.

(H) CEILING: Provide, in hundreds of feet, the altitude AGL of the lower boundary of the first cloud layer classified as either broken or overcast. If none exists, state "NONE PRESENT".

(I) SKY CONDITION: Describe, in weather sequence format (hundreds of feet), the altitude and type of all cloud layers. E.g. 80 SCT 120 BKN.

(J) HORIZON: Select one from the following: VISIBLE; PARTIALLY OBSCURED; OBSCURED; UNKNOWN; NOT APPLICABLE.

(K) VISIBILITY: Provide the prevailing visibility in statute miles. If CAVU or unrestricted, state "99".

(L) OBSTRUCTIONS TO VISION: Select from the following all that apply: DUST; FOG; ICE FOG; GROUND FOG; HAZE; SMOKE; PRECIPITATION; BLOWING DUST; BLOWING SAND; BLOWING SPRAY; BLOWING SNOW; CLOUDS; OTHER: (specify). If NONE, so state.

(M) ALTIMETER SETTING: Provide the barometric pressure in inches of mercury for either the time and location of the mishap or for the location of the nearest official weather facility.

(N) ICING: Provide any icing conditions present or state "NONE PRESENT".

(O) PRECIPITATION: Describe the prevailing precipitation conditions by selecting from the following all that apply: DRIZZLE; LIGHT RAIN; HEAVY RAIN; HAIL; SLEET; LIGHT SNOW; HEAVY SNOW; FREEZING RAIN; FREEZING DRIZZLE; OTHER: (specify). If NONE, so state.

(P) EXTREME WX: Describe any existing extreme weather conditions by selecting from the following all that apply: TURBULENCE (IMC); CLEAR AIR TURBULENCE; GUSTY WINDS; TORNADO/WATERSPOUT; WIND SHEAR; HURRICANE/TYPHOON; THUNDERSTORM; SEVERE THUNDERSTORM; LIGHTNING; OTHER: (specify).

(Q) RUNWAY CONDITION: Describe the takeoff/landing surface condition by selecting from the following all that apply: DRY; NOT applicable (implies mishap not in runway environment); WET; SLUSH; LOOSE SNOW; PACKED SNOW; ICE; PATCHY; SANDED; OILY; UNPREPARED; OTHER: (specify); UNKNOWN.

(R) METEOROLOGICAL COMMENTS: Briefly describe any additional environmental/meteorological information deemed pertinent to the mishap.

E. SAFETY PROGRAMS. Provide the following dates for the squadron assigned primary reporting responsibility: (1) Commanding Officer attended Aviation Command Safety Course, (2) Aviation Safety Officer (ASO) attended Aviation Safety Officers Course, and (3) last NAVSAFECEN safety survey. If the CO or ASO have not attended either course, insert HAS NOT ATTENDED.

3. CIRCUMSTANCES. List the following information, as applicable:

A. ORIGIN. Provide the name of the departure ship or airfield. If takeoff location was neither a ship nor an airfield, provide latitude and longitude to the nearest minute.

B. MISSION. State aircraft or UAV mission in plain language.

C. TOTAL MISSION REQUIREMENT CODE. Use codes listed in OPNAVINST 3710.7R. USMC also use T & R Codes.

D. TYPE OF FLIGHT PLAN. State VFR, IFR, DVFR, etc., and (if known) if the pilot was or was not in instrument meteorological conditions at the time of mishap.

E. DESTINATION. List next intended point of landing in the same manner as 3A above.

F. AIRCRAFT OR UAV EVOLUTION. Describe that activity in which the aircraft was involved, i.e., catapult launch, climb, cruise, 30-degree dive, flight deck respot, maintenance, etc.

4. MISHAP CLASSIFICATION. State that information upon which mishap classification is based. See paragraphs 312 and 313.

5. DAMAGE AND COSTS. Itemize the aircraft or UAV, equipment, property damage, and costs as follows.

A. AIRCRAFT OR UAV. If an aircraft or UAV was destroyed, so state. If not, describe all aircraft or UAV damage and list cost. Itemize costs, including hours to repair (refer to chapter 3). If more than one aircraft or UAV was damaged, list model, bureau number, hours to repair, and cost each separately.

B. DOD PROPERTY DAMAGE. Per major item, describe all DOD property damage and list cost. Describe property damage, and itemize costs, including hours to repair (refer to chapter 3).

C. NON-DOD PROPERTY DAMAGE. Describe all non-DOD property damage and itemize cost (refer to chapter 3).

6. PERSONNEL INFORMATION, INJURIES, AND COSTS. Provide all information below whether or not injuries are involved.

A. SOULS ON BOARD. List total for each aircraft involved.

B. CREW. State the total number of crewmembers aboard each mishap aircraft or UAV. Then, for each crewmember (UAVs include EP - external pilot, IP - internal pilot and PO - payload operator) list the crew duty assigned (e.g., HAC, copilot, flight engineer, etc.). Designate who was at the controls at the time of the mishap, rank/rate, (do not list names or social security numbers in messages), NEC/designator/MOS, service, parent organization, duty status (refer to chapter 3), injury classification (refer to chapter 3), describe the most significant injuries, days hospitalized and additional days away from work, describe the body part injury and diagnosis, give International Classification of

Disease (ICD) code, X-Ray results and pre-existing diseases/defects that contributed to the mishap. State whether male or female. State if NVDs were being used. For the pilot, copilot and NFOs, state total flight hours, hours in model, and flight hours last 30, 60 and 90 days.

C. TOTAL NUMBER OF PASSENGERS. List total number of passengers in each mishap aircraft.

(1) INJURED PASSENGERS. State the total number of injured passengers: give rank/rate, NEC/designator/MOS, service, specify DOD or non-DOD (refer to chapter 3), parent organization, duty status, injury, describe the most significant injuries, days hospitalized and additional days away from work.

(2) UNINJURED PASSENGERS. Enter the total number of uninjured passengers in each mishap aircraft.

D. INJURED NONOCCUPANTS. Enter the total number of injured nonoccupants, then list all injured nonoccupants. State the NEC/designator/MOS, service, specify if DOD or non-DOD, duty status, civilian or military, injury, describe the most significant injuries, days hospitalized, and additional days away from work.

E. AEROMEDICAL ANALYSIS (will or will not) BE SENT. If not, state why. See paragraph 716d(3).

7. MISHAP INVESTIGATION. Include the following, if applicable:

- Requests for assistance. State the nature of help needed, when and where, and the source of the aid, if known. When requesting assistance from the controlling custodian or from an activity external to that command, begin the request with the phrase FOR (controlling custodian). Requests for help from activities subordinate to the controlling custodian should be similarly addressed. Be sure the activity from whom you are requesting aid is an action addressee on the message. See chapter 6 for information on requesting assistance.
- Requests for relief from investigative and reporting responsibilities. See chapter 6 (paragraph 605) for information on requesting relief from investigative and reporting responsibilities.
- Requests for extensions of SIR deadlines. See chapter 7 (paragraph 706) for information on requesting extensions of SIR deadlines.
- Requests for salvage of submerged wreckage. See paragraph 609c.

- Location of wreckage, if different from mishap location.
- Information on progress of the mishap investigation. See paragraph 508.
- FAA notification required/date/time notified . See OPNAVINST 3750.16B.
- Flight Data Recorder: recovered/activity where sent/date/which traceable means used. See subparagraph 716c(7).
- PLAT Tape obtained /activity where sent/date/which traceable means used. See paragraph 717.
- Tower Tapes or recordings of air control transmissions obtained/date.
- Status of all previously requested EIs.
- Justification for upgrading, downgrading or category changes. See paragraph 513.

8. JAG MANUAL INVESTIGATION. Always include the phrase: THIS MISHAP (DOES/DOES NOT) MEET THE REQUIREMENTS IN REF B FOR A JAG MANUAL INVESTIGATION. If appropriate, include the phrase: INVESTIGATION BEGUN, DATE, BY (convening authority).

9. AVIATION MISHAP BOARD. List the rank, name, and command of all the AMB members regardless of their degree of participation in the mishap investigation. Indicate: (SENIOR MEMBER). List DSN, commercial, cell phone and fax numbers for the senior member or the member designated as point of contact to answer telephone inquiries in the POC line above the RMKS line. If embarked, so state and provide an INMARSAT phone number.

- AIRCRAFT OPERATIONS:
- AIRCRAFT MAINTENANCE:
- AVIATION SAFETY:
- FLIGHT SURGEON:

. . . . . etc. . . . . .

515. COMBAT ZONE REPORTS. All aircraft and UAV mishaps are reportable. In combat, we must report system and component failures which result in aviation mishaps promptly before problems become detrimental to combat readiness. It's equally important that we document combat losses, caused by direct enemy action. Over the years NAVSAFECEN records have been a valuable source of information in the search for and the identification of comrades missing in action. These records also provide valuable data for research into the design of new combat aircraft. While much information is collected for many purposes at the time of action, experience shows that NAVSAFECEN records are the ones that endure. Details, such as extent of damage, systems lost, and the last known altitude and heading of the aircraft play an important role in future attempts to

reconstruct and understand the loss. The definition of "combat zone" for reporting under this instruction is any area designated by the CNO or CMC where extended hostilities occur. There is a Combat Zone Reporting Decision Tree in appendix 5C.

a. Classify mishaps in a combat zone as either "direct enemy action," "operational" or "unintentional damage to friendly forces."

(1) Direct Enemy Action (DEA). Mishaps in which the reporting custodian perceives one of the following conditions exist. (See appendix 5C).

(a) Damage or loss of aircraft, or injury on the ground, or in the air, by enemy action, fire, or sabotage.

(b) Damage or loss of aircraft, or injury due to evasive action taken to avoid enemy fire.

(c) Aircraft fails to return from a combat mission and there is no evidence that an operational mishap occurred.

(d) DEA mishaps may occur outside an officially designated combat zone.

(2) Operational Mishaps. All other mishaps not classified as DEA or unintentional damage to friendly forces which occur in the combat zone.

(3) Unintentional Damage to Friendly Forces. Friendly fire, blue on blue, harm to friendly forces are terms used to describe a circumstance in which members of a U.S. or friendly military force are mistakenly killed, or wounded, or equipment damaged by U.S. or allied forces actively engaged with an enemy, or a presumed enemy. Do not investigate these incidents under this instruction.

b. Requirements. The reporting requirements of this paragraph are the minimum required. When appropriate, reporting custodians may employ a full AMB and submit more detailed information. The following reports do not replace reports required by NWP 3-56 (NOTAL):

(1) DEA mishaps require only the standard initial or amended message data report format. To distinguish DEA mishaps from operational mishaps, include the letters "DEA" in the

subject line of the message. Omit names of pilots, crewmen and passengers on the initial message report. Include them in the amended message report after notification of the next of kin. Prepare an Aeromedical Analysis if conditions of subparagraph 716d(3) exist. Include an extended narrative describing the circumstances of the mishap in paragraph 10 of the amended message. See appendix I for an example of a DEA MDR. DEA MDR format follows:

(2) Repeat, verbatim, all double underlined material in the formats below in the text of the report.

UNCLAS FOUO //N03750// THIS IS AN initial, first amended, second amended) GENERAL USE NAVAL AVIATION DEA MISHAP DATA REPORT (-UAV for UAV mishaps only) (reporting custodian(s), mishap classification, mishap serial number(s), date of occurrence, model(s)/series aircraft or UAV, buno(s))/REPORT SYMBOL OPNAV 3750-21 (See Chapter 3 for mishap classification.)

MSGID/GENADMIN/originator/message serial number (not report serial number)/month//

SUBJ/AVIATION MDR //

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/DOC/JAGINST 5800.7C/-//
REF/C/(Other references as appropriate)//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS THE JAG MANUAL. REF C (list other references as appropriate)

POC/(name of primary point of contact to answer inquiries about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/E-MAIL:(E-Mail)//

RMKS//
1. SUMMARY. In two lines or less, succinctly summarize the report content, and provide a terse description of the mishap, such as aircraft shot down by ground fire; aircraft did not return from interdiction mission, etc.

2. DATA. List the following information:

A. REPORTING ACTIVITY. Provide the (1) short title, and (2) UIC of the reporting activity (use squadron or DET short title and UIC, do NOT use ship short title or UIC. If reporting

activity is a detachment or composite squadron, provide (3) parent squadron, (4) UIC of parent squadron).

B. AIRCRAFT OR UAV. List all aircraft or UAVs involved in the DEA by (1) model/series (e.g., SH-60F), (2) bureau number, (4) reporting custodian (this aircraft or UAV), (5) UIC (this aircraft or UAV).

C. INVOLVED EQUIPMENT. Nomenclature of aircraft or UAV parts and other equipment (not aircraft or UAV parts) involved in the mishap: (1) model, (2) make, (3) part number, (4) equipment code (as applicable), (5) configuration (DCBs or ASCs installed, version, etc.), (6) workunit code, (7) any other remarks needed for clarity.

D. ENVIRONMENT. For the mishap, list as follows (1) date, (2) local time, (3) local time zone, (4) day or night, (5) mishap location. Report latitude and longitude to the nearest minute, except mishaps occurring within 5 NM of an airfield. For those mishaps, report latitude/longitude to the nearest second. For all mishaps report the country, and geographic area and nearest city, town, or significant landmark, as appropriate. If the mishap occurred aboard a ship or airfield, give the name of the ship or airfield and location on the ship or airfield. If the mishap did not occur aboard a ship or airfield, give magnetic bearing and distance from the nearest named airfield, air navigation facility (NAVAID), or town, or give the magnetic bearing and distance from departure ship or scheduled recovery ship, (6) altitude of the mishap above mean sea level, (7) weather at the location at time of the mishap, including flight deck or runway wind. If surface weather, list in sequence report format. If airborne, give in-flight visibility and all of the following which apply: distinct or obscured horizon, overcast, undercast, between layers, clear of clouds, in clouds, in-and-out of clouds.

3. CIRCUMSTANCES. List the following information, as applicable:

A. ORIGIN. Provide the name of the departure ship or airfield. If takeoff location was neither a ship nor an airfield, provide latitude and longitude to the nearest minute.

B. MISSION. State aircraft or UAV mission in plain language.

C. TOTAL MISSION REQUIREMENT CODE. Use codes listed in OPNAVINST 3710.7N. USMC also use T & R Codes.

D. TYPE OF FLIGHT PLAN. State VFR, IFR, DVFR, etc., and (if known) if the pilot was or was not in instrument meteorological conditions at the time of mishap.

E. DESTINATION. List next intended point of landing in the same manner as 3A above.

F. AIRCRAFT OR UAV EVOLUTION. Describe that activity in which the aircraft was involved, i.e., cruise, 30-degree dive, ingress, egress, etc.

4. MISHAP CLASSIFICATION. State that information upon which mishap classification is based. See paragraphs 312 and 313.

5. DAMAGE AND COSTS. Itemize the aircraft or UAV, equipment, property damage, and costs as follows.

A. AIRCRAFT OR UAV. If an aircraft or UAV was destroyed, so state. If not, describe all aircraft or UAV damage and list cost. Itemize costs, including hours to repair (refer to chapter 3). If more than one aircraft or UAV was damaged, list model, bureau number, hours to repair, and cost each separately.

B. DOD PROPERTY DAMAGE. Per major item, describe all DOD property damage and list cost. Describe property damage, and itemize costs, including hours to repair (refer to chapter 3).

C. NON-DOD PROPERTY DAMAGE. Describe all non-DOD property damage and itemize cost (refer to chapter 3).

6. PERSONNEL INFORMATION, INJURIES, AND COSTS. Provide all information below whether or not injuries are involved.

A. SOULS ON BOARD. List total for each aircraft involved.

B. CREW. State the total number of crewmembers aboard each mishap aircraft or UAV. Then, for each crewmember (UAVs include EP - external pilot, IP - internal pilot and PO - payload operator) list the crew duty assigned (e.g., HAC, copilot, flight engineer, etc.). Designate who was at the controls at the time of the mishap, rank/rate, (list name(s) or social security number(s) in messages, if next of kin have been notified), NEC/designator/MOS, service, parent organization, duty status (refer to chapter 3), injury classification (refer

to chapter 3), describe the most significant injuries, days hospitalized and additional days away from work. State if NVDs were being used. For the pilot, copilot and NFOs, state total flight hours, hours in model, and flight hours last 30, 60 and 90 days.

C. TOTAL NUMBER OF PASSENGERS. List total number of passengers in each mishap aircraft.

(1) INJURED PASSENGERS. State the total number of injured passengers: give rank/rate, NEC/designator/MOS, service, specify DOD or non-DOD (refer to chapter 3), parent organization, duty status, injury, describe the most significant injuries, days hospitalized and additional days away from work.

(2) UNINJURED PASSENGERS. Enter the total number of uninjured passengers in each mishap aircraft.

D. INJURED BYSTANDERS. Enter the total number of injured bystanders, then list them: give NEC/designator/MOS, service, specify if DOD or non-DOD, duty status, civilian or military, injury, describe the most significant injuries, days hospitalized, and additional days away from work.

E. AEROMEDICAL ANALYSIS (will or will not) BE SENT. State whether an aeromedical analysis will be sent, and if not, tell why. (See paragraph 716d(3))

7. MISHAP INVESTIGATION. Include the following, if applicable:

- Requests for assistance. State what help you need, when and where it is needed, and the source of that assistance, if known. When asking for help from the controlling custodian or from an activity external to that command, preface the request with the phrase FOR (controlling custodian). Preface requests for assistance from activities subordinate to the controlling custodian in a similar fashion and ensure that the activity is an action addressee on the message. See chapter 6 for information on requesting assistance.
- Requests for relief from investigative and reporting responsibilities: Give detailed justification. Preface the request with the phrase FOR (controlling custodian). See chapter 6 for information on requesting relief from investigative and reporting responsibilities.
- Requests for extension of SIR deadlines. Preface the request with the phrase FOR (controlling custodian). See chapter 7 for information on requesting extension of SIR deadlines.

- Requests for salvage of submerged wreckage. See paragraph 609c.
- Location of aircraft wreckage, if different from mishap location.
- Information on progress of the mishap investigation. See paragraph 508.
- Flight Data Recorder recovered/activity where forwarded/date/which traceable means used. See subparagraph 716c(7).
- PLAT Tape obtained/activity where forwarded/date/which traceable means used. See paragraph 717.
- Tower Tapes or recordings of air control transmissions obtained/date.
- Justification for upgrading, downgrading or category changes. See paragraph 513.

8. JAG MANUAL INVESTIGATION. Always include the phrase: THIS MISHAP (DOES/DOES NOT) MEET THE REQUIREMENTS IN REF B FOR A JAG MANUAL INVESTIGATION. If appropriate, include the phrase: INVESTIGATION INITIATED DATE, BY (convening authority).

9. AVIATION MISHAP BOARD. List the rank, name, and command of the members of the AMB. List the membership as it was appointed in compliance with subparagraph 206b or, if appropriate, list the membership as changed to comply with subparagraph 206c. List all members, regardless of the degree of their participation in the mishap investigation. Enter (SENIOR MEMBER) following that officer's name. List the individual designated to answer telephone inquiries, DSN and commercial telephone numbers in the POC/ line above the RMKS/ line. If embarked, so state. Listing a FAX, INMARSAT, or Cell Phone numbers, will facilitate contact with the board.

- SENIOR MEMBER:
- FLIGHT SURGEON:
- OTHERS: (if assigned).

10. NARRATIVE. Write an extended narrative describing the circumstances.

To reduce message traffic in a CNO-designated combat zone reporting custodians may submit a summary of Class B and C aviation mishaps resulting from DEA on a weekly basis. Summary reports are to be submitted as follows.

UNCLAS FOUO //N03750// reporting custodian, (e.g., VF-99) DEA SUMMARY OF CLASS B AND C AVIATION MISHAPS, period of report, (e.g., 010000L - 080000L, month, year)/THIS IS A GENERAL USE

NAVAL AVIATION DEA MISHAP DATA REPORT (-UAV for UAV mishaps only)

MSGID/GENADMIN/originator/message serial number/month//

SUBJ/AVIATION DEA/ REPORT SYMBOL OPNAV 3750-22//

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/Other references as appropriate//

NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS (list other references as appropriate//

POC/name of primary point of contact/(rank)/(code)/(location)/TEL:(phone number or "deployed")/TEL:(phone number)//

RMKS//
1. THIS REPORT CONTAINS A SUMMARY OF CLASS B AND C DEA AVIATION MISHAPS FOR THE PERIOD enter period of report. ENDORSEMENT NOT REQUIRED.

2. MISHAP DATA: A. date of mishap, B. mishap serial number, C. model aircraft and bureau number, D. location, E. phase of flight, F. speed, G. altitude, H. damage code and description of mishap and damage, I. name(s) of injured person(s), branch of service (indicate if DNA), J. diagnosis and cause (how and when incurred) of all injuries, K. weather at scene; L. miscellaneous or other pertinent information, M. mishap narrative.

3. Report second and subsequent mishaps in above format.

Note

Enter every item number followed by the data or, if appropriate, "unknown."

(3) In investigating and reporting operational mishaps in a combat zone proceed as follows:

(a) AMB may consist of one investigating officer (Naval Aviator or Naval Flight Officer) and one flight surgeon. The investigating officer must be senior to the pilot and mission commander involved in the mishap.

(b) Report aviation mishaps in an initial and an amended MDR and submit a modified SIR package which includes the SIR message plus appropriate forms, including aeromedical analysis section if conditions of paragraph 716d(3) exist.

(c) Time Limits. Time limits for combat zone aircraft Class A MDR messages (both DEA and operational) are: initial message within 12 hours; amended message within 24 hours. Send all other aviation MDR messages within 7 days of the mishap. Send operational SIRs not later than 30 days after the mishap.

(d) Classification. Send all reports unclassified unless, for reasons of clarity, a classified report is necessary. Classify only the lines containing the classified information. Mark them clearly and avoid unnecessarily classifying an entire paragraph or page. See appendix I for guidance on classification and declassification.

(e) Distribution. Address combat zone DEA MDR messages to COMNAVSAFECEN, info to CNO, CMC, COMNAVAIRSYSCOM, and the controlling custodian. Commanders may direct their reporting custodians to include other commands as info addressees. There will be no endorsements to DEA reports. Combat zone operational SIRs will receive the same distribution as shown in appendix 7A-1 or 7B-1.

(4) If DEA occurs where no official combat zone exists, send the initial MDR message within 12 hours; amended reports in 24. No SIR is required.

(a) DEA AMBs may consist of one investigating officer (designated Naval Aviator or Naval Flight Officer) and one flight surgeon.

(b) No SIR forms are required.

APPENDIX 5A

ADDRESSEES FOR MISHAP DATA REPORTS WHEN CAD ASSIGNED

ACTION ADDRESSEES	WHEN
CNO WASHINGTON DC//N78F// CMC WASHINGTON DC//A/SD// COMNAVSAFECEN NORFOLK VA//00/10/11/FILE// COLLECTIVE ADDRESS DESIGNATOR (CAD) OTHER COMMANDS IN ENDORSING CHAIN OF COMMAND TO FIRST FLAG LEVEL (if not contained in CAD)	Always

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ADDRESSEES (Info or action as appropriate)	
CINCLANTFLT, CINCPACFLT, OR CINCUSNAVEUR	Wide public interest expected (as appropriate)
COMMANDING OFFICER OF NAVAL OR MARINE	That command's personnel, equipment or CORPS AIRFIELD, SHIP, OR FACILITY facilities involved
COMMAND OF AIRCREW INVOLVED	If command is not the reporting custodian of the aircraft involved
LSO SCHOOL NAS OCEANA VA	All carrier landing mishaps
HELSUPPRON EIGHT	Helicopter shipboard HELSUPPRON THREE mishap involving LSE (LSE schools)
ARMED FORCES INSTITUTE OF PATHOLOGY WASHINGTON DC//CME-0//	Fatality involved.
HELANTISUBRON ONE//60//	Mishap involves a SAR effort
COMNAVAIRWARCENWPNDIV CHINA LAKE CA //JJJ// or NAVAIRWARCENACDIV PATUXENT RIVER MD ALL AEROMEDICAL ACTIVITIES (CAD)	Aeromedical matters or aviation life support systems involved.

ADDRESSEES FOR MISHAP DATA REPORTS WHEN CAD ASSIGNED (CONTINUED)

HQ AFSC KIRTLAND AFB NM//SEF//	Common aircraft/engine (See CDRUSASC FT RUCKER AL//PESC-Z// appendix H) or any aircraft, COMDT COGARD WASHINGTON DC//G-KSE// personnel, or facilities of (as appropriate) that service involved
NAVY JAG WASHINGTON DC	Non-DOD aircraft, personnel, property are involved
NAVSURFWARCENDIV INDIAN HEAD MD//5320//	CAD and AEPS devices of aircrew escape systems are involved
OTHER INFORMATION OR ACTION ADDRESSEES	Directed by controlling custodian or considered appropriate by originator

Note 1: When no aircraft CAD is assigned (see appendix K) use appendix 5B.

Note 2: NAVY JAG to receive MDR only; DO NOT SEND SIR to NAVY JAG.

APPENDIX 5B

ADDRESSEES FOR MISHAP DATA REPORTS WHEN CAD NOT ASSIGNED

ACTION ADDRESSEES	WHEN
CNO WASHINGTON DC//N78F// CMC WASHINGTON DC//-A/SD// COMNAVSAFECEN NORFOLK VA//00/10/11/054// ENDORSING CHAIN CHAIN OF COMMAND TO FIRST FLAG LEVEL	Always
REPORTING CUSTODIAN	If reporting custodian is not the originator of the report
PARENT COMMAND	A detachment is reporting custodian

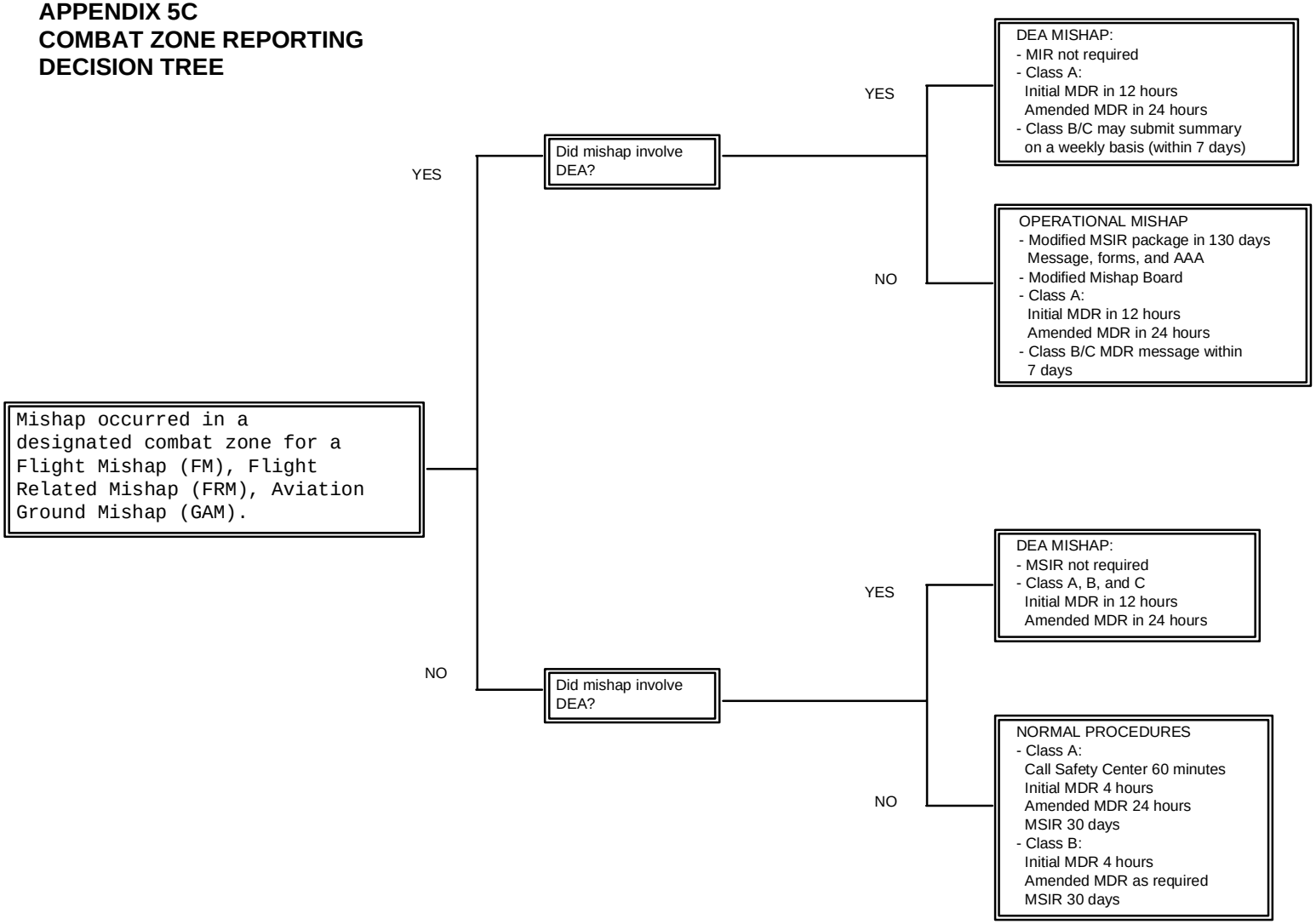
INFORMATION ADDRESSEES (or action addressees are assigned action)	
COMNAVAIRSYSCOM PATUXENT RIVER MD//AIR 0.5F// COMNAVSEASYSCOM WASHINGTON DC COMNAVAIRLANT NORFOLK VA COMNAVAIRPAC SAN DIEGO CA COMMARFORLANT//ALD// COMMARFORPAC//SAFETY// CG FOURTH MAW COMNAVAIRESFOR NEW ORLEANS LA CNATRA CORPUS CHRISTI TX BUMED WASHINGTON DC NAVOPMEDINST PENSACOLA FL NAVPGSCOL MONTEREY CA//10// NAVSTKWARCEN FALLON NV COMNAVAIRWARCENACDIV PATUXENT RIVER MD NAVAIRWARCENACDIV LAKEHURST NJ	Always
ALL AEROMEDICAL ACTIVITIES (CAD)	MDR messages only
CINCLANTFLT, CINCPACFLT, OR	If wide public interest CINCUSNAVEUR (as appropriate) expected
COMMANDING OFFICER OF NAVAL OR MARINE	Personnel, equipment or CORPS AIRFIELD, SHIP, OR FACILIT facilities of that command involved
NAVY JAG WASHINGTON DC	Non-DOD aircraft, personnel, or property are involved
COMMAND OF AIRCREW INVOLVED	If that command is not the reporting custodian of the aircraft involved

ADDRESSEES FOR MISHAP DATA REPORTS WHEN CAD NOT ASSIGNED (CONTINUED)

LSO SCHOOL NAS OCEANA VA	Carrier landing mishap involved
HELSUPPRON EIGHT HELSUPPRON THREE (LSE schools)	Helicopter shipboard mishap involving LSE
COGNIZANT FIELD ACTIVITY (CFA) (See appendixes E, F, and G)	Cognizant aircraft, engines or aviation life support systems involved
ARMED FORCES INSTITUTE OF PATHOLOGY WASHINGTON DC//CME-0//	A fatality involved
HQ AFSC KIRTLAND AFB NM//SEF// CDRUSASC FT RUCKER AL//PESC-Z// COMDT COGARD WASHINGTON DC//G-KSE//	Common aircraft/engine (See appendix H) or any aircraft, personnel or facilities of that service involved
COMNAVAIRWARCENWPNDIV CHINA LAKE CA//JJJ//	Aeromedical matters or or aviation NAVAIRWARCENACDIV PATUXENT RIVER MD//JJJ// life support systems involved
ALL AEROMEDICAL ACTIVITIES	
NAVSURFWARCENDIV INDIAN HEAD MD//5320//	CAD and AEPS devices of aircrew escape systems involved
HELANTISUBRON ONE//60//	Mishap involves a SAR effort
OTHER INFORMATION OR ACTION ADDRESSEES	As directed by controlling custodian or considered appropriate by the originator

Note: NAVY JAG to receive MDR only; DO NOT SEND SIR to NAVY JAG.

APPENDIX 5C
COMBAT ZONE REPORTING DECISION TREE



COMBAT ZONE REPORTS

I. DIRECT ENEMY ACTION: WHENEVER REPORTING CUSTODIAN PERCEIVES:

A. ENEMY ACTION, FIRE, SABOTAGE

B. EVASIVE ACTION TO AVOID ENEMY FIRE

C. FAILS TO RTB, NO EVIDENCE OF OPERATIONAL MISHAP.

NOTE: MAY OCCUR WITHOUT A COMBAT ZONE OFFICIALLY DESIGNATED

II. OPERATIONAL MISHAP: ALL OTHERS MISHAPS THAT OCCUR IN THAT ZONE

COMBAT ZONE REPORTS

I. Direct Enemy Action (DEA)

A. <u>Class A Mishap</u> (Designated Combat Zone or Not)

<u>Class B or C Mishap</u> (No Officially Designated Combat Zone)

--Initial Mishap Report: 12 hours

--Amended Mishap Report: 24 hours

--Mishap Investigation Report: Not Required

B. <u>Class B/C Mishap</u> (Officially Designated Combat Zone)

--Initial Mishap Report: Not Required

--Amended Mishap Report: Not Required

--Class B/C Summary Report: 7 Calendar Days

C. No Endorsements Required on Any DEA Mishap

CHAPTER SIX

MISHAP INVESTIGATION

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This chapter defines who is responsible for conducting naval aviation mishap investigations, describes the relationship these investigations have to other investigations, as well as the purposes and procedures for naval aviation mishap investigations.

601. GENERAL

A naval aviation mishap signals a failure in the Naval Aviation Safety Program. It is evidence we failed to detect and eradicate the hazards which caused this mishap before it was too late. It is not too late, however, to keep it from happening again – which is why we investigate aviation mishaps with such vigor.

602. PURPOSE OF AVIATION MISHAP INVESTIGATIONS

Naval Aviation mishap safety investigations have but one purpose and that is to answer the question, "Why?" The mishap investigation is a search for causes; it looks for undetected hazards and tries to identify those factors that caused the mishap as well as those that caused any additional damage or injury during the course of the mishap. Mishap investigations also demonstrate an organization's commitment to their safety

program. All naval aviation mishap safety investigations are conducted solely for safety purposes.

603. TYPES OF INVESTIGATIONS

As a result of aviation mishaps, various agencies conduct separate investigations for different purposes. We must have a clear understanding of the differences between these investigations and work to preserve the relationship between them.

a. Aviation Mishap Safety Investigations. Naval aviation mishap safety investigations encompass those investigations of naval aviation Flight Mishaps, Flight-Related Mishaps, and Aviation Ground Mishaps conducted under the auspices of this instruction. No other investigation relieves a command from the responsibility to conduct a mishap safety investigation. AMBs, appointed and maintained by aircraft and UAV reporting custodians, conduct naval aviation mishap investigations. Squadron officers, trained at the Aviation Safety Officer's Course and flight surgeons, trained at the Naval Aerospace and Operational Medical Institute are members of the board. This system of squadron-level AMBs is consistent with one of the basic tenants of the Naval Aviation Safety Program that an individual or command detecting a hazard is obliged to others in this profession to report that hazard as soon as it is detected. The system supports and encourages mutual trust and confidence common among naval aviators and avoids both the specter of adversarial investigations of one command by another and the implication that safety is the business only of higher authority.
In addition:

(1) The system of squadron level AMBs provides for close coordination of the AMB with other mishap-related responsibilities of the reporting custodian, which include:

(a) Operational Reporting (OPREP, SITREP).

(b) Telephone and message MDRs.

(c) Casualty reports.

(d) Notification of next of kin.

(e) Reports of loss of classified material.

(f) Aircraft custody and status change (x-ray) reports.

(g) Material deficiency reports and requests for engineering investigations.

(h) Requests for Planning and Estimator (P&E) services.

(i) Requests for technical assistance.

(j) Requests for recovery of submerged wreckage.

(2) The system of squadron level AMBs also ensures that Board Members will have knowledge of:

(a) Squadron or UAV unit mission and current commitments.

(b) Squadron or UAV unit aircraft or UAV characteristics and configurations.

(c) Current squadron or UAV unit operating area(s).

(d) Squadron or UAV unit SOP, policies, and directives.

(e) Pertinent policies of all echelons within and above the squadron or UAV unit.

(f) Squadron or UAV unit personnel, and dependent survivors.

(g) Squadron or UAV unit training, personnel, and aircraft records.

(h) Pre-mishap Plans and AMB task organization.

(i) AMB capabilities and limitations.

(j) Availability of technical assistance.

(k) Contingency arrangements with appropriate activities for:

1. Rescue

2. Firefighting

3. Explosive ordnance disposal

4. Hazardous material removal

5. Logistic support

6. Photographic coverage

7. Medical support

8. Release of information

9. Wreckage location, security, recover, movement, preservation, reconstruction, disposal and release

(3) The system of squadron AMBs avoids delays in commencement of investigations, shifts in investigative responsibilities, and the travel and temporary additional duty costs which often result when mishaps are investigated by other than squadron AMBs. Additionally, it would often be wholly impractical for other than a squadron's AMB to investigate a naval aviation mishap occurring at a remote Marine deployment site or at sea.

b. Interagency Investigations. OPNAVINST 3750.16B points out that the National Transportation Safety Board (NTSB) and FAA can participate in naval aviation mishap investigations whenever mishaps involve civil aircraft or FAA functions, facilities or personnel. The NTSB has primary investigative responsibilities and authority when a mishap involves both naval and civil aircraft. Sometimes naval personnel may be asked to participate in NTSB investigations. These investigations are separate from the naval aviation mishap investigation. NTSB or FAA investigations are legal proceedings; testimony taken in them is not privileged. Contact COMNAVSAFECEN for guidance in dealing with aviation mishap investigations involving other U.S. Government agencies.

c. Special Weapons Investigations. Refer to OPNAVINST 3440.15A (NOTAL) if an aviation mishap involves nuclear weapon(s) or material.

d. JAG Manual Investigations. Naval aviation mishaps may also require a JAG manual investigation. Conduct these investigations independently from any safety investigation.

(1) Do not assign members of AMBs, or other persons who have participated in a naval aviation mishap investigations conducted under the authority of this instruction, to a JAG Manual Investigation of the same mishap.

(2) Do not append Part B or extracts from Part B of SIRs to, or include them in, JAG Manual Investigation Reports, nor any other report. Do not list Navy JAG as an addressee on SIR messages. Statements made to AMB's are the property of the Naval Aviation Safety Program; do not release them for inclusion in the JAG Manual Investigation Report.

(3) To prevent any inference of association with disciplinary action, do not append the JAG Manual Investigation Report to, nor make it a part of, the SIR. Include no reference to any disciplinary action, Naval Aviator or Naval Flight Officer Evaluation Boards, Field Flight Performance Boards, or any other administrative action taken as a result of this mishap in the SIR.

e. North Atlantic Treaty Organization (NATO) Investigations. Plan to conduct a combined safety investigation pursuant to NATO Standardization Agreement (STANAG) 3531 (NOTAL), whenever an aviation mishap involves another NATO member nation. (See paragraph 610.)

f. Naval Safety Center Investigations and Support. In special cases, COMNAVSAFECEN may conduct an independent naval aviation mishap safety investigation under the authority of the CNO/CMC. These investigations do not relieve activities of their responsibilities for mishap investigation and reporting. Most often, however, NAVSAFECEN's involvement takes the form of help with the mishap board's investigation. In class A flight mishaps where wreckage is available or a fatality is involved, NAVSAFECEN will generally send an experienced aviation mishap investigator to assist the AMB. In cases involving wreckage at sea, an investigator will not normally be dispatched until the commencement of any ocean salvage desired by the controlling custodian of the mishap aircraft. Full cooperation and the unrestricted exchange of information and opinions is the order of the day between the NAVSAFECEN representative and the AMB. This may extend to division of labor, joint interview of witnesses, and joint deliberations. NAVSAFECEN investigators are direct representatives of the CNO; they control all evidence pertaining to the mishap (including parts undergoing engineering investigations) until they release it to the AMB. NAVSAFECEN

investigator may invite additional experts, military or non-military, to assist in the investigation and provide analysis to the board. The AMB'S appointing authority shall provide administrative and logistic support to NAVSAFECEN investigators.

g. Intercomponent Investigations

(1) Only the Commander Naval Safety Center may enter into agreements or understandings about mishap reporting investigation with agencies outside DON.

(2) Occasionally, it may be worthwhile for one military service to ask another to provide a member for the AMB.

(3) There are three methods by which intercomponent participation in a naval AMB may be accomplished:

(a) Sister services may assign members as observers on a naval AMB.

(b) They may assign one of their members to a naval AMB as liaison.

(c) Or, any number of military services may form a joint AMB.

(4) In all these cases, we will investigate and report the mishap according to this instruction. Joint AMBs may report according to the other service's instructions as well.

(5) Conversely, we may send a member of a Naval Service to sit as an observer on another service's mishap board.

(6) Forward all request for inter-service participation on AMBs to COMNAVSAFECEN for approval.

(7) Paragraph 108 should answer any questions about accountability in interservice mishaps.

h. Naval Aviation Mishaps Involving Fire, Explosion, or Damage to a Ship or Shore Facility.

(1) Ships must use OPNAVINST 5100.19D to report a fire, explosion or other damage caused by a naval aviation mishap.

(2) Shore facilities must use OPNAVINST 11320.23F, Shore Activites Fire Protection and Emergency Services Program

(NOTAL) to report fire damage resulting from a naval aviation mishap.

i. Criminal Activity. The senior member immediately notifies the appointing authority if the investigation uncovers evidence suggesting criminality. The appointing authority must consult with the Naval Safety Center before terminating the investigation and calling for the Naval Criminal Investigative Service (NCIS). The senior member must turn over all physical evidence, but shall not share privileged testimony with the NCIS.

604. MISHAP INVESTIGATION RESPONSIBILITIES

a. The senior reporting custodian of a naval aircraft involved in a naval aviation mishap is responsible for investigating and reporting the mishap.

b. An Aviation Mishap Board must investigate every naval FM, FRM, and AGM, then report on them as this instruction directs.

c. Occasionally, albeit rarely, circumstances surrounding naval aviation mishaps may meet the reporting criteria of more than one mishap reporting system. In those situations, reporting custodians shall send an initial Mishap Data Report describing the unusual circumstances in paragraph 7. The Commander, Naval Safety Center and the controlling custodian will consult to determine the most appropriate reporting system.

605. TRANSFER OF MISHAP INVESTIGATION RESPONSIBILITIES

As a matter of policy, reporting custodians shall not be relieved of their reporting responsibilities in a naval aviation mishap investigation, but it could happen. If such is the case, the reporting custodian still must provide whatever assistance the AMB investigating the mishap requires. This may include assigning personnel to temporary duty with the AMB, sending requests for Engineering Investigations (EIs), clerical assistance, and other support normally provided by a command to its own AMB.

a. Requests for Relief from Mishap Investigation and Reporting Responsibilities. When reporting custodians cannot fulfill their mishap investigation and reporting responsibilities, they should request relief from the controlling custodian in an MDR. (See Chapter 5.)

b. Directed Relief from Mishap Investigation and Reporting Responsibilities. Seniors in the chain of command may decide to relieve subordinates of this responsibility. In such cases, the relieving seniors must appoint an AMB of their own to investigate and report the mishap. The relieving senior must also notify the reporting custodian of this action and his/her reasons for doing so. Include CNO, CMC, COMNAVSAFECEN, appropriate controlling custodian(s), and other interested commands as info addees on the message.

c. Reporting Custodian is a Member of an Aircrew Involved in a Mishap. When an aircraft reporting custodian is a member of the aircrew involved in a mishap, the immediate superior in command (ISIC) takes the action required by subparagraph 605b, controlling custodians may waive this requirement.

d. Ferry Mishaps. When a mishap occurs while an aircraft is in a ferry status, the aircraft's reporting custodian is responsible for investigating and reporting the mishap.

e. Naval Aviation Depot. COMNAVAIRSYSCOM is responsible for investigating and reporting mishaps involving naval aircraft in the physical custody of Naval Aviation Depots. The Safety Centers of the services involved will decide who is responsible for investigating mishaps involving aircraft in the custody of another service's depot.

f. Commercial Contractor Mishaps

(1) Except for those mishaps which occur at commercial facilities operating under contracts written and administered by other commands, COMNAVAIRSYSCOM has the responsibility for investigating and reporting mishaps involving naval aircraft in the physical custody of commercial contractors. In those exceptional cases, the responsibility rests with the command exercising contract control over the facility.

(2) Contracts shall describe the contractor’s responsibilities concerning investigating and reporting naval mishaps. COMNAVAIRSYSCOM may request that Defense Logistics Agency military personnel participate in AMBs investigating contractor mishaps.

g. Contractor Maintenance Involvement in a Mishap. Specific requirements concerning a maintenance contractor's obligations in a navy aircraft mishap investigation are found in the contract. On any contract in which the government assumes

risk of loss for an aircraft, the applicable Defense Logistics Agency (DLAI) clauses and the NAVAIRINST 3710.1C require the contractor to cooperate with the mishap investigators, and provide a certain degree of support to them. The Contracting Officer, or his/her duly appointed Government Flight Representative (GFR) or Contract Officer Technical Representative (COTR), is responsible for interpreting these sections, and shall assist the AMB in obtaining the needed help from the contractor. Unique aspects of contractor maintenance involvement in mishap investigations are:

(1) Contractor witnesses are usually unavailable outside normal working hours, they may be accompanied by counsel, and their cooperation may be restrained. Conduct a thorough briefing on privileged testimony with these witnesses before the interview.

(2) Contractors work 8 hours a day. Wreckage recovery routinely involves 12-hour workdays. The military maintenance representative can get overtime authorization.

(3) Use squadron, wing or base resources, if needed, to reinforce your manpower. Look to indoctrination classes, restricted personnel, and transient personnel barracks as a source of help.

(4) While a contractor's maintenance records may not be in correct OPNAV 4790 series format or filled out on familiar forms, all their records, books and information, if not already sequestered by the military maintenance representative or squadron safety officer, must be made available upon request.

h. Multiple Aircraft Mishaps. The senior reporting custodian is responsible for conducting the investigation and writing the report on multi-aircraft, multi-party mishaps. Seniority is the key here, not the presumption of blame. The final endorser assigns responsibility for the mishap for record purposes. Examples of multiple aviation mishaps are:

(1) Collisions between aircraft or UAV’s,

(2) Parts separating from one aircraft damaging another,

(3) Prop, jet, or rotor blast from one aircraft damaging another,

(4) In-flight refueling mishaps, and

(5) Formation flights where aircraft are damaged.

i. Interservice Aviation Mishaps. Sometimes aircraft or people or facilities from one military service are involved in mishaps with another. In such cases, COMNAVSAFECEN shall identify the command responsible for the mishap investigation.

j. Unclear Cases. COMNAVSAFECEN will resolve any ambiguities concerning who is responsible for investigating and reporting a naval aviation mishap.

606. PRIVILEGED INFORMATION IN MISHAP INVESTIGATIONS

A thorough understanding of the following information on the concept of privilege is essential for the proper investigation of naval aviation mishaps.

a. Limited Use. Part B of the SIR contains privileged information and shall be used ONLY for safety purposes. Part B shall not be used for any other purposes which include, but are not limited to, the following (prohibited) uses:

(1) To make any determination affecting the interest of an individual making a statement under an assurance of confidentiality, or involved in a mishap,

(2) As evidence or to get evidence in determining the misconduct or line of duty status of killed or injured personnel,

(3) As evidence to determine whom to discipline,

(4) As evidence to assert affirmative claims on behalf of the Government,

(5) As evidence to determine the liability of the Government for property damage caused by a mishap,

(6) As evidence before administrative bodies, such as Naval Aviator/Naval Flight Officer Evaluation Boards or Field Flight Performance Boards, or in any other punitive or administrative action taken by the DON,

(7) In any investigation or report other than aviation mishap investigations and aircraft SIRs required under the authority of this instruction, or

(8) As evidence in any civilian or military court.

b. The Purpose of Offering Confidentiality. The above actions are taken to:

(1) Overcome any reluctance of an individual to reveal complete and candid information about the circumstances surrounding a mishap.

(2) Encourage AMBs and endorsers of aviation SIRs to provide complete, open and forthright information, opinions and recommendations regarding a mishap.

c. Rationale. If information, given in confidence, were used for purposes other than safety, vital safety information might be withheld.

(1) Individuals may be reluctant to reveal information pertinent to a mishap if they believe the information could be embarrassing or detrimental to themselves, their fellow service members, their command, or their employer. They may also choose to exercise their constitutional rights and avoid self-incrimination by withholding information. Members of the armed forces must believe they can be truthful with the AMB for the mutual benefit of fellow service members without incurring personal jeopardy in the process. Witnesses shall not provide statements to the AMB under oath. Requiring them to do so is prohibited. Promises of confidentiality are given to witnesses and members of the AMB. This should not be confused with anonymity. Therefore, witness statements and the deliberative analyses of findings, conclusions, and recommendations of the AMB are privileged. Any information which would not have been discovered but for information provided under a promise of confidentiality is privileged. Promises of confidentiality may be given by members of the AMB. Each witness will be considered individually as to whether a promise of confidentiality is necessary for that witness's full cooperation. The granting of confidentiality must explicitly be given to each witness so selected and the records maintained with other mishap documents. Navy culture and tradition have given the Naval Aviation Safety Program and the ASO access to information that would not be available under other circumstances. The intent of the restriction on granting blanket promises of confidentiality is to strengthen those promises that are given. When granted, witnesses shall be advised in writing of the purpose for which their statements are being provided, of the limited use to be

made of their statements, and of the non-releasability of the information they provide. The statements made by witnesses who have not been given a promise of confidentiality are protected in the same manner with the exception that they may be released in response to Department of Labor regulations or Freedom Of Information Act requests. The written advice to be given witnesses is at the end of this chapter in appendix 6A for those given a promise of confidentiality, and in appendix 6B for those not given a promise of confidentiality. Witnesses shall not be limited in their statements to matters to which they could testify in court, but may be invited to express opinions and speculate on possible causal factors of the mishap.

(2) If AMBs and SIR endorsers believed that their deliberations, opinions and recommendations could be used for other than safety purposes, they might be reluctant to develop, or include in their report and endorsements, vital safety information. In one respect, this rationale for designating mishap investigation information as privileged is more important than the rationale for encouraging witnesses. Every SIR involves AMB members and endorsers. Not every mishap has witnesses who would require an assurance of privilege as encouragement to make a statement.

d. Protection of Privileged Information. To continue the revelation, development, and submission of privileged information in aircraft SIRs and endorsements, we must keep faith with the assurances of the limited use to be made of this information. Should privileged information be used for any purpose other than safety, credibility of future assurances would be lost. A continuous sequence must be maintained: assurances of limited use given; information obtained, developed and reported; privileged information protected against misuse; credibility of assurances thereby maintained; assurances of limited use given again. If any portion of the sequence fails, vital safety information may be lost. Obtaining safety information is therefore dependent upon the protection of privileged information against use for other than safety purposes. Accordingly, the following safeguards are established for the protection of privileged information:

(1) Witness Statements. Do not give statements provided to the AMBs to any activity, except as this instruction allows. The AMB's appointing authority must retain copies of all statements used in the SIR until the final endorsement is complete, then destroy them.

(2) Investigations. We must understand the distinctions between aviation mishap investigations and other investigations. In all cases, aviation mishap investigations shall be independent and separate from all other investigations except that all investigators may exchange the identification of witnesses and examine nonprivileged evidence. In recognition of the importance of hazard identification and correction to naval aviation, the mishap safety investigation is the primary investigation and takes priority over all other investigations in interviewing witnesses, getting and analyzing evidence, and inspecting the mishap scene.

(a) Only when other services participate in authorized NAVSAFECEN aviation safety investigations may any exchange of information and opinion outside the AMB occur. Cooperation between these investigative boards may include division of labor, joint review of evidence, exchange of witness statements, and joint deliberations.

(b) Requests for help from other activities are not privileged and must be meticulously reviewed to be sure they do not contain privileged information. Technical specialists assisting the AMB are not members of the board. Do not give them access to AMB deliberations, nor access (except as authorized elsewhere in this instruction) to the content of SIRs.

(3) Investigators. Members of AMBs shall not divulge their opinion or any other information to which they became privy in their capacity as a member of an AMB. Do not ask them to do so. Do not assign AMB members to any JAG Manual Investigations, Naval Aviation/Naval Flight Officer Evaluation Boards, Field Flight Performance Boards or any other investigation convened as a result of the same mishap. Members of AMBs shall not keep a copy of any part of an SIR after completion of the investigation.

(4) Data Recorders. Electronic recording devices are used extensively in aviation today. They include: radar air traffic control center raw RADAR plots and associated audio tracks, control tower radio communications tapes, HUD tapes, PLAT tapes, FLIR and radar video tape recorder (VTR) tapes, and data from mission computers and flight data recorders. All such data in this raw, undisturbed state is real evidence. However, once this data is enhanced or manipulated or animated for analysis, once it is correlated and interlaced with other data,

or interpreted in any way, the products of these efforts at interpretation are privileged.

607. AVIATION MISHAP BOARD INVESTIGATION OF MISHAPS

The following is a general description of AMB investigations of naval aviation mishaps:

a. Responsibilities. Mishap investigation and reporting responsibilities of AMB members take precedence over all other duties. Chapter 1 describes the responsibilities connected with a mishap investigation:

(1) Aircraft or UAV reporting custodians, paragraph 107k.

(2) Senior member, AMBs, paragraph 107m.

(3) Members, AMBs, paragraph 107n.

b. Organization for Investigation

(1) The Standing AMB. The program requires reporting custodians appoint in writing and maintain a standing AMB. Paragraph 206b requires a minimum of four members with experience and knowledge in the specialized fields of safety, aeromedical, operations, and maintenance. The AMB's senior members must be sure their boards are trained and ready to investigate mishaps.

(2) Changes in Board Membership. When changes in Board membership are necessary, it is the senior member's responsibility to recommend to the appointing authority appropriate changes of AMB membership to comply with this instruction. The senior member may also recommend additional members be seated if the investigative effort requires. For example, in a mishap involving Aviation Life Support Systems, the senior member may recommend the assignment of a local AMSO to the Board.

(3) Use of Board Members. The senior may excuse any member from active participation in the investigation if that individual's particular skills are no longer needed. The individual retains board membership until removed by the appointing authority.

c. Conduct of the Investigation. NAVAIR 00-80T-116, Vols. I-II, Technical Manual, Safety Investigation Techniques; and

Aviation Safety Programs, Aircraft Mishap Investigation Notebook tells how to conduct a naval aviation mishap investigation.

(1) The Investigative Effort. The amount of investigative energy expended in discovering the causes of mishaps has nothing to do with the amount of damage they cause. There is no correlation between the severity of a mishap and the potential for damage or injury inherent in the hazards detected during investigation of that mishap. Accidents which cause little or no damage may expose a hazard with the potential to cause frequent and severe mishaps. On the other hand, a catastrophic mishap may reveal a hazard which would rarely cause future problems. Do not, therefore, tailor your investigative effort to the severity of the mishap. Your job is to identify the hazards associated with the mishap. A complex or mysterious mishap may require extensive investigative efforts; a simple, well-defined mishap might be investigated with minimal effort. The extent of the investigative effort depends on the senior member's desire.

(2) Collection of Evidence. It is impossible to accurately predict what kinds of evidence should be collected under what circumstances in every mishap investigation. For this reason, we rely on the AMB senior member's judgment. Note that no one other than a NAVSAFECEN investigator may investigate a naval aviation mishap under the authority of this instruction, except when acting as an AMB member, under the supervision of the AMB's senior member. This supervision begins before the mishap, during pre-mishap planning and AMB training. This training is the responsibility of the unit standing AMB's senior member.

(3) Medical Evidence. Because medical evidence is quickly lost, we must immediately notify the AMB flight surgeon when a mishap occurs. The flight surgeon is primarily concerned with medical, physiological, social, behavioral and psychological factors which may reveal mishap causal factors. He/she must coordinate his/her collection and analysis of medical and human factors evidence with all other aspects of the investigation. When investigating a mishap, the flight surgeon participates fully in the AMBs investigation and deliberations which helps insure the contents the Aeromedical Analysis (AA) and the SIR are coordinated and complimentary.

(a) Pre-Mishap Planning. The flight surgeon shall participate fully in AMB pre-mishap planning, including

planning for the collection of medical evidence. (See appendix 2B, Pre-Mishap Plan Checklist.)

(b) Physical Examinations. Regardless of his/her military service affiliation, the first flight surgeon on a mishap scene, or the one to whom mishap victims are brought, shall immediately perform examinations and laboratory procedures required by the flight surgeon's service. However, the parent service of the victims must delineate unique requirements and assume responsibility for the aeromedical portion of this investigation as soon as possible. Flight surgeons may record and report their examinations using their own service's reporting forms and procedures. Examinations should be as complete as the examinee's condition and other circumstances permit, with special emphasis on those areas which may be pertinent to mishap causal factors. They must examine all crewmembers, and if indicated, passengers, and anyone else who may have been a causal factor of the mishap.

(c) Radiographs. They shall perform Radiology studies as clinically indicated. Full spinal x-rays are required after all ejections, bailouts, and crashes with or without suspected back injuries.

(d) Biological Samples. In all Class A and Class B mishaps, and when necessary in Class C mishaps, biological sampling should take place immediately after a mishap. Understanding the biochemical status of an individual is critically important to an aviation mishap investigation. The importance of this knowledge is unrelated to the severity of the mishap. Include biological sampling policies which conform to current Navy and DOD directives in every Pre-Mishap Plan. Take enough blood and urine specimens for blood alcohol, carbon monoxide, drug screen, hemocrit, hemoglobin, glucose and urinalysis testing. Freeze and store an aliquot of each specimen for at least 90 days following the mishap for verification or for other studies as may be necessary later. Promptly submit all toxicological (drug screen, alcohol, carbon monoxide, etc.) specimens to the Armed Forces Institute of Pathology (AFIP) for analysis. All other biological specimens may be analyzed by qualified biological laboratories, at the discretion of the AMB. Conduct any other clinically indicated laboratory studies at the flight surgeon's discretion.

(e) Pathological Studies. Conduct an autopsy, including full body x-rays, whenever a fatality occurs as a result of a naval aviation mishap. The prerogatives of command (Article 0720, chapter VII, Navy Regulations 1973), BUMEDINST

6510.2F (NOTAL) and Article 17-2, Manual of the Medical Department (NOTAL) constitute the authority to perform autopsies on military aviation mishap fatalities when the mishap occurs at sea or on a military base where the Federal Government has legal jurisdiction. Furthermore, an Armed Forces medical examiner has the authority to order a medicolegal investigation, including an autopsy of the aviation mishap related deaths of service members, where the Federal Government has exclusive jurisdictional authority. We must obtain a waiver or a release from the local coroner or medical examiner, however, whenever a military aviation accident occurs outside Federal jurisdiction, on state or private property. Include these waiver provisions in the command's Pre-Mishap Plan. After the autopsy, the prompt release of the remains for preparation, encasement and shipment is important. See the Manual of the Medical Department, NAVMEDCOMINST 5360.1, and BUMEDINST 6510.2F (NOTAL) for details.

(f) Drug-Assisted Interviews and Hypnotic Techniques. Drug-assisted interviews and hypnosis are prohibited without the specific, written authority of CNO (N78). These interviews and techniques will be authorized only when critical safety-related information cannot be obtained any other way and the subject agrees voluntarily. When authorized, the procedure shall be conducted by a member of the medical department qualified in the procedure, with the AMB flight surgeon in attendance. Other attendees are discouraged. (The value of these efforts is suspect and the probability of getting false, inaccurate, and misleading information from them must be considered.)

d. Deliberations. As the AMB collects evidence it must begin to attach significance to that evidence and decide what part it may have played in the mishap. The SIR format provides a guide for the deliberations of the Board. The SIR outline reflects a pattern of deductive reasoning:

- What the Board knows (paragraph 10, Evidence).
- Reasoning of the Board (paragraph 11, Analysis).
- Deductions of the Board (paragraph 12, Conclusions).
- The Board's recommendations to prevent recurrence of the mishap, or damage and injury occurring during the mishap (paragraph 13, Recommendations).

(1) Analysis and Causal Factors. The AMB must analyze the evidence available to them in order to determine the causes

of the mishap. The first thing the AMB must do is discuss everything that could possibly have led to the mishap, then reject those things too remote to consider, and systematically investigate those possibilities that remain. Eventually, the AMB must phrase each possibility in language designed to aid formal classification and explain which, based on the evidence, they have accepted and which they have rejected. The resulting list constitutes the causal factors of the mishap. Causal factors have three elements which (1) describe the people or the equipment, and (2) define the actions or the events, and (3) tell why this causal factor contributed to the mishap. Defining these elements is essential for determining the cause of the mishap. Each causal factor is a potential starting point for remedial action. Experience has shown that human factors play a role in most mishaps, while a significant number of others involve material failure. Thus, causal factors fall into two general classifications: human and material.

(a) Human Factors. Determining how people contribute to mishaps is of obvious importance. To describe fully and to understand human factors requires us to identify the elements: WHO, WHAT, and WHY in each occurrence. It is not enough to describe the human portion of mishaps as "personnel error," or "pilot technique". Such labels are not nearly detailed enough to encompass the entire cause of a human factor mishap; they fail to explain why the event happened. Normally, there are few questions about WHAT occurred; usually it is self-evident: A gear-up landing is just that. Likewise, the WHO lends itself to quick identification: the pilot. Still, the most significant element, from the standpoint of prevention, is missing: the WHY. This is the element that lends itself to remedial action. Flight surgeons are trained and thus must always have a role in the identification and analysis of human factors. Further, to be sure the AMB properly assesses human factors, and to give the endorsing chain the benefit of information available in the past only in the flight surgeon's report, we must analyze all aeromedical conditions found at the time of the mishap. Whenever there are human factors or injuries, they are to be reported in paragraph 11 of the SIR. Include supporting evidence in paragraph 10 and indicate if the factor was accepted or rejected. Use Appendix L to help determine WHO/WHAT/WHY. It is an exhaustive tabulation of the ways people and aviation machinery conspire to produce mishaps. It is an aid to the AMB designed to spur the analysis process to consider all the elements listed in it. The AMB must match the human factor causes to a WHO/WHAT/WHY combination in appendix L. They should review the General Guidelines about detailed causal factors in this appendix before writing their analysis and

conclusions. For each causal factor, there can only be one WHO/WHAT combination. If there is another WHO or WHAT, there must be another causal factor which must be stated in its entirety. For each WHO/WHAT combination there may be many WHYs. The AMB must list all WHYs applicable to the mishap.

1. WHO. There are four kinds of people who can contribute to an aviation mishap. They are: aircrew, supervisors, facilities and maintenance personnel. We classify them according to the job or function they perform. Thus the classifications of: aircrew factor, supervisory factor, facilities personnel factor, and maintenance factor.

a. Aircrew. The people (including instructors) in the aircraft, in the formation, or controlling the UAV, are listed under the aircrew factor classification. We must identify their contributions to the mishap - whether or not they survived.

b. Supervisory. People in command and operations-related support – up and down the chain of command – fall into the supervisory factor classification. Consider the behavior of supervisors at every level, their publications, and their policies, all of which may contribute to a mishap. Look closely at supervision in the squadron. Scrutinize operations and the training of personnel closely. Look at the supervision of multiple aircraft by the section, division, or flight leads. Problems with maintenance supervision are not part of this classification.

c. Facilities Personnel. Classify errors committed by people involved in air traffic control (tower, pri-fly, CATCC, etc.), runway watches, aircraft or UAV ground handling, crash and rescue, and search and rescue under Facilities Factors.

d. Maintenance. Errors committed by people engaged in the production, servicing, or repairing of aircraft are listed under the maintenance factor classification. Consider carelessness, inattention, and negligence on their part as well. List ground handling problems, even those performed by personnel assigned to a unit's maintenance department, under facilities factors. Problems with maintenance supervision, training (including qualification and licensing), and administration, directly related to aircraft production, service, or repair, are maintenance, not supervisory, factors.

2. WHAT. The actions of those who caused the mishap are the "WHAT" of a human causal factor. The WHAT is a hazard statement defining an act of omission or commission which led to the mishap. Appendix L is matrix of actions performed, or not performed, by the four classifications.

3. WHY. One assumes no naval aviation professional would purposefully commit an act that would result in a mishap. Circumstances like fatigue, lack of training, misinformation, and motivational dysfunction may combine to create a situation that leads to a mishap, but even negligence lacks the specific intent to cause damage or injury. These are all "WHY" something occurred and do not describe "WHAT" happened. Unfortunately, these elements of mishap analysis were once left undocumented and unevaluated. Today we know we can eliminate these WHY elements of mishap causal through sound leadership and good management. The AMB, by using appendix L terminology, can evaluate the WHY more fully and include these elements in the SIR for further documentation and evaluation. In appendix L, the WHY elements of human factors apply to any WHO/WHAT combination. They are subdivided into six groups:

- Communication/Coordination
- Psychosocial
- Environment
- Performance
- Human Engineering
- Medical/Psychological

(b) Material Factors. Even in material failures, there may be enough evidence for the AMB to identify human factors; someone misused something, or did not maintain or service it, or designed it improperly, or made or reworked it below standards. Even so, including material factors in the set of mishap causal factors is important because, while human factors are surely involved, the material factor is often the weak link in the chain. It may be possible, for example, to redesign and strengthen a part. On the other hand, there may be no evidence supporting human factor involvement and a material failure may be the only possibility. Thus, we include material factors in this set of mishap causal factors. The AMB should identify as Factors all material failures that significantly affect the events leading to the mishap. There is a set of ELEMENTS similar to WHO/WHAT/WHY for material factors: COMPONENT MODE, and AGENT, but there is no matrix comparable to appendix L for material factors. The AMB should describe the material factor elements using standard nomenclature, in plain

language as explained below. Use applicable technical reports, such as EIs or outside laboratory reports, as a guide.

1. Component. The smallest, most specific part, assembly, or system identified as having failed is the component.

2. Mode. How the component failed. Specifically, "WHAT" occurred, is the Mode. Typical examples are: fracture (load bearing member broke), stripped threads, jammed, leaked, etc.

3. Agent. The acts or events which led to the failure mode are the agents. Typical examples are overload, fatigue, fire, or spalling. These are the "technical" agents; each component failure must have, at least, one "technical" agent. In addition, the AMB may discover further "human factor" agents. These might include improper maintenance procedures, poor design or improper aircrew procedures. We will address "human factor" agents as separate causal factors (Aircrew, Supervisory, Maintenance and Facilities), and will analyze the WHO/WHAT/WHY more fully.

(2) Conclusions. AMBs must base their conclusions as to which hazards caused the mishap, damage, or injury during the mishap, on all available information and their own deductions. They may test the conclusions under consideration with the question: "Absent this causal factor would there have been a mishap?" You may use the terms "Hazard," "mishap cause and causal factor," and "causal factor of damage or injury," interchangeably.

(a) Mishap Causal Factor Determination. The SIR is the report of the mishap causal factors determined by the AMB. Most mishaps result from two or more causal factors which combine to produce a mishap. Without one of them, there would be no mishap. There is, therefore, no logic in labeling causal factors as "direct, "primary, "principal," or the like. Irrefutable proof is not always available, nor is it required, to determine the cause of a mishap. Determining causal factors is a difficult task requiring deductive and inductive reasoning in the analysis of the evidence. The AMB must, in their best judgment, decide on the most likely reasons for the mishap and express their level of confidence in their conclusion. There are five ways to classify their conclusions about the mishap. A specific Determination Statement at the beginning of the conclusion paragraph identifies the classification.

1. Determined. This classification indicates the AMB has specific evidence pointing to a definitive, verifiable series of events and that other alternatives did not occur. For example: Following an aircraft crash, the AMB finds an engine bearing badly scored – indicating catastrophic failure. Coincidentally, investigators find the maintenance publication describing the procedure for installing this bearing is wrong; following it could lead to premature bearing failure. The aircrew states that, just before the engine failed, the oil pressure abruptly dropped to zero. All other parameters were normal. No thumps (thus, no bird strike), fuel quantity and flow were normal (they had gas and it was good), no evidence of FOD, and everything else was within specifications. The logical conclusion is that an improper maintenance procedure resulted in the bearing failure. There are no other plausible explanations. Thus, the causal factors for this mishap are determined. In this example the AMB not only resolved the major type of failure - engine failure - but also determined the cause - bearing failure due to improper installation caused by an inadequate technical publication. So, the AMB would conclude the causal factors for this mishap are "determined to be: Maintenance Factor. Improper installation procedures resulted in failure of engine bearing." Likewise, it is appropriate to include a material factor for the failed bearing. However, had the AMB not been able to identify the reason for the engine failure, this mishap should still be classified as "determined" as "material factor - engine failure of undetermined origin. The Determination Statement, "THE CAUSAL FACTORS OF THIS MISHAP ARE . . ." identifies this classification. The cause of the mishap is fixed "determined."

2. Determined - No Fault Assigned. Whenever they encounter that rare mishap with no human factors to consider; when aircraft damage or personnel injury results from collisions with birds or animals or hail or lightning strikes and, when a qualified pilot was flying an authorized mission and the crew took all possible precautions, AMBs may choose this determination. "No fault" assigned does not mean the mishap was inevitable. It simply recognizes that naval aviation is a risky business and that sometimes, in spite of our best efforts, mishaps occur. AMBs must include, as material factors, the damage or the material failures that result from the bird strike, lightning strike, etc. COMNAVSAFECEN will carefully screen every proposed no fault determination. AMBs must fully explain their rationale in the analysis paragraph of the mishap report. The Determination Statement reads like this: "THE CAUSAL FACTOR OF THIS MISHAP IS: NO FAULT ASSIGNED, THE

FOLLOWING MATERIAL FACTORS ARE ASSIGNED:" The cause of the mishap is fixed "determined."

3. Determined - Most Probable. Use this classification when the evidence is insufficient to fully support a particular theory, but all competing analyses clearly were without merit. If, for example, after examining the wreckage and all other available evidence, the ABM finds no material discrepancies or failures but concludes there are verifiable aircrew issues, they would then conclude that aircrew factor is "the most probable cause." The Determination Statement would read like this: "THE MOST PROBABLE CAUSAL FACTOR OF THIS MISHAP IS . . ." identifies this classification. The cause of the mishap is fixed "determined."

4. Undetermined - Possible. AMBs should use this classification when they have competing theories as to what happened but cannot confidently rule out any of them. If, for example, there is evidence of multiple mechanical malfunctions or a suspicion that a mechanical failure and a human factor might have combined to cause the mishap, the mishap determination would read: "POSSIBLE." In this case, the ABM could not, with any degree of certainty, determine what caused the mishap. They had to report "undetermined" with "possible" causal factors. The Determination Statement would read: "THE CAUSAL FACTORS OF THIS MISHAP ARE UNDETERMINED WITH THE FOLLOWING POSSIBLE CAUSAL FACTORS . . ." The cause of the mishap is not fixed "undetermined." Take care not to over-analyze causal factors in cases like this. For instance, if you know a specific mechanical malfunction caused an engine failure, and that malfunction caused the mishap, but you're not sure how or why the malfunction started, then the mishap would be "DETERMINED" even though there may be competing theories as to how or why the malfunction originated.

5. Undetermined. Used only when there is no evidence of what caused the mishap. The Determination Statement would read: "THE CAUSAL FACTORS OF THIS MISHAP ARE UNDETERMINED." No causal factors can be assigned, and the cause of the mishap is not fixed.

(b) Causal Factors of Other Damage and Injury Occurring during a Mishap. The same logic applies here as to mishap causal factors. What causes damage during a mishap is any hazard which causes unnecessary or avoidable damage, just as what causes injury during a mishap is any hazard which causes unnecessary or avoidable injury. This paragraph provides AMBs

with the opportunity to report on any additional factors discovered during the mishap investigation that, while not causing the mishap, increased its severity by producing additional damage or injury. Things commonly associated with causing additional damage or injury during a mishap include: poorly designed fuel systems, inadequate survival training, faulty life support and survival equipment, etc.

(c) Environmental Conditions. Environmental conditions are not causal factors. Mankind has no control over the environment. The time of day, the weather, the sea state, tidal waves, hurricanes, and tornadoes do not cause mishaps; inadequate weather forecasts and flying into thunderstorms do. Since causal factors, by definition, are under human control and subject to elimination, the environment – something entirely outside our control - cannot be a causal factor.

(d) Noncontributory Hazards Discovered During the Investigation. AMBs must not include hazards discovered during the investigation that were not causal factors in the mishap. To do so clouds the issues surrounding accident. Instead, report them in a Hazard Report. (See chapter 4.)

(3) Recommendations. AMBs should use the guidelines in appendix C when formulating their recommendations, and test these recommendations with the question: "If this had been done before the mishap, would these additional hazards have been eliminated?" Don't include any recommendations that fail this test; rather, report them in a Hazard Report. (See chapter 4.)

608. TECHNICAL AND MEDICAL ASSISTANCE TO AMBS

Investigative assistance and technical and medical assistance are not the same thing. Investigative assistance was defined in paragraph 603f. Technical and medical assistance is described below.

a. Sources of Technical and Medical Assistance. Help with medical problems can be found at: local naval medical facilities, Bureau of Preventive Medicine Units, AMSO personnel, Armed Forces Institute of Pathology (AFIP), National Institute of Health, Aviation Physiology and Water Survival Training Units. Technical assistance is available from: Naval Aviation Depots, COMNAVAIRSYSCOM, Maintenance Engineering Cognizant Field Activities (CFAs), Naval Laboratories and Development Centers, aircraft and component manufacturers, Naval Air Technical Data and Engineering Service Command Detachments, and technical

representatives. COMNAVSAFECEN mishap investigators can discuss questions about technical assistance with you. See appendix D for NAVSAFECEN telephone numbers.

b. Request for Technical and Medical Assistance. An AMB's requests for assistance are not privileged and must be carefully reviewed to be sure they contain no privileged information. To get help from distant activities and from agencies senior or external to commands of the controlling custodians, send your message request to the controlling custodian. Requests for aid from local activities should be part of pre-mishap planning.

c. Advisory Nature of Technical and Medical Assistance. Medical or technical specialists advising the board are not members of the board, and they have no access to privileged communications, or the deliberations of the board, or Part B of the SIR. They are advisors; their advice is just that – advice – and nothing more. The board may accept or reject their conclusions as they see fit. Give them only that information deemed absolutely necessary. Take care when granting those rare exceptions to this rule (such as using a local flight surgeon in lieu of the one assigned to the board) to be sure these people are thoroughly briefed about their responsibilities to safeguard privileged communications.

d. General Aeromedical Support to the AMB. Naval medical facilities must train their staff members in the general medical and administrative requirements of this instruction, prepare and keep current a pre-mishap plan, and have ready both personnel and material to support the Naval Aviation Safety Program. They must train flight surgeons and prepare them fully for assignment to an AMB. When requested, medical facilities shall provide a flight surgeon for appointment as an AMB member. If local medical facilities cannot provide, the controlling custodian will. AMB duties take precedence over all others. Any request for medical help from an AMB must be treated as a priority and handled with dispatch.

e. Armed Forces Institute of Pathology Assistance (AFIP). Forensic pathologists are a valuable addition to a mishap investigation. Due to the urgency of such requests, the NAVSAFECEN will request AFIP participation in investigations of most fatal aircraft mishaps without prior request from AMB. In these cases, the NAVSAFECEN shall promptly inform all interested commands of actions taken. When responding to a request for assistance in investigating a naval aircraft mishap, the AFIP representative is a direct representative of the CNO and

controls medical evidence until the investigation is complete. AFIP team will perform autopsies, visit the mishap site and inspect the wreckage in an effort to correlate injury patterns with aircraft damage. They are authorized to record aircraft and medical evidence in the course of their investigation by any means available. Prior to departure from the area, the team will debrief the AMB.

f. Engineering Investigations (EIs). When AMBs need help with maintenance engineering technical assistance, they should ask the mishap aircraft's reporting custodian to send an EI request to the maintenance engineering CFA. (See OPNAVINST 4790.2G.) Include a description of the physical circumstances of the mishap, photographs of the part as found in the wreckage, and if practical, a statement of the possible cause of the part's failure (not the cause of the mishap) when you ship the material. Do not tamper with, adjust, remove parts from, or clean the material forwarded. EI's are an important source of factual information for not only the SIR but other reports as well. Do not include privileged information or statements about causal factors of mishaps. That would violate their nonprivileged status and threaten the Naval Aviation Mishap Investigation system.

g. EI's of Aviation Life Support Systems (ALSS). AMBs must conduct EIs on ALSS used in a mishap or recovered in an investigation. Unfortunately, unlike other parts and equipment in our profession, there is no single activity responsible for all ALSS subsystems. Look at Appendix G, which lists ALSS subsystems along with the responsible CFA. Technical assistance for ALSS investigations also is available at the crash site from those CFAs listed in appendix G. A known or suspected ALSS malfunction, must be reported pursuant to OPNAVINST 4790.2G. AMBs must request an ALSS EI through the reporting custodian as follows:

(1) Mishaps Involving Ejection Seat Equipped Aircraft

(a) We must examine ejection malfunctions as a total system. Ship the ejection seats, all escape system and ALSS parts, and all aircrew personal protective and survival equipment to the aircraft CFA. (See appendix E.) Mark the container: "For engineering investigation. This equipment has been used in an emergency situation." Provide a written summary of the circumstances surrounding the use of the ALSS items. In cases of multiple crewmembers, label each person's ALSS to be sure the equipment is not mixed. The CFA shall request assistance from the subsystem CFAs (appendix G) in examining

interaction between ejection seat and other ALSS items. While the aircraft CFAs conduct their EIs, the subsystem CFAs shall conduct EIs on the subsystems. Send the results of all EI investigations to: NAVSAFECEN, COMNAVAIRSYSCOM (AIR-4.6), reporting custodian, the aircraft CFA, and other interested CFAs. The Program Manger for Aircrew Systems (PMA-202) has chartered and funded PMA-202J to set up the MIST (Aircrew Systems Mishap Investigation Support Team) to provide on-site technical engineering assistance and analysis to the AMB for all Aircrew Systems products (see Appendix G) on a request basis. The AMB should request on-site MIST assistance from the NAVSAFECEN on-site investigator. The MIST will debrief the AMB on its preliminary findings prior to departing the area and will forward a written report within 7 days of completing any EI's.

(b) A malfunctioning parachute assembly or a parachute deployment system requires an on-site examination of the complete parachute system and related deployment components by the NAVAIRWARCENWPNDIV, China Lake, CA. Send the results of this examination to the NAVSAFECEN and other appropriate subsystem CFAs.

(c) If seat/man separation occurs during an ejection sequence with no reported problems, ship the recovered ALSS equipment to the appropriate CFA listed in appendix G. Do not send an EI report unless the AMB requests it.

(2) Helmets

(a) Request an EI on all recovered aircrew helmets whenever there is:

1. Damage to the helmet,

2. A visor fails,

3. The Oxygen mask separates from the helmet (remember to send all the recovered oxygen mask components)

4. The helmet lost on ejection but recovered,

5. Neck injuries including sprains, fractures, abrasions, contusions, or lacerations that may have been caused by the helmet,

6. Facial injuries,

7. Skull fractures,

8. Unconsciousness, or

9. Fatal injuries.

Ship helmets accompanied by a complete identification of the mishap and the failure to: the Naval Air Warfare Center Aircraft Division (Code 4.6.2.1) 47123 Buse Rd., Unit IPT, Patuxent River, MD 20670-1547. In cases of ejection seat-equipped aircraft mishaps, send the equipment only after the total system ALSS investigation is complete.

(b) In all cases in subparagraph 608h(2)(a), the CFA must conduct an EI on all submitted items and send the results via naval message to COMNAVSAFECEN, COMNAVAIRSYSCOM (AIR-4.6) and the reporting custodian.

h. EI's of Night Vision Devices (NVD). If you suspect an NVD failure, ship the entire system - battery, power pack, helmet mounting devices and counter-balance weights – everything, to the Naval Surface Warfare Center, 300 Highway 361, building 65NE Code 805C, Crane, IN 47522-5001. Mark the container: "Night Vision Devices. For Engineering Investigation. Handle With Care." Complete SIR Form 3750/12 and attach a copy to the equipment. Segregate and label separately equipment from each crewmember. The CFA must conduct an EI on all submitted items and send the results via naval message to: COMNAVSAFECEN, COMNAVAIRSYSCOM (AIR-4.5 and AIR-4.6) and the reporting custodian.

609. WRECKAGE

a. Preservation and Release of Wreckage

(1) Do not move or disturb aircraft wreckage for at lease 24 hours, except to protect life, limb, or property, to ease military or civil activities, or to protect the wreckage from loss or further damage. This allows those commands concerned time to decide about their interests in conducting an independent investigation. Before wreckage can be moved (for any reason) the officer ordering such removal must first map and photograph the wreckage and the wreckage distribution pattern. Record any damage inflicted on the wreckage during salvage.

(2) Salvage submerged wreckage as soon as possible and commence anticorrosion measures immediately thereafter. Record any damage inflicted on the wreckage during salvage. Although it is difficult, attempt to get an accurate diagram of the submerged wreckage. Make every effort to retrieve all items associated with the aircraft or its crewmembers.

(3) The COMNAVSAFECEN mishap investigator assigned owns and controls all wreckage and real evidence connected with the mishap until he/she releases it to the AMB's senior member. Absent an assigned investigator, responsibility for control and ownership of the wreckage and the real evidence falls to the AMB's senior member alone. The AMB senior member will not relinquish control of the wreckage and real evidence to the reporting custodian until all other investigative teams have completed their work. The reporting custodian will notify the controlling custodian (Info NAVY JAG, COMNAVSAFECEN, COMNAVAIRSYSCOM (AIR 5.0D), and all commands holding wreckage, parts or components that the wreckage is ready for final disposition. The controlling custodian and COMNAVAIRSYSCOM will include the above information addresses on all wreckage dispositions messages.

b. Obliterating and Marking Abandoned Wrecked Aircraft. To forestall any reinvestigation of mishaps, obliterate all wreckage left at the crash site. If this is can not be done, determine the precise geographic location of the mishap and photograph the site from as low an altitude as practical. Furnish all search and rescue agencies within the area with the information and photographs. The controlling custodian and NAVSAFECEN will include the above info addresses on all wreckage disposition messages.

c. Submerged Wreckage. When the wreckage is in deep water, ask the controlling custodian for help. The controlling custodian, in consultation with COMNAVSAFECEN, will decide if the salvage is worth the effort. If the answer is yes, the controlling custodian will send a naval message containing the following information to ask the Fleet CINC for help with the recovery:

(1) Type of aircraft or UAV.

(2) Exact location of wreckage.

(3) Whether the wreckage is marked by a buoy or pinger. If marked with a pinger, include its frequency and the date and time it will start transmitting.

(4) Type of ordnance on board the aircraft, if any.

(5) Whether classified material is on board.

(6) Names and phone numbers of points of contact.

(7) Info the following:

CNO WASHINGTON DC//N78/N78F/N09F/N09FB/N31//
CMC WASHINGTON DC//A/SD// (as appropriate)
COMNAVSEASYSCOM WASHINGTON DC//00C//
COMNAVAIRSYSCOM PATUXENT RIVER MD
CINCLANTFLT NORFOLK VA (for Atlantic)
CINCPACFLT PEARL HARBOR HI (for Pacific)
CINCUSNAVEUR LONDON UK (For European and Middle East area)
COMSIXTHFLT (For European and Middle East area)
COMSEVENTHFLT (for Far East)
COMNAVSURFLANT NORFOLK VA//N37/N32// (as appropriate)
COMNAVSURFPAC SAN DIEGO CA (as appropriate)
COMNAVSAFECEN NORFOLK VA//10/13/37//

Water salvage takes a lot of planning, time and money. Expect to have a board member at sea with the recovery ship for the duration of the salvage effort, as well as the AMB's flight surgeon whenever the recovery effort may bring up human remains. The Fleet CINC has the option to salvage the wreckage. CNO (N31) will liaison with the Supervisor of Salvage, NAVSEA (OOC), for assignment to a civilian contractor, if the CINC cannot handle the tasking. Call NAVSAFECEN's, Aircraft Mishap Investigation Division, DSN 564-2929, commercial (757) 444-2929 for further information.

d. HELP WITH WRECKAGE RECOVERY. AMB's should request assistance from the nearest military base when recovering wreckage. Additionally, the Commander of the local Coast Guard District, Air Force Headquarters, or Army Area Headquarters, will know what heavy military equipment is available in the local area.

610. MISHAP INVESTIGATIONS IN FOREIGN COUNTRIES

a. General Procedure

(1) A good source of information about this subject is NATO Standardization Agreement 3531, as international agreements between the US and foreign governments tend to follow these same general guidelines. Each will:

(a) Notify the other of aircraft or missile accidents or incidents between themselves.

(b) Provide operational or technical consultants to the investigating nation, which may use them either as observers or members of its investigating committee.

(2) Allow nations concerned to conduct disciplinary, litigation, claims, or administrative investigations under their own laws. These investigations remain separate from the Aircraft or Missile Accident Safety Investigation.

(3) When allied forces occupy airfields or launch sites in a host nation and mishaps - involving only those allied forces - occur within the boundaries of those sites, the allied forces, not those of the host nation are responsible for all measures taken. Respect all the laws and consult with civil authorities of the host nation whenever mishaps involve their civil aircraft.

(4) Cooperate with other nations in mishap investigations and, wherever possible, exchange relevant information which will neither compromise security nor conflict with practices regarding privilege.

(5) Communication with the Press. Host nations must respect the security restrictions of the operating nation and not issue statements to the press without the concurrence of the operating nation. Both nations should consult with one another before statements are made to the press.

b. Actions, Reporting and Investigation Procedures

(1) Actions. When an accident involving equipment or personnel from one country occurs on the territory of another, the military authorities of the host nation shall:

(a) Help the injured in every way possible and remove any fatalities.

(b) Provide a medical doctor, preferably with specialist aeromedical qualifications, to begin the investigation and help the medical member or advisor to the Accident Safety Investigation Committee.

(c) Secure the accident site until Accident Safety Investigation Committee has taken action to have the wreckage removed or has accepted the responsibility to guard it. Whatever their source, guard details will abide by the rules of the host nation. Do not move the wreckage without first mapping, drawing or photographing it.

(d) In the case of fatal accidents:

1. The host nation will detail an officer to insure all necessary legal steps required by the local civilian authority are completed expeditiously.

2. The local military authorities shall honor the dead and respect the desires of the involved nations.

(2) Reporting. The host nation shall also:

(a) Report the accident to the appropriate agencies in their own country. Inform the nearest representatives of the military authorities of the countries concerned. Invite the operating nation to send an Accident Safety Investigation Committee.

(b) Report the names, location, and condition of any injured persons to the operating nation's authorities.

(c) The country of occurrence shall immediately send an officer to the scene of the accident to help with the Accident Safety Investigation Committee's work. This officer should collect any statements or other evidence and be prepared to help the Committee as liaison between the civilian authorities of the host nation and the Accident Safety Investigation Committee.

(3) Investigations

(a) There are three types of national safety investigations.

1. Military Hardware Only. The operating nation will normally be allowed to conduct its own safety and legal investigation when the only damage and injury are to its own hardware and personnel. The country of occurrence may assign a liaison officer or observer to your safety board. Note that this may only be done with COMNAVSAFECEN concurrence. Do not share privileged information with these people.

2. Military Hardware Belonging to More Than One Nation. The operating nations of the two or more involved parties will form a combined safety investigation board or committee. (See paragraph 610b(3)(b).) Each nation will conduct their own legal investigation.

3. Military and Civil Aircraft Midairs. Most nations require civil aviation authorities to be the primary investigative agency when civil aircraft are involved. In this situation, ask to assign a military representative to the civil investigation. You must still conduct a separate investigation under the rules of this instruction.

(b) Combined Safety Investigations into Military Accidents or Incidents

1. The following rules shall apply:

a. After consulting with NAVSAFECEN use a Combined Aircraft or Missile Accident Safety Investigation Committee to investigate all aircraft and missile accidents or incidents involving equipment, facilities or personnel of two or more nations. Aircrew on Foreign Exchange Duty are exempt.

b. Promises of confidentiality will not be given when a combined investigation is convened.

c. Composition of Combined Safety Investigation Committee:

(1) Construct the Combined Aircraft or Missile Safety Investigation Committees from such investigators and technical advisors as the countries involved feel is necessary.

(2) When notified of this kind of mishap, the effected nations shall tell their counterparts in the country of occurrence of the names of the officers in their

investigating group and will, after consulting with COMNAVSAFECEN, designate a senior member.

(3) Form the investigators and technical advisors of member nations involved into one investigating committee, working under the unified direction of a coordinating group.

(4) The senior member of each nation's investigation group comprises the coordinating group for the investigation.

(5) The senior member of the group appointed by the operating nation becomes President of the Combined Safety Investigation Committee.

(6) All nations involved must agree on the Presidency of the Combined Safety Investigation Committee whenever aircraft or missiles of two nations are involved in an accident over the territory of a third.

(7) When the Committee cannot agree on the causes of an accident, each nation may state its point of view.

(8) The U.S. members will submit a report to COMNAVSAFECEN using the format in this instruction after the combined investigation has been completed.

c. Combined Safety Investigations Into Military and Civil Aircraft Accidents. Conduct international investigations of accidents involving civil and military aircraft under Annex 13 to the Convention on International Civil Aviation. The coordinating group shall be responsible for overall direction of the investigation, shall organize the investigating committee into specialized subcommittees as necessary, and shall conduct the investigation under the procedures normally used by the operating nation.

Appendix 6A

SAFETY INVESTIGATION REPORT ENCLOSURE

(PROMISE OF CONFIDENTIALITY) ADVICE TO WITNESS

THIS IS PART OF A LIMITED USE NAVAL AIRCRAFT SAFETY INVESTIGATION REPORT
LIMITED DISTRIBUTED AND SPECIAL HANDLING REQUIRED BY OPNAVINST 3750.6R
THIS STATEMENT IS PRIVILEGED AND IS EXEMPT FROM DISCLOSURE.

PLEASE READ THIS STATEMENT CAREFULLY
CERTIFY THAT YOU UNDERSTAND IT BY YOUR SIGNATURE AT THE BOTTOM

I understand that:

a. I have been requested to voluntarily provide information to a board conducting an investigation of a naval aircraft mishap.
b. I AM NOT being requested to provide statement under oath or affirmation.
c. Disclosure of personal information by me is voluntary, and that failure to provide such information will have no direct effect on me.
d. The purpose of the information provided by me is to determine the cause of naval aircraft mishap and/or the damage and/or injury occurring in connection with that mishap.
e. All information provided by me to the Aircraft Mishap Board will be used ONLY for safety purposes.
f. The information provided by me shall NOT be used:
   (1) In any determination affecting my interests.
   (2) As evidence to obtain evidence in determining misconduct or line of duty status of killed or injured personnel.
   (3) As evidence to determine my responsibility or that other personnel from the standpoint of discipline.
   (4) As evidence to assert affirmative claims on behalf of the government.
   (5) As evidence to determine the liability of the government for property damage caused by the mishap.
   (6) As evidence before administrative bodies, such as Naval Aviator/Naval Flight Officer Evaluation Boards (USN) or Field Flight Performance Boards (USMC).
   (7) In any other punitive or administrative action taken by the Department of the Navy.
   (8) In any other investigation or report of the mishap about which I have been asked to provide information.

1. STATEMENT (Continue on reverse and/or attach separate sheet(s) as necessary)

2. PRINTED NAME (First, Middle, Last)			3. SIGNATURE
4. DATE	5. RANK/RATE	6. SERVICE	7. TELEPHONE NUMBER

8. ADDRESS WHERE YOU MAY BE LOCATED

OPNAV 3750/16 (9-96)

Appendix 6B

SAFETY INVESTIGATION REPORT ENCLOSURE

ADVICE TO WITNESSES

THIS IS PART OF A NAVAL AIRCRAFT SAFETY INVESTIGATION REPORT
LIMITED DISTRIBUTED AND SPECIAL HANDLING REQUIRED BY OPNAVINST 3750.6R
THIS STATEMENT IS NOT PRIVILEGED AND MAY BE DISCLOSED.

PLEASE READ THIS STATEMENT CAREFULLY
CERTIFY THAT YOU UNDERSTAND IT BY OUR SIGNATURE AT THE BOTTOM

I understand that:

a. I have been requested to voluntarily provide information to a board conducting an investigation of a naval aircraft mishap.
b. I AM NOT being requested to provide statement under oath or affirmation.
c. Disclosure of personal information by me is voluntary, and that failure to provide such information will have no direct effect on me.
d. The purpose of the information provided by me is to determine the cause of naval aircraft mishap and/or the damage and/or injury occurring in connection with that mishap.
e. All information provided by me to the Aircraft Mishap Board will be used ONLY for safety purposes.
f. The information provided by me shall NOT be used:
   (1) In any determination affecting my interests.
   (2) As evidence to obtain evidence in determining misconduct or line of duty status of killed or injured personnel.
   (3) As evidence to determine my responsibility or that other personnel from the standpoint of discipline.
   (4) As evidence to assert affirmative claims on behalf of the government.
   (5) As evidence to determine the liability of the government for property damage caused by the mishap.
   (6) As evidence before administrative bodies, such as Naval Aviator/Naval Flight Officer Evaluation Boards (USN) or Field Flight Performance Boards (USMC).
   (7) In any other punitive or administrative action taken by the Department of the Navy.
   (8) In any other investigation or report of the mishap about which I have been asked to provide information.

1. STATEMENT (Continue on reverse and/or attach separate sheet(s) as necessary)

2. PRINTED NAME (First, Middle, Last)			3. SIGNATURE
4. DATE	5. RANK/RATE	6. SERVICE	7. TELEPHONE NUMBER

8. ADDRESS WHERE YOU MAY BE LOCATED

OPNAV 3750/16 (9-96)

CHAPTER SEVEN

SAFETY INVESTIGATION REPORTS

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This chapter describes the Safety Investigation Report (SIR), explains who submits the report and when, and how and why it is submitted.

701. GENERAL

After a mishap, use the SIR to report the hazards uncovered by the investigation. SIRs are vital to the success of the Naval Aviation Safety Program. Their succinct, open and forthright information, opinions, and recommendations help prevent the recurrence of aviation mishaps. Any attempt at command influence, any effort to edit, change, or in any way censor the content of SIRs, contradicts the spirit of the program and

constitutes a direct violation of this instruction. All such activity is prohibited. Anyone wishing to comment on or change the contents of any SIR must do so in the open, in genser traffic, during the endorsement process.

702. PURPOSE OF SAFETY INVESTIGATION REPORTS

SIRs report the hazards which cause mishaps and the damage or the injuries that occur during a mishap. Equally important is the opportunity they offer to submit recommendations to prevent the mishap and the damage or injury from happening again in the future.

a. Safety Investigation Report Contents. An SIR has two parts.

(1) Part A contains all MDR messages and enclosures specified in subparagraph 716c.

(2) Part B is privileged. It consists of the complete SIR message and all enclosures required by subparagraph 716d. COMNAVSAFECEN will place the endorsements in Part B.

703. SUBMISSION CRITERIA

Submit SIRs for all naval aviation mishaps, except DEA Mishaps. (See Appendix 5C1.)

704. ORIGINATOR

The Senior Member of the AMB writes the SIR and, using the appointing authority's PLAD, releases it for comment to the endorsing chain and other interested parties. See paragraphs 206 and 605.

705. RISK ASSESSMENT

AMBs must assign risk assessment codes to each hazard they wish to eliminate. The RACs must correspond to the causal factors listed in paragraph 12 of the SIR. When all risks assessed in the SIR are classified as "routine," label the Mishap Report "routine" as well. If any one of the risks are assessed as "severe," label it "severe." Said another way, the SIR reflects the most significant hazard reported therein. Appendix B at the end of this instruction contains information on RACs.

706. DEADLINES

Submit SIRs within 30 calendar days of the mishap. If aircraft or UAVs are missing, submit the report 30 calendar days after completion of the organized search. Ask the appointing authority to request an extension from the controlling custodian if necessary. Be sure to include all appropriate addressees on the message request for an extension. Describe the specific reasons for your request; "administrative delay," or "investigative delay" are not enough. In some cases, combined calls for help and a deadline extension are appropriate. For example: when all the wreckage is not yet located, or when results of an EI, a pathological study, or a toxicology report have not yet been received. Include details on the status of any help requested in your extension request. The controlling custodian will respond via message and include the same addressees as your message requesting the extension.

707. METHODS OF SUBMISSION

Transmit all SIR messages via military electronic communications facilities. Mail the enclosures, with one copy of the SIR message, to the NAVSAFECEN, attention Code 15, via registered mail, return receipt requested. SIR messages and SIR enclosures are distributed differently:

a. Safety Investigation Report Message

(1) Address SIR messages as appendix 7A or 7B (at the end of this chapter) direct.

(2) Only the CNO, CMC, or COMNAVSAFECEN may readdress SIR messages to organizations outside the Navy or the Marine Corps. All the above and the Controlling custodians may readdress SIRs and endorsements for further endorsement or for remedial action.

(3) Do not distribute SIR messages to individuals or commands not specified in this instruction under any circumstances. To do so is a direct violation of the Uniform Code of Military Justice and subjects civilian personnel to disciplinary action under Civilian Personnel Instruction 752.

(4) Using Standard Subject Identification Code (SSIC) 3752 on all SIR messages and endorsements helps the receiving commands limit their internal distribution to only those individuals who require the report for safety purposes.

Commanding officers must configure their command's message distribution processor so that only authorized personnel receive the SIRs and their endorsements. Do not copy any part of an SIR without the specific approval of the commanding officer.

b. Safety Investigation Report Package

(1) Make only two complete copies of the SIR. The AMB appointing authority keeps one and mails the other via registered mail, return receipt requested, to:

Commander, Naval Safety Center
Attn: Code 15
375 A Street
Norfolk, VA 23511-4399

(2) Submit three additional partial packages For ALL and B mishaps when an Aeromedical Analysis (AA) is enclosed. Mail one copy of the SIR message, one copy of the AA, and one copy of each appendix N enclosure form to:

Commander, Naval Safety Center
Attn: Code 14
375 A Street
Norfolk, VA 23511-4399
(include electronic copy)

Naval Aerospace and Operational Medical Institute
Attn: Code 32
220 Hovey Road
Pensacola, FL 32508-1047

c. Submission of Enclosures For Class C Mishaps. Prepare an SIR folder with Parts A and B for all mishaps. Send only the SIR message and the AA for Class C mishaps.

708. PRIVILEGED INFORMATION

a. Military and Federal courts recognize that information given under promises of confidentiality and findings, conclusions, and recommendations of the AMB and endorsers are protected from release under Executive Privilege. Promises of confidentiality are given to members of the AMB, and may be given to witnesses, although witness names are not privileged. Therefore, the deliberative analyses of findings, conclusions, and recommendations of the AMB and most witness statements are always privileged. Any information which would not have been discovered but for information provided under a promise of

confidentiality is privileged. Also deemed privileged is information directly calculated by the AMB, or development of which is specifically required by the AMB, when disclosing that information would reveal the AMB's deliberative process.

b. Data from the many various electronic recording devices now in common use is real evidence until the AMB manipulates the information into tables, multidimensional imagery or animation during the deliberation process. The product of this effort is analysis and, therefore, privileged information. Refer to paragraph 606d(4).

c. Cockpit Voice Recorder (CVR) tapes will not be released. The Naval Safety Center may release some portions of the transcript under FOIA or Litigation but the content is subject to the Privacy Act.

d. Photographs staged by the AMB (i.e., photographs that are preplanned or posed to illustrate a specific condition or situation) as a result of their deliberative process are privileged. All other photographs are not. However, those captions and markings placed on photographs indicative of the AMB's deliberative process are privileged. The captions and markings only, not the photographs, are privileged.

e. COMNAVSAFECEN is authorized to determine the privileged or nonprivileged status of all information contained in the SIR.

709. SPECIAL HANDLING

The term "Special Handling" means the handling of privileged reports to ensure that their use is limited strictly to safety. Common sense must be applied to determine exactly what handling actions would be appropriate. For example:

a. Uncontrolled dissemination of SIRs which could result in their disclosure to personnel not requiring knowledge of their content for safety purposes (such as placement in reading racks, on bulletin boards, etc.) would not be appropriate.

b. On the other hand, controlled passage of SIRs from individual to individual or from office to office in file folders to ensure their disclosure to specific individuals requiring knowledge of their content for safety purposes, or a similar control method, would be appropriate.

710. INDEPENDENCE OF SAFETY INVESTIGATION REPORTS

a. Do not append Part B of SIRs and extracts from Part B of SIRs to, or include them in, JAG Manual Investigation Reports or any other report. Do not make Navy JAG an addressee on SIR messages. Statements made to AMBs, whether or not under a promise of confidentiality, become the property of the Naval Aviation Safety Program and may not be released for inclusion in the JAG report.

b. Part A materials, though non-privileged are also not to be provided to the JAG investigator. The JAG investigator is required to develop such evidence independently of the AMB.

c. To preclude any inference of association with disciplinary action, JAG Manual Investigation Reports shall not be appended to, nor made a part of, any SIR. SIRs shall not include any reference to disciplinary action, Naval Aviator or Naval Flight Officer Evaluation Boards (USN), Field Flight Performance Boards (USMC), or any other administrative action in connection with the mishap being reported.

711. FOR OFFICIAL USE ONLY

SIRS are FOUO. See SECNAVINST 5720.42F.

712. SECURITY CLASSIFICATION

SIR messages will normally be unclassified. Omit any portion of the report that warrants classification, and substitute the word "classified." Treat enclosures in a like manner.

713. MESSAGE PRECEDENCE

Send all SIR messages via routine precedence.

714. MINIMIZE

SIR messages are exempt from MINIMIZE. See ACP 121(d) (NOTAL) and US SUPP (B-1).

715. SAFETY INVESTIGATION REPORT MESSAGE FORMAT

a. Format. Submit SIR messages per the following:

(1) Addressees. See appendix 7A or 7B at the end of this chapter. You may only use the CAD of your type aircraft.

(a) Repeat verbatim all material double underlined in the format below in the text of the report.

(b) We prescribe a single format for all SIR messages, regardless of the severity of the mishap reported, for administrative convenience, for ease of use through familiarity, and because the information required does not vary with the severity of the mishap.

(c) The amount of information in an SIR may vary considerably, depending on the circumstances surrounding the mishap. If a lot of information is required to explain a mishap or support the conclusions and recommendations of an AMB, an SIR might contain several pages and many enclosures. On the other hand, a simple, well defined mishap can be reported in a one or two-page SIR message.

(d) Originator must refer to Navy Tactical Publication (NTP) 3, Telecommunications Users Manual, for the latest message format guidelines. Most of an SIR is entered in the remarks section of a GENADMIN message. Exercise care and follow all US Message Text Format (USMTF) rules.

(2) Headings. Place one of the following headings at the beginning of the text:

Safety Investigation Report when Reporting Custodian is AMB Appointing Authority:

BT
UNCLAS FOUO //N03752// THIS IS A LIMITED-USE, LIMITED-DISTRIBUTION, NAVAL AVIATION SAFETY INVESTIGATION REPORT (-UAV for UAV mishaps only) (reporting custodian, mishap classification, mishap serial number, date of occurrence, model/series aircraft or UAV, buno)/REPORT SYMBOL OPNAV 3752-1

MSGID/GENADMIN/originator (reporting custodian)/message serial number (not report serial number)/month//

SUBJ/AVIATION SIR//

Safety Investigation Report when Reporting Custodians not AMB appointing authority:

BT
UNCLAS FOUO //N03752// THIS IS A LIMITED-USE, LIMITED-DISTRIBUTION, NAVAL AVIATION SAFETY INVESTIGATION REPORT (-UAV

for UAV mishaps only) (appointing authority) AMB REPORT OF (reporting custodian, mishap classification, mishap serial number, date of occurrence, model/series aircraft or UAV, buno)/REPORT SYMBOL OPNAV 3752-1

MSGID/GENADMIN/originator (reporting custodian)/message serial number (not report serial number)/month//

SUBJ/AVIATION SIR//

Next, insert the references and immediately after RMKS the Limited-Use Statement:

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/DOC JAGINST 5800.7C/-//
REF/C/(Other references as appropriate)//
NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS THE NAVY JAG MANUAL. REF C IS . . . .//

POC/(name of primary point of contact to answer inquiries about the SIR)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/TEL:(phone number)//

RMKS/**********
FOR OFFICIAL USE ONLY
THIS IS A PRIVILEGED, LIMITED-USE, LIMITED-DISTRIBUTION, SAFETY INVESTIGATION REPORT. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY MILITARY PERSONNEL IS A CRIMINAL OFFENSE PUNISHABLE UNDER ARTICLE 92, UNIFORM CODE OF MILITARY JUSTICE. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY CIVILIAN PERSONNEL WILL SUBJECT THEM TO DISCIPLINARY ACTION PURSUANT TO CIVILIAN PERSONNEL INSTRUCTION 752. THIS REPORT MAY NOT BE RELEASED, IN WHOLE OR IN PART, EXCEPT BY THE COMMANDER NAVAL SAFETY CENTER.
****
1. MISHAP INFO:

Remainder of the Text:

A. THIS REPORT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION. If the criteria in paragraph 804 requires endorsement of the report include the following phrase: (state first endorser) ENDORSEMENT REQUESTED IAW REF (A). SUMMARY: Summarize the content of the report and provide a brief description of the mishap, such as crashed into the water, gear-up landing, midair collision, ran off runway, settled into water after cat shot; etc. Do not disclose potential causal factors.

B. PRIVILEGED MISHAP NARRATIVE Prepare a narrative that reports, in detail, the events leading up to the mishap, the sequence of events during the mishap, the causes of the mishap and why the mishap occurred. Write this narrative for those outside the endorsing chain so they may quickly understand what happened and the lessons learned. The endorsers will want to read the SIR in full to be sure the investigation and the report are complete and withstand scrutiny.

This paragraph shall contain a concise narrative of the mishap developed from the accepted causal factors in paragraph 11. Base this narrative on the accepted analysis in paragraph 11. Include all causal factors of the mishap and causal factors of other damage or injury. If the AMB wants to include further explanation, conjecture or theory in the narrative, they must first introduce and analyze this new information as a new causal factor in paragraph 11. Do not include new causal factors in the narrative that cannot be accepted in paragraph 11.

c. Paragraphs 2 through 9: Repeat MDR paragraphs 2 through 9. Include any new nonprivileged information that has not been provided in previous MDRs.

10. EVIDENCE

A. ENCLOSURES HAVE BEEN MAILED PER REF A. (Mail a complete set of enclosures for Class A and B mishaps only. Mail only the AA for Class C mishaps. The appointing authority holds copies of all enclosures.)

(1A) Copy of initial MDR message. This is always the first non-privileged enclosure.

(2A) SIR ENCLOSURE FORMS (appendix N, as required).

(A) FORM 1

(B) FORM 2 (MP) (MCP) (MCC) (etc.)

(C) FORM 3 (MP) (MCP) (MCC) (etc.)

(D) Continue listing of all other forms as required by appendix N.

(3A) List of witnesses whose statements were used as evidence who were not given a promise of confidentiality. If

all witnesses were given a promise of confidentiality, state, "None."

(4A) Subsequent nonprivileged enclosures as appropriate.

(1B) Copy of SIR message. This is always the first privileged enclosure.

(2B) Second privileged enclosure.

(3B) Etc.

B. SUMMARY OF EVIDENCE

(1) THE FOLLOWING ACRONYMS, ABBREVIATIONS AND DEFINITIONS ARE USED IN THIS SIR:

(A) First acronym, or abbreviation, or definition defined.

(B) Second acronym, or abbreviation, or definition defined.

(C) Etc.

(2) First item of evidence. (2A). (This item, as shown in this example, is nonprivileged from one of the forms in enclosure (2A).)

(P)(3) Second item of evidence. (3B). (This item, as shown in this example, is privileged from enclosure (3B).)

(4) Etc.

List the enclosures to the SIR in subparagraph "A" indicating those that are nonprivileged beginning with "(1A)"; and those that are privileged, with "(1B)" as shown. These correspond to the "A" and "B" sides of the SIR package. Enclosure (1A) shall be copies of all MDR messages. Enclosure (1B) shall be a copy of the SIR message. Make data such as transcripts, aircraft discrepancies, etc., enclosures only if critical to understanding this mishap. List all enclosures, privileged or not, in paragraph 10A. Then, list the evidence considered by the AMB in paragraph 10B, Summary of Evidence. Recommend a chronological sequence. It enhances clarity. But the AMB may list the evidence in whatever manner they desire. The idea is to communicate effectively with the reader; to present the

information clearly and distinctly. Compile this listing of factual evidence without regard to the source. It must include all the evidence which forms the basis for the analysis in paragraph 11 and ultimately the recommended corrective action in paragraph 12. The Summary of Evidence list will ordinarily contain privileged information. Since privileged information obtained by the AMB from witness statements (oral or written), or speculations about the evidence made by the AMB, may not be released, you must identify all such privileged evidence with the letter "P" in parenthesis: (P) at the beginning of each privileged fact listed. Use (P) to indicate privileged information. Do not use the symbol (P) when citing information taken from unprivileged witness statements. Use (NP) in those cases. Discuss data of a personal nature only in general terms in this paragraph. Include any details in the AA. Refer to enclosures and information in enclosures by identifying them as: (2A), (3B), etc. Keep this information detailed, but concise. A lengthy SIR message is neither desired nor warranted. Do not include conclusions or recommendations in this paragraph.

11. ANALYSIS

A. (Insert appropriate term) FACTOR - (Describe causal factor in terse sentence or phrase.) Causal factors are specific acts of omission or commission. Thus, the hazard statement must contain a "WHO"/"WHAT" or "COMPONENT"/ "MODE" combination. ACCEPTED or REJECTED. Select appropriate term, based on your opinion of whether statement is true. AMB analysis of the causal factor follows. The analysis must specifically state how the causal factor caused the mishap and must clearly detail all the "WHYs" or "AGENTS" which gave rise to a particular causal factor. These "WHYs" or "AGENTS" may also be developed into separate causal factors, if need be. If the causal factor is accepted, include the following phrase: BASED ON THE ABOVE ANALYSIS, THE AMB CONCLUDES (make a concise restatement of the accepted causal factor stating who did what and why, or what part failed, how it failed and why. There can be multiple WHYs/AGENTs. For each accepted causal factor, add causal factor elements (WHO/WHAT/WHY or COMP/MODE/AGENT) as described in subparagraph 607d and appendix L at the end of the paragraph.)

WHO:	or	COMP:	(List who or component element.)
WHAT:	or	MODE:	(List what or mode element
WHY:	or	AGENT:	(List why or agent element.)

(Below is an example showing an aircrew factor which is accepted. For each accepted causal factor there is only one WHO and one WHAT, however, there may be more than one WHY. If there is more than one logical WHO/WHAT combination, find and describe another causal factor. See Subparagraph 607d. Additional causal factor examples are contained in appendix M.)

B. AIRCREW FACTOR - PILOT AT CONTROLS FAILED TO LOWER THE LANDING GEAR. ACCEPTED. E.I. REVEALED LANDING GEAR SYSTEM WAS FULLY OPERATIONAL AT THE TIME OF THE MISHAP. POST-MISHAP PHOTOGRAPHS INDICATE THE LANDING GEAR HANDLE WAS UP. MISHAP PILOT HAD ONLY FOUR HOURS SLEEP PRIOR TO THE FLIGHT. HE STATED A RADIO CALL INTERRUPTED HIS LANDING CHECKS, BUT HE THOUGHT HE LOWERED THE GEAR. BASED ON THE ABOVE ANALYSIS THE AMB CONCLUDES THE MISHAP PILOT FAILED TO LOWER THE LANDING GEAR BECAUSE HE LACKED ADEQUATE REST AND WAS DISTRACTED BY THE RADIO CALL.

WHO: AIRCREW, PILOT AT CONTROLS, AIRCRAFT COMMANDER.
WHAT: AIRCREW, DID NOT EXTEND LANDING GEAR, FAILED TO CONFIRM LANDING GEAR POSITION PRIOR TO LANDING.
WHY: PHYSIOLOGICAL, ACUTE EFFECTS, FATIGUE, INADEQUATE REST.
WHY: PERFORMANCE, FAILURE OF ATTENTION, DISTRACTION EXTERNAL.

Causal factors shall contain the AMB's analysis of only that evidence discussed in paragraph 10 in the format shown. The first statement of each causal factor shall be the selected type of factor that fits the theory being tested; that is: AIRCREW, SUPERVISORY, FACILITIES PERSONNEL, MAINTENANCE, or MATERIAL FACTOR. Follow the selected factor by a dash, then a short sentence or phrase that describes what happened, the specific act of omission or commission, then either the statement "ACCEPTED" or "REJECTED." Your analysis of this hazard must support its acceptance as a causal factor. Next comes the explanation of why this causal factor is accepted or rejected and how it influenced the mishap. Your analysis must be sufficient to describe the deliberations of the AMB, including those aeromedical conditions existing at the time of the mishap. It must state the basis for acceptance or rejection of every theory. Describe the details of this deductive reasoning process sufficiently enough for later endorser of the report to judge fairly the validity of the conclusions you reached. For each causal factor be sure you construct a "word picture" from the evidence and AMB speculation that will provide the reader with a clear idea of what the board thinks happened. If you are describing a human act of omission or commission explain the billet "who" (the position, not the name), "what" the "who" did, and "why." If you are explaining a material factor you must specifically define a particular part, its failure "mode" and the technical "agent(s)" which caused that component to fail.

You may develop the "why(s)" or "agent(s)" of a specific causal factor into separate causal factors if need be. Your analysis must also explain how this particular causal factor influenced the mishap. If your causal factor is accepted, conclude with the statement: "BASED ON THE ABOVE ANALYSIS, THE AMB CONCLUDES (state "WHO" or "COMPONENT" - same as the hazard statement, then state, "WHAT" or failure "MODE" from hazard statement) BECAUSE. From above analysis, state the "WHY(S)" or "AGENT(S)") which caused the specific act of omission or commission. All accepted causal factors must include causal factor elements: WHO/WHAT/WHY or COMPONENT/MODE/ AGENT. Select elements of human causal factors from the lists in appendix L. Describe material causal factors in plain language using standard nomenclature, as explained in subparagraph 607d(1)(b). To enhance readability, begin each element on a new line and indent it. The requirement for this dual statement of accepted causal factors is driven by the AMB's desire to describe its analysis in its own language, and the peculiarities of COMNAVSAFECEN's primary analytical tool, the Safety Information Management System.

C. Subsequent factors determined by AMB from the evidence. This paragraph shall contain the AMB's analysis of only that evidence discussed in paragraph 10 in the format shown. The first statement of each analyzed item shall be the factor that fits the hypothesis under scrutiny; that is: AIRCREW, SUPERVISORY, FACILITIES PERSONNEL, MAINTENANCE, or MATERIAL FACTOR. Follow the selected factor with a dash, then a short sentence or phrase that describes what happened (the special act of omission or commission), then either the statement "ACCEPTED" or "REJECTED." The explanation of why you accepted or rejected this theory follows this. Be sure your explanation is detailed enough to describe how the AMB deliberated over each hypothesis, including those aeromedical conditions existing at the time of the mishap. This explanation must also describe why each theory was accepted or rejected. Include enough detail so that subsequent endorsers may fairly judge your reasoning process. State the basis for rejection or acceptance of each idea proffered. It helps to discuss events and possible causal factors in chronological sequence. If the causal factor is accepted, state: "BASED ON THE ABOVE ANALYSIS, THE AMB CONCLUDES THAT (Make a concise restatement of the accepted causal factor stating WHO did WHAT and WHY, or what component failed, how it failed and why)." All accepted causal factors must include causal factor elements. The parts of each WHO/WHAT/WHY or COMPONENT/MODE/AGENT are termed the causal factor elements. Select the elements of human causal factors from the lists in appendix L. Describe the elements of material

causal factors in plain language, using standard nomenclature, as explained in subparagraph 607d1(b). To enhance readability, begin on a new line and indent each element. Those causal factors that are accepted in paragraph 11 must also appear in the paragraph 1b narrative, and in the appropriate causal factors of the mishap or causal factors causing other damage or injury subparagraph. Exercise care to keep emotions out of this and all other sections of the SIR.

12. CONCLUSIONS

A. CAUSAL FACTORS OF THE MISHAP:

(1) (Select one of the following determination statements according to the degree to which the causal factors are determined:)

THE CAUSAL FACTOR(S) OF THIS MISHAP IS (ARE):

THE MOST PROBABLE CAUSAL FACTOR(S) OF THIS MISHAP IS (ARE):

THE CAUSAL FACTOR(S) OF THIS MISHAP IS (ARE) UNDETERMINED WITH THE FOLLOWING POSSIBLE CAUSAL FACTOR(S):

THE CAUSAL FACTOR(S) OF THIS MISHAP IS (ARE) UNDETERMINED.

THE CAUSAL FACTOR OF THIS MISHAP IS DETERMINED TO BE: NO FAULT ASSIGNED. THE FOLLOWING MATERIAL FACTOR(S) IS (ARE) ASSIGNED: (Then, list each accepted causal factor in the analysis. See subparagraph 607d(2)(a)2.)

(A) (Insert appropriate term) FACTOR - (Repeat the description of this factor from paragraph 11 analysis.) RAC XXX (Insert appropriate RAC.) ASSOCIATED RECOMMENDATIONS: (List paragraph numbers for those recommendations which tie to this causal factor.)

(B) AIRCREW FACTOR - PILOT AT CONTROLS FAILED TO LOWER THE LANDING GEAR BECAUSE HE WAS FATIGUED. RAC III. (This hypothetical example shows the conclusions relating to the example factor in paragraph 11 above.) ASSOCIATED RECOMMENDATIONS: 13.A.(1)(a), 13.A.(4)(3).

(C) (Subsequent conclusions as determined by the AMB.)

B. CAUSAL FACTORS CAUSING OTHER DAMAGE AND INJURY: (Include this section if there is "other damage or injury." Begin with appropriate determination statement substituting "OTHER DAMAGE OR INJURY" for "THIS MISHAP." If no "other damage or injury" then state "NONE.".

(1) (Include causal factors relating to "other damage or injury" in this paragraph in same format as mishap causal factor.)

Separate the AMB's conclusions into two groups: causal factors "CAUSING THE MISHAP," and causal factors causing "OTHER DAMAGE or INJURY" as shown. The plain language conclusions of the AMB are the causal factors and appear in the subparagraphs of each section. Preceding them is the determination statement, selected according to the degree of mishap determination from among the five choices listed. Following each causal factor is the RAC as determined by the AMB. Begin the description of each causal factor with the identification of the classification of the type of factor, that is, AIRCREW FACTOR, followed by a short sentence or phrase describing who did what and why in plain language - ending with the RAC. To repeat the analysis paragraph for the factor up to where the factor is accepted, followed by the RAC is both sufficient and appropriate. All factors that are accepted in the analysis section must appear in the Conclusions section. Except as noted in paragraph 12.C., do not report hazards in the SIR that are not accepted as factors. Send a separate Hazard Report in such cases. Note that including a hazard in the paragraph 12.C. ORM analysis will not obligate any activity to take action; if a hazard is discovered which is unrelated to the causal factors and action to correct the hazard is desired, a Hazard Report is the proper venue to initiate such action.

C. OPERATIONAL RISK MANAGEMENT ASSESSMENT:

Purpose. This paragraph shall contain a general summary of significant hazards associated with the mishap together with existing or recommended risk management actions for eliminating or controlling these hazards. Operational Risk Management (ORM) is a five step process for dealing with risk associated with naval operations which involves hazard identification, risk assessment, risk decision making, implementation of effective risk controls, and supervision. The proper application of ORM optimizes operational capability and readiness by managing risk to accomplish the mission with minimal loss or damage. ORM is thus an effective tool that also supports the Naval Aviation

Safety Program objectives to preserve human and material resources. The information requested in this paragraph is part of an initial ORM data collection effort by the Naval Safety Center. The long-term goal of collecting this data is to provide a valuable reference database of known naval aviation operations hazards and available risk control measures that can be employed to eliminate or minimize the probability and/or severity of loss or damage.

General Guidelines. The basic intent of this paragraph is to list the most significant hazards associated with the assigned mission and the existing or recommended risk control measures to eliminate or mitigate that risk. For the purposes of this stage of development of the ORM database, it is left to the AMB's judgement on what to list here as the most significant hazards. In reality every mission has a wide variety of attendant hazards, some which are unique due to the tasking (i.e. terrain avoidance on a low level navigation flight, formation flight midair collision, etc.) and some which may be common to many missions (i.e. aircrew fatigue or proficiency level, flying in IMC, etc.). It is not necessary to attempt to list every conceivable hazard that exists in this paragraph. Rather AMB's should apply a "reasonable man" approach and focus this paragraph on those hazards that would be considered the most significant to address from a preflight planning and operations management perspective.

Although the basic information contained in this paragraph may seem very similar to that contained in other paragraphs in the SIR, several differences exist in the format in order to support the initial ORM database collection effort. A natural starting point for listing the hazards and associated control measures would be to consider the identified causal factors and recommendations in paragraphs 12A-B and 13. First it will be necessary for the AMB to rephrase these casual factors as described in the format paragraph below. Secondly, in some cases it may be possible to combine similar separate casual factors into a single hazard (i.e. separate aircrew factors for the pilot and copilot due to fatigue may be simply listed as a single hazard under aircrew fatigue). Finally, this paragraph differs from others in that the hazards listed here are not restricted to those identified as casual factors. If in the course of the investigation the AMB identifies a significant hazard that was not a causal factor in this mishap but had the potential to result in significant damage or loss, it should be listed here. This will support the intent of building a meaningful reference database for subsequent users in applying their risk management process.

For each hazard listed, the AMB should list at least one existing risk control or a recommendation to either modify existing risk controls or implement additional ones.

Format. (Submit the ORM assessment using the following format for each hazard listed. A hazard is defined as any potential cause of damage, injury, or loss. A control is a measure which eliminates the hazard or reduces the probability and/or severity of damage, injury, or loss.)

(1) HAZARD – (List a short narrative description of the hazard. This should be no longer than 1-2 lines.)

(A) CONTROL - (List a short 1-4 line narrative description of the control.)

(B) CONTROL – (List other controls as applicable. There can easily be multiple controls listed for each hazard.)

(2) HAZARD – (Subsequently list additional hazards as deemed appropriate.)

(A) CONTROL - (List a short 1-4 line narrative description of the control.)

(B) CONTROL – (List other controls as applicable. There can easily be multiple controls listed for each hazard.)

(Below is an example of several hazards and their associated controls. For existing controls which are not directed Navy-wide such as through an OPNAVINST or a NATOPS manual, cite the local reference and summarize the provisions of the control.)

(1) HAZARD - Aircrew Fatigue

(A) CONTROL - Comply with OPNAVINST 3710.7R Rest and sleep requirements.

(B) CONTROL - Comply with CO, VF-XXX Memo of 16 Jun 9X (SOP) requiring aircrew to notify squadron Operations Officer of extenuating circumstances precluding sufficient crew rest prior to scheduled flights.

(2) HAZARD - Failure of newly replaced tail rotor blade

(A) CONTROL - Squadron QA validate currency and

accuracy of NAVAIR XX-XXX.XX-XX tail rotor blade maintenance manuals and XX-XX NATOPS Manual.

(B) CONTROL - Comply with NAVAIR XX-XXX.XX-XX maintenance procedures for tail rotor blade replacement.

(C) CONTROL - Comply with XX NATOPS Functional Checkflight procedures for tail rotor blade maintenance.

13. RECOMMENDATIONS. The format for the Recommendations paragraph is similar to the Conclusions paragraph and separated into the same two groups identified in paragraph 12. Do not include recommendations which do not eliminate hazards identified in paragraph 12 in the SIR. On the contrary, all CAUSAL FACTORS (Hazards) identified in paragraph 12 must have some recommendation for remedial action in paragraph 13. The AMB should test their corrective actions as they develop them to be sure they address the WHYs of each CAUSAL FACTOR. Appendix M contains an example for completing paragraphs 10, 11, 12, and 13.

716. ENCLOSURES TO THE SAFETY INVESTIGATION REPORT

a. Purpose. SIR enclosures serve two purposes. One is to provide additional data on the mishap that can be coded and entered in the NAVSAFECEN data bank and used as research material. The other is to clarify points of evidence too voluminous for the SIR message body. The AMB must collect the evidence, deliberate, and come to conclusions. It is not necessary to substantiate evidence provided in the SIR message other than to cite its source. The SIR is not a legal document. Its adequacy has nothing to do with the size of the folder. The appointing authority must hold the information collected during the investigation until the final endorsement. Enclosures in Part A will only contain nonprivileged information. Enclosures in part B will contain only privileged information. Paragraph 708 highlights the distinctions between privileged and non-privileged information.

b. Method of Submission

(1) Assembly

(a) Part A of the SIR will include a copy of all MDR messages and Part A enclosures (refer to subparagraph 716c). Attach them to the left side of the folder.

(b) Part B of the SIR will include a copy of the SIR message and Part B enclosures (refer to subparagraph 716d). Attach them to the right side of the folder.

(2) Marking

(a) Mark the edge of the file folder and the backside of all Part A photographs:

1. If reporting custodian is the appointing authority of the AMB: “REPORTING CUSTODIAN, MISHAP CLASSIFICATION, MISHAP SERIAL NUMBER _____.”

2. If the appointing authority of the AMB is not the reporting custodian: (APPOINTING AUTHORITY) "AMB REPORT OF" REPORTING CUSTODIAN, MISHAP CLASSIFICATION, MISHAP SERIAL NUMBER_____.

(b) Mark Part B of the file folder, each enclosure, and the reverse of all Part B photographs: "THIS IS A PART OF A LIMITED-USE NAVAL AVIATION (or UAV) SAFETY INVESTIGATION REPORT LIMITED-DISTRIBUTION AND SPECIAL HANDLING REQUIRED BY OPNAVINST 3750.6R".

c. Submission Criteria for Part A (Nonprivileged) Enclosures. Part A enclosures to the SIR may include, when appropriate or when required below,

(1) A copy of all MDR messages. (This is always enclosure (1).)

(2) SIR Enclosure Forms (appendix N) As Appropriate: (This is always enclosure (2).)

(a) SIR Form 1, General Information Data. Submit this form on all mishaps.

(b) SIR Form 2, Individual Background Data. Submit this form for each aircrew member. Also submit this form for any other person who may have contributed to the mishap.

(c) SIR Form 3, Medical Information. Submit this form for everyone injured or having a relevant medical finding.

(d) SIR Form 4, Aviation Physiology, Egress and Water Survival Training Data. Submit this form for each person involved in the mishap who has received or should have received

training in physiology, egress, or water survival, when that training, or lack of, was a factor in the mishap or damage or injury associated with the mishap.

(e) SIR Form 5, Aviation Life Support Systems Data. Submit this form for each person who was the subject of an escape, survival or rescue episode. Also submit this form for each person who used or tried to use survival or escape equipment or clothing.

(f) SIR Form 6, Escape, Egress Data. Submit this form for each person who ejected, bailed out, or otherwise made an emergency or unintentional egress.

(g) SIR Form 7, Ejection or Bailout Data. Submit this form for anyone who ejected, tried to eject, or bailed out. Also submit this form if the canopy is jettisoned for any reason.

(h) SIR Form 8, Survival and Rescue Data. Submit on anyone rescued by a Search and Rescue (SAR) effort. Submit one for an unsuccessful SAR effort.

(i) SIR Form 9, Aircrew Data. Submit this form for all mishaps that involve aircrew.

(j) SIR Form 10, Aircraft Data. Submit this form for all mishaps involving maintenance or material.

(k) SIR Form 11, Crash Data. Submit this form for all mishaps involving manned aircraft colliding with the ground, water, or other aircraft.

(l) SIR Form 12, Night Vision Device Data Submit this form for all mishaps in which NVDs played a part.

(m) SIR Form 13, Meteorological Data. Submit this form for all flight mishaps and any other mishaps with weather involvement.

(3) Copies of NATOPS Qualification Jacket Page: Submit these forms for the cockpit crews on all Class A and B flight mishaps and flight-related mishaps where there is aircrew involvement, ejection, bailout or emergency egress:

(a) Mission Qualification Record

(b) School/Course Attendance Record

(c) Operational Physiology and Survival Training Record

(d) Designation Record

(e) Mishap/Flight Violation Record

(4) Photographic Coverage. Photographs are helpful in analyzing the mishap. Most mishap photographs, except for those contained in the AA, autopsy report, and those staged by the AMB, are factual and nonprivileged (see subparagraph 708c). After removing any privileged captions or markings, place a copy of all nonprivileged photographs in Part A. See paragraphs 716d(3)(b)5 for AA and autopsy photographs and 716d(2) for information on other Part B photographs.

(5) Sketches and Diagrams. Submit only if needed to clarify events which are difficult to explain in the text of the report. Never include information from sources who have been promised confidentiality, or anything which would expose the deliberative process of the AMB. That information resides only in Part B. (See paragraph 708.)

(6) Engineering Investigation. EIs, technical, laboratory and contractor reports must contain only factual information. Speculation, opinions and mishap casual factors have no place in these evaluations. If the AMB desires information that requires speculation or opinion from an expert, it should extend a promise of confidentiality to that individual and indicate they will consider it in their deliberations. If the AMB promises confidentiality to experts, they must separate the information these experts provide from the factual evidence and submit it as a privileged witness statement under Part B.

(7) Data Recorders. The information in Flight Data Recorders (FDRs), flight incident recorders (FIR), cockpit voice recorders (CVR), video tape recorders and mission computers recovered from mishap aircraft are invaluable to the AMB's analysis. Properly preserving and transporting these "black boxes" directly effects the success of data retrieval.

(a) Never open or tamper with any recording or memory device.

(b) For any data recorders, Heads Up Display (HUD) recorders contaminated by water, fuel, hydraulic fluid,

foam, etc., soak and rinse them in ionized or distilled water to flush any sources of corrosion. Keep them immersed until sealed in an air-tight container for shipping/transport.

(c) For those devices employing non-volatile memory or memory "chips", use static-free caps on electrical hookup ports, and wrap the device in EMI/static shield (Mil-B-81705C Type I Class I or equivalent) before wrapping it in bubble wrap. Take special care to protect any device which employs solid-state circuitry from exposure to static electricity. Ship listing the squadron, type aircraft, bureau number, and date of mishap. Also attach (in a waterproof bag) a copy of the latest MDR about the mishap.

(d) Place the FIR in a sturdy shipping container and cushion with bubble wrap or other energy-absorbing material. Firmly attach a label or tag to the FIR listing the squadron, type aircraft, bureau number, and date of mishap. Attach, in a waterproof bag, a copy of the latest MDR about the mishap.

(e) Mail via fastest traceable means available or send with a courier service if available.

(f) Clearly mark the outside of the package: "DO NOT X-RAY" and "Aviation Mishap INVESTIGATION EVIDENCE, DO NOT TAMPER WITH CONTENTS." For ASH-20 FIRs only, mark the package: "CONTAINS MAGNETIC TAPE, DO NOT X-RAY" and "Aviation Mishap INVESTIGATION EVIDENCE, DO NOT TAMPER WITH CONTENTS."

(g) For FIRs, ship immediately to:

Commander, Naval Safety Center
Attn: Code 13
375 A Street
Norfolk VA 23511-4399

Send message to COMNAVSAFECEN NORFOLK VA indicating the date, mode of shipment, shipping document number, and estimated date of arrival. Info COMNAVAIRSYSCOM WASHINGTON DC.

(h) For <u>other</u> models of FIRs, contact COMNAVSAFECEN Aircraft Mishap Investigation Division concerning shipping instructions. (See appendix D.)

(8) <u>Autopsy Protocol Reports</u>. Include laboratory and x-ray reports, if applicable.

(9) Other Nonprivileged Enclosures as Defined in Paragraph 708

d. Submission Criteria for Part B (PRIVILEGED DATA) Enclosures. Include Part B enclosures to the SIR when appropriate, or as required below:

(1) A copy of the SIR message. (This is always enclosure (1).)

(2) Photographic Coverage. Submit a copy of any privileged photographs selected for submission in the SIR, except autopsy photographs (refer to subparagraph 716d(3)(b)5), in this enclosure. Label all photographs included in Part B with captions and any other markings necessary to ensure clarity.

(3) Aeromedical Analysis (AA)

(a) Submission Criteria. If contributing human factors are suspected, there are personnel injuries, or pertinent medical findings, or there are attempts to eject, bail out, or otherwise emergency egress, submit an AA.

1. The AA is the privileged report by the AMB flight surgeon that addresses mishap causes, conclusions and recommendations. As an enclosure to the SIR, the AA documents the aeromedical conditions the flight surgeon has determined to be pertinent to the mishap. These conditions include all human factors contributing to the mishap, injury, or other damage. It shall include all aircrew, maintenance, facilities, and supervisory factors. Any aeromedical causal factor discovered during the investigation must be brought to the attention of the AMB and addressed in the SIR message. However, there is no guarantee they will accept it as a causal factor. There may be aeromedical conditions present, which did not contribute to the mishap. List these in the designated subsection of the AA's conclusions. The AA and other portions of the SIR are complementary and expected to overlap. The format for the AA should follow the outline below with double underlined material repeated verbatim:

1. Review of Events. This section of the AA is a chronological review of the mishap beginning with any preexisting aeromedical conditions and closing with the survivors coming under appropriate medical care. It should stand on its own merit. The reader should be able to understand the discussion section

without referring to the SIR message or other documents. This section should include a brief medical and psychological profile of everyone involved. The flight surgeon will review sensitive, personal or speculative topics as pertinent in this section and comment on these additional areas for each person involved in the mishap:

- 72-hour history
- physiology training
- flight physical
- physical qualification waivers
- life stressors
  - relationships with co-workers, family and friends
- acute medical problems
- chronic medical problems
- current medication use
- post-mishap biological samples/results
- autopsy and post-mortem lab studies
- escape or egress/survival episodes
- SAR effort
- treatment and transport of those injured.

2. Discussion and Conclusions (HFACS Analysis). In this section Flight Surgeons shall list all the aeromedical conditions that were accepted by the AMB as a “what” or “why” using the Human Factors Analysis and Classification System (HFACS). List all of the aeromedical conditions that were causal factors in the mishap in subsection 2a. List all aeromedical conditions that were causal factors of additional damage or injury in subsection 2b. In subsection 2c, list all of the aeromedical conditions that were present but did not contribute to either the mishap or additional damage or injury. See appendix J. Appendix O contains an HFACS primer. Note that the official causal factors of the mishap are defined by the detailed cause factors (who/what/why's); HFACS are general categories of causal factors and, just as with narrative cause factors, are assigned purely to facilitate mishap analysis.

3. Aeromedical Recommendations. This section is similar to paragraph 13 of the SIR. Based on aeromedical conclusions, make your recommendations here to prevent accepted causal factors from recurring and to prevent or limit the severity of additional damage or injury. Key each recommendation to the appropriate conclusion, and address them to the most appropriate action agency for change. Like SIR recommendations, aeromedical recommendations should be specific and definitive.

a. Enclosures to the AA. Hold supporting documents to a minimum, but include the following enclosures if pertinent:

(1) You must include chronological account of activities for the past 72 hours on everyone involved.

(2) Any medical record extracts you need to clarify or support the AA.

(3) The AFIP aircraft mishap reconstruction by evaluation of injury patterns report.

(4) Reports detailing personal or sensitive material, such as psychiatric or psychological consult reports. In a separate envelope, seal and mark these reports: "PASS DIRECTLY TO THE AEROMEDICAL DIVISION, NAVAL SAFETY CENTER. Send them to the Naval Safety Center and nowhere else.

(5) Sensitive photographs, such as autopsy photographs or other photographs of the deceased. In a separate envelope, seal and mark these photographs: "PASS DIRECTLY TO THE AEROMEDICAL DIVISION, NAVAL SAFETY CENTER. Send them to the Naval Safety Center and nowhere else.

(6) Include any other documents that meet the criteria for privilege (see paragraph 708), that will clarify or support the AA.

NOTE: Keep any nonprivileged supporting documentation (such as radiology slips) on the nonprivileged side of the SIR. Do not duplicate enclosures held in the main body of the report.

b. No AA Required. When the nature of the mishap does not meet submission criteria described above for an AA, include a statement to that affect, along with an explanation for your conclusion in paragraph 6 of the initial MDR message. (See paragraph 514.)

c. Witness Statements. Submit witness statements only if the content is critical to understanding the report. Transcribe telephone conversations in the form of a "results of interview" and submit them as witness statements. Do not send lengthy transcripts or tapes. You may include a summary of interviews in the SIR message.

(1) Aircrew Statements. If possible, enclose a statement made by everyone who ejected, bailed out, made an

emergency egress, or was rescued in a SAR operation. Their statements should recount all problems they encountered before or during egress from the aircraft, during parachute descent and landing, and during survival and rescue episodes. Include any information on the use and the effectiveness or any problems with survival and signaling equipment. A promise of confidentiality for such witnesses is not usual but may be granted if necessary to elicit testimony.

(2) LSO/LSE/Taxi Director Statements. You may use summarized statements from the controlling LSO, the senior LSO present, LSO, LSE, and the taxi director whenever mishaps occur to aircraft under their control. Those should include the following information, if appropriate:

(a) A complete account of the mishap from their viewpoints.

(b) An analysis of the pilot's landing grades for the previous 30 days (use OPNAV 3760/71 Form).

(c) Applicable items requested by section VII of the LSO NATOPS Manual.

(3) Other Statements (Specify). Include statements from the SAR pilots, SAR swimmers, or others involved in the rescue, only if their statements clarify ones understanding of the rescue. Promise confidentiality if necessary to elicit testimony.

d. AMB-Developed Information. Whenever the AMB directly calculates or specifically requires the development of detailed information during its deliberations, that information and the deliberative process surrounding it is privileged. Include it in Part B only. The above guidelines specifically apply to the following types of data often included in the SIR:

(1) Arresting/Catapult Data. Submit, in Part A or Part B or both as described above, in every mishap where the arresting gear, launching system, optical landing system, or arresting gear/catapult crew malfunctioned. Include as much technical information concerning failure, malfunction, or inadequacy as necessary to identify the difficulty completely.

(2) Takeoff Data. If takeoff data calculation was a possible causal factor, enclose a copy of the data calculated before the mishap (if available) in Part A, and a copy of takeoff data calculated by the AMB in Part B only.

(3) Weight and Balance. Submit weight and balance information gathered directly under a specific AMB ordered test in part B only, even if a DD 365F prepared before the mishap was submitted in Part A.

(4) Electronic Information. Summarize all electronic information, such as National Track Analysis Program (NTAP), Air Combat Maneuvering Range (ACMR) tapes, and other process electronic data available before the in the SIR message, if necessary. Send any additional electronic information specifically developed by or for the AMB in Part B only.

(5) Flight Incident Recorders. Information developed from the raw data contained in flight incident recorders or other data sources, and subjected to AMB analysis, is privileged. Place it in Part B if included in the report. Place data points taken from the raw data such as airspeed or flap position in Part A, if required.

(6) Other (Describe). Include any other information obtained under a promise of confidentiality, or specifically developed by or for the AMB, which would be helpful in understanding the report itself and cannot be summarized in part B.

717. PLAT (PILOT LANDING AID TELEVISION) TAPE FORWARDING DOCUMENT.

Handle PLAT tapes as follows:

a. Classify all recorded PLAT/integrated launch and recovery television surveillance system (ILARTS) tapes CONFIDENTIAL. Classify them SECRET if they reveal a serious deficiency in aircraft or carrier operations which would degrade ability of the fleet to perform its mission. Mark them as OPNAVINST C5513.2B (NOTAL) directs. CNO (N78F) will eventually review them for declassification.

b. After review by the AMB, forward copies of the tape to the Officer in Charge, Landing Signal Officer School, NAS Oceana, Virginia Beach, VA 23460-5129, to COMNAVSAFECEN (Attn: Code 10), and to the controlling custodian. These commands will make the tape available for review by the SIR endorsers.

c. The forwarding document for the PLAT/ILARTS tapes shall include reporting custodian, mishap serial number, DTG (local)

of the mishap, model aircraft, bureau number, and a brief description of the mishap. Include a copy of the forwarding document as an enclosure in part A of the SIR.

718. AVIATION MISHAP BOARD REVIEW OF SIRS

Regardless of the degree of a member's active participation in an investigation, each AMB member shall review the completed report before its release. The AMB arrives at its conclusions by consensus with no one member having veto power over the conclusions of the board. AMB members shall not keep a personal copy of the SIR.

719. APPOINTING AUTHORITY REVIEW OF SIRS

a. It is the AMB senior member's responsibility to prepare a complete SIR of high quality. To ensure the integrity and independence of the AMB and to prevent any hint of command influence, prebriefing, or reviewing its contents of the AMB's report with any endorsers prior to releasing the SIR message is absolutely prohibited.

b. Appointing authorities of Class B and C AMBs may review SIRs for completeness (as opposed to review for concurrence or nonconcurrence) prior to the release of the SIR message and mailing of the enclosures. Should the appointing authority consider the investigation or report incomplete, he/she should send the report back to the AMB along with sufficient direction to ensure an acceptable.

APPENDIX 7A

ADDRESSEES FOR SIRS WHEN CAD ASSIGNED

ACTION ADDRESSEES	WHEN
CNO WASHINGTON DC//N78F// COMNAVSAFECEN NORFOLK VA//00/10/11/FILE// COLLECTIVE ADDRESS DESIGNATOR (CAD)* OTHER COMMANDS IN ENDORSING CHAIN (if not in CAD)	Always
CMC WASHINGTON DC//-A/SD//	USMC involvement
OTHER NAVAL ACTIVITIES	Corrective action is (recommended to be taken by that activity.) (Even if activity is on CAD.)

INFORMATION ADDRESSEES (or action addressees if action is recommended to be taken by the addressee)

ARMED FORCES INSTITUTE OF PATHOLOGY WASHINGTON DC//CME-0//	A fatality is involved
LSO SCHOOL NAS OCEANA VA	Carrier landing mishap involved
HQ AFSC KIRTLAND AFB NM//SEF// CDRUSASC FT RUCKER AL//PESC-Z// COMDT COGARD WASHINGTON DC//G-KSE//	Common aircraft/engine (see appendix H) or any aircraft, facilities of that service (as appropriate) is involved
HELSUPPRON EIGHT HELSUPPRON THREE	Helicopter shipboard mishap involving LSE
BUMED WASHINGTON DC NAVOPMEDINST PENSACOLA FL NAVAIRWARCENWPNDIV CHINA LAKE CA NAVAIRWARCENACDIV PATUXENT RIVER MD	Aeromedical analysis is submitted or aviation life support systems are involved
NAVSURFWARCENDIV INDIAN HEAD MD//5320//	CAD and aircrew escape propulsion system (AEPS) devices of aircrew escape systems are involved
HELANTISUBRON ONE//60//	Mishap involves a SAR effort
CNET	When formal training is involved

* When no aircraft CAD is assigned (see appendix K), use appendix 7B.

APPENDIX 7B

ADDRESSEES FOR SIRS WHEN CAD NOT ASSIGNED

ACTION ADDRESSEES	**WHEN**
CNO WASHINGTON DC//N78F// CONTROLLING CUSTODIAN COMNAVSAFECEN NORFOLK VA//00/10/11/FILE// ENDORSING CHAIN CHAIN OF COMMAND TO FIRST FLAG LEVEL OTHER ACTIVITIES COGNIZANT FOR SAME AIRCRAFT	Always
CMC WASHINGTON DC//-A/SD//	USMC involvement
REPORTING CUSTODIAN	If reporting custodian is not the originator of the report
PARENT COMMAND	A detachment is reporting custodian
OTHER NAVAL ACTIVITIES	Corrective action is recommended to be taken by that activity

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INFORMATION ADDRESSEES (or action addressees if action is recommended to be taken by the addressee)

COMNAVAIRSYSCOM PATUXENT RIVER MD COMNAVSEASYSCOM WASHINGTON DC COMNAVAIRLANT NORFOLK VA COMNAVAIRPAC SAN DIEGO CA COMMARFORLANT//ALD// COMMARFORPAC//SAFETY// CG FOURTH MAW COMNAVAIRESFOR NEW ORLEANS LA CNATRA CORPUS CHRISTI TX BUMED WASHINGTON DC NAVOPMEDINST PENSACOLA FL NAVPGSCOL MONTEREY CA//10// NAVSTKWARCEN FALLON NV NAVAIRWARCENACDIV PATUXENT RIVER MD NAVAIRWARCENACDIV LAKEHURST NJ HQ AFSC KIRTLAND AFB NM//SEF//	Always
CINCLANTFLT, CINCPACFLT, OR CINCUSNAVEUR (as appropriate)	Mishap is expected to have wide public interest

ADDRESSEES FOR SIRS WHEN CAD NOT ASSIGNED CONT'D

COMMANDING OFFICER OF NAVAL OR MARINE CORPS AIRFIELD, SHIP, OR FACILITY	Personnel, equipment or facilities of that command are involved
DCMC	Cognizant aircraft involved
LSO SCHOOL NAS OCEANA VA	Carrier landing mishap involved
HELSUPPRON EIGHT HELSUPPRON THREE (LSE schools)	Helicopter shipboard mishap involving LSE
ARMED FORCES INSTITUTE OF PATHOLOGY WASHINGTON DC//CME-0//	A fatality is involved
HQ AFSC KIRTLAND AFB NM//SEF// CDRUSASC FT RUCKER AL//CSSC-R// COMDT COGARD WASHINGTON DC//G-KSE//	Common aircraft/engine (See appendix H) or any aircraft personnel, or facilities of (as appropriate) that service is involved
NAVAIRWARCENWPNDIV CHINA LAKE CA NAVAIRWARCENACDIV PATUXENT RIVER MD	Aeromedical matters or systems are involved
NAVSURFWARCENDIV INDIAN HEAD MD//5320//	CAD and AEPS devices of aircrew escape systems are involved
HELANTISUBRON ONE//60//	Mishap involves a SAR effort
CNET	When formal training is involved

OTHER INFORMATION OR ACTION ADDRESSEES	Never, strictly prohibited

CHAPTER EIGHT

REPORT ENDORSEMENTS

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This chapter describes Hazard Report and SIR endorsements, explains who submits endorsements, and when, how, and why they are submitted.

801. GENERAL

Endorsing Hazard Reports and SIRs is an important step in hazard elimination. Endorsers have the opportunity to lend their broader perspective and authority to the process of completing recommended corrective actions. Prompt, comprehensive endorsements are the hallmark of a strong Command Aviation Safety Program.

802. PURPOSE OF ENDORSEMENTS

Hazard Report and SIR endorsements help eliminate the hazards those reports describe. They convey the endorser’s position relative to matters contained in the reports.

803. REVIEW OF REPORTS AND ENCLOSURES

These endorsements require careful review of the basic reports and any prior endorsements. Any endorser who finds an investigation incomplete, or a Hazard Report or SIR inadequate, must act to reopen the investigation and resubmit the report. The endorser must reconvene the AMB and direct them to address the specific areas of concern. This must be done by naval message infoing all concerned. Endorsers must then endorse the modified SIR message, not the SIR package. Any endorser who needs copies of specific SIR enclosures may request them from the AMB’S appointing authority.

804. SUBMISSION CRITERIA

Hazard and Mishap Reports containing severe hazards must be endorsed. Additionally, endorsements are required for:

a. All Class A SIRs - through the chain of command and the NAVSAFECEN.

b. All other Hazard or SIRs until every recommendation requiring action has been addressed through:

(1) The corrective action agency when the corrective action agency is inside the endorsing chain.

(2) Or, the controlling custodian - in those cases where the corrective action agency is outside the endorsing chain.

c. When directed by higher authority.

d. Recommendation(s) for corrective action by higher authority require an endorsement or official message reply from that command. (See chapter 9.) At a minimum, the corrective action agency must acknowledge the tasking within 30 days of the controlling custodian's endorsement.

e. All Air Traffic Control Hazard Reports that contain severe hazards must be endorsed by the appropriate Type Commander in the capacity of executive agent for air traffic control purposes.

805. ORIGINATOR

Hazard Reports and Safety Investigation Reports. When required by paragraph 804, commands, both inside and outside the chain of command which have been tasked with corrective action, must respond to action assigned in hazard reports and SIRs.

a. Normal Endorsement Chain. The normal endorsement chain mirrors the operational chain of command from the reporting custodian to the controlling custodian. Operational Commanders who also have a task organization title (such as CTF 60) must use their administrative title (COMCARGRU FOUR, COMCRUDESGRU EIGHT) when endorsing aircraft SIRs.

b. Exceptions to the Endorsement Chain. Controlling custodians determine the endorsement chain. Although they may modify it at their discretion, there are certain requirements that must be met. The endorsing chain shall include:

(1) The reporting custodians of all aircraft involved.

(2) The CO of a Navy or Marine Corps airfield, ship, or facility, when the command was involved in the mishap. They may comment only on those areas where their command was involved.

(3) The CO of the aircrew involved in a mishap when that CO is not the reporting custodian of aircraft involved.

(4) If a mishap involves two or more aircraft from different reporting custodians, the controlling custodian of the senior reporting custodian involved will prescribe the endorsing chain.

(5) The controlling custodian of the aircraft involved when the controlling custodian is not in the operational chain of command.

(6) Commanding Officers of Naval Aviation Depots will endorse SIRs (other than their own) only when the depot is named as a causal factor. Depot COs may comment only on those areas where their command was involved and not on other causal factors of the mishap.

(7) The parent Marine Air Group (MAG) and Marine Air Wing (MAW) of Marine reporting custodians when the mishap squadron is embarked with a Marine Expeditionary Unit (MEU)

Special Operations Command (SOC). The endorsing chain for embarked, deployed USMC reporting custodians will include the parent MAG and MAW of the mishap squadron. The endorsement must come from the parent MAG or MAW if the aircraft involved is from a detachment assigned to the reporting custodian only for the duration of the embarkation.

c. The NAVSAFECEN will coordinate the endorsements outside the DON.

d. Controlling custodians are responsible for the timeliness of endorsements.

806. RISK ASSESSMENT CODES

Endorsers who disagree with a previously assigned Risk Assessment Code may restate the RAC in their endorsement. Appendix B explains RACs.

807. DEADLINES

The first endorsement is due 7 days after the date of the report. Sequential endorsers also have 7 days to complete and promulgate their endorsements after their predecessors have published theirs. Extensions are available from the controlling custodian (with info copies to COMNAVSAFECEN.) The controlling custodians have 14 days to complete and publish their endorsements. Navy Commands -- outside the endorsing chain -- assigned corrective actions must submit a message response, info all addressees, within 30 days of the controlling custodian's endorsement. Commands subordinate to the controlling custodian shall submit a message response, info all addressees, on all corrective action assigned them. Send this message within 30 days of the date of their message, the controlling custodian's endorsement, or the last endorsement in the endorsing chain.

808. METHOD OF SUBMISSION

Use military electronic communications facilities to send Hazard Report and SIR endorsement messages.

809. DISTRIBUTION

Hazard Report endorsement distribution may differ from the authorized distribution for SIR endorsements. Do not use or copy the Hazard Report distribution lists for the SIR messages.

a. Hazard Report Endorsements. There are no limitations on the distribution of Hazard Report endorsements. Send them to the Hazard Report recipients and any others considered necessary.

b. Safety Investigation Report Endorsements. Address SIR endorsements to authorized SIR recipients and endorsers only.

(1) Only CNO, CMC and COMNAVSAFECEN may readdress SIR endorsements to activities outside the Navy. Only aircraft controlling custodians in the endorsing chain of the report in question may readdress SIR endorsements and may do so only then when it is required for further endorsement or remedial action required by the report.

(2) Do not distribute SIR endorsements to any command not authorized by this instruction.

(3) Use Standard Subject Identification Code (SSIC) 3752 on all SIR Messages and their endorsements so the receiving commands may limit internal distribution. Commanding officers must insure only authorized personnel receive SIRs and their endorsements. Only the Commanding Officer may authorize copying an SIR.

810. NONPRIVILEGED AND PRIVILEGED STATUS

a. Hazard Report Endorsements. While they may contain deliberative safety information, Hazard Report endorsements are not privileged.

b. Safety Investigation Report Endorsements. SIR endorsements are a part of the SIR. They are privileged, and shall be used only for safety purposes. As a result, SIR endorsers are free to provide complete, open and forthright information, opinions and recommendations regarding the reported mishap.

811. SPECIAL HANDLING

Hazard Report endorsements do not require special handling, except that required of FOUO documents.

a. Safety Investigation Report Endorsements. SIR endorsements are privileged and require special handling to limit use to safety purposes only. Use common sense to determine exactly what may be appropriate. For example:

(1) It would not be appropriate to put them in reading racks or post them on bulletin boards.

(2) On the other hand, passing SIR endorsements from person to person, or from office to office in file folders is appropriate. It ensures their contents are protected and disclosure limited to specific individuals who require knowledge of their contents for safety purposes.

812. INDEPENDENCE OF ENDORSEMENTS

a. Hazard Report Endorsements. Endorsements or extracts from Hazard Reports may be appended to or included in other reports.

b. Safety Investigation Report Endorsements

(1) Endorsements or extracts from SIR endorsements shall not be appended to, or included in, JAG Manual Investigation Reports, nor any other reports. Do not include Navy JAG as an addressee on SIR endorsements.

(2) To prevent any inference of association with disciplinary or administrative action, SIR endorsements shall not include any reference to disciplinary action, Naval Aviator or Naval Flight Officer Evaluation Boards (USN), Field Flight Performance Boards (USMC), or any other administrative action in connection with the mishap report being endorsed.

813. FOR OFFICIAL USE ONLY

Hazard Report and SIR endorsements are FOUO. See SECNAVINST 5720.42F for instructions on the handling of FOUO documents.

814. SECURITY CLASSIFICATION

Normally, endorsements are unclassified. If any portion of the endorsement warrants classification, omit that information and insert the word “classified” in its place. If a meaningful endorsement is impossible using this technique, submit a classified endorsement.

815. MESSAGE PRECEDENCE

Submit Hazard Report and SIR endorsements via routine message.

816. MINIMIZE

Hazard Report and SIR endorsements are exempt from the MINIMIZE provisions of ACP-121 (D) US SUPP (B-1) (NOTAL).

817. ENDORSEMENT FORMATS

a. Format. Submit Hazard Report and SIR endorsements in the following format:

(1) Addressees. See paragraph 809.

(2) Text. Except where noted below, the content of Hazard Reports and SIR endorsements is left to the discretion of the originator.

(a) Repeat all material double underlined in the formats below word for word in the text of the endorsement.

(b) Use the endorsement guide in paragraph 818 in formulating the content of endorsements.

(c) The amount of the information provided in a Hazard Report or SIR endorsement will vary depending on the circumstances surrounding the Hazard Report or SIR. An endorsement that agrees with all conclusions and recommendations may contain but a single page. Others, which take exception to the conclusions or recommendations, may take several pages to complete.

(d) Refer to Navy Tactical Publication NTP 3, Telecommunications Users Manual, for the latest message format guidelines. Enter most of a Hazard Report in the remarks section of a GENADMIN message. Exercise care to follow all US Message Text Format (USMTF) rules.

(3) Headings. Place one of the following headings at the beginning of the text:

(a) Hazard Report Endorsements

BT
UNCLAS FOUO //N03750// THIS IS PART OF A GENERAL USE NAVAL AVIATION HAZARD REPORT (-UAV hazards involving UAVs (endorsing command) ENDORSEMENT OF (originator, report serial number, date of occurrence, model/series aircraft or UAV, buno, as applicable)/REPORT SYMBOL OPNAV 3750-19

MSGID/GENADMIN/originator/message serial number (not report serial number)/month//

SUBJ/AVIATION HAZREP //
NOTE: USE SUBJECT LINE OF APPROPRIATE TYPE OF HAZARD. SEE CHAPTER 4.

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/GENADMIN/(Original Hazard Report)//
REF/C/(Other references as appropriate)//
NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS (original Hazard Report). REF C IS . . . . /THIS IS A GENERAL USE REPORT.//

POC/(name of primary point of contact to answer inquiries about the report)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/TEL:(phone number)//

RMKS/1. THIS ENDORSEMENT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION (-UAV hazards involving UAV's only). RAC (1, 2, ETC.). If the criteria in paragraph 804 requires further endorsement of the report, include the following phrase: (next endorser) ENDORSEMENT REQUESTED IAW REF A. Otherwise include the phrase FURTHER ENDORSEMENT NOT REQUIRED. SUMMARY: Succinctly summarize the content of the Hazard Report being endorsed.

(b) Safety Investigation Report Endorsements

BT
UNCLAS FOUO //N03752// THIS IS PART OF A NAVAL AVIATION SAFETY INVESTIGATION REPORT (-UAV mishaps involving UAV's only)(endorsing command) ENDORSEMENT OF (reporting custodian, mishap classification, mishap serial number, date of occurrence, model/series aircraft or UAV, buno)/REPORT SYMBOL OPNAV 3752-1

MSGID/GENADMIN/originator (reporting custodian)/message serial number (not report serial number)/month//

SUBJ/AVIATION SIR //

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/DOC/JAGINST 5800.7C/-//
REF/C/(Other references as appropriate)//
NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS THE NAVY JAG MANUAL. REF C IS . . . .//

POC/(name of primary point of contact to answer inquiries about the SIR)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/TEL:(phone number)//

RMKS/**********
FOR OFFICIAL USE ONLY
THIS IS A PRIVILEGED, LIMITED-USE, LIMITED-DISTRIBUTION, SAFETY INVESTIGATION REPORT. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY MILITARY PERSONNEL IS A CRIMINAL OFFENSE PUNISHABLE UNDER ARTICLE 92, UNIFORM CODE OF MILITARY JUSTICE. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY CIVILIAN PERSONNEL WILL SUBJECT THEM TO DISCIPLINARY ACTION PURSUANT TO CIVILIAN PERSONNEL INSTRUCTION 752. THIS REPORT MAY NOT BE RELEASED, IN WHOLE OR IN PART, EXCEPT BY THE COMMANDER NAVAL SAFETY CENTER.
****

1. THIS ENDORSEMENT CONCERNS A (routine or severe) HAZARD TO NAVAL AVIATION (-UAV mishaps involving UAVs only). If the criteria in paragraph 804 requires endorsement of the report, include the following phrase: (NEXT ENDORSER) ENDORSEMENT REQUESTED IAW REF A; otherwise, include the phrase FURTHER ENDORSEMENT NOT REQUIRED. SUMMARY: Succinctly state the nature of the mishap being endorsed, to include a terse description of the outcome of the mishap. For example, "Aircraft on low level ingested large bird into left engine, recovered safely." or "Aircraft crashed into water following aborted shipboard landing; 6 pax/1 crew fatal."
BACKGROUND: (Required for final endorsements; otherwise optional). The final endorser will provide an executive summary level discussion of the mishap similar to those contained in COMNAVSAFECEN Class A final endorsements. This detailed summary will provide the reader with an understanding of all relevant conditions and events leading up to and immediately following the mishap. The manner in which final determined causal factors influenced the chain of events and missed opportunities for intervention should be intuitively apparent from the presentation. While similar to the mishap narrative in paragraph 1.B. of the Mishap Safety Investigation Report, this discussion will reflect the changes in mishap analysis and conclusions made during the endorsement process as ultimately determined by the final endorser. This presentation will be entered into the safety database as the Naval Safety Center's primary narrative discussion of the mishap.

818. SIR Endorsement Guide. Use the following guide to draft endorsements. While endorsements are not as extensive as the

SIR, endorsers must form and clearly express their disagreements in the same manner. Discuss all such disagreements or amplifications thoroughly in Paragraph 2 of the endorsement. If you change the previous endorsers report use Paragraph 3 to list all causal factors, including those unchanged. If you make no changes the endorsement closes with the CO's comments in Paragraph 3. Review paragraph 607d on deliberations, analysis and causal factors, conclusions, and recommendations, before writing your endorsements.

a. No Changes to the SIR. The endorser is endorsing the report as last modified. Use the following format if you agree with the report severity classifications and all the conclusions and recommendations of the previous endorser.

2. IAW REF A, THE SAFETY INVESTIGATION REPORT REF (XX), (AND ALL ENDORSEMENTS, REFS (XX) THROUGH (XX), if applicable) HAVE BEEN REVIEWED. CONCUR IN THE CONCLUSIONS AND RECOMMENDATIONS AS MODIFIED BY SUBSEQUENT ENDORSER(S) (as applicable).

3. COMMANDING OFFICER'S COMMENTS.

b. Changes to the SIR. Use the following format if you disagree with the severity classification, the conclusions, or the recommendations of previous endorsee. To be sure you address all issues, review the SIR and any endorsements thoroughly. Although you are endorsing the last modification you are not limited to discussing only those causal factors or recommendations. Paragraph 2 is your opportunity to add to, restate or delete any portion of the previous endorsement. Complete all arguments in Paragraph 2 so Paragraph 3 is a "clean" list of causal factors for the next endorser. Use Paragraph 2 to comment on only the portion of the previous endorsement with which you did not agree or you wish to clarify or amplify. Each endorser will comment on the ORM analysis in the SIR and previous endorsements.

2. IAW REF A, THE SAFETY INVESTIGATION REPORT REF (XX), (AND ALL ENDORSEMENTS, REFS (XX) THROUGH (XX), if applicable) HAVE BEEN REVIEWED. CONCUR IN THE CONCLUSIONS AND RECOMMENDATIONS (AS MODIFIED BY SUBSEQUENT ENDORSERS, if applicable) WITH THE FOLLOWING EXCEPTION(S):

A. REF (XX), PARA (XX, repeat the report severity, the terse description and RAC for conclusions, or the recommendation, as applicable). DO NOT CONCUR. (State the disagreement and a complete argument for change. If you change the severity, a conclusion, or a recommendation, include the

following phrase) RESTATE AS: (State the new report severity, the new terse description and RACs for conclusions, or the new recommendation. If you delete a conclusion or a recommendation, include the following phrase) DELETE THE (conclusion or recommendation) FROM THE REPORT.

B. Continue as required.

c. New additions to the SIR. If the endorser wishes to add new conclusions or recommendations, use the following format.

2. IAW REF A, THE SAFETY INVESTIGATION REPORT REF (XX), (AND ALL ENDORSEMENTS, REFS (XX) THROUGH (XX), if applicable) HAVE BEEN REVIEWED. CONCUR IN THE CONCLUSIONS AND RECOMMENDATIONS (AS MODIFIED BY SUBSEQUENT ENDORSERS, if applicable) WITH THE FOLLOWING ADDITIONS:

A. (CAUSAL FACTOR or RECOMMENDATION): State the new causal factor or recommendation along with a complete argument. With any new causal factors include a complete analysis in the SIR paragraph 11 format, including causal factor elements (WHO/WHAT/WHY or COMP/MODE/AGENT)). (See paragraph 715.) New causal factors must have a corrective action (recommendation). Base your new recommendations on causal factors of the mishap.

B. Continue as required.

d. Restatement of mishap causal factors. If you make changes or additions to any causal factors, RAC, or recommendations, you must restate, for clarity, all causal factors and recommendations of the SIR. Later endorsers will address the causal factors and recommendations as modified by you. Use the following formats, as required:

3. CAUSAL FACTORS OF THE MISHAP: Repeat all accepted causal factors (including THOSE YOU LEFT unmodified) as they now appear following the modifications and additions you addressed in paragraph 2. Paragraph 3 shall be a complete list of causal factors for the next endorser. Do not include the following: Concur, Do Not Concur, Restate, Delete, or Ref xx.

A. CAUSAL FACTORS OF THE MISHAP:

(1) (Insert appropriate term) FACTOR - (Repeat terse description of factor.) RAC XXX (Insert appropriate RAC). ASSOCIATED RECOMMENDATIONS: (provide paragraph numbers for associated corrective actions.)

(2) Continue as required, listing all causal factors as now modified.

4. CAUSAL FACTORS CAUSING OTHER DAMAGE OR INJURY:

A. THE CAUSE FACTORS OF OTHER DAMAGE OR INJURY ARE:

(1) (Insert appropriate term) FACTOR - (Repeat terse description of factor.) RAC XXX (Insert appropriate RAC). ASSOCIATED RECOMMENDATIONS: (provide paragraph numbers for associated corrective actions.)

(2) Continue as required, listing all causal factors as now modified.

5. RECOMMENDATIONS. (Repeat all accepted recommendations, both those you changed and those you left unmodified, in the following format.)

A. FOR (action agency): (Note: List action agencies senior to junior.)

(1) (List all recommendations for this action agency.) STATUS: Each endorser shall attempt to determine the current status of the corrective action. If action is still incomplete, state “OPEN.” If action is complete state "ACTION COMPLETE. REF (XX) REFERS." CLOSED.

B. FOR (List all subsequent action agencies and recommendations.)

6. COMMANDING OFFICER'S COMMENTS.

819. Hazard Report Endorsement Guide. Use the following guide while drafting your endorsements. While endorsements need not be as extensive as Hazard Reports, endorsers must form and clearly express their disagreements in the same manner. Endorsers should review paragraph 315 on analysis, conclusions, and corrective action, before writing their endorsements.

a. No Changes to the Hazard Report. The endorser is endorsing the report as last modified. If the endorser agrees with the report severity classifications and all conclusions and corrective action as stated by the previous endorsers use the following format.

2. IAW REF A, THE HAZARD REPORT, REF (XX), (AND ALL ENDORSEMENTS, REFS (XX) THROUGH (XX), if applicable) HAVE BEEN REVIEWED CONCUR IN THE CONCLUSIONS AND CORRECTIVE ACTIONS AS MODIFIED BY SUBSEQUENT ENDORSER(S) (as applicable).

3. COMMANDING OFFICER'S COMMENTS.

b. Changes to the Hazard Report. If the endorser disagrees with the severity classification, evidence, analysis, any conclusion, or any corrective action as stated by the

previous endorser, use the following format. To ensure all issues are addressed, each endorser should review the Hazard Report and its endorsements. Although the endorser is reacting to the report as last modified there is no limit to what may be discussed in addition to those conclusions and recommendations. Paragraph 2 is your opportunity to add to, restate or delete any portion of the previous endorsement. Complete all arguments in Paragraph 2 so Paragraph 3 is a "clean" statement of evidence, analysis, conclusions and severity classification for the next endorser. Use Paragraph 2 to comment only the portion of the previous endorsement for which you do not agree or you wish to clarify or amplify.

2. IAW REF A, THE HAZARD REPORT REF (XX), (AND ALL ENDORSEMENTS, REFS (XX) THROUGH (XX), if applicable) HAVE BEEN REVIEWED. CONCUR IN THE CONCLUSIONS AND CORRECTIVE ACTIONS (AS MODIFIED BY SUBSEQUENT ENDORSERS, if applicable) WITH THE FOLLOWING EXCEPTION(S):

A. REF (XX), PARA (XX, repeat the report severity, the terse description and RAC for conclusions, or the corrective action, as applicable). DO NOT CONCUR. (State the disagreement and a complete argument for change. If you change the severity, a conclusion, or a corrective action, include the following phrase) RESTATE AS: (State the new report severity, the new terse description and RACs or the new corrective action. If you delete the severity, a conclusion, or a corrective action from the report, include the following phrase) DELETE THE (conclusion or corrective action) FROM THE REPORT.

B. Continue as required.

c. New additions to the Hazard Report. If the endorser wishes to add new conclusions or corrective actions, use the following format:

2. IAW REF A, THE HAZARD REPORT REF (XX), (AND ALL ENDORSEMENTS, REFS (XX) THROUGH (XX), if applicable) HAVE BEEN REVIEWED. CONCUR IN THE CONCLUSIONS AND CORRECTIVE ACTIONS (AS MODIFIED BY SUBSEQUENT ENDORSERS, if applicable) WITH THE FOLLOWING ADDITIONS:

A. (CONCLUSION or CORRECTIVE ACTION): (State the new conclusion or corrective action along with a complete argument. With any new conclusions include a complete analysis. New conclusions must have a corrective action. Base any new corrective actions on causal factors of the hazard.

B. Continue as required.

d. Restatement of Changes or Additions to Hazard Report. If you make any changes or additions to any conclusion, RAC, or recommendation in the Hazard Report, you must restate for clarity all conclusions and corrective actions in the Hazard Report. Later endorsers will address these conclusions and corrective actions as modified by you. Use the following formats:

3. CIRCUMSTANCES. (For Hazard Reports, add new explanation of exactly how the hazard could result in damage or injury. Paragraph 3 shall be a clean statement of evidence, analysis and severity of classification, conclusions for the next endorser. Do not include the following: Concur, Do Not Concur, Restate, Delete, or Ref xx.)

A. EVIDENCE AND ANALYSIS:

B. CONCLUSIONS:

4. CORRECTIVE ACTION. (Repeat all accepted corrective actions, both those you changed, and those you left unmodified, in the following format:)

A. FOR (action agency): (Note: List action agencies senior to junior.)

(1) (List all corrective actions for this action agency.) STATUS: (Each endorser shall attempt to determine the status of the corrective action. If action is still incomplete, state "OPEN". If action is complete for the corrective action, state "ACTION COMPLETE. CLOSED.")

B. FOR (List all subsequent action agencies and corrective actions.)

5. COMMANDING OFFICER'S COMMENTS. Endorser comments.

819. AVIATION MISHAP ACCOUNTABILITY ABSOLUTION

Do not request absolution from aviation mishaps in the SIRs or their endorsements. Controlling custodians may grant absolution for safety award purposes and continuation of mishap-free flight hours for all classes of mishaps when the cause of the mishap was clearly beyond the control and responsibility of the reporting custodian. Controlling custodians may make a statement in the last paragraph of their SIR endorsement which justifies the absolution. In the interest of uniformity the following guidelines are established:

- Absolution is not authorized when cause of the mishap is undetermined.

- Limit absolution for material failure to those cases where the reporting custodian had no opportunity to have an effect on the failure.

CHAPTER NINE

MISTRAC/MONITORING CORRECTIVE ACTION

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This chapter describes the mishap and hazard recommendation tracking (MISTRAC) program, and the process and procedures used to monitor corrective actions and eliminate hazards from Naval Aviation.

901. GENERAL

Detection and correction eliminates the hazards that cause mishaps. Hazards detected before they cause accidents are reported in Hazard Reports. Those that go undetected or uncorrected are reported in SIRs. Each identified hazard must have corrective action assigned to prevent future mishaps. The Naval Safety Center maintains the MISTRAC database in order to record corrective actions and track their status and progress.

902. PURPOSE AND METHODOLOGY OF MONITORING CORRECTIVE ACTIONS

Aggressively tracking corrective actions ensures their timely resolution before the associated hazard can cause additional damage or injury. The numbers of hazards identified in naval aviation each year that require this monitoring is enormous. Some means of prioritizing them is necessary so those with the greatest potential for harm can be addressed first. To facilitate this we use the Risk Assessment Code (RAC) which is defined in appendix B. The RAC weighs hazards and assigns priorities for corrective action based on their severity and their expected frequency of occurrence. The more severe the hazard, the lower the RAC, and the more urgent the action required. Hazards with the most urgent Risk Assessment Codes receive first priority for action and resources. Anyone, without regard to seniority, can identify and assign corrective action. Responsibility for making the required corrections lies with the action command assigned through the Hazard Mishap

Report process. The endorsing process ratifies the assigned action through the chain of command and, until every one has had their say and the action is complete, COMNAVSAFECEN and its MISTRAC system is the link that keeps all parties informed.

903. PROGRAM DEFINITIONS

a. MISTRAC. Mishap and Hazard Recommendation Tracking: The computer system COMNAVSAFECEN uses to monitor corrective action identified through Hazard Reports, SIRs, and their endorsements.

b. MISREC. Mishap Recommendation: A corrective action resulting from mishap causal factors and hazards identified in a SIR after a mishap. MISRECs are monitored in the MISTRAC program.

c. HAZREC. Hazard Recommendation: A corrective action identified in a Hazard Report. HAZRECs are dangerous conditions discovered before they caused a mishap. The MISTRAC program monitors RAC I and II HAZRECs.

d. SPECREC. Special Report Recommendation: A designation reserved for MISRECs and HAZRECs of special interest to naval aviation involving elements of high risk and high visibility which are facing delays in corrective action. Designating a SPECREC ensures the corrective action will receive special attention until resolved. SPECREC status requires:

(1) a Risk Assessment Code of 1 or 2,

(2) being debated or delayed

(3) so designated by COMNAVSAFECEN.

COMNAVSAFECEN may, in the interest of naval aviation, assign SPECREC status to any corrective action.

904. MISTRAC COMPUTER PROGRAM

COMNAVSAFECEN shall administer the MISTRAC database.

905. RESPONSIBILITIES AND PROCEDURES

a. Action Agencies. Those agencies and commands assigned corrective action by an SIR or HAZREP must complete the assigned action unless relieved by a later endorser or other competent

authority. Action agencies provide a response as described below:

(1) Action Agency in Endorsing Chain. The action agency may agree, disagree, change, or restate the corrective action assigned. They may transfer the action to another agency, change the RAC, or modify any corrective action in their endorsement so long as they explain and justify their position. Later endorsers have the same opportunity until the final endorser determines who will carry out what action. Each agency is responsible for their assigned action unless relieved by competent authority.

(2) Action Agency Not in Endorsing Chain. When not in the endorsing chain, an action agency has the same freedom to accept, reject, or change the corrective action as those in the endorsing chain. These action agencies, however, do not respond with a full endorsement. All that is needed in these cases is a HAZREC or MISREC response message using the format described in paragraph 906 and sent to the final endorser and any other action agencies. Send INFO copies to the originating agency, controlling custodian, COMNAVSAFECEN and the CAD. The final endorser will agree or disagree with the position and determine the action required.

(3) Required Action for MISRECs and HAZRECs. COMNAVSAFECEN monitors corrective actions from HAZRECs and MISRECs through to completion. Action agencies must, therefore, notify the controlling custodian and COMNAVSAFECEN of any changes to their assigned corrective action. Within 30 days of the final endorsement, action agencies must send a naval message to the controlling custodian, COMNAVSAFECEN and the CAD. This message must acknowledge their assigned action, describe their plan to accomplish it, indicate the start or completion dates, and provide the name and the phone number of their point of contact. Report all status changes until the action is complete.

b. Endorsing Agencies. Endorsing agencies can influence the resolution of the hazard. Corrective action, assigned at any level, has the singular goal of eliminating the hazard. Senior agencies may disagree with any assigned action, but the intent of the endorsing process is to build a consensus for an appropriate corrective action without assigning blame. Each endorser must evaluate these corrective actions based on urgency, resources, and their individual circumstances while keeping this goal in mind.

c. COMNAVSAFECEN

(1) MISREC AND HAZREC Tracking

(a) To Action Agencies. Twice a year, on 1 March and 1 September, COMNAVSAFECEN provides a listing of all open recommendations to all action agencies. This listing includes a summary of the recommendations, the complete endorsement sequence, and all transactions to date.

(b) To Controlling Custodians. COMNAVSAFECEN sends a similar list to all controlling custodians on 1 June and 1 December.

(2) Record Status. Although recommendations relating to actions on MISRECs, HAZRECs, and SPECRECs may be initiated by any concerned agency, opening, closing, and reopening of individual records is the exclusive prerogative of the COMNAVSAFECEN.

906. HAZREC AND MISREC RESPONSE MESSAGE FORMAT

a. Format. Submit HAZREC and MISREC response messages using this format:

(1) Addressees. Use only the addressees on the original Hazard Report or SIR to which you are responding. Add no other addressees without permission from COMNAVSAFECEN.

(a) In the text of the report repeat, word for word, all double underlined material in the format below.

(b) Check Navy Tactical Publication (NTP) 3, Telecommunications Users Manual, for the latest message format.

(2) Headings. Place the appropriate heading at the beginning of the text; using the formats provided below.

(3) for HAZRECs:

BT
UNCLAS FOUO //N03750// NAVAL AVIATION HAZARD (HAZREC) RECOMMENDATION RESPONSE (-UAV hazards involving UAVs only)
TO (command submitting the hazard report, report serial number, date of occurrence, model/series aircraft or UAV, buno, as applicable)/REPORT SYMBOL OPNAV 3750-19

MSGID/GENADMIN/originator/message serial number (not report serial number)/month//

SUBJ/AVIATION HAZREC //

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/(Other references as appropriate)//
NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B (list other references as appropriate)/THIS IS A GENERAL USE REPORT.//
POC/(name of primary point of contact to answer inquiries about the report) /PRIPHN:phone number or "deployed"/-/SECPHN:phone number//

RMKS/1. SUMMARY: (Copy the description of the incident from the Hazard Report)
2. IAW REF A, THE FOLLOWING PROVIDES HAZREC RESPONSE TO REF B:
A. PARA XX, copy the description for the first recommendation, then AGREE or DISAGREE as appropriate. State the status of the recommendation and actions pending on the originator's recommendation. If you change the recommendation include: RESTATE AS: and describe your the new recommendation.
B. PARA XX, next and subsequent recommendations.
3. COMMANDING OFFICER'S COMMENTS. Endorser comments are encouraged.

(4) for MISRECs:

BT
UNCLAS FOUO //N03752// NAVAL AVIATION MISHAP SAFETY RECOMMENDATION (MISREC) RESPONSE (-UAV for UAV mishaps only) TO (reporting custodian, mishap classification, mishap serial number, date of occurrence, model/series aircraft or UAV, buno)/
REPORT SYMBOL OPNAV 3752-1

MSGID/GENADMIN/originator/message serial number (not report serial number)/month//

SUBJ/AVIATION MISREC //

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/DOC/(Other references as appropriate)//
NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS (list other references as appropriate).//

POC/(name of primary point of contact to answer inquiries about the MIR)/(rank)/(code)/(location)/TEL:(phone number or "deployed")/TEL:(phone number)//

RMKS/**********
FOR OFFICIAL USE ONLY
THIS IS A PRIVILEGED, LIMITED-USE, LIMITED-DISTRIBUTION, SAFETY INVESTIGATION REPORT. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY MILITARY PERSONNEL IS A CRIMINAL OFFENSE PUNISHABLE UNDER ARTICLE 92, UNIFORM CODE OF MILITARY JUSTICE. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY CIVILIAN PERSONNEL WILL SUBJECT THEM TO DISCIPLINARY ACTION PURSUANT TO CIVILIAN PERSONNEL INSTRUCTION 752. THIS REPORT MAY NOT BE RELEASED, IN WHOLE OR IN PART, EXCEPT BY THE COMMANDER NAVAL SAFETY CENTER.
****

1. SUMMARY: (copy the description of the mishap from the SIR)

2. IAW REF A, THE FOLLOWING PROVIDES MISREC RESPONSE TO REF B:

A. PARA XX, repeat the terse description for the first recommendation. AGREE or DISAGREE, as appropriate. State the status of the recommendation and actions planned by the originator. If you change the recommendation include the following phrase RESTATE AS: Then state the new recommendation.

B. PARA XX, next and subsequent recommendations.

3. COMMANDING OFFICER'S COMMENTS. Endorser comments are encouraged.

APPENDIX A
GENERAL REPORTING REQUIREMENTS

TYPE REPORT	SEVERITY	60 MINUTES	4 HOURS	24 HOURS	30 DAYS
HAZARD REPORT (HR)	SEVERE			PRIORITY MESSAGE	
	ROUTINE				ROUTINE MESSAGE
MISHAP DATA REPORT (MDR)	A	TELEPHONE	PRIORITY MESSAGE	AMENDED AND CLASS C MISHAP REPORT PRIORITY MESSAGE	
	B				
	C				
MISHAP SAFETY INVESTIGATION REPORT (MSIR)	A				ROUTINE MESSAGE (MAIL ENCLOSURES)
	B				
	C				

APPENDIX B
RISK ASSESSMENT

1. Risk assessment is the process of determining the level of risk associated with hazards that have been identified. A Risk Assessment Matrix is used to obtain a measure of the level of risk in terms of severity and probability, expressed as a Risk Assessment Code (RAC). Although Risk Matrices vary in the number and exact definition of categories, the basic concept of measuring degree of severity and probability remains the same.

a. Hazard Severity - An assessment of the worst credible consequence, defined by degree of injury, occupational illness, property damage, loss of assets (time, money, personnel) or impact on mission, which could occur as a result of a deficiency. Hazard severity categories are assigned roman numerals according to the following criteria:

(1) Category I - the hazard may cause death or loss of a facility/asset (i.e., Class A level damage).

(2) Category II - may cause severe injury, severe occupational illness, significant property damage, or severe degradation to the efficient use of assets (i.e., Class B level damage).

(3) Category III - may cause minor injury, minor occupational illness, minor property damage, or minor degradation to the efficient use of assets (i.e., Class C level damage).

(4) Category IV - would not significantly affect personnel safety or health, property, or efficient use of assets, but is nevertheless in violation of an established regulation or standard.

b. Mishap Probability - The mishap probability is the probability that the hazard will result in a mishap of the severity assigned, based on an assessment of such factors as location, exposure in terms of cycles or hours of operation, affected populations (throughout the Navy/Marine Corps), experience, or previously established statistical information. Mishap probability is assigned a letter value according to the following criteria:

(1) Subcategory A - likely to occur immediately or within a short period of time (one or more times within the next year).

(2) Subcategory B - likely to occur in time (within the next 3 years).

(3) Subcategory C - likely to occur several times during the life of the aircraft.

(4) Subcategory D - unlikely to occur, but is feasible within the lifetime of the aircraft.

c. Risk Assessment Code - The RAC is an expression of overall risk which combines the elements of hazard severity and mishap probability. As defined in the matrix shown below, the RAC is expressed as a single Arabic number that can be used to help determine hazard abatement priorities. This is the matrix used in several OPNAV instructions addressing risk management.

	Mishap Probability			
Hazard Severity	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

RAC Definitions:

1 - Critical Risk
2 - Serious Risk
3 - Moderate Risk
4 - Minor Risk
5 - Negligible Risk

d. A further breakdown of RACs is necessary for the Naval Aviation Safety Program. A RAC of 1 or 2 is considered a severe hazard while a RAC of 3, 4, or 5 is considered routine. Severe hazards receive priority by COMNAVAIRSYSCOM when allocating resources for corrective actions, and COMNAVSAFECEN tracks all severe hazards until the corrective actions are complete. Severe hazards also require endorsements up to the action agency.

2. The following scenario is provided as an example of risk assessment:

A squadron is preparing a HAZREP in response to simultaneous precession of both the pilot and copilot Attitude Direction Indicators (ADIs) on a C-9 aircraft. Circumstances surrounding the incident were as follows: Shortly after taking off into the VFR landing pattern, both the pilot's and copilot's ADI began to precess. By the time the aircraft had turned to downwind, both ADIs indicated 30 degrees nose up and 20 degrees left wing down while the aircraft was in level flight. The crew executed a normal landing and the ADIs remained precessed while on the ground.

The following information is available to the squadron's ASO through community and COMNAVSAFECEN data:

- This incident is the seventh C-9 dual ADI failure documented in the last 3 years. The reason for the failures has not been identified.

- The C-9 has no standby ADI. When dual ADI failure occurs, the pilots must rely on external visual references or altitude and compass indicators for attitude information. These alternate indications are not accurate reflections of the aircraft attitude. Flying the aircraft in instrument meteorological conditions (IMC) with dual ADI failure would demand extraordinary concentration and skill of the pilots, and is likely to result in loss of control of the aircraft. As long as the aircraft is in visual meteorological conditions (VMC) when dual ADI failure occurs, safe recovery is considered likely.

- Over the past 5 years, C-9s averaged 18 percent of their total flight time in actual IMC. Significant change in flight hours or scheduling is not anticipated.

Given the above information, the ASO can assess the risk of this hazard in a fairly quantitative manner. If dual ADI failure occurs in certain conditions, loss of a C-9 aircraft, its crew and passengers is a credible outcome. Therefore, hazard severity in this case is I. The mishap probability (the probability that a severity I mishap will occur) depends on several factors. Since there have been seven dual ADI failures in the lasts 3 years, and the reasons have not been identified, it is reasonable to assume that failures will continue at the same rate - 2.33 incidents per year. If a mishap of severity I is only likely if the aircraft is in IMC, we can multiply 2.33 by .18 (the average percentage of time a C-9 spends in IMC) to obtain a predicted rate of 0.42 severity I mishaps per year. This gives it a probability of B, and a corresponding RAC of 1.

Other factors which would influence the probable outcome (i.e., pilot experience, altitude, flight configuration, etc.) should also be considered. If historical data is not available, the best estimate from available information should be used to assign the RAC.

3. Although hazard severity is normally based on the worst credible consequence, there may be situations in which evaluation of a lower category of severity is appropriate. For example, a multiengined aircraft with an engine hazard may have a remote probability (D) of catastrophic (category I) damage, resulting in a RAC of 3. However, this same engine hazard may be much more likely (probability A or B) to result in critical (category II) damage, resulting in a RAC of 1 or 2. In this case, the more severe RAC should be reported.

APPENDIX C
GUIDELINES FOR RECOMMENDED CORRECTIVE ACTIONS

The following guidelines shall be used in the composition of recommended corrective actions:

a. A causal factor may call for more than one recommendation.

b. Place only one recommendation in a subparagraph. Recommendations are normally referenced by paragraph number/letter. Each subparagraph shall therefore contain a single recommendation.

c. Address only one subject in each recommendation. Avoid dual recommendations ("do this and do that") and avoid alternative recommendations ("do this or do that"). If alternatives are apparent, select and recommend the optimum.

d. Express each recommendation in a complete, self-explanatory statement. Recommendations are often separated from their parent report. They must stand alone. As a minimum, each recommendation shall state who should do exactly what. Sometimes, how, where and when are also appropriate. Determination of appropriate action agencies ("who") may require some research.

e. Recommended final solutions. Avoid recommending interim steps toward a desired end. Recommend final, definitive solutions, rather than half-measures such as "study," "review," "research," "evaluate," "vigorously explore," or "pursue."

f. Make practical recommendations. Avoid vague wishful thinking which usually includes terms such as "all pilots ------ ------," "all aircrews --- -----," "------ be re-emphasized," and "------ be stressed." Describe precisely how the desired end is to be accomplished, and by whom.

g. Make comprehensive recommendations. When a hazard is common to an entire aircraft community and recommended corrective action could be of benefit to all, do not limit a recommendation to local actions: Write it to apply to all who could benefit.

h. Make uninhibited recommendations. Do not suppress valid recommendations because they appear to be too expensive, too difficult, or imply criticism. A decision in favor of the

desired action may be pending only the impetus of a recommendation.

i. Delete extraneous material from recommendations. Analysis, conclusions, and justification belong elsewhere in reports.

j. Recommend use of established procedures for changes of publications. When appropriate, recommend who (usually the reporting custodian) should submit exactly what change to NATOPS, Naval Aircraft Maintenance Program Directives, and NWP, etc. Include a verbatim draft of the recommended change to show exactly what is intended.

k. Confine recommendations to the investigated mishap/hazard. Ensure that recommendations are pertinent to hazards detected in the investigation.

APPENDIX D

NAVAL SAFETY CENTER TELEPHONE CONTACTS

DSN 564-3520
Commercial (757) 444-3520

	Ext
Aircraft Mishap Investigation Division	7236
Aircraft Maintenance and Material Division	7204
Aircraft Operations and Facilities Division Head	7203
Facilities Analyst	7281
Multi-Eng/Training Analyst	7277
Rotory Wing Analyst	7208
Survey Requests	7274
TACAIR Analyst	7211
Aviation Safety Programs Director	7225
Aeromedical Division	7230
Data Retrieval and Analysis Division	7285
Duty Officer	7017
Legal	7047
Mishap Telephone Report Submission	DSN 564-2929
OPNAVINST 3750.6 Inquiries	7226
Media and Education Support Department	7243
Shore Safety Programs	7167
Statistics and Mathematics Department	7182

APPENDIX E

COGNIZANT FIELD ACTIVITIES FOR NAVAL AIRCRAFT

F-14, P-3, T-45, A-4, T-2, E-6

Naval Aviation Depot Naval Air Station Jacksonville, FL 32212	NAVAVNDEPOT JACKSONVILLE FL

C-2, E-2, F-5, F/A-18, S-3, F-4

Naval Aviation Depot Naval Air Station North Island San Diego, CA 92135-5112	NAVAVNDEPOT NORTH ISLAND CA

AV-8, C-130, H-46, H-1, H-3, H-53, H-60, H-2, V-22

Naval Aviation Depot Marine Corps Air Station Cherry Point, NC 28533-5030	NAVAVNDEPOT CHERRY PT NC

T-44, H-57, T-34, C-12, C-20, C-9, T-39, C-40, C-26, UC-35

Naval Air Station Patuxent River, MD 20670-5449	NAVAIRSYSCOM PMA TWO ZERO SEVEN

APPENDIX F

COGNIZANT FIELD ACTIVITIES FOR NAVAL AIRCRAFT ENGINES

F402, T400, T56, T700, T58, T64, F405, T53, J79

Naval Aviation Depot Marine Corps Air Station Cherry Point, NC 28533-5030	NAVAVNDEPOT CHERRY PT NC

J52, F404, CFM56, J85, TF-34, J60, TF-30, F110

Naval Aviation Depot Naval Air Station Jacksonville, FL 32212-0016	NAVAVNDEPOT JACKSONVILLE FL

JT8D, PT6

Naval Air Station Patuxent River, MD 20670-5449	NAVAIRSYSCOM PMA TWO ZERO SEVEN

APPENDIX G

COGNIZANT FIELD ACTIVITIES FOR AVIATION LIFE SUPPORT SYSTEMS (ALSS)

Ejection Seats	NAVAVNDEPOT CHERRY PT NC
Aircrew Escape Propulsion Systems (AEPS) Cartridges/Cartridge Actuated Devices (CADs)	NAVORDCEN INDIAN HEAD MD
Aircraft Deceleration Parachute Assemblies Automatic Ripcord Release Assemblies Ballistic Spreading Gun Assembly Cushions, Back (Parachute) Ejection Seat Drogue Parachute Assemblies MA-1 Integrated Parachute Restraint Harness Personnel Parachute Assemblies Personnel Parachute Containers	NAVAIRWARCENWPNDIV CHINA LAKE CA
Anti-G Garments Flight Clothing Helmets Inflatable survival equipment Oxygen Equipment Restraints (Fixed Seats) Rigid Seat Survival Kits Survival Aid and Rescue Equipment	NAVAIRWARCENACDIV PATUXENT RIVER MD
Night Vision Devices	NAVSURFWARCENDIV CRANE IN
Survival Avionics	NAVAIRWARCENACDIV INDIANAPOLIS IN
Pyrothenic Devices	NAVSURFWARCENDIV CRANE IN

APPENDIX H

NAVAL AIRCRAFT AND ENGINES COMMON TO OTHER U. S. MILITARY SERVICES

A - ARMY AF-AIR FORCE CG - COAST GUARD

MODEL	SERVICE
C-9	AF
C-12	AF/A
C-20	AF
C-130	AF/CG
E-6	AF
F-4	AF
F-5	AF
H-1	AF/A
H-3	AF/CG
H-53	AF
H-60	A/AF/CG
T-39	AF
T-44	A
TF-30 engine	AF
TF-34 engine	AF
CV-22	AF
F-404-GE-400/402	AF
F-110	AF

APPENDIX I

DEA MESSAGE EXAMPLE

The following example is included to show how a direct enemy action mishap would be reported. The information should be as descriptive as possible without disclosing classified information.

FM HMH NINE NINE NINE
TO COMNAVSAFECEN NORFOLK VA//10//
INFO CNO WASHINGTON DC//N78F//
CMC WASHINGTON DC//SD//
COMNAVAIRSYSCOM PATUXENT RIVER MD//AIR 5.0F//
(CONTROLLING CUSTODIAN)
(OTHER COMMANDS AS DIRECTED)
UNCLAS FOUO //N03750// THIS IS AN INITIAL GENERAL USE NAVAL AVIATION DEA MISHAP DATA REPORT, HMH-999, CLASS A FM, 01-99, 10 JAN 99, TWO CH-53E, 199998, 199999, REPORT SYMBOL OPNAV 3750-21
MSGID/GENADMIN/HMH NINE NINE NINE/MSG SERIAL NUMBER/MONTH//
SUBJ/AVIATION DEA//
REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/DOC/JAGINST 5800.7C/-//
NARR/REF A IS THE NAVAL AVIATION SAFETY PROGRAM. REF B IS THE JAG MANUAL//
POC/A.S. ONLY/CAPT/-/LOC:Norfolk/TEL:SATCOM 123456//
RMKS/1. SUMMARY. ACFT AND AIRCREWS LOST TO DIRECT ENEMY GROUND FIRE.
2. DATA.
A. REPORTING ACTIVITY. (1) HMH-999 (2) 99999
B. AIRCRAFT. (1) 2-CH-53E (2) 199998, 199999 (3) DX 998, DX 999 (4) HMH-999 (5) 99999
C. INVOLVED EQUIPMENT. N/A
D. ENVIRONMENT. (1) 10 JAN 99 (2) 1310 (3) ALPHA (4) DAY (5) 99 DEGREES 59 MINUTES N, 99 DEGREES 59 MINUTES W, 10 MILES S OF NAS NEVER SAIL AIRFIELD, REPUBLIC OF WINSTON (6) 999 FT MSL (7) 12 SCT 7, WINDS 310/10, ALT 29.92, CLEAR OF CLOUDS
3. CIRCUMSTANCES.
A. ORIGIN. NAS NEVER SAIL AIRFIELD
B. MISSION. EXTERNAL LIFT
C. TOTAL MISSION REQUIREMENT CODE. 6R4 EXT-400
D. TYPE OF FLIGHT PLAN. VFR
E. DESTINATION. CLASSIFIED. SW OF NAS NEVER SAIL AIRFIELD.
F. AIRCRAFT EVOLUTION. FLIGHT WAS ENROUTE TO SITE FOR EXTERNAL LIFT MISSION, CRUISE, STRAIGHT AND LEVEL.
4. MISHAP CLASSIFICATION. CLASS A FLIGHT MISHAP. INTENT FOR FLIGHT EXISTED. TWO AIRCRAFT DESTROYED, AIRCREW FATALITIES.

5. DAMAGE AND COSTS.
   A. AIRCRAFT.
      (1) CH-53E, 199998, DESTROYED
      (2) CH-53E, 199999, DESTROYED
   B. DOD PROPERTY DAMAGE. NONE
   C. NON-DOD PROPERTY DAMAGE. NONE
6. PERSONNEL INFORMATION, INJURIES, AND COSTS.
   A. SOULS ON BOARD.
      (1) BUNO 199998-FIVE
      (2) BUNO 199999-FIVE
   B. CREW.
      (1) BUNO 199998-FIVE
         (A) SMITH, JOHN A., 123-45-6789, PILOT, PILOT-AT-CONTROLS UNKNOWN, CAPT, 7566, USMC, HMH-999, ON-DUTY, FATAL INJURY, NVG NOT USED, TOTAL HRS 2234.0, MODEL HRS 1724.3, 30 DAYS 35.7, 60 DAYS 60.7, 90 DAYS 85.7.
         (B) JONES, JOHN A., 987-65-4321, COPILOT, PILOT-AT-CONTROLS UNKNOWN, CAPT, 7566, USMC, HMH-999, ON-DUTY, FATAL INJURY, NVG NOT USED, TOTAL HRS 2514.6, MODEL HRS 2142.7, 30 DAYS 28.4, 60 DAYS 58.4, 90 DAYS 78.4.
         (C) BROWN, JOHN A., 234-56-7890, CREW CHIEF, SGT, 60XX, USMC, HMH-999, ON-DUTY, FATAL INJURY, NVG NOT USED.
         (D) THOMAS, JOHN A., 456-78-9012, GUNNER, SGT, 60XX, USMC, HMH-999, ON-DUTY, FATAL INJURY, NVG NOT USED.
         (E) NAME WITHHELD PENDING NOTIFICATION OF NEXT OF KIN, GUNNER, CPL, 60XX, USMC, HMH-999, ON-DUTY, FATAL INJURY, NVG NOT USED
      (2) BUNO 199999-FIVE
         (A) BLACK, JOHN A., 567-89-1234, PILOT, PILOT AT CONTROLS UNKNOWN, CAPT, 7566, USMC, HMH-999, ON-DUTY, FATAL INJURY, NVG NOT USED, TOTAL HRS 3210.0, MODEL HRS 2109.9, 30 DAYS 25, 60 DAYS 50, 90 DAYS 75.
         (B) NAME WITHHELD PENDING NOTIFICATION OF NEXT OF KIN, COPILOT, PILOT AT CONTROLS UNKNOWN, CAPT, 7566, USMC, HMH-999, ON-DUTY, FATAL INJURY, NVG NOT USED, TOTAL HRS 1234.2, MODEL HRS 234.5, 30 DAYS 15, 60 DAYS 17, 90 DAYS 17.
         (C) NAME WITHHELD PENDING NOTIFICATION OF NEXT OF KIN, CREWCHIEF, SGT, 60XX, USMC, HMH-999, ON-DUTY, MISSING, NVG NOT USED.
         (D) GREEN, JOHN A., 678-90-1234, GUNNER, SGT, 60XX USMC, HMH-999, ON-DUTY, FIRST AID INJURY, MINOR BURNS TO RIGHT ARM, NO LOST WORK DAYS, NVG NOT USED.
         (E) WHITE, JOHN A., 789-12-3456, GUNNER, CPL, 60XX, USMC, HMH-999, ON-DUTY, NO INJURY, NVG NOT USED.
   C. TOTAL NUMBER OF PASSENGERS. NONE (EITHER ACFT)
   D. INJURED NONOCCUPANTS. NONE (EITHER ACFT)
   E. AEROMEDICAL ANALYSIS WILL BE SENT.

7. MISHAP INVESTIGATION. INVESTIGATION COMPLETE, AEROMEDICAL ANALYSIS IN WORK. AMENDED REPORT WITH REMAINING NAMES WILL BE SENT WHEN ALL NEXT OF KIN HAVE BEEN NOTIFIED. NO ENDORSEMENTS REQUIRED.
8. JAG MANUAL INVESTIGATION. THIS MISHAP DOES MEET THE REQUIREMENTS IN REF B FOR A JAG MANUAL INVESTIGATION. INVESTIGATION INITIATED 12 JAN 99, BY CO HMH-999.
9. AVIATION MISHAP BOARD.
   A. SENIOR MEMBER LTCOL JOHN A. BLUE, MAG-99 FLIGHT SURGEON
      LT JOHN A. NAVY, USN(MC)
   B. SQD IS UNDER FIELD CONDITIONS, NO PHONE AVAILABLE.
10. NARRATIVE. FLIGHT OF THREE CH-53E ACFT ESCORTED BY TWO AH-1 ACFT WERE ENROUTE TO EXTERNAL LIFT OPERATIONS WHEN ATTACKED BY ENEMY GROUND FIRE FROM THE NORTH. THE THREE CH-53 ACFT WERE IN TACTICAL CRUISE FORMATION , 300 FT AGL, AT A CLASSIFIED LOCATION WHEN THE ATTACKED OCCURRED. DASH TWO (MA TWO) WAS ON RIGHT SIDE OF THE LEAD (MA ONE). DASH THREE WAS ON LEADS LEFT. MA ONE AND MA TWO WERE HIT BY HOSTILE GROUND FIRE (LIGHT MACHINE GUN) FROM THEIR THREE 0'CLOCK POSITION. FIRE WAS OBSERVED COMING FROM BOTH MISHAP ACFT PRIOR TO THEIR HITTING THE GROUND. HOSTILE FIRE WAS QUICKLY SUPPRESSED BY ESCORT ACT. ALL SURVIVORS MEDEVACED. NO PRIOR INDICATIONS OF HOSTILE OPERATIONS IN THIS AREA.//
BT

APPENDIX J

AEROMEDICAL ANALYSIS SAMPLE

The structure and content of the Aeromedical Analysis (AA) is presented in Chapter 7 of this instruction. A sample AA is included here to represent how a good AA should be written. For those Flight Surgeons that are unfamiliar with or need review of the Human Factors Analysis and Classification system (HFACS), an introduction to HFACS precedes the sample AA.

Finally, the Naval Safety Center cannot stress enough the inclusion of all the enclosures and the proper completion of all of the forms. This information is placed in a database from which important conclusions are derived about saving lives and aircraft. Flight Surgeons are encouraged to elicit the help of AMSO's, PR's, NATOPS personnel, squadron safety personnel, and the Naval Safety Center, so that the forms may be finished in a timely and complete manner.

SAMPLE AEROMEDICAL ANALYSIS

FLT SRGN: William Smith Rank/Grade: LT, MC, USN (FS)
Mailing Address: UNIT 009 BOX 636 FPO AE 12345-6789
Phone Numbers: DSN 999-1234, Commercial (123) 321-1234
Date Aeromedical Analysis submitted: 1/1/98
Hours spent in investigation: 90
AMSO or others who assisted: LCDR Fred Jones, MSC, USN

ENCLOSURES TO AEROMEDICAL ANALYSIS

01 72 Hour Histories for Mishap Aircrew (SIR Form 3750/15)
02 AFIP Toxicology Reports

ABBREVIATIONS USED

AA = Aeromedical Analysis
AC = Aircraft
AFIP = Armed Forces Institute of Pathology
AMB = Aircraft Mishap Board
ASO = Aviation Safety Officer
CDI = Collateral Duty Inspector
CO = Commanding Officer
CTW = Commander Training Wing
FRS = Fleet Replacement Squadron
FS = Flight Surgeon
H2P = Helicopter Second Pilot
HAC = Helicopter Aircraft Commander
HCO = Helicopter Control Officer
HEED = Helicopter Emergency Egress Device

HOSS = Helicopter Onboard Surveillance System
HT = Helicopter Training
IFF = Interrogate Friend or Foe
LPU = Life Preserver Unit
LSO = Landing Signal Officer
MA = Mishap Aircraft
MAC = Mishap Aircrewman
MC = Mishap Crew
MH2P = Mishap Helicopter Second Pilot
MHAC = Mishap Helicopter Aircraft Commander
MPAX = Mishap Passenger
NATOPS = Naval Aviation Training and Operating Procedures Standardization
OIC = Officer in Command
PAC = Pilot at Controls
PAX = Passenger
PCL = Pitch Change Link
RHIB = Rigid Hull Inflatable Boat
SA = Situational Awareness
SENSO = Sensor Operator
SOP = Standard Operating Procedures
SPDB = Student Progress Disposition Board
VFR = Visual Flight Rules
VT = Fixed Wing Training
WNL = Within Normal Limits
XO = Executive Officer

1. REVIEW OF EVENTS

a. Mishap Overview

Approximately 5 weeks prior to the mishap flight, the MH2P was the PAC during a night visual identification of a merchant vessel. The AC during this mission was the same AC as the MA. When decelerating and descending downwind to obtain a better visual identification of a merchant ship, the AC experienced an unintentional right yaw. The AC rotated through the wind line and completed 180 degrees of rotation before the MH2P regained control. After review of the incident with the HAC of that flight (not the MHAC) it was felt that the MH2P had become focused on the ship’s lights and lost SA. This incident was not brought to the attention of the OIC (the MHAC) until after the mishap.

Three weeks prior to the mishap flight, the MH2P was the PAC during a day VFR launch from a sister ship. The AC during this mission was the same AC as the MA. Following an abrupt pull on the collective during takeoff, the AC completed 290

degrees of unintentional right yaw before the turn was arrested and the AC departed the ship. The seriousness of the event generated personal message traffic between the incident ship's CO and the detachment ship's CO. After review of the incident by the HAC of that mission (same HAC as in the first incident described above) with the MH2P, it was felt that the AC had most likely a little right pedal remaining in following the prior landing. This slight right pedal input combined with an abrupt pull on the collective and some confusion on the wind direction resulted in the rightward yaw upon takeoff. Before the effects of appropriate left pedal input took over, the AC tail swung through the windline (15 degrees to port) adding additional force to the rightward turn. Regardless of wind direction, rightward or leftward yaw or pedal turns is never tolerated on takeoff, especially from a ship at sea. The typical brief is that when the nose breaks on takeoff put the AC down if at all possible. The incident was not brought to the attention of the detachment OIC until after the personal message traffic between the two ship COs. The MH2P was later informally counseled by the OIC but the incident was not brought to the attention of the squadron CO. Moreover, the OIC was not aware of the first incident at the time of this counseling.

In addition to these two incidents, the MH2P had the controls taken from him on two other occasions during this detachment. The first was when he drifted over the LSO control station during takeoff and did not respond to verbal direction from the HAC. The second was when he again drifted right and the HAC lost sight of the flight deck environment. The MC had been on cruise for approximately 2½ months prior to the mishap. Except for the above mentioned incidents, the cruise had been uneventful.

The MC had flown an uneventful mission the night prior to the mishap. All three were in bed by 0100 on the day of the mishap. The MC had received adequate rest prior to the mishap. The mission was to be a routine patrol. The XO of the ship was to accompany them as a PAX on a familiarization flight. The briefs and manup were uneventful. The MPAX sat in the SENSO seat and the MAC sat in the rescue seat in the far aft of the MA. Flight quarters were called and the rotors engaged. The MC then spent approximately 30 minutes trouble shooting an IFF problem. Once the IFF problem was fixed, the MHAC decided the crew would perform a cross-cockpit takeoff with the PAC (MH2P) in the right seat and the MHAC in the left seat with the MA in the starboard trap. The decision to perform the cross-cockpit takeoff was not made until the takeoff checklist had been completed. There was no formal brief but the MH2P stated that

he was comfortable performing a cross-cockpit takeoff. Chocks and chains were removed and a "Green Deck" was called.

With the MH2P at the controls, the MA lifted off and immediately began a rightward turn. It was noted the AC did not reach standard hover altitude of 5 feet. The MHAC remembers that the MH2P pulled collective quite slowly and was not abrupt on the controls. He also remembers looking at the pedals as soon as he noted the rightward yaw and did not see any right pedal deflection. Shortly after the onset of the turn, the MH2P uttered an expletive and attempted to “hold it steady.” Between 60 and 90 degrees of turn, the MHAC had come on the controls and began to input left pedal, increasing deflection until he had applied full left pedal. The MHAC called set it down, but the MH2P did not respond. The MHAC then lowered the collective at approximately 160 to 180 degrees of yaw. The MA lost altitude, continued its rightward yaw, skipped across the flight deck and landed in the starboard safety nets, facing forward and teetering at nose high attitude of approximately 45 degrees. While the MA was in the nets, the MAC noted loose gear falling aft and lodging near the main cabin door, his primary egress route. He unfastened his harness and kicked the loose gear out the main cabin door. At this point the MH2P remembers fully lowering the collective. The MHAC then pulled the PCLs aft taking momentum off the rotor head. The MA increased its pitch to close to 90 degrees before rolling right, impacting the water tail low and completely inverted. The MAC was able to get two good hand holds before the MA hit the water, but these were jarred loose upon impact. All members of the MC felt that they were instantly submerged and had no opportunity for “one last breath.”

The MAC was the first to surface, less than 10 seconds after the MA hit the water. The shaded visor had fallen down in front of his eyes during water impact, so he removed his helmet prior to egress. He did not feel a need to use his HEED bottle. On the surface, he did not inflate his LPU. He began counting heads and noted only two others besides himself. He then climbed onto the now sinking MA, removed his LPU, and dove back into the water along side the cockpit. He was able to feel around inside the cockpit, but did not find the missing crewman. He surfaced and noted the previously missing crewman (the MH2P) floating next to him. He then inflated the MH2P’s LPU.

The MPAX was the second to surface just after the MAC. The MPAX had difficulty finding the cabin window emergency release handle and opted to egress through the main cabin door. His LPU caught briefly in the doorway but he was able to free it without difficulty. He was uninjured and inflated his LPU on the surface.

The MHAC was the third to surface. Review of the HOSS tape revealed that it took 19 seconds for the MHAC to surface. During the interview, he stated that he had swallowed a lot of water and was afraid to use his HEED bottle for fear of aspiration. He admitted that he had initially given up and was thinking of how lonely it felt to drown. He began to think of his family and when he thought of his kids he “suddenly came to.” He found the cockpit window emergency release handle, pushed it forward, released his harness, and pulled himself free. Once on the surface, he inflated his LPU.

The MH2P was the last to surface. Review of the HOSS tape revealed that it took 56 seconds for him to surface. During the interview, he stated that he had difficulty finding the cockpit window emergency release handle and opted to use his HEED bottle. He too felt that he had swallowed a lot of water. He found his HEED bottle, but failed to purge it prior to taking his first breath and aspirated a small amount of water. He then abandoned the HEED bottle. At this point, he admitted to feeling a little panicked. He removed his helmet and released his harness without holding onto a reference point. He moved towards what he thought was the aft portion of the helo looking for the main cabin door. When he encountered rotor pedals, he returned to his original position and found the cockpit window emergency release handle. He pushed it forward and egressed without difficulty. On the surface he was noted by the others to be confused. He did not inflate his LPU until assisted by the MAC.

The HOSS tape begins with the MA sitting in the starboard safety nets, nose high, with main rotor blades intact and still turning. The tail rotor cannot be seen even with frame by frame analysis. As the MA’s pitch increases, the main rotor blades impact the water and can be seen disintegrating. The SENSO seat did not stroke properly. The rescue seat in the SH-60B is not a stroking seat. The rescue seat had a broken support wire not noted on preflight. It was not a cause of additional injury to the MAC. Examination of all passenger compartments did not reveal any structural failure or additional damage caused by impact with their respective occupants. The MAC’s helmet was lost at sea and therefore, unavailable for examination of defects related to the visors.

A complete review of aircrew and witness statements, damage to the ships flight deck, damage to the MA (salvaged 2 days after the mishap), and review of the HOSS tape lead the AMB to believe that the MA completed 180 degrees of right turn before the tail wheel impacted the flight deck. This was followed by the stabilator impacting the LSO control station and then the main mounts impacting after 240 to 270 degrees of yaw. Since

the collective was not fully lowered, the MA retained some of its rightward momentum and bounced across the flight deck before landing in the starboard safety nets. A thorough wreckage examination of all tail rotor drive components, tail pylon, yaw flight-control linkage, and servos as well as engineering investigation of key drive chain components revealed internal scuffing on the piston of the tail rotor servo. Review of maintenance records was unremarkable. The damage to the tail rotor and tail rotor drive components was consistent with a rotating tail rotor at the time of water impact. This led the AMB to conclude that the unintentional right yaw may have been due to a sticking in the tail rotor servo mechanism. Other pilots on the DET did not notice sticking in the rudder pedals on prior flights in the MA.

Reconstruction of the mishap scenario was conducted in a simulator to look at yaw rates with minimal left-pedal input while simultaneously inducing a momentary sticking of the tail rotor servo piston. It was noted that “less than standard” input of left pedal at the time of collective pull produced rightward yaw rates approaching those observed by the MC and witnesses, especially as the AC rotates through the windline. The MH2P’s minimal left-rudder input combined with the sticking servo allowed right turn yaw rates to develop that were not arrested. Therefore, the AMB concluded that a lack of left pedal input by the MH2P at the time the collective was pulled was causal to the mishap. Visual inspection of the SENSO seat revealed the retaining nut of the lower actuator rod was missing. This resulted in an asymmetrical downward motion of the SENSO seat at the time of the mishap. The seat was last installed during a phase inspection six weeks prior.

b. Aircrew Profile

(1) MHAC

The MHAC is a 34-year-old Caucasian male LCDR with 1,600 total flight hours, 1,400 of which are in the MA model. He has been at the squadron for 10 months and this was his first OIC tour. He had previously served as an instructor pilot in the MA type. He is generally considered a mature, competent, and safe aviator who enjoys flying. There are no known interpersonal problems between him and his fellow officers or enlisted. He has been happily married for 7 years and has two daughters aged 2 and 5. During the detachment he has communicated with his family by e-mail and letters at least weekly. He has never been involved in a mishap prior to this one. He denies any psychosocial or financial problems.

NATOPS review was remarkable for having received three downs in his primary VT syllabus and one down in his advanced HT syllabus. He received two SPDBs during this time, both recommending retention. His overall HT grades were average. His FRS performance was noted to be outstanding. He had flown with the MH2P a total of three times in the past six months.

Medical record review revealed the MHAC to have a current flight physical on which he was found to be PQ/AA DIACA DNA SGI with no waivers. No active or recent medical problems were noted.

Review of his 72-hour history (Form SIR 3750/15) was remarkable for an average of only 6.5 hours of sleep/24 hours. He had only 6 hours of uninterrupted sleep prior to the mishap. His last alcoholic beverage was approximately 66 hours prior to the mishap. He was on no current medications.

Physiology training was up to date (Form SIR 3750/4).

The MHAC sustained some superficial lacerations, abrasions, and musculoskeletal injuries during the mishap (Form SIR 3750/3). He was released from ship's medical within an hour of presenting. AFIP toxicology results were all negative or WNL as were locally run labs and a complete spine series (Form SIR 3750/14 Enclosures (2) and (3)).

(2) MH2P

The MH2P is a 28 year old Caucasian male LT with 600 total flight hours, 350 of which are in the MA model. He has been at the squadron for 10 months and this was his first detachment as an H2P. He is generally considered to be a relatively inexperienced, but competent aviator and is liked by his colleagues. He is not known to have difficulty in getting along with his superiors and peers. There are no known interpersonal problems between him and his fellow officers or enlisted. As stated previously, he has had two prior unintentional loss of tail rotor authority situations during this cruise while he was the PAC. He does admit to being the recipient of mild banter from his fellow pilots on cruise for being abrupt on the controls, but does not feel that this has affected him in any way. He is single with no children. During the detachment he has communicated with his family and friends by e-mail and letters at least weekly. He has also had some communications (both e-mail and letters) with a former girlfriend he had broken up with just prior to going on this cruise. He has never been involved in a mishap prior to this one. He denies any psychosocial or financial problems.

NATOPS review was remarkable for having received four downs during the VT syllabus of his primary flight training. He

received three SPDBs during this time. The last SPDB recommended attrition with CO concurrence, but CTW recommended retention. He was seen by his FS at this time, diagnosed with performance anxiety, grounded, and referred for stress management training. Psychological screening exams were WNL and he successfully completed the training. He was returned to flight status 14 days after being grounded. No major difficulties were noted in his intermediate or advanced training. His overall HT grades were average. His FRS time showed a range of performance with both “hot and cold” days. He was known as a “plodder,” getting through the syllabus without any serious problems, yet “carrying a reputation as being a bit lazy.” No specific problem areas or negative trends were noted.

Medical record review revealed the MH2P to have a current flight physical on which he was found to be PQ/AA DIACA DNA SGI with no waivers. No active or recent medical problems were noted.

Review of his 72-hour history (Form SIR 3750/15) was unremarkable. His last flight was the night prior to the mishap with a land time of 0015 on the day of the mishap. He had 8.2 hours of uninterrupted sleep prior to the mishap. His last alcoholic beverage was approximately 64 hours prior to the mishap. He was on no current medications.

Physiology training was up to date (Form SIR 3750/4).

The MH2P sustained some superficial lacerations, abrasions, and musculoskeletal injuries during the mishap (Form SIR 3750/3). He also aspirated a small amount of sea water when he failed to purge his HEED bottle prior to inhaling. Initial room air pulse oximetry was 92%. He was placed on high flow oxygen and his lung fields cleared within 30 minutes. He was released from the ships medical department after 6 hours of observation. He was placed on prophylactic antibiotics due to the high prevalence of contaminated sea water. AFIP toxicology results were all negative or WNL as were locally run labs and a complete spine series (SIR Form 3750/14 enclosures (2) and (3)).

(3) MAC

The MAC is a 33-year-old Caucasian male AWH1 with 3,200 total flight hours, 1,600 of which are in the MA model. He was the SENSO for this mission. He is well liked and generally considered a mature, competent, and safe Naval Aircrewman who enjoys flying. There are no known interpersonal problems between his shipmates and him. He had been married for 3 years, separated for 4 years, and just recently formally divorced. He describes a good relationship with his ex-wife and an amicable divorce. He has no children and has been dating another woman

for the past 4 months. During the detachment he has communicated with his girlfriend and his family by e-mail and letters at least three times each week. He has never been involved in a mishap prior to this one although he was involved in an incident in which a tail chain was not removed prior to takeoff. This incident did not result in a mishap. He denies any psychosocial or financial problems.

NATOPS review was unremarkable.

Medical record review revealed the MAC to have a current flight physical on which he was found to be PQ/AA DIF NAC - SAR/HELO with no waivers. No active or recent medical problems were noted.

Review of his 72-hour history (SIR Form 3750/15) was unremarkable. His last flight was the night prior to the mishap with a land time of 0015 on the day of the mishap. He had 10.5 hours of uninterrupted sleep prior to the mishap. His last alcoholic beverage was approximately 6 days prior to the mishap. He was on no current medications.

Physiology training is up to date (SIR Form 3750/14 enclosure (4)).

The MAC sustained some superficial lacerations, and musculoskeletal injuries during the mishap (SIR Form 3750/14 enclosure (2)) likely from impact with the MA cabin contents when the MA impacted the water (he had released his harness prior to impact). He was released from ships medical within an hour of presenting. AFIP toxicology results were all negative or WNL as were locally run labs and a complete spine series (SIR Form 3750/14 enclosures (2) and (3)).

2. AEROMEDICAL DISCUSSION AND CONCLUSIONS (HFACS ANALYSIS)

a. Aeromedical Conditions Causal to the Mishap

(1) Unsafe Acts

(a) Violation (routine). MHAC failed to properly brief a cross-cockpit takeoff. Cross-cockpit takeoffs require a thorough briefing in order to ensure the aircrew has a common understanding of how the PAC's field of view will be effected. This briefing is particularly important for less experienced aircrew. Nevertheless, the MHAC decided to allow the MH2P to make a cross-cockpit takeoff after the takeoff checklist had been completed, without an appropriate brief.

(b) Skill-based Error. The MH2P failed to apply sufficient left pedal during takeoff. The completion of flight control preflight checks normally results in a neutral pedal

position. However, a neutral pedal position at takeoff, if not adjusted for increasing power when feet are resting on the pedals, will result in a right yaw of the aircraft.

(c) Skill-based Error. The MH2P failed to apply left pedal to arrest right yaw. Immediately following lift, the aircraft began a right yaw. The MH2P recognized that the yaw was unintentional and stated that he concentrated on holding the aircraft level. As the aircraft yawed through the relative wind (40 degrees to starboard), the MHAC also recognized that the yaw was unintentional and that the left pedal was slightly forward (approximately one half inch) of the right pedal. The MHAC applied full left pedal in one to one and one half seconds and estimates that left pedal input began at approximately 90 degrees of rotation and full left pedal was applied by approximately 135 degrees. The MHAC described the initial yaw rate as similar to a pedal turn, which accelerated as the rotation continued.

(d) Decision Error. MH2P failed to lower the collective once the right yaw was recognized and when directed. In the NATOPS flight brief, the MHAC directed that in the event of uncommanded yaw over the flight deck the appropriate response was to “put the aircraft down.” At the onset of right yaw, the MH2P stated that he concentrated on maintaining a level attitude and was “trying to hold it steady.” The MHAC first made yaw control inputs, then verbally directed the MH2P to “put it down.” The MH2P remembers hearing the MHAC say, “put it down” but he continued to attempt “to hold [the aircraft] steady.” When the MH2P failed to respond to verbal commands the MHAC lowered the collective, without taking controls, and observed that the MH2P's left arm was straight.

(e) Skill-based Error. The MH2P failed to completely lower the collective while the MA was over the flight deck. The MHAC verbally directed the MH2P to lower the collective and then made a physical input to reduce power. After approximately 210-230 degrees of yaw, the MA impacted the flight deck, bounced alternately on the main mounts, skidded, and yawed before coming to rest on the starboard edge of the flight deck heading approximately 315 degrees relative. The MH2P recalls that as the aircraft teetered on the flight deck edge, that he lowered the collective fully down; too late to counter the rotational momentum and prevent the mishap.

(f) Skill-based Error. The MHAC failed to ensure that the collective was fully lowered. With full left-

pedal input made, the MHAC gave a verbal command to the MH2P to put it down. The MHAC came on the collective and lowered it, observing that the MH2P's left arm was extended and straight. The MHAC's observation of the MH2P's arm led him to believe that the collective had been fully lowered. However, the MH2P did not completely lower the collective until the MA was on the flight deck edge. Fully lowering the collective would likely have resulted in the MA landing sooner, with a slower yaw rate, and permitted the MA weight to counter rotational momentum.

(2) Preconditions for Unsafe Acts

(a) Adverse Mental State. The failure of the MH2P to make sufficient pedal input resulted from a fixation on avoiding abrupt collective movement. This was done in an attempt to compensate for his tendency to be abrupt on the flight controls.

(b) Adverse Mental State. MH2P’s fixation may have been compounded by peer pressure and preoccupation with performing his first cross-cockpit takeoff.

(c) Adverse Mental State. The fatigued state of the MHAC contributed to the poor communication and coordination during takeoff. The MHAC was mildly sleep deprived (he had received an average of 6.5 hours of sleep during the previous 72 hours

(d) Crew Resource Management. The MH2P failed to communicate with the MC. Communication is an integral part of aircrew coordination. The ability to verbalize a situation helps to focus efforts on appropriate actions. As the aircraft yawed right, the MH2P focused on holding the MA steady and did not communicate his lack of control or his intentions to the MC. Had the MH2P immediately communicated his perceptions of the situation, the MHAC may have been able to respond prior to build up of the yaw rate.

(3) Unsafe Supervision

(a) Failed to Correct a Known Problem. The Detachment HAC (not MHAC) failed to provide the OIC with adequate information regarding the professional development of the MH2P. The MH2P was at the controls during two previous incidents of unintentional right yaw. In both cases, the maneuvers were induced by improper flight control inputs and involved right yaw of approximately 180 and 290 degrees

respectively. The HAC (same in both incidents) failed to promptly inform the OIC of these incidents of unintentional right yaw and downplayed their seriousness when he did debrief the OIC. Uncontrolled aircraft motion in any environment is a serious safety of flight issue, even more so at night or over a single spot deck. The HAC's failure to quickly and accurately relay these incidents, and his willingness to downplay their serious nature inhibited the OIC's ability to recognize a skill deficiency pattern in the MH2P's flying abilities. Based on the above analysis the AMB concludes that the detachment HAC failed to provide the OIC with adequate information regarding the professional development of the MH2P.

(b) Inadequate Supervision. The OIC (MHAC) failed to provide adequate professional guidance. As the ship's aviation safety officer, the detachment OIC is responsible for establishing and supervising the safe conduct of embarked flight operations. This responsibility includes oversight of aircrew proficiency and professional development. Given that the mishap was the third incident of unintentional right yaw for the MH2P while on this deployment it stands to reason that the OIC (MHAC) would have taken measures to prevent its occurrence in the future. Although the detachment HACs periodically met to discuss the professional development of the H2Ps, the importance of reviewing operations in light of safety requirements was not sufficiently ingrained to properly highlight a hazardous pattern with the MH2P. Thus, detachment flight safety awareness was insufficient to recognize a significant flight hazard and this inability resulted from supervisory failure to establish and maintain strong safety communication links.

b. Maintenance Conditions Causal to the Mishap

(1) Unsafe Maintainer Acts

(a) Violations. Examination of the tail rotor servo revealed internal scuffing on the piston. An EI stated that the scuffing occurred over a period of time, prior to the mishap. The tail rotor servo was changed during a phase inspection six weeks prior to the mishap. The mechanic who replaced the servo stated that he did not refer to the maintenance publication during the process, as required by the directive. The mechanic felt he knew by memory the proper steps for removing and replacing the servo.

(b) Error. The mechanic failed to properly align the piston during tail rotor servo installation IAW the

maintenance publication. The mechanic stated that he thought there was only one correct way to install the servo. A review of his process indicated that he failed to properly align the servo rod to its connector. Misalignment of the servo piston could result in internal chaffing of the piston with its outer casing. The mechanic misjudged the importance of proper servo alignment.

(2) Unsafe Management Conditions

(a) Supervisory. Removing and replacing a tail rotor servo requires the completed installation be inspected by a CDI. The CDI observed the completed work. However, due to his trust in the mechanic's previous workmanship, the CDI did not closely inspect the completed action. Inadequate supervision of the mechanic's work by the CDI resulted in the CDI missing the incorrect servo rod installation.

c. Aeromedical Conditions Causal of Additional Damage or Injury

(1) Unsafe Acts

(a) Skill-based Error. The MH2P failed to properly use his HEED bottle resulting in the aspiration of sea water. Initially hesitant to use his HEED bottle, he attempted to locate the emergency window release handle to egress. However, he was unable to locate the handle. Feeling the need for air, he then attempted to use the HEED but forgot to purge the bottle completely prior to his first breath resulting in the aspiration of water. He successfully egressed after approximately 1 minute underwater.

MISHAP SEQUENCE OF EVENTS

	Causal Factor	HFACS Category
1.	**MHAC failed to properly brief a cross-cockpit takeoff.**	**Violation**
2.	**The MH2P failed to apply sufficient left pedal during takeoff.**	**Skill-based Error**
3.	**The MH2P failed to apply left pedal to arrest right yaw.**	**Skill-based Error**
4.	**MH2P continued to hold the AC steady and failed to lower the collective once the right yaw was recognized, and when directed.**	**Decision Error**
5.	**The MH2P failed to completely lower the collective while the MA was over the flight deck**	**Skill-based Error**
6.	**The MHAC failed to ensure that the collective was fully lowered.**	**Skill-based Error**
7.	**The failure of the MH2P to make sufficient pedal input resulted from a fixation on avoiding abrupt collective movement.**	**Adverse Mental State**
8.	**MH2P's fixation may have been compounded by peer pressure and preoccupation with performing his first cross-cockpit takeoff.**	**Adverse Mental State**
9.	**The fatigued state of the MHAC contributed to the poor communication and coordination during takeoff.**	**Adverse Mental State**
10.	**The MH2P failed to communicate with the MC.**	**Crew Resource Management**
11.	**The Detachment HAC (not MHAC) failed to provide the OIC with adequate information regarding the professional development of the MH2P.**	**Failed to Correct a Known Problem**
12.	**The Detachment OIC (not MHAC) failed to provide adequate professional guidance.**	**Inadequate Supervision**
13.	**Maintainer failed to use proper maintenance publication**	**Violation**
14.	**Maintainer failed to properly align tail rotor servo piston**	**Error**
15.	**CDI failed to properly supervise subordinate personnel**	**Supervisory**

(b) Decision Error. The MAC received first aid injuries after releasing his harness prior to impact. When the MA settled onto the flight deck edge, numerous equipment bags in the tunnel fell aft onto the MAC. He released his harness and proceeded to throw the bags out the cabin door. When the MA pitched and rolled over the edge, the MAC seized some hand holds but was thrown forward when the MA hit the water. Relatively low impact forces kept the MAC from sustaining serious injury as he was thrown about the cabin.

(2) Preconditions for Unsafe Acts

(a) Adverse Mental State. The MH2P stated that after water impact he was a little confused and swallowed a lot of water. This likely contributed to his failure to initially use, and subsequently purge, his HEED bottle.

(c) Organizational Influences

(a) Resource Management. The design of the HEED bottle made it likely that aspiration of water will occur if not purged properly during egress. Given that water mishaps are often met with subsequent states of panic when submerged, several aircrew have either aspirated water while using the HEED improperly or have elected not to use the HEED device for fear of aspirating water. Had the HEED device been designed with a dual regulator, the need to purge the device prior to use would be alleviated.

d. Aeromedical Conditions Present But Not Contributory to Either the Mishap or Additional Damage or Injury

(1) Unsafe Acts

(a) Decision Error. MH2P removed his helmet prior to egress. This action, although improper, did not result in additional injury. It does, however, offer insight into the mental state of the MH2P while he was submerged.

(b) Decision Error. MAC removed his helmet prior to egress. The shaded visor of the helmet came loose impeding his vision. He removed his helmet to see better. This action, although improper, did not result in additional injury. A HAZREP regarding potential problems with helmet visors was submitted.

(c) Decision Error. MAC re-entered the sinking MA. Contrary to the Naval Aviation Water Survival Training Program teaching, the MAC re-entered the sinking MA (with only his upper torso) in search of a missing crewman. This action placed the MAC at a significantly increased risk of further injury or death. It did not, however, result in additional injury.

3. Aeromedical Recommendations

a. For HSL 99: Recommend aviation performance review to determine MH2P's suitability for continued flight status.

b. For HSL 99: Conduct pilot training on the hazards associated with the pilot not at the controls making single axis control inputs and the increased communications required to safely cross control an aircraft.

c. For HSL 99: Recommend aircrew training that reviews the importance of conducting thorough pre- and post-flight briefs.

d. For HSL 99: Recommend training for all aircrew to include comprehensive review of aircrew coordination and human factors processes. Training should include review of operational risk management principles and individual obligations to identify and report hazards.

e. For HSL 99: Recommend aircraft commander training on the importance of documenting and reporting the professional development of junior pilots.

f. For HSL 99: Recommend review of current NATOPS procedures covering loss of tail rotor drive to determine if a submission of NATOPS change for loss of tail rotor drive below the recommended cutgun height of 30 feet is appropriate.

g. For COMHSLWINGX: Recommend review of the current OIC course curriculum to determine if the current training adequately addresses the unique safety and human factors requirements associated with deployed-detachment operations.

h. For COMNAVAIRSYSCOM: Accelerate procurement of HEED bottle with dual regulator for use by all helicopter communities.

i. For COMNAVAIRSYSCOM: Develop a lightweight, flexible and easy-to-use cargo net system for use in the H-60 tunnel.

APPENDIX K

COLLECTIVE ADDRESS DESIGNATORS (CADS)

The NAVSAFECEN is designated as the cognizant authority over a set of collective address designators, with each set being composed of a specific type aircraft and its command support structure. The CAD purpose is to disseminate essential aviation safety information addressed in OPNAVINST 3750.6R. The information will be composed of HRs, MDRs, SIRs, and mishap endorsements. By type aircraft, the active CAD listing is provided with the corresponding communication address in proper format:

TYPE AIRCRAFT	CAD ADDRESS
A-4	ALL SKYHAWK AIRCRAFT ACTIVITIES
AV-8	ALL HARRIER AIRCRAFT ACTIVITIES
C-12	ALL SUPER KINGAIR AIRCRAFT ACTIVITIES
C-9	ALL SKYTRAIN AIRCRAFT ACTIVITIES
C-20	ALL GULFSTREAM AIRCRAFT ACTIVITIES
C-130	ALL HERCULES AIRCRAFT ACTIVITIES
EA-6	ALL PROWLER AIRCRAFT ACTIVITIES
E-2/C-2	ALL HAWKEYE AND GREYHOUND AIRCRAFT ACTIVITIES
E-6	ALL MERCURY AIRCRAFT ACTIVITIES
F-14	ALL TOMCAT AIRCRAFT ACTIVITIES
F/A-18	ALL HORNET AIRCRAFT ACTIVITIES
H-1	ALL HUEY AND COBRA HELICOPTER ACTIVITIES
H-2	ALL SEASPRITE HELICOPTER ACTIVITIES
H-3	ALL SEAKING HELICOPTER ACTIVITIES
H-46	ALL SEAKNIGHT HELICOPTER ACTIVITIES
H-53	ALL SEA STALLION HELICOPTER ACTIVITIES
H-60	ALL SEAHAWK HELICOPTER ACTIVITIES
P-3	ALL ORION AIRCRAFT ACTIVITIES
S-3	ALL VIKING AIRCRAFT ACTIVITIES
T-2	ALL BUCKEYE AIRCRAFT ACTIVITIES
T-34	ALL MENTOR AIRCRAFT ACTIVITIES
T-39	ALL SABERLINE AIRCRAFT ACTIVITIES
T-45	ALL GOSHAWK AIRCRAFT ACTIVITIES
	ALL NAVY FLYING CLUB AIRCRAFT ACTIVITIES
V-22	ALL OSPREY ACTIVITIES
UAV	ALL UAV COMMANDS

Appendix L

Detailed Cause Factor Determinations

Detailed Cause Factors

The detailed cause factors are the official cause factors of the mishap. Narrative cause factors amplify them, and HFACS cause factors categorize them for academic analyses but are not the official cause factors of the event. In order to readily update and provide detailed cause factors (Who/What/Why's) to the fleet, the current detailed factors listing is now maintained on the Naval Safety Center's website vice in this instruction. AMB members preparing SIR's are to utilize the listing available at the following address: http://www.safetycenter.navy.mil/aviation/3750/appendixL.htm. These factors are under a continuous state of refinement and the most recently available listing should be downloaded for use during AMB deliberations and SIR generation for each mishap event.

Detailed Cause Factors listed in this appendix comprise an exhaustive tabulation of the way in which people and aircraft have historically interacted to produce mishaps. As such, they provide a menu of the possible Human Factors that could be involved in a mishap. Their use will guide the AMB to full consideration to the "WHY's" of a given event, in addition to a thorough evaluation of WHO and WHAT. A Human Factor narrative cause factor that is accepted in the SIR must be matched to a properly selected detailed cause factor to ensure the completeness and precision of the AMB's conclusions. A properly written narrative cause factor will at a minimum restate the WHO and WHAT in descriptive narrative terms. WHY factors and the ultimate outcome of the act may be included. For example, "THE COPILOT NOT AT CONTROLS FAILED TO BACKUP THE PILOT AT CONTROLS DURING A LOW ALTITUDE MANEUVER/DESCENT DUE TO TASK SATURATION, FIXATION ON TRAFFIC AND RADIO COMMUNICATIONS, LOSS OF SITUATIONAL AWARENESS, AND FATIGUE". Though the endorsing chain will strive to refine and clarify both the detailed and the narrative cause factors, it is the AMB who is in the best position to identify the who/what/why for future inclusion in the Naval Safety Center's data files. The amount of modification required by the endorsing chain often directly reflects on the thoroughness of the AMB's deliberations and on the quality of the SIR.

General Guidelines

One of the major challenges in documenting a mishap lies in comprehensively defining all of the cause factors involved. In the past, one of the major weaknesses of the Naval Safety Center's mishap data file was the inability to determine why the mishap causal factors occurred. In 1989 WHY factors began to be included with detailed cause factors, a process that was substantially refined in 1991, and today we provide the AMB with the opportunity to define numerous WHY's with every cause factor. It is critical that the AMB understand how these WHY factors are to be used. We know that someone (WHO) did something (WHAT). Now we need to know WHY WHO did WHAT. A frequent problem with WHY factors has been a tendency for the AMB, or an endorser, to attempt to restate or describe the WHAT in WHY factor terms, vice describing WHY the WHAT occurred. The following SUPERVISORY factor, taken from an actual draft final endorsement, is offered as an example:

WHO: Supervisory, Organizational, Maintenance Officer.

WHAT: Maintenance Personnel, Supervisory, Failed to Manage / Supervise Personnel.

WHY: Communication/Coordination, Misinterpretation-Verbal, Ambiguous Language.

This tells later readers that the MO had received ambiguous verbal information or instruction FROM someone, resulting in his supervisory failure. However, in this case the MO had actually provided ambiguous verbal instruction TO his own supporting staff, where the ultimate maintenance errors occurred. The appropriate WHY(s) in this case would describe the reason(s) for the MO having provided that ambiguous instruction, such as "Performance, Failure of Attention, General Inattention" or "Psychosocial, Attitude Problem, Over Confident".

The other challenge we now face is ensuring that all cause factors, and not just those most evident or inescapable ones, are identified. The full and complete documentation of the cause factors of a mishap is crucial both to correcting those factors and preventing future mishaps and to accurately understanding the manner in which these mishaps occur and the progress that is made towards reducing their number. It is not uncommon for SIR's to document a WHY factor without fully exploring that WHY as an independent cause factor. For example, if a WHY for an aircrew factor is Psychosocial, Organizational Climate/Culture, then it is likely that an additional supervisory factor needs to

be explored for WHAT: Supervisory, Failure to Provide, (select sub-factor as appropriate).

Another scenario in which cause factors can be left undocumented is when different types of cause factors combine to set the stage for the mishap. If maintenance personnel improperly maintained an aircraft such that it was more prone to abrupt departure under certain circumstances, and a pilot placed the aircraft into those circumstances and then misused the flight controls, there are (at least) three causal factors for the departure and ultimate demise of the aircraft. There is one Aircrew factor: Misused Controls. There is one Maintenance factor: Maintenance Production Failure. There is one Material factor: Aircraft Component/System Improperly Serviced/Maintained (cite component/mode of failure/agent – improperly maintained).

Rules and Considerations

Some additional rules and considerations that apply to Detailed Cause Factors:

1. For any one Cause Factor, there can only be one WHO/WHAT combination. If there is logically another WHO and/or WHAT, then there exists another Cause Factor which must be stated in its entirety. Note that “MISHAP AIRCREW” does not exist as a detailed causal factor; the individual members of the crew must be cited separately with their actions and the reasons for them described as appropriate.

2. For each WHAT element of a Human Factor, there may be more than one WHY.

3. When the description of the Causal Factor Element has sub-choices separated by “/”, the AMB should make the appropriate selection and omit the remainder from the SIR. Example: “Failure to Report/Discipline/Counsel”. Choose the appropriate one; i.e., “Failure to Counsel”.

4. When the Causal Factor Element description has an explanation/clarification enclosed in parenthesis, the AMB should omit the text so enclosed from the SIR. Example: “Improper Use - Miscellaneous Equipment (This implies that…)”. Omit”(This implies that…)”.

5. In the event that a matching Detailed Cause Factor Element does not exist for a particular Narrative Cause Factor,

the use of OTHER followed by a dash “-“ and a plain language explanation is appropriate.

6. The use of a dash, ”-“, followed by a plain language explanation to amplify any Detailed Cause Factor Element is appropriate if it will enhance the transfer of information. Normally, it is not required.

7. Appendix M provides an example of the use of Detailed Cause Factors in completing the SIR.

8. Endorsers need not restate the Who/What/Why on those conclusions where there is concurrence.

APPENDIX M

SIR MESSAGE EXAMPLE

Background

This hypothetical example is included to show the process of taking evidence discovered in the course of the mishap investigation to compose paragraphs 1 and 10 through 13 of the SIR. It is, by definition, hypothetical and brief; but the principle is the same as for an actual SIR.

The purpose of the SIR is to fix the causes of the mishap, the CAUSE FACTORS. Each CAUSE FACTOR has three ELEMENTS associated with it, not unlike the subject/verb/object of a sentence, which precisely describe the personnel, equipment, actions/events, and reasons for the mishap. Determining these ELEMENTS determines the CAUSE FACTOR; this identifies the starting point for remedial action. The prescribed form for composing the SIR allows the AMB to develop its analysis and conclusions in its own language and state them as accepted or rejected CAUSE FACTORS. Each accepted causal factor is then matched to the standardized, but more abstract terminology required for DETAILED CAUSE FACTORS, which are required for efficient analysis by the COMNAVSAFECEN. Accepted causal factors are stated in the analysis and conclusions paragraph. The plain language allows for readability within the SIR and the standardized format ensures that the determined causes of the mishap are stated with precision and without ambiguity. This example shows how this is done.

Scenario: GEAR-UP LANDING

A multi-piloted aircraft joined the landing pattern. The aircrew consisted of pilot (aircraft commander), and copilot (pilot qualified in model). The copilot, a nugget recently reported, read the landing checklist and the pilot, a seasoned veteran of intimidating demeanor, executed it. The pilot put the landing gear handle in the down position but did not check the gear position indicators. These showed the gear up, and neither pilot noticed the gear handle warning light which was illuminated. The gear was, in fact, up. The aircraft was equipped with a horn which sounded when the throttle was retarded to a descent setting and the landing gear was up. The horn failed to sound when the pilot retarded the throttle at the 180. The aircraft landed gear-up, slid off the runway and crashed into a maintenance truck parked on the grass. The

aircraft suffered Class "B" damage with substantial damage to the truck. There were no injuries.

The following facts were discovered in the investigation: the pilot had only 4 hours sleep the previous night after working late; the pilot's father had died the month before; earlier maintenance on the landing gear had been in accordance with directives but the maintenance handbook omitted a procedural step which allowed the gear handle to be moved without lowering the gear; emergency gear extension was available but not used; a microswitch in the throttle quadrant corroded and failed as an open circuit, defeating the gear-up warning horn; the climate at homebase was wet and rainy; the aircraft was usually parked on the flight line. The mishap crew had not had aircrew coordination training, and most squadron pilots had lapsed ACT currency. Personnel repairing taxi lights parked a truck on grass beside the runway with permission of tower.

Paragraph 1, Mishap Info: the following example shows the composition of paragraph 1.A and 1.B.

RMKS/1. MISHAP INFO:

A. THIS REPORT CONCERNS A SEVERE HAZARD TO NAVAL AVIATION. COMMANDING OFFICER SQUADRON ONE TWO THREE ENDORSEMENT REQUESTED IAW REF (A). SUMMARY: DURING DAY VFR TRAINING FLIGHT, AIRCRAFT LANDED GEAR UP, SLID OFF RUNWAY AND STRUCK MAINTENANCE TRUCK PARKED BESIDE RUNWAY.

B. PRIVILEGED MISHAP NARRATIVE. IN LANDING PATTERN FOR RUNWAY 27, MISHAP PILOT (MP) (AIRCRAFT COMMANDER) CALLED FOR LANDING CHECKLIST AND REPLIED TO EACH ITEM AS MISHAP COPILOT (MCP) (PQM) READ THEM. MP PUT LANDING GEAR HANDLE IN DOWN POSITION BUT DID NOT CHECK GEAR POSITION INDICATORS WHICH SHOWED GEAR STILL UP. NEITHER PILOT NOTICED GEAR HANDLE WARNING LIGHT ILLUMINATED. WHEN THROTTLE WAS RETARDED FOR DESCENT FROM 180-DEGREE POSITION, WARNING HORN FOR GEAR UP WITH REDUCED POWER DID NOT SOUND. MA LANDED GEAR UP, SLID RIGHT AND STRUCK A TRUCK PARKED BESIDE RUNWAY. TOWER PERSONNEL HAD CLEARED THE DRIVER TO PERFORM MAINTENANCE TAXI LIGHTS IN THE ACTIVE RUNWAY, CONTRARY TO STATION PROCEDURES. MP HAD WORKED LATE THE NIGHT BEFORE THE MISHAP AND SLEPT ONLY 4 HOURS. MAINTENANCE ON LANDING GEAR BEFORE FLIGHT WAS PERFORMED IN ACCORDANCE WITH DIRECTIVES BUT A SIGNIFICANT STEP WAS OMITTED FROM MAINTENANCE MANUAL. MISSED MAINTENANCE ACTION ALLOWED LANDING GEAR HANDLE TO BE SELECTED TO DOWN WITHOUT ACTUALLY LOWERING THE GEAR. MICROSWITCH IN THROTTLE QUADRANT CORRODED AND FAILED AS AN OPEN CIRCUIT. OPEN CIRCUIT DEFEATED WARNING HORN WHEN THROTTLE WAS RETARDED WITH LANDING GEAR UP.

Paragraphs 2 through 9 are repeated from the MDR to include any new nonprivileged information that has been provided in previous MDRs.

Paragraph 10, Evidence: the following example shows the composition of paragraph 10 from the above evidence.

10. EVIDENCE.

A. ENCLOSURES HAVE BEEN MAILED PER REF A.
(1A) (Unit ID & msg DTG), FINAL MDR
(2A) SIR ENCLOSURE FORMS (Appendix N, as required)
(A) FORM 1, GENERAL INFORMATION
(B) FORM 2, INDIVIDUAL BACKGROUND DATA, PILOT
(C) FORM 2, INDIVIDUAL BACKGROUND DATA, COPILOT
(D) FORM 4, AVIATION PHYSIOLOGY, PILOT
(E) FORM 4, AVIATION PHYSIOLOGY, COPILOT
(F) FORM 6, ESCAPE-EGRESS DATA, PILOT
(G) FORM 6, ESCAPE-EGRESS DATA, COPILOT
(H) FORM 9, AIRCREW DATA
(I) FORM 10, AIRCRAFT DATA
(J) FORM 11, IMPACT DATA
(K) FORM 13, METEOROLOGICAL DATA
(3A) (non-privileged witness statements)(List those witnesses who were not given a promise of confidentiality)
(A) Statement of maintenance truck driver
(B) Mr. John Doe
(4A) (Subsequent non-privileged enclosure such as the page in error from maintenance handbook.)
(5A) etc.
The following privileged enclosures would be as a minimum with this SIR:
(1B) (Unit ID & msg DTG) SIR MESSAGE
(2B) AEROMEDICAL ANALYSIS
(3B) MP STATEMENT
(4B) MCP STATEMENT
(5B) SUMMARY OF INTERVIEWS WITH MAINTENANCE CREW
B. SUMMARY OF EVIDENCE.
(1) THE FOLLOWING ACRONYMS, ABBREVIATIONS AND DEFINITIONS ARE USED IN THIS SIR:
(A) MA - MISHAP AIRCRAFT
(B) MP - MISHAP PILOT
(C) MCP - MISHAP COPILOT
(D) ACT - AIRCREW COORDINATION TRAINING

(P)(2) THE PILOT SLEPT FOUR HOURS THE NIGHT BEFORE THE MISHAP. HE STATED HE USUALLY SLEEPS EIGHT HOURS AND WAS TIRED THE DAY OF THE MISHAP.

(P)(3) THE PILOT AND COPILOT WENT THOUGH THE LANDING CHECKLIST IN PERFUNCTORY FASHION, EACH FAILING TO CHECK FOR WHEELS DOWN INDICATION. AN INEXPERIENCED COPILOT WAS SCHEDULED WITH THE MOST EXPERIENCED PILOT IN THE SQUADRON. THE COPILOT RELIED ON THE PILOT'S EXPERIENCE AND DID NOT VERIFY OR QUESTION THE PILOT'S ACTIONS.

(P)(4) THE PILOT'S FATHER HAD DIED THE MONTH BEFORE THE MISHAP.

(5) THE MAINTENANCE PERFORMED ON THE AIRCRAFT WAS IN ACCORDANCE WITH THE HANDBOOK.

(6) THE MAINTENANCE HANDBOOK LEAVES OUT AN IMPORTANT STEP (4A).

(7) AN AIRFIELD MAINTENANCE MAN FIXING TAXI LIGHTS PARKED HIS TRUCK NEXT TO RUNWAY 27 WITH TOWER PERMISSION (3A)

(8) THE MICROSWITCH IN THE THROTTLE QUADRANT WHICH SENSES THROTTLE POSITION AND ACTIVATES THE GEAR WARNING HORN WAS CORRODED AND FAILED TO AN OPEN CIRCUIT (FALSE SAFE INPUT TO WARNING SYSTEM).

Paragraph 11, Analysis: here the AMB shares what it considers to be the significance of the evidence. The hazards that are suggested by the evidence are tested for plausibility and ACCEPTED or REJECTED. To emphasize the significance of human factors and to bring these out of the shadow of what was previously titled the Flight Surgeon's Report, all aeromedical conditions are required to be discussed in this paragraph. Those that are ACCEPTED will go on to be listed in the conclusions and recommendations paragraphs; those that are REJECTED, but present and not contributing, will be further discussed in the AEROMEDICAL ANALYSIS enclosure ((2B) in this example). After each accepted cause factor, the detailed case factor elements from appendix L will be selected and placed at the end.

11. ANALYSIS.

A. AIRCREW FACTOR - PILOT OVERLOOKED THE GEAR UP INDICATION BECAUSE HE WAS FATIGUED. ACCEPTED. PILOT DID NOT RECALL LOOKING AT THE GEAR INDICATION BEFORE REPORTING THEM DOWN. HE RESTED HALF AS LONG AS USUAL THE NIGHT BEFORE THE MISHAP AND FELT TIRED DURING THE FLIGHT. FATIGUE IS MOST PLAUSIBLE REASON FOR HIM TO DEPART FROM HIS HABIT PATTERN AND OVERLOOK THE GEAR INDICATIONS SHOWING GEAR UP. BASED ON THE ABOVE ANALYSIS THE AMB CONCLUDES THE MISHAP PILOT FAILED TO

CHECK THE LANDING GEAR INDICATION ON FINAL BECAUSE HE WAS FATIGUED.

WHO: AIRCREW, PILOT AT CONTROLS, AIRCRAFT COMMANDER.

WHAT: FAILED TO EXTEND LANDING GEAR, UNINTENTIONAL, FAILED TO CONFIRM LANDING GEAR POSITION PRIOR TO LANDING.

WHY: PHYSIOLOGICAL, ACUTE EFFECTS, FATIGUE, INADEQUATE REST.

B. AIRCREW FACTOR - PILOT AND COPILOT WENT THOUGH THE LANDING CHECKLIST IN PERFUNCTORY FASHION, FAILING TO CHECK GEAR POSITION INDICATORS. ACCEPTED. A GREEN COPILOT ACCEPTED THE VETERAN PILOT'S READBACK OF THE CHECKLIST WITHOUT QUESTIONING OR VERIFYING BECAUSE OF HIS OVER-CONFIDENCE IN PILOT'S EXPERIENCE. BASED ON THE ABOVE ANALYSIS THE AMB CONCLUDES THAT MISHAP PILOT AND MISHAP COPILOT ACTED IN UNCOORDINATED MANNER BY NOT INDEPENDENTLY VERIFYING SIGNIFICANT STEPS IN LANDING CHECKLIST.

WHO: AIRCREW, COPILOT NOT AT CONTROLS, PILOT QUALIFIED IN MODEL.

WHAT: FAILURE OF AIRCREW COORDINATION, FAILURE TO BACKUP PILOT IN COMMAND.

WHY: INADEQUATE COORDINATION, IMBALANCE IN TRANSCOCKPIT AUTHORITY GRADIENT.

C. AIRCREW FACTOR - PILOT OVERLOOKED THE GEAR UP INDICATION BECAUSE HE WAS PREOCCUPIED BY THE RECENT DEATH OF HIS FATHER. REJECTED. PILOT HAD RETURNED FROM EMERGENCY LEAVE AND REINTEGRATED INTO SQUADRON ROUTINE WITHOUT INCIDENT.

(Note: Details of pilot's reaction to father's death are omitted in this section and included in the aeromedical analysis.)

D. MAINTENANCE FACTOR - MAINTENANCE PERSONNEL DID NOT FOLLOW PROCEDURE, RESULTING IN IMPROPER RIGGING OF LANDING GEAR. REJECTED. REVIEW OF PUBLICATIONS, MAINTENANCE AND QUALITY ASSURANCE PROCEDURES, WORK DOCUMENTATION AND INTERVIEWS WITH MAINTENANCE AND QA PERSONNEL SUPPORT A FINDING THAT WORK ACCOMPLISHED WAS IN ACCORDANCE WITH PROCEDURES AS PUBLISHED.

E. SUPERVISORY FACTOR - MAINTENANCE HANDBOOK OMITS IMPORTANT STEP IN LANDING GEAR MAINTENANCE PROCEDURE ALLOWING IMPROPER RIGGING OF LANDING GEAR. ACCEPTED. REVIEW OF HANDBOOK AND INTERVIEW WITH MANUFACTURER'S REPRESENTATIVE SHOWED A STEP WAS OMITTED, WHICH RESULTED IN MISRIGGING AND ALLOWED THE GEAR HANDLE TO MOVE TO THE DOWN POSITION WITHOUT INITIATING THE LOWERING SEQUENCE. BASED ON THE ABOVE ANALYSIS THE AMB CONCLUDES THE MAINTENANCE HANDBOOK OMITS AN IMPORTANT STEP IN LANDING GEAR MAINTENANCE PROCEDURE ALLOWING IMPROPER RIGGING OF LANDING GEAR.

WHO: SUPERVISORY, MATERIAL COMMAND, COMNAVAIRSYSCOM.

WHAT: PROVIDED IMPROPER TECHNICAL PROCEDURE.

WHY: PERFORMANCE, OTHER - INADVERTENT OMISSION.

F. SUPERVISORY FACTOR - UNIT COMMANDER FAILED PROVIDE ESSENTIAL TRAINING. ACCEPTED. MISHAP CREW HAD NOT ATTENDED ACT; MOST REMAINING SQDN AIRCREWS HAD LAPSED ACT CURRENCY SINCE JOINING THIS COMMAND. ONI 3710.7Q REQUIRES ACT ANNUALLY. THE TRAINING ADDRESSES CREW BACKUP IN CRITICAL AREAS SUCH CHECKLIST EXECUTION. BASED ON THE ABOVE ANALYSIS THE AMB CONCLUDES THE UNIT COMMANDER FAILED TO PROVIDE ESSENTIAL TRAINING.
WHO: SUPERVISORY, SQUADRON, COMMANDING OFFICER
WHAT: FAILURE TO PROVIDE, TRAINING QUALIFICATION
WHY: PERFORMANCE, JUDGEMENT ERROR, POOR DECISION, DELAYED DECISION

G. MATERIAL FACTOR - THROTTLE QUADRANT MICROSWITCH MALFUNCTIONED DUE TO CORROSION. ACCEPTED. TRACING COMPONENTS FOR GEAR SELECTION AND POSITION INDICATION LEAD TO A SWITCH WHICH SENSES THROTTLES POSITION AND ENABLES THE WARNING HORN FOR GEAR UP WHEN THROTTLES ARE PULLED BACK. THE SWITCH APPEARED CORRODED AND WAS FOUND IN A POSITION CORRESPONDING TO AN OPEN-CIRCUIT (NO WARNING). LABORATORY EXAMINATION IDENTIFIED CORROSION DUE TO AMBIENT ATMOSPHERIC MOISTURE IN NORMAL SERVICE. BASED ON THE ABOVE ANALYSIS THE AMB CONCLUDES THE THROTTLE QUADRANT MICROSWITCH FAILED DUE TO CORROSION.
COMP: LANDING GEAR WARNING SYSTEM, THROTTLE QUADRANT MICROSWITCH.
MODE: OPEN CIRCUIT.
AGENT: CORROSION OF COMPONENT.

H. FACILITIES PERSONNEL - TOWER PERSONNEL VIOLATED AIR STATION PROCEDURES IN PERMITTING MAINTENANCE VEHICLE ALONGSIDE ACTIVE RUNWAY. ACCEPTED. TOWER PERSONNEL CLEARED MAINTENANCE VEHICLE AND OCCUPANT TO REPAIR TAXI LIGHTS ON THE ACTIVE RUNWAY. STATION PROCEDURES REQUIRE RUNWAY BE CLOSED UNTIL THE WORK IS FINISHED AND VEHICLES LEAVE THE AREA. TOWER PERSONNEL FORGOT ABOUT REQUIREMENT AND CLEARED TRUCK TO PARK ALONGSIDE ACTIVE RUNWAY FOR FIELD MAINTENANCE. MISHAP AIRCRAFT STRUCK TRUCK AFTER SKIDDING OFF RUNWAY. BASED ON THE ABOVE ANALYSIS THE AMB CONCLUDES TOWER PERSONNEL VIOLATED PROCEDURE IN PERMITTING MAINTENANCE VEHICLE IN PROXIMITY OF ACTIVE RUNWAY.
WHO: FACILITIES PERSONNEL, TOWER PERSONNEL.
WHAT: FACILITIES PERSONNEL, FAILED TO ADHERE TO PROCEDURES, STANDARD OPERATING PROCEDURES.
WHY: JUDGEMENT ERROR, INADEQUATE RISK ASSESSMENT.

Paragraph 12, Conclusions: The AMB arrives at its conclusions by consensus with no one member having veto power. This consensus is actually achieved and stated in the analysis process/paragraph for what the AMB considers <u>are</u> and <u>are not</u> the causes of the mishap.

Paragraph 12 restates this consensus for the FACTORS that are considered the cause(s) and then assigns a risk assessment code (RAC) to establish a quantitative measure of the safety impact of the identified hazard. Assigned corrective actions are referenced as well. The format of paragraph 12 is structured to ensure there is no ambiguity in the AMB's statement of its conclusions. The AMB's conclusions are separated into two groups: factors "CAUSING THE MISHAP", and factors causing "OTHER DAMAGE OR INJURY". The plain language conclusions of the AMB are the causal factors and appear in the subparagraphs of each section. Preceding them is the determination statement which establishes the degree of confidence which the AMB has in its conclusions. There are five, standard phrases to do this, one of which must be used. These are described in detail in chapters 6 and 7. In this example, the cause of the mishap has been "determined"; i.e., evidence for a plausible mishap scenario has been established with confidence and competing scenarios have been eliminated, also with confidence. Then the CAUSE FACTORS and assigned RACs are enumerated. The first part of the description of each CAUSE FACTOR is its classification; e.g., AIRCREW FACTOR. A dash follows and then a short sentence or phrase describing the FACTOR. A verbatim repetition or paraphrase of the analysis paragraph for the factor up to where the factor is accepted, followed by the RAC is sufficient. All factors that are accepted in the analysis section must appear in the Conclusions section. Finally, the statement "ASSOCIATED RECOMMENDATIONS:" is made, followed by a listing of the numbers of associated recommendations.

12. CONCLUSIONS.

A. CAUSAL FACTORS OF THE MISHAP:

(1) THE CAUSAL FACTORS OF THIS MISHAP ARE DETERMINED TO BE:

(A) AIRCREW FACTOR - PILOT OVERLOOKED THE GEAR UP INDICATION BECAUSE HE WAS FATIGUED. RAC 2. ASSOCIATED RECOMMENDATIONS: 13.A.(1)(A); 13.A.(1)(B).

(B) AIRCREW FACTOR - PILOT AND COPILOT PERFORMED LANDING CHECKLIST WITHOUT CHECKING GEAR POSITION INDICATORS. RAC 2. ASSOCIATED RECOMMENDATIONS: 13.A.(1)(C).

(C) SUPERVISORY FACTOR - MAINTENANCE HANDBOOK OMITS IMPORTANT STEP IN LANDING GEAR MAINTENANCE PROCEDURE ALLOWING IMPROPER RIGGING OF LANDING GEAR. RAC 4. ASSOCIATED RECOMMENDATIONS: 13.A.(2)(A).

(D) SUPERVISORY FACTOR - UNIT COMMANDER FAILED TO IMPLEMENT REQUIRED ACT FOR SQDN AIRCREWS. RAC 2. ASSOCIATED RECROMMENDATIONS: 13.A.(1)(C).

(E) MATERIAL FACTOR - THROTTLE QUADRANT MICROSWITCH MALFUNCTIONED DUE TO CORROSION. RAC 4. ASSOCIATED RECOMMENDATIONS: 13.A.(2)(B).

B. CAUSAL FACTORS CAUSING OTHER DAMAGE AND INJURY:

(1) THE CAUSAL FACTOR OF OTHER DAMAGE OR INJURY IS DETERMINED TO BE:

(A) FACILITIES PERSONNEL - TOWER PERSONNEL CLEARED A VEHICLE IN PROXIMITY OF ACTIVE RUNWAY, VIOLATING STATION PROCEDURE. RAC 4. ASSOCIATED RECOMMENDATIONS: 13.B.(1)(A).

C. ORM ASSESSMENT:

(1) HAZARD - AIRCREW READINESS.

(A) CONTROL – SQUADRON OPS ENSURE AIRCREW IS QUALIFIED FOR SCHEDULED MISSION IN COMPLIANCE WITH FLIGHT SYLLABUS AND SQUADRON, TYPEWING/TYCOM, AND NATOPS INSTRUCTIONS AND SOP’S.

(B) CONTROL - AIRCREW COMPLY WITH OPNAVINST 3710.7R AND SQUADRON SOP ON CREW REST AND SLEEP REQUIREMENTS.

(C) CONTROL - SDO ENSURE AIRCREW COMPLETE SQUADRON RISK ASSESSMENT WORKSHEET (RAW) DURING PREFLIGHT PLANNING/BRIEF AND RECOMMEND FLIGHT SCHEDULE ADJUSTMENTS TO CO AS NECESSARY.

(D) CONTROL – SQUADRON CO ENSURE HUMAN FACTORS COUNCILS ARE CONDUCTED AS REQUIRED.

(2) HAZARD – AIRCREW COORDINATION ERRORS.

(A) CONTROL – SQUADRON OPS ENSURE COMPLIANCE WITH OPNAVINST 1542.7B AIRCREW COORDINATION TRAINING REQUIREMENTS FOR ALL AIRCREW.

(B) CONTROL – AIRCREW COMPLY WITH NATOPS CREW COORDINATION AND MISSION BRIEF REQUIREMENTS PRIOR TO FLIGHT.

(3) HAZARD – LANDING GEAR MALFUNCTIONS.

(A) CONTROL – AIRCREW AND MAINTENANCE CONTROL SUPERVISORS REVIEW AIRCRAFT DISCREPANCY BOOK AND ENSURE NO OUTSTANDING DISCREPANCIES ON LANDING GEAR COMPONENTS OR INDICATING SYSTEMS PRIOR TO RELEASING OR ACCEPTING AIRCRAFT FOR FLIGHT.

(B) CONTROL - PILOTS COMPLY WITH NATOPS LANDING CHECKLIST AND SQUADRON SOP REQUIRING BOTH PILOTS VISUALLY VERIFY COCKPIT LANDING GEAR INDICATORS REFLECT GEAR DOWN AND LOCKED PRIOR TO EACH LANDING.

(C) CONTROL – NAVAIRSYSCOM ENSURE MIM’S PROCEDURES ARE VALIDATED FOR ACCURACY PRIOR TO ISSUE FOR USE BY FLEET SQUADRONS.

(D) CONTROL – SQUADRON MAINTENANCE/QA CREWS ENSURE APPLICABLE PROCEDURES FROM NAMP AND MIM’S ARE FOLLOWED FOR LANDING GEAR MAINTENANCE.

(E) CONTROL – AIRCREW COMPLY WITH NATOPS EMERGENCY PROCEDURES FOR LANDING GEAR MALFUNCTIONS.

(4) HAZARD – LANDING AREA OBSTRUCTIONS.

(A) CONTROL - AIRFIELD OPS/ATC CREWS COMPLY WITH CO NAS SOP ARTICLE PROCEDURES FOR AUTHORIZING MAINTENANCE OR OBSTRUCTIONS TO AIRFIELD RUNWAY AREAS.

(B) CONTROL – AIRFIELD OPS CREWS COMPLY WITH APPLICABLE FACILITY INSTRUCTIONS FOR CONDUCTING AIRFIELD SYSTEMS OPERATIONS CHECKS AND VISUAL INSPECTION/FOD WALKDOWNS OF RUNWAY ENVIRONMENTS.

(C) CONTROL – AIRFIELD OPS/ATC CREWS COORDINATE AND SCHEDULE REQUIRED AIRFIELD MAINTENANCE AND ISSUE NOTAM’S/MODIFY AIRFIELD OPERATIONS AS REQUIRED.

Paragraph 13, Recommendations: The format for the Recommendations paragraph shall be similar to the Conclusions paragraph and separated into the same two groups identified in paragraph 12. All corrective actions should fix WHY's or AGENT's of each CAUSAL factor to be most effective.

13. RECOMMENDATIONS.

A. CAUSAL FACTORS OF THE MISHAP:

(1) UNIT CO:

(A) CONDUCT QUARTERLY REFRESHER TRAINING FOR AIRCREW ON EFFECTS OF FATIGUE. IMPLEMENT WITHIN 30 DAYS. HAS BEEN INCLUDED IN SQDN TRAINING SOP. CLOSED.

(B) DECLARE POLICY ON SELF-REMOVAL FROM FLIGHT SCHEDULE AND POST IN SCHEDULES OFFICE. IMPLEMENT WITHIN ONE WEEK. COMPLETE. CLOSED.

(C) SCHEDULE ALL AIRCREWS TO ACT. IMPLEMENT WITHIN 30 DAYS. TRAINING IN PROGRESS; INCLUDED IN TRAINING SOP. CLOSED.

(2) COMNAVAIRSYSCOM:

(A) CORRECT MAINTENANCE HANDBOOK. CHANGE MADE BY MESSAGE: XXXXXXXXZ JAN 99. CLOSED.

(B) REPLACE THROTTLE QUADRANT MICROSWITCH WITH CORROSION RESISTANT COMPONENT FOR EACH AIRCRAFT AT NEXT OVERHAUL. IMPLEMENT WITHIN ONE YEAR. OPEN.

B. CAUSAL FACTOR OF OTHER DAMAGE AND INJURY:

(1) AIR STATION CO:

(A) CONDUCT REFRESHER TRAINING FOR ON SOP CONCERNING VEHICLES ON OR NEAR ACTIVE RUNWAYS. IMPLEMENT WITHIN 30 DAYS. OPEN.

SOME FORMS MAY CONTAIN INFORMATION THAT IS PROTECTED FROM RELEASE UNDER THE FREEDOM OF INFORMATION ACT
THIS IS PART OF A LIMITED USE NAVAL AIRCRAFT INVESTIGATION REPORT
THIS FORM CONTAINS ONLY NON-PRIVILEGED INFORMATION AND SHOULD BE PLACED IN PART A OF THE MISHAP REPORT
DO NOT ATTACH THIS FORM TO A JAG INVESTIGATION REPORT

1. Event Information:

Mission significantly different from pre-takeoff brief (circle): YES NO UNK N/A

Airshow/Flight Demo Information (was aircraft involved in): (X)

CNO/CMC sanctioned airshow: ( )YES ( )NO
TYCOM/Fleet/Wing/CG sanctioned flight demo: ( )YES ( )NO
Practice for either of above: ( )YES ( )NO

2. Aircraft/Custodian Information: Aircraft _____ of _____ aircraft involved in this mishap.

Reporting Custodian:_____ Aircraft Model:_____ BUNO:_____

Flight/Formation Composition: ____aircraft

At time of mishap flight was: ( ) IN FORMATION ( ) NOT IN FORMATION ( ) TANKING

This aircraft was assigned: ( ) LEAD ( ) WINGMAN

Deployment Status of Aircrew (check only one):

( )Home Based/Local OPS
( )Cross Country/RON (at other than homebase)
( )Weapons/CQ/Detachment/Other Short Deployment
( )Extended Deployment (more than 90 days)

Reporting Custodian Conducts Deployments (circle one): YES NO

Custodian assigned to: (complete all as applicable)

( ) CVW____ ( ) MEU_____ ( ) MAG (incl. ASEK)_____ ( ) MAW_____

Mishap occurred during predeployment workups: YES NO

Months until next extended deployment _____ (If not on a current deployment)

Event Occurred _____ Days into Deployment

Deployment Scheduled to Last a total of _____ Days

Inter Deployment Training Cycle Phase Engaged In:

( ) TSTA I	( ) Fallon (Unit Level Tng)	( ) MCRES
( ) TSTA II	( ) Fallon (Multi-unit CVW Tng)	( ) P-MINT
( ) COMPTUEX	( ) S/FFARP	( ) SOCEX
( ) JTFEX	( ) CN OPS	( ) CAX
( ) UNIT LEVEL TNG	( ) OTHER_____	

Embarked Status at time of Event (circle): EMBARKED DISEMBARKED

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3. Aircrew Information:

Aircrew/Involved Personnel: Number of Occupants of this Aircraft:_____

For 1st Aircraft, indicate number of Bystanders Involved/Injured: _____
(& include in list below if applicable)
Fill in for all involved personnel (use additional sheets if required):

PAC	Name (Last, First, MI)	Sex	In-Flt Duties	Grade/ Rate	Branch	Unit	Injury Class n
			PIC*				

└ check to denote pilot at controls
*** PIC = pilot in command**

4. Comments: (attach separate sheet if required)

Instructions for Completion of SIR Enclosure Form 01

1. Submit this form for each naval aircraft involved in the mishap.

2. The information required in the columns of the table in part 3 is as follows:

a. PAC: indicates pilot at controls. Check appropriately.
b. Name: self explanatory
c. Sex: indicate "M" or "F"
d. In-Flt Duties: indicates the crew position assigned by the flight schedule or similar. Use common NATOPS designations. For flight officers, use RIO/BN/COTAC/etc instead of "NFO". "PIC" indicates the Pilot in Command, the designated senior pilot embarked (PPC/HAC/etc).
e. Grade/Rate: self explanatory
f. Branch: indicates branch of service; i.e., "USN". For civilians or foreign nationals, use CIV or FN, respectively.
g. Unit: indicates unit assigned, the unit to which the individual was permanently assigned.

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h. Injury Classn: indicates injury classification per chapter 3 of OPNAVINST 3750.6R

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1. Anthropometric Data:

Parameter	Value	Unit	Source (see instructions)
Height		inches	
Current Weight		pounds	
Sitting Height		inches	
Trunk Height		inches	
Functional Reach		inches	
Hand Dominance (circle)	R L A	NA	
Buttock_Knee Length		inches	
Shoulder Width		inches	
Buttock_Leg Length		inches	
Anthropometric Code		NA	NATOPS Jacket

Comments:

Instructions for Completion of SIR Enclosure Form 02

1. Submit this form for each aircrew member.

2. Under anthropometric data, hand dominance, circle R, L, or A for right, left, or ambidextrous respectively.

3. The source of anthropometric data should be indicated in the column provided. Sources of anthropometric data are: direct measurement, medical record, NATOPS jacket, etc.

4. The anthropometric code requested is the 4 digit code recorded in the NATOPS flight personnel training and qualification jacket.

5. Space is provided to include additional anthropometric data as required. Additional data should be included where anthropometric problems are noted.

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LEAVE THIS PAGE BLANK

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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1. General:

A. On flight Status (circle): YES NO
B. Injury Classn:_____
C. Days Hospitalized:_____
D. Days in Qtrs:_____
E. Days Medically Grounded:_____
F. Unconscious (circle) YES NO
Duration:_____
(days/hours/mins/secs)

2. Injuries Incurred During Mishap:
(use additional sheets if necessary)

		ICD Code	Injury Classn
Body Part			
Diagnosis			
Specific Cause			
Body Part			
Diagnosis			
Specific Cause			
Body Part			
Specific Cause			
Diagn			

3. Lab Tests

	Date Drawn (mmddyy)	Elapsed Time	Lab Used	Tissue Used	Results	Normal Range	Within Range (Y/N)	Significant Results (Y/N)
Carbon Monoxide								
Alcohol								
Brain Lactic Acid								
Drug Screen								
Hgb/Hct								
Other:								
Other:								

Urinalysis: SP GR:_____ Dipstick:_____ Microscopic:_____
WNL?:_____ Other:_____
Elapsed time after Mishap (hours):_____

4. X-RAY Results: Performed (circle): YES NO WNL?:_____
Comments: (enclose results if pertinent)

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5. Pre-existing Diseases and Diseases/Effects Present at Time of Mishap:

DIAGNOSIS	Discovery Method (X)				Waivers as applicable	
	Ann Phys	Sick Call	Autopsy	Other	Authority	Date

6. Smoking Data: Smoker? (circle): YES NO _____# PACKS PER DAY

7. Autopsy Data: Conducted by/in Presence of (circle each applicable):
AFIP PATHOLOGIST CIVILIAN PATHOLOGIST FLIGHT SURGEON
OTHER MILITARY PATHOLOGIST OTHER_____

8. Injury Profile: mark or draw injury profile on diagram on page 3

9. Comments/Remarks:

Instructions for Completion of SIR Enclosure Form 03

1. Submit this form for each person who was injured or otherwise had a relevant medical finding.

2. General part 1: Flight Status, circle YES if on flight orders regardless of actual participation in mishap; otherwise, circle NO. Injury Classn, insert injury classification in accordance with Chapter 3 of OPNAVINST 3750.6R. Days Medically Grounded, for flight status personnel who are grounded, include day of mishap, but not day of return to flight status.

(continued on page 4)

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

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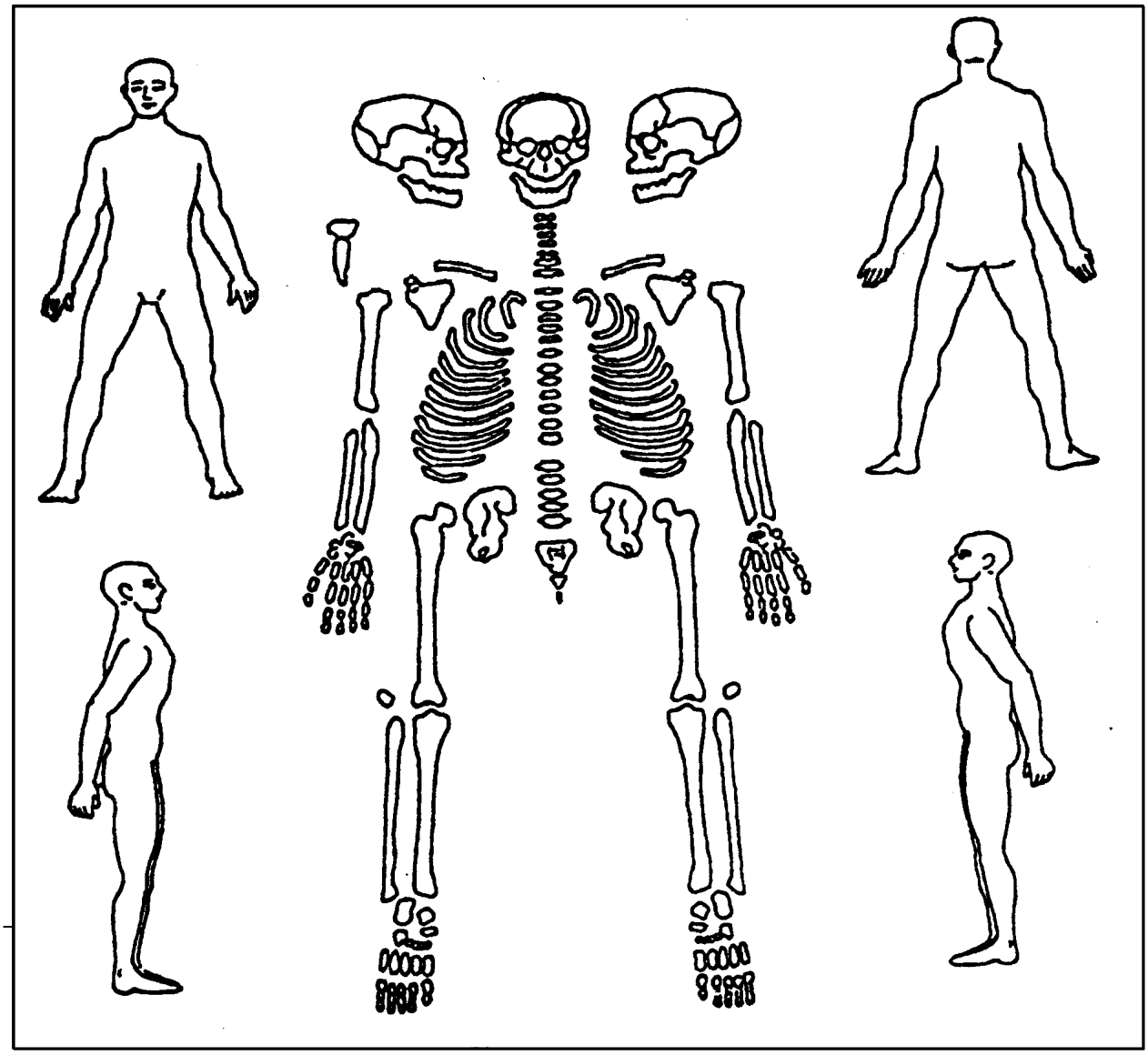
Injury Profile

Mark or draw injuries where applicable



Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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Instructions for Completion of SIR Form 03
(continued from page 2)

3. Injuries Incurred During Mishap part 2: List Injuries in decreasing order of severity. In fatal cases, list primary cause of death first. Use standard medical terminology for body parts and diagnosis, and insert ICD code which most nearly describes injury in column provided. Indicate the estimated injury severity of each injury as if no other injury were present, using OPNAVINST 3750.6R. For "cause", briefly and specifically describe the mechanism of injury, e.g., "Hyperflexion, due to ejection. Indicate external factors which affected mechanism of injury only if those factors can be established with a reasonable degree of confidence, and describe means for establishing that confidence, i.e., "paint from seat found on helmet", "aircrew statement", "rescuer's statement", etc. In the event more than three injuries were sustained, list the remaining injuries on additional sheets. List all injuries (little things are important). Do not simply state "injuries multiple extreme" for fatalities.

Example:

Body Part	Lumbar Spine L-3		
Diagnosis	Small uncomplicated antierior compression Fx		
Specific Cause	Hyperflexion due to ejection forces		

4. Lab Tests part 3: Retain aliquot of frozen serum and urine at least 90 days for future use/verification. Elapsed Time, indicate time in hours and minutes from time of mishap to time specimen obtained. For all abnormal lab values, provide an explanation. State in the Aeromedical Analysis (AA) whether results were significant or not to the mishap. WNL? = Within Normal Limits.

5. X-RAY Results part 4: Spinal x-rays are required following all ejections/ bailouts, crashes or as clinically indicated. Attach copy of x-ray reports to this form.

6. Preexisting Diseases/Defects part 5: List all known preexisting diseases/ defects and diseases/defects present at time of mishap. Include all defects listed in BLOCK 74 OF S.F. 88. such as defects of vision, hearing, etc.

7. Autopsy part 7: Circle as many selections as are applicable. Do not submit the SIR without the results of all toxicology, pathology and other studies. However, do not delay SIR submission because the results of formal reports are known, but the report is not yet available. Instead, Summarize the results in the SIR and forward the formal reports when they become available.

8. Injury part 8: Supplement Injury Profile diagram with photographs where possible. Attach additional sheets, as required. Send photos only to Naval Safety Center. Specify exact location of injuries, abrasions, amputations, burns (and degree), contusions, fractures and dislocations, etc. on the included diagram.

9. Comments/Remarks part 9: Use for listing additional injuries, laboratory values, or any other information considered germane to the investigation. Attach additional sheets as required. Do not include privileged information.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

Action Training Data

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1. Training Data: By Type (list only most recent)

Aviation Physiology Training Program	Reqd Y/N	Place Training Accomplished	Compl (date)	Curr? (Y/N)
Aviation Physiology Lecture				
Stress & Human Performance Lecture				
Sensory Physiology Lecture				
Emergency Egress/Systems Lecture				
Aviation Life Support Systems Lecture				
Survival (Self-Aid) First Aid				
Low Pressure Chamber Flight				
Spatial Disorientation Trainer (MSDD 9B6)				
Centrifuge Trainer (CFET)				
Ejection Seat Trainer (9E6)				

Squadron Egress Training	Reqd Y/N	Place Training Accomplished	Compl (date)	Curr? (Y/N)
Annual Egress Training				
Seat Transition Brief				

Instructions for Completion of SIR Enclosure Form 04

1. Submit this form for each person in the aircraft when emergency egress or water survival situations occur.

2. Attach a separate sheet for comments and additional training. If training was a causal factor, do not discuss here. Include discussion in AA.

3. Training Data part 2: is obtained from the health record/NATOPS jacket or may be available from the site where the training was conducted or NAMI. Deficient training shall be briefly commented and discussed in the AA.

4. A copy of the training record from the NATOPS jacket should be submitted when appropriate.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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Training Data (continued):

Aviation Survival Program	Reqd Y/N	Place Training Accomplished	Compl (date)	Curr? (Y/N)
Water Survival Training Lectures				
Water Survival Training Drills				
Deep Water Environmental				
Parasail Training				
Parachute Drag Training (9F2/9F2A)				
Parachute Disentanglement (9F6)				
Underwater Breathing (9H19)				
Multi Placed Dunker (9D5)				
Helo Rescue (Water Phase) (9H1)				
Helo Emergency Escape Device (HEED) Training				

Other Training	Reqd Y/N	Place Training Accomplished	Compl (date)	Curr? (Y/N)
Cold Weather (CWEST) Environmental Survival				
Jungle Environmental Survival (JEST)				
Desert Environmental Survival (DEST)				
Survival, Evasion Resistance, Esc (SERE)				
Aircrew Coordination Training (ACT)				
Cockpit Resource Management Training				

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

Aviation Life Support Systems (ALSS) Data

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1. Life Support Data:

Equipment/Clothing	Specific Type	R	A	U	N	Prob/Cndn Code
Helmet Visor						
Helmet Chin Strap						
Helmet Nape Strap						
Helmet Reflective Tape						
Glasses (prescription/plano)						
Night Vision Device						
Oxygen mask, regulator						
Oxygen mask, retainer fittings						
Underwear (nomex)						
Flight Suit						
Flight Gloves						
Boots						
Antiexposure Suit						
Survival Vest Radio						
Survival Vest Contents (list)						
Survival Vest:						
Survival Vest:						
Survival Vest:						
Survival Vest:						
Survival Vest:						
Survival Vest:						
~~Harness, Integrated, (size)~~						
Harness, Nonintegrated/Other						

(continued on page 2)

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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Equipment/Clothing	Specific Type	R	A	U	N	Prob/Cndn Code
Harness, Contents (list)						
Anti-G-Suit Upper						
Anti-G-Suit Lower						
Life Preserver						
Life Preserver Autoinflator						
Life Raft						
NBC Respirator						
HEED						
Seat Survival Kit Container						
Seat Survival Kit Contents (list)						
Water Activated Release Device						
Other ALSS Equipment (list)						
ID Tags						

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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2. Remarks: Comment on each item of equipment/clothing with a problem/ condition code. Also list unauthorized modifications. Attach additional sheets as necessary. Do not disclose mishap causal factors.

3. Problem/Condition Codes: (see instructions)

01 Not available, supply problem
02 Not available, left behind
03 Discarded
04 Lost
05 Damaged-Minor
06 Damaged-Major
07 Burned-Minor
08 Burned-Major
09 Destroyed by extreme force/fire
10 Failed to operate
11 Operated partially
12 Difficulty locating
13 Beyond reach
14 Connection/closure difficulty
15 Connection/closure failure
16 Release/disconnect difficulty
17 Release/disconnect failure
18 Inadvertent release/disconnect
19 Inadvertent actuation
20 Actuation difficulty
21 Actuation failure
22 Actuated by other person
23 Restraining/attachment inadequacy
24 Restraint/attachments not used properly for maximum protection
25 Improper use (other)
26 Unfamiliar with use
27 Cold hampered use
28 Injury hampered use
29 Water hampered use
30 Other equipment interfered
31 Donning/removal problem
32 Discomfort/bulkiness
33 Poor fit
34 Leaked
35 Material deficiency
36 Design Deficiency
37 Hangup/entanglement with A/C or other eqpt
38 Entanglement in parachute suspension-Major
39 Entanglement in parachute suspension-Minor
40 Dragging (Parachut only)
41 Non standard configuration
42 Aided in location/rescue
43 Not effective in location/rescue (used in area of SAR vehicles)
44 Prevented/minimized injury
45 Equipment problem (loss, failure, etc.) a factor in producing injury
46 Equipment produced injury (hit e only once)
47 Failure/delay in using compromised survival/rescue
48 All crew equipment (code only once)
49 Maintenance/installation error
50 Problem experienced by others in actuation/release of equipment
51 Equipment damage – self induced
52 Equipment failure – self induced
53 Air dropped equipment
54 Not available – needed
55 Available – needed, not used
56 Dislodged from normal position
60 Other (specify)
61 Installed
62 Not installed
63 Unknown if installed
64 Actuated automatically
65 Left or right automatic inflation
66 One side failed to auto actuate
67 Both sides failed to auto actuate

4. Mishap Phase Codes: (see instructions para 3)

M=Mishap E=Egress U=Unknown T=Not applicable
S=Survival R=Rescue D=Descent (after ejection/bailout)
L=Landing (parachute) from first contact with ground, water, building, tree, etc., until stable.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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Instructions for Completion of SIR Enclosure Form 05

1. Submit this form for each person who was the subject of an escape, survival, rescue episode, or was lost at sea. Specify data on all equipment that was carried or worn, whether used or unused. Also include data for equipment that was needed but not carried by the individual.

2. Column Headings, part 1: Specific Type, enter the specific name and/or number of the equipment/clothing: e.g., Night Vision Device -- AN/AVS-6; glasses -- clear, prescription; NBC respirator -- AR5. The columns "R","A" "U" and "N" refer to "Required", "Available", "Used/Worn", and "Needed" respectively and should be completed with a "Y" for yes, "N" for no, or "U" for unknown. "Required" refers to items that were required for the mission by official directives; e.g., OPNAVINST 3710.7R, TYCOM directives or squadron SOP. "Available" refers to items that were available to the person at the local or unit level at the time of the mishap. "Used/worn" refers to items that were either used or worn by the individual. "Needed" refers to items that prevented or could have prevented injuries or enhanced survivability.

3. Prob/Cndn Code Column, part 1: Prob/Cndn Code=Problem/Condition Code. Use specific code number(s) from page 3 to indicate the nature of a problem/condition. More than one problem/condition may apply and any one problem/condition frequently leads to another. Codes should be listed in chronological order. Add the phase of the mishap (see mishap phase code on the back of the next page) to the number, when known. Bracket all related problems/conditions. Example: A pilot loses his helmet during an ejection because the chin strap is not tightened properly. During the helo rescue hoist, the individual hits his head on the helo and suffers a scalp laceration and concussion. In the "problems" column, enter the following on the line where helmet data have been reported: [24M, 04E, 45R]. Do not list equipment as damaged or failing if impact forces were of such magnitude that the equipment could not have been expected to remain intact.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

Escape/Egress Data

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1. **Location of Individual in Aircraft:** (see instructions)
   A. General (X): ( )COCKPIT ( )NAV/ENG CMPT ( )CABIN/PAX CMPT
      ( )OUTSIDE ON GROUND ( )OTHER
      ( )OUTSIDE IN FLIGHT (RAPPELLING/PARACHUTING/HOISTING).
   B. Longitudinal location (X): ( )FORWARD ( )CENTER ( )AFT ( )UNKNOWN
   C. Lateral location (X): ( )CENTER ( )LEFT ( )RIGHT ( )UNKNOWN
   D. Direction facing (X): ( )FORWARD ( )AFT ( )SIDEWARD ( )UNKNOWN
   E. Use of seat (X): ( )IN SEAT ( )NOT IN SEAT ( )IN BUNK/LITTER ( )UNKNOWN
2. **Escape Data:** (see instructions)
   A. Inflight Egress Attepmted:
      ( ) Yes ( ) No ( ) Unknown
   B. Aircraft Abandoned:
      ( ) Inflight ( ) NA - No Actual/Successful Egress
      ( ) After Impact/Ldg ( ) Unknown
   C. Escape Method (check only one method & amplify from selections under that method):
      ( ) Ejection
         ( ) Accomplished (free of cockpit)
         ( ) Initiated (did not clear cockpit)
         ( ) Attempted (not initiated)
         ( ) Seat Ejected on Impact With Terrain
         ( ) Inadvertent Ejection
         ( ) Underwater Ejection
         ( ) Suspected Ejection
         ( ) Definitely Not Attempted
         ( ) Unknown if Attempt Was Made
      ( ) Bailout
         ( ) Accomplished (free of aircraft)
         ( ) Attempted (not accomplished)
         ( ) Bailed Out After Ejection Attempt Failed
         ( ) Suspected Bailout
         ( ) Definitely Not Attempted
         ( ) Unknown if Attempt was Made
      ( ) Other Escape
         ( ) Standard Emergency Ground Egress
         ( ) Underwater Egress (not ejection)
         ( ) Other Unsuccessful Escape Attempt
         ( ) Exit Unassisted (not emergency egress)
         ( ) Carried/Assisted Out
         ( ) Blown/Thrown Out
         ( ) Jumped/Fell from A/C (airborne)
         ( ) Unknown if Escape Accomplished
         ( ) Escape Method Unknown
   D. Sequence of Actions (describe):

   E. Intent for Escape (check only one):
      ( )INTENTIONAL ( )UNINTENTIONAL-SELF INDUCED ( )INTENT UNKNOWN
      ( )UNINTENTIONAL-MECHANICALLY INDUCED
      ( )UNINTENTIONAL-OTHER INDUCED
   F. Order of Escape: _____ of _____
   G. Number of Previous: _____ ejections _____ bailouts (emergency)

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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_____ other jumps (training/skydiving, etc)

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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3. Cockpit/Cabin Condition Relative to Individual's Location in the Aircraft: (check appropriate)

( ) NO DAMAGE ( ) DAMAGED-DEFINITELY HABITABLE
( ) DAMAGE UNKNOWN ( ) DAMAGED-PROBABLY HABITABLE
( ) DAMAGED-PROBABLY NOT HABITABLE
( ) DESTROYED-DEFINITELY NOT HABITABLE

4. Parachute Landing/Crash (or Landing) Site Terrain (check as many as applicable):

( ) OPEN SEA ( ) LARGE LAKE ( ) RIVER ( ) SHALLOW WATER
( ) DEEPWATER,OTHER ( ) DEEP SNOW ( ) THICK ICE ( ) SOFT GROUND
( ) MARSH/SWAMP/MUD ( ) FLIGHT DECK ( ) BUILDING ( ) DENSE WOODS
( ) RAVINE/STEEP SLOPE ( ) IN TREES ( ) ROCKS ( ) DESERT
( ) IN/NEAR FIREBALL ( ) THROUGH TREES ( ) RUNWAY ( ) HARD GROUND
( ) OTHER (Explain) ( ) UNKNOWN ( ) NOT APPLICABLE/ACFT LANDED NORMALLY

5. HEELS/Emergency Egress Lighting Systems Data (check appropriate):

A. ( ) INSTALLED IN A/C ( ) NOT INSTALLED IN A/C ( ) UNKNOWN
B. ( ) AIDED IN LOCATION OF EXIT ( ) NOT INSTALLED
( ) NOT SEEN/DID NOT AID IN LOCATION OF EXIT ( ) NOT AVAILABLE EXIT USED
( ) NOT APPLICABLE ( ) UNKNOWN EFFECT IN LOCATING EXIT

6. Aircraft Parameters at Time of Escape (if unknown, so indicate):

A. Altitude (FT): _____ (MSL)/_____(AGL)
B. Velocity: (1) Airspeed (KTS):_____ (2) Groundspeed (KTS):_____
(3) Sink Rate (FT/MIN):_____ (4) Climb Rate (FT/MIN):_____
C. Attitude: (1) General: ( )UPRIGHT ( )INVERTED
(2) Pitch (DEG):_____ ( )UP ( )DOWN (check one)
(3) Pitch Rate (DEG/SEC): _____ ( )UP ( )DOWN (check one, unless Rate = 0)
(4) Bank Angle (DEG):_____ Direction: ( )RIGHT ( )LEFT (check one, unless Rate = 0)
(5) Roll Rate (DEG/SEC): _____ ( ) RIGHT ( ) LEFT (check one, unless Rate = 0)
(6) Yaw (DEG): _____ Direction: ( ) RIGHT ( ) LEFT (check one)
(7) Yaw Rate (DEG/SEC): _____ ( ) RIGHT ( ) LEFT (check one, unless Rate = 0)
D. G Forces: (1) Normal (G's):_____ ( ) UP ( ) DOWN (check one)
(2) Lateral (G's):_____ ( ) RIGHT ( ) LEFT (check one)
E. Other (check all that apply):
( ) NOSE DOWN SPIN ( ) FLAT SPIN ( ) OSCILLATING SPIN ( ) UPRIGHT ON GROUND
( ) INVERTED ( ) TUMBLING ( ) MUSHING ( ) UPRIGHT ON WATER
( ) DISINTEGRATING ( ) ROLLING ( ) OTHER (describe) ( ) UNDER WATER/SINKING

7. Egress Problems (see instructions):

Prob Type	Egress Type	Egress Phase	Remarks

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

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8. Remarks:

Instructions for Completion of SIR Enclosure Form 06

1. Submit this form for each person who successfully ejected, bailed out, or otherwise egressed the aircraft as part of the mishap event **and also for** each person who unsuccessfully tried to eject, bail out, or otherwise egress.

2. Location, part 1: indicate where this person was located at the time of the mishap by checking one selection from part A. Amplify with one selection each from parts B through E if appropriate. If the person was in the passenger or crew compartment of a large aircraft, a line drawing with the location marked is desirable.

3. Escape Method, part 2A: indicate the type of escape and amplify from the adjacent selections. Use only the amplifying selections associated with the particular method. "EJECTION" is the completion of action by the aircrew member to initiate the ejection sequence (raising handle, pulling face curtain, etc), regardless of the outcome of the action. Includes when sequence is interrupted by surface impact and may occur when the aircraft is not airborne. "BAILOUT" is an emergency egress with a parachute from an aircraft aloft without the use of an ejection system (or similar). "OTHER" refers to any egress other than EJECTION or BAILOUT including GROUND and WATER egress.

4. Sequence of Actions, part 2D: list sequence of preparatory actions accomplished by this individual before actual egress. Examples: visor down, lap belt/shoulder harness straps adjusted, MAYDAY, seat moved/adjusted, tightened mask, crew alert, etc.

5. Cockpit Condition after Impact, part 3: indicate whether aircraft was abandoned in flight or after impact/landing and check one selection that best describes the condition of the cockpit.

6. Parachute Landing/Crash (or Landing) Site Terrain, part 4: indicate the characteristics of the terrain where the person landed after abandoning the aircraft. If the individual did not abandon the aircraft, indicate the terrain characteristics of the crash (or landing) site of the aircraft.

7. Egress Problems, part 7: select the appropriate codes from page 4 for the Problem, Type, and Phase columns and amplify in the remarks column if appropriate. Describe each

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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egress problem encountered. Continue in remarks section or attach additional sheets if required.

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

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Egress Problem Codes

Prob Type column: indicates type of problem. Select code that corresponds (codes are in two columns):

Code	Problem	Code	Problem
1	Buffeting	26	Fire/Smoke/Fuel
2	G Forces (describe in remarks)	27	Anthropometric Problem
3	Windblast	28	Personal Equipment Factor (other than hangup)
4	Seat Left in "Safed" Condition	29	Upper Extremities Hit Cockpit Structures
5	Difficulty Locating Canopy Jettison Mechanism	30	Lower Extremities Hit Cockpit Structures
6	Hampered by Clothing	31	Struck Canopy/Canopy Bow
7	Hampered by Equipment	32	Struck External Surface of Aircraft
8	Hampered by Injuries (includes body armor)	33	Flailing - Upper Extremities
9	Difficulty Releasing Canopy/Hatch	34	Flailing - Lower Extremities
10	Failure to Release Canopy/Hatch	35	Drogue Slug Swinging
11	Face Curtain Failed to Activate Seat	36	Drogue Slug Struck Individual
12	Face Curtain Problem (locating, reaching, etc.)	37	Struck by Other Equipment
13	Lower Ejection - Handle Failed to Activate Seat	38	Seat/Man Collision
14	Lower Ejection Handle Problem - Other (locating, etc.)	39	Seat Separation Difficulty
15	Canopy Jettison Problem	40	Seat/Parachute Entanglement
16	Canopy Jettison Failure	41	Parachute Riser Interference
17	Could Not Open Canopy/Hatch	42	Entangled in Raft Lanyard
18	Difficulty Releasing Restraints	43	Parachute Line Over/Inversion/ Semi-Inversion
19	Difficulty Reaching Hatch/Exit - Obstructions	44	Individual Held onto Seat
20	Difficulty Reaching Hatch/Exit - Injuries	45	Tumbling/Spinning (person and/or seat)
21	Difficulty Reaching Hatch/Exit - Aircraft Attitude	46	Parachute Container Did Not Open
22	Difficulty Reaching Hatch/Exit - Equipment Hangup	47	Parachute Canopy Streamed/ Malfunctioned
23	Pinned in Aircraft (other than equipment hangup)	48	Inadvertent Opening of Lap Belt
24	Confusion/Panic/Disorientation	49	Failure of Lap Belt to Open
25	Darkness/No Visual Reference	50	Inrushing Water
		51	Cold
		52	Unconscious/Dazed
		53	Other (explain in remarks)

Egress Type column: indicates the type of egress with the problem:

G = Ground W = Water A = Air (ejection/bailout/etc)

Egress Phase column: indicates where in the egress that the problem occurred:

B = Before D = During A = After

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

Ejection or Bailout Data

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1. Time from Emergency until Escape Attempt Initiated:
_____hours _____minutes _____seconds ( )ESTIMATED or ( )ACTUAL

2. Delay in Initiating Escape (check as applicable, number sequentially if multiple):
( )AVOIDING POPULATED AREA ( )AVOIDING UNSUITABLE TERRAIN
( )INSUFFICIENT ALTITUDE ( )EXCESS ALTITUDE
( )EXCESS AIRSPEED ( )ADVERSE AIRCRAFT ATTITUDE
( )ADVERSE BODY POSITION ( )NONE
( )UNKNOWN ( )OTHER (describe)
( )ATTEMPTING TO OVERCOME PROBLEM

3. Protective Helmet/02 Mask Data (use codes; Y=YES, N=NO, U=UNKNOWN):

PHASE	CHIN STRAP FASTENED	HELMET VISOR LOWERED	02 MASK FASTENED (BOTH SIDES)
Before Emergency			
During egress			
During landing			
During rescue			

4. Ejection Seat:
A. Type/Model:_____ (indicate specific type/model)
B. Seat Function (check all that apply):
( )FUNCTIONED PROPERLY ( )UNKNOWN FUNCTION ( )OPERATED PARTIALLY
( )FAILED TO OPERATE ( )INADVERTENTLY ACTUATED ( )MAJOR DAMAGE
( )ACTUATION DIFFICULTY ( )UNFAMILIAR WITH USE ( )DESIGN DEFICIENCY
( )DESTROYED ( )MATERIAL DEFICIENCY ( )IMPROPER USE
( )RELEASE/DISCONNECT FAILURE OF SEAT ( )MINOR DAMAGE
( )MAINTENANCE/INSTALLATION ERROR OF SEAT ( )OTHER (explain)
( )SEAT SYSTEM DESIGN DEPENDENCY/MALFUNCTION
( )AIRCRAFT CANOPY INITIATOR CARTRIDGE MALFUNCTION
( )OTHER AIRCRAFT CANOPY MALFUNCTION

5. Ejection Envelope (check only one):
( )WITHIN ENVELOPE ( )MARGINAL ( )OUTSIDE ENVELOPE ( )UNKNOWN

6. Ejection Initiated by (check one):
( )THIS INDIVIDUAL ( )OTHER INDIVIDAUL ( )OTHER
( )UNKNOWN ( )NOT APPLICABLE

7. Removal of Aircraft Canopy (X):
A. Removal: ( )DEFINITELY NOT ATTEMPTED ( )JETTISONED SUCCESSFULLY ( ) NA - THRU-CANOPY
( )ATTEMPTED (UNSUCCESSFUL) ( )UNKNOWN IF ATTEMPTED
B. Intent: ( )INTENTIONAL ( )UNINTENTIONAL, SELF-INDUCED ( )UNKNOWN
( )UNINTENTIONAL, MECHANICAL ( )NOT APPLICABLE
C. Initiated by: ( )THIS INDIVIDUAL ( )OTHER INDIVIDUAL ( )OTHER
( )NA - THRU-CANOPY EJECTION ( )UNKNOWN
D. Ejected Through Canopy ( ) YES ( ) NO (indicate cut of glass)
( )COMPLETE CUTTING OF GLASS ( )NONE
( )PARTIAL CUTTING OF GLASS ( )UNKNOWN
E. Method: ( )EJECTION SEQUENCE ( )MANUALLY UNLOCKED
( )CANOPY JETTISON HANDLE ( )EXTERNAL FORCE (EXPLAIN IN REMARKS)
( )OTHER ( )UNKNOWN
( )NA - THRU-CANOPY

8. Method of Ejection Initiation (check only one):
( )ARM REST ( )FACE CURTAIN ( )LOWER EJECTION HANDLE
( )IMPACT ( )FIRE ( )COMMAND SEQUENCER
( )MECHANICAL MALFUNCTION/FAILURE

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

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( )OTHER EXTERNAL FORCE (windblast, etc. Explain in remarks)
( )UNKNOWN

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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9. Body Position at Ejection (as compared to optimal, use code):
_____Head _____Hips _____Feet _____Elbows
Codes: 1=Optimal 2=Forward 3=Upward 4=Lateral 9=Unknown

10. Position of Ejection Seat (X):
( )FULL UP ( )FULLDOWN ( )INTERMEDIATE POSITION ( )UNKNOWN

11. Method of Separating Man from Seat (X):
( )DID NOT SEPARATE ( )AUTOMATIC (AS DESIGNED) ( )MANUAL OVERRIDE
( )OTHER (describe) ( )UNKNOWN

12. Parachute Data:
A. Parachute Type:_____
B. Parachute Function (check all that apply):
( )FUNCTIONED PROPERLY ( )PARTIALLY DEPLOYED ( )FAILED TO ACTUATE
( )ENTANGLEMENT-MAJOR ( )ENTANGLEMENT-MINOR ( )INJURY FACTOR
( )MALFUNCTION/DESIGN DEFICIENCY
( )MAINTENANCE/INSTALLATION ERROR

13. Method of Deploying Parachute (X):
( )NOT DEPLOYED ( )AUTOMATIC (as designed) ( )MANUAL
( )UNKNOWN ( )OTHER (describe)

14. Parachute Opening Shock (X):
( )NEGLIGIBLE ( )MODERATE ( )SEVERE ( )UNKNOWN

15. Oscillations (use codes):
0=Negligible 1=Moderate 2=Severe 9=Unknown
A. During descent (check one & use code):
( )4-line release system installed/actuated _____ prior to actuation _____ after actuation

( )4-line release system not installed/actuated _____ during descent
B. Effect of Seat Survival Kit Deployment:_____

16. Parachute Damage (indicate number of):
_____Severed Suspension Lines _____Missing Panels
_____Torn Panels-Major _____Torn Panels-Minor

17. Cause of Parachute Damage (check all that apply, number in sequence if multiple):
( )OPENING SHOCK ( )FIRE ( )LANDING
( )FOULED ON EJECTION SEAT ( )FOULED ON AIRCRAFT ( )TREES
( )DRAGGING ( )OTHER (describe) ( )UNKNOWN

18. Direction Faced at Parachute Landing WRT Horizontal Travel (X):
( )DIRECTLY FACING ( )FACING AWAY ( )QUARTERING, FACING
( )QUARTERING, BACK ( )DIRECTLY SIDEWAYS ( )UNKNOWN

19. Landing Conditions (X): ( )ACTUAL ( )ESTIMATED
A. Surface Winds (knots):_____
B. Dragged by Chute (X): ( )YES ( )NO
C. Distance/time dragged: _____Yards/_____Seconds
D. Underwater use of emergency oxygen (X): ( )YES ( )NO ( )NA

20. Parachute Actuation During Bailout (X):
( )AUTOMATIC PARACHUTE ACTUATOR LANYARD CONNECTED
( )PARACHUTE ACTUATED MANUALLY (0-RING)
( )OTHER (describe)

21. Remarks: (see instructions)

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

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Instructions for Completion of SIR Enclosure Form 07

1. Submit this form for each person who ejected or bailed out, or who attempted to eject or bail out. Also submit this form if canopy is jettisoned for any reason other than ejection or bailout.

2. Time from Emergency until Escape Attempt Initiated, part 1: time starts from the moment that the aircrew member recognized that an ejection/bailout may be required. In many mishaps, an emergency does not warrant an immediate attempt to abandon the aircraft; instead an emergency landing, ditching, etc., may be attempted. If this proves futile as the situation deteriorates (due to flameout, loss of control, realization that runway cannot be reached, etc.), a decision to escape is made. Indicate the time from this recognition until escape attempt was initiated. Indicate "ESTIMATED" if actual times cannot be determined.

3. Body Position at Ejection, part 8: optimal body position for ejection is: head against headrest, chin slightly elevated, hips all the way back, feet on rudder pedals, heels on deck and elbows tucked in. Use the codes provided to indicate that the body parts were in optimal position or their displacement from the optimal.

4. Parachute Damage, part 15: consider a parachute panel missing if the damage is so severe that it is totally ineffective as a means of deceleration, even though remnants are still attached to the edges of the panel. Identify gores and panels by number and letters based upon information in NAVAIR 13-1-6.2 Personnel Parachute Manual.

5. Remarks, part 20: briefly amplify responses with a "(describe)" label adjacent to the response box or explain other responses not covered adequately by the blocks available on the form. To do so, indicate the number/letter corresponding to each item and followed by the narrative explanation.

Name:	_____	Mishap Severity:	_____
Duty/Title:	_____	Mishap Category:	_____
Date of Mishap:	_____	Aircraft Model:	_____
Reporting Custodian:	_____	BUNO:	_____

LEAVE THIS PAGE BLANK

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1. Conditions Prevailing at Survival/Rescue Site:

A. Temperature/Winds/Waves: (if widely variable, give range)

(1) Water Temp: _____deg F (2) Air Temp: _____deg F
(3) Surface Wind: _____kts (4) Wave Height: _____ ft
_____deg _____ deg(mag)
(5) Wave Freq: _____per min

B. Terrain (X):

( )Open Ground ( )Woods/Jungle ( )Mountains
( )Desert ( )Water ( )Ice/Snow
( )Swamp ( )Other ( )Unknown

C. Weather (X):

( )Clear ( )Overcast ( )Fog
( )Rain ( )Snow ( )Sleet
( )Hail ( )Other ( )Unknown

2. Time Lapse Sequence for Actual Rescue Vehicles/Personnel

	Actual Time (24 hour) local clock	Elapsed Time from mishap	Light Conditions (X)			
			Dawn	Day	Dusk	Night
Rescue personnel notified						
Rescue vehicle departed						
This individual located by rescue personnel						
This individual physically reached by rescue vehicle personnel						
This individual actually in rescue vehicle or rescue attempt abandoned						
Rescue completed (Person returned to station, hospital, etc.)						

3. Time this Individual Spent: A. In water:_____ hrs _____ min
B. In raft: _____ hrs _____ min

4. Personnel/Vehicles Performing Rescue:

A. Vehicle Performing Actual Pickup of This Person:

(1) Organization:_____ (2) Type/Model:_____
(3) Location When Alerted:_____
(4) Duty When Alerted:_____
(5) Distance to Victim(s) (miles):_____ straight line
_____ actual miles traveled

~~B. SAR Report Information: SAR Report Attached ( )YES ( )NO~~
Report #_____
Available from:_____

C. Did Rescue Personnel Leave Vehicle to Assist in Rescue: ( )Yes ( ) No
If yes, how: ( )Parachuted ( )Jumped ( )Lowered by Hoist
( )Descended Line/Ladder/Net ( )Into Water/Onto Ground (no jump)
( )Other

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
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5. Personnel/Vehicles Assisting/Attempting Rescue:
A. Organization:_____ B. Type/Model:_____
C. Problems: ( )YES ( )NO (If yes, explain in remarks)

List additional vehicles participating/standing by in remarks or attach additional sheet.

6. Rescue Alerting Means (use numbers to show sequence):
( )Witnessed ( )Crash Phone ( )Other Telephone
( )Radio MAYDAY Call ( )Survival Radio ( )Other Radio Report
( )Radar Surveillance ( )Overdue Report to SAR
( )Airborne Rapid Relay ( )Visual Signaling Equipment
( )Survivor Report ( )Loss of Radio Contact
( )Smoke/Fire/Crash Scene ( )Audio Signaling Equipment
( )Other (describe)

7. Alerting Communications Problems (X):
( )Poor Radio Reception ( )Telephone Line Busy
( )Poor Radio Discipline ( )Acft Radio/Iff Eqpt Inop
( )Poor Radio Procedures ( )Language Problems
( )Incompatible Radio Frequency
( )None ( )Other ( ) IFF

8. Delays in Departure of Rescue vehicle(s):
( )Vehicle Operator Not Available ( )Vehicle Not Ready
( )Vehicle Crew Not Available ( )Communication Breakdown
( )Completing Previously Assigned Duties
( )Lack of Information on Crash Site
( )Nature of Terrain ( )Weather
( )None ( )Other

9. Rescue vehicle problems enroute:
( )Headwind ( )Poor Visibility ( )High Sea State
( )Mechanical Problems ( )Nature of Terrain ( )Rescuers Lost
( )Weather ( )Other Obstructions (fences, etc)
( )None ( )Other (specify)

10. Problems in Locating Individual or Keeping Individual in Sight (X):
( )Heavy Seas ( )Trees ( )Fog/Clouds
( )Precipitation ( )Darkness ( )Radio Interference
( )Loss of Radio/Radar Contact ( )Inadequate/Improper Search
( )Confusion Due to Other Lights ( )Malfunction of Directional Equipment
( )Lack of Correct Information on Location of Survivor
( )Inability to Visually Distinguish Survivor from Terrain
( )Survivor's Failure to Use Signaling Equipment
( )None
( )Other (describe)

11. Rescue Equipment Used (use numbers to show sequence):
( )Rescue Strop ( )Seat ( )Cargo Net
( )Rope ( )Life Ring ( )Basket
( )Boom Net ( )Davit ( )Raft
( )Webbing Cutters ( )Gated D-Ring ( )Grapnel
( )Boarding Ladder ( )Makeshift Carrier/Support
( )First Aid Equipment ( )Forest Penetrator ( )Helicopter Platform
( )Stretcher ( )Cable Cutters
( )Helicopter Rescue Boom ( )Knife/Axe/Saw
( )Billy Pugh Net ( )Other (describe)

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

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12. SURVIVAL PROBLEMS ENCOUNTERED BY THIS PERSON (Number in the sequence experienced)

( ) 01 Inadequate Flotation Gear
( ) 02 Inadequate Cold Weather Gear
( ) 03 Lack of Signaling Equipment
( ) 04 Lack of Other Equipment
( ) 05 Entanglement (Parachute)
( ) 06 Dragging(Parachute)
( ) 07 Parachute Hardware Problem
( ) 08 Entrapment in Aircraft
( ) 09 Pulled Down by Sinking Parachute
( ) 10 Entanglement (Other than parachute)
( ) 11 Unfamiliar with Procedure
( ) 12 Unfamiliar with Equipment
( ) 13 Confused, Dazed, Disoriented
( ) 14 Incapacitated by Injury
( ) 15 Poor Physical Condition
( ) 16 Exposure (Heat, Cold, Sunburn)
( ) 17 Fatigue
( ) 18 Weather
( ) 19 Topography(Swamps, Mountains, Deserts, etc.)
( ) 20 Darkness
( ) 21 Thrown Out of Raft
( ) 22 Hampered by Helo Downwash
( ) 23 Problem Boarding Rescue Vehicles
( ) 24 Thirst
( ) 25 Hunger
( ) 26 Insects, Snakes, Animals, etc.
( ) 27 Sharks
( ) 28 Proximity to Ship (_____Yards)
( ) 29 Hampered by Injuries
( ) 30 None
( ) 98
Other(Describe)_____

13. PROBLEMS THAT COMPLICATED RESCUE OPERATIONS

( ) 01 Failure of Rescue Vehicle (Mechanical Problems)
( ) 02 Inadequacy/Lack of Rescue Vehicle
( ) 03 Failure of Rescue Equipment (Hoist, etc.)
( ) 04 Inadequacy/Lack of Rescue Equipment
( ) 05 Inadequacy of Rescue Personnel Knowledge/Training
( ) 06 Inadequate Medical Equipment
( ) 07 Inadequate Medical Facilities
( ) 08 Vehicle Operator Factor (Poor Procedures)
( ) 09 Rescue Crewman Assist Hesitancy
( ) 10 Fire/Explosion
( ) 11 Entrapment in Aircraft
( ) 12 Physical Limitations of Rescue Personnel
( ) 13 Physical Limitations of Person Being Rescued
( ) 14 Carelessness of Rescue Personnel
( ) 15 Panic/Inappropriate Actions of Person Being Rescued
( ) 16 Rescue Vehicle Accident
( ) 17 Communications Problems
( ) 18 Drag/Entanglement by Deployed Parachute
( ) 19 Topography (Rough Seas, Mountains, etc.)
( ) 20 Interference from Other Vehicles
( ) 21 Victim Pulled Away by External Forces
( ) 22 Weather
( ) 23 Darkness
( ) 24 Weight/Drag Problem Not Due to Parachute
( ) 25 Hampered by Personal/Survival Equipment of Person Being Rescued
( ) 26 Floating Debris
( ) 27 Primary Rescuer Delayed Awaiting Futile Attempts by Other Rescuers
( ) 28 Hampered by Helicopter Downwash
( ) 29 Inadequate Training of Person being Rescued
( ) 30 Inadequate Knowledge of Aircraft Emergency Escape Means
( ) 31 Inadequate Knowledge of Personal Equipment Releases/Actuators
( ) 32 Inadequate Rescue Procedures/Pre-Mishap Plans
( ) 33 Poor Availability of Rescue Equipment
( ) 34 Poor Suitability of Rescue Equipment
( ) 35 Poor Survivor's Techniques
( ) 36 Poor Coordination of Rescue Efforts
( ) 37 None
( ) 98 Other (Describe) _____
_____
_____

14. INDIVIDUAL'S PHYSICAL CONDITION	(check one) DURING RESCUE	(check one) AFTER RESCUE
1. Fully Able to Assist		
2. Partially Able to Assist		
3. Immobile or Unconscious		
4. Fatal on Recovery-Due to Injuries		
5. Fatal on Recovery-Drowned		
6. Recovered Alive-Died From Injuries		
~~7. Lost During Rescue Attempt-Apparently Injured or Drowned~~		

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian:_____

Mishap Severity:_____
Mishap Category:_____
Aircraft Model: _____
BUNO: _____

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15. LOCATOR MEANS (Actual Rescue Vehicle, see instructions)

MEANS	ROLE	PROBLEM	MEANS	ROLE	PROBLEM	MEANS	ROLE	PROBLEM
1.			7.			13.		
2.			8.			14.		
3.			9.			15.		
4.			10.			16.		
5.			11.			17.		
6.			12.			18.		

16. REMARKS (Indicate item referred to. Continue on separate sheet, if necessary)

INSTRUCTIONS

Submission criteria: Submit this form on each person who was retrieved as a result of a search-and-rescue (SAR) effort. Also submit this form for an unsuccessful SAR effort.

1. More than one condition may prevail under A, B, and C.

2. Take care in completing this section. Report all times as local. Elapsed time begins from the moment rescue personnel are first notified. The length of time that a survivor is exposed to environmental hazards before aid arrives forms the basis for a great deal of research in Aviation Life Support Systems (ALSS).

3. Do not count time in the raft as part of the time in the water. A total of A plus B should represent total time from water entry until rescue. If the individual abandons his raft for rescue, this time is part of A.

4. A: Pertains only to the vehicle that performed the actual rescue. Title of organization effecting the rescue is, e.g., HS-1 Sheriff's Department, etc., if civilian, list name and address. The rest of this section is self explanatory.

5. A, B, and C: This is a rescue vehicle/person that was physically capable of making the rescue but did not for some reason. Example: a helo that developed a problem with the hoist and stood by while a motor whale boat made the rescue.
D: Refers to vehicles other than that listed in A, B, and C that participated or could have participated in a rescue attempt.

6. Indicate how rescuers/units were alerted to the need for a rescue effort. participants.

7. Include all active participant's problems.

8-11. Fill out these sections for all active participants.

12. This differs from the equipment section reporting of problems/condition in that a condition (such as dragging) does not necessarily create a problem to the survivor. It is only when the factors listed here present a hazard to this survivor that they are to be checked. The same condition may be a very real problem to one individual and not bother another survivor at all.

(continued on next page)

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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13. Pertains only to the vehicle that performed the actual rescue. If another vehicle experienced problems, these should be commented on in the REMARKs section. The problems and conditions listed here should be checked if present. A condition which does not affect the outcome of today's rescue may result in a loss of life tomorrow. (Interpretation of this item is in direct contrast to Section XII above, which assesses individual reaction rather than potential hazard.)

14. Check appropriate columns concerning survivor's/victim's condition.

15. The following covers naval signaling devices, as well as general locator means. This list is very specific as to method/device. Accurate reporting of these methods/devices is of paramount importance, since evaluation and improvement of these items are constantly being conducted. Consult Life Support Equipment Specialists for accurate nomenclature of these locators. Since new devices are constantly becoming available, this list may not be all-inclusive. Indicate any additional locator means which are not on the list if applicable to this individual. List the devices in the order they were actuated.

LOCATOR MEANS CODES

GENERAL
- 01. Mishap observed.
- 02. Crash scene located without aid of signaling or personal equipment.
- 03. Individual sighted without aid of signaling or personal equipment.
- 04. Survivor located rescuers.

ELECTRONIC SIGNALING DEVICES
- 05. Radio/radar vector or DF steer.
- 06. AN/URT-26.
- 07. AN/PRC-90-2.
- 13. AN/PRT-5.
- 23. AN/URT-33.
- 24. AN/PRC-90.
- 64. AN/PRC-112
- 65. AN/PRC-125
- 66. AN/PRC-112B
- 67. PRC-149

PYROTECHNICS
- 26. Flare, MK-13-Mod 0. .
- 27. Smoke, MK-13-Mod 0.
- 28. Pencil Flare MK-79-Mod 0.
- 32. Pyrotechnic Pistol (Very Pistol).
- 33. Mini Flare.
- 34. Mini Smoke.

BALLISTICS
- 35. .38 Flare (Victory Model).
- 36. .38 Flare (Air Weight).
- 37. .38 Tracers.
- 38. .38 Tracers (Air Weight).

AUDITORY
- 39. Smith and Wesson (Model 9mm).
- 40. Gunfire (other)
- 41. Whistle
- 42. Voice

VISUAL
- 43. Fire/Smoke (Made by Survivor)
- 44. Other Aircraft Orbiting Scene.
- 45. Signals Tramped in Snow, etc.
- 46. SDU-5/E Strobe Light With Shroud.
- 49. Signal Wand
- 50. Smoke Float.
- 52. Smoke Grenade.
- 54. Mirror.
- 55. Dye marker
- 56. Raft/Vest/Poncho
- 57. Parachute.
- 58. Helmet.
- 59. Flight Suit.
- 60. Reflective Tape.
- 62. LPP Preserver Light .
- 98. Other/Explain.

I - The individual experienced difficulty with the use of the device (i.e., familiarity, training, knowledge, injury, etc.)

M - Malfunction of device.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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NOTE: A detailed description and discussion of problems should be given on the Equipment form (Enclosure Form 7) and on the analysis form (Enclosure Form 11), if significant.

Code the role of a particular method/device in the discovery of the survivor/rescuer as follows:
"P" - Primary
"S" - Secondary

NOTE: Even though a device was utilized more than once, it shall be listed again in its proper sequence.

An example follows: An AV-8 was heading back to the CV at sunset when it suddenly experienced an engine failure. The pilot ejected before broadcasting a "MAYDAY". On ejection, the URT-33 (243 MHZ frequency) beacon (in his seat pan) actuated. Once safely under his parachute, the pilot attempted to contact someone with the PRC-90 radio. The beacon in the seat pan interfered with the transmission. (He had selected 243 on his PRC-90). His PRC-90 radio was knocked out of his hand on water entry and the pilot lost it. (It was secured to his MA-2 torso harness pocket.) The pilot boarded his LR-1 liferaft and deployed the sea dye marker and his strobe light. In the distance a helo approached. The pilot fired off two MK-79 pen flares. He also attempted to use his mirror, even though the sun was setting. (He later learned that the helo crew had seen the flashes from the mirror, causing them to head in his general direction.) As the helo approached, the crew simultaneously saw the sea dye marker and the strobe light. The helo continued its approach. The pilot attempted to give them wind direction information by actuating a MK-13 flare. He accidentally actuated the night end. The second MK-13 flare failed to actuate and the third one functioned properly. An uneventful rescue followed.

MEANS	ROLE	PROBLEM	MEANS	ROLE	PROBLEM	MEANS	ROLE	PROBLEM
1. 23			7. 54			13.		
2. 24		I	8. 26	I		14.		
3. 55	S		9. 27	M		15.		
4. 46	S		10. 27			16.		
5. 28			11.			17.		
6.			12.			18.		

16: Self-explanatory. Amplify any item as necessary.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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Personal Data: (Attach Additional Sheets, if necessary)

List Aircrew Data. Pilot & Copilot (Seat Position) Check Pilot-At-Controls (PAC) & Pilot-In-Command, MC as appropriate	☐ MC Pilot ☐ PAC ☐ PIC	☐ MC Pilot/Copilot ☐ PAC ☐ PIC	☐ MC Navy Flight Officer	☐ MC Other Crew Member (Describe)	☐ MC Other Crew Member (Describe)
Last Name					
Age					
Designated Naval Aviator?	Yes No	Yes No	Yes No	Yes No	Yes No
Years Designated Aviator					
Designated NFO?	Yes No	Yes No	Yes No	Yes No	Yes No
Years Designated NFO					
Years Crew Experience					

Flight Time: (Summary)												
Total Hours: 1st Pilot/Copilot/Special Crew												
Total Night Hours: 1st Pilot/Copilot												
Total Hours in Mishap Model: 1stPilot/Copilot/Special Crew												
Total Night Hours in Mishap Model: 1stPilot/Copilot												
Hrs. In Mishap Model Last 7 Days: 1stPilot/Copilot/Special Crew												
Night Hrs. In Mishap Model Last 7 Days: 1stPilot/Copilot												
Hours In Mishap Model Last 30 Days: 1stPilot/Copilot/Special Crew												
Night Hours In Mishap Model Last 30 Days: 1stPilot/Copilot												
Hours In Mishap Model Last 60 Days: 1stPilot/Copilot/Special Crew												
Night Hours In Mishap Model Last 60 Days: 1stPilot/Copilot												
Hours In Mishap Model Last 90 Days: 1stPilot/Copilot/Special Crew												
Night Hours In Mishap Model Last 90 Days: 1stPilot/Copilot												
Hours In Mishap Model Last 120 Days: 1stPilot/Copilot/Special Crew												
Night Hours In Mishap Model Last 120 Days: 1stPilot/Copilot												
Hours In Mishap Model Last 180 Days: 1stPilot/Copilot/Special Crew												
Night Hours In Mishap Model Last 180 Days: 1stPilot/Copilot												
Total Shipboard Helo Landings: Day/Night												
Total CV Arrested Landings: Day/Night												
Total CV Arrested/Helo Shipboard Landings in Mishap Model: Day/Night												
CV Arrested/Helo Shipboard Landings Last 7 Days: Day/Night												
CV Arrested/Helo Shipboard Landings Last 30 Days: Day/Night												

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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Flight Time: (Recent)																				
Total Flight Hours Last 24 Hours: 1stPilot/Copilot/Special Crew																				
Total Flight Hours Last 48 Hours: 1stPilot/Copilot/Special Crew																				
Number of missions flown with Pilot/Copilot in previous 6 months																				

Number of times crew flew together during previous six months: _____

Simulator Time:																								
Operational Flt Trainer Hours: Last 7/30/90 Days/Lifetime																								
Night CV Landing Trainer Hours: Last 7/30/90 Days/Lifetime																								
Weapons Systems Trainer Hours: Last 7/30/90 Days/Lifetime																								
OTHER (Describe): Last 7/30/90 Days/Lifetime																								
Aircrew qualifications: List individual's qualifications. Examples include Plane Commander, P2P, P3P, HAC, H2P, H3P, MSN CDR, Section LDR, Div LDR, STK LDR, CICO, etc.																								

Instructions

Submission criteria: Submit this form for all mishaps that involve aircrew.

NOTE: Submit additional copies of this form as necessary to ensure that all naval aircrew involved in the reportable event regardless of personal involvement in causing the envent, are addressed. If multiple aircraft are involved, submit a separate sheet for each aircraft.

DO NOT WRITE HERE

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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Note: Complete only that information pertinent to possible and/or known mishap cause factor(s)

SECTION 1 – AIRCRAFT HISTORY

RECEIPT (REPORTING CUSTODIAN)	SINCE ACCEPT-ANCE	LAST OVERHAUL (SDLM) STANDARD DEPOT LEVEL MAINTENANCE			SINCE LAST SDLM
1. DATE	2. FLT HOURS	3. ACTIVITY	4. DATE	5. OVHL. NO	6. FLT HOURS

LAST PHASE CHECK PERFORMED			SINCE LAST PHASE CHECK
7. ACTIVITY	8. DATE	9. TYPE	10. FLT HOURS

LAST FUNCTIONAL CHECK FLIGHT

11. ACTIVITY	12. DATE	13. REASON

14. CITE PERTINENT RESULTS

SINCE LAST FUNCTIONAL CHECK FLT	LAST DAILY INSPECTION	LAST TURN AROUND INSPECTION	IF SERVICE LIFE FOR THIS AIRCRAFT HAS BEEN EXTENDED	
15. FLT HOURS	16. DATE	17. DATE	18. STATE REASON	19. CITE AUTHORITY

MOST RECENT FLUID SAMPLES

20. DATE	21. TYPE INSPECTION	22. FLUID NOMENCLATURE	23. RESULTS

24. HISTORY OF MISHAP/BATTLE DAMAGE

25. LIST ALL AIRCRAFT FLIGHT RESTRICTIONS EXISTING AT TIME OF THE MISHAP

26. AIRCRAFT WAS RECOVERED FROM WATER: YES NO

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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SECTION II - ENGINE HISTORY

GENERAL

1. ENGINE MODEL	2. SERIAL NO	3. WORK UNIT CODE	4. MANUFACTURER'S PART NUMBER	5. TOTAL HOURS	6. ENGINE LOCATION ON ACFT

SINCE LAST OVERHAUL		LAST OVERHAUL		
7. TOTAL HOURS	8, FLIGHT HOURS	9. ACTIVITY	10. DATE	11. OVHL. NO.

LAST CHECK PERFORMED			SINCE LAST CHECK
12. ACTIVITY	13. DATE	14. TYPE	15. FLT HRS

LAST ENGINE PERFORMANCE/GROUND TEST RUN

16. ACTIVITY	17. DATE	18. TYPE (*Inflight, ground, etc.*)

19. EFFICIENCY RESULTS:

SECTION III – COMPONENT HISTORY

GENERAL

1. COMPONENT	2. MAKE/MODEL	3. SERIAL NUMBER	4. WORK UNIT CODE	5. MANUFACTURER'S PART NUMBER	6. TOTAL FLT HRS
a.					
b.					
c.					
d.					
e.					

GENERAL (*Continued*)

SINCE OVERHAUL/ REWORK	LAST OVERHAUL/REWORK		
7. FLT HRS	8. ACTIVITY	9. DATE	10. OVERHAUL/REWORK NUMBER
a.			
b.			
c.			
d.			
e.			
f.			

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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SECTION IV – MAINTENANCE *(Attach additional sheets; if necessary)*

A. IF TECHNICAL DIRECTIVE (TD) COMPLIANCE LIST IS NOT CURRENT AND UPDATED, LIST ALL SIGNIFICANT TECHNICAL CHANGES/BULLETINS NOT INCORPORATED IN THIS AIRCRAFT. LIST IN BLOCKS (1) THROUGH (8) BELOW: (1) TD NUMBER; (2) TD DATE; (3) MAINTENANCE LEVEL; (4) RESPONSIBILITY; (5) PRIORITY; (6) COMPLIANCE WITH TIME LIMITS; (7) REASON FOR NONCOMPLIANCE; (8) WHETHER OR NOT REQUIRED MATERIAL (IF ANY) WAS ON HAND.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

B. IF DEVIATIONS FROM SCHEDULED MAINTENANCE (OTHER THAN THOSE AUTHORIZED BY OPNAVINST 4790.2) HAVE BEEN MADE, EXPLAIN IN BLOCKS (1) THROUGH (3) BELOW: (1) TYPES OF DEVIATIONS; (2) REASONS; (3) AUTHORITY

(1)	(2)	(3)

C1. INDICATE NUMBER & TYPES OF CONDITIONAL INSPECTIONS PERFORMED ON THIS BUREAU NO./SERIAL NO. FOR THE PAST 6 MONTHS	C2. PROVIDE ANY PUBLICATION/MAINTENANCE REQUIREMENT CARD NO. AND ANY PERTINENT INFORMATION

D1. INDICATE THE SQUADRON AVERAGE DIRECT MAINTENANCE MAN-HOUR PER FLIGHT HOUR (DMMH/FH) FOR PAST 6 MONTHS ON THIS AIRCRAFT	D2. INDICATE THE SQUADRON AVERAGE DMMH/FH FOR SAME PERIOD FOR THIS TYPE/MODEL/SERIES OF AIRCRAFT

E1. INDICATE THE AVERAGE UTILIZATION FACTOR FOR PAST 6 MONTHS ON THIS AIRCRAFT	E2. INDICATE THE SQUADRON AVERAGE UTILIZATION FACTOR FOR SAME PERIOD FOR THIS TYPE/MODEL/SERIES OF AIRCRAFT

F. LIST BELOW THE PERTINENT COMPONENT CHANGES ON THIS AIRCRAFT DURING PAST 6 MONTHS. IF COMPONENT INVOLVED HAS BEEN CANNIBALIZED FROM ANOTHER AIRCRAFT OR WAS REPLACEMENT FOR CANN. PART, SO STATE IN COL 4. ELSE SSTATE "NO CANNIBALIZATION INVOLVED."

(1) COMPONENT	(2) WUC	(3) JCN	(4) CANNIBALIZATION NOTE

G1. TOTAL CANNIBALIZATIONS LAST 30 DAYS THIS AIRCRAFT

G2. AVERAGE CANNIBALIZATION LAST 30 DAYS IN SQUADRON

H. LIST ALL OUTSTANDING DISCREPANCIES ON THE AIRCRAFT AT THE TIME OF MISHAP

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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SECTION V – MATERIAL *(Attach additional sheets; if necessary)*

A. LIST NON-MISSION CAPABLE SUPPLY (NMCS) AND/OR PARTIAL MISSION CAPABLE SUPPLY (PMCS) REQUISITIONS OUTSTANDING FOR THIS BUREAU NUMBER, LIST IN BLOCKS (1) THROUGH (5) BELOW: (1) DOCUMENT NUMBER; (2) PART-NUMBER; (3) NOMENCLATURE; (4) PROJECT CODE; AND (5) PRIORITY

(1)	(2)	(3)	(4)	(5)

SECTION VI – SUPPORT *(Attach additional sheets; if necessary)*

PROVIDE COMMENTS ON MANNING LEVELS, EXPERIENCE OF PERSONNEL, WORKING CONDITIONS, SUPPLY SUPPORT, AVAILABILITY OF TEST EQUIPMENT AND GROUND SUPPORT EQUIPMENT, TEMPO OF OPERATIONS, ETC. REFERENCE PRIOR MESSAGE DTG WHEN APPLICABLE.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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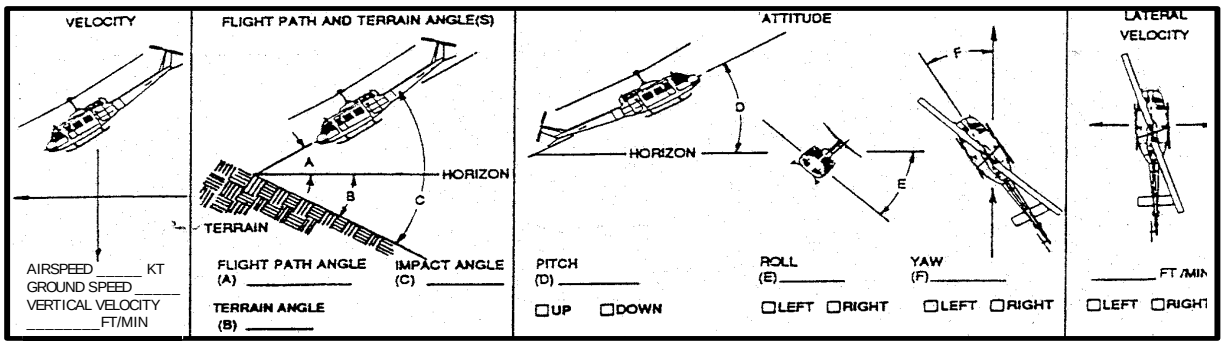
1. IMPACT (Determined from physical evidence and non-privileged information)



2. IMPACT SITE TERRAIN

	mountainous		packed clay
	plain		cultivated soil
	swamp		sod
	concrete		snow
	asphalt		water ____ ft depth
			ice ___ in. thickness

OBSTACLES

	rock face		wires
	boulders ___ ft. dia		poles
	scrub		tower
	trees ____ in dia.		rigid structure
	Bird/Animal		wood frame structure
	distance (feet) from first impact to major wreckage		

LOCATION TYPE:
- ( ) AVIATION SHORE FACILITY
- ( ) URBAN/SUBURBAN AREA
- ( ) RURAL AREA
- ( ) SHORE UNKNOWN
- ( ) OPEN WATERS (OCEANS/SEAS/GULFS)
- ( ) COASTAL WATERS (BAYS/SOUNDS)
- ( ) INLAND WATERS
- ( ) WATER UNKNOWN
- ( ) UNKNOWN

SHORE LOCATION CONTROLLED BY:
- ( ) CIVILIAN
- ( ) USN
- ( ) USMC
- ( ) USAF
- ( ) USA
- ( ) USCG
- ( ) GOVT – NON DOD
- ( ) FOREIGN MIL
- ( ) FOREIGN - OTHER
- ( ) UNKNOWN

Instructions

Submit this form for all mishaps involving manned aircraft that impact the earth, sea or other aircraft.

1. Impact: Describe aircraft attitude, speed and aspect at impact by assigning values to the variables depicted in the drawings.

2. Impact Site: Use available selection to characterize the terrain and features at the mishap site. Some selections require further description (depth, girth, thickness) in units indicated alongside. Check the block labeled “Other” and provide a brief description if the mishap site has unique features not included in the selection offered.

(continued on page 3)

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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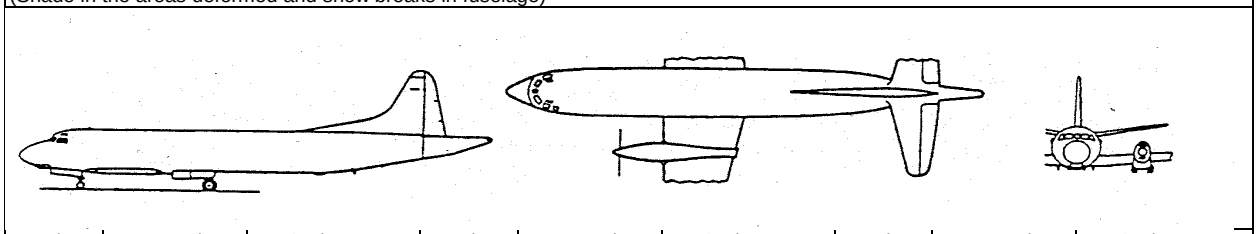
3. FUSELAGE DEFORMATION
(Shade in the areas deformed and show breaks in fuselage)



Fuselage Area	Inward Deformation (in inches)	Station No.		Fuselage Area	Inward Deformation (In Inches)	Station No.		Fuselage Area	Inward Deformation (In Inches)	Station No.	
		From	To			From	To			From	To
Roof				Left Side				Belly			
								Nose			
Floor				Right Side							
								Rear			

4. MAJOR IMPACT FORCES

Did aircraft rotate about any axis after impact? (If yes, complete item a, b, c below)
YES NO UNKNOWN

Aircraft Axis	Rotations (degrees)
a. Roll	Left Right Degrees:
b. Yaw	Left Right Degrees:
c.Forward nose over(degrees)	

Impact forces relative to aircraft axes (Gs)

Vertical (Gs) _____	Longitudinal (Gs) _____	Lateral (Gs) _____
Up Down	Fore Aft	Left Right

5. NON-EJECTION SEAT DATA

Air Crew Duty				
Position in Aircraft				
Restraint System* Type (part number)				
Inertia Reel Locked? (Yes/No)				
Release Buckle Locked? (Yes/No)				
Seat System* Type (part number)				
Vertical Adj. Position				
Horizontal Adj. Position				
Seat Energy Absorber VLEA Wgt. Setting				
L.H. Vertical Stroke				
R.H. Vertical Stroke				
L.H. Horizontal Stroke				
R. H. Horizontal Stroke				
Other				

*Be sure to discuss component failures in the remarks section.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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6. SEAT CONDITION POST IMPACT				
Attached to Airframe				
Not Attached to Airframe				
Partially Attached to Airframe				
Unkown				

7. FIRE:
( ) POST IMPACT ( ) PREIMPACT ( ) BOTH ( ) NONE ( ) UNKNOWN

8. FLIGHT DATA RECORDER:
( ) DATA RETRIEVABLE ( ) DATA RETRIEVABLE WITH REPAIR ( ) DATA NOT RETRIEVABLE

9. REMARKS.

Instructions
(continued from page 1)

3. Fuselage deformation: For occupied aircraft, shade the areas of the aircraft in the outline views, as appropriate, to indicate damage (crush, protrusion, tear). Label the drawing and complete appropriate boxes with measurements and reference station numbers to aid description. If the diagram provided is inadequate to depict the damaged areas, diagrams may be substituted from the appropriate NATOPS manual.

4. Major Impact Forces (occupied aircraft only): Rotation - describe aircraft motion following major impact (tumble, roll) and deceleration forces of the major impact.

5. Non-Ejection Seat Data:
Terminology: VLEA = Variable Load Energy Absorber
R.H. = Right Hand
L.H. = Left Hand
Adj. = Adjustment

6. Describe Aircraft Fire Damage.

7. Describe Flight Data Recorder usefulness after impact.

8. Remarks: Use this space to continue any narrative description for which space or options above are inadequate.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

LEAVE THIS PAGE BLANK

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THIS IS PART OF A LIMITED USE NAVAL AIRCRAFT INVESTIGATION REPORT
THIS FORM CONTAINS ONLY NON-PRIVILEGED INFORMATION AND SHOULD BE PLACED IN PART A OF THE MISHAP REPORT
DO NOT ATTACH THIS FORM TO A JAG INVESTIGATION

1. AIRCRAFT DATA: (If more than one aircraft is involved in the mishap, complete for each aircraft)
   A. WIND SCREEN CONDITION: Good Med Poor
   B. WINDOWS: Closed Open
   C. HATCHES:
      Cockpit Closed ☐ Open ☐
      Cargo Closed ☐ Open ☐

2. FLIGHT DATA:
   A. CLIMATOLOGY/TERRAIN:
      1. Moon: Risen ☐ Set ☐ No Moon ☐
         Percent Illumination _____%Angle Above Horizon _____
         Azimuth _____ From North
      2. Subjective Evaluation of Artificial ambient Light:
         Very Bright ☐ Bright ☐ Moderate ☐ Dim ☐ Dark ☐ Very Dark ☐
      3. Subjective Evaluation of Available Contrast/Visual Cues at Time of Mishap:
         Poor Contrast ☐ Fair Contrast ☐ Good Contrast ☐ Poor Cues ☐ Fair Cues ☐ Good Cues ☐
      4. Type of Terrain in Mishap Mountains Area: (Check as many as applicable)
         Rolling Slopes ☐ Farmland ☐ Water ☐ Snow Covered ☐ Flat ☐ Desert ☐ Forest ☐ Swamp ☐ Paved Surface ☐
      5. Environmental Background Lights: Metropolitan Area Small Town Area Farm/Ranch Area Unpopulated
   B. MODE OF FLIGHT: Single A/C NAV LATT/TERF Weapons Delivery
      Formation Enroute Transit Take-off Landing
      Mishap A/C #_____ of _____ (No.) A/C
      Position of Mishap A/C in Flight _____
   C. EXTERNAL LIGHTING OF AIRCRAFT:
      Anti-Collision: Bright ☐ Dim ☐ Off ☐ IR ☐
      Position Light: Bright ☐ Dim ☐ Off ☐ IR ☐
      Formation: Bright ☐ Dim ☐ Off ☐ IR ☐
      Drogue Light: Bright ☐ Dim ☐ Off ☐ IR ☐
      Other NVD Light: On ☐ Off ☐ Not Installed ☐ IR ☐
      Specify: _____
      Blade Tip: On ☐ Off ☐ Not Installed ☐ IR ☐
      Controllable Spot: On ☐ Off ☐ Not Installed ☐ IR ☐
      Hover/Landing: On ☐ Off ☐ Not Installed ☐ IR ☐
   D. INTERNAL LIGHTING OF AIRCRAFT: Inst panel: bright dim NVD compatible lights in use? Y ☐ N ☐
      Cockpit flood: on off NVD compatible lights in use? Y ☐ N ☐
      Supplemental lighting: NVD compatible? _____
      flashlight ☐ finger lights ☐ wrist ☐
      grimes ☐ cabin ☐ lip light ☐
   E. DEGRADATIONS: Did cockpit/cabin lighting configuration degrade NVD? Yes ☐ No ☐
      If yes, describe in remarks section.

Instructions

Submission criteria: Submit this form (Sections 1 and 2) for each aircraft in which aircrew were wearing night vision devices (NVDs) whenever NVDs or their usage is found to be a cause factor.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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COMPLETE THIS PAGE FOR EACH PERSON USING NVDS.

3. NVD DATA: Pilot Copilot Crewchief Other Crew _____ Other _____

A. TYPE NVD: AN/AVS-6 Cat's Eye AN/AVS-7 Other _____ AN/AVS-9

4. NVD TRAINING: Pilot _____ Copilot _____ Crew Chief _____ Other _____

A. INITIAL QUALIFICATION DATE/LOCATION: _____

B. NVD HOURS: 30 days _____ 60 days _____ 90 days _____

C. LAST NVD FLIGHT: > 6 Mths. > 3 Mths. > 30 Days > 7 Days

D. TOTAL NVD HOURS: _____

E. TOTAL NIGHT NVD HRS: _____

5. ADDITIONAL REMARKS:

Instructions

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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Submission criteria: Submit this form, Sections 3 and 4, for each mishap aircrew member who wore a night vision device (NVD).

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

Meteorological Data

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Name: _____ Duty/ Title: _____ Mishap Severity / Category: _____

Date of Mishap: _____ Aircraft Model: _____ BUNO: _____

Reporting Custodian: _____

WX BRIEF	WX BRIEF TYPE	ACTL WX vs FORECAST WX
◊ Available and used	◊ Accredited Forecaster	◊ Substantially Correct
◊ Available and not used	◊ Accredited Briefer	◊ Better than Forecast
◊ Not available	◊ Pilot	◊ Worse than Forecast
◊ Unknown	◊ Other	

FORECAST WX		ACTUAL WX (at time of mishap)
	ACFT ALT **(at time of mishap)** →	**MSL**_____ **AGL**_____
	TERRAIN ELEVATION ***(FT MSL*** **at site of mishap)** →	
	← ***TEMP (°F)*** →	
	← ***DEWPOINT (°F)*** →	
	← ***WINDS (DEG/KTS/Gusts)*** →	
	← ***VISIBILITY (SM)*** →	
	← ***ALTIMETER SETTING (in Hg)*** →	
	← ***CEILING (Yes/No/Unknown)*** →	
	← ***CEILING (FT AGL)*** →	
	← ***RELATIVE HUMID (%)*** →	
	← ***ICING (Yes/No/ Unknown)*** → ***(if yes, see table on next page)***	
	WATER/SEA SURFACE TEMP (°F)	
A. VISIBLE B. PARTIALLY OBSCURED C. OBSCURED D. UNKNOWN	← ***(HORIZON)*** →	A. VISIBLE B. PARTIALLY OBSCURED C. OBSCURED D. UNKNOWN
A. DUST B. FOG C. ICE FOG D. GROUND FOG E. HAZE F. SMOKE G. PRECIP X. OTHER (SPECIFY) H. BLOWING DUST I. BLOWING SAND J. BLOWING SNOW K. BLOWING SPRAY L. CLOUDS N. NO OBSTRUCTIONS U. UNKNOWN	← ***(OBSTRUCTIONS TO VIS)*** →	A. DUST B. FOG C. ICE FOG D. GROUND FOG E. HAZE F. SMOKE G. PRECIP X. OTHER (SPECIFY) H. BLOWING DUST I. BLOWING SAND J. BLOWING SNOW K. BLOWING SPRAY L. CLOUDS N. NO OBSTRUCTIONS U. UNKNOWN
A. DRIZZLE B. LIGHT RAIN C. HEAVY RAIN D. HAIL E. SLEET F. LIGHT SNOW G. HEAVY SNOW H. FREEZING RAIN I. FREEZING DRIZZLE N. NO PRECIPITATION X. OTHER (SPECIFY) U. UNKNOWN	← ***(PRECIPITATION)*** →	A. DRIZZLE B. LIGHT RAIN C. HEAVY RAIN D. HAIL E. SLEET F. LIGHT SNOW G. HEAVY SNOW H. FREEZING RAIN I. FREEZING DRIZZLE N. NO PRECIPITATION X. OTHER (SPECIFY) U. UNKNOWN
A. TURBULENCE (IMC) B. CLEAR AIR TURB G. THUNDERSTORM H. SEV THUNDSTRM	← ***(SEVERE WEATHER TYPE)*** →	A. TURBULENCE (IMC) B. CLEAR AIR TURB G. THUNDERSTORM H. SEV THUNDSTRM
C. GUSTY WINDS D. TRNDO/ WATER SPOUT E. HURRICANE / TYPHOON F. WIND SHEAR N. NO EXTREME WX I. LIGHTNING U. UNKNOWN X. OTHER		C. GUSTY WINDS D. TRNDO/ WATER SPOUT E. HURRICANE / TYPHOON F. WIND SHEAR N. NO EXTREME WX I. LIGHTNING U. UNKNOWN X. OTHER (SPECIFY)

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

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	AMPLIFYING COMMENTS	
	BRIEFED / FORECAST	**ACTUAL WEATHER**
SKY CONDITIONS: (Provide sky conditions in wx sequence report format.)		
ICING CONDITIONS: (Provide amplifying remarks when Icing = Yes on previous page.)		
GENERAL METRO COMMENTS:		

LANDING / TAKEOFF ENVIRONMENTAL DATA (IF APPLICABLE)

RUNWAY _____ (L) (R) (C)
(Enter "N/A" above for LZ's, Afloat Surfaces, etc.)
WINDS RELATIVE TO RNWY HDG_____°

RUNWAY SURFACE CONDITIONS
- ◊ **LOOSE SNOW**
- ◊ **PACKED SNOW**
- ◊ **WET**
- ◊ **ICE**
- ◊ **UNPREPARED**
- ◊ **DRY**
- ◊ **OILY**
- ◊ **SANDED**
- ◊ **SLUSH**
- ◊ **UNKNOWN**
- ◊ PATCHY CONDITIONS
- ◊ OTHER_____

RUNWAY BRAKING ACTION
- ◊ GOOD
- ◊ FAIR
- ◊ POOR
- ◊ NIL
- ◊ N/A
- ◊ UNKNOWN

AIRCRAFT LANDING DATA (IF APPLICABLE)

CASE RECOVERY
- ◊ CASE I
- ◊ CASE II
- ◊ CASE III

ARRESTING GEAR SETTINGS

ACFT TYPE_____

CCA DATA

MODE
- ◊ COUPLED
- ◊ COUPLED TO 100'
- ◊ ILS
- ◊ GCA
- ◊ NON-PRECISION
- ◊ UNKN
- ◊ N/A

RADAR
- ◊ SPN-41
- ◊ SPN-42
- ◊ SPN-43
- ◊ SPN-46
- ◊ UNKN
- ◊ N/A
- ◊ OTHER_____

GLIDE SLOPE SETTING

_____°

SHIP DATA	TYPE OF VLA	VLA DATA
TRIM ANGLE_____°	◊ IMPROV FRESNEL	VLA ROLL ANGLE SETTING_____°
	◊ FRESNEL	VLA GLIDE SLOPE SETTING_____°
DECK MOTION (VERTICAL)_____FT	◊ MOVLAS	
	◊ N/A	VLA POLE CHECKS
TARGET WIRE_____	◊ OTHER_____	◊ INERTIAL _____(MINUTES)
		◊ LINE _____(MINUTES)
		◊ UNKN
		◊ N/A

COMMENTS

LANDING COMMUNICATIONS	LSO CONSOLE	LSO / LSE QUALS

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

AEROMEDICAL ANALYSIS
Aeromedical Review, Discussion, Conclusion and Recommendations

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(Continue on additional sheets as necessary)

Flight Surgeon's Name: _____ Rank/Grade:
Mailing Address:

Phone Number: DSN _____ Commercial
Date Aeromedical Analysis Submitted:

Did Flight Surgeon participate fully in AMB Proceedings? Yes No
Hours spent in investigation:
AMSO or Others Who Assisted:
AMSO Telephone Number (DSN):

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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Instructions

Submission criteria: The flight surgeon member of the AMB shall submit this form whenever: (1) human factor error is suspected as a cause of the mishap, or as a cause of any damage or injury directly or indirectly resulting from the mishap; (2) personal injuries or other relevant medical findings result from the mishap; or (3) aircrew try, whether successfully or not, to eject, bail out, or otherwise egress the aircraft.

Aeromedical Analysis Review: See chapter 7 paragraph 716 and appendix J for directions.

Enclosures to the Aeromedical Analysis:
Supporting documents should be held to a minimum. However, the following enclosures may be necessary to fully understand the aeromedical analysis and, if so, must be included:
1. The chronological account of activities of the previous 72 hours (SIR Form 3750/15) for each person involved.
2. Medical record extracts.
3. AFIP reports.
4. Reports or photographs of personal or sensitive material.
5. Other documents that meet the criteria for privilege that need to be enclosed to clarify or support the Aeromedical Analysis

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

Chronological Account of Activities of Previous 72 Hours Page 1 of 2

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1. General Data:

A. Age:_____ B. Date of Birth (mmddyy):_____ C. Sex (circle): M F
D. Marital Status (circle): SINGLE MARRIED DIVORCED SEPARATED
E. Leave Data: (1) Date Last Leave Began (mmddyy):_____
(2) Duration of Last Leave (days): _____
(3) Type (circle): ORDINARY EMERGENCY SICK/CONVALESCENT
F. Work/Rest Data (times in hours to nearest tenth)
(1) Hours Worked in Last: 24 hours:_____ 48 hours:_____ 72 hours:_____
(2) Continuous Duty Prior to Mishap (hours):_____
(3) Hours Continuously Awake Prior to Mishap:_____
(4) Hours Slept in Last: 24 hours:_____ 48 hours:_____ 72 hours:_____
(5) Duration of Last Sleep Period (hours): _____
(6) Last Sleep Period Was (circle): CONTINUOUS BROKEN
(7) Hours between Last Meal and Mishap:_____
(8) Time in Aircraft Prior to Takeoff (hours/tenths):_____

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

Chronological Account of Activities of Previous 72 Hours

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(Continue on additional sheets as necessary)

Name: _____
Duty/Title: _____
Date of Mishap: _____
Reporting Custodian: _____

Mishap Severity: _____
Mishap Category: _____
Aircraft Model: _____
BUNO: _____

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Instructions

The flight surgeon shall submit this form as an enclosure to the aeromedical analysis for each aircrew member and for other persons who may have contributed to the mishap.

V. CHRONOLOGICAL ACCOUNT OF ACTIVITIES OF PREVIOUS 72 HOURS:
This history should begin 72 hours prior to the time of the mishap and proceed in a chronological order. Among important items to consider are: (1) exact content of meals (a known), (2)alcohol consumption, (3) sleep periods, (4) stressful situations of any nature, (5) significant events, and (6) medications/drugs. Items listed should be accompanied by time of occurrence (if known). Provide comments concerning any deviation from normal habit patterns. An example is provided:

FRIDAY: 2 OCT 81
1800 Ate dinner at home: turkey, mashed potatoes and gravy, peas, 2 glasses of red wine, coffee and apple pie a la mode.
1900 Relaxed with family, watched TV, ate popcorn, drank 1 glass sherry.
2300 Went to bed. Took 2 Coricidin tablets for residual URI.
SATURDAY: 3 OCT 81
0700 Woke up, ran 2 miles.
0800 Showered, breakfast with family: 1 egg, 2 strips bacon, 1 slice toast, orange juice and coffee.
0830 Read paper, relaxed.
0900 Worked on car, mashed finger, finger throbbing, took 2 APCs, treated finger with iodine, band-aid.
0930 Cut grass.
1130 Ate lunch: bologna sandwich, iced tea.
1200 Went shopping with wife.
1700 Dinner at a pizza parlor - ate half of a large pepperoni and mushroom pizza, drank small pitcher of beer.
1800 Went to movie with family.
2030 Arrived back home, relaxed, listened to music, 1 glass brandy.
2200 Went to bed.
2300 Finger throbbing, got up and took 2 APCs.
2330 Back to bed.
SUNDAY: 4 OCT 81
0800 Woke up, ran 2 miles.
0900 Showered, breakfast with family, 8-ounce glass orange juice, coffee, 2 waffles with syrup.
0930 Read Sunday paper.
1030 Dressed for church.
1100 Left to go to church with family
1330 Lunch at hamburger joint, 1 quarter-pound cheeseburger, fries, and large coke.
1400 Took kids to zoo and park.
1600 Returned home, watched sports on TV, 2 beers.
1900 Supper at home, spaghetti and meat sauce, 2 glasses Chianti, salad, 2 slices garlic bread
2000 Call from mother: father had heart attack, in hospital, condition - satisfactory.
2200 1 glass sherry, went to bed.
2300 Awakened by baby crying, helped wife with sick baby.
2400 To sleep.
MONDAY: 5 OCT 81
0530 Awoke, ran 2 miles.
0600 Showered, dressed for work, no breakfast.
0630 Left for squadron.
0700 Arrived at squadron.
0730 Brief for flight.
0900 FLY - one-on-one ACM mission with F-14s from sister squadron.
1015 Land at NAS Homebase.
1040 Debrief.
1100 To Division Office, paperwork.
1200 Lunch: hotdog, coke, candy bar.
1300 In Squadron maintenance spaces.
1630 Brief for hop.
1700 T.O.
1800 Fire warning light, observed deteriorating engine instruments, flames and smoke, ejected - no injury.
1815 Rescued by SAR helo.
1930 Landed at NAS Homebase, to dispensary.

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

BIRD/ANIMAL STRIKE HAZARD REPORT

INSTRUCTIONS

1. Please print clearly.
2. There is only one correct answer per block.
3. Block 2, year, month, day
4. Block 3, military time - the hour only (01 23 15 11)
5. Blocks 4 and 5 are a four or five digit number and check the block for compass direction.
6. Block 7, give the four or five letter/number airport identifier and print the name of the airport/station.
7. Blocks 8 and 9 are self explanatory.
8. Block 10, write runway number and check the appropriate box.
9. Blocks 11, 12, and 13 are self explanatory.
10. Blocks 14, 15, and 17 are self explanatory.
11. Block 16, list the specific route, i.e., IR, VR, SR, or the specific MOA.
12. The rest of the form is self explanatory.
13. Put additional comments or narrative on the reverse side.

1. LIGHT COND.	2. DATE OF STRIKE	3. LOCAL TIME	4. LATITUDE	5. LONGITUDE	6. CLOUD CONDITIONS
☐ DAY ☐ NIGHT ☐ DAWN ☐ DUSK ☐ UNKNOWN	☐ UNKNOWN	☐ UNKNOWN	☐ NORTH ☐ SOUTH ☐ UNKNOWN	☐ EAST ☐ WEST ☐ UNKNOWN	☐ ABOVE CLOUD ☐ BELOW CLOUD ☐ IN CLOUDS ☐ BETWEEN CLOUDS ☐ CLEAR OF CLOUDS ☐ CAVU ☐ UNKNOWN

7. AIRPORT IDENT.	8. ALTITUDE (AGL)	9. SPEED (KIAS)	10. RUNWAY	11. AIRCRAFT MODEL	12. AIRCRAFT BUREAU NUMBER	13. PROVIDE IF LOCATION IS KNOWN
☐ NAVAL VESSEL ☐ OUTSIDE BASE CONTROL ☐ UNKNOWN	☐ UNKNOWN	☐ UNKNOWN	☐ LEFT ☐ RIGHT ☐ CENTER ☐ NOT APPLICABLE ☐ UNKNOWN			NEAREST NAVAID ID:_____ BEARING:_____ DME:_____

14. PHASE OF FLIGHT		15. LANDING LIGHTS	16. STROBE LIGHTS	17. AIRWAY ROUTE	18. FIRE	19. BIRD ADVISORY ISSUED
☐ TAKE-OFF ☐ LANDING ☐ TOUCH & GO/MISSED APPROACH ☐ TRAFFIC PATTERN ☐ FINAL APPROACH	☐ CLIMB ☐ DESCENT ☐ LOW LEVEL RANGE ☐ CRUISE ☐ UNKNOWN	☐ ON ☐ OFF ☐ UNKNOWN	☐ ON ☐ OFF ☐ UNKNOWN	☐ OR OPAREA ☐ NOT APPLICABLE ☐ UNKNOWN	☐ YES ☐ NO	☐ YES ☐ NO

20. SPECIES IDENTIFICATION		21. IMPACT POINT	22. NUMBER ENCOUNTERED
☐ MISCELLANEOUS BIRD ☐ SMALL BIRD ☐ MEDIUM BIRD ☐ LARGE BIRD ☐ SEAGULL ☐ GOOSE ☐ DUCK ☐ PIGEON ☐ BLACKBIRD **(NOT BLACK BIRD)** ☐ OTHER BIRD: LIST SPECIES ☐ DEER ☐ SMALL MISC MAMMAL ☐ OTHER MAMMAL: LIST SPECIES	☐ STARLING ☐ HERON/EGRET ☐ SHOREBIRD ☐ ALBATROSS ☐ HAWK/RAPTOR ☐ VULTURE ☐ DOVE ☐ HORNED LARK ☐ MEADOW LARK ☐ BAT ☐ COYOTE	☐ RADOME/NOSE ☐ WINDSHIELD/CANOPY ☐ FUSELAGE ☐ ECM POD/PYLONS ☐ TAIL/STABILIZERS ☐ EXTERIOR FUEL TANK ☐ WEAPONS POD ☐ ENGINE/INGESTION ☐ ENGINE/EXTERIOR ☐ PROPELLER ☐ ROTOR ☐ LANDING GEAR ☐ WING/WING FLAPS ☐ LIGHTS ☐ OTHER: SPECIFY	☐ SINGLE BIRD/ANIMAL ☐ MULTIPLE BIRDS/ANIMALS ☐ UNKNOWN 23. DAMAGE AMOUNT: GIVE APPROXIMATE AMOUNT FOR REPAIR/PARTS FOR THIS HAZARD. ☐ NOT APPLICABLE ☐ NOT KNOWN AT THIS TIME ☐ DAMAGE AMOUNT KNOWN: SPECIFY: $_____

Name: _____ Mishap Severity:_____
Duty/Title: _____ Mishap Category:_____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian:_____ BUNO: _____

PRINT OR TYPE

1. NARRATIVE:
(If additional information will clarify side 1, place it here..

2. DAMAGE DESCRIPTION: (If the aircraft sustained damage)

3. CORRECTIVE ACTION:

4. CO'S COMMENTS:

5. POINT OF CONTACT:

6. TELEPHONE NO.:

7. AIRCRAFT CUSTODIAN:

8. ADDRESS:

Name: _____ Mishap Severity: _____
Duty/Title: _____ Mishap Category: _____
Date of Mishap: _____ Aircraft Model: _____
Reporting Custodian: _____ BUNO: _____

APPENDIX O

HUMAN FACTORS ANALYSIS AND CLASSIFICATION SYSTEM (HFACS)

A. Introduction

Human error continues to plague both military and civilian aviation. Yet, simply writing off aviation mishaps to "pilot error" is a simplistic, if not naive, approach to mishap causation. Further, it is well established that mishaps are rarely attributed to a single cause, or in most instances, even a single individual. Rather, mishaps are the end result of a myriad of latent failures or conditions that precede active failures. The goal of a mishap investigation is to identify these failures and conditions in order to understand why the mishap occurred and how it might be prevented from happening again in the future.

As described by Reason (1990), active failures are the actions or inactions of operators that are believed to cause the mishap. Traditionally referred to as "pilot error", they are the last "unsafe acts" committed by aircrew, often with immediate and tragic consequences. For example, an aviator forgetting to lower the landing gear before touch down or flat-hatting through a box canyon will yield relatively immediate, and potentially grave, consequences.

In contrast, latent failures or conditions are errors that exist within the squadron or elsewhere in the supervisory chain of command that effect the tragic sequence of events characteristic of a mishap. For example, it is not difficult to understand how tasking crews at the expense of quality crew rest, can lead to fatigue and ultimately errors (active failures) in the cockpit. Viewed from this perspective then, the unsafe acts of aircrew are the end result of a chain of causes whose roots originate in other parts (often the upper echelons) of the organization. The problem is that these latent failures or conditions may lie dormant or undetected for hours, days, weeks, or longer until one day they bite the unsuspecting aircrew.

The question for mishap investigators and analysts alike, is how to identify and mitigate these active and latent failures or conditions. One approach is the "Domino Theory" which promotes the idea that, like dominoes stacked in sequence, mishaps are the end result of a series of errors made throughout the chain of command. A "modernized" version of the domino theory is Reason's "Swiss Cheese" model that

describes the levels at which active failures and latent failures/conditions may occur within complex flight operations (see Figure 1).

Working backward from the mishap, the first level of Reason's model depicts those *Unsafe Acts of Operators* (aircrew, maintainers, facility personnel, etc.) that ultimately lead to a mishap. Traditionally, this is where most mishap investigations have focused their examination of human error and consequently, where most causal factors are uncovered. After all, it is typically the actions or inactions of individuals that can be directly linked to the mishap. Still, to stop the investigation here only uncovers part of the story.

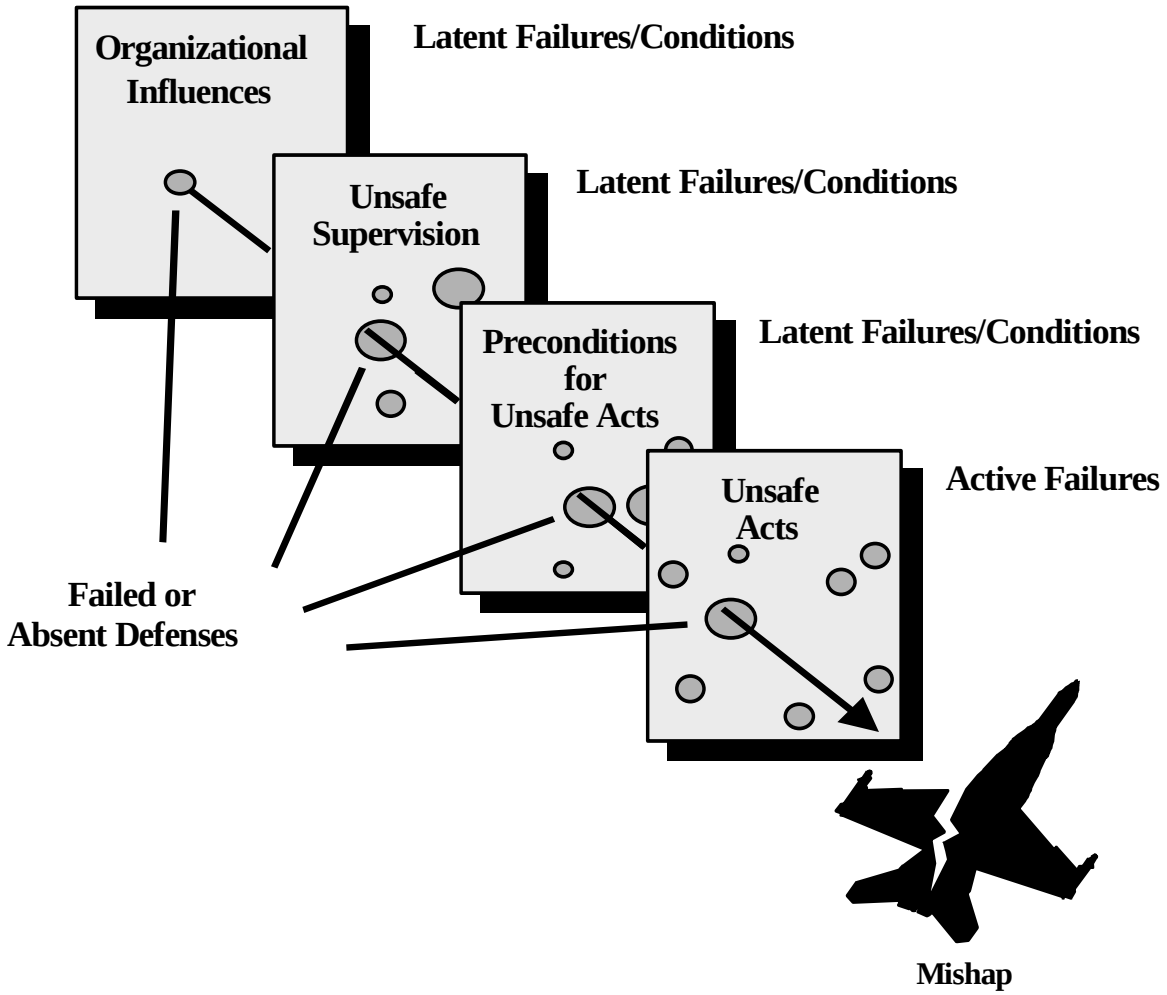

Figure 11. The "Swiss Cheese" Model (adapted from Reason, 1990).

What makes Reason's model particularly useful in mishap investigation, is that it forces investigators to address latent failures and conditions within the causal sequence of events. For instance, latent failures or conditions such as fatigue, complacency, illness, and the loss of situational awareness all effect performance but can be overlooked by investigators with even the best of intentions. These particular latent failures and conditions are described within the context of Reason's model as *Preconditions for Unsafe Acts*. Likewise, *Unsafe Supervision* can promote unsafe conditions of operators and ultimately unsafe acts will occur. For example, if an Operations Officer were to pair a below average Naval Aviator with a very junior Naval Flight Officer, the result is often predictable and sometimes tragic. Regardless, whenever a mishap does occur, the crew naturally bears a part of the responsibility and accountability. However, often the latent failures or conditions at the supervisory level were equally responsible for causing the mishap. In this particular example, the aircrew was set-up for failure.

Reason's model does not stop at supervision; it also considers *Organizational Influences* that can impact performance at all levels. For instance, in times of fiscal constraints, funding may be short, and consequently training flights limited. Supervisors are pressed to task "non-proficient" aviators with, at times, complex missions. Not surprisingly, episodes of task saturation and loss of situational awareness may appear and consequently performance in the cockpit will suffer. As such, causal factors at all levels must be addressed if any mishap investigation process is going to be effective.

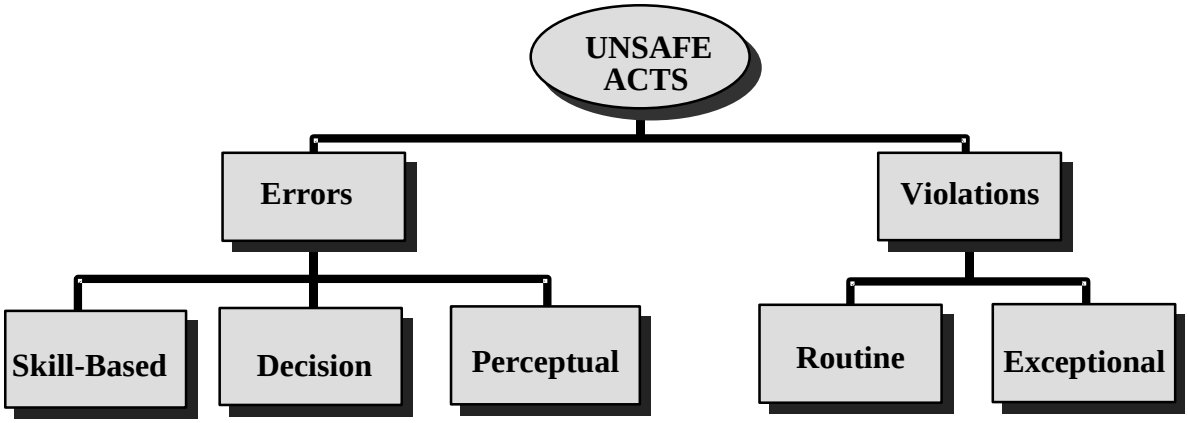

Figure 2~~2~~. Categories of Unsafe Acts of Operators.

The investigation process then endeavors to detect and identify the "holes in the cheese" (see Figure 1). So how do we identify the holes in the Swiss Cheese? Aren't they really too numerous to define? After all, every mishap is unique, so the holes will always be different for each mishap ... right? Well, it turns out that each mishap is not unique from its predecessors. In fact, most mishaps have very similar causes. They are due to the same holes in the cheese, so to speak. Therefore, if you know what these system failures or "holes" are, you can better identify their roles in mishaps -- or better yet, detect their presence and correct them before a mishap occurs.

B. Human Factors Analysis and Classification System

Drawing upon Reason's (1990) concept of active failures and latent failures/conditions, a basic taxonomy was developed to identify the "holes" called the Human Factors Analysis and Classification System (HFACS). HFACS describes four levels of failures/conditions: 1) Unsafe Acts, 2) Preconditions for Unsafe Acts, 3) Unsafe Supervision, and 4) Organizational Influences. A brief description of the major components and causal categories follows, beginning with the level most closely tied to the mishap, unsafe acts.

1. Unsafe Acts

The Unsafe Acts committed by aircrew generally take on two forms, *Errors and Violations* (see Figure 2). The first, Errors, are not surprising given the fact that human beings by their very nature make errors. Consequently, aircrew errors are seen in most mishaps, often as the final event before a mishap occurs. Violations, on the other hand, are less frequent and represent a willful disregard for the rules. Not all Unsafe Acts (both Errors and Violations) are alike. Consequently the Unsafe Acts aircrew commit can be classified among <u>three basic types of Errors</u> (Skill-based, Decision, & Perceptual) and <u>two forms of Violations</u> (Routine & Exceptional). Using this simple classification scheme, the investigator must first determine if an operator committed an Unsafe Act (active failure). If so, the investigator must then decide if an error occurred or a rule was willfully violated. Once this is done, the investigator can further define the causal factor as a specific type of Error or Violation.

a. Basic Error Forms

(1) Skill-based Errors. Skill-based behavior is best described as those "stick-and-rudder" or other basic flight skills that occur without significant conscious thought. As a result, skill-based actions are particularly vulnerable to failures of attention and/or memory. In fact, attention failures have been linked to many Skill-based Errors such as the breakdown in visual scan patterns, task fixation, inadvertent control activation, and misordering procedural steps, among others. For example, consider a pilot so intent on putting bombs on target that he disregards his low altitude warning only to collide with the ground. Putting a switch into the wrong mode or missing a runway change because of a distraction are examples of attention failures that occur during highly automatized behavior.

In contrast to attention failures, memory failures often appear as omitted checklist items, losing place, or forgotten intentions. For example, it is not difficult to imagine that in emergency situations under stress, steps in boldface emergency procedures or radio calls could be missed. Even when not particularly stressed, individuals forget to set the flaps on approach or lower the landing gear.

Skill-based Errors can happen even when no apparent attention of memory failure is present. The individual flying skill/techniques of Naval Aviators differ from one pilot to next and can range from individuals that fly effortlessly to those who don't fly so effortlessly. It is the Skill-based Errors of the latter that often leads to a mishap. The bottom line is that Skill-based Errors are unintended behaviors. That is, individuals typically do not choose to limit their scan patterns, forget a boldface procedure, or fly poorly -- it just happens (see Table 1).

(2) Decision Errors. Intentional behaviors that prove to be inappropriate or inadequate for the situation are Decision Errors. Often referred to as "honest mistakes", these Unsafe Acts represent the actions or inactions of individuals whose intentions were good, but they either did not have the appropriate knowledge or just simply chose poorly.

Decision Errors come in many forms, and occur for a variety of reasons, but they typically represent poor decision-making, improper procedural execution, or the misuse

Table 1. Select Examples of Unsafe Acts of Operators	
ERRORS	VIOLATIONS
<u>Skill-based Errors</u> Breakdown in Visual Scan Delayed Response Failed to Prioritize Attention Failed to Recognize Extremis Improper Instrument Cross-Check Inadvertent use of Flight Controls Omitted Step in Procedure Omitted Checklist Item	<u>Routine</u> Failed to Adhere to Brief Violation of NATOPS/Regulations/SOP - Failed to use RADALT - Flew an unauthorized approach - Failed to execute appropriate rendezvous - Violated training rules - Failed to adhere to departure procedures - Flew overaggressive maneuver - Failed to properly prepare for flight
<u>Decision Errors</u> Improper Takeoff Improper Approach/Landing Improper Procedure Wrong Response to Emergency Exceeded Ability Inappropriate Maneuver	<u>Exceptional</u> Briefed Unauthorized Flight Not Current/Qualified for Mission Intentionally Exceeded the Limits of the Aircraft Violation of NATOPS/Regulations/SOP - Continued low-altitude flight in VMC - Failed to ensure compliance with rules - Unauthorized low-altitude canyon running - Not current for mission
<u>Perceptual Errors</u> Misjudged Distance/Altitude/Airspeed Spatial Disorientation Visual Illusion	

or misinterpretation of relevant information. The bottom line is that the individual made a conscious choice and elected to do what was done in the cockpit -- unfortunately, in the case of a mishap, it did not work (see Table 1).

(3) <u>Perceptual Errors</u>. Not surprisingly, when your perception of the world is different than reality, errors can, and often do, occur. Typically, Perceptual Errors occur when sensory inputs are degraded or 'unusual,' as is the case when visual illusions or spatial disorientation occur. Visual illusions can occur when the brain tries to 'fill in the gaps' in a visually impoverished environment, like that seen at night or in degraded weather. Likewise, spatial disorientation can occur when the vestibular system cannot properly resolve orientation in space and therefore makes a "best guess" -- typically when visual horizon cues are absent at night or in poor weather. In either event, the individual is left to act on faulty information leading to error, and often a mishap. Likewise, it is often quite difficult to judge precise distance and closure between aircraft and the ground when relative cues like clouds or terrain features are

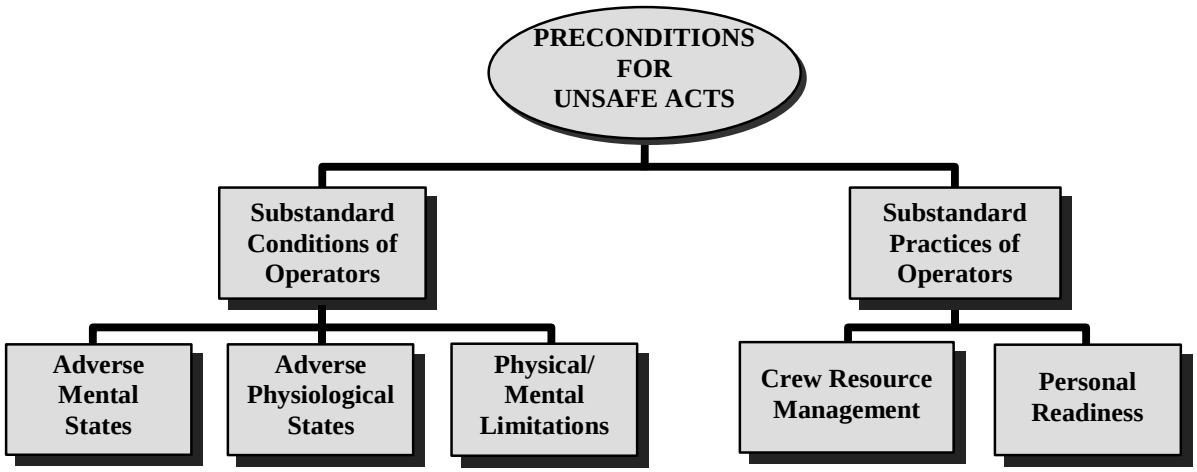

Figure 33. Categories of Preconditions for Unsafe Acts

into terrain (see Table 1).

b. Violations

(1) Routine. In general, Violations are the willful departure from authority that simply cannot be tolerated. Infractions tend to be routine/habitual by nature, constituting a part of the individual's behavioral repertoire. For example, consider an aviator that does not wear flight gloves or an oxygen mask on take-off. While certainly against the NATOPS, many aviators continue not to comply. Consequently, these individuals 'routinely' violate this requirement. Commonly referred to as rule "bending", these Routine Violations are in effect tolerated by supervisory authority. If however, the chain of command started enforcing the rules, it is less likely that individuals would develop/maintain the habit of bending them. Therefore, by definition, if a Routine Violation is uncovered, one must look at the supervisory chain to identify the individuals that are condoning the violations (see Table 1).

(2) Exceptional. Unlike Routine Violations, Exceptional Violations appear as isolated departures from authority, not necessarily indicative of an individual's typical behavior pattern or condoned by management. For example, an impromptu air show or 'flathatting' is considered an Exceptional Violation. It is important to note that while most Exceptional Violations are heinous, they are not considered 'exceptional' because of their extreme nature but

Table 2. Select Examples of Preconditions for Unsafe Acts	
SUBSTANDARD CONDITIONS	SUBSTANDARD PRACTICES
<u>Adverse Mental States</u>	<u>Crew Resource Management</u>
Channelized Attention	Failed to Back-up
Complacency	Failed to Communicate/Coordinate
Distraction	Failed to Conduct Adequate Brief
Life Stress	Failed to Use All Available Resources
Loss of Situational Awareness	Failure of Leadership
Mental Fatigue	Misinterpretation of Traffic Calls
Task Fixation	Trans-cockpit Authority Gradient
Haste to Get Home	
Misplaced Motivation	
<u>Adverse Physiological States</u>	<u>Personal Readiness</u>
G-Induced Loss of Consciousness	Excessive Physical Training
Physiological Incapacitation	Self-Medicating
Physical Fatigue	Violation of Crew Rest Requirement
Spatial Disorientation	Violation of Bottle-to-Brief Rule
Visual Illusions	
Medical Illness	
<u>Physical/Mental Limitation</u>	
Insufficient Reaction Time	
Visual Limitation	
Incompatible Physical Capability	

rather because they are neither typical of the individual nor condoned by authority (see Table 1).

2. Preconditions for Unsafe Acts

Arguably, the Unsafe Acts of operators can be directly linked to the majority of Naval Aviation mishaps. However, simply focusing on Unsafe Acts is like focusing on a symptom without understanding the underlying cause(s). As such, investigators must dig deeper into why an unsafe act took place. As a first step, there are two major forms of Preconditions for Unsafe Acts, each with their specific causal categories (see Figure 3). Specifically, they include the *Substandard Conditions of Operators* (Adverse Mental States, Adverse Physiological States, & Physical/Mental Limitations) as well as the *Substandard Practices of Operators* (Crew Resource Management & Personal Readiness).

a. Substandard Conditions of Operators

(1) Adverse Mental States. Being prepared mentally is critical in nearly every endeavor, perhaps more so in aviation. As such, the category of Adverse Mental States takes into account those mental conditions that affect performance. Principle among these is the loss of situational awareness, task fixation, distraction, and mental fatigue due to sleep loss or other stressors. Also included in this category are personality traits and attitudes such as overconfidence, complacency, and misplaced motivation. For example, if an individual is mentally tired, for whatever reason, the likelihood that an error will occur increases. Likewise, overconfidence, complacency, etc. will influence the likelihood that a violation will be committed (see Table 2).

(2) Adverse Physiological States. Medical or physiological conditions that preclude safe operations are referred to as Adverse Physiological States. Particularly important to Naval Aviation are conditions such as spatial disorientation, visual illusions, G-induced loss of consciousness (G-LOC), hypoxia, physical fatigue, and the myriad of pharmacological and medical abnormalities known to affect performance. If, for example, an individual were suffering from a middle-ear infection, the likelihood of spatial disorientation occurring when entering instrument conditions goes up markedly. Consequently, the medical condition must be addressed within the causal chain of events (see Table 2).

(3) Physical/Mental Limitations. Instances when the mission requirements exceed the capabilities of the individual at the controls are denoted as Physical/Mental Limitations. They can take many forms. At night, for example, our visual system is limited by the capability of the sensors in our eyes and hence vision is severely degraded. Yet, operators do not necessarily slow down or take additional precautions. In aviation, this often results in not seeing other aircraft, obstacles, or power lines due to the size or contrast of the object in the visual field. Similarly, there are occasions when the task completion time or maneuver exceeds human capacity. It is well documented that if individuals are required to respond quickly the probability of making an error goes up markedly.

There are two other instances of Physical/Mental Limitations that are often overlooked in most mishap

investigations and involve individuals who simply are not compatible with aviation. For example, some individuals do not have the physical strength to operate in high-G environments or for anthropometric reasons simply have difficulty reaching the controls. In other words, cockpits have not traditionally been designed with all shapes, sizes, and physical abilities in mind. Likewise, not everyone has the mental ability or aptitude for flying aircraft. The challenge is identifying whether physical or mental limitations played a role in a mishap event (see Table 2).

b. Substandard Practices of Operators

(1) Crew Resource Management. Occurrences of poor coordination among aircrew and other personnel associated with the safe conduct of the flight falls under Crew Resource Management (CRM). This includes coordination within and between aircraft, ATC, and maintenance control, as well as facility and other support personnel. Anywhere communication between individuals is required, the potential for miscommunication, or simply poor resource management, exists. However, CRM does not stop with the aircrew in flight. It also includes communicating before and after the flight (i.e., pre-flight brief, post-flight debrief). The conscientious investigator must always look for potential poor CRM practices (see Table 2).

(2) Personal Readiness. In aviation, or for that matter in any occupational setting, individuals are expected to show up for work ready to perform at optimal levels. For Naval Aviation, however, Personal Readiness Failures (see Table 2) occur when individuals fail to properly prepare physically or mentally for flight. For instance, violations of crew rest requirements, bottle-to-brief rules, and self-medicating all will affect performance in the aircraft. It is not hard to imagine that when an aircrew member violates crew

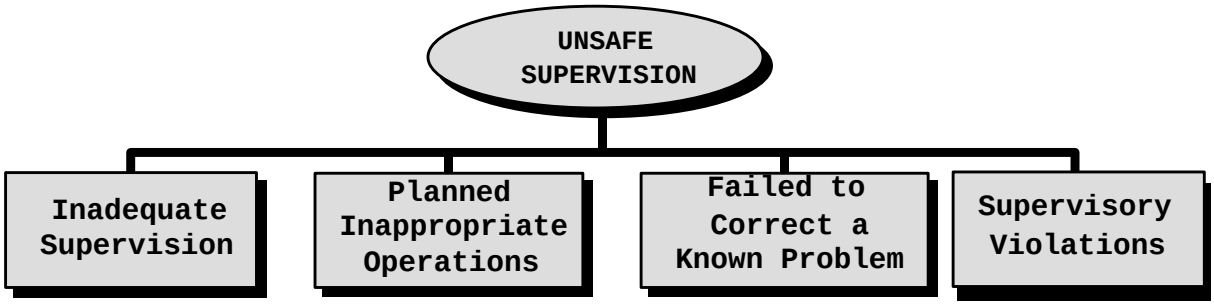

Figure 44. Categories of Unsafe Supervision

rest requirements, that individual runs the risk of mental fatigue and other adverse mental states. (*Note that violations that effect personal readiness are not considered "unsafe acts, violation" since they typically do not happen in the cockpit, nor are they active failures with direct and immediate consequences*)

Still, not all Personal Readiness failures occur as a result of violations of rules. For example, running 10 miles before a flight may not be against any existing regulations, yet it may impair an individual's physical and mental capabilities so as to degrade performance and elicit Unsafe Acts. Also, an aviator's traditional "candy bar and Coke" lunch may sound good, but may not be sufficient to sustain performance. Even cramming for a NATOPS exam may significantly impair sleep and consequently performance the next day in the cockpit. While there may be no rules governing such behaviors, aircrew must be their own best judge and objectively assess their Personal Readiness before manning an aircraft.

3. Unsafe Supervision

The Naval Safety Center has determined that a mishap event can often be traced back to the supervisory chain of command. As such, there are four major categories of Unsafe Supervision: *Inadequate Supervision*, *Planned Inappropriate Operations*, *Failed to Correct a Known Problem*, and *Supervisory Violations* (see Figure 4).

a. Inadequate Supervision. The role of supervisors are to provide their troops with the opportunity to succeed. To

Table 3. Select Examples of Unsafe Supervision	
Inadequate Supervision	Failed to Correct a Known Problem
Failed to Provide Guidance	Failed to Correct/Document an Error
Failed to Provide Oversight	Failed to Identify an At-Risk Aviator
Failed to Provide Training	Failed to Initiate Corrective Action
Failed to Track Qualifications	Failed to Report Unsafe Tendencies
Failed to Track Performance	
	Supervisory Violations
Planned Inappropriate Operations	Authorized Unnecessary Hazard
Failed to Provide Correct Data	Failed to Enforce NATOPS/Regs/SOP
Improper Manning	Failed to Enforce T&R Manual
Mission Not IAW with NATOPS/Regs/SOP	Authorized Unqualified Crew for Flight
Permitted Unnecessary Hazard	
Provided Inadequate Opportunity for Crew Rest	

do this, supervisors, no matter what level they operate at, must provide guidance, training opportunities, leadership, motivation, and the proper role model. Unfortunately, this is not always the case. It is not difficult to imagine a situation where adequate CRM training was not provided to an aircrew member. Conceivably, the aircrew's coordination skills would be compromised, and if put into an adverse situation (e.g., emergency), they would be at risk for errors and potentially a mishap. Therefore, the category Inadequate Supervision accounts for those times when supervision proves inappropriate, improper, or may not occur at all (see Table(3).

b. Planned Inappropriate Operations. Occasionally, the operational tempo or schedule is planned such that individuals are put at unacceptable risk, crew rest is jeopardized, and ultimately performance is adversely affected. Such Planned Inappropriate Operations, though arguably unavoidable during emergency situations, are not acceptable during normal operations. Included in this category are issues of crew pairing and improper manning. For example, it is not surprising to anyone that when two individuals with marginal skills are paired together, problems can arise. During a period of downsizing and/or increased levels of operational commitment, it is often more difficult to manage crews. However, pairing weak or inexperienced aircrew together on the most difficult missions may not be prudent (see Table 3).

Figure 5~~5~~. Categories of Organizational Influences

c. Failed to Correct a Known Problem. Failed to Correct a Known Problem, refers to those instances when deficiencies among individuals, equipment, training or other related safety areas are "known" to the supervisor, yet are allowed to continue uncorrected. For example, the failure to consistently correct

or discipline inappropriate behavior certainly fosters an unsafe atmosphere, and poor command climate (see Table 3).

d. Supervisory Violations. Supervisory Violations, on the other hand, are reserved for those instances when existing rules and regulations are willfully disregarded by supervisors. For instance, permitting an individual to operate an aircraft without current qualifications is a flagrant violation that invariably sets the stage for the tragic sequence of events that predictably follow (see Table 3).

4. Organizational Influences

Fallible decisions of upper-level management directly effect supervisory practices, as well as the conditions and actions of operators. These latent conditions generally involve issues related to *Resource Management, Organizational Climate, and Operational Processes* (see Figure 5).

a. Resource Management. This category refers to the management, allocation, and maintenance of organizational resources--human, monetary, and equipment/facilities. The term 'human' refers to the management of operators, staff, and maintenance personnel. Issues that directly influence safety include selection (including background checks), training, and staffing/manning. 'Monetary' issues refer to the management of nonhuman resources, primarily monetary resources. For example, excessive cost cutting and lack of funding for proper equipment have adverse effects on operator performance and safety. Finally, 'equipment/facilities' refers to issues

Table 4. Select Examples of Organizational Influences

RESOURCE/ACQUISITION	ORGANIZATIONAL CLIMATE	ORGANIZATIONAL PROCESSES
Human Resources	Structure	Operations
Selection	Chain-of-Command	Operational Tempo
Staffing/Manning	Delegation of Authority	Time Pressure
Training	Communication Channels	Production Quotas
	Formal Accountability	Incentives
Monetary/Budget Resources		Measurement/Appraisal
Excessive Cost Cutting	Policies	Schedules
Lack of Funding	Hiring and Firing	Deficient Planning
	Promotion	
Equipment/Facility		Procedures
Resources	Culture	Standards
Poor Design	Norms and Rules	Documentation
Purchasing of Unsuitable	Values and Beliefs	Instructions
Equipment	Organizational Justice	
		Oversight
		Risk Management
		Safety Programs

related to equipment design, including the purchasing of unsuitable equipment, inadequate design of work spaces, and failures to correct known design flaws. Management should ensure that human-factors engineering principles are known and utilized and that specifications for equipment and workspace design are identified and met (see Table 4).

b. Organizational Climate. Organizational Climate refers to a broad class of organizational variables that influence worker performance. It can be defined as the situational consistencies in the organization's treatment of individuals. In general, Organizational Climate is the prevailing atmosphere or environment within the organization. Within the present classification system, climate is broken down into three categories--structure, policies, and culture. The term 'structure' refers to the formal component of the organization. The 'form and shape' of an organization are reflected in the chain-of-command, delegation of authority and responsibility, communication channels, and formal accountability for actions. Organizations with maladaptive structures (i.e., do not optimally match to their operational environment or are unwilling to change) will be more prone to mishaps. 'Policies' refer to a course or method of action that guides present and future decisions. Policies may refer to hiring and firing, promotion, retention, raises, sick leave, drugs and alcohol, overtime, accident investigations, use of safety equipment, etc. When these policies are ill defined, adversarial, or conflicting, safety may be reduced. Finally, 'culture' refers to unspoken or unofficial rules, values, attitudes, beliefs, and customs of an organization ("The way things really get done around here."). Other issues related to culture include organizational justice, psychological contracts, organizational citizenship behavior, esprit de corps, and union/management relations. All these issues affect attitudes about safety and the value of a safe working environment (see Table 4).

c. Organizational Processes. This category refers to the formal process by which 'things get done' in the organization. It is subdivided into three broad categories--operations, procedures, and oversight. The term 'operations' refers to the characteristics or conditions of work that have been established by management. These characteristics included operational tempo, time pressures, production quotas, incentive systems, schedules, etc. When set up inappropriately, these working conditions can be detrimental to safety. 'Procedures' are the official or formal procedures

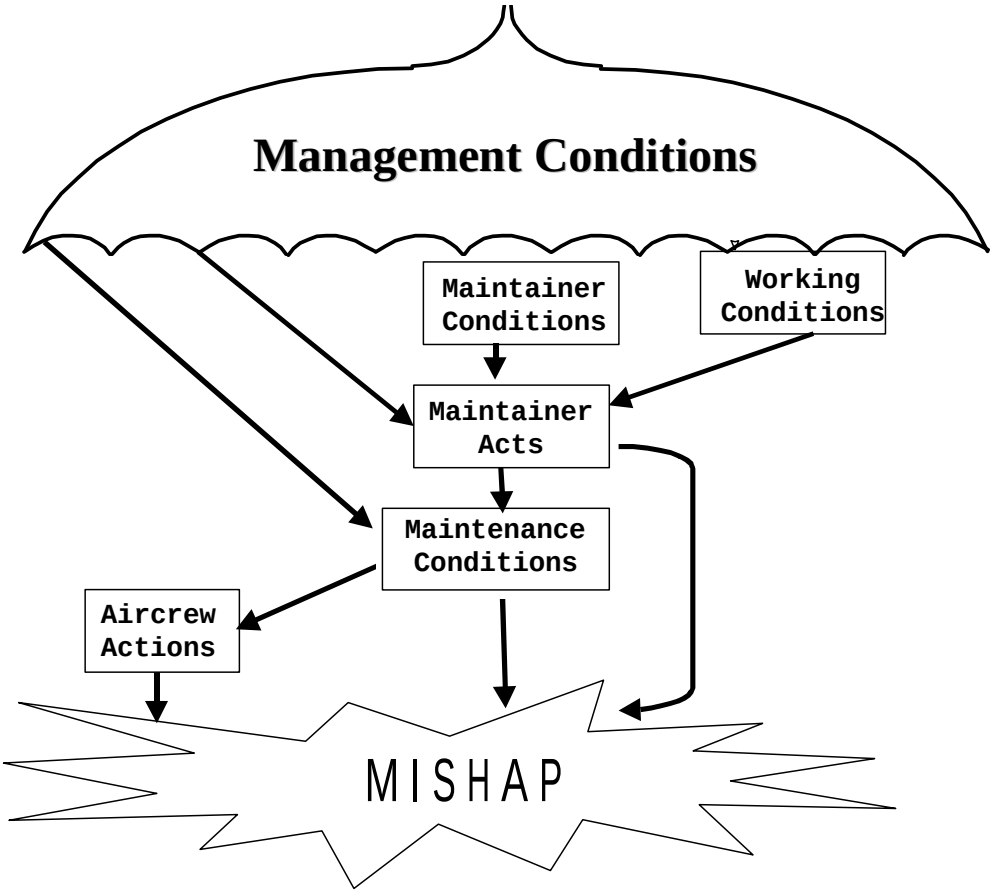

Figure 66. The HFACS - Maintenance - Extension (HFACS-ME)

as to how the job is to be done. Examples include performance standards, objectives, documentation, instructions about procedures, etc. All of these, if inadequate, can negatively impact employee supervision, performance, and safety. Finally, 'oversight' refers to monitoring and checking of resources, climate, and processes to ensure a safe and productive work environment. Issues here relate to organizational self-study, risk management, and the establishment and use of safety programs (see Table 4).

C. HFACS -- MAINTENANCE EXTENSION

HFACS has been adapted to capture maintenance human factors. Termed the "Maintenance Extension" (HFACS-ME), it facilitates the recognition of absent or defective defenses at four levels, including, Unsafe: *Management Conditions* (Organizational & Supervisory), *Maintainer Conditions, Working Conditions*, and *Maintainer Acts* (see Figure 6). This framework can be used to identify targets for intervention. HFACS-ME clearly addresses Marx's (1998) valid concern that

Table 5. HFACS-ME Taxonomy		
First Order	**Second Order**	**Third Order**
Management Conditions	Organizational	Inadequate Processes Inadequate Documentation Inadequate Design Inadequate Resources
	Supervisory	Inadequate Supervision Inappropriate Operations Uncorrected Problem Supervisory Misconduct
Maintainer Conditions	Medical	Adverse Mental State Adverse Physical State Unsafe Limitation
	Crew Coordination	Inadequate Communication Inadequate Assertiveness Inadequate Adaptability/Flexibility
	Readiness	Inadequate Training/Preparation Inadequate Certification/Qualification Personnel Readiness Infringement
Working Conditions	Environment	Inadequate Lighting/Light Unsafe Weather/Exposure Unsafe Environmental Hazards
	Equipment	Damaged/Unserviced Unavailable/Inappropriate Dated/Uncertified
	Workspace	Confining Obstructed Inaccessible
Maintainer Acts	Error	Attention/Memory Knowledge/Rule Skill/Technique Judgment/Decision
		Routine Infraction

human error has been "under-served" by traditional maintenance error analysis systems.

Unsafe Management, Maintainer, and Working Conditions are latent conditions that can impact a maintainer's performance and lead to an Unsafe Maintainer Act, an active failure. An Unsafe Maintainer Act may directly cause a mishap or injury (e.g., a maintainer runs a forklift into the side of an aircraft and damages it). It could also cause an Unsafe Maintenance Condition, which the aircrew would have to deal with on take-off, in-flight, or on landing (e.g., an over-

Table 6. Select Examples of Unsafe Management Conditions	
ORGANIZATIONAL	SUPERVISORY
<u>Inadequate Processes</u> Task Complex/Confusing Procedures Incomplete Non-Existing Procedures	<u>Inadequate Supervision</u> Task Planning/Organization Task Delegation/Assignment Amount of Supervision
<u>Inadequate Documentation</u> Not Understandable Information Unavailable Conflicting Information	<u>Inappropriate Operations</u> Information Not Used Unrealistic Expectations Improper Task Prioritization
<u>Inadequate Design</u> Poor Layout/Configuration Poor/No Accessibility Easy to Incorrectly Install	<u>Uncorrected Problem</u> Manual Not Updated Parts/Tool Incorrectly Labeled Known Hazards Not Controlled
<u>Inadequate Resources</u>	<u>Supervisory Misconduct</u>

torqued hydraulics line that fails in flight causing a fire or an improperly rigged landing gear that collapses on touchdown). Finally, it is important to note that Unsafe Management Conditions related to design for maintainability, prescribed maintenance procedures, and/or standard maintenance operations can be inadequate and lead to Unsafe Maintenance Conditions. Each major component of HFACS-ME has three orders that reflect a shift from a macro to a micro perspective (see Table 5).

For the most part HFACS-ME is used much the same way for maintenance factors as HFACS is for aircrew factors. For example, a supervisor who fails to correct a maintainer who routinely bends the rules while performing maintenance would be considered an Unsafe Management Supervisory Condition, failure to correct a known problem. Similarly, a maintainer who has a marital problem and cannot focus on a maintenance operation has fallen prey to an Unsafe Maintainer Medical Condition (Adverse Mental State). Further, a maintainer who must work in a heavy rain could experience difficulty due to an Unsafe Working Environmental Condition (Unsafe Weather/Exposure). Ultimately these conditions could lead to Unsafe Maintenance Acts such as reversing a step in a procedure (Attention/Memory Error) as well as not using the prescribed manual (Routine Violation). The following

Table 7. Select Examples of Unsafe Maintainer Conditions		
MEDICAL	CREW COORDINATION	READINESS
Adverse Mental State	Inadequate Communication	Inadequate Training/Preparation
Peer Pressure	Non Standard Hand Signals	New/Changed Task
Complacency	Inappropriate Log Entry	Inadequate Skills
Life Stress	Inadequate Shift Passdown	Inadequate Knowledge
Adverse Physical State	Inadequate Assertiveness	Inadequate Certification/Qualification
Health/Illness	Peer Pressure	Not Certified for Task
Fatigue	Rank Gradient	Incomplete PQS
Circadian Rhythm	New to Group	Not Licensed to Operate
Unsafe Limitation	Inadequate Adaptability/Flexibility	Personnel Readiness Infringement
Body Size/Strength	Non-adherence to Change	Self-Medication
Eye Sight/Hearing	Different from Similar Tasks	Alcohol Use
Reach/View	Disregard of Constraint	Crew Rest

paragraphs provide a brief illustration of the four major components of the HFACS-ME taxonomy.

Unsafe Management Conditions

Management Conditions that contribute to active failures consists of both Organizational and Supervisory factors (see Table 6). Examples of Organizational Management Conditions are: a manual omits a step calling for an o-ring to be installed (Inadequate Processes); a technical publication does not specify torque requirements (Inadequate Documentation); a poor component layout prohibits direct viewing during inspection (Inadequate Design); and a shortage of tools leads to using what is immediately available (Inadequate Resources). Examples of Supervisory Management Conditions include: a commander does not

Table 8. Select Examples of Unsafe Working Conditions		
ENVRIONMENT	EQUIPMENT	WORKSPACE
Inadequate Lighting/Light	Damaged/Unserviced	Confining
Inadequate Natural Light	Unsafe/Hazardous	Constrained Tool Use
Inadequate Artificial Lighting	Unreliable/Faulty	Constrained Equipment Use
Dusk/Nighttime	Inoperable/Uncontrollable	Constrained Position
Unsafe Weather/Exposure	Unavailable/Inappropriate	Obstructed
Temperature	Unavailable for Use	Not Visible
Precipitation	Inappropriate for Task	Not Directly Visible
Wind	Power Sources Inadequate	Partially Visible
Unsafe Environmental Hazards	Dated/Uncertified	Inaccessible
High Noise Levels	Unreliable/Faulty	Totally Inaccessible
Housekeeping/Cleanliness	Inoperable/Uncontrollable	Not Directly Accessible
Hazardous/Toxic Substances	Miscalibrated	Partially Accessible

a supervisor does not correct cutting corners in a procedure (Uncorrected Problem); and a supervisor orders personnel to wash an aircraft without training (Supervisory Misconduct).

Unsafe Maintainer Conditions

Maintainer Conditions that lead to active failures consists of Medical, Crew Coordination, and Readiness factors (see Table 7). Examples of Maintainer Medical Conditions are: a maintainer with life stress has impaired concentration (Adverse Mental State); a maintainer is fatigued from working 20 hours straight (Adverse Physical State); and a short maintainer cannot visually inspect an aircraft component (Unsafe Limitation). Examples of Maintainer Crew Coordination conditions include: a maintainer using improper hand signals (Inadequate Communication); a maintainer signs off an inspection due to perceived pressure

Table 9. Select Examples of Unsafe Maintainer Acts

ERROR	VIOLATION
Attention/Memory	Routine(if norm)/Infraction (if isolated)
Omitted Procedural Step	Inappropriate Tools/Equipment
Distraction/Interruption	Procedures Skipped/Reordered
Failed to Recognize Condition	Did Not Use Publication
Knowledge/Rule Based	Exceptional (if minor)/Flagrant(if blatant)
Inadequate Task Knowledge	Gundecking Qualifications
Inadequate Process Knowledge	Not Using Required Equipment
Inadequate Aircraft Knowledge	Signed-off Without Inspection
Skill/Technique Based	
Poor Technique	
Inadequate Skills	
Inappropriate Technique	
Judgment/Decision-Making	
Exceeded Ability	
Misjudged/Misperceived	
Misdiagnosed Situation	

encompass: a maintainer working on an aircraft skipped a requisite training evolution (Inadequate Training/Preparation); a maintainer engages in a procedure they have not been qualified to perform (Inadequate

Certification/Qualification), and a maintainer is intoxicated on the job (Personnel Readiness Infringement).

Unsafe Working Conditions

Working Conditions that can precipitate active failures consists of Environment, Equipment, and Workspace factors (see Table 8). Examples of Environment Working Conditions are: a maintainer working at night without artificial lighting (Inadequate Lighting/Light); a maintainer securing an aircraft in a driving rain improperly chocks a wheel (Unsafe Weather/Exposure); and a maintainer slips on a pitching deck (Unsafe Environmental Hazard). Examples of Equipment Working Conditions include: a maintainer uses a faulty test set (Damaged/Unserviced); a maintainer does not use a jack because all are in use (Unavailable/Inappropriate); a maintainer uses an out of date manual (Dated/Uncertified). Examples of Workspace Working Conditions encompass: a maintainer in a fuel cell cannot reach a component (Confining); a maintainer's view in spotting an aircraft is obscured by catapult steam (Obstructed); and a maintainer is unable to perform a corrosion inspection that is beyond his reach (Inaccessible).

Unsafe Maintainer Acts

Maintainer Acts are active failures which directly or indirectly cause mishaps, or lead to a Latent Maintenance Condition that an aircrew would have to respond to during a given phase of flight. Unsafe Maintainer Acts include Errors and Violations (see Table 9). Examples of Errors in Maintainer Acts include: a maintainer misses a hand signal (Attention/Memory); a maintainer inflates a tire using a pressure required by a different aircraft (Knowledge/Rule); a maintainer roughly handles a delicate engine valve causing damage (Skill/Technique); and a maintainer misjudges the distance between a tow tractor and an aircraft wing (Judgment/Decision-Making). Examples of Violations in Maintainer Acts include: a maintainer engages in practices, condoned by management, that bend the rules (Routine); a maintainer elects to stray from accepted procedures to save time, bending a rule (Infraction); a maintainer, due to perceived pressure, omits an inspection and signs off an aircraft (Exceptional); and a maintainer willfully breaks standing rules disregarding the consequences (Flagrant).

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