



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON WASHINGTON, DC 20350-2000

IN REPLY REFER TO

OPNAVINST 3750.6R CH-4
N09F
8 Apr 09

OPNAV INSTRUCTION 3750.6R CHANGE TRANSMITTAL 4

From: Chief of Naval Operations
Subj: NAVAL AVIATION SAFETY PROGRAM
Encl: (1) Revised Pages 1 through 5
(2) Revised Chapter Six
(3) Revised Chapter Seven

1. Purpose. To add the use of OPNAV 3750/16 to the list of mandated forms and to update information in chapters six and seven.

2. Action

a. Remove pages 1 through 5 of the basic instruction and replace them with enclosure (1).

b. Remove chapters six and seven and replace them with enclosures (2) and (3), respectively, of this change transmittal.

A handwritten signature in black ink, appearing to read "A. J. Johnson", is positioned above the typed name.

A. J. JOHNSON
Special Assistant for Safety Matters,
Chief of Naval Operations

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1 Mar 01

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
(c) DoD Instruction 6055.07 of 3 Oct 00

Encl: (1) Naval Aviation Safety 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 The format, scope and content of this revision differ so significantly from superseded instruction that it would not be practical to identify added, deleted or changed material in the text.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. OPNAV 3750/16 Safety Investigation Report Enclosure Advice to Witness required by paragraph 606c(1) is available via Naval Forms Online at <http://navalforms.daps.dla.mil/web/public/forms>.

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

- c. Symbol OPNAV 3750-20 is assigned to the Mishap Data Report required by paragraph 503.
- d. Symbol OPNAV 3750-21 is assigned to Direct Enemy Action Mishap Report required by paragraph 515.
- e. Symbol OPNAV 3752-1 is assigned to the Mishap Investigation Report required by paragraph 703.
- f. These reports are approved per SECNAV M-5214.1.
- g. Safety Investigation Report SIR 3750/1 through SIR 3750/16 are included in appendix N. Forms may be reproduced locally.

/s/

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

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LSO School, Naval Air Station, Oceana, Virginia Beach, VA 23460

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CHAPTER SIX

MISHAP INVESTIGATIONS

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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 naval aviation failed to detect and eradicate the hazards that caused a mishap before it was too late. It is not too late, however, to keep it from happening again - which is why naval aviation investigates 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. Naval aviation personnel 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 FMs, FRMs, and AGMs 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 ASO's course, and flight surgeons, trained at the Naval Aerospace Medical Institute are members of the board. This system of squadron-level AMBs is consistent with one of the basic tenets 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 Reports and Situation Reports.
- (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 (EIs).

(h) Requests for 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 SOPs, 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, recovery, 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 3750.16C points out that the National Transportation Safety Board (NTSB) and Federal Aviation Administration (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 if an aviation mishap involves nuclear weapon(s) or material.

d. Judge Advocate General (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 investigation conducted under the authority of this instruction, to a JAG Manual Investigation of the same mishap.

(2) Do not append, or extract excerpts, from Part A or Part B of a SIR for inclusion in a JAG Manual Investigation Report, 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, 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 Chief of Naval Operations (CNO)/Commandant of the Marine Corps (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 FMs 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 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 EIs) until released to the AMB. NAVSAFECEN investigators 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. Joint Investigations

(1) Only the COMNAVSAFECEN may enter into agreements or understandings about mishap reporting and investigations with other Services outside Department of the Navy (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 joint 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; or

(c) Any number of military Services may form a joint AMB.

(4) In all these cases, naval aviation 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, naval aviation may send a member of a Naval Service to sit as an observer on another Service's mishap board.

(6) Forward all requests for joint participation on AMBs to COMNAVSAFECEN for approval.

(7) Paragraph 108 should answer any questions about accountability in joint mishaps.

h. Naval Aviation Mishaps Involving Fire, Explosion, or Damage to a Ship or Shore Facility

(1) Ships must use OPNAVINST 5100.19E, Navy Safety and Occupational Health (SOH) Program Manual for forces afloat to report a fire, explosion, or other damage caused by a naval aviation mishap.

(2) Shore facilities must use OPNAVINST 11320.23F, Shore Activities Fire Protection and Emergency Services Program 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 NAVSAFECEN 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 AMB 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 MDR describing the

unusual circumstances in paragraph 7. The COMNAVSAFECEN 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 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 reporting responsibility. In such cases, the relieving senior 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 addrees 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 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. Fleet Readiness Center. COMNAVAIRSYSCOM is responsible for investigating and reporting mishaps involving naval aircraft in the physical custody of Fleet Readiness Centers. 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 or readiness center.

f. Commercial Contractor Mishaps

(1) Except for those mishaps that occur at commercial facilities operating under contracts 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 Contract Management 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 Federal Acquisition Regulations Supplement clauses and the NAVAIRINST 3710.1F 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 GFR or contracting officer technical representative, 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, legal counsel may accompany them, and their cooperation may be restrained. Conduct a thorough briefing on privileged testimony with these witnesses before the interview.

(2) Contractors work eight 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 CNAF 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. Per the National Archives and Records Administration, contractor records of work performed for a Government agency are the property of the agency and must be maintained per the records schedules located in SECNAV Manual 5210.1, part I, page 6, paragraph 16.

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 UAVs.
- (2) Parts separating from one aircraft damaging another.
- (3) Prop, jet, or rotor blast from one aircraft damaging another.
- (4) In-flight refueling mishaps.
- (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 that 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 obtain 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 that would not have been discovered but for information provided under a promise of confidentiality is privileged. Members of the AMB may give promises of confidentiality. 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 promise that their statements will not be released. 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 (FOIA) requests. The written advice to be given to witnesses is found in OPNAV 3750/16 Safety

Investigation Report Enclosure (Promise of Confidentiality) Advice to Witness, for those given a promise of confidentiality, and in OPNAV 3750/16 Safety Investigation Report Enclosure Advice to Witness, 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, naval aviation personnel 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, and then destroy them.

(2) Investigations. Personnel assigned to naval aviation mishap investigations 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 non-privileged 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 or 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 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: air traffic control center raw radar plots and associated audio tracks, control tower radio communications tapes, Heads Up Display (HUD) tapes, Pilot Landing Aid Television (PLAT) tapes, forward looking infrared and radar Video Tape Recorder (VTR) tapes, and data from mission computers and Flight Data Recorders (FDRs). All such data in this raw, undisturbed state is real evidence.

However, if as part of the AMB's deliberative process, 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 individual responsibilities connected with a mishap investigation. (See paragraph 107).

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 member must be sure their board is trained and ready to investigate mishaps.

(2) Changes in Board Membership. When changes in board membership are necessary, it is the responsibility of the senior member to recommend to the appointing authority changes of AMB membership to comply with this instruction. The senior member may also recommend additional members be seated as required by the investigative effort. For example the Aeromedical Safety Officer (AMSO) can provide valuable information in reference to many physiological and aviation life support systems concerns.

(3) Use of Board Members. The senior member 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, Volumes I through II, Technical Manual, Safety Investigation

Techniques, and Aviation Safety Programs, Aircraft Mishap Investigation Notebook explains 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 that 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 that 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, naval aviation personnel 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) Maintenance Records and Aircrew Logbooks. Due to the flight data reporting requirements outlined in this instruction and the fact that maintenance and pilot logbooks/training jackets are often valuable evidence in the investigation process, squadron pre-mishap plans should identify personnel to immediately retain and impound all records pertaining to the mishap aircraft and aircrew. At a minimum, the following records should be retained: pilot/aircrew logbooks, training records, health records, flight schedules, weather brief (including existing and forecast weather at the time of mishap), and aircraft maintenance records and logbooks.

Squadrons that use Naval Aviation Logistics Command Management Information System for Organizational Maintenance Activities (NALCOMIS/OMA) should perform a Sybase data backup and make a copy of the mishap aircraft's automated Aircraft Discrepancy Book in Powersoft Report format following notification of an aircraft mishap.

(4) Medical Evidence. Because medical evidence is quickly lost, the AMB flight surgeon must be immediately notified when a mishap occurs. The flight surgeon is primarily concerned with medical, physiological, social, behavioral and psychological factors, which may reveal mishap causal factors. The flight surgeon must coordinate the 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 help insure the contents the Aeromedical Analysis (AA) and the SIR are coordinated and complementary.

(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 their 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 that 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. Flight surgeons shall request 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 following Class C mishaps and incidents with potential to meet defined naval mishap limits, biological sampling shall take place immediately after the mishap. The importance of this knowledge is unrelated to the severity of the mishap. Include biological sampling policies that conform to current Navy and DoD directives in every Pre-Mishap Plan. Take sufficient blood and urine quantities for blood alcohol, carbon monoxide, drug screen, hematocrit, 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.

1. The results of toxicology tests on biological samples are factual data releasable to other investigators and are available under FOIA. Results for each individual tested will be recorded on a separate Appendix N Form SIR 3750/3 and submitted as an attachment on side A of the SIR.

2. Per SECNAVINST 5300.28D, enclosure (2), subparagraph 3a(4) and paragraph 4, this testing is considered command-directed and results can be used for administrative purposes but not for disciplinary purposes.

3. Chain of custody for biological samples sent to the AFIP shall be maintained and recorded on AFIP Form 1323 (current version).

(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 0815, chapter 8, Navy Regulations 1990), BUMEDINST 6510.2F and article 17-2, Manual of the Medical Department (NAVMED P-117)) 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. A waiver or a release from the local coroner or medical examiner must be obtained 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 for details.

(f) Drug-Assisted Interviews and Hypnotic Techniques. Drug-assisted interviews and hypnosis are prohibited without the specific, written authority of Commander Naval Safety Center/Special Assistant for Safety Matters (OPNAV N09F). 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.)

(g) Fatigue, and Fatigue-Modeling Software. Fatigue resulting from sleep deprivation, circadian desynchronization, and/or associated conditions is the most frequently-cited aeromedical causal factor in naval aviation mishaps. Fatigue is four times more likely to contribute to workplace impairment than drugs or alcohol. Flight surgeons shall use fatigue-modeling software on all 72-hour and 14-day histories to assist in the investigation of fatigue as a possible mishap causal factor. The Fatigue Avoidance Scheduling Tool (FASTtm) is the most commonly-used software program, and information on obtaining this tool, and others such as FlyAwake, is available on the Naval Safety Center Web site: <http://safetycenter.navy.mil/aviation/aeromedical>, and from the Aeromedical Division at the Naval Safety Center.

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 (see 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. 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. Drawing upon Reason's (1990) and Wiegmann and Shappell's (2003) concept of active failures and latent failures/conditions, a taxonomy was developed to identify hazards and risks called the DoD Human Factors Analysis and Classification System (HFACS). Guidance for use of the HFACS taxonomy as well the detailed nanocodes guidance can be found at: <http://www.safetycenter.navy.mil/aviation/index.asp> . HFACS describes four main tiers of failures or conditions called Acts, Preconditions, Supervision, and Organizational Influences. Investigators will determine and select the appropriate HFACS tiers, categories, subcategories and nanocodes associated with accepted causal factors. A brief description of the major tiers, beginning with the tier that is usually most closely tied to the mishap (Acts), with associated categories and sub-categories follows:

1. Acts. Acts are those factors that are most closely tied to the mishap, and can be described as active

failures or actions committed by the operator that result in human error or unsafe situation. Human factors analysts have identified these active failures or actions as Errors and Violations.

a. Errors. Errors are factors in a mishap when mental or physical activities of the operator fail to achieve their intended outcome as a result of skill-based, perceptual, or judgment and decision making errors, leading to an unsafe situation. Errors are unintended. Human factors analysts classified Errors into three types called Skill-Based, Judgment and Decision Making, and Misperception Errors. Using this error analysis process, the investigator must first determine if an individual or team committed an active failure. If so, the investigator must then decide if an error or violation occurred. Once this is done, the investigator can further define the error as:

(1) Skill-based Errors. Skill based errors are factors in a mishap when errors occur in the operator's execution of a routine, highly practiced task relating to procedure, training or proficiency and result in an unsafe situation. Skill-based Errors are unintended behaviors.

(2) Judgment and Decision Making Errors. Judgment and Decision making errors are factors in a mishap when behavior or actions of the individual proceed as intended yet the chosen plan proves inadequate to achieve the desired end-state and results in an unsafe situation.

(3) Misperception Errors. Misperception errors are factors in a mishap when misperception of an object, threat or situation (such as visual, auditory, proprioceptive, or vestibular illusions, cognitive or attention failures) results in human error.

b. Violations. Violations are factors in a mishap when the actions of the operator represent willful disregard for rules and instructions and lead to an unsafe situation. Unlike errors, violations are deliberate.

2. Preconditions. Preconditions are factors in a mishap if active and/or latent preconditions such as conditions of the operators, environmental or personnel factors

affect practices, conditions or actions of individuals and result in human error or an unsafe situation. In this error analysis model, preconditions include Environmental Factors, Condition of the Individuals and Personnel Factors.

a. Environmental Factors. Environmental factors are factors in a mishap if *physical* or *technological* factors affect practices, conditions and actions of individuals and result in human error or an unsafe situation. Environmental factors include:

(1) Physical Environment. Physical environment are factors in a mishap if environmental phenomena such as weather, climate, white-out or dust-out conditions affect the actions of individuals and result in human error or an unsafe situation.

(2) Technological Environment. Technological environment are factors in a mishap when cockpit/vehicle/workspace design factors or automation affect the actions of individuals and result in human error or an unsafe situation.

b. Condition of the Individual. Condition of the individual are factors in a mishap if cognitive, psycho-behavioral, adverse physical state, or physical/mental limitations affect practices, conditions or actions of individuals and result in human error or an unsafe situation. Conditions of the Individual include:

(1) Cognitive Factors. Cognitive factors are factors in a mishap if cognitive or attention management conditions affect the perception or performance of individuals and result in human error or an unsafe situation.

(2) Psycho-Behavioral Factors. Psycho-Behavioral factors are factors when an individual's personality traits, psychosocial problems, psychological disorders or inappropriate motivation creates an unsafe situation.

(3) Adverse Physiological States. Adverse physiological states are factors when an individual

experiences a physiologic event that compromises human performance and this decreases performance resulting in an unsafe situation.

(4) Physical/Mental Limitations.

Physical/mental limitations are factors in a mishap when an individual lacks the physical or mental capabilities to cope with a situation, and this insufficiency causes an unsafe situation. This often, but not always, indicates an individual who does not possess the physical or mental capabilities expected in order to perform the required duties safely.

(5) Perceptual Factors. Perceptual

factors are factors in a mishap when misperception of an object, threat or situation (visual, auditory, proprioceptive, or vestibular conditions) creates an unsafe situation. If investigators identify Spatial Disorientation (SD) in a mishap the preceding causal illusion should also be identified. Vice versa, if an illusion is identified as a factor in a mishap then the investigator should identify the resultant type of SD.

c. Personnel Factors. Personnel factors are factors in a mishap if self-imposed stressors or CRM affects practices, conditions or actions of individuals, and result in human error or an unsafe situation. Personnel factors include:

(1) Coordination/Communication/Planning.

Coordination/communication/planning are factors in a mishap where interactions among individuals, crews, and teams involved with the preparation and execution of a mission resulted in human error or an unsafe situation.

(2) Self-Imposed Stress. Self-imposed

stresses are factors in a mishap if the operator demonstrates disregard for rules and instructions that govern the individual's readiness to perform, or exhibits poor judgment when it comes to readiness and results in human error or an unsafe situation. These are often violations of established rules that are in place to protect people from themselves and a subsequent unsafe condition. One example of self-imposed stress is drinking alcohol prior to operating a motor vehicle.

3. Supervision. 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.

a. Inadequate Supervision. The role of supervisors is to provide their personnel with the opportunity to succeed. To do this, supervisors must provide guidance, training opportunities, leadership, motivation, and the proper role model, regardless of their supervisory level. Unfortunately, this is not always the case. It is easy to imagine a situation where adequate Crew Resource Management (CRM) training was not provided to an operator or team member. Conceivably, the operator's coordination skills would be compromised, and if put into a non-routine situation (e.g., emergency), would be at risk for errors that might lead to a mishap. Therefore, the category Inadequate Supervision accounts for those times when supervision proves inappropriate, improper, or may not occur at all. Inadequate Supervision is a factor in a mishap when supervision proves inappropriate or improper and fails to identify a hazard, recognize and control risk, provide guidance, training and/or oversight and results in human error or an unsafe situation.

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 problems can arise when two individuals with marginal skills are paired together. 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 operators together on the most difficult missions may not be prudent. Planned Inappropriate Operations is a factor in a mishap when supervision fails to adequately assess the hazards associated with an operation and allows for unnecessary risk. It is also a factor when supervision allows non-proficient or inexperienced personnel to attempt missions beyond their capability or when crew or flight makeup is inappropriate for the task or mission.

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. This is a factor in a mishap when supervision fails to correct known deficiencies in documents, processes or procedures, or fails to correct inappropriate or unsafe actions of individuals, and this lack of supervisory action creates an unsafe situation.

d. Supervisory Violations.

Supervisory Violations, on the other hand, are reserved for those instances when supervisors willfully disregard existing rules and regulations. 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. Supervisory Violations is a factor in a mishap when supervision, while managing organizational assets, willfully disregards instructions, guidance, rules, or operating instructions and this lack of supervisory responsibility creates an unsafe situation.

4. Organizational Influences.

Fallible decisions of upper-level management directly affect supervisory practices, as well as the conditions and actions of operators. These latent conditions generally involve issues related to Resource/Acquisition Management, Organizational Climate, and Organizational Processes. Organizational Influences are factors in a mishap if the communications, actions, omissions or policies of upper-level management directly or indirectly affect supervisory practices, conditions or actions of the operator(s) and result in system failure, human error or an unsafe situation.

a. Resource/Acquisition 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 related to equipment design, including the purchasing of unsuitable equipment, inadequate design of workspaces, and failures to correct known design flaws. Management should ensure that human-factors engineering principles are known and utilized and that existing specifications for equipment and workspace design are identified and met. Resource/Acquisition Management is a factor in a mishap if resource management and/or acquisition processes or policies, directly or indirectly, influence system safety and result in poor error management or create an unsafe situation.

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., those that 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 the 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. Organizational Climate is a factor in a mishap if organizational

variables including environment, structure, policies, and culture influence individual actions and results in human error or an unsafe situation.

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 include operational tempo, time pressures, production quotas, incentive systems, and schedules. When set up inappropriately, these working conditions can be detrimental to safety. "Procedures" are the official or formal procedures as to how the job is to be done. Examples include performance standards, objectives, documentation, and instructions about procedures. 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. Organizational Processes is a factor in a mishap if organizational processes such as operations, procedures, operational risk management and oversight negatively influence individual, supervisory, and/or organizational performance and result in unrecognized hazards and/or uncontrolled risk and lead to human error or an unsafe situation.

(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. If that is the case, select a causal factor and the appropriate HFACS in addition to the accepted material factor. Causal factors involving resource or acquisition management may require HFACS selection starting and finishing at the Organizational Influences tier. Including material factors in the set of mishap causal factors is important because, while human factors are likely to be 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, the AMB

includes 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. The set of elements for material factors is Component, Mode, and Agent. There is no matrix comparable to HFACS 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. The AMB will address "human factor" agents as separate causal factors and will analyze them using HFACS 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 that 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 AMB 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 AMB 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 that causes unnecessary or avoidable damage, just as what causes injury during a mishap is any hazard that 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 injuries 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 the 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?" Do not 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 or physiological issues can be found at local naval medical facilities, AMSO personnel, Naval Operational Medicine Institute, Naval Survival Training Institute and its Aviation Physiology and Water Survival Training Centers, AFIP, and the National Institute of Health. Technical assistance is available from: Fleet Readiness Centers, 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 http://www.safetycenter.navy.mil/staff/staffdirectory/Website_Directory_Jan09.doc 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 a flight surgeon, 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. The 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 Fleet Support Team. (See COMNAVAIRFORINST 4790.2A.) 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. EIs 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 non-privileged status and threaten the Naval Aviation Mishap Investigation System.

g. EIs 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 under COMNAVAIRFORINST 4790.2A. AMBs must request an ALSS EI through the reporting custodian as follows:

(1) Mishaps Involving Ejection Seat Equipped Aircraft

(a) AMBs must examine ejection malfunctions as a total system. Ship the ejection seat(s), 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 Manager for Aircrew Systems (PMA-202) has chartered and funded PMA-202J to set up the Aircrew Systems Mishap Investigation Support Team (MIST) 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 EIs.

(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 Naval Air Warfare Center Weapons Division (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.

(b) 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.

(c) In all cases in subparagraph 608g(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. EIs 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 least 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 COMNAVSAFECEN 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) 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 disposition messages.

b. Obliterating and Marking Abandoned Wrecked Aircraft. To forestall any reinvestigation of mishaps, obliterate all wreckage left at the crash site. If this cannot 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 (SAR) 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 cognizant fleet commander 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//N88/N09F/N09FB/N31//
CMC WASHINGTON DC//A/SD// (as appropriate)
COMNAVSEASYS COM WNY DC//00C//
COMNAVAIRSYS COM PATUXENT RIVER MD
COMLANTFLT NORFOLK VA (for Atlantic)
COMPACFLT PEARL HARBOR HI (for Pacific)
COMUSNAVEUR LONDON UK (for Europe and West Africa)
COMUSNAVCENT (for Middle East and Eastern Africa)
COMSIXTHFLT (for Europe and West Africa)
COMFIFTHFLT (for Middle East and Eastern Africa)
COMTHIRDFLT (for Eastern Pacific)
COMSEVENTHFLT (for West Pacific and Far East)
COMNAVSURFOR 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 commander has the option to salvage the wreckage. OPNAV (N31) will liaison with the Supervisor of Salvage, Naval Sea Systems Command (OOC), for assignment to a civilian contractor, if the fleet commander 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 STANAG 3531, as international agreements between the U.S. 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 aeromedical specialist 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 its 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 affected 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.

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 General Administrative (GENADMIN) traffic, during the endorsement process. Do not ask for a review of the SIR, inside or outside of the endorsing chain, prior to SIR transmittal. If you would like assistance with the SIR, contact the NAVSAFECEN investigator who assisted with the mishap investigation, or your type-model-series analyst at the NAVSAFECEN.

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 5C.)

704. ORIGINATOR

The Senior Member of the AMB writes the SIR and, using the appointing authority's plain language address, 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 (RACs) 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 SIR "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 reason(s) for your request; "administrative delay," or "investigative delay" is 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 61, via registered mail, return receipt requested. SIR messages and SIR enclosures are distributed differently:

a. Safety Investigation Report Message

(1) Address SIR messages as delineated in appendix 7A or 7B.

(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 sections 7503, 7405, 7513, 7514, 7121, 7701, 7702 and 7703 to title 5, United States Code.

(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 61
375 A Street
Norfolk, VA 23511-4399

(2) Submit three or four additional partial packages for all mishaps when an AA is prepared. Mail one copy of the SIR message, one copy of the AA and AA enclosures, and one copy of each appendix N enclosure form to:

Commander, Naval Safety Center
Attn: Code 14
375 A Street
Norfolk, VA 23511-4399
(See paragraphs (3) and (4) below)
(Enclose electronic copy of AA on optical media (CD or DVD))

Aircraft Controlling Custodian
Attention: Command Surgeon

OIC, Naval Aerospace Medical Institute
220 Hovey Road
Pensacola, FL 32508-1047

When a fatality is involved:

Office of the Armed Forces Medical Examiner
Armed Forces Institute of Pathology
1413 Research Blvd.
Building 102
Rockville, MD 20850
(See paragraph (5) below)

(3) Autopsy photos, other photos of the deceased or otherwise sensitive or privileged photos shall be properly marked and sealed in a separate envelope. In addition to data identifying the mishap (date, squadron, aircraft model, submitting flight surgeon's name), the envelope shall be plainly marked: **"PASS DIRECTLY TO THE AEROMEDICAL DIVISION, NAVAL SAFETY CENTER."** Please send only relevant photographs depicting aeromedical or physiological evidence that support findings in the AA.

(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 only.

(5) If AFIP does not have a set of these photographs (perhaps they did not visit the crash site and attend the autopsy), ensure that they receive a copy along with radiographs, radiology reports, lab reports and the coroner's report.

(6) The AA and SIR contain privileged and sensitive information and shall not be sent via email over Non-Secure Internet connections.

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, AA, and Appendix N forms 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 subparagraph 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 non-privileged 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.

c. Organizational distribution lists for dissemination of SIRs (FOUO //N03752//) electronically via any message dissemination software should be limited to only individuals requiring immediate access, i.e., CO, XO and safety department personnel.

710. INDEPENDENCE OF SAFETY INVESTIGATION REPORTS

a. Do not append, or extract excerpts, from Part A or Part B of an SIR for inclusion in a JAG Manual Investigation Report, nor 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 for Navy personnel, Field

Flight Performance Boards for Marine Corps personnel, or any other administrative action in connection with the mishap being reported.

711. FOR OFFICIAL USE ONLY

SIRS are FOUO. See SECNAVINST 5510.36A.

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) 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) This instruction prescribes 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 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 USMTF rules.

(2) Headings. Place one of the following headings at the beginning of the text:

Safety Investigation Report when the 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 severity, mishap category, mishap type, 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, SQUADRON SHORT TITLE, SEVERITY, CATEGORY, TYPE, EVENT SERIALIZATION//

Safety Investigation Report when the Reporting Custodian is 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 severity, mishap type, 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, SQUADRON SHORT TITLE, CLASSIFICATION, EVENT
SERIALIZATION//

(3) Next, insert the references and immediately after RMKS the Limited-Use Statement:

REF/A/DOC/OPNAVINST 3750.6R/-//
REF/B/DOC/JAGINST 5800.7D/-//
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)//

GENTEXT/REMARKS/*****

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 UNDER 5 USC 7503, 7405, 7513, 7514, 7121,
7701, 7702 and 7703. THIS REPORT MAY NOT BE RELEASED, IN WHOLE
OR IN PART, EXCEPT BY THE COMMANDER NAVAL SAFETY CENTER.

1. MISHAP INFO:

(4) Remainder of the Text:

A. THIS REPORT CONCERNS A (routine or severe) HAZARD TO
NAVAL AVIATION. If the criteria in paragraph 704 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 information on all causal factors of the mishap and causal factors of other damage or injury. Do not state causal factors verbatim. However, the narrative must make it readily apparent to the reader what mishap events lead to an accepted causal factor. 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 non-privileged 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 and any amendments. This is always the first non-privileged enclosure.

(2A) SIR ENCLOSURE FORMS (appendix N).

(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) Non-privileged witness statements that were used as evidence. If all witnesses were given a promise of confidentiality, state, "NONE."

(4A) Subsequent non-privileged 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) ALL ACRONYMS, ABBREVIATIONS AND DEFINITIONS USED IN THIS SIR ARE IAW APPENDIX P OF REF A WITH THE FOLLOWING EXCEPTIONS:

(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 non-privileged 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 non-privileged 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 under-

standing 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 succinctly. Compile this listing of factual evidence without regard to the source. It must include all the evidence that 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. 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. HUMAN FACTOR - (Describe causal factor in a terse sentence or phrase.) Causal factors are specific acts of omission or commission. Thus, the hazard statement must contain an individual-Act 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 the DoD HFACS using the nanocodes, subcategories, and categories that are found in the tiers of Act, Preconditions, Supervision and Organizational Influences, as applicable. Insert nanocodes from the guidance at: <http://www.safetycenter.navy.mil/aviation/index.asp> at the appropriate location in the analysis paragraphs to show your selection rational. HFACS analysis may lead you to develop separate causal factors, especially if you find more than one Error or Violation under Acts, associated with one individual or

more than one individual is associated with the same Act. If the accepted causal factor results in a start at an HFACS tier higher level than Acts (e.g., Supervision or Organizational Influences), ensure only one tier with associated category, sub-category and nanocode combination is used with one accepted Who. Accepted causal factors never can start at Preconditions. 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 Act. For each accepted causal factor, add HFACS elements in ascending order

ACT:

PRECONDITIONS:

SUPERVISION:

ORGANIZATIONAL INFLUENCES:

with the appropriate factor, nanocode and the plain language of the nanocode. There is only one Act selection per causal factor. There may be more than one, or there may be no Preconditions, Supervision and Organizational Influences HFACS tiers listed when starting at the Act tier. For example:

E. HUMAN FACTOR - PILOT AT CONTROLS FAILED TO LOWER THE LANDING GEAR. ACCEPTED. THE PILOT STATED A RADIO CALL INTERRUPTED HIS LANDING CHECKS (AE-102, PC-106), BUT HE THOUGHT HE LOWERED THE GEAR. AN E.I. REVEALED LANDING GEAR SYSTEM WAS FULLY OPERATIONAL AT THE TIME OF THE MISHAP AND POST-MISHAP INVESTIGATION AND PHOTOGRAPHS INDICATE THE LANDING GEAR HANDLE IN THE UP POSITION. MISHAP PILOT HAD ONLY FOUR HOURS SLEEP (PC-307) PRIOR TO THE FLIGHT. THE COMMAND DID NOT HAVE AN ADEQUATE DUTY OFFICER INSTRUCTION AND THE DUTY OFFICER CALLED THE PILOT TO ANSWER SCHEDULING QUESTIONS THEREBY, NOT ALLOWING HIM THE REST REQUIRED BY OPNAVINST 3710.7 (SV-001). 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 A RADIO CALL.

HUMAN FACTOR: PILOT AT CONTROLS FAILED TO LOWER THE LANDING GEAR. RAC-1

ACT: SKILL BASED ERROR, AE 102 - CHECKLIST NOT FOLLOWED CORRECTLY.

PRECONDITIONS: ADVERSE PHYSIOLOGICAL STATES, PC-307 - FATIGUE (SLEEP DEPRIVATION).

PRECONDITIONS: AWARENESS COGNITIVE FACTOR. PC-108 -
INTERFERENCE/INTERRUPTION DURING TASK.
SUPERVISION: SUPERVISORY VIOLATION. SV 001 - FAILURE TO
ENFORCE EXISTING RULES.
ORGANIZATIONAL INFLUENCES: NONE

or

A. MATERIAL FACTOR - (Describe causal factor in terse sentence or phrase.) The hazard statement must contain a "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 which gave rise to a particular causal factor. Analysis may lead you to develop 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 what part failed, how it failed and why. There can be multiple AGENTS. For each accepted causal factor, add causal factor elements using

COMP: (List component element.)
MODE: (List mode element
AGENT: (List agent element.)

For example:

MATERIAL FACTOR: NUMBER 3 TAIL ROTOR DRIVESHAFT VISCOUS DAMPER BEARING FAILED
COMP: VISCOUS DAMPER BEARING
MODE: FAILED
AGENT: FRICTION
AGENT: HEAT
AGENT: WEAR

Keep in mind that an accepted Material Factor may require an associated Human Factor. The Human Factor may start at the Acts tier and have associated Preconditions, Supervision and Organizational Influences or it may start and end at the Organizational Influences tier. For example:
HUMAN FACTOR: ACQUISITION COMMAND FAILED REPLACE COMPONENT THAT WORE OUT FASTER THAN EXPECTED. RAC 2

ACT: NONE
PRECONDITIONS: NONE
SUPERVISION: NONE
ORGANIZATIONAL INFLUENCES: RESOURCE/ACQUISITION MANAGEMENT.
OR 005 - FAILURE TO REMOVE INADEQUATE/WORN-OUT EQUIPMENT IN A
TIMELY MANNER.

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: HUMAN FACTOR 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." It helps to discuss the events and possible causal factors in chronological sequence. Your analysis of this hazard must support its acceptance as a causal factor. Next is 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 ACT and the Preconditions, Supervision factors and Organizational Influences that led to the ACT. 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 "HFACS analysis" 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, "appropriate human factors failure" or failure "MODE" from hazard statement) BECAUSE. From above analysis, state the Preconditions, Supervision and Organizational Influences or

"AGENT(S)") which caused the specific act of omission or commission. All accepted causal factors will normally include an ACT and may include PRECONDITIONS, SUPERVISION and ORGANIZATIONAL INFLUENCES and for Material Factors must include COMPONENT/MODE/AGENT. Select HFACS nanocodes from guidance at: <http://www.safetycenter.navy.mil/aviation/index.asp> . Describe material causal factors in plain language using standard nomenclature, as explained in subparagraph 607d(1)(b). When reading paragraph 1.B. narrative you must be able find linkage to those causal factors that are accepted in paragraph 11 and the causal factors causing other damage or injury subparagraphs (paragraphs 12.A. and 12.B.). Exercise care to keep emotions out of this and all other sections of the SIR. 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.

C. Subsequent causal factor as determined by AMB from the evidence.

D. Etc.

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 707d(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. RAC 3. (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. Do

not report hazards in the SIR that are not accepted as causal factors in paragraph 12.A. and 12.B. Send a separate Hazard Report in such cases. 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.

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 non-privileged 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 (Non-privileged 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 an 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 FMs 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 FMs and FRMs 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 non-privileged (see subparagraph 708d). After removing any privileged captions or markings, place a copy of all non-privileged photographs in Part A. See subparagraph 716d(3)(b)5 for AA and autopsy photographs and paragraph 716d(2) for information on other Part B photographs.

(5) Sketches and Diagrams. Submit only if needed to clarify events that are difficult to explain in the text of the report. Never include information from sources that have been promised confidentiality, or anything that 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 FDRs, Flight Incident Recorders (FIRs), CVR, VTRs, and mission computers recovered from mishap aircraft are invaluable to the AMB's analysis. Properly preserving and transporting these "black boxes" directly affects the success of data retrieval.

(a) Never open or tamper with any recording or memory device.

(b) For any data recorders, HUD recorders contaminated by water, fuel, hydraulic fluid, foam, etc., soak

and rinse them in de-ionized or distilled water to flush any sources of corrosion. Keep them immersed until sealed in an airtight 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 devices with proper labeling that lists 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) 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."

(f) Mail via fastest traceable means available or hand carry to the appropriate fleet support team lead.

(g) For other models of FIRs, contact COMNAVSAFECEN Aircraft Mishap Investigation Division concerning shipping instructions. (See appendix D.)

(8) Autopsy Protocol Reports. Include laboratory and X-ray reports, if applicable.

(9) Other Non-privileged 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 all the aeromedical conditions that flight surgeon determined shall be listed using the 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. HFACS guidance can be found at:

<http://www.safetycenter.navy.mil/aviation/index.asp>. Note that the official causal factors of the mishap are defined using HFACS. HFACS listed by the flight surgeon need not agree with the SIR accepted causal factors and HFACS. Flight surgeons HFACS analysis is to be completed prior to AMB HFACS deliberations.

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 non-privileged supporting documentation (such as radiology slips) on the non-privileged 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.)

(4) 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.

(a) Aircrew Statements. If possible, enclose a statement made by everyone who ejected, bailed out, made an emergency egress, or was rescued in an 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.

(b) Landing Signal Officer (LSO)/Landing Signalman Enlisted (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:

1. A complete account of the mishap from their viewpoints.

2. An analysis of the pilot's landing grades for the previous 30 days (use OPNAV 3760/71).

3. Applicable items requested by section VII of the LSO NATOPS Manual.

(c) 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.

(5) 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 are privileged. Include it in Part B only. The above guidelines specifically apply to the following types of data often included in the SIR:

(a) 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.

(b) 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.

(c) Weight and Balance. Submit weight and balance information gathered directly under a specific AMB ordered test in part B only, even if a DD Form 365-4 Weight and Balance Clearance Form F - Transport/Tactical was prepared before the mishap and was submitted in Part A.

(d) Electronic Information. Summarize all electronic information, such as National Track Analysis Program, Air Combat Maneuvering Range 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.

(e) Flight Incident Recorders. Information developed from the raw data contained in FIRs 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.

(f) 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. PILOT LANDING AID TELEVISION (PLAT) 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 that would degrade ability of the fleet to perform its mission. Classify them per

OPNAVINST 5513.2C, enclosure (1), which includes Security Classification Guide 02-105 PLAT/ILARTS Tapes. COMNAVSAFECEN (10A) 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, Date Time Group (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, pre-briefing, 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 non-concurrence) 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 SIR can be produced.

APPENDIX 7A
ADDRESSEES FOR SIRS WHEN CAD ASSIGNED

<u>ACTION ADDRESSEES</u>	<u>WHEN</u>
CNO WASHINGTON DC//N88// COMNAVSAFECEN NORFOLK VA//00/10/11// COLLECTIVE ADDRESS DESIGNATOR (CAD)* OTHER COMMANDS IN ENDORSING CHAIN (if not in CAD)	Always
CMC WASHINGTON DC//-A/SD// OTHER NAVAL ACTIVITIES	USMC involvement Corrective action is (recommended to be taken by that activity.) (Even if activity is on CAD.)

<u>INFORMATION ADDRESSEES</u> (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// USACRC RUCKER//CSSC-Z// COMDT COGARD WASHINGTON DC//CG-1131//	Common aircraft/engine (see appendix H) or any aircraft, facilities of that service (as appropriate) is involved
HELSEACOMBATRON TWO EIGHT HELSEACOMBATRON THREE BUMED WASHINGTON DC//23/23A/231// NAVOPMEDINST DET NAVAEROMEDINST PENSACOLA FL NAVAIRWARCENWPNDIV CHINA LAKE CA NAVAIRWARCENACDIV PATUXENT RIVER MD	Helicopter shipboard mishap involving LSE 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
HELSEACOMBATRON THREE	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

<u>ACTION ADDRESSEES</u>	<u>WHEN</u>
CNO WASHINGTON DC//N88// CONTROLLING CUSTODIAN COMNAVSAFECEN NORFOLK VA//00/10/11/FILE// ENDORING CHAIN CHAIN OF COMMAND TO FIRST FLAG LEVEL OTHER ACTIVITIES COGNIZANT FOR SAME AIRCRAFT	Always
CMC WASHINGTON DC//-A/SD// REPORTING CUSTODIAN	USMC involvement 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

INFORMATION ADDRESSEES (or action addressees if action is recommended to be taken by the addressee)

COMNAVAIRSYS COM PATUXENT RIVER MD	Always
NAVAVSCOLSCOM PENSACOLA FL/N3E//	Always
COMNAVSEASYS COM WNY DC	
COMNAVAIRLANT NORFOLK VA	
COMNAVAIRPAC SAN DIEGO CA	
COMMARFORCOM//DSS//	
COMMARFORPAC//SAFETY//	
CG FOURTH MAW	
COMNAVAIRFORES SAN DIEGO CA	
CNATRA CORPUS CHRISTI TX	
BUMED WASHINGTON DC//23/23A/231//	
NAVOPMEDINST DET NAVAEROMEDINST PENSACOLA FL	
NAVSTKAIRWARCEN FALLON NV	
NAVAIRWARCENACDIV PATUXENT RIVER MD	
NAVAIRWARCENACDIV PATUXENT RIVER MD	
HQ AFSC KIRTLAND AFB NM//SEF//	

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
DCMA HQ AO ALEXANDRIA VA	Cognizant aircraft involved
LSO SCHOOL NAS OCEANA VA	Carrier landing mishap involved
HELSEACOMBATRON TWO EIGHT HELSEACOMBATRON 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// USACRC RUCKER//CSSC-Z// COMDT COGARD WASHINGTON DC//CG-1131//	Common aircraft/engine (See appendix H) or any aircraft personnel, or facilities of (as appropriate) that service is involved
BUMED WASHINGTON DC//23/23A/231// NAVOPMEDINST DET NAVAEROMEDINST 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 AEPS devices of aircrew escape systems are involved
HELSEACOMBATRON THREE	Mishap involves a SAR effort
CNET	When formal training is involved

OTHER INFORMATION OR ACTION ADDRESSEES Never, strictly prohibited