Description of document:	Various National Transportation Safety Board (NTSB) Operating Policies 2011-2023
Requested date:	2023
Release date:	24-August-2023
Posted date:	01-July-2024
Source of document:	National Transportation Safety Board Attention: FOIA Requester Service Center, CIO-40 490 L'Enfant Plaza, S.W. Washington, DC 20594-2000 Fax: (240) 752-6257 Submit an Online Request

National Transportation Safety Board
Office of the Chief Information Officer
FOIA Office (CIO-40)
Washington, DC 20594

August 24, 2023

Re: National Transportation Safety Board (NTSB)
Freedom of Information Act (FOIA) No. FOIA-2023-00083

This letter responds to your FOIA request seeking a copy of each of the following NTSB Operating Policies: AS-INT-001, AS-INT-002, AS-INT-004, AS-INT-005, AS-INT-006, AS-INT-007, AS-INT-009, AS-INT-010, AS-INT-011, AS-INT-012, AS-INT-013, AS-INT-015, AS-INT-016, AS-INT-017, AS-INT-018, AS-INT-109, AS-INT-020, AS-INT-021, AS-INT-022, AS-INT-023, AS-INT-026, AS-INT-027, AS-INT-028, AS-INT-029, AS-INT-030, OHS-INT-001, RPH-INT-001, and ACQ-GEN-001.

The Safety Board conducted a search and located the enclosed 232 pages of responsive record. The responsive records are being released in their entirety without redactions.

The NTSB has concluded processing your FOIA request. You may contact our FOIA Requester Service Center and speak to a FOIA Analyst, or our FOIA Public Liaison at 202-314-6540, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration (NARA) to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: OGIS, NARA, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

If you are not satisfied with the response to this request, you may administratively appeal by writing to the NTSB, Attn: Ms. Dana Schulze, Managing Director, 490 L'Enfant Plaza, SW, Washington, D.C. 20594. Your appeal must be postmarked or electronically transmitted within 90 days of the date of the response to your request.

Sincerely,

for
Melba D. Moye
FOIA Officer
Office of the Chief Information Officer
National Transportation Safety Board

Enclosure

National Transportation Safety Board

Operations Bulletin AS-INT-001
Office of Aviation Safety Employee Suggestion Program

---

1. Issuing Organization. Operations Bulletin AS-INT-001 was developed by the Office of Aviation Safety (OAS) and was issued on December 12, 2005. It was reviewed on November 20, 2008; November 2, 2010; August 7, 2013; and May 23, 2017; and is due for review by May 22, 2022.

2. Purpose. Operations Bulletin AS-INT-001 provides procedures for staff to use to submit suggestions to OAS management.

3. Policy. It is NTSB policy to encourage all employees to share actively in improving government and NTSB operations.

4. Cancellation. Operations Bulletin AS-INT-001 supersedes Operations Bulletin AS-INT-001, dated August 7, 2013.

5. References. None.

6. Responsibilities.

   A. The director of OAS (or a designee) is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if needed.

      (3) Reviewing and considering all suggestions.

      (4) Providing feedback to known employee(s) responsible for each suggestion.

      (5) Maintaining a record of suggestions received and action taken (if any).

   B. The AS-1 executive staff assistant is responsible for the following:

      (1) Establishing and maintaining an electronic log to document the following information on each suggestion:

         a. Date the suggestion was received

         b. Content of the suggestion

c. The name of the Employee who submitted the suggestion (or "Anonymous", if appropriate)

d. Result of the suggestion

7. Procedures.

(1) Employees can submit suggestions by sending an e-mail to Colette Hurley (colette.hurley@ntsb.gov) with "AS Suggestion Box" in the subject line. If the employee wishes to remain anonymous, the suggestion should be mailed to Colette Hurley (AS-1) through the NTSB mail system or through the US Postal Service. "OAS Suggestion Box" should be referenced on the outside of the envelope.

(2) Suggestions will be electronically logged and forwarded to the appropriate OAS senior manager.

(3) The director of OAS (or a designee) will consider each suggestion and respond to the author(s) of the suggestion. This feedback may consist of a request for clarification or more information, information on a planned course of action or implementation, or an explanation for the lack of any action. Before implementing any procedural changes resulting from an employee suggestion, OAS management will comply with its bargaining obligations, if any, under the NTSB/AFGE Collective Bargaining Agreement.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments. None.

National Transportation Safety Board

Operations Bulletin AS-INT-002
Information Requests to the Federal Aviation Administration

1. Issuing Organization. Operations Bulletin AS-INT-002 was developed by the Office of Aviation Safety (OAS) and was issued on May 27, 2010. It was reviewed and reissued on July 30 and December 2, 2015, and January 18, 2017. It is due for review by January 17, 2022.

2. Purpose. Operations Bulletin AS-INT-002 provides procedures for staff to use when requesting information from the Federal Aviation Administration (FAA).

3. Policy. It is NTSB policy to standardize procedures used to coordinate with the Federal Aviation Administration (FAA) when requesting information necessary to conduct an aircraft accident or incident.

4. Cancellation. Operations Bulletin AS-INT-002 supersedes Operations Bulletin AS-INT-002, issued December 2, 2015.

5. References/Links. None.

6. Responsibilities.

   A. The director of OAS is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

   B. OAS staff members making the information request are responsible for contacting Anne Torgerson, Aircraft Accident Investigations (AVP-100), FAA, at (202) 267-6575 or Anne.Torgerson@faa.gov if you have not received the requested data within 20 working days.

   Note: The FAA requests 15 working days to process each request; however, some requests will take longer to process than others.

7. Procedures.

A. OAS staff making a request to FAA should go to FAA information request page to add a new request by clicking "Add new record."

(1) In column 1, add the request number. The first number is the last 2 digits of the current fiscal year (October 1 through September 30), followed by a three-digit number beginning with 001, continuing sequentially based on the previously added records.

(2) In column 2, provide a brief description of the information requested.

(3) In column 3, provide the date of the request.

(4) In column 4, provide the last name of the person making the request.

(5) Click "Add"

B. For non-air traffic control (ATC)-related data requests, access the fillable Accident/Incident Investigation Support Request form and add the following information to complete the form:

(1) From: The name and office of the NTSB employee making the request.

(2) Request Number: The number obtained from the intranet (see 7A).

(3) Date: Enter the date the request is made.

(4) Event: Briefly describe the event that initiated the event. (Example: ZAB aircraft accident, N7471P, 10/4/09)

(5) Description of Support Requested: Enter the information requested from the FAA. (Example: Blue-ribbon certified medical records for the pilot-in-command.)

(6) Under the "Description section," provide your contact information.

(7) Provide the name of the FAA coordinator.

(8) Save or print the document depending whether you email or fax the request to the FAA.

C. Either fax or email the completed sheet to Anne Torgerson, Aircraft Accident Investigations (AVP-100). The fax number is (202) 267-5043 (Attention: Anne Torgerson). Her email address is Anne.Torgerson@faa.gov.

D. Requests for ATC data (for instance, radar, audio, logs, and accident packages) made by headquarters ATC specialists should be submitted through the FAA KSN system. Regional investigators having difficulty obtaining ATC data through

their FAA coordinators and/or FAA regional service centers should contact AS-30 for assistance.

8. External Reporting Requirements. None.

9. Definitions. None.

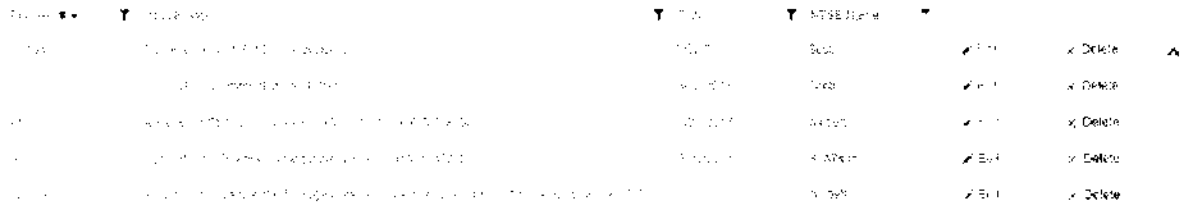
10. Attachments.

    A. Attachment 1, Sample screenshot of FAA information request page (AS FAA Emails).

    B. Attachment 2, Example of Accident/Incident Investigation Support Request Form.

Attachment 1

Sample Screenshot of FAA Information Request Page (AS FAA Emails)



Attachment 2

Example of Accident/Incident Investigation Support Request Form

NATIONAL TRANSPORTATION SAFETY BOARD

Subject: Accident / Incident Investigation Support Request
To: Federal Aviation Administration, Accident Investigation Division

From: NTSB, Name and Office: Tracy Investigator, AS-60

Request Number: 16-041 Date: 1/14/16

Event: Aircraft accident, N7471P, 12/29/15

DESCRIPTION OF SUPPORT REQUESTED

"Blue-Ribbon" medical certification records for PIC Joseph Pilot, airman certificate #123456789.

Tracy Investigator, 202-314-6699

NTSB Contact / Telephone

FAA Coordinator: Eleanor Rigby

- - - - - - - - - - - - - - For Federal Aviation Administration Use - - - - - - - - - - - - - -

Date Received _____ FAA Log Number _____

To: _____ Date Forwarded: _____

From: Manager, Accident Investigation Division

The above request has been received from the NTSB. Your support in providing the data not later than 15-working days or as soon as possible is appreciated. Please refer any questions on this matter to Ms. Anne Torgerson at (202) 267-6575.

Date returned to Accident Investigation Division _____

Received by _____ on _____

National Transportation Safety Board

Operations Bulletin AS-INT-004
Training Guidelines for Aviation Accident/Incident Investigators

1. Issuing Organization. Operations Bulletin AS-INT-004 was developed by the Office of Aviation Safety originally issued November 15, 2007 and was updated on January 6, 2011. It is due for review by January 5, 2013.

2. Purpose. Operations Bulletin AS-INT-004 provides a general description of the basic guidelines and requirements for the training of NTSB investigators who are to be assigned to aviation accident/incident investigations. This bulletin ensures compliance with current investigator training guidelines specified by the International Civil Aviation Organization (ICAO).

3. Policy. This bulletin clarifies current policy regarding training for aviation accident/incident investigators employed by the NTSB.

4. Cancellation. None

5. References.

   A. International Civil Aviation Organization (ICAO) Training Guidelines for Aircraft Accident Investigators, June 2003.

6. Responsibilities.

   A. The Director of the Office of Aviation Safety is responsible for the following:

      (1) Ensuring that the guidelines cited in this bulletin are implemented.

      (2) Acting on training requests and nominations.

      (3) Participating in the planning and execution of training by ensuring, as appropriate, that staff is available to develop courses; serving as trainers for in-house programs; and performing other related functions.

      (4) Analyzing and evaluating the effectiveness and relevancy of the training provided.

   B. Supervisors are responsible for the following:

      (1) Identifying training needs through the performance rating and appraisal process, progress reviews, as well as through other evaluation methods.

(2) Nominating employees for appropriate training.

(3) Ensuring that dates of employees' training do not conflict with important work assignments.

(4) Formally tracking and documenting all training cited in this bulletin.

C. Employees are responsible for the following:

(1) Attending and participating in training courses, briefings, and details as specified by management in accordance with this bulletin.

(2) Making appropriate recommendations, when needed to improve NTSB training.

7. Procedures.

A. Initial Training.

(1) Immediately upon date of hire, supervisors shall provide the following to their investigator trainees:

a. Documents, Manuals, and Publications. This includes, but is not limited to, Safety Board rules, orders, and definitions, ICAO Annex 13, applicable memoranda of understanding with other organizations, aircraft accident investigation protocol, equipment and tools, ethics and conduct, expenditure controls.

b. Briefing of Initial Response Procedures. This includes, but is not limited to, on-call duty, notification of other national authorities, securing of records, recordings and samples, investigator safety, recovery of human remains, requests for autopsies, and transportation disaster assistance.

c. Briefing of Investigative Procedures. This includes, but is not limited to, authority and responsibility, size and scope of investigation, use of specialists, parties to the investigation, accredited representatives, advisors, observers, and release of information to the news media.

(2) Within 30 days of date of hire, investigators shall complete training modules and familiarization of the following topics:

a. New Employee Orientation:
http://portal/WorkplaceHR/EmployeeResources/html/ntsb.htm

b. ASI Hazard Awareness Training: http://portal/Training/BPS/index.html

c. NTSB and GSA Purchase Card Training:
http://apps.fss.gsa.gov/webtraining/trainingdocs/smartpaytraining/index.cfm

d. Computer Security Awareness Training:
http://www.securityessentials.us/ntsb

e. e2 Solutions Travel Training:
https://www.cwgt.com/default.asp?PageMode=OnlineDemo

f. Docket & PDF Files Training: http://portal/Guidance/DMS-Docket-FOIA/Pages/default.aspx

g. Safety and Health Training Modules: http://portal/Training/Pages/Default.aspx

h. Proper Use of Jumpseat

i. Ethics

j. Principles of Equal Employment Opportunity

k. Employee Assistance Program

l. Freedom of Information Act

m. Electronic Aviation Data Management System (eADMS)

(3) For Regional Air Safety Investigator trainees, within three years of date of hire, the trainees shall complete assignments (for short periods of duty and familiarization as determined by supervisors and the Office Director) to the following Headquarters organizations (exceptions must be approved by the Office Director):

a. Office of Aviation Safety -- Major Investigations Division; Aircraft Engineering Division; Operational Factors Division; Human Performance and Survival Factors Division; Writing and Editing Division; Deputy Director for Regional Operations

b. Office of Research and Engineering -- Vehicle Recorders Division; Vehicle Performance Division; Material Laboratory Division

c. Office of the Managing Director -- Safety Recommendations and Quality Assurance Division

d. Office of Communications -- Transportation Disaster Assistance Division

(4) For NTSB Headquarters specialist trainees involved in aviation accident/incident investigations, within one year of date of hire, the trainee shall complete at least one temporary assignment to a Regional Office sufficient to familiarize the specialist with Regional investigations.

B. On-the-Job Training:

(1) Prior to granting authorization to conduct an aviation incident/accident investigation with no direct supervision, all investigator trainees shall receive on-the-job training and mentorship during actual investigations. The amount of this training and mentorship is dependent upon the individual skill level, experience, and performance of the trainee.

(2) More than one journeymen level investigator should participate in the on-the-job training of the trainee, and there should be more than one investigation utilized for the training, so that the trainee can obtain a variety of training experiences and perspectives.

(3) Supervisors shall ensure that they receive frequent briefings from the journeyman investigators who have been assigned to mentor the trainee in

order to adequately assess the trainee's performance and training needs. These briefings should be summarized in writing and retained by the supervisor.

(4) Upon satisfactory completion of on-the-job training, and with the consent of the supervisor, the investigator trainee shall lead at least one investigation while under the mentorship of a journeymen investigator (i.e "supervised solo"), prior to approval to lead and conduct investigations on their own and without direct supervision.

(5) Each on-the-job training experience shall be tracked, in writing, by the trainee's supervisors.

C. Basic Accident Investigation Course

(1) Within six months of date of hire, all employees of the NTSB who will serve as an investigator of aviation accidents and incidents shall successfully complete the 2-week *Basic Aviation Accident Investigation Course* (AS101) offered at the NTSB Training Center. (See Attachment 1, Course Syllabus.)

D. Additional/Advanced Accident Investigation Courses.

(1) Beginning with the second year of employment with the NTSB, investigators shall complete at least one additional/advanced course at the NTSB Training Center each year (*see* Attachment 2, List of NTSB Advanced/Additional Accident Investigation Courses), or via a commercially available course that has been approved by the AS Office Director.

(2) NTSB investigators shall attend at least two days of annual in-house standardization training. The training shall be developed by NTSB managers, and include topics regarding new accident investigation methodologies, revised procedures, report and recommendation writing, and areas that are found to be generally deficient in the performance of regional investigations.

E. Individual Development Program

(1) Within one year of hire, investigators will complete an Individual Training Program (IDP) in accordance with Operations Bulletin TC-TRN-003. The IDP is a tool to help employees chart a career path by identifying new knowledge, skills and abilities to pursue, as well as learning activities needed to reach the established goals. The IDP is used to identify short and long-range goals, developmental objectives and activities to achieve these goals.

8. External Reporting Requirements: None

9. Definitions. None

10. Attachments.

Attachment 1, Course Syllabus for the NTBS Basic Aircraft Accident Investigator Course

Attachment 2, List of NTSB Advanced/Additional Accident Investigation Courses

Attachment 1

Course Syllabus for the NTBS Basic Aircraft Accident Investigator Course

National Transportation Safety Board
NTSB Training Center

BASIC AIRCRAFT ACCIDENT INVESTIGATION COURSE

DAY ONE – Monday

1. Welcome and Introduction to Academy (0830 -0835 - 5 minutes)
2. NTSB Mission, Operating Rules and Legal Authority (0835 - 1030 - 1.75 hrs)
3. Major Domestic Investigations (1030 - Noon – 1.5 hrs)
4. TWA 800 Case Study/Tutorial (1300-1400 -1 hour)
5. Major Foreign Investigations (1400-1600 -2 hrs)
6. Assisting Family Members (1600-1700 - 1 hour)

DAY TWO – Tuesday

1. Conducting an Accident Investigation: Preparation & Initiation (0830-Noon - 3.5 hrs)
2. Conducting an Accident Investigation: On-Scene Arrival & Documentation (1300-1430 - 1.5 hrs)
3. Accident Site Management (1430-1700 -2.5 hrs)

DAY THREE – Wednesday

1. Conducting an Accident Investigation (Cont): On-Scene Wrap-up & Follow-up Investigations (0830-1030 - 2 hrs)
2. Flight Crew Operational Factors (1030 -Noon -1.5 hrs)
3. Conducting an Accident Investigation (Cont): Follow-up investigations & Preparing Reports - (1300-1430 -1-5 hrs)
4. Recorders (1500-1700 - 2 hrs)

DAY FOUR - Thursday

1. Aircraft Systems & Party Perspective (0830-1130 - 3 hrs)
2. Air Traffic Control (1230-1500 -2.5 hrs)
3. Fire-Related Accidents w/Exercise (1500-1700 - 2 hrs)

DAY FIVE - Friday

1. Fracture Recognition (0830-1030 - 2 hrs)
3. Reciprocating Engines/Propellers (1030-1230 - 2 hrs)
3. Weather-Related Accidents (1330-1500 - 1.5 hrs)
4. Survival Factors & Airports (1500-1700 -2 hrs)

DAY SIX – Monday

1. Cognitive Interviewing (0800-1100 - 3 hrs)
2. Aircraft Performance (1200-1700 - 5 hrs)

DAY SEVEN – Tuesday

1. Aircraft Performance (0800-1000 - 2 hrs)
2. Biomedical Issues in Accident Investigation (1000-1230 - 2.5 hrs)
3. Investigative Reasoning (1330-1730 -4 hrs)

DAY EIGHT - Wednesday
Class is divided into 2 groups; each segment is taught twice.

1. In -Flight Breakups and Mid-Air Collisions w/Exercise (0830-1200 & 1300-1630 -3.5 hrs)
2. Turbine Engines (0830-1200 & 1300-1630 -3.5 hrs)
3. Case Studies and Examples (1630-1700- .5 hrs)

DAY NINE, Thursday
Class is divided into 2 groups; each segment will be taught twice.

1. Major Investigation Simulation/Exercise (0830-1130 &1230-1530 -3 hrs)
2. Human Performance (0830-1130 & 1230-1530 3.0 hrs)
3. Case Studies and Examples (1530-1700 -1.5 hrs)

DAY TEN, Friday,

1. Media Relations (0830-1030 -2 hrs)
2. Safety Recommendations (1030-1130 - 1.0 hrs)
3. Board Meetings & Public Hearings (1230-1430 1 hour)
4. Wrap-up and Presentation of Certificates (1430-1500 - 30 minutes)

ATTACHMENT 2
List of NTSB Advanced/Additional Accident Investigation Courses

2011 COURSE SCHEDULE

AVIATION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Aircraft Accident Investigation (AS101)				4-15					12-23			
Rotorcraft Accident Investigation (AS102)								22-26				
Aircraft Accident Investigation for Aviation Professionals (AS 301)			23-24							26-27		
Survival Factors in Aviation Accidents (AS302)			28-31									

HUMAN FACTORS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Investigating Human Fatigue Factors (IM303)											9-10	
Cognitive Interviewing Series (IM401S)		23-24									7-8	

PHOTODOCUMENTATION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Photodocumentation Series (IM300S)					10-12							

PUBLIC AFFAIRS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Managing Communications During an Aircraft Accident or Incident (PA302)										13-14		
Managing Communications During a Major Transportation Accident (PA303) - **Upon Request**												

RAIL	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Accident Investigation Orientation (RPH301)					18-19							

TRANSPORTATION DISASTER ASSISTANCE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Family Assistance (TDA301)			8-10							4-6		
Emergency Responders (TDA402)											15-17	
Mass Fatality Incidents for Medicolegal Professionals (TDA403)								8/30-9/1				
Advanced Skills in Disaster Family Assistance (TDA405)						7-9						

National Transportation Safety Board

Operations Bulletin AS-INT-005
Access to Aircraft

1. Issuing Organization. Operations Bulletin AS-INT-005 was developed by the Office of Aviation Safety (OAS), issued on March 26, 2007. It was last reviewed on May 23, 2017, and is due for review by May 22, 2022.

2. Purpose. Operations Bulletin AS-INT-005 provides policy guidance and establishes procedures regarding the use of access to aircraft authority. Access to aircraft authority includes the authority of NTSB staff and Board members on official travel to obtain transportation on the flight deck ("ride jumpseat") of US-certificated carriers on domestic or international flights pursuant to the conditions set forth in this operations bulletin. It also includes the authority of designated NTSB employees to obtain transportation in the passenger compartment or on the flight deck at no cost to the government.

3. Policy. It is NTSB policy to authorize blanket or individual use of access to aircraft authority. The use of access to aircraft authority is considered an acceptable part of the duties of investigators and other technical personnel. This program has three objectives:

   A. To enhance the individual's knowledge and experience regarding particular types and models of aircraft, aircraft systems, aircraft operations, and other related conditions and circumstances;

   B. To provide the opportunity to observe the operation of the aircraft and acquire knowledge for an NTSB safety study, project, or investigation. (NTSB personnel do not "inspect" air carrier operations in the same sense as Federal Aviation Administration [FAA] inspectors, who often conduct inspections for regulatory, certification, and enforcement purposes. NTSB employees, in contrast, have no authority or responsibility for the operation of the aircraft but have the roles of observers and investigators); and

   C. To allow investigators the opportunity to expeditiously travel to accident sites when all normal passenger seats on the airplane are unavailable.

4. Cancellation. Operations Bulletin AS-INT-005 cancels Operations Bulletin AS-INT-005, dated July 7, 2014.

5. References.

   A. 14 *Code of Federal Regulations* (*CFR*) Part 223 of the Department of Transportation's (DOT) Economic Regulations.

      (1) Section 223.3, Mandatory free transportation.

Every air carrier shall carry, without charge, on any aircraft that it operates, the following persons:...

(b) Safety inspectors of the [NTSB] or of the [FAA] who have been assigned to the duty of inspecting during flight such aircraft or its equipment, route facilities, operational procedures, or airman competency upon the exhibition of credentials or a certificate from the agency involved in authorizing such transportation...

(2) Section 223.5, Responsibility of agencies.

The [FAA], the [NTSB], the National Weather Service, and the Postal Service shall be responsible for the following:

(a) The issuance of any credentials or certificates to their personnel eligible for free or reduced-rate transportation under this part; and

(b) The promulgation of any internal rules necessary to obtain compliance by such personnel with this part.

B. 14 *CFR* 121.547, Admission to flight deck.

(a) No person may admit any person to the flight deck of an aircraft unless the person being admitted is...

(2) An FAA air carrier inspector...or authorized representative of the [NTSB], who is performing official duties;...

(4)...Paragraph (a)(2) of this section does not limit the emergency authority of the pilot in command to exclude any person from the flight deck in the interests of safety;...

(c) No person may admit any person to the flight deck unless there is a seat available for his use in the passenger compartment, except –

(1) An FAA air inspector...or authorized representative of the [NTSB] who is checking or observing flight operations...

C. 14 *CFR* 91.11. Prohibition on interference with crewmembers.

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated.

D. NTSB Form 7000-5 booklet, "Request for Access to Aircraft or Free Transportation."

6. Responsibilities.

A. The director of OAS is responsible for the following:

(1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

(3) Maintaining oversight of the access to aircraft program.

(4) Developing and conducting programs for initial orientation and periodic recertification of employees with access to aircraft authority. (The attachment contains a training checklist to be used.)

(5) Developing and conducting periodic refresher training of OAS chiefs and other NTSB employees responsible for training authorized NTSB employees on jumpseat usage.

(6) Designating an OAS Jumpseat Coordinator to assist with the following:

a. Training for authorized NTSB employees.

b. Training for OAS chiefs and other NTSB employees responsible for training authorized NTSB employees on jumpseat usage.

c. Developing and maintaining a list of those authorized to conduct such training.

d. Maintaining the airline jumpseat contact list.

(7) Approving or denying requests for access to aircraft authority and determining whether blanket or individual authority will be granted for all NTSB employees except the Chairman, Vice Chairman, Board members, and their staff. (To grant approval for an employee who is requesting blanket authority, the director of OAS should sign the employee's credential application if the Jumpseat Authority box is checked "yes.")

(8) Reviewing requests for access to aircraft authority from the Chairman, Vice Chairman, Board members, and their staff; recommending approval or denial of each request; and forwarding requests to the Managing Director for final decision.

(9) Conducting an annual review of the list of all employees with blanket or individual access to aircraft authority to determine whether authorization is still appropriate/valid.

(10) By December 31 of each year, conducting or directing a review of the use of access to aircraft authority by all NTSB employees and reporting the results of the review to the Managing Director (and providing a copy to the Chief Financial Officer).

B. The Board members are responsible for the following:

(1) Submitting requests for credentials to the Managing Director through the director of OAS for review and processing.

(2) Purchasing a ticket for a seat in the passenger compartment of the aircraft, even if they will use the jumpseat for the entire flight.

C. The Managing Director is responsible for approving or denying requests for access to aircraft authority (forwarded by the director of OAS) from the Chairman, Vice Chairman, Board members, and their staff.

D. The OAS-1 Staff Assistant is responsible for the following:

(1) Issuing NTSB Form 7000-5 booklets to NTSB employees upon receipt of the original Access to Aircraft Training Checklist and Certification of Accomplishment of Initial Orientation (see attachment) and either (a) a copy of the employee credentials with the third paragraph authorizing the holder to obtain access to aircraft and enter the pilot compartment of such aircraft in accordance with applicable regulations (blanket access) or (b) a copy of the approved individual access to aircraft authorization (individual access).

(2) Retaining fully used NTSB Form 7000-5 booklets, along with any relevant records and the returned blue and white copies of individual NTSB Form 7000-5, for 5 years.

(3) Maintaining a current list of all employees with individual and blanket access to aircraft authority and keeping the list up to date with the latest NTSB Form 7000-5 coupon numbers used for each employee.

(4) Maintaining a tracking and auditing system for issued NTSB Form 7000-5 booklets to ensure that usage is accurately reported and that personnel return booklets upon expiration of authority, completion of booklets, or departure from the agency, whichever occurs first.

(5) Keeping an inventory of unused NTSB Form 7000-5 booklets.

E. The Administrative Operations and Security Division (AD-10) is responsible for the following:

(1) Issuing credentials that reflect blanket access to aircraft authorization for employees approved by the director of OAS. Approval will be identified via the signature of the director of OAS on the employee's credential application if the Jumpseat Authority box is checked "yes" and initialed by the employee's supervisor.

(2) Reviewing the list of employees with blanket access to aircraft authority annually with the director of OAS.

F. Employees are responsible for the following:

(1) Complying with all procedures (section 7), policies, and requirements in this operations bulletin.

(2) Completing orientation and periodic training.

(3) Obtaining a signed Access to Aircraft Certification of Accomplishment of Initial Orientation from an appropriate OAS employee (a staff member of AS-30 [Operational Factors Division] or chief of a regional office) and providing the certificate and credentials to the OAS-1 Staff Assistant to obtain the NTSB Form 7000-5 booklet.

(4) Complying with requests for information regarding the use of a jumpseat for audit or administrative purposes.

(5) Ensuring that credentials reflect blanket authorization to use access to aircraft authority or that the employee has obtained proper authorization for individual access.

(6) Adhering, at all times, to the procedures of the air carrier on which the employee has obtained access to aircraft privileges and to the Transportation Security Administration (TSA), airline, and airport security rules and policies.

7. Procedures.

A. Blanket Access.

(1) Employee should receive credentials from AD-10 that reflect authority to use access to aircraft. The employee's credential application should include approval from the employee's supervisor (initials) and from the director of OAS (signature) for blanket access. (Authorization for access to aircraft and/or changes to employee credentials must be requested by the employee's immediate supervisor to the director of OAS.)

(2) Employee should complete training/orientation, which includes a briefing on procedures/expected conduct and cockpit familiarization.

(3) Employee should receive the Access to Aircraft Training Checklist and Certification of Accomplishment of Initial Orientation (must be signed by the employee and the authorized OAS staff member who provided the training/orientation). (See attachment.)

(4) Employee should pick up an NTSB Form 7000-5 booklet from the OAS-1 Staff Assistant.

B. Individual (case-by-case) Access.

(1) Employee's immediate supervisor requests individual access to aircraft authority through the office director to the director of OAS.

(2) Once the request is approved, the employee must complete steps 2 and 3 in section 7A of this operations bulletin.

(3) Employee should pick up an NTSB Form 7000-5 booklet from the OAS-1 Staff Assistant.

(4) When using this authority, the Chairman, Vice Chairman, Board members, and any other NTSB staff members who do not qualify for blanket access shall purchase a ticket for a seat in the passenger compartment of the aircraft, even if the jumpseat will be used for the entire flight.

C. NTSB Form 7000-5 Completion (for both blanket and individual access).

(1) When jumpseating, employee should complete the following fields on the NTSB Form 7000-5 coupon (both blue and white copies) for each leg of each trip before travel begins:

a. Reason for Request (either "Must Ride" [initial launch to an accident **ONLY**] or "Space Available")

b. Name of Carrier

c. Flight Number

d. Date

e. From

f. To

g. Name of Traveler

h. Signature of Traveler

i. Title of Traveler

j. Credential No.

k. Office

(2) Employee should show the original form (blue copy) to the ticket agent. If the agent chooses not to accept the blue copy, it should be left in the booklet with the note "Void–Carrier did not accept."

(3) Employee should complete the fields listed below on NTSB Form 7000-5 after the coupon has been used or, if practical, before travel begins (must be done within 5 days after returning to office):

a. Signature of Requesting Officer (the employee's immediate supervisor)

b. Title of Requesting Officer

c. Date

(4) Employee should leave the white copy in the NTSB Form 7000-5 booklet. When the employee has used all coupons, leaves the agency, or has no further use for the booklet (for instance, individual access authorization expires), employee should return the booklet with all of the white copies intact (and blue copies, if applicable) to the OAS-1 Staff Assistant. (If the employee is traveling using individual access, the employee should return the NTSB Form 7000-5 booklet to the OAS Staff Assistant after completing the trip.)

(5) Employee should submit an electronic travel voucher for every trip for which access to aircraft authority is used, entering the sequential number of the jumpseat coupon (NTSB Form 7000-5), attaching a soft copy of each NTSB Form 7000-5 coupon used to the travel voucher in the agency's travel system, and indicating the price of an estimated comparable airline ticket in the remarks section of the travel voucher.

(6) Employee should send an email after each jumpseat flight to the OAS Jumpseat Coordinator at jumpseat@ntsb.gov with the NTSB Form 7000-5 coupon number used, the date of the flight, and basic trip information.

(7) At the end of each year, the employee should send an email to the OAS Jumpseat Coordinator at jumpseat@ntsb.gov to note the numbers of the remaining coupons in their NTSB Form 7000-5 coupon book.

D. General Practices.

(1) Board members and their staff, as well as employees in the Offices of Managing Director, General Counsel, and Safety Recommendations and Communications, must purchase a ticket for a seat in the passenger compartment of the aircraft, even if they will use the jumpseat for the entire flight. NTSB personnel using access to aircraft transportation at no cost to the government are not considered to be "safety inspectors," within the meaning of

14 *CFR* 223.3(b), but the NTSB's role can be so described generally and clearly is related to safety and inspection. NTSB personnel, therefore, meet the requirements of Part 223.3(b) for obtaining transportation at no cost. To avoid any perception of preferential treatment, Board members, their staff, and certain other NTSB employees do not accept the transportation at no cost authorized by DOT regulations but instead pay the carrier's published fare for the transportation when flying jumpseat. See section 3 of this operations bulletin.

(2) When feasible, use the airline jumpseat contact list (may be obtained from the OAS Jumpseat Coordinator) and call the airline as far in advance as possible to make travel arrangements.

(3) Inform the airline whether the request is a "Must Ride" (launch to an accident) or "Space Available" (all other travel) request.

(4) If asked, inform the gate agent that you are Cockpit Access Security System (CASS) exempt (see section 9 of this operations bulletin).

(5) Follow the airline's check-in procedures for jumpseat travel and ensure that the applicable taxes are paid for international flights.

(6) When using access to aircraft authority, carry the following:

a. NTSB ID

b. NTSB credentials (with paragraph 3) or copy of approval for individual authority

c. NTSB Form 7000-5 coupon

d. NTSB badge, if employee has one (do not show badge unless specifically asked)

(7) Complete an electronic travel voucher as specified in section 7.C.(5) above.

(8) At all times, act in accordance with instructions given in the initial orientation and during any subsequent training.

(9) Access to aircraft travel is authorized only for the purposes set forth in section 3 of this operations bulletin and shall not be used solely as a means to obtain air transportation at no cost to the government. Supervisors should not direct any employee to use access to aircraft authority in situations in which the intent of usage violates this operations bulletin. **Check the "Must Ride" block only when traveling TO the scene of an aircraft accident. Check the "Space Available" block at all other times.**

(10) Access to aircraft travel shall not be used for personal business. Do not plan indirect routings to accomplish personal business in conjunction with access to aircraft travel. Misuse of access to aircraft privileges is grounds for serious personnel action, up to and including removal from federal service. Other regulatory and statutory violations may be involved.

(11) Exercise good judgment when using access to aircraft authority. The person occupying the jumpseat on the flight deck must be mentally alert. (Otherwise, the employee should remain overnight and travel the next day, or, if

circumstances dictate that the travel must be accomplished, the employee should obtain a passenger ticket through the NTSB's travel agent in accordance with existing travel regulations).

(12) Personnel using access to aircraft should recognize that the captain is in charge of the flight and that the NTSB employee cannot invoke the NTSB's authority to gain access to an aircraft or cockpit if denied by the captain. The employee may participate in a brief, polite discussion to resolve such issues, but, if still denied access, the employee should buy a ticket for the flight (and report the event to the OAS Jumpseat Coordinator at jumpseat@ntsb.gov).

(13) Personnel using access to aircraft authority should conduct themselves in a manner compatible with the high level of safety incumbent upon the flight crew. Personnel must never interfere with the crewmembers in the performance of their duties and should engage in conversation only when a crewmember indicates that it is appropriate. Personnel should observe sterile cockpit procedures at all times. In addition, personnel using access to aircraft shall adhere to the requirements of 14 *CFR* 91.11 regarding the use of alcohol.

(14) Because passengers are likely to assume that all people in the cockpit are the carrier's personnel, NTSB personnel should dress and act in a manner that will not reflect adversely on the carrier.

(15) Personnel should not convey the impression that they are making a surveillance check on the operations of the flight.

(16) Personnel using access to aircraft authority shall adhere to the carrier's security protocols as briefed by the captain.

(17) Personnel using the jumpseat shall not ride in the passenger cabin except under any of the following conditions (and with the captain's approval):

a. The flight is of long duration and a "rest break" in the passenger section would prevent fatigue;

b. The cockpit configuration and the type and location of the jumpseat presents a cramped condition, particularly during meal service;

c. Personnel have not flown previously in the passenger compartment in the particular model aircraft and observation of and familiarization with this section of the aircraft are related to the purpose of travel; or

d. The captain requests that the employee ride in the cabin.

In the above situations, and with the permission of the captain, personnel may occupy a seat in the passenger cabin during meal service or to acquaint themselves with the configuration of the passenger compartment, provided space is available and security aspects and procedures are not compromised or violated.

(18) In cases of unusual conditions or circumstances associated with using access to aircraft authority, including reservations, check-in, and preflight and postflight activities, employees should inform their immediate supervisors and the OAS Jumpseat Coordinator at jumpseat@ntsb.gov.

(19) Federal Employees Group Life Insurance (FEGLI) basic and optional policies cover employees traveling on official business, including employees who ride in the jumpseat on the aircraft flight deck. Federal basic life and Option A-Standard insurance also include accidental death and dismemberment coverage. Personal insurance policies may contain exclusions for aviation-related death or injury. If an employee has any questions regarding his or her personal insurance policy, including the double indemnity coverage for employees traveling in the aircraft jumpseat, he/she should review the policy carefully and, if doubt still exists, consult with the insurance company or agent. Note that National Travel includes $200,000 complimentary flight insurance coverage with every ticket. If you choose to ride jumpseat without a ticket, you do not receive the flight insurance from National Travel.

8. External Reporting Requirements. None.

9. Definitions.

A. **Access to Aircraft Authority**. Access to aircraft authority includes the authority of NTSB staff and Board members on official travel to obtain transportation on the flight deck ("ride jumpseat") of US-certificated carriers on domestic or international flights pursuant to the conditions set forth in this operations bulletin. It also includes the authority of designated NTSB employees to obtain transportation at no cost to the government in the passenger compartment or on the flight deck.

B. **Blanket Access**. The authority to use access to aircraft, as needed to accomplish the objectives in section 3 (Policy) of this operations bulletin, that is given to employees who, on a regular and recurring basis (two or more times each year), may participate in the on-scene phase of aircraft accident investigations.

C. **Individual Access**. The authorization given to employees who are not regularly involved in aircraft accident investigations. This authorization is issued on a case-by-case basis.

D. **CASS**. The CASS is a direct-access database system developed by Airlines for America (A4A), in coordination with Aeronautical Radio, Inc.; the FAA; the TSA; Part 121 certificated air carriers; and labor unions. The CASS is a network of databases hosted by participating Part 121 air carriers that contains employment and security information for individuals authorized by the FAA to occupy an aircraft's flight deck jumpseat during normal operations. The system provides real-time information regarding the employment status and eligibility of an airline employee of a participating carrier. Qualifying NTSB employees authorized to access the cockpit jumpseat are afforded the authority per 14 *CFR* 121.547 and are not required to be part of the CASS database.

E. **Sterile Cockpit Procedures**. NTSB employees riding the jumpseat are considered additional crewmembers and must adhere to the sterile cockpit rule defined in 14 *CFR* 121.542, "Flight crewmember duties," which includes the following:

No flight crewmember may engage in, nor may any pilot-in-command permit, any activity during a critical phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with

the proper conduct of those duties. Activities such as eating meals, engaging in nonessential conversations within the cockpit and nonessential communications between the cabin and cockpit crews, and reading publications not related to the proper conduct of the flight are not required for the safe operation of the aircraft.

For the purposes of this section, critical phases of flight include all ground operations involving taxi, takeoff, and landing, and all other flight operations conducted below 10,000 ft, except cruise flight.

10. Attachment.

Access to Aircraft Training Checklist and Certification of Accomplishment of Initial Orientation (sample).

Attachment

Operations Bulletin AS-INT-005

Access to Aircraft Training Checklist and Certification of Accomplishment of Initial Orientation

THIS FORM IS TO BE COMPLETED BY ALL PERSONS WHOSE ACCESS TO AIRCRAFT AUTHORITY WAS AUTHORIZED AFTER March 26, 2007

Board policy states that Access to Aircraft Authority orientation/training and an understanding of Operations Bulletin AS-INT-005 are completed before using that authority. The following items must be covered before a Board member or employee is authorized to use jumpseat privileges on scheduled airline operators. Upon completion of the items, the trainee and the instructor will certify that orientation/training is complete by signing and dating this document.

- ☐ Operations Bulletin AS-INT-005, given to trainee
- ☐ Operations Bulletin AS-INT-005 major items explained to and understood by trainee
- ☐ Required NTSB identifications
- ☐ Form 7000-5 booklet, procedures, and record keeping
- ☐ Airline jumpseat phone numbers list provided

Operations Bulletin AS-INT-005 items:

- ☐ Scope and purpose of Access to Aircraft Authority
- ☐ Need for certain NTSB employees to purchase a seat in the passenger compartment
- ☐ "Blanket" (continuous) versus "individual" (case-by-case, one-time, or limited) authorization
- ☐ NTSB employees do not "inspect" the airlines
- ☐ "Must-ride" versus "space-available" status
- ☐ Cockpit Access Security System (CASS) (NTSB investigators are CASS exempt)
- ☐ Must be official business (you are in a duty status when using access to aircraft authority)
- ☐ Prohibition on use of jumpseat for transportation at no cost to the government
- ☐ Check-in arrangements
- ☐ Riding in the aircraft cabin
- ☐ Appropriate behavior and appearance (in cockpit, cabin, and gate area)

General Items:

- ☐ Suggested procedures for "listing" for the jumpseat (discussion of boarding priorities: airline, FAA, or NTSB personnel)
- ☐ Airport check-in (counter, operations area, or gate)
- ☐ Baggage check
- ☐ Gate procedures
- ☐ Introduction to crew and request for jumpseat (prior to passengers boarding) [suggest introduction to at least the lead flight attendant, who may be called "1," "Senior," etc.]
- ☐ Inform captain of reason for travel (not from the FAA)

- ❑ Obtain cockpit briefing or read cockpit briefing card (seat, oxygen mask location and on, radio communications, emergency procedures, etc.) and ask questions if necessary
- ❑ Jumpseat located in doorway
- ❑ Carry-on baggage stowage
- ❑ Gate, jetway, and cockpit conduct before departure
- ❑ Cockpit or cabin conduct after departure (when not to talk to crew)
- ❑ "Sterile cockpit" rules (during departure and arrival procedures)
- ❑ In-flight meals
- ❑ Cockpit departure procedure (when to leave)
- ❑ Cockpit layouts demonstration (actual visit, detailed briefing, or prior experience)

I certify that I have read and thoroughly understand NTSB Operations Bulletin AS-INT-005, "Access to Aircraft."

I certify that I will comply with requests for information regarding the use of jumpseat for audit or administrative purposes.

I certify that I have participated in an initial orientation relating to the use of access to aircraft authority, including an opportunity to ask any questions that I may have about Operations Bulletin AS-INT-005.

_____ _____

(Signature of employee) (Date)

_____

(Printed name of employee)

I certify that I have given an initial orientation to the above-named employee regarding proper use of access to aircraft authority.

_____ _____

(Signature of person giving orientation) (Date)

Copy to: AS-1

National Transportation Safety Board

Operations Bulletin AS-INT-006
Participation in International Aircraft Accident and Incident Investigations

1. Issuing Organization. Operations Bulletin AS-INT-006 was developed by the Office of Aviation Safety (OAS) and was issued on July 31, 2008. It was revised and reissued on October 2, 2012, November 19, 2012, and January 18, 2017, and is due for review by January 17, 2022.

2. Purpose. Operations Bulletin AS-INT-006 provides policy guidance regarding NTSB participation in international accident and serious incident investigations that occur in foreign states.

3. Policy.

   A. The NTSB, as the independent accident investigation authority of the United States, is the lead agency charged with fulfilling the obligations of the United States under the Convention on International Civil Aviation and Annex 13 to the Convention on International Civil Aviation. Annex 13 contains specific requirements for the notification, investigation, and reporting of certain incidents and accidents involving international civil aviation. The NTSB performs its responsibilities consistent with Department of State requirements and in coordination with the Department of State regarding international travel.

   B. The NTSB attempts to comply with the Standards and Recommended Practices (SARPs) for international aircraft accident and incident investigation set forth in Annex 13. However, the United States has filed "differences" with the International Civil Aviation Organization (ICAO) that specify a limited number of specific SARPs in Annex 13 with which the United States cannot adhere. These exceptions stem from US statutory limitations or prohibitions. For example, the NTSB's obligations under the Freedom of Information Act (FOIA) conflict with Annex 13's limitations on the release of investigative materials. The US-filed differences are listed in a supplement to Annex 13 (currently 10th Edition, dated July 2010).

4. Cancellation. Operations Bulletin AS-INT-006 supersedes Operations Bulletin AS-INT-006, dated November 19, 2012.

5. References.

   A. ICAO Annex 13

   B. 49 *Code of Federal Regulations* Parts 800, 830, and 831 regarding accidents and incidents of civil and public aircraft in foreign territories and international waters.

   C. *The Independent Safety Board Act of 1974*, Section 1114(f), "Foreign Investigations"

   D. Department of State eCountry Clearance (eCC) application.

6. Responsibilities.

   A. The director of OAS is responsible for the following:

      (1) Ensuring that the NTSB fulfills US obligations related to the investigation of an aircraft accident or serious incident under ICAO Annex 13, either as the state of operator, the state of registry, the state of design, or the state of manufacture. In that capacity and upon learning of the details of an aircraft accident or serious incident, the director of OAS or his/her representative will appoint a US accredited representative, as warranted, for the purpose of participating in the investigation conducted by a foreign state.

      Note: "Appoint," as used in this context, does not necessarily indicate that the accredited representative will travel to the state of occurrence. The director of OAS or his/her representative will determine whether to initiate foreign travel based on the magnitude and nature of the accident, US citizen casualties, health and security considerations at the site, and the availability of investigative personnel.

      (2) Ensuring timely communications in an efficient manner with foreign governments, including communications regarding the designation of a US accredited representative, facilitation of foreign travel, and appointment of technical advisors. It may be possible to communicate directly with the foreign state accident investigation authorities; however, Department of State assistance may be necessary to reply to some states.

      (3) Consulting with the Managing Director (MD) and/or the Chairman before OAS personnel launch on a foreign accident.

      (4) Obtaining approval from the MD for any anticipated foreign travel involving OAS employees for other than an accident launch.

      (5) Ensuring that country clearances, entry visas, and the MD-approval memorandum, as necessary, have been completed for employees traveling

overseas. Foreign travel protocols for these items can be found online at http://portal/Guidance/Travel/Pages/ForeignTravelChecklist.aspx.

(6) Ensuring that resources are provided to conclude the NTSB participation in foreign investigations in a suitable and timely manner consistent with the objectives of ICAO Annex 13.

7. Procedures.

A. Civil Aircraft.

(1) The NTSB Response Operations Center will forward notifications of foreign accidents and serious incidents to the OAS duty officer(s) and chiefs included on the NTSB recipient/responder list in accordance with standard NTSB practices. The list includes the chiefs of each regional office, one duty officer for each region, pertinent headquarters management, and the AS-10 duty officer. In general, the AS-10 duty officer will handle all air carrier notifications from foreign agencies, and the duty officer from the appropriate region will handle the general aviation (GA)-related notifications. However, the director of OAS or his/her representative may modify this protocol when needed in cases involving heightened interest from the Board/public/media, for workload purposes, or for other reasons.

On those occasions when the duty officer becomes aware of an accident in a foreign state that may involve a US product, operation, or registered aircraft and no foreign notification has been received, the duty officer should attempt to contact the foreign accident investigation authority to obtain details of the accident. Department of State officials can help establish contact with foreign government authorities, if required.

(2) The responsible duty officer will acknowledge receipt of the internal NTSB notification by email reply to the recipient list in a timely fashion, assign an investigator to process the notification, and determine the level of response/action based on the following criteria:

a. Commercial Air Carrier Notifications. The AS-10 duty officer will vet all incoming notifications involving air carrier operations and will (1) serve as the U.S. accredited representative for accident notifications involving U.S. designed/manufactured, operated, and/or registered aircraft; U.S. designed/manufactured engines; U.S. designed/manufactured avionics/systems; and any air carrier incident notifications concerning a safety related event or (2) forward notifications concerning events that appear to be focused in one specific specialty area (for instance, airworthiness, air traffic control, etc.) to the appropriate chief for consultation and possible accredited representative assignment within that division. In such situations, the process outlined in paragraph (3) and

subsequent below shall be followed by the office that, in the end, picks up the case.

Note: In most cases, no accredited representative will be assigned for incident notifications that involve events that are typically considered maintenance related (for instance, a single engine in-flight shutdown).

b. GA notifications. Each regional office has been assigned worldwide areas of responsibility, which include specific foreign countries and geographic territories (see Attachment 1). The responsible duty officer will (1) respond in accordance with the matrix below or (2) forward notifications concerning events that appear to be focused in one specific specialty area (for instance, airworthiness or air traffic control) to the appropriate chief for consultation and possible accredited representative assignment within that division. In such situations, the process outlined in paragraph (3) and subsequent paragraphs below shall be followed by the office that ultimately takes responsibility for the case.

Type of Accident	Basic Response	Notify US Manufacturer(s)	Prepare "WA" or "RA" Report	US accredited representative
US-Manufactured/Designed US-Registered Non-Fatal	Yes	Yes	No*	No*
US-Manufactured/Designed US-Registered Fatal	Yes	Yes	Yes	Yes
US-Manufactured/Designed Foreign-Registered Non-Fatal	Yes	Yes	No*	No*
US-Manufactured/Designed Foreign-Registered Fatal	Yes	Yes	Yes	Yes
US-Manufactured/Designed Operated by Foreign Government or Military	Yes	Yes	No*	No*
Foreign Manufactured/Designed US Registered	Yes	No	No*	No*

*In certain cases, considerations (for instance, substantial damage, safety of flight, or public/media interest) may require assignment of an accredited representative and generation of a WA/RA report.

Note: US accredited representative status should be requested and a WA/RA report generated when a US-manufactured/designed engine or any major US-manufactured/designed subsystem appears to be relevant to the accident or

incident or a foreign agency has requested US assistance in evaluating these products in the investigation. This includes situations in which a US advisor travels in support of a foreign investigation that wouldn't otherwise result in assignment of an accredited representative.

(3) The responsible office will, without delay, acknowledge the notification to the state of occurrence, identify the assigned accredited representative (when appropriate), and respond with an intention of "travel," "no travel," or "travel to be determined" (see the examples in Attachments 2 and 3). Further, the response should offer no-cost flight recorder readout assistance to the state of occurrence.

Note: Any request for assistance that will involve travel or commitment of substantial resources (for instance, search and rescue, underwater or mountain recovery) should be referred to the director of OAS.

(4) The accredited representative must obtain MD approval for all international travel before beginning travel. The accredited representative should also request a country clearance from the Department of State and receive approval before beginning travel. Such requests are made electronically using the Department of State's eCC application. Country clearance requests should be submitted immediately upon a decision to launch to an international location or at least 2 weeks before departure for planned travel. To facilitate MD approval, the accredited representative and/or traveling staff shall submit a written memo, signed by the responsible chief and the director of OAS to the Office of the Managing Director for approval (see Attachment 4). The memo may be submitted to the MD's office as soon as practicable following a foreign launch but should be submitted at leest 2 weeks in advance of planned travel. The Department of State eCC request shall be included with the memo as an attachment.

(5) If an accredited representative has been assigned, he/she will produce a "WA" or "RA" record in eADMS. The "WA" or "RA" record simply documents the occurrence in the NTSB database, and the information included therein should only be that which is provided to the NTSB by the foreign country and limited to just those factual details needed to describe the nature of the accident or incident (see Attachment 5). In addition, he/she will annotate whether there was an initial launch to the accident site by selecting "yes" for the Launch section in eADMS.

Note: Use "WA" if there is no travel involved and "RA" if domestic or international travel is required

(6) A foreign country may ask for assistance after it receives acknowledgment from the NTSB but for which a WA or RA case number was not originally assigned. Each instance of a request for assistance will be brought to the

attention of the appropriate chief before the investigator responds to the request.

(7) When an accredited representative is assigned, he/she will appoint technical advisors from the Federal Aviation Administration (FAA) and other organizations as necessary to provide appropriate US participation in the investigation.

(8) In situations involving advisor travel without travel by the accredited representative, the accredited representative must reiterate expectations for communication from the investigator-in-charge (IIC) and US advisors. As necessary, the accredited representative may elect to provide advisors a copy of the NTSB notification response (Attachment 3) noting the advisor travel.

(9) As data are provided to or received from the IIC, the accredited representative should make clear to foreign state authorities the US-filed differences with ICAO Annex 13, to include the provisions in the Independent Safety Board Act of 1974, Paragraph 1114, pertaining to the 2-year FOIA exemption.

(10) The accredited representative should, as the investigation proceeds, advise his/her immediate supervisor and the director of OAS of significant issues within the investigation that are appropriate to bring to the attention of the staff or the Board. Information critical to flight safety and appropriate for an NTSB safety recommendation should be forwarded to management as soon as possible.

(11) Barring any delegation of some aspect of the investigation, the foreign authority is responsible for producing documentation associated with the investigation. However, it is not unusual for NTSB staff to assist in the documentation of various investigative areas and to produce field notes and/or reports as a result. In such situations, any field notes or reports that NTSB staff provides to the foreign authority should be factual in nature and titled by what was done rather than by whom (for instance, "Powerplants Field Notes" but not "Powerplants Group Chairman Field Notes/Factual Report"). It is acceptable to use NTSB letterhead or formatting if desired. Field notes and other reports or documentation that NTSB staff produces on a foreign investigation should be placed in an official-use-only docket; there should be no public docket on a foreign investigation except in rare cases where documentation may be needed to support an NTSB recommendation (see below).

(12) If the NTSB plans to draft a safety recommendation letter pertaining to an investigation under the control of a foreign state, the accredited representative shall discuss the safety issue with the IIC before completing the Safety Recommendation Development Worksheet or drafting the recommendation letter. The accredited representative shall provide a draft of the

recommendation letter to the IIC for review and comment at a point in the recommendation letter preparation process that provides for beneficial input. The IIC should have the opportunity to return comments on the safety recommendation letter to the accredited representative within a reasonable period of time based on the degree of urgency of the proposed recommendations. Staff should attempt to incorporate all required factual information into the body of the safety recommendation letter so that there is no need for supporting NTSB specialist reports or public docket. However, in cases where this is not possible, stand-alone reports may be necessary. The accredited representative shall consult with the director of OAS to discuss the need for and format of communications with the MD and Chairman regarding coordination efforts with the foreign agency, including the nature and timing of public release of the NTSB's final recommendation letter and any supporting reports. Any plans for releasing a public docket on a foreign investigation should be communicated to the foreign IIC far enough in advance of the docket opening to allow the foreign agency to plan for the release.

(13)The accredited representative, upon receipt of a draft final report from the state of occurrence, should disseminate the draft report to participating NTSB staff offices and technical advisor organizations, unless otherwise directed by the IIC, for their review and comment in sufficient time to allow the accredited representative to prepare and coordinate the comment letter response to the state of occurrence within the allotted time (typically 60 days). This is especially important for US organizations that are identified in proposed recommendations in the draft foreign report. Any comments provided to the IIC should be neutral in tone with regard to overall report quality and noted as submitted by the "US team" or "US accredited representative." The cover letter should request feedback from the IIC regarding the extent that the comments have been incorporated in order for the accredited representative to determine whether to request that the US team comments be appended to the state of occurrence's final report (see Attachment 6). The accredited representative should plan to collect advisor comments and forward them together along with any NTSB comments. Even if there are no NTSB comments, it is still advisable for the accredited representative to forward any advisor comments.

(14)Accredited representatives who receive final foreign recommendations that request action by the FAA or other US organizations should forward the recommendations to correspondence@ntsb.gov. Per SR-GEN-002, an NTSB cover letter will be prepared and the recommendations will be forwarded to the appropriate organizations. Accredited representatives should ensure that US recipients of foreign recommendations are reminded that a response to the foreign authority is typically required within 90 days (per Annex 13, paragraph 6.10).

(15)If substantial disagreement or the need for a significant volume of comments becomes apparent during NTSB staff review and comment on a draft final

report from the state of occurrence, or if the final report is expected to be of significant interest to the US public, the accredited representative will consult with the director of OAS regarding (1) the need to request that US comments be appended to the state of occurrence's final report; (2) the need for and format of correspondence with Board members (for instance, verbal or written),;and (3) any plans for public release of the US team comments to the state of occurrence's draft report. The director of OAS will inform the MD and the Chairman of the nature of the disagreements with the draft report.

B. Public Aircraft.

(1) Background. Based on the changes brought about by Public Law No. 103-411, effective April 23, 1995, the NTSB, in furtherance of its investigative duties regarding domestic accidents involving US government public aircraft, has the same duties and powers as specified for civil aircraft accidents (except for the investigation of accidents involving aircraft operated by the Armed Forces and federal intelligence agencies). ICAO Annex 13 addresses the investigation of international civil aviation events; however, ICAO Annex 13 protocols do not apply to the international operation of noncivil aircraft, which are defined as "aircraft used in Military, customs and police services" (state aircraft) in Article 3 of the Convention on International Civil Aviation.

Note: It may be difficult to determine whether the aircraft involved is engaged in a civil or a noncivil operation. When necessary, the director of OAS will consult with the Office of General Counsel and the US operating agency in making such determinations.

(2) When the foreign state classifies a particular US-registered aircraft operation that would be considered a public aircraft operation if conducted in the United States as civil aviation activity and determines it will conduct an ICAO investigation, the NTSB can exercise its rights under Annex 13 to designate an accredited representative and appoint technical advisors. The decision to do this will be made in consultation with the director of OAS or his/her representative. The choice of technical advisers to support the accredited representative shall be made in consultation with the US federal or domestic agency involved in the operation of the aircraft. Participation in the investigation should be conducted in accordance with the process defined in paragraph 7A of this operations bulletin.

(3) If the foreign state does not classify the accident as a civil operation within its jurisdiction or within ICAO Annex 13 protocols and declines to initiate an investigation, the NTSB will coordinate with the Department of State, the state of occurrence, and the US operating agency to advocate for the conduct of an appropriate investigation. A US lead investigator will be designated from appropriate US resources. If this individual is an NTSB employee, he/she will

coordinate with the US operating agency, the Department of State, and the foreign state, as appropriate, to assist or complete the investigation.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments.

A. Attachment 1, Areas of Responsibility for Regional Offices for General Aviation Foreign Accident Notifications and Investigations.

B. Attachment 2, No US Accredited Representative Assigned, Example of Notification Acknowledgment to Accident Investigation Board (AIB)

C. Attachment 3, US Accredited Representative Assigned, Example of Notification Acknowledgement to AIB

D. Attachment 4, MD Travel Authorization Request

E. Attachment 5, US Accredited Representative Assigned, Example of "RA" or "WA" Narrative

F. Attachment 6, Example Cover Letter for US Comments to Foreign Agency

ATTACHMENT 1

Areas of Responsibility for Regional Offices for General Aviation Foreign Accident Notifications and Investigations

ERA Region
Argentina
Brazil
Bolivia
Chile
Colombia
Ecuador
French Guyana
Guyana
Paraguay
Peru
Surinam
Trinidad & Tobago
Cuba
Jamaica
Haiti
Dominican Republic
Uruguay
Venezuela
Bahamas
Anguilla
Antigua
Barbados
Dominica
Grenada
Montserrat
St. Lucia
St. Vincent
The Grenadines
St. Kitts
Nevis
Russia
Ukraine
Azerbaijan
Armenia
Georgia (Republic of)
Estonia
Belarus
Kazakhstan
Kyrgyzstan
Uzbekistan
Moldova
Tajikistan
Tajikistan
Turkmenistan
Afghanistan
Italy
Greece
Turkey
Saudi Arabia
Iraq
Iran
Kuwait
Bahrain
Qatar
UAE
Oman
Yemen
Syria

CEN Region
Albania
Austria
Belgium
Bosnia
Bulgaria
Croatia
Czech Republic
Denmark
Eastern Canada (east of Manitoba)
Finland
France
Germany
Great Britain
Greenland
Herzegovina
Hungary
Iceland
Ireland
Latvia
Lithuania
Luxemburg
Macedonia
Montenegro
The Netherlands
Northern Ireland
Norway
Poland
Portugal
Romania
Scotland
Serbia
Spain
Sweden
Switzerland
Wales
Belize
Costa Rica
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama

ANC Region
Canada (Manitoba & west)
Manchuria
North Korea
South Korea
Japan
Taiwan (Nationalist China)

WPR Region
China
Philippines
Singapore
Myramar (Burma)
Nepal
Laos
Vietnam
Cambodia
Thailand
India
Pakistan
Marianas Islands
Guam
American Samoa
Pacific Basin Is. Nations
Australia
New Zealand
New Guinea/Papua
Indonesia
Malaysia
Bangladesh
Brunei
Israel
Jordan
Lebanon

Safe Skies for Africa Representative

Consult with the Major Investigations Division Chief for accidents in this regional area.

ATTACHMENT 2

Operations Bulletin AS-INT-006

No US Accredited Representative Assigned

Example of Notification Acknowledgment to AIB

AIB Investigator:

Thank you for the nonfatal accident notification regarding the US-registered Cessna 421 (N1234) that experienced an engine failure and subsequent forced landing near Dover, England, on December 10, 2006. If you require additional information or assistance from a US adviser organization for your investigation, please feel free to contact me with your request.

Respectfully,

I. M. Investigator
Air Safety Investigator
National Transportation Safety Board
South Central Region
O: (817) 652-1234
C: (817) 652-2222
F: (817) 652-4321
I.M.Investigator@ntsb.gov

ATTACHMENT 3

Operations Bulletin AS-INT-006

US Accredited Representative Assigned

Example of Notification Acknowledgement to AIB

Greetings,

We have received your notification concerning the accident involving a Boeing 737-200, registration SP-LPC, that landed in Warsaw with all three landing gear retracted and with no injuries to the passengers and crew.

I have been appointed as the US accredited representative for your investigation and have initially designated Boeing and the US Federal Aviation Administration as technical advisors. At this time, the US team is not planning to travel to the scene, but I would appreciate receiving any additional information regarding the event and your initial on-scene work when you are able to provide those details.

Please let me know if you have any questions or need any assistance. Our laboratory is always available for download of the recorders.

I can be reached via the phone numbers below or through our National Transportation Safety Board Communications Center at 202-314-6290.

Best regards,
I.M. Investigator
US Accredited Representative
Air Safety Investigator - IIC
National Transportation Safety Board
OAS Major Investigations Division (AS-10)
490 L'Enfant Plaza East, SW
Washington, DC 20594
O: (123) 456-7890
C: (123) 987-6543
F: (123) 456-9876
NTSB 24 hr Response Operations Center (202) 314-6290

ATTACHMENT 4

Operations Bulletin AS-INT-006

MD Travel Authorization Request

National Transportation Safety Board

Memorandum

Date: November 14, 2011

To: Managing Director

Thru: Director, Office of Aviation Safety

From: I.M. Divisionchief, Chief
Major Investigations Division, AS-10

Subject: Approval for Investigation-Related Travel to Mexico

The purpose of this memorandum is to request approval for travel of I.M. Investigator1 (AS-10/U.S Accredited Representative), I.M. Investigator2 (AS-40), and I.M. Investigator3 (CEN) to Mexico from November 12, 2011, through approximately November 16, 2011.

The purpose of the travel is to support the Mexican Dirección General de Aeronáutica Civil (DGAC) investigation into the crash of a Boeing 737-800, N123X, which resulted in seven fatalities. Representatives from the Federal Aviation Administration and Boeing will accompany NTSB staff to the scene.

I believe that this travel is necessary to support the agency's accident investigation mission, in accordance with United States' signatory obligations under ICAO Annex 13 of the Chicago Convention and to be responsive to the request of the Mexico DGAC.

Approved: _____ _____

Disapproved: _____ _____

Attachment: Mexico DGAC Request Letter
Country Clearance Request

ATTACHMENT 5

Operations Bulletin AS-INT-006

US Accredited Representative Assigned

Example of "RA" or "WA" Narrative

On August 20, 2011, about 1230 central daylight time (local), a Boeing 737-200, Canadian registration CGNWN, operated by First Air in a combination passenger/freight configuration as flight 6560 and equipped with Pratt & Whitney JT8D engines, impacted terrain approximately 1 mile east of the airport while on approach for landing at Resolute Bay Airport, Resolute, Nunavut, Canada. Of the four crewmembers and eleven passengers, twelve occupants were fatally injured.

The Transportation Safety Board (TSB) of Canada is investigating the accident. As the state of manufacture of the airplane and engines, the NTSB has designated a US accredited representative to assist the TSB in its investigation.

All inquiries concerning this accident should be directed to the TSB of Canada:

Transportation Safety Board of Canada
200 Promenade du Portage
Place du Centre, 4th Floor
Hull, Quebec K1A 1K8
Canada
Website: http://www.tsb.gc.ca

ATTACHMENT 6

Operations Bulletin AS-INT-006

Example Cover Letter for US Comments to Foreign Agency

National Transportation Safety Board
Washington, D.C. 20594

Office of Aviation Safety

July 31, 2009

Mr. Van Zyl
Executive Manager
Accident and Incident Investigation Division
South Africa Civil Aviation Authority
Ikhaya Lokundiza
Teur Close, Waterfall Park, Bekker Street
Midrand, South Africa

Dear Mr. Zyl:

Thank you for the opportunity to review the draft report on the accident involving a Nationwide Boeing 737-200, registration ZS-OEZ, which occurred on November 7, 2007, during takeoff from Cape Town International Aerodrome, South Africa.

Attached are National Transportation Safety Board (NTSB) staff and US advisor comments on the draft report. Please let me know if you have any questions regarding any of the comments or need further clarification.

In reference to paragraph 6.3 of Annex 13 to the Convention on International Civil Aviation, please inform me if the SAAIID does not plan on incorporating the substance of these comments into the final report. At that time, I will determine if the NTSB would request to have any comments appended to the final report.

Best regards,

I.M. Investigator
US Accredited Representative, ZS-OEZ

Enclosures (NTSB and Advisor Comments)

National Transportation Safety Board

Operations Bulletin AS-INT-007
Safety Standards and Acquisition of Rented, Chartered, or Leased Aircraft

1. Issuing Organization. Operations Bulletin AS-INT-007 was developed by the Office of Aviation Safety (OAS) and issued November 27, 2006. It was reviewed on November 17, 2010 and July 2, 2013, and is due again for review by July 1, 2015.

2. Purpose. Operations Bulletin AS-INT-007 provides National Transportation Safety Board (NTSB) policy regarding safety and acquisition standards for the rental, charter or lease of aircraft by employees for official government business within the scope of employment.

3. Policy.

   A. In light of the Safety Board's government-wide transportation safety role and its responsibility for safety promotion and accident prevention, the NTSB must set an example by creating an outstanding safety record in the use of aircraft in its own operations.

   B. On March 8, 2000, the Safety Board became a signatory to the "Safety Standards Agreement among the Agencies of the Interagency Committee for Aviation Policy (ICAP)." By signing this agreement, the Safety Board agreed to adopt the ICAP Safety Standards Guidelines and to write and publish agency-specific standards, based on the Safety Standards Guidelines, for aircraft that the Board owns, borrows, bails, or hires. The Safety Board does not own or routinely operate aircraft. However, the NTSB occasionally rents, charters, or leases aircraft to support its accident investigation missions. Typically, aircraft are used to transport investigative personnel to remote areas that are not easily accessible by motor vehicles.

4. Cancellation. Operations Bulletin AS-INT-007 is in effect as of the issue date, and will remain in effect unless cancelled or revised, in writing, by OAS.

5. References.

   A. Operations Bulletin ACQ-GEN-001, Acquisition Policy and Procedures

B. Operations Bulletin ACQ-GEN-005 – NTSB Purchase Card Procedures

C. ICAP Safety Standards Guidelines for Federal Flight Programs.

D. Title 14, Code of Federal Regulations, Parts 91, 121, and 135.

6. Responsibilities.

A. The Director, Office of Aviation Safety is responsible for:

(1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures.

A. Aircraft rented, chartered or leased by the NTSB shall be procured by an authorized individual (i.e. NTSB purchase cardholder or warranted Contracting Officer) following the proper procurement regulations, as outlined in ACQ-GEN-001 and ACQ-GEN-005, from an entity that:

(1) Holds a current Federal Aviation Administration (FAA) Air Carrier or Operating Certificate, or

(2) Is used as a vendor of rental aircraft by any federal agency that is a signatory to the ICAP Safety Standards Agreement, or

(3) Is recommended by the FAA Flight Standards District Office (FSDO) having jurisdiction over the area where the aircraft is to be used.

Note: If circumstances dictate that an aircraft be procured from an entity that does not meet any of the above criteria, the Director of OAS will be consulted through the chain of supervision before a decision is made.

B. Aircraft rented, chartered or leased by the NTSB shall be operated in accordance with the civil standards (i.e. Federal Aviation Regulations and any applicable State and local laws and regulations) applicable to the type of operation conducted.

C. Decisions to rent, charter or lease aircraft for an NTSB mission will normally be made by the investigator-in-charge (IIC) of an accident investigation. Prior to finalizing the rental, the IIC will consult with his/her appropriate Chief.

(1) For regional aviation investigations, the appropriate Division or Regional Chief will consult with the Deputy Director for Regional Operations, OAS before a decision is made.

(2) For major aviation investigations or other modal investigations, the Deputy Director, OAS will be consulted through the appropriate chain of supervision before a decision is made.

7. External Reporting Requirements. None.

8. Definitions.

A. Bailed Aircraft – an aircraft owned by one entity but under the operational control of another entity for an indefinite period under an agreement that may or may not include financial recompense. In general practice, bailment has come to refer to federal-to-federal transactions. However, an aircraft that a federal agency "borrows" from any entity is considered a bailed aircraft.

B. Charter Aircraft - means an aircraft procured under a one time exclusive agreement that specifies performance and payment. The vendor operates charter aircraft.

C. Contract Aircraft - an aircraft procured for an agency's exclusive use for a specified period of time by means of a formal contract under which the contractor is responsible for the operation, safety, and maintenance of the aircraft.

D. Owned Aircraft - an aircraft for which title or rights of title are vested with a federal entity.

E. Fleet Aircraft - refers to any of the following:

(1) Owned aircraft.

(2) Aircraft under lease/purchase agreement where the intent is to transfer title to the federal government.

(3) An aircraft leased in lieu of ownership for an agreed period of 180 or more days.

(4) Any aircraft under exclusive use and operational control of a federal entity for 180 or more days-excludes aircraft operating under full service contracts.

F. Leased aircraft - an aircraft that the government has exclusive right (through a financial contract) to use for a specific period of time and that the procuring agency is responsible for the operation and safety of the aircraft. Maintenance responsibility is defined under terms of the contract.

G. Loaned aircraft - an aircraft owned by one entity, but under the operational control of another entity for a limited period of time under an agreement that does not include financial recompense. In general practice, a loaned aircraft

is owned by a federal agency and is operated by a state, municipality, or other non-federal government entity on a temporary basis. To loan means to furnish property to another for temporary use with provisions that the property will be returned in essentially the same condition and without payment.

9. Attachments.

A. Attachment 1, Safety Standards Guidelines for Federal Flight Programs.

B. Attachment 2, Interagency Committee for Aviation Policy (ICAP) Safety Standards Agreement.

Attachment 1

Operations Bulletin AS-INT-007

Safety Standards Guidelines for Federal Flight Programs

ICAP Safety Standards Guidelines

GSA and the members of the Interagency Committee for Aviation Policy (ICAP) have developed and adopted a set of common "Safety Standards Guidelines for Federal Flight Programs." The ICAP-member agencies have agreed to write and enforce their own agency-specific flight program standards based on these guidelines.

Note: With the publication of 41 CFR 102-33, "Management of Government Aircraft," on November 6, 2002, some of the definitions in Section II of these guidelines were superseded. Check the regulation for the correct definitions.

SAFETY STANDARDS GUIDELINES FOR FEDERAL FLIGHT PROGRAMS

The following guidelines were approved by consensus of the ICAP on December 16, 1998 and were revised on December 22, 1999.

I. Preamble:
The guidelines in this document provide federal agencies that own or hire aircraft, except the Department of Defense (DoD), with a framework for developing comprehensive flight program standards. The ICAP's intent in publishing these guidelines is to enhance operational safety and effectiveness. Each agency should use these guidelines to develop, implement, and maintain agency-specific aviation flight program standards. Agencies' standards should identify the risks that may not be addressed under the Federal Aviation Regulations (FAR), but which are associated with government flight operations. Where FAR or military standards apply, federal agencies will meet or exceed those standards. Where FAR or military standards do not apply, federal agencies will use risk management techniques to create the highest standards for themselves (based on the Safety Standards Guidelines described below). Each agency is solely responsible for managing its own flight program, for writing its own standards (for both owned and hired aircraft) based on the Safety Standards Guidelines, and for instituting a self-oversight program that includes independent inspection services, obtained and managed by the agency.

II. Definitions for the purposes of these standards:
[Note: The definitions in this document should match the definitions in the revised Office of Management and Budget (OMB) Circular A-126 and FPMR 101-37 when those revisions are approved by proper authority. Until those revisions are approved, the following are the ICAP's proposed working definitions.]

A. Bailed aircraft- means aircraft owned by one entity but under the operational control of another entity for an indefinite period under an agreement that may or may not include financial recompense. (In general practice, bailment has come to refer to federal-to-federal transactions. However, an aircraft that a federal agency "borrows" from any entity is considered a bailed aircraft.)

B. Charter aircraft-means an aircraft procured under a one time exclusive agreement that specifies performance and payment. The vendor operates charter aircraft.

C. Contract Aircraft- means an aircraft procured for an agency's exclusive use for a specified period of time by means of a formal contract under which the contractor is responsible for the operation, safety, and maintenance of the aircraft.

D. Owned aircraft-means an aircraft for which title or rights of title are vested with a federal entity.

E. Fleet aircraft- refers to any of the following:

1. Owned aircraft.

2. Aircraft under lease/purchase agreement where the intent is to transfer title to the federal government.
3. An aircraft leased in lieu of ownership for an agreed period of 180 or more days.
4. Any aircraft under exclusive use and operational control of a federal entity for 180 or more days-excludes aircraft operating under full service contracts.

F. Leased aircraft- means an aircraft that the government has exclusive right (through a financial contract) to use for a specific period of time and that the procuring agency is responsible for the operation and safety of the aircraft. Maintenance responsibility is defined under terms of the contract.

G. Loaned aircraft- means an aircraft owned by one entity, but under the operational control of another entity for a limited period of time under an agreement that does not include financial recompense. (In general practice, a loaned aircraft is owned by a federal agency and is operated by a state, municipality, or other non-federal government entity on a temporary basis. To loan means to furnish property to another for temporary use with provisions that the property will be returned in essentially the same condition and without payment.)

III. Applicability:
These guidelines do not supersede or relieve any agency of the requirement to comply with any existing U.S. and U.S.-ratified international laws, regulations, policies, and directives.

This document and the safety standards guidelines set forth in this paragraph IV apply to the following:

A. Federal agencies who operate owned, leased, bailed, or fleet aircraft (as defined within this document), exclusively in the service to the federal government for the conduct of governmental missions, should establish comprehensive flight program standards based on the guidelines described in paragraph IV below.

B. Agencies who charter or contract for aircraft (as defined by this document), exclusively in the service to the federal government for the performance of a governmental mission, should require the vendor or contractor to comply with (1) the civil standards applicable to the type of operation conducted and/or (2) comprehensive flight program standards based on the guidelines described in this document.

This document and the safety standards guidelines set forth in paragraph IV of this document do not apply to the following:

A. Aircraft owned by the armed forces or operated on behalf of the United States Government by armed forces personnel (including the Reserves) and to aircraft owned by the National Guard or operated by National Guard personnel for the National Guard of a State, Territory, Puerto Rico, or the District of Columbia, or Civil Reserve Air Fleet Program.
B. Loaned aircraft (i.e., owned by a federal agency but operated by and on behalf of the loanee) unless (1) the aircraft is used for a federal government mission and (2) requirements for applying these standards are established in a Memorandum of Agreement governing the loan.

IV. Comprehensive Safety Standards Guidelines to promote safety and reduce or eliminate accidents:
Federal agencies should apply the following standards guidelines to all areas of their flight programs, including management/ administration, operations, maintenance, training, and safety. In each of those areas, agencies should implement agency-specific standards by developing written policies and procedures (as appropriate for the sizes and types of their aircraft and scopes of operations of their missions) for the following elements:

A. Management/Administration:

1. A management structure responsible for the administration, operation, safety, training, maintenance, and financial needs of the operation;
2. Roles, responsibilities, and authorities of assigned managers, pilots, maintenance personnel, flight crewmembers, flight safety personnel, and dispatchers (as applicable);
3. Record keeping procedures to record and track flight crewmember flight and duty time and training;
4. Record keeping procedures to record and track maintenance personnel duty time and training.

B. Operations:

1. Basic qualifications and currency requirements for the pilots, crewmembers, maintenance personnel, and other mission related personnel, as required by (applicable to) the agency's mission;
2. Pilot and crewmember duty time and flight time limitations;
3. Compliance with owning agency or military safety of flight notices and operational bulletins;
4. Flight following to provide for timely notification of management and initiating search and rescue operations in case of a lost or downed aircraft;
5. Appropriate emergency procedures and equipment and, if Aviation Life Support Equipment (ALSE) is required by the agency for a specific mission, then a program for ensuring the ALSE is inspected and serviceable.

C. Maintenance:

1. Aircraft maintenance and inspection programs to ensure safety of flight in accordance with either applicable military programs, manufacturers' programs, agency-prescribed programs, or civil programs;
2. Compliance with owning agency or military safety of flight notices, Federal Aviation Authority (FAA) airworthiness directives, or mandatory manufacturers' bulletins applicable to the types of aircraft, engine(s), propeller(s), and appliances;
3. Operation of aircraft with inoperable equipment;
4. Applicable technical support, including appropriate engineering documentation and testing, for aircraft, powerplant, propeller, or appliance repairs, modifications, or equipment installations;
5. Quality control for the purchase and acquisition of replacement parts, assuring that parts purchased or acquired have the necessary documentation to determine airworthiness;
6. Record keeping procedures to record and track maintenance actions; inspections; retirement life components and parts; and the flight hours, cycles, and calendar times for Flight Safety Critical Aircraft Parts (FSCAP,i.e., DoD surplus/excess).

D. Training:

1. Initial and recurrent training appropriate for the responsibilities and necessary operational skills of all aviation personnel and relevant to the types of operations/missions conducted by the agency.

E. Safety:

1. Risk analysis and risk management to identify and mitigate hazards and provide procedures for managing risk to an acceptable level; internal and external assessments and oversight to verify that the standards elements called for by this document are implemented;
2. A system for communicating and reporting hazards, incidents, and accidents and disseminating safety/accident prevention (and other) information;
3. An accident response plan;
4. Notification to National Transportation Safety Board (NTSB) and GSA of accidents and incidents defined by Title 49 CFR Part 830;
5. Aviation safety awards program.

Attachment 2

Operations Bulletin AS-INT-007

Interagency Committee for Aviation Policy (ICAP) Safety Standards Agreement

ICAP Safety Standards Agreement

Fifteen federal agencies that use aircraft have signed a Safety Standards Agreement, developed by GSA and the ICAP. Through this agreement, the agencies consent to adopt the ICAP's Safety Standards Guidelines, write agency-specific standards based on the guidelines, and provide for independent enforcement of the agency standards.

Following is a listing of the agencies that have signed the ICAP Safety Standards Agreement and copy of the document:

Safety Standards Agreement among the Agencies of the ICAP

Department of Agriculture
Department of Commerce
Department of Energy
Department of Health and Human Services
Department of Justice
Department of Stete
Department of the Interior
Department of the Treasury
Department of Transportation/FAA (signed a modified version)
Department of Veterans Affairs
Environmental Protection Agency
General Services Administration
National Aeronautics and Space Administration
National Transportation Safety Board
Tennessee Valley Authority

1. BACKGROUND: The Aircraft Management Policy Advisory Board (AMPAB), chartered by GSA, issued its final report in June 1998. That report recommends that public aircraft should set the nation's standard for sefe and efficient operations. The members of the ICAP and the committee's sponsor, GSA, have determined that this agreement is an important step in meeting the board's recommendation .

Concurrent with tha AMPAB's review, the ICAP's Safety Standards and Training Subcommittee developed the "ICAP Safety Standards Guidelines for Federal Flight Programs" (Safety Standards Guidelines), which the ICAP ratified at their meeting on December 16, 1998, and which they revised on December 22, 1999. The guidelines serve as a common framework for each agency to use to davelop its own agency-spacific flight program standards for aviation management/administration, operations, maintenance, training, and safety.

2. PURPOSE: The agencies listed above enter into this agreement among themselves with the objective of setting the nation's standard for safe and efficient aviation operations.

3. BASIC TERMS AND AGREEMENTS: Each agency, by signing this agreement, agrees to:

(a) Adopt the ICAP Safety Standards Guidelines.

(b) Write and publish, as appropriate, agency-specific standards, based on the Safety Standards Guidelines, for aircraft that the agencies own, borrow, bail, or hire (i.e., lease, charter, rent, or otherwise contract for commercially or under inter-service support agreements).

(c) Assist each other in implementing the guidelines, and particularly to help those agencies who hire (but do not own) aircraft to tailor the requirements in the guidelines to the agency's special circumstances.

(d) Establish a plan and schedule for self-oversight, using independent agents such as, but not limited to --
(i) Inspectors general;
(ii) Contractors;
(iii) Internal review organizations;
(iv) Other bureaus;
(v) Other Federal agencies; or
(vi) The Federal Aviation Administration.
Each agency is solely responsible for managing its own flight program, for writing its own standards (for both owned and hired aircraft) based on the Safety Standards Guidelines, and for instituting a self-oversight program that includes independent inspection services, which are obtained and managed by the agency.

(e) Continue to facilitate the Aircraft Resources Management Survey (ARMS) program.

(f) Assist each other in obtaining support for inspections and other aviation services.

(g) Share best practices.

4. DURATION OF AGREEMENT:
This agreement goes into effect for any party on the date that the party signs the agreement and will remain in affect until that party terminates its participation in the agreement.

5. TERMINATION/AMENDMENT:

a. Any party may terminate its participation in this agreement, in whole or part, upon written notice to all other parties.

b. Any party may request to modify this agreement by written amendment, and the modification will take effect when the amended agreement is signed by all parties.

6. AUTHORITY: The parties listed above enter into this agreement pursuant to authority contained in OMB Circular A-126, dated May 22, 1992.

7. POINT OF CONTACT:

8. SIGNED:

_____
[NAME AND TITLE] DATE

National Transportation Safety Board

Operations Bulletin AS-INT-009
Notification Aviation (NA) Event Criteria and Documentation Procedures

1. Issuing Organization. AS-INT-009 was developed by the Office of Aviation Safety (OAS) and was issued October 8, 2010, reviewed January 3, 2013, and due for review on January 2, 2015.

2. Purpose. Operations Bulletin AS-INT-009 provides procedures for NTSB staff to use when documenting reportable events. The "NA" category will be used for events that are reportable but documented for data collection only.

3. Policy. Sections 302 and 304(a)(3) of Public Law 93-833, the "Independent Safety Board Act of 1974," 49 United States Code 1116, assign the NTSB with the responsibility to investigate transportation accidents and propose corrective steps to make transportation as safe as possible and reduce the likelihood of a recurrence of transportation accidents. Title 49 *Code of Federal Regulations* 830.5 also stipulates that operators of aircraft notify the NTSB of certain "reportable incidents" (see Appendix). When the NTSB is notified of one of these "reportable incidents," and the incident will not be further investigated by the Board, the event will be recorded in eADMS as an "NA" case.

4. Cancellation. Operations Bulletin AS-INT-009 will remain in effect until cancelled or revised.

5. Responsibilities.

   A. AS-2R is responsible for:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this memorandum if there is an identified need.

   B. OAS staff is responsible for adhering to the procedures set forth in this memorandum.

6. Procedures.

   Basic Information section

   a. Select "Create New Project Key"
      When asked if you want to enter a new project key, select "OK"
   b. Enter in the "Short Description" box

If the event is one of the 17 reportable events stated in 49 CFR 830.5 (listed below), input the exact keyword phrase listed followed by the aircraft's registration number and aircraft's make/model.

Example: Propeller failure, N123FT, Cessna 172N

(1) Flight control malfunction
(2) Crew incapacitation
(3) Uncontained engine failure
(4) In-flight fire
(5) Aircraft Collision
(6) Property damage
(7) Electrical failure
(8) Hydraulic failure
(9) Multiple engine failure
(10) Evacuation
(11) Propeller failure
(12) Display failure
(13) Airborne Collision and Avoidance System (ACAS) resolution advisory
(14) Rotor damage
(15) Wrong runway
(16) Runway incursion
(17) Missing aircraft

NOTE: If the event is not listed above, the operator was not required to notify the NTSB under 49 CFR 830.5; however, if OAS would still like to document the event in eADMS, the event should be recorded as an "SA."

c. Enter the Event Type:	select "Other Occurrence" only
Investigated By:	select "NTSB"
Collision:	select "None"
d. Location Section	
Nearest City/Place:	enter name
State:	enter name using drop down box
ZIP:	enter the zip code
Country:	enter information using drop down box
Latitude:	enter if the information is available
Longitude:	enter if the information is available
Event Date/Time:	enter date, time, and time zone
Office:	using the drop down box
Notification Source:	enter facility, or name and contact information
IIC:	select your name using the drop box
Date assigned:	enter appropriate date
NTSB #:	using the drop down boxes, create the NTSB number. Select (region/or HQ designation) (last two

	digits of the fiscal year in which the event occurred) (NA). Example: WPR 11 NA. Computer will provide the last three digits of the number.
Notification/Status Narrative:	enter a brief description. This description must include specific key words as listed for type of occurrence and any other details as appropriate.

e. Select "save" located next to BASIC INFORMATION" at the top of the page.

f. On the left of the page, select "Aircraft Info"

AIRCRAFT INFORMATION

Registration No:	enter the aircraft registration number select "Auto Fill"

g. Select "save" at the top of the page and exit the program.

An NA report does NOT go beyond Step 2. **DO NOT** submit the report for QC.

NOTE: If the event is an ACAS RA or a runway incursion involving an air carrier airplane, notify the AS-30 Division Chief via email.

Attachment

Subpart B—Initial Notification of Aircraft Accidents, Incidents, and Overdue Aircraft

§ 830.5 Immediate notification.

The operator of any civil aircraft, or any public aircraft not operated by the Armed Forces or an intelligence agency of the United States, or any foreign aircraft shall immediately, and by the most expeditious means available, notify the nearest National Transportation Safety Board (NTSB) office1 when:

1 NTSB regional offices are located in the following cities: Anchorage, Alaska; Atlanta, Georgia; West Chicago, Illinois; Denver, Colorado; Arlington, Texas; Gardena (Los Angeles), California; Miami, Florida; Federal Way (Seattle), Washington; and Ashburn, Virginia. In addition, NTSB headquarters is located at 490 L'Enfant Plaza, SW., Washington, DC 20594. Contact information for these offices is available at *http://www.ntsb.gov.*

(a) An aircraft accident or any of the following listed serious incidents occur:

(1) Flight control system malfunction or failure;

(2) Inability of any required flight crewmember to perform normal flight duties as a result of injury or illness;

(3) Failure of any internal turbine engine component that results in the escape of debris other than out the exhaust path;

(4) In-flight fire;

(5) Aircraft collision in flight;

(6) Damage to property, other than the aircraft, estimated to exceed $25,000 for repair (including materials and labor) or fair market value in the event of total loss, whichever is less.

(7) For large multiengine aircraft (more than 12,500 pounds maximum certificated takeoff weight):

(i) In-flight failure of electrical systems which requires the sustained use of an emergency bus powered by a back-up source such as a battery, auxiliary power unit, or air-driven generator to retain flight control or essential instruments;

(ii) In-flight failure of hydraulic systems that results in sustained reliance on the sole remaining hydraulic or mechanical system for movement of flight control surfaces;

(iii) Sustained loss of the power or thrust produced by two or more engines; and

(iv) An evacuation of an aircraft in which an emergency egress system is utilized.

(8) Release of all or a portion of a propeller blade from an aircraft, excluding release caused solely by ground contact;

(9) A complete loss of information, excluding flickering, from more than 50 percent of an aircraft's cockpit displays known as:

(i) Electronic Flight Instrument System (EFIS) displays;

(ii) Engine Indication and Crew Alerting System (EICAS) displays;

(iii) Electronic Centralized Aircraft Monitor (ECAM) displays; or

(iv) Other displays of this type, which generally include a primary flight display (PFD), primary navigation display (PND), and other integrated displays;

(10) Airborne Collision and Avoidance System (ACAS) resolution advisories issued either:

(i) When an aircraft is being operated on an instrument flight rules flight plan and compliance with the advisory is necessary to avert a substantial risk of collision between two or more aircraft; or

(ii) To an aircraft operating in class A airspace.

(11) Damage to helicopter tail or main rotor blades, including ground damage, that requires major repair or replacement of the blade(s);

(12) Any event in which an operator, when operating an airplane as an air carrier at a public-use airport on land:

(i) Lands or departs on a taxiway, incorrect runway, or other area not designed as a runway; or

(ii) Experiences a runway incursion that requires the operator or the crew of another aircraft or vehicle to take immediate corrective action to avoid a collision.

(b) An aircraft is overdue and is believed to have been involved in an accident.

§ 830.6 Information to be given in notification.

The notification required in §830.5 shall contain the following information, if available:

(a) Type, nationality, and registration marks of the aircraft;

(b) Name of owner, and operator of the aircraft;

(c) Name of the pilot-in-command;

(d) Date and time of the accident;

(e) Last point of departure and point of intended landing of the aircraft;

(f) Position of the aircraft with reference to some easily defined geographical point;

(g) Number of persons aboard, number killed, and number seriously injured;

(h) Nature of the accident, the weather and the extent of damage to the aircraft, so far as is known; and

(i) A description of any explosives, radioactiv

National Transportation Safety Board

Operations Bulletin AS-INT-010
Criteria for Issuing Aviation Event Notifications

1. Issuing Organization. Operations Bulletin AS-INT-010 was developed by the Office of Aviation Safety (OAS) and was issued on June 28, 2011. It was revised on September 6, 2016, and is due for review by September 5, 2018.

2. Purpose. Operations Bulletin AS-INT-010 provides OAS policy guidance and establishes procedures for OAS staff to use for issuing aviation event notifications through the Response Operations Center (ROC).

3. Policy. OAS employees are required to use the criteria established in this bulletin when issuing aviation event notifications through the ROC.

4. Cancellation. Operations Bulletin AS-INT-010 replaced AS2R-ROPM-003 on June 28, 2011.

5. References. None.

6. Responsibilities.

   A. The director of OAS is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

   B. OAS staff is responsible for adhering to the procedures set forth in this bulletin.

7. Procedures.

   A. OAS staff should use the following criteria to determine whether to issue an aviation event notification:

      (1) Any aviation accident that involves two or more fatalities;

      (2) Any significant accident or incident that involves a Part 121 or 135 air carrier, and that has received national media or industry attention;

(3) Any aviation accident, incident, or event that would involve national media attention (in the judgment of OAS management);

(4) Any aviation accident or incident that involves a celebrity or renowned person on board;

(5) Any aviation accident that results in serious injury involving air tour, air ambulance, public aircraft, or search and rescue aircraft operations; OR

(6) Any aviation event to which an NTSB investigator is dispatched.

B. Because the information will be posted on the NTSB's website for public viewing, the information should be brief but factual. The aviation event notification should include the date of the accident, location, aircraft registration and type, and number of people who died or were injured.

C. Only a division or regional chief/deputy chief (or designee) may authorize the issuance of a launch notification. Investigators may contact the ROC directly to send a notification but only with the prior authorization of the investigator's supervisor. (See the Office of Managing Director Advisory MD-2011-001, "New Procedures for Accident Pages.")

D. For fatal accidents, significant serious injury accidents, or other incidents that do not meet the criteria set forth in paragraph 7A, division and regional chiefs/deputy chiefs are encouraged to contact the ROC with the information to include in the ROC's daily shift log.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments. None.

National Transportation Safety Board

Office of Aviation Safety

Operations Bulletin AS-INT-011
Aviation Accident Report Preliminary Narratives

1. Issuing Organization. Operations Bulletin AS-INT-011 was developed by the Office of Aviation Safety (OAS); issued on March 9, 2011; reviewed on March 17, 2014, and August 13, 2015; and is due for review by August 12, 2017.

2. Purpose. Operations Bulletin AS-INT-011 provides OAS staff policy guidance and establishes procedures for writing preliminary narratives in the Aviation Data Management System (ADMS).

3. Policy. The National Transportation Safety Board's (NTSB) published preliminary narratives are often read by those connected with the accident and other interested parties and researchers. The preliminary narrative should be clear and concise, spelled and punctuated correctly, and adhere to the Chicago Manual of Style and the NTSB's Writing Guide and Glossary, and the OAS Safety Quick Reference Guide. The preliminary narrative is intended to be a brief introduction containing the essential facts of the accident/incident as known at the time it is written. Basically, it is a "place holder" for the detailed narrative that will be provided in the final factual narrative. For investigations in which information was learned on scene that may be used to prevent a future accident (such as parachute was/was not deployed in a Cirrus airplane) or may reduce inquiries from the media on a high-visibility accident, more detailed information may be included in the narrative. In these situations, the preliminary narrative can be a maximum of 2 pages. Regardless of its length, subheadings, such as "History of Flight," etc., shall not be used in a preliminary narrative.

4. References.

   A. Chicago Manual of Style
   B. NTSB Writing Guide
   C. Glossary
   D. Office of Aviation Safety Quick Reference Guide
   E. NTSB Operations Bulletin PRI-GEN-002, Protecting Sensitive and Personally Identifiable Information

5. Responsibilities

A. The director, OAS is responsible for:
(1) Ensuring compliance with the procedures set forth in this bulletin.
(2) Updating this bulletin according to the schedule or earlier if there is an identified need.
B. The division chiefs and regional chiefs are responsible for ensuring that their staff adheres to the procedures set forth in this bulletin. The chiefs will be held accountable for the quality and accuracy of the written products.
C. AS employees are responsible for adhering to the procedures and intent set forth in this bulletin.

6. Procedures for Prelimanary Narratives

A. The preliminary report should be entered in ADMS within 5 working days after the date that the event was determined to be an accident/incident or after returning from the field phase of the investigation.
B. Adhere to good fundamental writing principles and conventions as outlined in the Chicago Manual of Style. The manual is electronically searchable and provides the NTSB's protocols on punctuation, grammar, spelling, prefixes, number usage, etc., and should be the primary source for writing standardization. An additional reference is the NTSB Glossary, which is a one-stop reference for terms, acronyms, and abbreviations that should be capitalized, spelled, and otherwise formatted consistently throughout NTSB documents. Also, see the "Office of Aviation Safety Quick Reference Guide" for examples of common writing mistakes with corrected versions and boilerplate statements intended for routine use.
C. Do not include analytical information.
D. Do not include personal information such as personal phone number, address, social security number, place of birth, date of birth, mother's maiden name, biometric or physical information (such as DNA associated with a person), medical history, employment history, criminal history, financial history, security clearance history, or pilot/mechanic certificate numbers. Such information and any signatures must be redacted out of public docket items. (See NTSB Operations Bulletin PRI-GEN-002, Protecting Sensitive and Personally Identifiable Information)
E. The opening paragraph of the preliminary narrative is the executive summary. It should follow a consistent format from event to event. It may, of necessity, vary with more complex accidents, such as a midair collision, but the majority should be very similar in structure and content.

Information in the opening paragraph should include the following:

On *[date]*, about *[military time] [time zone]*, a/an *[aircraft make/model], [airplane/helicopter/glider], [registration number], [describe accident sequence and location]. [State number of crew and passengers and injuries]. [Describe aircraft damage]*. The *[airplane/helicopter/glider, etc.]* was registered to *[insert information, if applicable]* and operated by *[operator]* as a 14 Code of Federal Regulations Part

[number] as *[describe type of flight]. [Instrument or Visual] meteorological conditions [existed, prevailed, or were reported] [at the accident site and/or other pertinent area (airport, approach course, along the route of flight, etc.)]* at *[time; either a specific time, if available, or "about the time of the accident"]*, and the flight was operated on a/an *[instrument or visual]* flight rules flight plan *[if one filed]*. The flight originated from *[add location]* at *[time] and was destined for [add location if known]*.

Subsequent brief paragraphs should provide additional factual details/circumstances that were learned during the field phase of the investigation, and when known or appropriate, specify pending investigative actions. Generic information regarding the nature of the substantial damage should also be mentioned.

F. Describe injuries as either fatal, serious, minor, or none.
G. Do not overgeneralize the weather conditions. Focus on the weather information that you have that is relevant to the accident. For example, if an airplane crashed on approach to the airport, the weather at the airport is what is relevant, not the weather on the entire route of flight.
H. Include information that the investigator-in-charge or public affairs released during the field phase of the investigation.

Example: Fatal Aircraft Accident

On November 29, 2010, about 1845 central standard time, a Beech A36, N1860P, collided with the ground while maneuvering in the vicinity of Theodore, Alabama. The private pilot was fatally injured. The airplane was buried about 4 ft below the surface of the ground and sustained damage to the fuselage and all of the flight control surfaces. The airplane was registered to B2 Air LLC and operated under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Marginal visual meteorological conditions existed near the accident site at the time of the accident, and the flight was operated on a visual flight rules flight plan. The flight originated from St Elmo Airport (2R5), St. Elmo, Alabama, about 1837.

A co-owner of the airplane stated that the accident pilot called him about 1730 and informed him that he was going to fly to 2R5 as his night currency had expired. He further stated that this was the first night flight that the pilot had conducted in the accident airplane.

According to the Federal Aviation Administration Mobile Approach Control, the pilot contacted the facility at 1841:37.The pilot stated that the weather was lower than anticipated and he requested an instrument flight rules clearance with an RNAV approach back to runway 6 at 2R5. The airplane was radar identified 3 miles north of 2R5. The pilot was instructed to maintain 2,000 ft, and, upon reaching 2,000 ft, to proceed direct to OTUWI intersection. The pilot acknowledged the clearance at 1844:04, and there were no further communications between the pilot and the controller.

A witness, who was an aircraft mechanic, stated that he observed the airplane flying from south to north with the strobe lights on. The airplane was flying below a cloud layer that the witness estimated to be between 500 to 1,000 ft above the ground and that it was very dark with no ambient light. The witness stated that the airplane flew over his house and it sounded like the

engine was developing about 60 to 70 percent power. The airplane continued north toward Lee Roy Hill pasture, located at the end of Wyn Road. The witness heard an increase in engine power and then heard an impact followed by an explosion.

Example: Nonfatal Aircraft Accident

On October 5, 2010, about 1545 eastern daylight time, a Cessna 182P, N21415, experienced a total loss of engine power after takeoff from the Columbia Metropolitan Airport (CAE), Columbia, South Carolina. The pilot subsequently made an off-airport forced landing to a highway. The commercial pilot sustained minor injuries, and the passenger was not injured. The airplane sustained substantial damage to the forward portion of the fuselage. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions were reported at the airport about the time of the accident, and an instrument flight rules flight plan had been filed for the flight destined for the Middle Georgia Regional Airport (MCN), Macon, Georgia.

The pilot reported that he flew with the passenger from MCN to CAE earlier in the day without incident and that they were returning to MCN when the accident occurred. The pilot stated that, after takeoff, he contacted departure control and was subsequently cleared to fly direct to MCN. Shortly thereafter, the pilot noted that the oil pressure indication was below the green arc, and he chose to return to CAE. He noted some smoke in the cockpit, which was followed by a complete loss of engine power. The pilot performed a forced landing to a highway about 1,000 ft south-southeast of runway 5 at CAE.

During the landing, the airplane's right wing struck a pole, and the lower forward portion of the fuselage sustained substantial damage.

Initial examination of the engine by a Federal Aviation Administration inspector revealed that the crankshaft was seized. Oil streaks were observed on the underside of the engine cowling, and oil was present throughout the engine compartment. In addition, the oil filler cap was loose. The pilot reported that no oil had been added to the engine before the flight, and a preflight check of the oil quantity using the dipstick indicated "just a little less than 10 quarts."

The engine was retained for further examination.

Example: Midair Collision Opening Paragraph

On April 23, 2007, about 1158 Pacific daylight time, two airplanes, a Cessna 170B, N4488B, and a Cessna 172, N5049A, collided in midair, about 7 miles north-northwest of Eatonville, Washington. The Cessna 170B's airline transport pilot and the three passengers were fatally injured. The Cessna 172's commercial pilot was fatally injured. The Cessna 170B sustained substantial damage to the empennage, fuselage, and right wing; the Cessna 172 sustained damage to the left wing and fuselage. The Cessna 170B was registered to ABC LLC, and the Cessna 172 was registered to Knight Corporation. Both airplanes were operated as 14 Code of Federal Regulations Part 91 personal flights. A variable ceiling of between 500 and 800 ft above ground level was reported at the accident site at 1200. A visual flight rules flight plan was filed

for the Cessna 170B, and no flight plan was filed for the Cessna 172. The Cessna 170B departed from the Eatonville Airport about 1153, and the departure time and location of the Cessna 172 are unknown.

Example: Missing Aircraft Opening Paragraph

Missing aircraft narratives follow the same general guidance with one significant difference: the occupants of the missing aircraft are not presumed to be fatally injured. They should be referred to as "not been located" or similar wording. Because the core form will not pass edits in ADMS without injury input, the missing occupants will be listed in the **CORE ONLY** as fatal.

On July 4, 2008, about 1600 Alaska daylight time, a float-equipped Cessna 206, N9300P, departed a remote lake about 15 miles south of Ketchikan, Alaska, en route to the Ketchikan Airport Seaplane Base, Ketchikan. The airplane did not arrive in Ketchikan and was reported overdue by family members. The airplane is missing and is presumed to have crashed. The private pilot and one passenger have not been located. The airplane was registered to a private owner and was operated as a 14 Code of Federal Regulations Part 91 personal flight. Instrument meteorological conditions prevailed in the area surrounding the accident flight throughout the day, and no flight plan was filed. The flight departed the remote lake at an undetermined time.

National Transportation Safety Board

Office of Aviation Safety

Operations Bulletin AS-INT-012
Aviation Accident Report Factual Narratives

1. Issuing Organization. Operations Bulletin AS-INT-012 was developed by the Office of Aviation Safety (OAS); was issued on January 28, 2011; revised December 31, 2012, and August 13, 2015; and is due for review by August 12, 2017.

2. Purpose. Operations Bulletin AS-INT-012 provides OAS staff policy guidance and establishes procedures for writing the factual narratives associated with factual aviation accident and incident reports (titled "Factual Report Aviation") generated in the Aviation Data Management System (ADMS).

3. Policy. The National Transportation Board's (NTSB) published reports of accidents are often read by those connected with the accident and other interested parties and researchers. The reports should be clear and concise, spelled and punctuated correctly, and adhere to the Chicago Manual of Style, the NTSB's Writing Guide and Glossary, and the OAS Quick Reference Guide. Because the technical knowledge of the NTSB's audience varies greatly, the NTSB does not intend its reports and recommendations to be read only by technicians and specialists in the transportation industry. Investigators (writers) and analysts and AS management (reviewers) are to produce documents that can be read and understood by an educated layperson who is able to access aviation terms and definitions, as needed. Although the reader may not always achieve a full understanding of the technical aspects discussed in a document, the reader should be able to follow the discussion and fully understand the facts of the accident.

   The purpose of the factual narrative associated with an ADMS factual report is to accurately represent the facts associated with the accident. It is intended to give the reader a picture of what happened during the accident scenario and describe what the investigator found during the investigation that is relevant to the cause of the accident. The factual report does not contain any analysis. However, all of the factual information needed to support the analysis in the brief narrative must be included in the factual report, and all of the information in the factual report must be supported by documents that are available to the general public (either in the docket or readily accessible via other means).

4. References.

   A. Chicago Manual of Style
   B. NTSB Writing Guide

C. Glossary
D. Office of Aviation Safety Quick Reference Guide
E. NTSB Operations Bulletin PRI-GEN-002, Protecting Sensitive and Personally Identifiable Information

5. Cancellation. Operations Bulletin AS-INT-012 replaces AS2R-ROPM-014, is in operational effect as of the issued date, and will remain in effect unless cancelled or revised by OAS.

6. Responsibilities.

A. The director, OAS is responsible for:
(1) Ensuring compliance with the procedures set forth in this bulletin.
(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures

A. Do not include any analytical information in factual narratives.

B. Ensure that factual narratives conform to the Factual Information section of Chapter 2, "Aircraft Accident Report," in the NTSB Writing Guide. Although the guide is written for major accident investigation reports, it shall be applied to all factual reports to the extent possible with expected variations in length and detail.

C. Adhere to good fundamental writing principles and conventions as outlined in the Chicago Manual of Style. The manual is electronically searchable and provides the NTSB's protocols on punctuation, grammar, spelling, prefixes, numbers usage, etc., and should be the primary source for writing standardization. An additional reference is the NTSB Glossary, which is a one-stop reference for terms, acronyms, and abbreviations that should be capitalized, spelled, and otherwise formatted consistently throughout NTSB documents. Also, see the "Office of Aviation Safety Quick Reference Guide" for examples of common writing mistakes with corrected versions and boilerplate statements intended for routine use. For incident, field, limited field (when necessary), and data collection reports in ADMS, use relevant International Civil Aviation Organization (ICAO) headings (as shown below) but do not number them. Each heading should be in all upper case with a blank line before and after it. The first word in each subheading should begin with a capital letter and have a blank line above it. See the NTSB Writing Guide for guidance on the type of information that belongs under each header. Only sections pertinent to the accident need to be included.

- HISTORY OF FLIGHT
- INJURIES (typically not used in ADMS reports)
- DAMAGE TO AIRPLANE (typically not used in ADMS reports)
- OTHER DAMAGE (typically not used in ADMS reports)
- PERSONNEL INFORMATION (If there are two pilots, suggested subheadings are "First Pilot" and "Second Pilot." When the aircraft requires two flight crewmembers,

the suggested subheadings are "Captain" and "First Officer." Include the pilot's age in this section.)

- AIRCRAFT INFORMATION
- METEOROLOGICAL INFORMATION (Summarize the important information, do not include all meteorological data.)
- AIDS TO NAVIGATION
- COMMUNICATIONS
- AIRPORT INFORMATION (Include only for accidents that occur near or at an airport.)
- FLIGHT RECORDERS (Include if necessary.)
- WRECKAGE AND IMPACT INFORMATION
- MEDICAL AND PATHOLOGICAL INFORMATION
- FIRE (Include only for in-flight fires; not necessary for postcrash fire events.)
- SURVIVAL ASPECTS
- TESTS AND RESEARCH
- ORGANIZATIONAL AND MANAGEMENT INFORMATION
- ADDITIONAL INFORMATION

D. Begin with a paragraph that includes the following general information about the accident:

On [date], about [time based on 24-hour clock] [time zone], a/an [aircraft make/model] [airplane/helicopter/glider], [registration number], [describe accident sequence and location]. [State pilot/crewmember and passengers and their injuries]. [Briefly describe aircraft damage supporting why the event is an accident]. The [airplane/helicopter/glider/etc.] was registered to [insert information, if applicable] and operated by [operator] as a 14 Code of Federal Regulations [Part number] [describe type of flight]. [Instrument or Visual] meteorological conditions [existed, prevailed, or were reported] [at the accident site and/or other pertinent area (airport, approach course, along the route of flight, etc.)] at *[time; either a specific time, if available, or "about the time of the accident"], and the flight was operated on a/an [instrument or visual] flight rules flight plan [if one filed]. The flight originated from [add location] at [time] and was destined for [add location if known].*

(1) Use the 24-hour clock when referencing time. Indicate in the opening paragraph what time zone the accident occurred in. All times in the report will be converted to correspond with the time zone the accident occurred in (this includes converting the departure times if the flight departed in a different time zone or from standard time to daylight savings time).

For accidents that occur outside of the United States, time should be indicated as "XXXX coordinated universal time (XXXX local time)" so the reader can have a better understanding about what time of day the accident actually occurred.

(2) Describe injuries as fatal (not "killed"), serious, minor, or none.

(3) Briefly describe the damage sustained when stating that an aircraft was substantially damaged or destroyed. Such descriptions aid later attempts to determine the reason an event was classified as an accident. For example, *"During the accident sequence, the airplane sustained damage to the firewall."* If using the generic phrase "substantial damage," remember that "substantial" excludes certain items. For example, it would not be appropriate to write, *"The airplane sustained substantial damage to the wings, rudder, flaps, and propeller,"* because the flaps and propeller are excluded from substantial damage by definition. Further, do not describe damage as "major" or "structural" as there are no definitions for these terms in Part 830.

(4) Be careful not to overgeneralize the weather conditions. Focus on the weather information that you have that is relevant to the accident. For example, if an airplane crashed on approach to the airport, the weather at the airport is what is relevant, not the weather on the entire route of flight.

Example: *On March 13, 2012, about 1040 Alaska daylight time, a float-equipped de Havilland DHC-2 Beaver airplane, N82SF, collided with water and terrain while maneuvering on approach for landing ta a lake about 23 miles southwest of Ketchikan, Alaska. The pilot sustained serious injuries, and the passenger sustained minor injuries. The airplane sustained substantial damage. The airplane was being operated by Southeast Aviation, Ketchikan as a 14 Code of Federal Regulations Part 135 on-demand charter flight. Marginal visual meteorological conditions were reported at the airport at the time of the accident, and company flight-following procedures were in effect. The flight originated from the Niblack mine site at 1033 en route to Ketchikan.*

Example for an accident outside of the United States: *On December 9, 2011, about 1630 universal coordinated time (1430 local time), a Robinson R44 helicopter, Brazilian registration PR-UL, collided with terrain in the vicinity of Fazenda Coqueiros, Brazil. The pilot was not injured, and the helicopter was substantially damaged. The helicopter was operated by Locacao de Veiculosas as a personal flight. Instrument meteorological conditions existed near the accident site about the time of the accident, and no flight plan was filed. The flight originated from Malswer Jaraqua do Sol Airport, Santa Catarina, Brazil, en route to a heliport in the vicinity of Fazenda Coqueiros.*

This investigation is under the jurisdiction of the Government of Brazil. Any further information pertaining to this accident may be obtained from the following:

Aeronatical Accident Prevention
SHIS-Q105
Brasilia - DF Brazil

This report is for informational purposes and contains only information released by the Government of Brazil.

E. Provide only the information that is appropriate and necessary to support the NTSB's conclusions, recommendations (if any), and probable cause. Eliminate unnecessary details that detract from the relevant aspects of the investigation. For example, if a complete engine and/or airframe teardown was performed with no notable findings, summarize the teardown in a few paragraphs, and put the details in another document in the docket. If the teardown did reveal a problem with the engine or airframe, give details of only that aspect of the teardown and the issues that were found, and put the remaining information in another document in the docket. When appropriate, make reference to amplifying information contained in the docket. For example, "A detailed examination report with accompanying pictures is contained in the public docket for this accident."

F. Avoid listing the time and precise wording from every entry from an air traffic control (ATC) transcript; instead, summarize portions of the conversation in which exact timing and wording are not pertinent. Also, rather than listing information from the ATC communications, then listing radar data information, and then listing information from the controller interviews, combine the information as it pertains to the progress of the flight to help the reader better comprehend the flight scenario.

Example: *At 1811:12, the pilot made his initial contact with an Indianapolis Air Route Traffic Control Center radar controller and reported that the flight's altitude was 7,000 ft. At 1811:20, the pilot requested a left turn. The radar controller replied that the pilot could deviate right or left of course as necessary for weather and cleared the flight to the next approach fix.*

G. Use caution when including extraneous information that may raise additional questions about the investigation or the facts. If the facts raise a question, ensure that it is addressed in the analysis in the brief.

H. If the accident received widespread media attention and public speculation, factually address the speculative issues in the report, as necessary, and then explain in the analysis in the brief why these issues should be ruled out.

I. Use credible sources such as Federal Aviation Administration (FAA) publications (for example, advisory circulars, the *Aeronautical Information Manual*, and flying handbooks), NTSB publications (such as reports, special studies, and safety recommendation letters), manufacturers' service bulletins, the Physician's Desk Reference or National Institutes of Health for drug references, or other government publications. Avoid the use of questionable or noncredible sources such as newspapers, magazines, and private websites (for example, Wikipedia). If these types of sources are used, print the reference and include it in the public docket. For example, if the builder of an experimental airplane listed details of his/her test flights on a personal website, it may be appropriate to reference the pertinent information and include copies of those pages in the docket. Also, cite the website address.

Example: *According to FAA Advisory Circular 60-4A, "Pilot's Spatial Disorientation," "Surface references and the natural horizon may at times become*

obscured, although visibility may be above visual flight rule minimums. Lack of natural horizon or surface reference is common on overwater flights, at night, and especially at night in extremely sparsely populated areas or in low-visibility conditions. A sloping cloud formation, an obscured horizon, a dark scene spread with ground lights and stars, and certain geometric patterns of ground lights can provide inaccurate visual information for aligning the aircraft correctly with the actual horizon. The disoriented pilot may place the aircraft in a dangerous attitude."

Example: *According to information obtained from a website created by the airplane's builder (http://www.ibuildplanes.com/blog.htm), the builder stated that, during a test flight he performed in the accident airplane about 1 week before the accident, the ailerons jammed briefly during a 60-degree-banked turn.*

J. Exclude irrelevant administrative details pertaining to the investigation. For example, do not include the date of arrival on-scene, interview dates, or accident investigation examination dates unless they are pertinent to the investigation.

K. Avoid using registration numbers to identify aircraft; instead, use the "airplane" or "helicopter." If another airplane must be mentioned, refer to each aircraft by type if possible, especially if the details are not relevant. For midair collisions involving the same type of airplane, you may use registration numbers or other identifying features.

Example: *A witness, who was in an airplane on the taxiway when the accident airplane departed, stated that... .*

Example: *The pilot of the Cessna stated that he did not see the Piper in front of him.*

Example: *The blue Cessna was headed eastbound and climbing at the time of the collision with the southbound Cessna, which was red. About 5 seconds before the accident, the pilot of the red Cessna reported on the CTAF that he was turning from base to final for the runway.*

L. Write reports in past tense to indicate the facts as they were at the time of the accident. Exceptions to this include information that remains in effect at time the accident report is published, such as regulations, aircraft procedures, or any general descriptions intended to help the reader understand how systems or components normally function. Be sure to attribute any "teaching" to a plausible source so that it is clear that these facts don't exist just because the NTSB "says so."

Example: *According to the manufacturer, the airplane was equipped with a stall protection system, which was designed to provide the flight crew with warnings of an impending stall condition. The stick shaker is one component of the system.*

Example: *In addition, 14 CFR 91.17 states, "No person may act or attempt to act as a crewmember of a civil aircraft...within 8 hours after the consumption of any alcoholic beverage."*

Example: A Cessna 150 is a 2-seat, high-wing airplane... The accident airplane, N1234, was equipped with...

M. Do not include personal information such as personal phone number; address; social security number; place of birth; date of birth; mother's maiden name; biometric or physical information (such as DNA associated with a person); medical, employment, criminal, financial, or security clearance history; or pilot/mechanic certificate numbers. Such information and any signatures must be redacted out of public docket items. (See PRI-GEN-002, "Protecting Sensitive and Personally Identifiable Information.")

N. Use nautical miles as the default, and be sure to indicate that you are using nautical miles. If you are referring to statute miles, be sure to indicate that you are using statute miles.

O. Ensure that all factual information is supported on the public side of the docket unless it is publicly available or it resulted from your personal observation of the wreckage and/or accident site. Any in-person or telephone interviews (of pilots, mechanics, witnesses, FAA inspectors, etc.) conducted by anyone (investigator-in-charge, another NTSB investigator, FAA, police, etc.) that you refer to in the factual report must be substantiated by a written document (interview summary, record of conversation, memorandum, group chairman factual report, etc.) included in the public docket. Use only the relevant portions of a document to establish a source. If an original document that contains information supporting the factual has to be placed in the Official Use Only (OUO) side of the docket because it contains nonreleasable information (for example, proprietary information, International Traffic in Arms Regulations information, autopsy report), prepare a separate report that includes the relevant information but does not contain nonreleasable information, and place it on the public side of the docket.

Example: *During 2005 and 2006, the National Transportation Safety Board (NTSB) investigated at least four other fatal accidents that involved airplanes that encountered severe weather while operated by pilots who were in contact with ATC and on active instrument flight rules flight plans. As a result, in October 2006, the NTSB issued Safety Alert SA-11 to advise pilots to actively maintain awareness of severe weather along their route of flight and to provide information to pilots about ATC procedures, limitations, and weather radar assistance.* (Note: Because the safety alert is publicly available, the alert does not need to be included in the docket.)

Example: *The propeller spinner was attached to the crankshaft propeller mounting flange. Examination of the separated propeller hub revealed two blades present with the hub. One blade was bent aft and showed leading edge gouges and chordwise score marks, and the other blade showed leading edge gouges and a curled tip. The third propeller blade, which was found separated and on the ground near the hub, showed s-bends and leading edge gouges. A tree limb about*

4 inches in diameter was found severed in a diagonal, linear pattern, and a tree trunk showed a linear gouge. Chordwise scarring was present on the cambered and noncambered side of all propeller blades. (Note: If this is a personal observation from the accident site, no separate writeup for the docket is necessary.)

P. Put interview summaries in the docket and summarize them in the factual report, quoting or paraphrasing any notable statements that include the witnesses' analysis or interpretation. The use of quotes should be minimized.

Example: *Several witnesses observed the airplane make a low pass down runway 14 then enter the traffic pattern. They reported seeing the airplane on a low, flat final approach to runway 14 with its gear and flaps down. One witness stated the airplane appeared as if it were going to land directly on the numbers but, just before reaching the end of the runway, it suddenly banked left and dropped down the mountainside out of view. Two other witnesses reported that the airplane appeared to pitch up and bank left, then drop from view. The witnesses then heard a loud crash and observed smoke.* (Note: Redundant statements from several witnesses are summarized rather than itemized separately and repeated. However, be careful not to over-combine or over-summarize statements, thus making them inaccurate. Don't put words in people's mouths.)

Q. Avoid quoting documents containing misspellings or grammatical errors. Paraphrase the statement and avoid quotes altogether.

Example: Extract the pertinent information from a witness statement that says, *"I seen the plane come up over my house. I think it's gonna crash so I run inside to get my dog and my kids and my kids friends out because I know they are in the house. So I didn't see it crash or anything. But I heard was revving up big like the guy was really stepping on the gas or something, like he was in an air show or something."* See below:

A witness near the accident site stated that he saw the airplane maneuvering over his residence. He reported that the engine sounded as though it was "revving up" and related it to that of an airplane performing in an air show.

R. Do not quote the cause of death from autopsy reports unless it is needed to support the analysis and/or recommendations. State who conducted the autopsy (for example, Cook County Coroner's Office). The date of the autopsy is only relevant if there was a significant delay that may have affected the toxicological testing. Do not include details from the reports in the factual and do not place autopsy reports into the public docket. Autopsy reports should be placed in the OUO side of the docket.

Example: *A postmortem examination was conducted by the Utah Deportment of Health, Office of the Medical Examiner. The cause of death was reported as blunt force injuries.*

S. Summarize toxicology test findings for negative results, if possible. Quote any positive findings from the report and include a brief description of any medications or other substances that may not be familiar to the reader. For example: "Diphenhydramine (commonly known by the trade name Benadryl) is an over-the-counter antihistamine with sedative effects, often used to treat allergy symptoms or as a nighttime sedative." The drug description/symptoms must be attributed to a reliable source. Explain in the brief narrative whether or not any positive results were relevant to the cause of the accident. Because the toxicology report is public, include a brief explanation of any questionable results.

Example: *The FAA's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot, and no drugs of abuse were detected.*

Example: *The FAA's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot. The report stated 11 percent carbon monoxide and 0.35 ug/ml cyanide were detected in the blood; no ethanol was detected in the urine; 0.008 ug/ml, ug/g brompheniramine was detected in the blood; and brompheniramine, pseudoephedrine, and phenylpropanolamine were detected in the urine. Brompheniramine, pseudoephedrine, and phenylpropanolamine are commonly used in prescription and over-the-counter cough and cold preparations.*

Example: *The FAA's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot. No drugs were detected. Ethanol was detected in liver tissue; however, the toxicology report noted that the ethanol was from postmortem production.*

T. If the toxicological findings, autopsy, or other evidence reveal something of potential relevance or indicate that impairment or incapacitation is a potential issue, request assistance from the NTSB medical officer for an analysis of the findings. Remember that the medical officer's analysis should not be included in the factual report but can be included in the brief analysis.

U. Use civilian acronyms instead of military. For example, a flight instructor is not an IP (instructor pilot). Be sure to define all acronyms unless the term is only used once; in that case, it is not necessary to use the acronym.

V. Using the term "postaccident" is left to investigators' discretion. However, it should be clear from the text when describing examinations whether an examination was done before or after the accident. When referring to a wreckage examination, the term "postaccident" should not be used (since wreckage examinations can only be performed postaccident).

W. A sentence may be included stating that the pilot/operator did not submit a Pilot Operator Aircraft Accident/Incident Report (NTSB Form 6120.1),

X. If new, pertinent information is learned after the factual report was previously approved and published or if substantive mistakes need to be corrected in the factual, the report will need to be republished. To republish, paste the original narrative into a Word document and, using the track changes feature, make the necessary changes. Save a copy of the factual narrative showing the revisions in the docket and request approval of the changes from your supervisor. Once your supervisor has approved the changes, send a copy in revision mode to the AS-70 Division Chief. AS-70 will make the requested changes in ADMS and add a sentence to the top of the narrative that states, "******This report was modified on [date]. Please see the docket for this accident to view the original report.****" Once AS-70 has republished the factual, ensure that the version with tracked changes is released in MyDMS.

8. Attachment
   A. Exemplar Reports

Exemplar Reports
AS-INT-012

Limited Report

Factual

On September 18, 2005, about 1720 central daylight time, a Grumman G-164A airplane, N1234A, experienced a partial loss of engine power while maneuvering near Pittsfield, Iowa, and the pilot made a forced landing to a cornfield. The pilot was not injured; the airplane sustained substantial damage to the forward portion of the fuselage. The airplane was registered to Spray Service, Inc., and operated by the commercial pilot under the provisions of 14 *Code of Federal Regulations* Part 137 as a local aerial application flight. Visual meteorological conditions were reported near the accident site about the time of the accident, and no flight plan was filed. The flight originated from a private airport in Pittsfield at 1655.

The pilot stated that he initiated a spray run from east to west at 10 ft above and parallel to the rows. The pilot completed a trim pass on the end of the rows, pulled up to 50 ft, and heard a "pop" sound. The airplane started to descend, and the pilot applied power. The rpm came up to between 2,300 and 2,400 rpm, but the airplane could not maintain altitude and continued its descent. The pilot stated that he was attempting to level the airplane when it collided with the ground and nosed over.

Examination of the airplane revealed that the fuselage was buckled and the vertical stabilizer and rudder were crushed. The engine was removed and examined by the Federal Aviation Administration. The fuel and oil elements and housing were removed, and no contaminants were noted. An access plug on the engine was removed, and the two cam rings were observed through several engine rotations indicating continuity. A compression test was conducted and cylinder Nos. 1, 5, and 8 had low compression. The rocker covers were removed, and valve action was observed through several engine rotations confirming drivetrain continuity. The valves were "staked," and a compression check was completed, and this also resulted in low compression. A valve lash check was completed, and no anomalies were noted. The cylinders were removed, inverted, and filled partially with gasoline to determine if any valve leakage was present; no leakage was detected. Visual examination of the valves revealed no burnt areas. The pistons displayed no indication of burning, and no anomalies were noted with the ring gaps. The valves were removed from the cylinder head assemblies, and neither the valves nor the valve seats were burnt or scored. No foreign objects were noted in the cylinders, intake and exhaust ports, and exhaust manifolds. The supercharger impeller was examined for evidence of wobble, or play and no anomalies were noted. The magneto covers were removed, inspected for rotation and sparking, and no anomalies were noted.

Field Report

HISTORY OF FLIGHT

On January 7, 2005, about 1856 eastern standard time, a Piper PA-28-181, airplane, N1234B, collided with terrain during an uncontrolled descent in Bradley, South Carolina. The pilot and the three passengers were fatally injured, and the airplane sustained substantial damage. The airplane was registered to Starlight One, LLC, and operated by the private pilot as a personal flight under the provisions of 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed along the route of flight around the time of the accident, and no flight plan was filed. The flight departed McCormick County Airport (S19), McCormick, South Carolina, at an undetermined time with a destination of Bennettsville, South Carolina.

According to flight service station records, the pilot telephoned the Anderson, South Carolina, automated flight service station for a weather briefing at 1739 and requested a standard weather briefing for a 75-minute flight from S19 to Marlboro County Jetport (BBP), Bennettsville, South Carolina, with an estimated departure time of 2000. The pilot also requested wind information for 3,000 and 6,000 ft. The briefer told the pilot that the satellite imagery was showing cloud cover over the entire route. The briefer stated that the current reported conditions at Greenwood County Airport (GRD), Greenwood, South Carolina, were visibility of 10 statute miles with overcast clouds at 3,800 ft, and at Columbia, South Carolina, ceilings were broken at 4,000 ft. The briefer stated that the forecast for Columbia was ceilings broken at 2,000 ft, and, by 2100, conditions at Florence, South Carolina, were forecast to include clouds at 2,000 ft with mist and that conditions there were expected to deteriorate after 2200.

The pilot did not file a flight plan to BBP, and, according to information provided by family members, the accident flight was en route to GRD. No known radio communication or radar contact was made with the flight. When the airplane failed to arrive at GRD, friends and family became concerned and initiated a search. Witnesses in residences near the accident site reported the downed airplane to the local 911 operator at 1856. One witness reported that the airplane sounded "as if in distress...[with] the engine idling high." The wreckage was found in a wooded area 9.14 nautical miles north northeast of S19.

PERSONNEL INFORMATION

The pilot, age 36, held a private pilot certificate for airplane single-engine land issued March 6, 1999, and a third-class airman medical certificate issued September 27, 2004, with no limitations. The pilot's logbook was not recovered for examination. On the pilot's March 6, 1999, application for his private pilot certificate, he reported 55.5 total flight hours with 7.3 hours night instruction received, and, on his September 27, 2004, application for the medical certificate, he reported 150 total civilian flight hours.

AIRCRAFT INFORMATION

The four-seat, low-wing, fixed-gear airplane, serial number 28-7990474, was manufactured in 1979. It was powered by a Lycoming O-360-A4M 180-hp engine and equipped with a Sensenich model 76EM8S5-0-62 fixed-pitch propeller. Review of copies of maintenance logbook records showed an annual inspection was completed November 24, 2004, at a recorded tachometer reading of 5,173.1 hours, airframe total time of 5713.1 hours, and engine time since major overhaul of 642.1 hours. The tachometer and the Hobbs hour-meter were observed at the accident site; however, damage precluded determining the current readings.

METEOROLOGICAL INFORMATION

A review of recorded data from the GRD automated weather observation station, elevation 631 ft, revealed that, at 1816, conditions were calm wind, visibility of 10 miles, cloud conditions broken at 2,200 ft above ground level (agl) and overcast at 3,400 ft agl.

The geostationary operational environmental satellite-12 infrared satellite image at 1832 depicted a region of mid- to high-level cloud cover extending over an area that included the accident site. No convective clouds were identified in the immediate vicinity.

On the day of the accident, official sunset was at 1731, end of civil twilight was at 1758, moonset was at 1429 with an elevation more than 15 degrees below the horizon, and moonrise would have been at 0543 the following day. Moon phase was a waning crescent with 11 percent of visible disk illuminated. Review of these data by a National Transportation Safety Board (NTSB) senior meteorologist revealed that the moon was below the horizon at the time of the accident and would have been obscured by the mid- to high-level cloud cover.

WRECKAGE AND IMPACT INFORMATION

Wreckage debris and broken tree limbs were scattered about 175 ft along an approximate 235-degree magnetic heading from a cluster of scraped and broken trees. A separated section of the outboard left wing and an outboard section of the left aileron were lodged in one of the damaged trees at the beginning of the debris path. A crater about 3 ft deep, 20 ft long, and 10 ft wide was observed on the ground about 90 ft southwest of the initial cluster of broken trees, and the fuselage and empennage were located about 40 ft southwest of the crater. From the northeast side of the debris path looking southwest toward the main wreckage, the tree in which the outboard section of the left aileron was lodged showed scrapes and damage higher than the break and scrape damage in the other trees.

Examination of the recovered airframe and flight control system components revealed no evidence of preimpact mechanical malfunction. Examination of the engine revealed that it was separated from the firewall with sections of the engine mount bent and attached. The propeller remained attached to the crankshaft, the spinner was crushed onto the

propeller hub, and both propeller blades displayed chordwise gouges across the leading edge and forward face. One propeller blade exhibited an s-shaped bend and was twisted from root to tip, and the other propeller blade was bent and twisted from about midspan to tip. Tree branches 2- and 3-inches in diameter were found within the debris path severed cleanly in a diagonal linear pattern. Examination of the recovered engine and system components revealed no evidence of preimpact mechanical malfunction.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on January 8, 2005, by Newberry Pathology Associates, P.A., Newberry, South Carolina, as authorized by the Greenwood County Coroner.

The Federal Aviation Administration's (FAA) Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot with negative results for drugs and alcohol.

ADDITIONAL INFORMATION

An NTSB air traffic control specialist reviewed radar data from the Charlotte ARSR-1E, Raleigh ARSR-1A, and the Fort Fisher ARSR-4 sites for timeframes and locations that included the accident flight but found no associated primary or mode C targets. The specialist reported that radar coverage from these sites for low altitudes in the vicinity of S19 and the accident site is limited due to terrain interference.

A review of satellite photographs provided by the Greenwood County Sheriff's Office showed that the accident site was in a wooded area a few hundred ft east of McCormick Highway, State Highway 10, near an eastern boundary of the Sumter National Forest. Review of map data from the Sumter National Forest, Long Cane Ranger District, showed areas of the Sumter National Forest spanned the direct flightpath between S19 and GRD south of Bradley.

The FAA Airplane Flying Handbook, FAA-H-8083-3, chapter 10, states the following about night flying: "Night flying requires that pilots be aware of, and operate within, their abilities and limitations. ...Night flying is very different from day flying and demands more attention of the pilot. The most noticeable difference is the limited availability of outside visual references."

According to FAA Advisory Circular 60-4A "Pilot's Spatial Disorientation," "Surface references and the natural horizon may at times become obscured, although visibility may be above visual flight rule minimums. Lack of natural horizon or surface reference is common on over-water flights, at night, and especially at night in extremely sparsely populated areas or in low visibility conditions. A sloping cloud formation, an obscured horizon, a dark scene spread with ground lights and stars, and certain geometric patterns of ground lights can provide inaccurate visual information for aligning the aircraft

correctly with the actual horizon. The disoriented pilot may place the aircraft in a dangerous attitude."
NOTE: Docket Items

The following information was placed in the docket for this accident as a separate document because the investigator-in-charge conducted the airframe and engine exams on-scene and wanted to maintain a detailed record of the findings, which are not necessary for the factual report because they do not directly support the probable cause.

Summary of On-scene Examination of Airframe and Engine [NTSB case number]

The investigator-in-charge performed an on-scene examination of the airplane at the accident site on January 7, 2005, and performed a followup examination of a recovered and submitted component (the outboard section of left aileron) on January 21, 2005. The following is a summary of the investigator's observations.

Examination of the left wing revealed a separated section was on the ground at the base of a tree with the left flap attached; the main wing spar and the flap were bent, and the fuel filler cap was secure in its port. An approximate 6-ft section of aileron cable with a turnbuckle intact was found with this section of the left wing; the separated cable ends showed a splayed appearance of the individual cable strands. The composite left wingtip cap was found separated and in a tree. The left inboard section of aileron was found attached at the inboard hinge to another separated section of the left wing. The left aileron bellcrank was not located. The Greenwood County Sheriff's Department retrieved the outboard section of the left aileron from the tree and submitted it for examination. Sheriff's department personnel reported that the components were crushed around the tree and that it was difficult to separate them from the tree. Examination revealed that the outboard section of the left aileron was attached to a separated section of the outboard left wing at the outboard hinge and both showed semicircular, fore-to-aft accordion crush damage and tree bark debris.

Examination of the right wing revealed that an outboard section was separated and on the ground with the composite wingtip cap attached and a section of the right aileron attached at the outboard and middle hinges. Sections of the main wing spar were bent and separated. The fuel filler cap was absent from the port and found within the debris path. The right aileron bellcrank was attached, both arms were bent inboard, and the stops were in place. An approximate 6-ft section of balance cable and an approximate 2-inch section of the control cable were attached to the bellcrank; the separated cable ends showed a splayed appearance of the individual cable strands. The inboard section of the right aileron was separated inboard of the rivet line. An inboard section of the right flap about 2.5 ft long was found separated with the inboard bracket attached. The outboard section of the right flap was found separated and showed semicircular fore-to-aft crush damage.

The empennage was attached to the fuselage with the vertical fin attached by a section of aircraft skin. The rudder was attached to the vertical fin at all attach points, and the rudder control cables were attached to the rudder horn. Rudder control continuity was

established from the rudder to the cockpit rudder bar. The stabilator structure with the trailing edge was attached, most of the left side skin was attached, most of the right side skin was separated and found in the debris path, the balance weight was attached, and the stabilator trim tab was attached. The stabilator control cables were attached to the balance weight. Stabilator control continuity was established from the balance weight tube assembly to the cockpit t-bar. The stabilator trim tab arm assembly was attached to the tab and bent, and the trim control cable was observed on its drum.

The fuselage was on its left side. The cabin, cabin roof, and cabin floor showed crush damage, the cabin door was separated, and the seats showed deformation. The instrument panel was crushed with most instruments and avionics separated from their mounts. A separated section of a control yoke was found near the impact crater. Separated rudder pedals were observed within the debris field. The engine primer control was found separated and in the "in" and "locked" detent. The engine start and magneto switch was found separated with the key absent and the orientation of the keyhole in the "both" position. The attitude indicator and the directional gyro were found crushed and separated; disassembly of each revealed their respective rotors and rotor housings displayed circumferential scoring.

The engine was separated from the firewall with sections of the engine mount bent and attached. Dirt and debris were found embedded around the propeller, spinner, and the cylinder fins. The propeller remained attached to the crankshaft, the spinner was crushed onto the propeller hub, and both propeller blades displayed chordwise gouges across the leading edge and forward face. One propeller blade exhibited an s-shaped bend and was twisted from root to tip, and the other propeller blade was bent and twisted from about midspan to tip. Tree branches 2- and 3-inches in diameter were found within the debris path, severed cleanly in a diagonal linear pattern.

Crush damage was observed to the No. 1 cylinder exhaust valve pushrod. The exhaust system was crushed. The starter and ring were crushed, deformed, and impacted with dirt and debris. The alternator was not attached, and its rotor was found separated with dirt embedded. The engine sump and the accessory case were crushed with case pieces and the accessories separated, and accessory drive gears were exposed. Separated pieces of both magnetos, the ignition harness, the top of the vacuum pump, the vacuum system air filter, and the oil filter were found in the debris field. The vacuum pump drive coupling was observed intact at the separated base of the pump. The oil pump and the engine-driven fuel pump were found attached to a separated section of accessory case. The carburetor was separated, and the throttle, mixture, and heat controls were damaged. The air box was crushed with dirt embedded in the air filter element. The oil filler cap was secured in its port.

Examination revealed that the accessory drive gears turned when the propeller was turned by hand. The propeller was removed to facilitate further examination, and compression developed on all cylinders when the propeller flange was turned by hand. Movement was observed on all valves except for the No. 1 cylinder exhaust valve. The bent pushrod for the No. 1 cylinder exhaust valve was removed, and the valve lifter for the No. 1 exhaust

valve was then observed to move when the propeller flange was turned. The top and bottom spark plugs for each cylinder were removed for examination. The No. 1 cylinder top plug was damaged with part of the electrode missing; the other electrode plug showed light gray-colored deposits, and the wear on each electrode plug was consistent with the "normal" condition on the Champion AV-27 illustrated comparison card for massive electrode plugs. Oil residue was observed on the Nos. 1 and 3 cylinder top and bottom plugs.

Examination of the crushed muffler components revealed no observed evidence of corrosion or pitting. Disassembly examination of the carburetor revealed that both internal floats were shattered, the needle valve showed no abnormalities, the bowl appeared clean and free of contaminants, and the inlet port at the screen was free of debris. The fuel finger screen was free of debris. The damaged and exposed oil filter element showed clean, green-colored oil residue and no evidence of metallic contaminants. Disassembly of the oil pump showed green-colored oil residue, and the internal gears were intact.

National Transportation Safety Board

Office of Aviation Safety

Operations Bulletin AS-INT-013
Aviation Accident Report Brief and Probable Cause Narratives

1. Issuing Organization. Operations Bulletin AS-INT-013 was developed by the Office of Aviation Safety (OAS); issued December 31, 2012; reviewed August 13, 2015; and is due for review by August 12, 2017.

2. Purpose. Operations Bulletin AS-INT-013 provides OAS staff policy guidance and establishes procedures for writing the brief and probable cause narratives associated with final aviation accident and incident reports (titled "Brief of Accident") generated in the Aviation Data Management System (ADMS).

3. Policy. The National Transportation Safety Board's (NTSB) published reports of accidents are often read by those connected with the accident and other interested parties and researchers. The reports should be clear and concise, spelled and punctuated correctly, and adhere to the Chicago Manual of Style, the NTSB's Writing Guide and Glossary, and the OAS Safety Quick Reference Guide. Because the technical knowledge of the NTSB's audience varies greatly, the NTSB does not intend its reports and recommendations to be read only by technicians and specialists in the transportation industry. Investigators (writers) and analysts and AS management (reviewers) are to produce documents that can be read and understood by an educated layperson who is able to access aviation terms and definitions, as needed. Although the reader may not always achieve a full understanding of the technical aspects discussed in a document, the reader should be able to follow the discussion and fully understand the analysis and cause of the accident.

   The Brief of Accident report is typically the final product that represents the NTSB's investigative efforts. The brief and probable cause (PC) narratives included in this report should be standardized, accurate, concise, logical, and capable of withstanding close public scrutiny.The purpose of the brief narrative is to give the reader an executive summary that explains the cause-and-effect relationship among the events leading up to the accident. The brief contains a summary of the relevant facts and provides an analysis of the facts that directly supports the NTSB's PC narrative. For C-forms, the brief narrative may include some analysis, but the inclusion of analysis is not necessary.

   The purpose of the PC narrative is to accurately represent the NTSB's determination of the probable cause of, and factors associated with, an accident. The PC identifies the

cause-and-effect relationships in an accident sequence; contributing factors further explain or supplement the cause(s). The PC narrative briefly summarizes the conclusions reached in explaining why the accident happened. The PC describes the conditions that made the accident inevitable. In some cases, the PC narrative may also include factors associated with the survivability of an accident. Findings are not included in the PC unless they relate to a significant safety issue.

4. References.

   A. Chicago Manual of Style

   B. NTSB Writing Guide

   C. NTSB Glossary

   D. Office of Aviation Safety Quick Reference Guide

   E. Operations Bulletin AS-INT-012, Aviation Accident Report Factual Narratives

   I. Common Taxonomy Occurrence and Phase Codes for the NTSB eADMS database

   G. NTSB eADMS Causal Coding Manual[1]

5. Cancellation. In 2012, Operations Bulletin AS-INT-013 replaced AS-INT-013 and AS-INT-014, is in operational effect as of the issued date, and will remain in effect unless cancelled or revised, in writing, by OAS.

6. Responsibilities.

   The director, OAS is responsible for:

   (1) Ensuring compliance with the procedures set forth in this bulletin.
   (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures for Brief Narratives.

   A. Adhere to good fundamental writing principles and conventions as outlined in the Chicago Manual of Style. The manual is electronically searchable and provides the NTSB's protocols on punctuation, grammar, spelling, prefixes, numbers usage, etc., and should be the primary source for writing standardization. An additional reference is the NTSB Glossary, which is a one-stop reference for terms, acronyms, and abbreviations that should be capitalized, spelled, and otherwise formatted consistently throughout NTSB documents. Also, see the "Office of Aviation Safety Quick Reference Guide" for examples of common writing mistakes with corrected versions and boilerplate statements intended for routine use.

[1] N:\...eADMS Causal Coding Training\eADMS Causal Coding Manual 1.1 .pdf

B. There are no restrictions on the overall length of brief narratives; however, brevity without the loss of context is important. Briefs are typically about 1-2 paragraphs long, although for more complex investigations they may be longer. The reader should not need to go to the factual or the docket. The brief should provide a story of what happened and support the PC. Avoid including information that is not related to the PC, but do include enough to provide context for the PC to make sense and for the analysis to flow from the facts. Analysis regarding issues that were not causal or contributing can be included, but it should he kept to a minimum unless it supports a safety recommendation proposal. (See Attachment 1 for exemplar brief narratives with probable cause and coding.)

C. Summarize the *pertinent* facts of the accident and provide an analysis that explains why the accident happened. Instead of just repeating facts, describe what those facts mean. Use phrases such as "indicative of," "consistent with," and "it is likely that."

Example: *Based on this evidence, it is likely that the "B" nut on the fuel line was not properly tightened, which allowed it to back off due to normal engine vibration and resulted in the line disconnecting during the flight.*

Example: *Ground scar analysis, impact signatures, and wreckage fragmentation patterns indicated that the airplane impacted terrain in a near-level attitude with high forward velocity.*

D. Provide, then refute, any information that may be misconstrued by the public as being causal to the accident. Types of information that may need to be refuted include mechanical discrepancies, incorrect pilot actions, or positive toxicological findings (see section O).

Example: *Although the rigging of the landing gear selector valve arm was found to be 2 degrees beyond specifications, the fact that the landing gear was successfully cycled numerous times with this discrepancy indicates that it was not a contributing factor to this incident.*

Example: *Although the flight crew did not follow the quick reference handbook (QRH) procedure for manually extending the landing gear, the loss of hydraulic pressure disabled the manual landing gear extension system. Therefore, the QRH procedure would have been ineffective in securing the lefi main landing gear.*

E. If the accident received widespread media attention and public speculation about issues that the investigation determined are not relevant to the PC, explain in the analysis why these issues were ruled out. For example, selected spectator photos that showed the elevator trim tab separating from a highly modified P-51D airplane that experienced an upset and crashed at the 2011 National Championship Air Races in Reno, Nevada, were widely publicized and led many people to believe that the tab separated before the upset. However, NTSB analysis of photos covering the entire accident sequence revealed that the upset preceded the separation of the trim tab by about 6 seconds.

F. The brief should never contain factual information that is not referenced in the "Factual Report Aviation" and supported in the public side of the docket.

G. Unless it is essential for clarity, avoid starting the brief with a statement rendering the ultimate fate of the flight. Accident briefs should be written chronologically. Typically, the beginning briefly describes pertinent information about the flight before the onset of the accident event or events, the middle describes the accident event, and the end describes the examination and analysis that leads to the probable cause. (See examples in Attachment 1.)

However, beginning with a bottom-line statement may be best for some accidents, like a midair collision, where it can become too confusing if the reader isn't initially told the outcome.

Example: *The Lancair and the Cessna collided in midair during day visual meteorological conditions. A witness stated that both airplanes appeared to be in straight-and-level flight before they collided. Neither pilot was communicating with an air traffic controller. The Lancair departed from an airport about 38 miles south of the accident site and was en route to an airport about 8 miles north-northwest of the accident site. Recorded radar data depicted the Lancair's flightpath as north-northeast on a direct path to its destination airport and at an altitude that varied between 2,200 to 2,500 ft mean sea level. The Cessna departed on an instructional flight from an airport about 15 miles west-southwest of the accident site, flew eastbound, and made numerous heading and altitude changes, consistent with the training mission...*

H. Exclude explicit references to the pilot's gender unless used as a preamble, in an explanatory clause, or part of a quote.

Example: *The pilot stated that the fuel tanks were full when she departed.*
Not: *The female pilot stated that the fuel tanks were full when the flight departed.*

I. Do not include the age of the pilot in the brief unless special circumstances call for it.

J. Eliminate unnecessary details, such as:

(1) A detailed description of the purpose of the flight, the pilot's activities before the flight, or the history of the flight.
(2) Injury/egress information.
(3) The names of airports, navigational fixes, and other geographic locations (streets, cities, towns, states, etc.).
(4) Extensive quotes or paraphrases of communications with air traffic control.

This information can be included if it enhances clarity or is pertinent to the PC or a safety recommendation proposal.

K. In general, information already recorded in the core data section of ADMS, such as pilot flight time, weather conditions, and runway information, should not be included. The exception is when the information is necessary to support the PC, such as:
(1) When the pilot's total flight hours or ratings are germane to the accident and coded as a cause, factor, or finding. For example, when citing the pilot's inexperience as a contributing factor, it would be appropriate to write: *"The pilot, who had 3 hours of flight time in helicopters, performed an autorotation to an open field."* Not: *"The 10,000-hour airline transport pilot performed an autorotation to an open field."*
(2) When weather conditions, such as wind, fog, or low clouds, are relevant. For example, if the accident happened in gusting wind during landing, then it would be appropriate to include the runway direction and wind direction, speed, and gust factor. Another option would be to include the relative direction of the wind (crosswind, quartering tailwind, etc.).
(3) When there are aircraft performance issues. For example, if there was insufficient runway for a successful high density altitude takeoff, then it would be appropriate to include the runway length.

L. Use the specific type of aircraft, such as airplane, helicopter, etc., and avoid referring to it as "the aircraft."

M. Avoid using specific dates or times; instead provide a contextual reference.

Example: *The service bulletin was issued 10 months before the accident.*
Not: *The service bulletin was issued on February 9, 2010.*

Example: *About 20 minutes after departure, the pilot told the controller that there was a "problem," and 1 minute later, he stated that the airplane was losing altitude.*
Not: *At 0830, the pilot told the controller that there was a "problem," and at 0831, he stated that the airplane was losing altitude.*

N. Avoid quoting from written statements and interviews. Instead, paraphrase as necessary to clarify the information provided or to make it read more grammatically correct. Often a paraphrase will enhance clarity and improve readability.

Example: *The pilot advised the controller that the airplane was out of fuel.*
Not: *The pilot advised the controller, "mayday uh I'm out of fuel."*

There are exceptions when a quote is appropriate, usually when describing a sound.
Example: *The pilot heard a "pop," and the engine experienced a loss of power.*

Use caution when paraphrasing witness statements and do not attribute things to the witnesses that they did not say. This is particularly important when referring to a group of witnesses.

O. If any positive toxicological results were relevant to the cause of the accident, this should be addressed in the brief narrative.

Example: *Postmortem toxicology testing of specimens from the pilot was consistent with the recent use of a typical dose of a prescription narcotic pain reliever. It is possible that the pilot's response to the emergency may have been adversely affected by the use of the medication or by the condition for which the medication was taken.*

Positive toxicological results that were *not* relevant to the cause of the accident may need to be addressed, particularly if the results may be misconstrued by the public as being causal. For example, if the pilot tested positive for cocaine, but the wing of the airplane fell off in cruise flight, it would be appropriate to state, *"Although the pilot may have been impaired by his recent use of cocaine, there is no evidence that such impairment played any role in causing or contributing to the wing separation."*

P. Except for C-form briefs, it is not necessary to describe aircraft damage in the brief. For C-form briefs only, because the factual and brief are so similar, concisely describe the substantial damage sustained when stating that an aircraft was substantially damaged. Such descriptions aid later attempts to determine the reason an event was classified as an accident. For example, *"During the accident sequence, the airplane sustained damage to the firewall."* If using the generic phrase "substantial damage" followed by noting damage to the aircraft, remember that "substantial," excludes certain items. For example, it would not be appropriate to write: *"The airplane sustained substantial damage to the wings, rudder, flaps, and propeller,"* because the flaps and propeller are excluded from substantial damage by definition. Further, do not describe damage as "major" or "structural" because Part 830 does not define these terms.

Q. Do not include the fact that the pilot/operator failed to submit a Form 6120.1. This information may be included in the factual narrative.

R. It is not necessary to explain in the brief who conducted a postaccident examination or where it was conducted. (This information should be included in the factual narrative or in a separate report in the public docket.)

Example: *A postaccident examination revealed...*

Not: *FAA inspectors examined the...*
Note: When referring to NTSB examinations, be sure to identify them as examinations only, not inspections.

S. Once the source of information is identified, it is not necessary to repeat it.

Example: *According to the pilot, he performed a preflight inspection. The takeoff and initial climb were normal. While en route...*
Not: *According to the pilot, he performed a preflight inspection. The pilot stated that the takeoff and initial climb were normal. He further stated that while en route...*

T. When mechanical malfunctions or failures did *not* contribute to the cause of an accident, the brief narrative should typically include a boilerplate statement to that effect.

Example: *The pilot reported no preimpact mechanical malfunctions or failures with the airplane that would have precluded normal operation.*
Example: *A postaccident examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.*

U. The brief narrative does not need to "teach," and it should not include generic aeronautical information generally known by pilots. This information should be included in the factual report. For example, if the accident involves spatial disorientation, it would be appropriate to include information from FAA Advisory Circular 60-4A (Pilot's Spatial Disorientation) in the Additional Information section of the factual, and in the brief write: *"The airplane's rapid, near-vertical descent is consistent with the pilot's loss of control of the airplane due to spatial disorientation."*

V. If the PC potentially involves fatigue, spatial disorientation, or in-flight decision-making, ask a human performance specialist in AS-60 to review the case. If the PC potentially involves air traffic control (ATC) or weather and the issues are not clear-cut, ask AS-30 to review the case. Include the specialist's analysis in the official use only side of the docket.

W. When a pilot is receiving additional instruction, identify that person as a "pilot receiving instruction" or a "pilot under instruction" rather than as a student pilot. For example, if a private pilot is working on obtaining a tailwheel endorsement, it would be appropriate to write: *The flight instructor stated that he and the pilot receiving instruction were practicing landings in the tailwheel-equipped airplane.*

8. Procedures for Probable Cause Narratives

A. The PC narrative is a clearly written summation of the causes and contributing factors related to the accident. Findings are not noted in the PC narrative unless they support significant safety issues. (See Attachment 2 for exemplar PC narratives.)

B. The PC should be obvious to readers once they have read the brief narrative. There should be no surprises; do not list a contributing factor without supporting it in the brief narrative.

C. When it is relevant, the PC narrative should include the phase of flight in which the accident or primary cause of the accident occurred. If used, the phase of flight should go immediately after the event that occurred. For example: "The *loss of engine power during cruise flight due to a lack of engine oil,*" not "The *loss of engine power due to a lack of engine oil during cruise flight.*"

D. It is appropriate to use the phrase "which resulted in" when it further explains the cause of the accident. Take the PC to the point where the accident is inevitable. It is not necessary to "crash" the aircraft in the PC.

Example: *"The pilot's failure to maintain adequate airspeed during takeoff, which led to the airplane exceeding its critical angle-of-attack and experiencing an aerodynamic stall."*
Not "*...which resulted in a stall and impact with the ground.*"

E. The preamble to the PC narrative is automatically generated by ADMS:

The National Transportation Safety Board determines the probable cause(s) of this accident as follows:

F. Capitalize the first letter of the PC narrative when entering it in the ADMS text field.

G. Contributing factors follow the cause statement in the PC narrative, using the following format:

"Contributing to the accident was (were)..."
OR
"Contributing to the passenger fatalities was (were) ..."
OR
"Contributing to the severity of the accident was (were) ..."

H. For accidents that occur during dual instructional flights with a student-rated pilot, in most cases, the primary cause should be the flight instructor's inadequate/improper/delayed supervision/remedial action (depending on how the accident played out) and the student's action/inaction should be co-causal or contributing.

However, if the student fails to follow instructions or does something such that the flight instructor cannot take remedial action, then the student should be primary in the PC. If the instructional flight includes a pilot who is already certificated as a pilot, then he/she can be primary, secondary, or co-causal.

I. Do not add specific contributing factors that cite weather or light condition modifiers such as wind, fog, low ceilings, ice, snow, dark night, sunglare, etc. However, if the inclusion of a weather or light modifier enhances context for the reader, it may be used in conjunction with the phase of flight. For example: "*The pilot's failure to execute a go-around during the approach in fog,*" would be acceptable, but "*Contributing to the accident was the fog,*" would not be acceptable. Weather and light conditions are typically included in the core information data fields in ADMS, factual, and brief and may be coded as causes, factors, or findings. Further, weather is something that is there and the pilot has to deal with; it can be part of the PC, but the weather alone does not cause or contribute to an accident.

J. Do not add specific contributing factors that cite terrain or fixed-object modifiers such as rough terrain, unsuitable terrain, snow banks, wires, ditches, trees, runway lights, etc. However, if the inclusion of a terrain or fixed-object modifier enhances context for the reader, it may be used to polish the end of the PC narrative. For example: "*The pilot's descent below the published minimum descent altitude for the instrument approach procedure, which resulted in a collision with wires,*" would be acceptable, but "*Contributing to the accident was the wires,*" would not be acceptable. Again, the wires are there and are something the pilot has to deal with, therefore, they do not stand alone as causal or contributing.

K. Standalone findings should not go in the PC. If you are trying to support a proposed recommendation, related findings can be included in the PC as contributing factors. It is easier to get a recommendation through the review process and adopted if an accident clearly supports it.

9. Coding Briefs. After writing the PC narrative, the accident should be coded. The coding provides database search capability; it is not meant to capture the exact wording of the PC narrative. For guidance on coding, see the NTSB's eADMS Causal Coding Manual. Coding is very important--the entire ADMS database, including the causal coding, is made public. What is in the brief represents less than 10 percent of the data that are released for each case and transmitted to the International Civil Aviation Organization (ICAO), Aircraft Owners and Pilots Association, FAA, and anyone else who wants it. The external demand for ADMS data is increasing, and narrative accounts are not useful for aggregate analysis and searches.

Notes: The modifier "contributed to outcome" is only intended to be used to describe those details that contributed to the *outcome* of the event, not the cause. Examples include rough terrain, trees, obstacles, or water that resulted in greater damage and/or injury during the accident or incident sequence. The modifiers

"awareness of condition," "response/compensation," "effect on operation," or "decision related to condition" are alternatives that may be appropriate to use when coding conditions/weather/phenomena that are relevant to the cause of an accident.

For spatial disorientation cases, use the following code: *Personnel issues - Psychological - Awareness/orientation/illusion - Spatial disorientation – C*

A glider tow event is defined as: *"Premature release, inadvertent release or nonrelease during towing, entangling with towing, cable, loss of control, or impact into towing aircraft/winch."*

Loss of control should not be cited in the occurrences if the aircraft is rendered uncontrollable due to a mechanical issue. If the pilot's actions led to the loss of control, then it should be cited in the occurrences. In this case, both an aircraft and a personnel code should be included.

Any findings listed in the coding must be supported in the brief narrative.

Per Commercial Aviation Safety Team (CAST)/ICAO guidance, a loss of engine power due to fuel starvation/exhaustion or carburetor ice should be coded as a fuel-related event (starvation due to restriction), not as a loss of engine power event.

Per CAST/ICAO guidance, the cabin safety event code is for miscellaneous cabin events, including significant events related to carry-on baggage, supplemental oxygen, missing/nonoperational or inadvertently deployed cabin emergency equipment, or medical emergencies. It specifically excludes turbulence and other weather-related events, which are covered under the turbulence encounter, clear air turbulence encounter, or windshear/thunderstorm event codes.

10. Attachments.

A. Attachment 1, Exemplar Brief Narratives with Probable Causes and Coding
B. Attachment 2, Exemplar Probable Cause Narratives

Attachment 1, Exemplar Brief Narratives with Probable Causes and Coding
AS-INT-013

Field Reports

Example F1 (Severe Weather/In-flight Breakup)

The pilot obtained three weather briefings before departure. At that time, the current weather along the route of flight showed significant convective activity and a moving squall line, and the forecast predicted significant thunderstorm activity along the planned route of flight. The pilot was concerned about the weather and mentioned that he would be looking for "holes" in the weather to maneuver around via the use of his onboard weather radar. He decided to fly a route further south to avoid the severe weather. Radar data indicate that, after departure, the pilot flew a southerly course that was west of the severe weather before he asked the air traffic controller for a 150-degree heading that would direct him toward a "hole" in the weather. A controller, who said he also saw a "hole" in the weather, told the pilot to fly a 120-degree heading and proceed directly to a fix along his route of flight. The airplane flew into a line of very heavy-to-intense thunderstorms during cruise flight at 25,000 ft before the airplane began to lose altitude and reverse course. The airplane then entered a rapid descent, broke up in flight, and subsequently impacted terrain.

Review of recorded precipitation data showed that there was substantial information available to the controller about moderate-to-extreme weather along the airplane's route of flight. Although the controller stated that he saw a hole or clear area ahead of the airplane, this is contradicted by both the recorded data and the statement of a second controller working another position at the time of the accident. The first controller did not advise the pilot of the severe weather that was along this new course heading, and the pilot entered severe weather and began to lose altitude. The controller queried the pilot about his altitude loss, and the pilot mentioned that the airplane had gotten into some "pretty good turbulence." This was the last communication from the pilot before the airplane disappeared from radar.

The controller did not provide advisories to the pilot regarding the adverse weather's immediate safety hazard to the accident flight, as required by Federal Aviation Administration Order 7110.65. All of the fractures of the recovered sections of the flight control surfaces examined exhibited signs consistent with overstress failure. There was no evidence of preexisting cracking on any of the fracture surfaces examined, and no preaccident anomalies were noted with the engines.

Probable Cause:

The pilot's failure to avoid severe weather, and the air traffic controller's failure to provide adverse weather avoidance assistance, as required by Federal Aviation Administration directives, both of which led to the airplane's encounter with a severe thunderstorm and the subsequent loss of control and in-flight breakup of the airplane.

OCCURRENCES

Enroute-cruise - Windshear or thunderstorm

Enroute-cruise - Loss of control in flight
FINDINGS
Environmental issues-Conditions/weather/phenomena-Convective weather-Thunderstorm-Decision related to condition C
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot – C
Personnel issues-Task performance-Communication-Lack of communication-ATC personnel – C
Personnel issues-Action/decision-Action-Lack of action-ATC personnel C

Example F2 (Mechanical Failure)
The flight instructor and private pilot were performing touch-and-go landings. When the airplane was turning to the crosswind leg of the traffic pattern, they began to see smoke in the cockpit, which was likely coming through the defroster vents. With the airplane about 1,600 ft mean sea level, the flight instructor assumed control of the airplane and declared an emergency to the tower air traffic controller. Within several seconds, the smoke in the cockpit became thick, and the flight instructor banked the airplane right with the intent of landing on the closest runway. The smoke in the cockpit became so thick that the flight instructor lost visual reference outside. He flared the airplane, and it touched down hard.

A review of the airplane's maintenance logbooks revealed that the last annual inspection was completed 2 days before the accident. According to the logbooks, the airplane had accrued about 4 flight hours since that inspection.

An examination of the firewall revealed that its left side had a white coloration that transitioned to a black soot color on the right side, consistent with a fire originating on the left side of the engine. The fuel line leading from the engine-driven fuel pump to the carburetor was found disconnected at the fuel pump. There was no visible impact damage to the "B" nut on the line or to the fitting on the fuel pump, indicating the line was not connected at the time of impact. Based on this evidence, it is likely that the "B" nut on the line was not properly tightened, which allowed it to back off due to normal engine vibration and resulted in the line disconnecting during the flight. Pressurized fuel from the fuel pump then sprayed onto the left side of the exhaust system and ignited.

Probable Cause:
Maintenance personnel's failure to ensure adequate torque of a fuel line fitting, which resulted in an in-flight fire.

OCCURRENCES
Initial climb - Powerplant sys/comp malf/fail
Initial climb - Fire/smoke (non-impact)
Emergency descent - Emergency descent initiated
Landing-flare/touchdown - Hard landing

FINDINGS
Personnel issues-Task performance-Maintenance-Scheduled/routine maintenance-Maintenance personnel C
Aircraft-Aircraft systems-Fuel system-Fuel distribution-Incorrect service/maintenance – C
Aircraft-Aircraft handling/service-Maintenance/inspections-Scheduled maint checks-Incorrect service/maintenance – C

Example F3 (Visual Flight Rules [VFR] into Instrument Meteorological Conditions [IMC], Controlled Flight into Terrain [CFIT]) *Note: AS-30 would have reviewed this case.*
The noninstrument-rated pilot was on the return leg of his regular 63-nautical-mile commute between two islands. He was cleared for a visual flight rules arrival, which entailed passing over a VORTAC, continuing over a golf course, and then following a freeway before entering the traffic pattern. The approach controller told the pilot to proceed to the VORTAC, but the pilot replied that he wanted a vector. The controller provided a vector, and the pilot said that he did not have the island in sight. The controller told the pilot to resume his own navigation. The airplane's flightpath crossed over the VORTAC.

The pilot told the controller that he was in the rain at the golf course, but radar data indicated that he was actually about 2.5 miles east of that location. About 1 minute 20 seconds later, the pilot said that he was inbound for landing, and the controller told him that he was heading toward the mountains. The pilot immediately requested a vector "to intercept landing," which was the last transmission he made. The controller told the pilot to make either a left or right turn to a southerly heading. The airplane continued north into the mountainous terrain. A group of hikers near the accident site heard the airplane operating in the clouds before impact. Weather at the time of the accident along the route of fight included light-to-moderate rain showers and reduced visibility. A postaccident examination revealed no evidence of a preimpact mechanical malfunction or failure with the airframe or engine.

Despite the pilot's two radio calls suggesting geographical disorientation during the flight's final 90 seconds, the controller did not issue a safety alert to the pilot. Although the responsibility for flight navigation rests with the pilot, Federal Aviation Administration guidance directs controllers to issue a safety alert to an aircraft when they become aware that it is in a position/altitude that places it in unsafe proximity to terrain, obstructions, or other aircraft. The controller had sufficient information to determine that a low altitude alert was necessary, as evidenced by her attempt to turn the airplane. A timely low altitude alert may have enabled the pilot to climb and avoid the mountainous terrain. When the controller recognized that there was a problem with the airplane, she concentrated on correcting its lateral track rather than helping the pilot immediately climb to a safe altitude.

Probable Cause:

The noninstrument-rated pilot's continued visual flight into instrument meteorological conditions at an altitude insufficient to ensure adequate terrain clearance. Contributing to the accident was the air traffic controller's failure to issue a safety alert after observing the pilot's navigational deviation toward high terrain.

OCCURRENCES
Approach - VFR encounter with IMC
Approach - Controlled flight into terr/obj (CFIT)
FINDINGS
Personnel issues-Task performance-Planning/preparation-Flight planning/navigation-Pilot – C
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot – C
Environmental issues-Conditions/weather/phenomena-Ceiling/visibility/precip-Below VFR minima-Response/compensation – C
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Altitude-Not attained/maintained – C
Personnel issues-Action/decision-Action-Lack of action-ATC personnel – F
Environmental issues-Physical environment-Terrain-Mountainous/hilly terrain-Awareness of condition
Personnel Issues-Task Performance-Communication (personnel)-Lack of communication-ATC personnel – F

Example F4 (VFR into IMC, Spatial Disorientation) *Note: AS-60 would have reviewed this case.*
The pilot was employed as a state game warden, and, on the day of the accident, he was on patrol in the ski-equipped airplane when he received a radio call from another game warden whose snowmobile was stuck on a nearby frozen lake. After landing on the lake and assisting the other game warden, the pilot departed on the accident flight, presumably to return to his home base. The other game warden reported that, immediately after the airplane departed, the visibility was reduced to less than 1/2 mile due to snow. Postaccident analysis of position information recovered from a portable GPS receiver showed that the airplane flew for about 10 minutes after takeoff at a relatively constant GPS altitude of about 1,500 ft mean sea level, or about 200 to 500 ft above ground level (agl). Shortly before the accident, the airplane turned left, away from its previously established course, toward a frozen lake along the route. During the final moments of the flight, the airplane entered a right descending turn from about 300 ft agl. During this time, the airplane was in an estimated 40-degree right bank, and its descent rate increased to more than 3,000 ft per minute. Examination of the accident site revealed ground scars and airplane damage consistent with the established descent profile continuing to impact. Examination of the wreckage revealed no evidence of any preimpact mechanical malfunctions or failures, although the definitive operational status of the vacuum-driven instruments could not be determined. Analyses of weather information and witness statements were consistent in depicting conditions likely to have produced restricted visibility and possible whiteout conditions in a snow squall over the area at the time of the accident. These restricted visibility conditions would have been conducive to the

development of spatial disorientation, and the airplane's turning ground track and rapid descent were consistent with the pilot losing control of the airplane due to spatial disorientation.

Probable Cause:
An encounter with localized instrument meteorological conditions, which resulted in the pilot's spatial disorientation and loss of airplane control.

OCCURRENCES
Enroute-cruise - VFR encounter with IMC
Enroute-cruise - Loss of control in flight
Uncontrolled descent - Collision with terr/obj (non-CFIT)
FINDINGS
Personnel issues-Psychological-Perception/orientation/illusion-Spatial Disorientation-Pilot – C
Environmental issues-Conditions/weather/phenomena-Ceiling/visibility/precip-Snow-Effect on operation – C
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot – C
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-(general)-Not attained/maintained – C

Example F5 (Midair Collision)
While conducting glider-tow operations, the right wing of a Piper PA-25 was struck at a 90-degree angle by a Cirrus SR20. Analysis of the radar information, the flight condition of both airplanes, and the pilots' visibility in their respective cockpit configurations suggests that, until just before the impact, the Piper would have been located below the horizon and against the background of the surrounding terrain and city, between the 10- and 11-o'clock position for the Cirrus pilot. The Piper remained in this same relative position in the windscreen of the Cirrus pilot for the entire duration of its 7-minute flight. The Cirrus would have been above the horizon, against the white overcast sky, between the 1- and 2-o'clock position for the Piper pilot. The Cirrus would have only appeared in this position after the Piper pilot completed the last turn and was headed west, which would have been (at most) during the last 3 minutes of the flight.

Visual meteorological conditions existed near the accident site at the time of the accident with an overcast layer and visibility of 8 miles. The overcast sky conditions likely made it difficult for the Piper pilot to detect the primarily white-colored Cirrus. The lack of maneuvering, as observed by the glider pilot before the accident, suggests that neither the pilot of the Cirrus nor the pilot of the Piper observed the other airplane before the collision. If the Piper pilot had observed the Cirrus before the impact, his ability to maneuver to avoid an impact would have been severely limited due to the glider in tow.

A postaccident examination of the engine and flight control systems on both airplanes revealed no mechanical anomalies that would have prevented either pilot from maneuvering to avoid an impact. Medical and pathological examination of both pilots

revealed no medical or toxicological issues that would have precluded either pilot from operating their airplane in a safe manner before the accident.

Probable Cause:
The failure of both pilots to see and avoid each other, which resulted in a midair collision. Contributing to the accident were the lack of perceived visual relative motion of the Piper and the Cirrus to the pilot of each airplane, the terrain background, and the overcast weather conditions, which made it difficult for either pilot to visually acquire the other aircraft.

OCCURRENCES
Enroute - Midair collision
FINDINGS
Personnel issues-Psychological-Attention/monitoring-Monitoring other aircraft-Pilot – C
Personnel issues-Psychological-Attention/monitoring-Monitoring other aircraft-Pilot of other aircraft – C
Personnel issues-Psychological-Perception/orientation/illusion-(general)-Pilot – F
Personnel issues-Psychological-Perception/orientation/illusion-(general)-Pilot of other aircraft – F
Environmental issues-Physical environment-Terrain-(general)-Effect on operation – F
Environmental issues-Conditions/weather/phenomena-Ceiling/visibility/precip-Clouds-Effect on operation – F

Example F6 (Fuel Exhaustion, Mast Bumping)
During the flight that preceded the accident flight, the pilot stated to one of the two police officers aboard the helicopter that he would not be able to fly for as long as normal because he needed to obtain fuel. Upon completion of the observation flight, the pilot returned to the police department and shut down the helicopter to allow the two officers to exit. The pilot then restarted the helicopter and departed en route to an airport where he could refuel the helicopter. A witness near the accident site stated that he heard the helicopter's engine "sputter and stop" and saw the main rotor separate from the helicopter. The helicopter entered an uncontrolled descent and impacted terrain.

Postaccident examination of the helicopter revealed that there was no usable fuel on board and that the main rotor mast separated as a result of overload due to mast bumping (main rotor hub to rotor mast contact). No preexisting mechanical anomalies that would have precluded normal operation of the helicopter were noted. Mast bumping typically results from a low-G flight condition caused by the pilot pushing the cyclic control forward abruptly from either straight-and-level flight or after a climb. Pushing the cyclic forward abruptly is contrary to the appropriate actions for entering an autorotation, which are lowering the collective pitch control to the full-down position, adding antitorque pedal as needed to maintain heading, and applying cyclic as needed to maintain proper airspeed.

Review of the pilot's medical records indicated that he had a history of depression, anxiety, and obstructive sleep apnea. Each of these conditions had been documented and

treated in the 5 years before the accident, and none were reported to the Federal Aviation Administration (FAA) on the pilot's most recent and previous airman medical applications. Any of these conditions may have disqualified the pilot from obtaining an airman's medical certificate. Postmortem toxicological testing indicated that the pilot was taking alprazolam, an antianxiety medication, and venlafaxine, an antidepressant. Alprazolam may worsen obstructive sleep apnea, and venlafaxine can cause fatigue and dizziness. Given that the level of venlafaxine found in the blood was higher than normal therapeutic levels makes it more likely that the side effect of dizziness occurred and impaired the pilot's performance.

Probable Cause:
The total loss of engine power due to fuel exhaustion, which resulted from the pilot's inadequate preflight planning and decision-making, and his improper control inputs following the loss of engine power, which resulted in mast bumping and separation of the main rotor. Contributing to the accident was the pilot's improper judgment in acting as a pilot with disqualifying medical conditions.

OCCURRENCES
Enroute-cruise - Fuel exhaustion
Autorotation - Mast bumping
Autorotation - Part(s) separation from AC
Uncontrolled descent - Collision with terr/obj (non-CFIT)
FINDINGS
Personnel issues-Task performance-Planning/preparation-(general)-Pilot – C
Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid level – C
Aircraft-Aircraft propeller/rotor-Rotorcraft flight control-Main rotor control-Incorrect use/operation – C
Personnel issues-Action/decision-Action-Incorrect action performance-Pilot – C
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot F
Personnel issues-Physical-Health/Fitness-(general)-Pilot – F
Personnel issues-Physical-Impairment/incapacitation-Prescription medication-Pilot – F

Example F7 (In-flight Fire)
While en route to the destination airport, about 3,800 ft over swampy terrain, the pilot declared a mayday and advised the air traffic controller that there was a fire in the engine compartment. The controller asked the pilot's intentions, noting that there were two airports about 25 nautical miles from the airplane's position. The pilot stated that he would like to continue to one of the airports. The controller instructed the pilot to descend to 3,000 ft, and, during the next 4 minutes, the pilot made multiple transmissions, including that he thought he had lost a cylinder, that there was still fire coming off the airplane's nose, that there was smoke in the cockpit, and that he may have to land on the highway. About 5 minutes 45 seconds after his first transmission, the pilot stated, "we're on fire." There were no further transmissions from the pilot.

A witness observed the airplane on fire, in a 20-degree nose-down, 40-degree left bank before it impacted terrain. Postaccident examination of the wreckage revealed that the fire had emanated from a fuel leak caused by a fatigue fracture in the No. 5 pressurized fuel supply line. The Pilot's Operating Handbook and Federal Aviation Administration publications noted that, in case of fire, the pilot should immediately terminate the fuel flow to the engine and perform a forced landing. Although the failure of the fuel line would have, by itself, likely resulted in an accident, the pilot's loss of control of the airplane was a direct consequence of his failure to immediately perform the required emergency procedures.

Probable Cause:
The fatigue failure of the No. 5 engine cylinder fuel supply line, which resulted in an engine compartment fire, and the pilot's failure to immediately shut off the fuel flow to the engine and perform a forced landing after detecting the fire in accordance with available guidance, which resulted in the pilot's loss of airplane control.

OCCURRENCES
Enroute-cruise - Powerplant sys/comp malf/fail
Enroute-cruise - Fire/smoke (non-impact)
Uncontrolled descent - Collision with terr/obj (non-CFIT)
FINDINGS
Aircraft-Aircraft power plant-Engine fuel and control-Fuel distribution-Failure – C
Aircraft - Aircraft systems-Fuel system-Fuel selector/shutoff valve-Not used – C
Personnel issues-Task performance-Use of equip/info-Use of policy/procedure-Pilot – C

Example F8 (Loss of Control during Multiengine Instructional Flight) *Note: This brief contains additional information needed to support a safety recommendation proposal on multiple supplemental type certificate installations.*
The pilot had owned the accident airplane about 22 years before the accident flight and then sold it, and it was subsequently modified under a supplemental type certificate (STC) that installed vortex generators (VGs), which decreased the airplane's air minimum control airspeed (Vmca) from 81 to 74 knots. Another subsequent STC modification, STC SA1762SO, installed more powerful engines, different propellers, winglets, and modified engine nose cowlings. STC SA1762SO took into account a change to only the original type design and increased the airplane's Vmca to 87 knots; however, the airplane's airspeed indicator remained marked to indicate a Vmca of 74 knots. A representative of the current holder of STC SA1762SO reported that, to his knowledge, no flight testing was performed on the accident airplane or any similar make and model airplane to determine the interrelationship between his company's STC and the previous STC. Therefore, the actual performance data for the accident airplane, including the Vmca, were unknown. However, the Vmca for the accident airplane was likely higher than the 74-knot Vmca marked on the airspeed indicator.

The pilot purchased the airplane 4 days before the accident and performed three full-stop landings 2 days before the accident to get current. An individual familiar with the pilot believed that the pilot had not previously flown a reciprocating-engine-equipped airplane

in about 3 years. Due to the pilot's recent purchase, an insurance company broker "suggested" that the pilot obtain a multiengine instrument proficiency checkride; a Federal Aviation Administration (FAA)-designated pilot examiner acting as a flight instructor was on board for the accident flight. The flight instructor did not have an exemption from 14 *Code of Federal Regulations* 91.109(a) to give instruction in an aircraft equipped with a throw-over control yoke.

According to uncorrelated radar data, after departure, the flight proceeded north-northwest and climbed to 3,600 ft where two 360-degree nearly level left turns were made, followed by a 360-degree right turn. The airplane then proceeded north-northwest and briefly climbed to 4,200 ft with the groundspeed decreasing to 127 knots. It then descended to 3,900 ft and remained at that altitude and changed headings with the groundspeed decreasing to about 71 knots. Witnesses reported seeing the airplane flying level before it descended in a left spin and impacted a house.

The only major components of the airplane that were not extensively heat damaged were the outer section of the left wing and one cargo door, both of which were found near the house. Both engines and their accessories and both propellers were extensively heat damaged. Although the right engine-driven fuel pump drive coupling was found fractured, this likely occurred during postaccident rotation of the crankshaft to facilitate removal of the propeller. The extent of the heat and impact damage to the airplane limited the airframe and engine testing that could be performed; however, there was no evidence of preimpact failure or malfunction on the observed components.

Based on the airplane's decreasing airspeed and nearly level altitude, the pilot was likely performing either imminent stall or simulated loss of engine power airwork before the airplane aerodynamically stalled and then entered a spin. Because the airplane was equipped with only a throw-over control yoke, the flight instructor had limited ability to assist in the recovery of the airplane. Although it was not possible to determine which low-airspeed maneuver was being demonstrated, one scenario consistent with the radar data evidence (and is typically performed during multiengine checkrides) is the Vmca demonstration, which requires a power reduction on one engine (and is consistent with the witnesses' descriptions of "sputtering" engine sounds). If the pilot were performing a Vmca demonstration, it is possible that the airplane began to lose directional control earlier than expected because the actual Vmca of the airplane with multiple STC modifications was unknown, and the airspeed indicator was improperly marked.

Although the limitations and conditions section of STC SA1762SO stated that the installer must determine that the relationship between that STC modification and any other previously approved modifications "will not produce an adverse effect upon the airworthiness of that airplane," the investigation found that the FAA does not provide any guidance to an installer to help determine the interrelationship between multiple STCs. As a result of this accident, on December 29, 2011, the FAA issued Airworthiness Directive (AD) 2011-27-04, which requires an inspection for airplanes equipped with STC SA1762SO and specifies corrective action, if applicable, to ensure that the airplanes have the correct Vmca marking on the airspeed indicator, taking into consideration other

STC modifications. AD 2011-27-04 is available from the FAA's website at <http://www.faa.gov>.

Probable Cause:
The pilot's loss of airplane control during low-airspeed airwork and his failure to promptly recover the airplane from the aerodynamic stall, which resulted in a spin. Contributing to the accident were the pilot and flight instructor's intentional operation of the airplane for the purpose of performing instructional airwork with only a throw-over control yoke installed and the pilot's failure to obtain adequate familiarization with the accident airplane make and model before the accident flight. Contributing to the lack of accurate performance data (including the air minimum control airspeed) for the modified airplane was the lack of guidance by the Federal Aviation Administration for an installer of a supplemental type certificate (STC) modification to determine the interrelationship between all STCs incorporated into an aircraft.

OCCURRENCES
Maneuvering - Simulated/training event
Maneuvering - Aerodynamic stall/spin
Uncontrolled descent - Collision with terr/obj (non-CFIT)
FINDINGS
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Airspeed-Not attained/maintained – C
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of Attack-Not attained/maintained – C
Aircraft-Aircraft systems-Flight control system-Control column section-Not specified – F
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot – C
Organizational issues-Management-Resources-Availability of documents/info-FAA/Regulator
Personnel issues-Experience/knowledge-Experience/qualifications-Recent experience w/ equipment-Pilot – F
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Instructor/check pilot - F
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - F
Personnel issues-Task performance-Maintenance-Modification/alteration-Maintenance personnel

Example F9 (Deliberate Criminal Act)
The airplane was substantially damaged after the pilot intentionally flew it into the side of an office building. The private pilot and an employee who worked in the building were killed. As this event was an intentional act, the Federal Bureau of Investigation assumed jurisdiction and control of the investigation.

Probable Cause:
The pilot's intentional flight into a building.

OCCURENCES:
Other - Security/criminal event
FINDINGS:
Personnel issues-Miscellaneous-Intentional act-Suicide-Pilot – C
Not determined-Not determined-(general)-(general)-Other authority investigated – C

Example F10 (Inadequate Preflight Planning/Degraded Climb Performance/Mountain Flying)

A customer service manager at the fixed-base operator (FBO) reported that the pilot, who was preparing for the cross-country flight, was looking for information on how to fly over the mountains. At that time, there was no one at the FBO who could provide him information on mountain flying, and no posted information was available. She later heard that the pilot planned to take off under visual flight rules and fly through the mountains along the interstate.

Radar data showed that the airplane took off to the west, turned south, and then climbed to about 10,400 ft mean sea level (msl). Once the airplane reached the interstate, it turned west toward the mountains and followed the interstate. About 25 minutes after taking off, when the airplane was at 10,200 ft msl, radar contact with the airplane was lost. Witnesses near the accident site were consistent with their accounts, which indicated that the airplane was flying between about 11,000 and 11,500 ft msl (200 to 300 ft above the ground) with the engine producing power. The airplane was in a nose-high attitude when it started turning left away from rising terrain. The airplane then turned about 180 degrees, rolled over to the left, and entered a steep dive before impacting trees and terrain. One of the witnesses indicated that, before the left turn, the airplane's path seemed pretty flat with little gain in altitude. A postimpact fire ensued, which consumed most of the airplane.

A postaccident examination confirmed flight control continuity and revealed no preimpact anomalies with the engine or airplane systems that would have precluded normal operation. The pilot did not use any weather or flight planning services. No evidence was found that the pilot had obtained training in mountain flying. A weather model determined that, at the time of the accident, the density altitude was about 12,850 ft, which would have reduced the airplane's climb rate by more than 90 percent. It is likely that, as the pilot attempted to cross over the mountainous terrain, he raised the airplane's nose such that the airplane was beyond its critical angle-of-attack, which, combined with the airplane's decreased climb performance, led to an aerodynamic stall and loss of control.

Probable Cause:
The pilot's inability to maintain a climb while maneuvering the airplane in high-density altitude conditions that degraded the airplane's climb performance and his exceedance of the airplane's critical angle-of-attack, which led to an aerodynamic stall and loss of control. Contributing to the accident was the pilot's inadequate preflight planning and his decision to fly into mountainous terrain.

OCCURENCES:
Enroute-cruise - Loss of control in flight
FINDINGS:
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot – C
Aircraft-Aircraft oper/perf/capability-Aircraft capability-Climb capability-Not attained/maintained –C
Aircraft-Aircraft oper/perf/capability-Performance control parameters-Angle of Attack-Not attained/maintained – C
Environmental issues-Conditions/weather/phenomena-Temp/humidity/pressure-High density altitude-Effect on Operation – C
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot – F
Personnel issues-Task performance-Planning/preparation-Flight planning/navigation-Pilot – F
Personnel issues-Experience Training-(general)-Pilot

Incident Reports

Example I1 (Air Traffic Event) *Note: AS-30 would likely have written this brief.*
A departing Boeing 737-700 passed within 750 ft laterally and 200 ft vertically of a helicopter operating under visual flight rules. Both aircraft were receiving air traffic control services from the airport's air traffic control tower and were operating in Class B airspace. Postincident investigation determined that the controller handling the helicopter did not exercise positive control of the situation by issuing clear and timely control instructions and that the helicopter pilot did not react quickly to instructions issued by the controller.

Probable Cause:
The air traffic controller's failure to exercise positive control of the situation by issuing clear and timely control instructions to the helicopter pilot. Contributing to the incident was the helicopter pilot's delay in responding to instructions issued by the controller.

OCCURRENCES
Initial climb - Air traffic event
FINDINGS
Personnel issues-Action/decision-Action-Delayed action-Pilot of other aircraft – F
Personnel issues-Task performance-Communication (personnel)-Issuing instructions-ATC personnel – C
Personnel issues-Action/decision-Action-Delayed action-ATC personnel – C

Example I2 (Near Midair Collision) *Note: AS-30 would likely have written this brief.*
An air traffic control operational error and near midair collision occurred in Class C airspace when the second aircraft in a flight of two T-1 Jayhawk U.S. Air Force training airplanes (civilian-type Beech BE40 turbojets) lost separation with a Raytheon-Beech King Air 300 on final approach. Both airplanes were receiving air traffic control services from an instructor and trainee controller. Postincident investigation revealed that the trainee controller failed to issue control instructions necessary to properly sequence the

second T-1 airplane and the King Air. The trainee's instructor did not intervene to resolve the conflict and the pilot of the King Air discontinued the approach to avoid the T-1 ahead.

Probable Cause:
The inadequate planning and control instructions issued to the pilots involved by the trainee controller operating the local control position and inadequate supervision by the instructor responsible for the position.

OCCURRENCES
Approach - VFR pattern base - Near midair/TCAS alert/loss of separation
FINDINGS
Personnel issues-Task performance-Communication (personnel)-Issuing instructions-ATC personnel – C
Organizational issues-Support/oversight/monitoring-Oversight-Oversight of personnel-ATC - C

Limited Reports

Example L1 (Loss of Engine Power, Stall)

A witness reported that the airplane took off and climbed to about 150 ft above the ground. At that point, the sound from the engine ceased, and the airplane stalled and spun left, making one-half revolution before striking the ground. Examination of the airframe, control system, and engine revealed no evidence of any preimpact mechanical anomalies that would have precluded normal operation. Examination of the cockpit engine controls showed that the carburetor heat was off and that the engine primer was unlocked and pulled out. Although the weather conditions at the time of the accident were conducive to carburetor icing, they were not in the range likely to result in serious carburetor icing. Examination of the spark plugs indicated a rich-mixture condition. The primer position and the condition of the spark plugs indicate that the engine power loss was likely due to an overly rich mixture, which resulted from excess fuel being pulled through the primer into the engine's intake system when takeoff power was applied. Since the purpose of the primer is to assist in starting a cold engine, it is possible that the pilot used the primer when starting the engine and did not ensure that it was in and locked before initiating takeoff.

Probable Cause:
The pilot's failure to maintain airspeed and his exceedance of the airplane's critical angle-of-attack following a loss of engine power during takeoff climb, which resulted in an aerodynamic stall. Contributing to the accident was the pilot's incorrect use of the engine primer, which resulted in the power loss.

OCCURRENCES
Initial climb - Loss of engine power (total)
Initial climb - Aerodynamic stall/spin
Uncontrolled descent - Collision with terr/obj (non-CFIT)
FINDINGS

Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Airspeed-Not attained/maintained – C
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of Attack-Not attained/maintained – C
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot – C
Aircraft-Aircraft power plant-Engine controls-(general)-Incorrect use/operation – F
Personnel issues-Task performance-Use of equip/info-Use of equipment-Pilot – F

Example L2 (Helicopter Settling with Power)

The pilot slowed the helicopter to an out-of-ground-effect hover at an altitude of 400 to 500 ft above ground level (agl) while performing a photography mission. The photographer asked for a different vantage point; as the pilot explained that wind and high power demands would prevent him from accommodating the request, the helicopter began to "settle with power." The pilot attempted to arrest the descent with a reduction of power and a forward cyclic input. As the pilot took the corrective action, the helicopter yawed right and began to rotate around the main rotor mast. He reduced the throttle to idle to arrest the spin, and the yaw rate slowed. However, the spin continued as the helicopter descended through about 250 ft agl. The pilot stated that the helicopter was still spinning when it struck the ground upright. Review of an audio recording from a video camera onboard the helicopter indicated that the low rotor rpm audio alarm was on during the final 7 seconds of the flight. A witness reported that the engine ran "fine" and "perfectly" all the way to ground contact.

Examination of the wreckage revealed no evidence of preimpact mechanical malfunctions or failures that would have precluded normal operation of the helicopter. The helicopter was operating in a high-power, low-airspeed condition that required the pilot to be especially aware of wind direction to avoid tailwinds, which can result in a loss of control due to settling with power and/or a loss of tail rotor effectiveness. Although the pilot's comment to the photographer indicated that he was concerned about the wind angle, it is likely that he did not maintain a nose-into-the-wind position. When the helicopter began to settle with power, the rotor rpm dropped, and the tail rotor lost effectiveness. There was insufficient altitude for the pilot to affect a recovery before the helicopter impacted the ground.

Probable Cause:

The pilot's inadequate compensation for wind during an out-of-ground-effect hover, which resulted in a loss of helicopter control due to settling with power and loss of tail rotor effectiveness.

OCCURRENCES
Maneuvering-hover - Settling with power/vortex ring state
Maneuvering-hover - Loss of tail rotor effectiveness
Uncontrolled descent - Collision with terr/obj (non-CFIT)
FINDINGS
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Prop/rotor parameters-Capability exceeded - C

Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot – C
Environmental issues-Conditions/weather/phenomena-Wind-(general)-
Response/compensation – C

Example L3 (Carburetor Ice)
According to the pilot, the airplane was in cruise flight at 5,500 ft mean sea level (msl) when he observed haze ahead, and he decided to descend to 3,500 ft msl. At 4,000 ft msl, the engine began to lose power, and the pilot cycled the throttle and then the propeller, but the engine power was not restored. The pilot then turned on the fuel boost pump with no change in power noted. The pilot said that he did not apply carburetor heat. About 300 to 400 ft above ground level, the engine "finally reached what felt like near idle." During the forced landing, the airplane collided with an embankment.

The regional weather conditions at the time of the accident were such that the route of flight was directly into a cold front with increasing moisture and relative humidity. The weather conditions at the time of the accident were conducive to the formation of serious carburetor icing at cruise power. A postaccident examination of the engine found no preaccident mechanical malfunctions or failures that would have precluded normal operation. It is likely the engine began to lose power due to carburetor ice and that the timely application of carburetor heat would have restored engine power.

Probable Cause:
The total loss of engine power due to carburetor icing, which resulted from the pilot's failure to use carburetor heat in cruise flight while operating in an area conducive to carburetor icing.

OCCURRENCES
Enroute-cruise - Fuel-related
Emergency descent - Off-field or emergency landing
Landing-flare/touchdown - Collision with terr/obj (non-CFIT)
FINDINGS
Environmental issues-Conditions/weather/phenomena-Temp/humidity/pressure-
Conducive to carburetor icing-Decision related to condition C
Personnel issues-Action/decision-Action-Lack of action-Pilot – C
Personnel issues-Task performance-Use of equip/info-Use of equip/system-Pilot – C
Aircraft-Aircraft systems-Ice/rain protection system-(general)-Not used/operated – C

Example L4 (Loss of Engine Power for Undetermined Reasons)
The pilot was departing on an agricultural application flight, and, during takeoff, the engine lost partial power. The pilot released the load of fertilizer and attempted to land on a road. However, the airplane was unable to maintain altitude, and the pilot landed the airplane in a field. The airplane collided with concrete obstacles during the landing roll. Wreckage examination and component testing did not reveal a mechanical reason for the partial power loss. The reported weather conditions were not conducive to serious carburetor icing at cruise power; the engine was operating at a high power setting for

takeoff, indicating that carburetor ice was likely not the reason for the partial loss of engine power.

Probable Cause:
The partial loss of engine power for reasons that could not be determined because postaccident examination of the airframe and engine did not reveal any anomalies that would have precluded normal operation.

OCCURRENCES
Takeoff - Loss of engine power (partial)
Landing - Off-field or emergency landing
Landing-landing roll - Collision with terr/obj (non-CFIT)
FINDINGS
Not determined-Not determined-(general)-(general)-Unknown/Not determined – C

Example L5 (Turbulence) *AS-30 would have reviewed this case.*
While en route at flight level (FL) 360, the captain of the commercial air carrier flight requested and was granted a lower altitude (FL 300) to minimize the effect that turbulence was having on the airplane. After the captain received pilot reports indicating that varying degrees of turbulence, mountain wave activity, and low-level windshear existed, he illuminated the seat belt sign and made an announcement for the passengers to be seated. The flight crew then advised the cabin crewmembers of possible turbulence and instructed them to prepare the cabin for landing, stay near their seats, and be seated immediately if turbulence was encountered. About 7 to 10 minutes later, while the airplane was at FL 300, the flight encountered moderate-to-severe turbulence. A flight attendant who was in the lavatory when the turbulence was encountered sustained a broken ankle after being thrown in the air twice.

Probable Cause:
The flight's encounter with known severe turbulence associated with mountain wave activity, which resulted in a flight attendant sustaining a broken ankle.

OCCURRENCES
Approach-IFR initial approach - Turbulence encounter
FINDINGS
Environmental issues-Conditions/weather/phenomena-Turbulence-Convective turbulence-Effect on equipment – C

Example L6 (Bird Strike)
While on the downwind leg of the traffic pattern for the destination airport, the flying pilot transferred his focus from the instrument panel to outside the airplane. Immediately thereafter, he noticed a flock/formation of large birds directly ahead. With the airplane in such close proximity to the birds, he had no time to take evasive action. One of the birds impacted the airplane just aft of the nose cone. The bird, which was later identified as a white pelican, penetrated the airplane's skin and entered the forward avionics bay.

Probable Cause:
An in-flight collision with a bird.

OCCURRENCES
Approach-VFR pattern downwind - Birdstrike
FINDINGS
Environmental issues-Physical environment-Object/animal/substance-Animal(s)/bird(s)-Ability to respond/compensate – C

Example L7 (Noncertificated Pilot)
The noncertificated pilot was maneuvering the airplane at a treetop level toward an open field when the engine stopped producing power. The airplane then descended at a steep angle over the approach end of the field and collided with terrain, nosed over, and came to rest inverted. Examination of the wreckage revealed no evidence of any preimpact mechanical anomaly. The left fuel tank was selected on the fuel selector, and no fuel was found in the left tank. There was no odor of fuel, and no fuel staining present around the tank. The right fuel tank was also empty, but there was some fuel blighting of the vegetation beneath the right fuel cap.

Probable Cause:
The noncertificated pilot's failure to maintain adequate airspeed and his exceedance of the critical angle-of-attack while making a forced landing following a total loss of engine power at low altitude, which resulted in an aerodynamic stall. Contributing to the accident was the pilot's improper fuel management, which resulted in a total loss of engine power due to fuel starvation.

OCCURENCES:
Maneuvering - Fuel starvation
Emergency descent - Off-field or emergency landing
Emergency descent - Aerodynamic stall/spin
Uncontrolled descent - Collision with terr/obj (non-CFIT)
FINDINGS:
Personnel issues-Experience/knowledge-Experience/qualifications- Qualification/ certification-Pilot – C
Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid management – F
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Airspeed-Not attained/maintained – C
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of attack-Not attained/maintained – C
Personnel-Task performance-Use of equip/info-Use of equip/system-Pilot – F

C-Forms
Example C1 (Crosswind Landing)
The pilot stated that he was landing with a 40-degree crosswind. During the flare, about 5 ft above ground level, the airplane veered right. The pilot said that he thought he could control the veer on the ground, but the airplane veered off the runway, went down an

embankment, and collided with a fence. The airplane sustained substantial damage to the wings. The pilot reported no mechanical anomalies that would have precluded normal operation.

Probable Cause:
The pilot's inadequate compensation for the crosswind, which resulted in a loss of directional control.

OCCURRENCES
Landing-flare/touchdown - Loss of control on ground
Landing-flare/touchdown - Runway excursion
FINDINGS
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained – C
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot – C
Environmental issues-Conditions/weather/phenomena-Wind-Crosswind-Response/Compensation – C
Environmental issues-Physical environment-Object/animal/substance-Fence/fence post-Contributed to outcome

Example C2 (Bounced Landing)
After a brief local flight, the pilot returned to the departure airport. During the landing, the airplane touched down on the runway and bounced. The pilot again attempted to land the airplane; however, the airplane's nose dropped, and the nose landing gear and propeller struck the runway, which resulted in a second bounce. The airplane struck the runway a third time before the pilot regained control of it and taxied it to the hangar. A postaccident examination revealed that the airplane sustained substantial damage to the firewall. The pilot reported no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

Probable Cause:
The pilot's improper recovery from a bounced landing, which resulted in a loss of control.

OCCURRENCES
Landing-flare/touchdown - Abnormal runway contact
Landing-flare/touchdown - Loss of control on ground
FINDINGS
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot – C
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Landing flare-Incorrect use/operation – C

Example C3 (Helicopter Hard Landing during Instructional Flight)
The flight instructor and a student pilot, who held a foreign-issued fixed-wing certificate, were on a local training flight to practice autorotations. The flight instructor demonstrated the first autorotation. Before letting the student take the controls, she reviewed the

recovery procedure again. The flight instructor remained on the controls while the student made the control applications. One autorotation was performed successfully. The student entered his second autorotation, and, at 1,000 ft above ground level, the flight instructor requested that the student perform a recovery. Rather than cracking the throttle as demonstrated, the student rolled on the throttle, and the flight instructor felt a right yaw. The flight instructor took control of the helicopter and countered the yaw with left pedal. The flight instructor noted that the engine rpm and rotor rpm were excessively high, so she decreased the throttle to lower the engine rpm. She began to raise the collective to lower the rotor rpm, but neither of the rpm needles decreased. The helicopter was maintaining a level attitude, but it was descending. During the landing, the low rotor rpm horn sounded, the helicopter touched down hard, and the tail boom separated. The flight instructor reported no preimpact mechanical malfunctions or failures with the helicopter that would have precluded normal operation.

Probahle Cause:
The flight instructor's delayed remedial action and inadequate supervision during a practice autorotation. Contributing to the accident was the student pilot's excessive application of the throttle.

OCCURRENCES
Emergency descent - Simulated/training event
Landing-flare/touchdown - Hard landing
FINDINGS
Personnel issues-Psychological-Attention/monitoring-Monitoring other person-Instructor/check pilot - C
Personnel issues-Action/decision-Action-Delayed action-Instructor/check pilot – C
Aircraft-Aircraft power plant-Engine controls-(general)-Incorrect use/operation – F
Personnel issues-Task performance-Use of equip/info-Use of equipment- Student pilot - F

Example C4 (Glider Loss of Lift)
The pilot stated that the glider was at 2,500 ft as he simultaneously searched for lifting conditions and a suitable off-airport landing site. Shortly thereafter, the glider encountered significant sink (loss of atmospheric lift), and the pilot landed in a soybean field. During the landing roll on the uneven surface of the field, the glider sustained substantial damage to the left wing. The pilot did not report any preimpact mechanical anomalies that would have precluded normal operation.

Probable Cause:
The glider's encounter with insufficient atmospheric lift to maintain soaring flight, which resulted in an off-airport landing.

OCCURRENCES
Maneuvering - Loss of lift
Landing - Off-field or emergency landing
FINDINGS

Environmental issues-Conditions/weather/phenomena-Temp/humidity/pressure-Thermal lifting-Effect on operation– C
Environmental issues-Physical environment-Terrain-Rough terrain-Contributed to outcome
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Altitude-Attain/maintain not possible – C

Example C5 (No Pilot Statement)
The airplane was being operated as a training airplane in a university aviation program when substantial damage, consistent with a hard landing, was discovered during a maintenance inspection. The lower portion of the engine firewall, nose landing gear/firewall doubler, and floor pans near fuselage station 30 were damaged. There were no other mechanical anomalies noted that would have precluded normal operation. The time of the accident and the identification of the pilot(s) are unknown.

Probable Cause:
A hard landing for reasons that could not be determined based on the available evidence.

OCCURRENCES
Landing-flare/touchdown - Hard landing
FINDINGS
Not determined-Not determined-(general)-(general)-Unknown/Not determined – C

Attachment 2, Exemplar Probable Cause Narratives
AS-INT-013

Crosswind Accident

The pilot's loss of directional control while/during [taxi/takeoff/landing]. The pilot's failure to maintain directional control while/during [taxi/takeoff/landing].

The pilot's inadequate compensation for the wind conditions while/during [taxi/takeoff/landing].

Stall Accident

The pilot's failure to maintain adequate airspeed during/while [phase of flight], which led to the airplane exceeding its critical angle-of-attack and experiencing an aerodynamic stall and subsequent loss of control. (Note: If the phase of flight was takeoff or landing, then it is not necessary to include the phrase, "and subsequent loss of control," as an aerodynamic stall near the ground will likely result in a crash.)

Runway Overrun

The pilot's failure to stop the airplane within the available runway after touchdown because (if known).

The pilot's improper touchdown point and delay in performing an aborted landing because (if known).

The pilot's failure to attain the proper touchdown point.

The pilot's misjudgment of speed and distance during landing.

Failure to Maintain Clearance from Obstacle/Obstacle Strike

The pilot's failure to maintain clearance from the [power line/trees/antenna].

The pilot's inadequate visual lookout, which resulted in a collision with the [power line/trees/antenna].

VFR into IMC

The pilot's continued visual flight into instrument meteorological conditions, which resulted in an in-flight loss of airplane control due to spatial disorientation. [Contributing to the accident was the pilot's inexperience in flying in instrument meteorological conditions.]

The pilot's continued visual flight into instrument meteorological conditions, which resulted in spatial disorientation and a subsequent in-flight loss of control. [Contributing to the accident was the pilot's inexperience in flying in instrument meteorological conditions.]

The pilot's decision to continue visual flight into deteriorating weather, which resulted in an encounter with instrument meteorological conditions and a subsequent inability to maintain clearance with terrain.

Airframe Mechanical Failure

A loss of airplane control due to an asymmetric flap condition.

An asymmetric flap condition, which resulted in a loss of airplane control.

Engine/Propeller Mechanical Failure

A partial/total loss of engine power/thrust during [phase of flight] due to... [Contributing to the accident was the lack of suitable terrain for landing.] (Note: The contributing factor is optional and can be used if there just wasn't anywhere to put the airplane down safely.)

A total loss of engine power during cruise flight due to a magneto switch failure.

A magneto switch failure, which resulted in a total loss of engine power.

Fuel Contamination

Fuel contamination due to the pilot's inadequate preflight inspection that did not detect water contamination, which resulted in a total loss of engine power during [phase of flight].

Fuel Exhaustion

The pilot's improper fuel management/fuel planning/preflight inspection, which resulted in a loss of engine power due to fuel exhaustion.

Fuel exhaustion, which resulted from the pilot's improper fuel management/fuel planning/preflight inspection.

Hard/Fast Landing

The pilot's improper landing flare.

The pilot's improper recovery from a bounced landing.

Bird Strike

An i-nflight collision with a [bird type] during/while...

Gear-up Landing

The pilot's failure to extend the landing gear before landing. Contributing to the accident was [attention/checklist].

Carburetor Ice

A total loss of engine power due to carburetor icing, which resulted from the pilot's failure to use carburetor heat.

The pilot's failure to use carburetor heat, which resulted in carburetor icing and the subsequent total loss of engine power.

Helicopters

The pilot's failure to maintain adequate drift control and skid clearance from the ground during takeoff, which resulted in a dynamic rollover when the left skid contacted the ground.

The pilot's failure to maintain adequate rotor rpm during a practice autorotation, which resulted in a hard landing.

Undetermined

Undetermined.

The loss of engine power for reasons that could not be determined (not "for reasons undetermined") *because postaccident examination of the airframe and engine (or be more specific where necessary) did not reveal any anomalies that would have precluded normal operation.*

The loss of [airplane/helicopter)control.

Flight Instruction

The flight instructor's delayed remedial action during landing, which resulted in a ground loop. Contributing to the accident was the student pilot's inadequate compensation for crosswind conditions.

The pilot's failure to maintain aircraft control during takeoff, which resulted in a collision with terrain. Contributing to the accident was the flight instructor's delayed remedial action. [Note: Applicable when the pilot receiving instruction is already rated in the type of aircraft being flown.]

Midair/On-ground Collision

Both pilots' [The pilot of the Cessna/Piper/etc.] failure to maintain a proper visual lookout, which resulted in a midair collision [an on-ground collision while taxiing].

Instrument Approach Accident

The pilot's [improper, if applicable] descent below the published minimum descent altitude for the instrument approach procedure, which resulted in a collision with wires. [If it was in IMC, then include that.]

Turbulence

An encounter with turbulence associated with convective cloud buildup during cruise flight.

National Transportation Safety Board

Office of Aviation Safety

Operations Bulletin AS-INT-015
Collection Aviation (CA) Event Criteria and Procedures

1. Issuing Organization. Operations Bulletin AS-INT-015, "Collection Aviation (CA) Criteria and Procedures," (also known as "C-form") was developed by the Office of Aviation Safety (OAS) issued March 10, 2011 and most recently revised July 29, 2015. It is due for review by July 28, 2017.

2. Purpose. Operations Bulletin AS-INT-015 provides OAS policy guidance and establishes procedures for the use of CA reports in order to reduce the administrative demands of documenting minor aircraft accidents, thus conserving resources for accidents that require investigation and/or safety action. CA reports document the factual circumstances of an accident as reported and contain a probable cause based on those circumstances.

3. Policy. Sections 302 and 304(a)(3) of Public Law 93-833, the "Independent Safety Board Act of 1974," 49 USC 1116, assign the Safety Board the responsibility to investigate transportation accidents, propose corrective steps to make transportation as safe and risk free as possible, and reduce the likelihood of recurrence of transportation accidents.

4. Cancellation. AS-INT-015 is in operational effect as of the issued date and will remain in effect unless cancelled or revised, in writing, by the OAS Director.

5. Responsibilities.

   A. The OAS Director is responsible for:

      (1) Ensuring compliance with the procedures set forth in this memorandum.

      (2) Updating this memorandum according to the schedule or earlier if there is an identified need.

   B. The OAS staff is responsible for:

      Adhering to the procedures set forth in this memorandum.

6. Procedures.

A. A CA should be used for any aircraft accident that meets all of the following criteria:

(1) No serious, life-threatening injuries, or injuries that will require long-term hospitalization, or likely result in permanent disability. Injuries with simple fractures that do not meet the criteria of a serious injury as defined in 49 Code of Federal Regulations (CFR) § 830.2 may be taken as a CA. CFR 49 § 830.2 defines *serious injury* as

> Any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

(2) Known circumstances

(3) No obvious safety issues

(4) Documented information that explains what happened and does not contradict an evaluation of the circumstances

B. The CA may not be used for any of the following events:

(1) Any serious injury as defined in 49 CFR § 830.2 (see 6A1).

(2) High public visibility

(3) Mechanical failures without a clear cause

C. The following data blocks should be completed in ADMS within 5 working days after the date that the event was determined to be an accident: date, location, aircraft type, registration number. If known, also include regulation flight conducted under (91, 135, etc.), type of flight operation (personal, business, etc.), event type (accident/incident), and injury information. When the initial information is published, ADMS will automatically include a statement that describes the CA classification in the NTSB database. For example:

> Accident occurred Wednesday, June 03, 2015 in Palm Springs, CA
> Aircraft: CESSNA 182Q, registration: N759ZK
>
> NTSB investigators will use data provided by various entities, including, but not limited to, the Federal Aviation Administration and/or the operator, and will not travel in support of this investigation to prepare this aircraft accident report.

D. The factual and brief narratives, and probable cause statements shall be completed by the investigator within 90 days from the time the NTSB makes the determination that the occurrence is an accident. Investigators may use a CA only if:

(1) A written statement is received from the pilot; or

(2) NTSB staff conducts and documents an interview with the pilot or Federal Aviation Administration (FAA) inspector; or

(3) The FAA provides the NTSB with a statement/report that documents what the pilot stated regarding the accident.

E. The brief narratives may include minor analysis. Because CA investigations typically involve accidents with no significant safety issues, they will be completed at a lower priority to that of other accident classifications.

F. Include a brief description of the substantial damage sustained when stating that an aircraft was substantially damaged. Such descriptions aid later attempts to determine the reason an event was classified as an accident. For example, "During the accident sequence, the airplane sustained damage to the firewall."

G. The probable cause and associated coding shall be simple and appropriate to the limited factual information received. Investigators and chiefs shall ensure that there is no overreaching on conclusions, factors, and findings, as this increases the potential for petitions for reconsideration.

H. All information contained in the CA narrative must be supported in the docket. The docket must contain, but is not limited to:

(1) Pilot statement or interview summary, OR, Investigator-in-charge's telephone memorandum with the pilot or FAA inspector, OR FAA inspector's written statement.

(2) Photo OR ensure a written description of the substantial damage to the aircraft is in the docket.

I. If the event must be reclassified, change the classification code and add a preliminary narrative.

J. For any case being transferred to the General Aviation Accident Investigation Division (AS-20) as a CA, provide the AS-20 with at least the following information:

1. FAA Coordinator's name / Contact information
2. Date / Time of accident
3. Aircraft Registration / Make / Model
4. Pilot's name / Contact information (phone number and/or email address)
5. Circumstances of accident

NOTE: FAA Form 8020-9, Aircraft Accident/Incident Preliminary Notice, may fulfill this requirement if it contains enough information to indicate the event meets the definition of an accident and the information stated in 2 - 5 above are included.

If completing the regional Accident/Incident Initial Notification form, complete the areas highlighted in the form below.

Accident/Incident Initial Notification

General Information	
Case Number:	Project ID (KEYS):
Notification Source:	Notification Date/Time:
Investigator:	FAA Office:
FAA Coordinator:	FAA Contact Info:
Other Coordination Contacts (on-scene commander, police, fire, EMS, etc.):	

Event Information	
Date/Time:	Location:
Registration:	Make/Model:
Aircraft Damage:	Injuries:

Flight Information	
Departure Point:	Departure Time:
Destination:	Weather:
Operation Type:	Flight Plan:
ATC Contact:	

Crew Information	
Pilot Name:	Pilot Address:
Pilot Phone:	Pilot Email:
Pilot Certificate/Ratings:	Certificate Number:
Other Crew/Passenger Contact Information (name, address, phone):	

Owner/Operator Information	
Owner:	Owner Address:
Operator:	Operator Address:
Owner/Operator Liaison (name, phone, email):	

Circumstances of the Accident

National Transportation Safety Board

Office of Aviation Safety

Operations Bulletin AS-INT-016
Case Classification and Number Codes for Accidents and Incidents

1. Issuing Organization. Operations Bulletin AS-INT-016 was developed by the Office of Aviation Safety (OAS), issued April 8, 2011, modified June 27, 2011, July 1, 2013, and February 27, 2015. It is due for review by February 26, 2017.

2. Purpose. Operations Bulletin AS-INT-016 provides OAS policy guidance and establishes procedures for OAS employees in the proper classification and numbering of aviation accidents, incidents, and special occurrences.

3. Policy. Every accident and incident shall have nomenclature associated with the occurrence to manage employee workload, properly populate NTSB databases, and provide a tangible record for fiscal accounting. OAS employees shall use the criteria established in this Operations Bulletin to properly classify, code, and number aviation accidents, incidents, and other special occurrences in their respective regional offices.

4. Cancellation. Operations Bulletin AS-INT-016 replaced AS2R-ROPM-004, is in operational effect as of the issued date, and will remain in effect unless cancelled or revised by OAS.

5. Responsibilities.

   A. The Director, Office of Aviation Safety is responsible for:

      (1) Ensuring compliance with the procedures set forth in this Operations Bulletin.

      (2) Updating this Operations Bulletin according to the schedule or earlier if there is an identified need.

   B. The division and regional chiefs are responsible for adhering to the procedures set forth in this Operations Bulletin.

   C. The OAS staff is responsible for adhering to the intent and procedures set forth in this Operations Bulletin.

6. Procedures.

   A. Each accident, incident, or special occurrence will have a unique designator consisting of at least 10 characters (example: CEN10FA230). There may be an additional character if more

than one aircraft is involved.

B. The first 3 characters will be capitalized and define the division or region responsible for the investigation. **CEN**10FA230. The current, 3-character office codes are:

ANC Alaska Region
CEN Central Region
DCA Major Investigations Division (AS-10)
ENG Aircraft Engineering Division (AS-40)
ERA Eastern Region
GAA General Aviation Accident Investigations (AS-20)
OPN Operational Factors Division (AS-30)
OPS Operational Factors Division (AS-30)
SUR Human Factors and Survival Factors Division (AS-60)
WPR Western Pacific Region

C. The fourth and fifth characters define the fiscal year in which the event occurred. CEN**10**FA230

D. The sixth character denotes the type of investigation. CEN10**F**A230.

Note: Prior to February 27, 2015, classification codes P, G, and T were used to document major, field, and limited investigations, respectively, of public aircraft. Those classifications are no longer in use. These cases can be found by searching the accident database using the "Regulation Flight Conducted Under" (far_part) field, which lists local, state, and federal public aircraft operations.

The following defined codes shall be used as appropriate:

M = **M**ajor. This is a significant accident investigation in the judgment of management. These accidents typically garner intense public and/or industry scrutiny.

F = **F**ield. At least one NTSB investigator travels to the accident site or travels in support of the investigation; or involves a significant amount of follow-up investigation without any travel. Typically involves a fatality and an aircraft that is FAA certified in the "normal" category.

L = **L**imited. NTSB investigators may not have traveled in support of this investigation and have used data provided by various sources to conduct this investigation. An FAA inspector documents the accident site for the NTSB IIC, although the NTSB IIC may travel in support of the investigation at a later date. This type of investigation typically does not involve fatalities; however, they can involve fatalities as in the case of aerial application, homebuilt, glider, or balloon accidents.

Note: Some investigations that originate as a limited may be upgraded to a field investigation when the amount of work and/or complexity increases to a point whereby they become similar in scope to a field investigation. These upgrades will be determined by the division or regional chief.

C = Data **C**ollection (also known as C-form). No NTSB travel is involved and no preliminary report is generated. (For more detailed information, refer to Operations Bulletin, AS-INT-015, "Collection Aviation (CA) Event Criteria and Procedures".)

I = **I**ncident. This classification applies to significant safety of flight occurrences that may not meet the criteria to be classified as an *accident* as defined in Part 830, but are deemed important enough to investigate. The NTSB conducts a full investigation (similar to an accident investigation) and determines probable cause. It may or may not involve NTSB travel.

S = A **S**pecial occurrence (not an accident) that the NTSB documents for internal data collection purposes only, for a specific interest. Only a preliminary report is generated and is not publicly disseminated and no probable cause is determined.

W = A foreign investigation in which NTSB personnel do not travel. Only a preliminary NTSB report is generated and publicly released.

R = A foreign investigation in which an NTSB employee(s) travels in support of the investigation as a U.S. Accredited Representative either domestically or internationally. This also includes domestic travel in support of the investigation. Usually involves significant staff work to assist the host country in their investigation. No determination of probable cause is issued, and only a preliminary NTSB report is generated and publicly released.

N = Notifications. This is used to record reportable incidents that are received directly from aircraft operators. This information is not publicly disseminated and no probable cause is determined. (For more detailed information, see Operations Bulletin, AS-INT-009, "Notification Aviation (NA) Event Criteria and Documentation Procedures.")

Note: Reportable events are recorded in 14 Code of Federal Regulations sections 830.5 and 830.6, found in Attachment 1, for one of the 17 listed events cited.

E. The seventh character indicates that the event is aviation related. CEN10F**A**230

F. The eighth, ninth and tenth characters define the sequence of case assignment for the applicable division or region during the fiscal year. CEN10FA**230**

Note: In the event that an investigation involves two aircraft, such as a midair collision, an eleventh character will be added to the designator to identify each aircraft as a separate accident report in the database. CEN10FA230**A** and CEN10MA230**B**

G. Missing aircraft will be classified chronologically by regional office identifier in the following format until the wreckage is located: CEN11FA**MS1**, **MS2**, **MS3**, etc. When the aircraft is located, the MS1 nomenclature will be replaced with normal regional case type identifiers and sequence numbers in the ADMS database.

Attachment 1
Title 14 Code of Federal Regulations Sections 830.5 and 830.6

Subpart B—Initial Notification of Aircraft Accidents, Incidents, and Overdue Aircraft

§ 830.5 Immediate notification.

The operator of any civil aircraft, or any public aircraft not operated by the Armed Forces or an intelligence agency of the United States, or any foreign aircraft shall immediately, and by the most expeditious means available, notify the nearest National Transportation Safety Board (NTSB) office when:

(a) An aircraft accident or any of the following listed serious incidents occur:

(1) Flight control system malfunction or failure;
(2) Inability of any required flight crewmember to perform normal flight duties as a result of injury or illness;
(3) Failure of any internal turbine engine component that results in the escape of debris other than out the exhaust path;
(4) In-flight fire;
(5) Aircraft collision in flight;
(6) Damage to property, other than the aircraft, estimated to exceed $25,000 for repair (including materials and labor) or fair market value in the event of total loss, whichever is less.
(7) For large multiengine aircraft (more than 12,500 pounds maximum certificated takeoff weight):
(i) In-flight failure of electrical systems which requires the sustained use of an emergency bus powered by a back-up source such as a battery, auxiliary power unit, or air-driven generator to retain flight control or essential instruments;
(ii) In-flight failure of hydraulic systems that results in sustained reliance on the sole remaining hydraulic or mechanical system for movement of flight control surfaces;
(iii) Sustained loss of the power or thrust produced by two or more engines; and
(iv) An evacuation of an aircraft in which an emergency egress system is utilized.
(8) Release of all or a portion of a propeller blade from an aircraft, excluding release caused solely by ground contact;
(9) A complete loss of information, excluding flickering, from more than 50 percent of an aircraft's cockpit displays known as:
(i) Electronic Flight Instrument System (EFIS) displays;
(ii) Engine Indication and Crew Alerting System (EICAS) displays;
(iii) Electronic Centralized Aircraft Monitor (ECAM) displays; or
(iv) Other displays of this type, which generally include a primary flight display (PFD), primary navigation display (PND), and other integrated displays;

(10) Airborne Collision and Avoidance System (ACAS) resolution advisories issued either:

(i) When an aircraft is being operated on an instrument flight rules flight plan and compliance with the advisory is necessary to avert a substantial risk of collision between two or more aircraft; or

(ii) To an aircraft operating in class A airspace.

(11) Damage to helicopter tail or main rotor blades, including ground damage, that requires major repair or replacement of the blade(s);

(12) Any event in which an aircraft operated by an air carrier:

(i) Lands or departs on a taxiway, incorrect runway, or other area not designed as a runway; or

(ii) Experiences a runway incursion that requires the operator or the crew of another aircraft or vehicle to take immediate corrective action to avoid a collision.

(13) An aircraft is overdue and is believed to have been involved in an accident.

§ 830.6 Information to be given in notification.

The notification required in §830.5 shall contain the following information, if available:

(a) Type, nationality, and registration marks of the aircraft;
(b) Name of owner, and operator of the aircraft;
(c) Name of the pilot-in-command;
(c) Date and time of the accident;
(e) Last point of departure and point of intended landing of the aircraft;
(f) Position of the aircraft with reference to some easily defined geographical point;
(g) Number of persons aboard, number killed, and number seriously injured;
(h) Nature of the accident, the weather and the extent of damage to the aircraft, so far as is known; and
(i) A description of any explosives, radioactive materials, or other dangerous articles carried.

National Transportation Safety Board

Operations Bulletin AS-INT-017
Media Relations and the Release of Information During Investigations

1. Issuing Organization. Operations Bulletin AS-INT-017 was developed by the Office of Aviation Safety (OAS) and was issued on June 28, 2011 and reviewed and reissued on July 23, 2013, and January 18, 2017. It is due for review on January 17, 2022.

2. Purpose. Operations Bulletin AS-INT-017 provides policy guidance and establishes procedures for regional investigators for handling the media during accident investigations. (Headquarters personnel should forward all inquiries to the Media Relations Division [SRC-10] at (202) 314-6100.)

3. Policy. The NTSB has established policies and procedures regarding employee contact with representatives of the news media. These procedures are designed to protect employees in an area in which they might be uncomfortable while at the same time ensuring that the NTSB speaks with one voice when releasing factual information about its investigations, which is sensitive and can involve the reputations of individuals and organizations.

4. Cancellation. Operations Bulletin AS-INT-017 supersedes Operations Bulletin AS-INT-017, dated July 23, 2013.

5. References.

   A. Board Order 6B, Media Relations, dated November 11, 2004.

   B. Operations Bulletin OC-GEN-002, Social Media Policy.

6. Responsibilities.

   A. The director of OAS is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures. The NTSB's policies regarding the public release of information is fairly simple. Except for regional investigations, all news media interviews of NTSB employees are conducted in the presence of an NTSB public affairs officer (PAO). The following guidelines should be followed to determine what information may be released to the public after regional accidents.

   A. For regional administrative personnel:

      (1) When your office is investigating a high-visibility accident, contact the investigator-in-charge (IIC), regional chief (RC)/deputy regional chief (DRC), or the chief of SRC-10 to determine the point-of-contact for media inquiries.

      (2) If an inquiry is received, direct the call to the appropriate IIC, RC/DRC, or SRC-10 at (202) 314-6100. SRC-10 is available to reporters through this number at any time and may be contacted through the Response Operations Center (ROC).

      (3) Confirm that your office is investigating a particular accident and provide the name of the IIC(s) traveling to the scene and the PAO on duty.

      (4) If known, provide the name of the PAO, IIC, date, time, and location of the next media briefing.

      (5) All inquiries about a media briefing should be directed to the IIC, RC/DRC, or PAO.

   B. For the IIC:

      (1) SRC-10 is part of the NTSB's response to incidents and accidents. As the IIC, you need to plan for and allocate an appropriate amount of time to provide information to the media. Media briefs should not consume a lot of time away from the investigation.

      (2) The duty PAO and/or the SRC-10 staff can serve as the primary point of contact for media with inquiries about the accident/incident. The duty PAO/SRC-10 staff will require timely updates about developments in the investigation to ensure the NTSB is perceived as the best, most accurate, and timely source of information about our activities.

      (3) Ensure that the "PA" box in ADMS is checked for all fatal accidents. Expect the duty PAO to reach out to you on all fatal accidents as SRC-10 gathers information for public release via the media, the general aviation safety page of the website, and other outlets. By keeping the duty PAO informed, you will likely save time you would have spent responding to individual media inquiries and, in some cases, may not need a media briefing at the scene.

      (4) If a media briefing is planned, advise the RC/DRC and PAO of the time and location as early as possible. Doing so maximizes the support the duty PAO

can provide you in preparing for the briefing and in contacting media interested in attending.

(5) If inquiries are received from major national media outlets, such as the Today Show, Good Morning America, ABC, NBC, CBS, network news, New York Times, Wall Street Journal, and Aviation Week and Space Technology, or if your investigation is likely to generate national media coverage, you should alert your RC/DRC and PAO as soon as possible before giving any interviews. SRC-10 will prepare with you for such interviews.

(6) When conducting interviews with media or conducting a media briefing, be sure to wear appropriate NTSB gear/attire.

(7) Once your factual report has been issued, refer calls to SRC-10. However, with approval from the RC/DRC and in coordination with SRC-10, further communication with the media is permitted refraining from providing any analytical information.

C. The following guidance should be followed for press briefings:

(1) **Do**

a. If factual information (like altitude and time) may change when recorded data is reviewed, make it clear that the information is preliminary. The use of qualifying phrases (such as "preliminary information reveals" or "initial reports indicate") allows for subsequent changes to information that develops, is refined, and often changes during the progress of the investigation.

b. Explain the comprehensive nature of NTSB investigations:

(i) On-scene.

(ii) Lab work, record procurement, and interviews.

(iii) Factual reports (for instance, preliminary and factual).

(iv) Final report.

(v) Safety recommendations are always possible

c. Explain the party system.

d. Explain what you are looking at and why, without analysis except for events such as an in-flight breakup or rotational damage in engine.

e. Although it is a fact that witnesses told us what they think happened, it may not be a fact that what they told us is what actually occurred. Witness

accounts are helpful but subjective and will be placed in the context of all other information that we gather during the investigation.

f. Make sure you are answering the question asked, not the one you think you heard. Don't be afraid to have the reporter restate the question if you are not clear.

g. Correct misinformation in a calm, objective, and clear manner when you hear it. Your silence is a tacit validation that the information is accurate.

h. Refer news media to the "Media Resources" entry on the bottom left of the NTSB's website.

i. If reporters ask the same question repeatedly, either continue to answer the same way or state that you have already answered that question and move on.

(2) **Do Not**

a. Lie. Ever.

b. Speculate, analyze, or provide personal opinions.

c. Directly respond to hypothetical questions as they require speculation and/or assumption of a premise that may not be factual.

d. Use jargon. Be willing to explain technical terms, such as aircraft stall or the runway numbering system.

e. Say "it's too early to speculate." (There is no right time to speculate!)

f. Answer hypothetical questions that call for conclusions. (Questions may start with "Is it possible that...," "Could that mean...," or "What could cause that..."?)

g. Use other groups' information (for example, a National Air Traffic Controllers Association statement from controllers). An exception is information from an FAA pilot interview when the pilot will not be available for days; however, be sure that you attribute the source.

h. Be in a rush or lose your cool. This is your press briefing, so stay in control.

i. Grant exclusive interviews or play favorites. All media representatives receive the same information and are treated equally.

j. Give "impromptu" interviews. Choose a time and place for all reporters to meet. If necessary, contact SRC-10.

k. Release names of anyone involved in the accident, such as pilots, victims, air traffic controllers, or witnesses.

l. Repeat sensational words or assertions. Reporters might be looking for you to mouth the words so that they can quote you.

m. Provide comments or interviews "off the record." Statements made by IICs to the media are on the record and for attribution, or they are not made. Providing background, so a reporter understands the subject matter, is acceptable.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments. None.

National Transportation Safety Board

Operations Bulletin AS-INT-018
Helicopter Supplemental Checklist

1. Issuing Organization. Operations Bulletin AS-INT-018 was developed by the Office of Aviation Safety (OAS), and was issued on July 1, 2011, and revised on July 2, 2013, and September 6, 2016. It is due for review by September 5, 2018.

2. Purpose. Operations Bulletin AS-INT-018 provides policy and procedures for OAS staff during helicopter accident/incident investigations.

3. Policy. Sections 302 and 304(a)(3) of Public Law 93-833, the Independent Safety Board Act of 1974, 49 *United States Code* 1116, assign the NTSB the responsibility to investigate transportation accidents.

   A. In an effort to improve helicopter safety, the Federal Aviation Administration and the Helicopter Association International (HAI) formed the International Helicopter Safety Team (IHST).

   B. The IHST requests that NTSB air safety investigators (ASIs) obtain additional information during helicopter accident and incident investigations and place that information in the appropriate factual report and/or public docket. The purpose of the checklist in the attachment is to help the IHST analyze data about helicopter accidents and to aid IHIST and the NTSB in issuing recommendations to operators to improve helicopter safety.

4. Cancellation. Operations Bulletin AS-INT-018 cancelled AS2R-ROPM-020 on July 1, 2011.

5. References/Links.

   A. The IHST overview and mission.

6. Responsibilities.

   A. The OAS is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures.

A. The ASI completes the IHST checklist (Attachment 1) for all accident and incident investigations involving helicopters, except those privately owned and operated by a single individual for personal reasons.

NOTE: The ASI is to use this checklist for any organization that operates a helicopter that has been involved in an accident, including public helicopter operations, flight schools, and corporations. The operator may assist the ASI in completing the checklist, but the ASI should not give the checklist to the operator to complete independently.

B. The ASI scans the completed checklist into the public docket in MyDMS.

C. The ASI clearly articulates in accident report narratives all checklist items that have been deemed relevant to the accident, and the ASI completes all ADMS data fields in the reports.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachment.

A. Attachment 1, Helicopter Accident/Incident Supplemental Checklist

Attachment 1

Helicopter Accident/Incident Supplemental Checklist

Company information

- Number of aircraft _____
- Models flown _____
- Types of missions flown _____
- Number of locations served _____
- General terrain conditions for operations _____
- Characteristic weather for operations _____
- Number of pilots that perform the same mission as the accident flight _____

1. **Formal risk management program** that the company had in place, if any:

_____

_____

_____

_____

_____

_____

2. **Method** by which **risks** associated with the accident flight were evaluated

   by the Company: _____

   by the Pilot: _____

3. Did the company have a (circle correct response)

Non-punitive safety/incident reporting or monitoring system YES NO

Designated safety officer with direct access to senior management YES NO

4. Company's procedure, if any, for pilots to make a **go/no-go decision**:

5. Was this procedure clearly defined and enforced by the company? YES NO

6. Company **standard operating procedures (SOP)** regarding the mission/circumstances of the accident:

7. Method of enforcement of **SOPs** by management:

8. **Communications**, if any, between the pilot and the company regarding the flight (before the accident):

9. **Operational oversight** in place for this flight:

10. Was this flight **local** or **remote**? _____

11. **Company hiring criteria** for pilots?

12. **Flight Experience**: Other than the required pilot time matrix in the eADMS report, how many flight hours had the pilot accrued in the following?

- Piston and/or turbine rotorcraft _____
- With this company _____
- On this mission type _____

13. **What training**, if any, did the pilot receive in the following areas:

- Risk assessment and risk management

- Weather evaluation and inadvertent encounters with adverse weather

- Formal aeronautical decision making (ADM)

- Transition to make and model

- Mission-specific training (for accident flight mission)

- Crew resource management

- Terrain and hazard environment

14. Was the pilot in training at the time of the accident? YES NO

15. If yes, what **type of training**? _____

16. **Other helicopter models the pilot flew** ____ _____

17. **Previous history** of accidents, violations, or difficulty with the mission of accident maneuver.

18. **Safety equipment**: Check to verify whether the aircraft was equipped with each of these:

- o Recording devices: If so what type: _____
- o Proximity detection systems (i.e. Terrain Awareness Warning Systems)
- o Night Vision Imaging Systems
- o Wire strike protection system
- o Crashworthy fuel system
- o Helmets
- o Fire retardant clothing/gloves
- o Aircraft floats (over water)
- o Personal flotation devices/life rafts/external life rafts
- o Sonic locator (offshore)
- o Emergency Locator Transmitter (ELT) (121.5 or 406)

19. **Preflight Planning** (if relevant) performed for the accident flight:

20. **Weather information** available to the pilot prior to departure:

National Transportation Safety Board

Operations Bulletin AS-INT-019
Air Carrier Turbulence Incident and Accident Investigations

1. Issuing Organization. Operations Bulletin AS-INT-019 was developed by the Office of Aviation Safety (OAS) and was issued on July 1, 2011. It was reviewed on September 7, 2016, and is due for review by September 6, 2018.

2. Purpose. Operations Bulletin AS-INT-019 provides policy guidance to OAS staff and establishes procedures for the proper handling and protocol of turbulence events.

3. Policy. Sections 302 and 304(a)(3) of Public Law 93-833, the Independent Safety Board Act of 1974 (49 *United States Code* 1116), assign the NTSB the authority to investigate transportation accidents and incidents, including turbulence events, even if no crew or passenger injuries or aircraft damage has occurred.

4. References. Previously issued safety recommendation letters regarding turbulence encounters include the following:

   A. Comair Turbulence Encounter – Inspection of Structure

   B. Seat Belt Buckles

   C. Rudder Inputs that could Damage Structure

5. Cancellation. Operations Bulletin AS-INT-019 replaced AS2R-ROPM-011 on July 1, 2011.

6. Responsibilities.

   A. The director of OAS is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures. When the Federal Aviation Administration (FAA) or an air carrier notifies a regional office duty officer or the NTSB Response Operations Center of a reportable turbulence event, the regional office responsible for events occurring at

the destination airport and/or over the ocean within US airspace will take responsibility for the investigation unless notified otherwise by headquarters. The duty officer of the regional office will notify the Major Investigations Division (AS-10) duty officers and the on-call Human Performance and Survival Factors Division (AS-60) survival factors investigator of the event. If workload or other factors make a regional response impractical, the regional chief or deputy regional chief will contact the AS-10 chief to determine which office will take responsibility for the investigation. When a notification of a turbulence event involving an air carrier is received from a foreign country, the AS-10 duty officer shall be assigned the case and will respond to the foreign authority. The assigned investigator will complete the following tasks.

A. Upon notification, determine the severity of the occurrence:

(1) If the occurrence involved a "serious injury" or "substantial damage," the event will be classified as a limited accident investigation unless determined otherwise by OAS management, and will be investigated by the appropriate regional office.

(2) If there were no reported "serious injuries" or "substantial damage," staff should consider obtaining information to determine ~~if~~ whether the event occurred under the following circumstances:

a. High public visibility.

b. Significant amount of passengers and/or crew taken to medical facilities.

c. Remarkable crew statements.

d. Diverted landings.

e. Any other information deemed to be significant by management.

(3) Based on this information, OAS management will decide whether the event should be investigated. If it is investigated, the event should be classified as an incident, with factual and brief narratives and probable cause issued. Investigators should contact AS-60 to determine ~~their~~ the appropriate level of involvement.

B. Complete the following steps during an incident/accident turbulence investigation:

(1) Assign an NTSB number to the incident/accident.

(2) Request and obtain written flight and cabin crew statements.

(3) Obtain additional information, as needed, based on previously received information:

a. Contact the Operational Factors Division (AS-30) chief to request assistance from the meteorologists (depth of the report and report format will be determined by the investigator and meteorologist).

b. Request and obtain a copy of the dispatch package to determine the weather conditions the crew was told to expect, and how dispatch planned the flight around any weather concerns.

c. Request and obtain information on the specific details of the injuries (for instance, hitting the ceiling, hitting the personal storage units, impacting armrests, being hit by runaway carts, twisting ankles, and breaking ribs or wrists).

d. Request and obtain specific information regarding the damage to the aircraft, if any. Photographs of the interior of the airplane (especially armrests) can be requested, as well as maintenance records that document the repairs (both interior and exterior). Contact the on-call Aviation Engineering Division (AS-40) investigator for assistance as needed.

e. Request that the digital flight data recorder be secured and the cockpit voice recorder (CVR) quarantined. Retrieval of the data will depend on the severity of the occurrence. Consult with the chief of the Vehicle Recorder Division (RE-40) in the Office of Research and Engineering as soon as possible to determine the appropriate method for handling the recorder. The chief of RE-40 will assign a specialist to conduct the readout. Consult with the chief of the Vehicle Performance Division (RE-60) and/or the chief of AS-30 for help interpreting the data to determine the g-loading end flight crew responses to the upset, when needed. Data from the CVR should not be required unless there are some unusual circumstances or conflicting crew information.

C. Consider asking the following questions:

(1) Could the flight crew have avoided the weather/turbulence?

(2) Could the airline or other entity have provided the flight crew with more adequate information regarding the weather and route of flight?

(3) Did the flight crew adequately warn the passengers and cabin crew about impending turbulence. (fFor instance, was the seat belt sign turned on? What did the public announcement say?).

(4) What were the injuries, and how did they occur?

(5) Did the flight crew adequately respond to the turbulence upset, or did they exacerbate the problem with inappropriate flight control responses?

(6) What were the maximum g-forces on the airplane, and did they exceed the operator's/FAA's required threshold for post-event inspection? Was the airplane subsequently inspected and, if so, what were the findings?

(7) Did the structure respond to the g-forces consistent with the manufacturer's expectations?

D. Consider drafting safety recommendations, accomplishments, or results.

Note: ~~Certain~~ Some turbulence events will require substantial investigative work. Investigators are encouraged to work closely with headquarters specialists (AS-30, AS-40, AS-60, and others). Division and regional chiefs should keep senior OAS management informed of these team efforts to ensure the proper amount of support is provided to the investigation.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments. None.

National Transportation Safety Board

Operations Bulletin AS-INT-020
Procedures for Wreckage Examinations – Non-NTSB Travel

---

1. Issuing Organization. Operations Bulletin AS-INT-020 was developed by the Office of Aviation Safety (OAS) and was issued on July 21, 2011. It was reviewed and reissued on March 21, 2014, and January 18, 2017, and is due for review by January 17, 2021.

2. Purpose. Operations Bulletin AS-INT-020 establishes procedures for OAS staff to use for wreckage examinations. Specifically, Operations Bulletin AS-INT-020 provides guidance for NTSB investigators-in-charge (IICs), during investigations in which the NTSB does not travel to the accident site, to direct the efforts of the Federal Aviation Administration (FAA), manufacturers, other government agencies, local law enforcement officials, and salvage operators to adequately document aircraft accident wreckage at the accident site and during follow-up examinations after the wreckage has been removed. Preservation of perishable evidence is a priority and is critical to the proper conduct of an investigation.

3. Policy. Sections 302 and 304(a)(3) of Public Law 93-833, the Independent Safety Board Act of 1974, 49 *United States Code* 1116, assign the NTSB the responsibility to investigate all civil aviation accidents.

4. Cancellation. Operations Bulletin AS-INT-020 supersedes Operations Bulletin AS-INT-020, dated March 21, 2014.

5. References.

   A. Operations Bulletin OPS-GEN-115, Naming Parties to NTSB Investigations.

   B. Operations Bulletin OPS-GEN-116 Evidence Collection and Management.

   C. RE-40 guidance on recorders (http://portal/RE/RE40/Pages/default.aspx).

6. Responsibilities.

   A. The director of OAS is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an

identified need.

B. OAS staff is responsible for adhering to the procedures set forth in this bulletin.

7. Procedures.

A. Except under rare occasions in which wreckage must be removed immediately for safety/security reason, the NTSB IIC should ensure that a comprehensive wreckage examination is performed before authorizing the removal of wreckage from the accident site.

B. The IIC should accommodate, within reason, requests from the FAA and manufacturers to participate in the on-scene documentation of aircraft wreckage in which the NTSB does not launch.

> **NOTE**: *Airframe, engine, and component manufacturers prefer documenting the wreckage at the accident site, when possible, to ensure that their regulatory responsibilities for continuing airworthiness are met. This is especially true for fatal, serious, and special interest accidents such as new product lines, new avionics, airbags, recorders, etc.*)

C. The IIC should ensure that the FAA representative on site is familiar with the NTSB's party system, the role and responsibilities of the parties, and how the parties relate to the NTSB IIC and the FAA inspector who is conducting the on-site examination. This should include the use of the party form (http://www.ntsb.gov/legal/Documents/NTSB_Investigation_Party_Form.pdf). D. The IIC should make reasonable attempts to have the wreckage documented as thoroughly as possible on scene, and with all resources available, to prevent potential loss of information and additional examinations at a later date that would involve repetitive travel by the FAA and parties.

> **NOTE**: *If the powerplant has not been clearly eliminated as a potential cause or factor in the accident, the IIC should refrain from disassembling the engine or any associated components in the field if there is a possibility of doing a functional test or engine run with the intact components. Disassembling a component makes later testing much less valuable because critical settings or conditions may be lost or altered.*

E. If a separate wreckage, engine, or component examination is required to ensure that potential safety issues and causal factors are determined, the examination should be conducted at the earliest practical time after the accident, and no more than 30 days after the initial on-scene examination, and the following guidelines should be followed:

(1) Operations Bulletin OPS-GEN-116 Evidence Collection and Management, Attachment 2.

(2) The IIC shall make a determination as soon as possible as to whether the wreckage examination will be done on site or at a wreckage yard. The determination should then be immediately communicated to the FAA and manufacturers to help the NTSB, FAA, and manufacturers in managing resources while enabling manufacturers to make an informed decision about launching on scene.

(3) The IIC should evaluate the competency, resources, and experience of salvage operators and provide appropriate guidance to them regarding proper documentation and preservation of the wreckage.

(4) When multiple wreckages are scheduled for examination, adequate time should be allotted for a thorough examination, within reason, by the parties and FAA. The IIC should not schedule more than two aircraft/engine examinations in one day.

(5) If a wreckage examination is required, the IIC should ensure that the wreckage is accessible for the examination. When possible, arrange in advance for removing wreckage from a trailer or box to avoid wasted time after beginning the allotted examination time.

(6) Before starting the wreckage exam, the NTSB IIC and/or FAA should ensure that all paperwork (log books, etc.) that has been collected is made available for the parties to review.

(7) If wreckage must be removed/recovered before an adequate examination by the FAA or parties, the IIC should ensure that the salvage operator and the FAA are provided with a list of guidelines and best practices for initial documentation, per Attachment 3, and that all documentation is provided to the parties to the investigation.

(8) Follow RE-40 guidance regarding downloading recorders in the field (see Attachment 4 and http://portal/RE/RE40/Pages/default.aspx).

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments.

A. Attachment 1, Certification of Party Representative.
B. Attachment 2, Evidence Control Form/Wreckage Release Form.
C. Attachment 3, Guidelines and Best Practices for On-Scene Aircraft Wreckage Documentation.
D. Attachment 4, Aviation Decision Guide for Downloading Undamaged Recording Devices.

Attachment 1
Certification of Party Representative (Signature Page)

NTSB Investigation No._____

Date of Accident: _____

Accident Location:

CERTIFICATION OF PARTY REPRESENTATIVE[1]

I acknowledge that I am participating in the above-referenced accident or incident investigation, on behalf of my employer who has been named a party to the National Transportation Safety Board (NTSB) safety investigation, for the purpose of providing technical assistance to the NTSB's evidence documentation and fact-finding activities. I understand that as a party participant, I and my organization shall be responsive to the direction of NTSB personnel and may lose party status for conduct that is prejudicial to the investigation or inconsistent with NTSB policies or instructions. No information pertaining to the accident, or in any manner relevant to the investigation, may be withheld from the NTSB by any party or party participant.

I further acknowledge that I have familiarized myself with the attached copies of the NTSB Accident/Incident Investigation Procedures (49 C.F.R. Part 831) and "Information and Guidance for Parties to NTSB Accident and Incident Investigations," and will comply, and, if the party coordinator for my party, take all reasonable steps to ensure that the employees and participants of my organization comply, with these requirements.. This includes, but is not limited to, the provisions of 49 C.F.R. §§ 831.11 and 831.13, which, respectively, specify certain criteria for participation in NTSB investigations and limitations on the dissemination of investigation information.

No party coordinator or representative may occupy a legal position or be a person who also represents claimants or insurers. I certify that my participation is not on behalf of either claimants or insurers, and that, although factual information obtained as a result of participating in the NTSB investigation may ultimately be used in litigation (at the appropriate time, and in a manner that is not inconsistent with the provisions of 49 C.F.R. § 831.13 and 49 U.S.C. § 1154), my participation is to assist the NTSB safety investigation and not for the purposes of preparing for litigation. I also certify that, after the NTSB Investigator-in-Charge (IIC) releases the parties and party participants from the restrictions on dissemination of investigative information specified in 49 C.F.R. § 831.13, neither I nor my party's organization will in any way assert in civil litigation arising out of the accident any claim of privilege for information or records received as a result of my participation in the NTSB investigation.

_____

Signature Date

_____

Name & Title

_____

Party Organization/Employer

[1] In aviation investigations this form may also be referred to as "Statement of Party Representatives to NTSB Investigation."

Attachment 2
Evidence Control Form/Wreckage Release Form

http://portal/libraries/NTSB%20Forms/Evidence-Control-Form.docx
http://portal/libraries/NTSB%20Forms Retention-Release-of-Wreckage-Form.docx

http://portal/libraries/NTSB%20Forms/Evidence-Control-Form.docx

NATIONAL TRANSPORTATION SAFETY BOARD
EVIDENCE CONTROL

ACCIDENT NUMBER: I

For Use In All Modal Investigations

OFFICE	DATE OF ACCIDENT	ACCIDENT LOCATION City & State
Aviation Safety		

EVIDENCE OBTAINED BY

☐ EVIDENCE OBTAINED FROM / ☐ EVIDENCE RECEIVED FROM	LOCATION OR PERSON INFORMATION	DATE
EVIDENCE CONTROL NUMBER		GROUP

DESCRIPTION: ☐ BIN ITEM - HAS BEEN SEPARATED ☐

OWNER OR OWNER'S REPRESENTATIVE

FIRST NAME	LAST NAME
ADDRESS	
PHONE	EMAIL
RETURNED ☐ DATE	CONTACT

CHAIN OF CUSTODY

RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		

NTSB OFFICE USE ONLY [illegible]

http://portal/libraries/NTSB%20Forms/Evidence-Control-Change-of-Custody.docx

NATIONAL TRANSPORTATION SAFETY BOARD EVIDENCE CONTROL	ACCIDENT NUMBER I

For Use In All Modal Investigations

OFFICE	DATE OF ACCIDENT	ACCIDENT LOCATION (City & State
Aviation Safety		

CHAIN OF CUSTODY

RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		
RELEASED BY	RELEASED TO	DATE
PURPOSE		

NTSB EVIDENCE CONTROL/CHAIN OF CUSTODY (REV 1) 2012

http://portal/libraries/NTSB%20Forms/Retention-Release-of-Wreckage-Form.docx

NATIONAL TRANSPORTATION SAFETY BOARD ACCIDENT NUMBER

RETENTION / RELEASE OF WRECKAGE RELATED TO ACCIDENT NUMBER ▶

For Use in All Modal Investigations

REGISTERED OWNER (name and address)		IDENTIFICATION NUMBER
		MAKE
LOCATION	DATE OF ACCIDENT	MODEL

RETAINED BY NTSB REPRESENTATIVE	TITLE	DATE

The National Transportation Safety Board has ☐ has not ☐ completed its investigation of the wreckage described above. All recorded wreckage evidence listed on the evidence control forms is hereby released.

☐ NO PARTS RETAINED

RELEASED BY NTSB REPRESENTATIVE	TITLE	DATE

This section may be executed by a person not the owner or owner's representative who has custody of the described wreckage and all parts. Such acknowledgement does not relieve responsibility for disposition of the wreckage upon that person.

I HEREBY ACKNOWLEDGE

☐ Receipt of the above described wreckage

☐ Removal of the parts, if any, listed in the evidence control forms.

PERSON MAKING ACKNOWLEDGEMENT	TITLE	DATE

ADDRESS	PHONE NUMBER & EMAIL

REMARKS

NTSB FORM 6120.1 Rev. 2012

Attachment 3
Guidelines and Best Practices for On-Scene Aircraft Wreckage Documentation

A. Survey the Site for Hazards

- Biohazards
- Ballistic parachute (discontinue work and contact IIC)
- Cargo
- Environmental

B. Digital photographs should be taken of the following, before the wreckage is disturbed:

- External "macro" views of the main body of the wreckage.

  NOTE: *These views should be documented while "walking around the clock" in a circle to ensure that a 360-degree view of the main wreckage site is completed with a series of six photographs (12, 2, 4, 6, 8, and 10 o'clock positions). If possible, photographs should be marked to be easily identifiable (direction of flight, forward, aft, left, and right.). Additionally, photos should be taken of any major structural component or flight controls no longer attached to the main wreckage.*

- ☐ Surrounding terrain.
- ☐ Ground scars leading up to the wreckage.
- ☐ Tree strikes or other object damage (if any).
- ☐ Airframe ice (if any is adhering to leading edges of aerodynamic surfaces).
- ☐ Wings and tail.
- ☐ Control surface positions.
- ☐ Control surface actuator positions (if possible).
- ☐ Trim tab settings (cockpit and airframe).
- ☐ Flap and flap lever positions.
- ☐ Landing gear and lever positions.
- ☐ External views of engine(s) and associated engine controls.
- ☐ Turbocharger ducting and clamp positions (if installed).
- ☐ All parts including control cables (marked before being cut by recovery personnel).
- ☐ Overall view of cockpit.
- ☐ Close-up view of cockpit instruments (no more than four instruments to a photograph).
- ☐ Electrical switch positions and circuit breakers.
- ☐ Throttle quadrant.
- ☐ Fuel selector switch.
- ☐ Magneto switch position(s).
- ☐ Throttle quadrant.
- ☐ Seat belts.

C. The following items should be documented via hand-written legible notes or photographs:

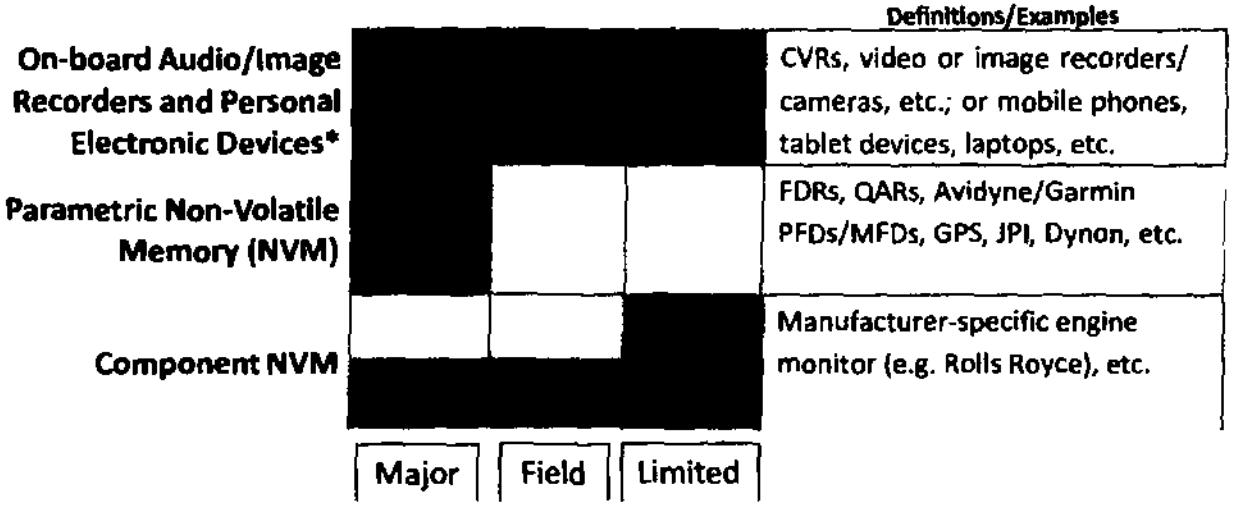
- ☐ The GPS coordinates of the main wreckage. (*Additionally, the GPS location or direction and distance from the main wreckage of any major structural component or flight control no longer attached to the main wreckage should be documented.)*
- ☐ Fuel and other fluid quantity as well as any evidence of fuel or oil spillage at the accident site.
- ☐ Fuel color and quality. The location from which the fuel is drained. (Water in the fuel? Contaminates?)
- ☐ Condition of all visible fuel, lube, and air lines.
- ☐ Evidence of fluid leaks (fuel, oil, hydraulic).
- ☐ Spark plug leads.
- ☐ Aircraft configuration (flap position, landing gear, etc.).
- ☐ Possible explosives on board (fire crackers, parachute, etc.).
- ☐ Contact information of all witnesses and officials.

D. The following precautions should be taken before wreckage removal:

- ☐ Do not rotate the propeller or any other components to avoid postcrash damage. Avoid pulling flight control cables, trim cables, and engine control cables unless there is a specific investigative purpose.
- ☐ Protect the ends of failed major structural components from further postcrash damage.
- ☐ Do not disassemble precision components in the field due to the potential loss of evidence (for example, air pumps). These components need to be examined in a lab environment, preferably by the manufacturer.
- ☐ Remove electronic (digital) components only after documentation of external physical condition and using manufacturer guidelines where available.
- ☐ Set aside all components including electrical and nonvolatile memory components for further examination. (Do not download on site. Contact the IIC.)
- ☐ Disconnect all battery (newer aircraft may have multiple) connections to protect digital memory components.
- ☐ If any engine control, valve, or electrical switch is moved during the recovery process, it should be documented.

Aviation Decision Guide for Downloading of Undamaged Recording Devices

Note: Damaged recording devices should come to RE-40. Any questions, contact RE-40 Chief.



KEY to who is responsible for download decisions

- RE-40 Lab responsible for download
- Consult with RE-40 Chief (who will consult w/RE-1/AS-1 as necessary) to determine handling of download (i.e. send to lab, manufacturer/operator download, etc.)
- If no AS-40 involvement, consult with RE-40 Chief, as above. If AS-40 involvement, it is AS-40 discretion, in consultation w/IIC, to decide on who performs download and when/where.
- IIC discretion (Limited) to decide on who performs download and when/where.

6

National Transportation Safety Board

Operations Bulletin AS-INT-021
Criteria for Investigating Ramp or Ground Events

1. Issuing Organization. Operations Bulletin AS-INT-021 was developed by the Office of Aviation Safety (OAS) and was issued on July 21, 2011. It was reviewed on September 7, 2016, and is due for review by September 6, 2018.

2. Purpose. Operations Bulletin AS-INT-021 provides policy guidance to OAS staff and establishes procedures for the identification of ramp/ground accidents that the NTSB will investigate.

3. Policy. Sections 302 and 304(a)(3) of Public Law 93-833, the Independent Safety Board Act of 1974, 49 *United States Code* 1116, assign the NTSB the responsibility to investigate all civil aviation accidents.

4. Cancellation. Operations Bulletin AS-INT-021 replaced AS2R-ROPM-009 on July 21, 2011.

5. References.

   A. Title 49 *Code of Federal Regulations* 830.2 provides the NTSB definition of an accident.

6. Responsibilities.

   A. The director of OAS is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

   B. OAS staff is responsible for adhering to the procedures set forth in this bulletin.

7. Procedures.

   A. The air safety investigator (ASI), with the concurrence of his or her chief or deputy chief, will determine an occurrence on the ramp or ground that has

caused substantial damage or serious injury to be an accident if ***all three*** of the following criteria are met:

(1) The event was clearly associated with the operation of the aircraft.

(2) At the time of the occurrence, the aircraft was moving or was standing with its engines/propellers running/turning.

(3) All other part 830 definitions are met (for instance, intent for flight, persons boarded, substantial damage or serious injury).

B. If not all three of the above criteria are met, the ASI, with the concurrence of his or her chief or deputy chief, will initiate an incident investigation if **at least *one*** of these two criteria are met:

(1) The crew may have been causal or contributory *and* the event could have led to a catastrophic loss of life.

(2) The event garners significant public visibility.

C. Below are examples of how to apply the criteria:

Scenario 1: A ground crew member disconnects an auxiliary power unit from a turboprop aircraft after getting the signal to do so from the cockpit crew. He then runs right into the arc of the aircraft's spinning propeller.

Investigate? **YES.** The propeller was moving. The aircraft crew had interaction with the mishap individual. There was the intention to fly the aircraft.

Scenario 2: A tug driver attempts to hook up the airplane for pushback. He then gets crushed into the airplane because he did not operate the tug properly, causing it to accelerate into the airplane.

Investigate? **NO.** The airplane was not moving. The flight crew was not involved. There was no potential for catastrophic loss of life. The public visibility was low.

Scenario 3: Refueling personnel finish fueling a running Boeing 777 while passengers are boarding. One of the refuelers spills fuel on himself, and a fire abruptly starts, setting the individual on fire.

Investigate? **YES.** The engines were operating. The public visibility was high. There was a high potential for a catastrophic loss of life.

Scenario 4: A truck driver is killed while driving a catering truck behind a jet when it accelerates for taxi, causing the jet blast to blow the truck over.

Investigate? **YES.** The airplane was moving. The flight crew was involved.

Scenario 5: A baggage loader runs his belt loader vehicle into the side of a parked, idle airplane during baggage loading operations. The airplane sustains substantial damage.

Investigate? **NO.** The airplane was not moving, there were no crew or passengers on board the airplane. The event was not associated with the operation of the airplane.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments. None.

National Transportation Safety Board

Operations Bulletin AS-INT-022
Investigations Involving Ballistic Recovery, Inflatable Restraint, or Ejection Systems

1. Issuing Organization. Operations Bulletin AS-INT-022 was developed by the Office of Aviation Safety (OAS) and was issued on July 21, 2011, and reviewed on March 21, 2014, and January 18, 2017. It is due for review by January 17, 2022.

2. Purpose. Operations Bulletin AS-INT-022 provides OAS staff policy guidance, resources, and establishes procedures for the proper precautions to be taken while investigating aircraft accidents in which the aircraft is equipped with an explosive device such as a ballistic parachute, inflatable restraints (airbags), or ejection seat systems.

3. Policy. The NTSB has the responsibility to investigate certain transportation accidents. Some of these accidents may involve aircraft that have explosive device systems installed that may be in an unstable state during wreckage examination. All NTSB personnel must be vigilant of these potential safety hazards during the conduct of on-scene investigations and take proper precautions to ensure that the explosive devices are identified and neutralized by the proper personnel before examination of the wreckage. Investigators working in and around such wreckage can be seriously injured or killed if the explosive charge in these systems is inadvertently triggered.

4. Cancellation. Operations Bulletin AS-INT-022 supersedes Operations Bulletin AS-INT-022, dated March 21, 2014.

5. References.

   A. Federal Aviation Administration (FAA) Order 8130.2H, *Airworthiness Certification of Products and Articles*, paragraph 213, Aircraft Equipped with Explosive Devices or Jettisonable Stores.

   B. *NTSB Regional Investigations Manual*, section 3.10.1, Accident Site Hazards, and section 3.10.2, Explosives and Ballistic Recovery or Ejection Systems

   C. International Civil Aviation Organization Circular 315, *Hazards at Aircraft Accident Sites*.

D. Australian Transport Safety Bureau, *Hazards at Aircraft Accident Sites: Guidance for Police and Emergency Personnel.*

E. *BRS Ballistic Parachutes: Information for Emergency Personnel.*

F. *Cirrus 1st Responder Information Manual.*

G. *AmSafe Aviation Inflatable Restraint: First-Responder Reference Guide.*

6. Responsibilities.

A. The director of OAS is responsible for the following:

(1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

B. OAS staff is responsible for adhering to the procedures set forth in this bulletin.

7. Procedures.

A. NTSB personnel should exercise extreme discretion and caution when working in or around aircraft with explosive device systems installed.

B. FAA Order 8130.2H, *Airworthiness Certification of Products and Articles*, paragraph 213(e), states that the airworthiness certificate applicant "...must have provisions that provide for clear marking and identification of all explosive devices used in any aircraft system. Aircraft markings must be applied externally and indicate that the aircraft is equipped with explosive devices...." It should be noted that these markings may not be readily discernable after an accident or incident. Extreme caution should be exercised when looking for markings, and the lack of markings may not necessarily correctly identify the lack of an explosive device system.

C. NTSB personnel should do the following:

(1) Emphasize to all present (including the FAA and first responders) that from an external perspective, these systems should be treated as if there is a "live" charge present.

(2) Restrict unqualified personnel from approaching the wreckage until qualified/expert personnel have determined that there are no live explosive devices. Experts may include, but are not limited to, the manufacturer of the system or Department of Defense explosive ordinance specialists.

(3) The IIC will arrange to have an expert disarm/disable and remove the hazard from the site in accordance with the *NTSB Investigation Manual*, paragraph 3.10.2.

Note: Personnel from the Military Safety Centers and local explosive ordinance disposal teams may be able to assist.

(4) Inform your chief/deputy chief of potential on-scene safety hazards, which cannot be neutralized.

(5) The chief/deputy chief will inform the director of OAS of potential on-scene safety hazards, which preclude the initiation or continuation of the on-site investigation.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments.

Attachment 1, Sample Figures of Explosive Device Systems and Associated Labeling.

Attachment 1

Sample figures of explosive device systems and associated labeling.

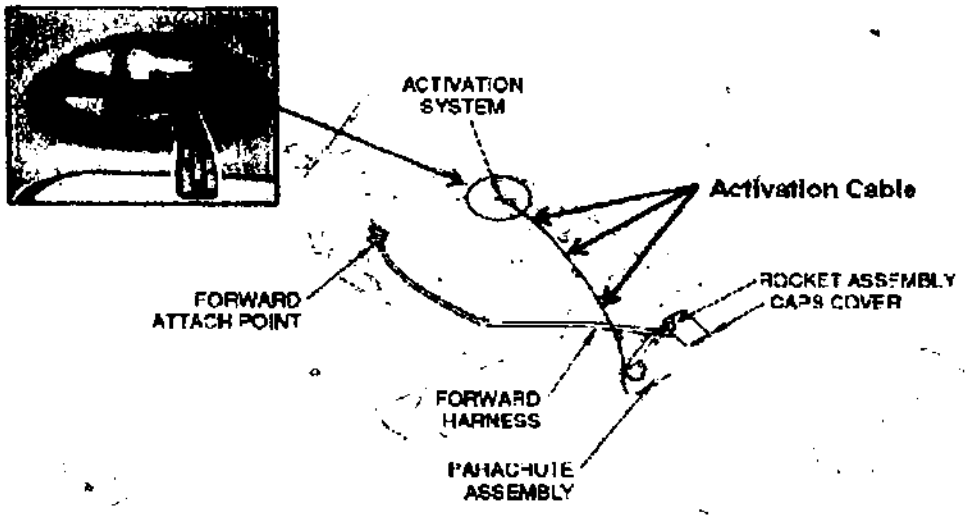


Figure 1. Cirrus Airframe Parachute System (CAPS).

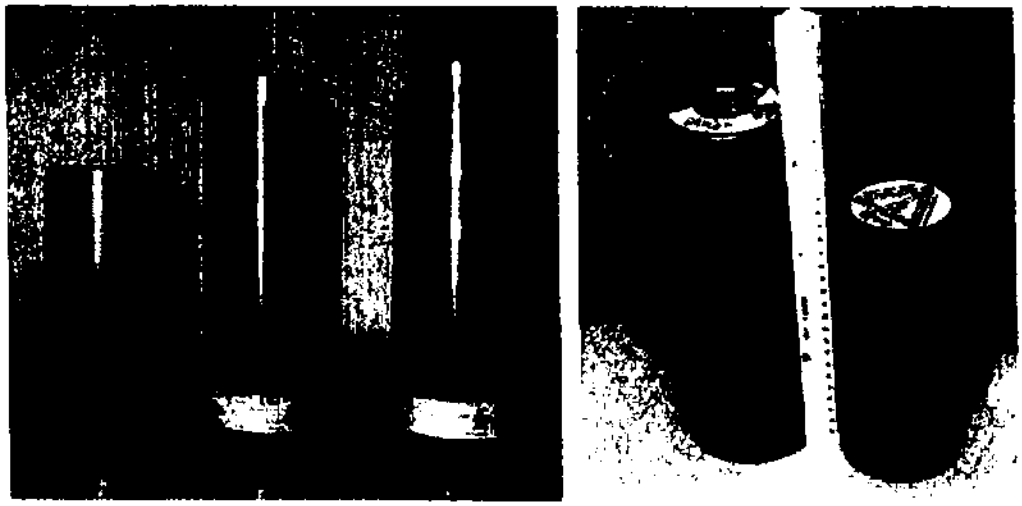


Figure 2. Ballistic Parachute System rocket motors.

Figure 3. Cirrus airplane airbag-equipped seat.

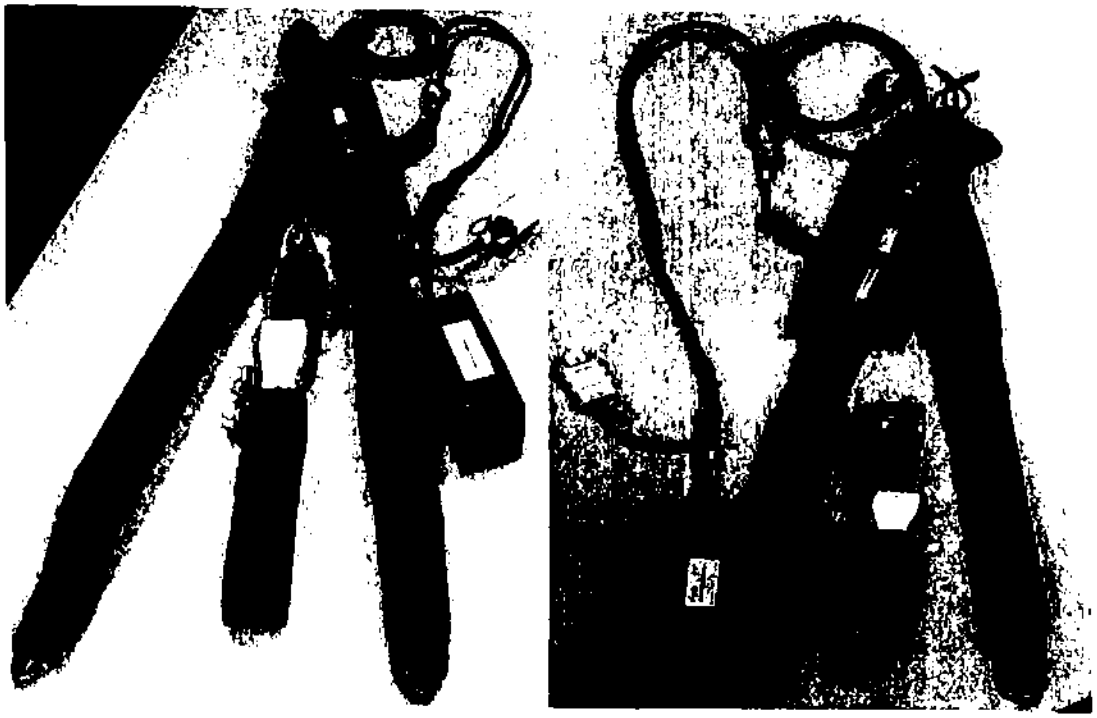


Figure 4. AmSafe airbag inflator-in-the webbing samples.

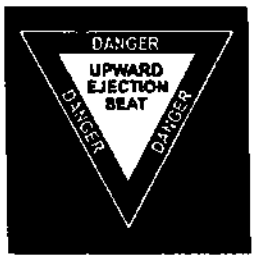


Figure 5. Upward ejection seat danger decal.

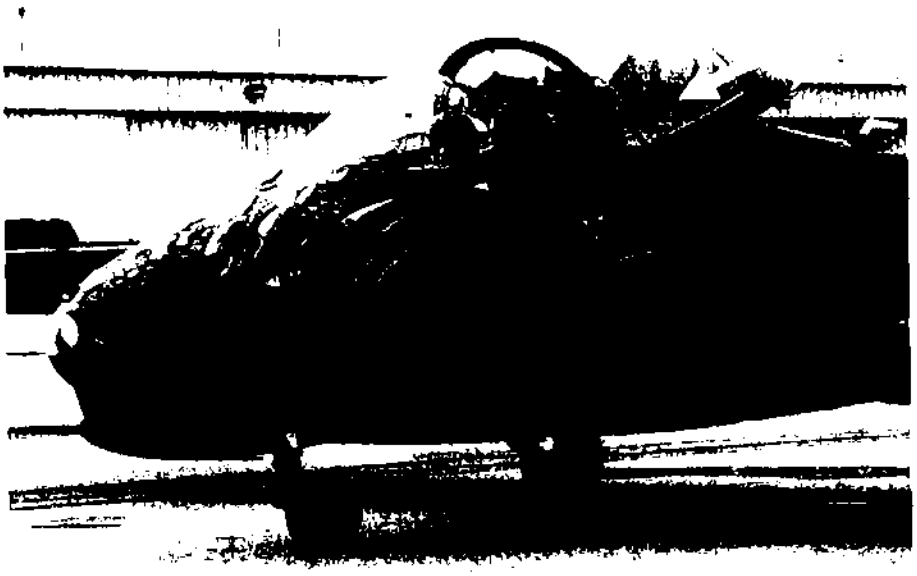


Figure 6. Example of location of ejection seat warning decal on a privately-owned BAC 167 Strikemaster Warbird jet.

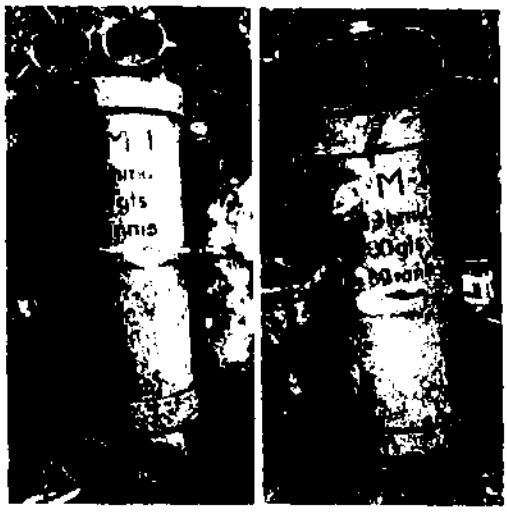


Figure 7. Ejection seat rocket motors from L-29 Warbird (right motor is discharged).

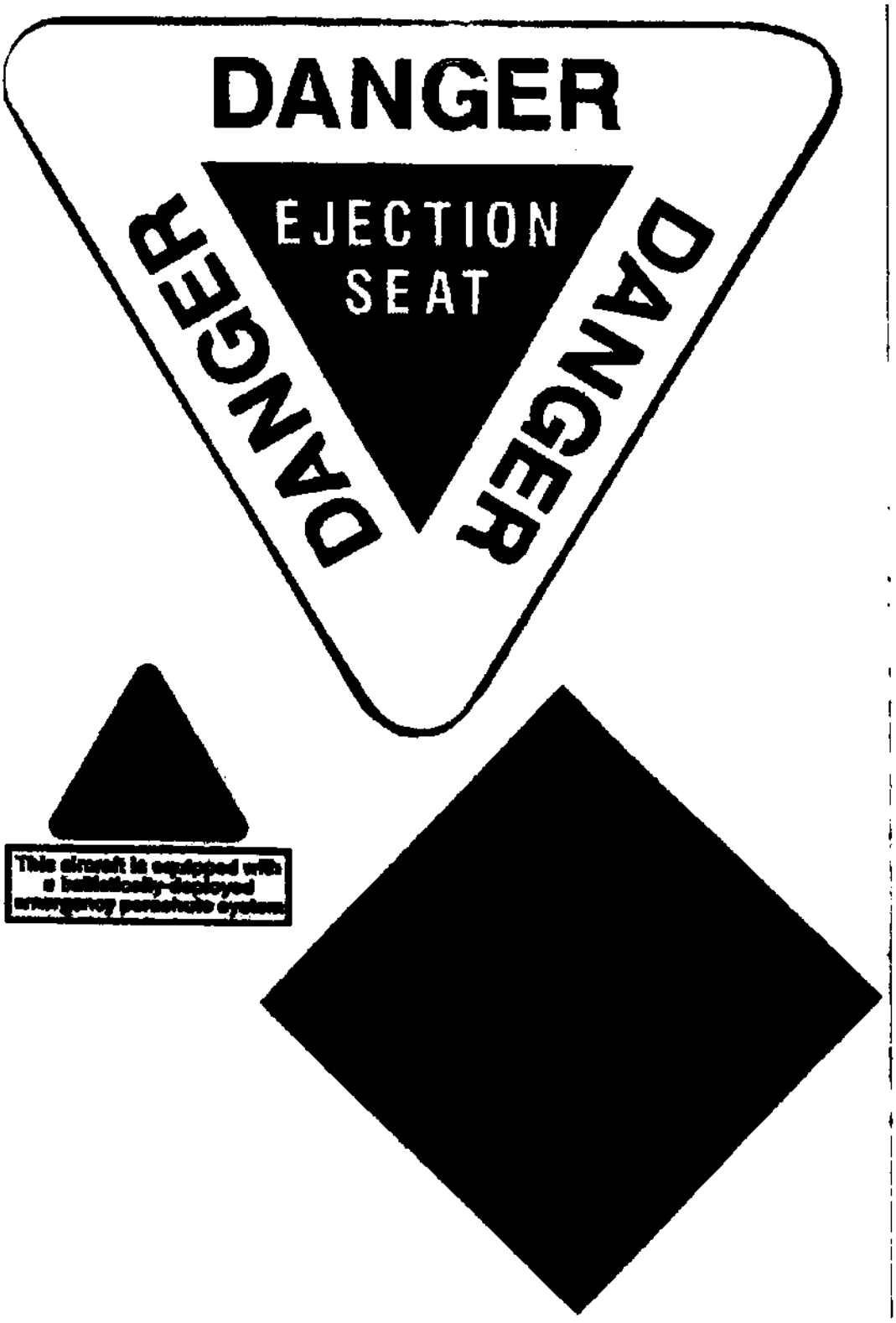


Figure 8. Warning decals (comparative sizes).

National Transportation Safety Board

Office of Aviation Safety

Operations Bulletin AS-INT-023
Interim Factual Reports

1. Issuing Organization. Operations Bulletin AS-INT-023 was developed by the Office of Aviation Safety (OAS), issued July 21, 2011, last reviewed on March 21, 2014, and due for review by March 20, 2016.

2. Purpose. Operations Bulletin AS-INT-023 provides OAS staff policy guidance and establishes procedures for the publishing of interim factual reports.

3. Policy. NTSB Board Order 300B stipulates that "a docket of the factual information gathered during the investigation should be established as soon as possible..." and "the docket should be opened when most group factual reports are available." However, Board Order 700B stipulates that "in a non-major investigation, the public docket is opened or first made available to the public when the factual report is entered." Dockets are opened for a major accident investigation when 50 percent or more of the group chairman factual reports are in to ensure information provided to the public is kept in context. For other investigations, where there are no group chairmen reports, an interim factual is required in the Accident Data Management System (ADMS) to open the docket. This is because most docket items for a typical regional investigation do not have separate narratives, similar to group chairman report narratives that places the disparate docket items into an appropriate context for public consumption. In most cases, the factual report in the ADMS provides this necessary context.

4. Cancellation. Operations Bulletin AS-INT-023 replaced AS2R-ROPM-007, is in operational effect as of the issued date, and will remain in effect unless cancelled or revised, in writing, by OAS.

5. References.

   A. Board Order 300B; "Report Preparation Process," dated July14, 2009

   http://portal/Policies/Board%20Orders/NTSB_Order_300B.pdf

   B. Board Order 700B; "Preparation, and Release of Public Dockets," dated November 10, 2009

   http://portal/Policies/Board%20Orders/NTSB_Order_700B.pdf

6. Responsibilities.

A. The director, OAS is responsible for:

(1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

B. OAS staff is responsible for adhering to the procedures set forth in this bulletin.

7. Procedures.

A. Complete the entry of data into all data fields of the ADMS factual narrative.

B. Write the ADMS factual narrative to provide updated, factual information to replace the preliminary report verbiage. The factual narrative should briefly address the salient facts of the investigation, and provide context to the docket contents. This narrative should not exceed three pages, and may contain ICAO formatted headings.

C. The following statement (including the dashed line) should be added at the top of the updated long narrative:

"The following is an INTERIM FACTUAL SUMMARY of this accident investigation. A final report that includes all pertinent facts, conditions, and circumstances of the accident will be issued upon completion, along with the Safety Board's analysis and probable cause of the accident:"

D. The ADMS interim factual summary report should then be processed like any other factual narrative.

E. Replace the interim factual summary narrative with the final factual narrative that should be released simultaneously with the Brief of Accident/probable cause statement.

NOTE: Special procedures are necessary for handling aviation cases involving a cockpit voice recorder (CVR) to ensure compliance with the statute requiring that the CVR transcript be placed into the docket "when the majority of the factual reports are completed."

National Transportation Safety Board

Operations Bulletin AS-INT-026
Information Requests to the Aviation Safety Information Analysis & Sharing Executive Board

1. Issuing Organization. Operations Bulletin AS-INT-026 was developed by the Office of Aviation Safety (OAS) and was issued on December 20, 2012. It was revised on September 8, 2016, and is due for review by September 7, 2018.

2. Purpose. Operations Bulletin AS-INT-026 provides procedures for NTSB staff to use when requesting information from the Aviation Safety Information Analysis & Sharing (ASIAS) Executive Board (AEB).

   The ASIAS community consists of the Federal Aviation Administration (FAA) and private sector organizations that contribute data and subject matter expertise regarding aviation safety. ASIAS is a joint industry-government initiative that uses de-identified, aggregate safety information to identify systemic safety issues and measure the effectiveness of safety solutions. ASIAS is managed by the AEB and is co-chaired by industry and the FAA, which directs and approves the use of ASIAS resources and approves products in accordance with the governance procedures contained in the ASIAS Procedures and Operations (P&O) Plan.

3. Policy. This bulletin does not set forth additional or new policy.

4. Cancellation. Operations Bulletin AS-INT-026 does not cancel any previous order or bulletin.

5. References. None.

6. Responsibilities.

   A. The director of OAS and the director of the Office of Research and Engineering (RE) are responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

(3) Ensuring that ASIAS information is not publicly released without AEB approval.

B. OAS and RE division chiefs are responsible for the following:

(1) Ensuring their respective staffs comply with all procedures set forth in this bulletin and in the NTSB ASIAS Memorandum of Understanding (MOU).

C. The investigators-in-charge (IICs) are responsible for the following:

(1) Ensuring that ASIAS information is not released in a public docket without AEB approval.

D. OAS investigative staff are responsible for the following:

(1) Directing any potential ASIAS information request to the IIC and treating such requests as NTSB "Official Use Only;" (not to be discussed with party representatives or others outside the NTSB).

(2) Complying with the provisions of any nondisclosure agreement they have signed in conjunction with their participation on an Information Working Group (IWG).

E. The chief of the Vehicle Recorder Division is responsible for the following:

(1) Developing a protocol for sharing archived accident and incident flight data recorder (FDR) data related to any NTSB request for ASIAS information.

(2) Consistent with the protocol, as agreed to by the NTSB and the AEB, share with the AEB appropriate accident and incident FDR data related to an NTSB ASIAS request.

7. Procedures.

A. The following criteria will be used to determine whether a request for ASIAS information is appropriate:

(1) The ASIAS information to be requested is not available from other sources.

(2) The NTSB accident investigation involves a US air carrier, and the accident occurred within the United States.

(3) The accident involves safety issues that the NTSB and ASIAS agree are significant and of a non-routine or recurring nature.

(4) The ASIAS information to be requested does not include individual records related to individual flights.

B. The IIC will formulate the draft information request with the relevant investigative group chairmen and call a meeting with the following personnel to approve the request:

(1) Directors of OAS and RE (or their designees)

(2) Chief of Major Investigations

(3) Chief of Vehicle Recorders Division

(4) Key OAS and RE investigative staff and Division Chiefs

C. The Director of OAS (or a designee) will inform the Chairman and Managing Director (MD) that the MOU will be activated and brief them on the informal verbal request.

D. The Director of OAS (or a designee) will submit the approved draft request to the issue analysis team (IAT) tri-chair and AEB co-chairs as an "informal verbal request" and identify the NTSB point of contact (POC; typically, the Chief of Major Investigations, OAS).

E. The IAT will contact the NTSB POC after concluding its review of the NTSB informal verbal request and advise whether it recommends that the NTSB submit a formal written request as stated in the informal request, or as modified at the request of the IAT.

(1) If the IAT requests modifications to the NTSB's informal request, the NTSB POC shall consult with the Directors of OAS and RE regarding suggested modifications and obtain approval to proceed with a formal written request as modified.

(2) If the IAT rejects the NTSB informal request, the POC will inform the Directors of OAS and RE.

F. Other than as provided in 7E(2) above, the NTSB POC will formulate the final written formal request and obtain the approval of the Directors of OAS and RE, via memo. The NTSB POC will brief the Chairman and MD to gain final approval before submitting the formal written request.

G. The Director of OAS (or a designee) will submit the formal written request (see Attachment 2) to the IAT tri-chairs and AEB co-chairs, typically within 10 days of the IAT notification to the NTSB or, for cases involving modifications, within a timeframe agreed upon by the NTSB and the IAT.

H. Once the IAT approves the NTSB's formal request, either as submitted or as modified by the AEB, the AEB will authorize the IAT tri-chairs to participate with the NTSB in an IWG to review and discuss the information. The IWG will include the following:

(1) IAT tri-chairs or their designees.

(2) NTSB Office Directors or their designees.

(3) Key analysts of the MITRE Corporation, as determined by the IAT.

(4) NTSB data analyst(s), as determined by the Directors of OAS and RE (or their designees).

(5) NTSB party representatives, accredited representatives and their technical advisers, and contractors pertinent to the data inquiry, as determined by agreement of the NTSB directors of OAS and RE (or their designees) and the IAT tri-chairs (by required invitation).

(6) NTSB IIC (by required invitation).

(7) Other participants as agreed to by the NTSB and IAT tri-chairs (by required invitation).

I. All IWG group members will be required to execute a nondisclosure agreement (see Attachment 2), as jointly developed and agreed to by ASIAS and the NTSB, before the start of the meeting. The IIC is responsible for securing signed copies of the agreement from all relevant NTSB staff and NTSB investigation participants (parties, accredited representatives, technical advisers, observers, consultants, and other participants) and uploading into the NTSB "Official Use Only" docket.

J. Once the nondisclosure agreements are in place for all IWG participants, the directors of OAS and RE, or their designees, will identify NTSB FDR data that is related to the request and authorize its transfer to MITRE for the purposes of the IWG activities.

K. IWG discussions will occur at the MITRE Safety Discovery Laboratory in McLean, Virginia, unless the IWG members jointly agree to hold a discussion at another location or by another means. During the face-to-face discussions, IAT participants will share any ASIAS information agreed to by the AEB, for review by the IWG participants. The ASIAS information provided by ASIAS will be de-identified and will typically be presented in the form of summary tables, plots, or histograms.

L. All ASIAS information provided to the IWG is confidential and available only for review and discussion during the particular session. Except as discussed in paragraph M below, all written or electronic copies of the information will be

retained by the IAT at the conclusion of the IWG meeting. Meeting members are prohibited from further disseminating or sharing any of this information.

M. The IWG may, by consensus, agree that specific documentation developed during the NTSB-ASIAS sharing process may be available to the NTSB for public disclosure. In these circumstances, the IAT tri-chairs will seek prior AEB approval to allow the documentation to be included in the public docket in accordance with NTSB procedure. (See OPS-GEN-113.) Any such documentation will be subject to prior AEB review and approval.

N. The NTSB POC may submit follow-on requests within the scope of a previous initial formal request. The IAT tri-chairs are authorized, within their discretion, to evaluate any such formal follow-on requests from the NTSB without seeking AEB approval to comply with the request. Any follow-on requests that are of a nature and scope that require further approval by the AEB before the IWG may proceed will be reviewed with the Directors of OAS and RE by the NTSB POC before submission to the IAT tri-chairs and AEB. All information developed as part of a formal follow-on request will occur in accordance with the procedures of paragraphs 7H through 7M above.

8. External Reporting Requirements. None.

9. Definitions.

A. **AEB**: The AEB is led by two co-chairs, one representing aviation industry and the other from the FAA Office of Aviation Safety. The AEB consists of representatives of various FAA offices, the National Aeronautics and Space Administration, commercial airlines, manufacturers, and labor organizations.

B. **ASIAS information**: Deidentified, aggregate results derived from analysis of ASIAS data sources. ASIAS information is provided in summary form through tables or summary statistics to be used for discussion during IWG sessions. ASIAS information will not include individual records related to individual flights, nor will such information be distributed or released.

C. **ASJAS summary information**: Deidentified, aggregate summary tables, charts, or written textual response information approved by the AEB for release to the NTSB.

D. **IAT tri-chairs**: As specified in the ASIAS P&O Plan, the IAT is jointly led by an industry representative, a MITRE specialist, and an FAA representative, collectively referred to as the IAT tri-chairs.

E. **Information working group**: As described in section 5D of the NTSB-ASIAS AEB MOU (see Attachment 1), the IAT tri-chairs are responsible for creating the IWG to work collaboratively with the NTSB and other authorized representatives to facilitate the exchange of ASIAS information under the MOU.

F. **MITRE**: Staff members of the MITRE Corporation's Center for Advanced Aviation Systems Development who contribute analytical expertise to the ASIAS program.

10. Attachments.

A. Attachment 1, Memorandum of Understanding Relating to the Exchange of Information between the National Transportation Safety Board and the Aviation Safety Information Analysis and Sharing Executive Board, dated November 7, 2012.

B. Attachment 2, Aviation Safety Information Analysis and Sharing (ASIAS) Procedures and Operations (P&O) Plan, revision 9, dated November 28, 2012.

National Transportation Safety Board

Operations Bulletin AS-INT-027
Missing Aircraft

1. Issuing Organization. Operations Bulletin AS-INT-027 was developed by the Office of Aviation Safety (OAS) and was issued on January 4, 2013. It was reviewed on September 8, 2016, and is due for review by September 7, 2018.

2. Purpose. Operations Bulletin AS-INT-027 provides policy guidance to OAS staff and establishes procedures for the processing of preliminary and factual narrative reports and probable cause statements for aircraft that are not located.

3. Policy. Sections 302 and 304(a)(3) of Public Law 93-833, the Independent Safety Board Act of 1974, 49 *United States Code* 1116, assign the NTSB the responsibility to investigate all civil aviation accidents.

4. Cancellation. Operations Bulletin AS-INT-027 does not cancel any order or previous bulletin.

5. References. None

6. Responsibilities. The director of OAS is responsible for the following:

   A. Ensuring compliance with the procedures set forth in this bulletin.

   B. Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures.

   A. When the investigator is notified of an overdue/missing aircraft, the investigator will conduct the preliminary investigation. Information to be gathered include weather documents; flight and pilot information; owner/operator contacts; NTSB form 6120.1, "Pilot/Operator Aircraft Accident/Incident Report"; and any other pertinent available information.

   B. If the aircraft's flightpath might have taken the aircraft across a foreign border or into the area of another NTSB region, the region from which the aircraft departed will initiate the preliminary investigation. If the aircraft is later located outside of

the initiating region, the investigator will forward all information to the applicable region.

C. An aircraft is presumed to be involved in an accident after having been overdue for 7 days.

D. Once an aircraft is overdue/missing for 7 days, an NTSB preliminary report will be completed by the investigator within 5 working days. Normally, search and rescue activities are suspended on or about 7 days after the report that the aircraft is overdue/missing. If the search mission continues beyond 7 days, the investigator will not submit a preliminary report until confirmation that the search mission has been suspended.

E. If the aircraft is found within 180 days of the date it was reported overdue/missing, an investigator from the region where the aircraft is found will complete the investigation and submit the factual and brief reports and probable cause statement.

F. If the aircraft is not located within 180 days, investigators will act as follows:

(1) The initiating investigator will complete and submit NTSB factual and brief reports with a probable cause statement of "Undetermined." The factual report will include all pertinent information that was gathered at the time the aircraft was reported overdue/missing, and the investigator will submit all supporting documentation that was gathered during the investigation in the docket management system.

(2) If the accident site is eventually located (after 180 days), the docket will be reopened by the region where the aircraft was found, and an investigator from that region will complete the investigation and submit the factual and brief reports and the probable cause statement.

G. Preliminary report preparation.

(1) The NTSB preliminary report will indicate the following:

a. Injury of the pilot/occupants: **Unknown.**

b. Aircraft damage: **Unknown.**

c. Example:

On October 5, 2010, about 1545 Pacific daylight time, a Cessna 172 airplane, N1234A, was reported overdue/missing near Cascade, Washington. A commercial pilot and a passenger were on board. Their injuries are unknown. The airplane was registered to and operated by a private individual as a 14 *Code of Federal Regulations* Part 91 personal flight. Visual meteorological conditions prevailed for the flight; no flight plan had been filed. The flight

originated from the Skagit Regional Airport (BVS), Burlington, Washington, at 1100 and was destined for the Middle Georgia Regional Airport (MCN), Macon, Georgia. No emergency locator beacon signal has been reported.

H. Factual report preparation.

(1) The NTSB factual narrative will indicate:

a. Injury to pilot/occupants: **Fatal.**

b. Aircraft damage: **Destroyed.**

(2) The factual report will indicate that the pilot /occupants were fatally injured and that the aircraft is presumed destroyed.

I. Case classification.

(1) Missing aircraft accident case files will be annotated by regional identifiers per AS-INT-016, "Case Classification and Number Codes for Accidents and Incidents" in the following format until the wreckage is located: WPR13FA**MS1**, **MS2**, **MS3**, etc. When the aircraft is located, the MS1 nomenclature will be replaced with normal regional case type identifiers and sequence numbers in the ADMS/eADMS database for the fiscal year in which the aircraft was reported missing.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachments. None.

National Transportation Safety Board

Operations Bulletin AS-INT-028
Unmanned Aircraft Systems Supplemental Guide

1. Issuing Organization. Operations Bulletin AS-INT-028 was developed by the Office of Aviation Safety (OAS) and was issued on March 8, 2013, was revised March 7, 2015, and reviewed on May 9, 2016. It is due for review by May 8, 2018.

2. Purpose. Operations Bulletin AS-INT-028 provides policy guidance and establishes procedures for OAS staff during unmanned aircraft systems (UAS) accident/incident investigations.

   A. This UAS investigations operations bulletin is a supplement to aviation investigative fact gathering, not a replacement, and should be used as a guide to assist in UAS accident/incident investigations. Because UAS technology and the regulatory framework is under ongoing development, this operations bulletin should be considered a living document and not comprehensive or exclusive.

3. Policy. It is NTSB policy to investigate accidents and incidents involving UAS, in keeping with its authority to investigate transportation accidents as provided by statute and regulation, cited in the "References" section.

4. Cancellation. Operations Bulletin AS-INT-028 does not cancel any order or previous bulletin.

5. References.

   A. Title 49 *United States Code (USC)* sections 1101-1155.

   B. Final Rule, "Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records," 75 *Federal Register* (*FR*) 51953 (August 24, 2010); see also *49 Code of Federal Regulations* (*CFR*) part 830.

   C. 49 *USC* sections 40102 ("Definitions") and 40125 ("Qualifications for Public Aircraft Status").

   D. Federal Aviation Administration (FAA) Reauthorization and Reform Act of 2012, Public Law 112-95, Title III, Subtitle B—Unmanned Aircraft Systems (Feb. 14, 2012).

E. Operations Bulletin AS-INT-020, "Procedures for Wreckage Examinations."

F. Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems, Feb. 15, 2015, 80 *FR* 9355 (Feb. 20, 2015).

G. FAA, Overview of Small UAS Notice of Proposed Rulemaking, 80 *FR* 9544 (Feb. 23, 2015).

6. Responsibilities.

A. The director of OAS is responsible for the following:

(1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin according to the schedule or earlier if there is an identified need.

B. NTSB investigators are responsible for, when notified of UAS events, coordinating with the OAS UAS investigations point of contact (Bill English, AS-10) as soon as practical.

7. Procedures.

A. Checklist items that are deemed relevant to the accident should be clearly articulated in the accident report narratives. All ADMS data fields in the reports should be completed.

B. Determine Level of Investigation.

(1) The investigator in charge (IIC) or duty officer should determine if a UAS event falls under NTSB authority (see Attachment 1). Prompt consultation with the OAS UAS point of contact and OAS management is essential in determining NTSB response to events. The FAA Unmanned Aircraft Systems Integration Office (UASIO), AFS-80, can also be a resource, as can trained FAA regional personnel.

a. Per the preamble to the August 2010 amendment to 49 *CFR* 830.2 and 830.5, the NTSB retains the authority to investigate UAS incidents that are outside the event reporting criteria or definition of an accident but nonetheless may attract media or political interest. The NTSB does not include UAS flown for hobby and recreational use in the definition of "accident." Guidance on determination of a hobby and recreational use may be found in Section 336 of Public Law 112-95 (2012).

b. Determine the entity holding the certificate of authorization (COA), Section 333 exemption, involvement of a military service, and/or the possible

developmental or experimental status of the UAS. The COA sponsor is not necessarily the operator of the UAS, for example at the FAA test sites.

c. Check for programs operating under letters of agreement with military services for special use airspace (SUA) access. A COA may not exist in these cases.

d. Apply definitions in 49 *CFR* 830.2 to unmanned aircraft. Look for differences between 49 *CFR* part 830 and Department of Defense (DoD) accident/mishap concepts. Assess intentional precautionary landings and the use of frangible or single-use components.

e. Closely coordinate with the Offices of Research and Engineering and General Counsel to obtain guidance regarding any special considerations for UAS involving law enforcement, Homeland Security, or privacy issues.

f. Look for non-US and Annex 13 applicability.

(2) A UAS has numerous components that are not physically connected – the airborne vehicle(s), ground control station(s), command and control link, and payload. Response may require multiple investigators at separate locations.

(3) There is not a clear definition or equivalent for a flight control system failure as stated in 49 *CFR* 830.5. A sustained lost link, in which the aircraft does ***not*** follow the expected response, should be considered a flight control system failure.

C. Investigative Information

(1) Some UAS-unique concepts are listed below and are roughly aligned with the NTSB investigative group structure. They should be applied in addition to typical manned aircraft investigative methods and inquiries.

(2) GENERAL/IIC

a. Note the coordination between the aircraft operation and the payload operation (generally scientific or law enforcement, but a limited number of commercial applications are in use). Does the operator have an air safety program?

b. Look for multiple launch locations and assess difficult-to-access launch locations.

c. Assess who really has operational control over the UAS. For example, at FAA test sites, the COA sponsor may not be the same entity as the operator, or a flight in SUA under an agreement does not automatically transfer operational control to the military.

d. Look for contractor/manufacturer/outsource support, such as maintenance programs. Operations within the FAA Test Sites may have different organizations providing different parts of the operation.

e. Look for review of airworthiness certification from the proper authority.

(3) OPERATIONAL/TRAINING

a. Define the Lost-link/Return Home procedure.

b. UAS aircrew qualifications/training and currency may be different than usual FAA requirements. Look for the COA, Section 333 exemption, or agency training requirements for appropriate knowledge and skills.

c. Training methods may be different than manned aircraft. Is there a valid simulator or computer-based instruction? How are syllabi and training hours logged?

d. Look for aircraft control feedback capability and physical or augmented reality.

e. The UAS pilot/operator may have limits to situation and spatial awareness.

f. Does the pilot/operator have a clear and immediate indication of the current operating mode? Line-of-sight vs. over-the-horizon, manual vs. autonomous, etc.

g. Autonomous mission planning and real-time feedback/situation awareness (for example, pilot-ON-the-loop).

h. The IIC may encounter an "Optionally Piloted Vehicle." Such a vehicle replaces a copilot with UAS technology or allows a certified pilot to "ride along" for research and development purposes, and the pilot can take control of the aircraft if needed.

i. UAS may involve multiple vehicles controlled from one ground station.

j. Attention should be given to handover and transition procedures, such as manual to auto flight, line-of-sight to over-the-horizon. Be aware of slight differences in terminology.

(4) COLLISION/WEATHER AVOIDANCE

a. Determine the sense-and-avoid capability and the ability to detect weather, either on board or through the ground operator. Are there any special characteristics or performance limitations in various weather conditions?

b. Assess the conspicuity of the vehicle to other pilots. (paint/lighting, etc)

c. If applicable, determine if the sense-and-avoid system is passive or if it integrates with the flight controls.

d. A UAS may also have visual observers, range control, chase planes, launch vehicles or other visual interaction.

e. Determine the primary and backup methods of communicating with air traffic control (ATC).

f. Document event communication/coordination with ATC.

g. Examine the COA or Section 333 exemption for emergency ATC procedures, ATC conditions/restrictions, lost-link deconfliction.

h. Examine applicable ATC units for UAS training, COA/concept-of-operations compliance and understanding, lost-link situation awareness.

(5) SYSTEMS – VEHICLE/GROUND/COMMUNICATIONS

a. Check GPS availability and performance (RAIM) per notices to airmen or other sources.

b. Note that the "autopilot" term may also include flight control computers. Understand the flight control/stabilization system.

c. Looks for issues with radio/microwave etc., spectrum and bandwidth limitations and control latency due to communications link and/or data translation delays.

d. Look for evidence unintentional electromagnetic interference (EMI). If there is evidence of jamming or spoofing, coordinate with OAS and the Managing Director (MD) for consultation with other agencies, such as the Federal Bureau of Investigation, Department of Homeland Security, Federal Communications Commission, etc.

e. Many smaller UAS may exhibit a mix of certified, noncertified, hobby, and mil-spec hardware and software.

f. Look for single-point failure modes on the vehicle and at the control station.

g. Identify the control modes. For example, actively controlled by the pilot, semiautonomous, autonomous, etc.

h. Document how the pilot controls the vehicle. For example, stick and rudder, keyboard, payload control, etc.

i. Examine instrumentation and displays to monitor critical flight systems, command control links, and telemetry links

j. Examine maintenance intervals and programs.

(6) STRUCTURE/PROPULSION

a. Consider frangible or expendable components. Typically, this will involve a nonstandard landing gear or recovery method, such as a parachute or airbag. What is the expected frangible mode?

b. Look for hazardous materials at vehicle site associated with the vehicle itself or the payload. Many small UAS use lithium-polymer batteries.

c. The ability to shut down the vehicle postcrash may be limited.

d. UAS may have unique propulsion methods (for example, electric, sail, quad-rotor, lighter-than-air).

e. UAS may have unique takeoff/launch methods (bungee, rocket, pneumatic catapult).

f. Determine how the maintenance program deals with frangible/disposable/consumable concepts.

g. Hazards may exist at ground control stations or launch/recovery areas.

h. Examine ground support equipment.

(7) HUMAN PERFORMANCE

a. Human factors issues are likely to be involved in most cases.

b. Examine the interaction between the pilot and sensor operator.

c. Ground control station issues may appear similar to ATC human factors (for example transfer of position responsibilities and display set-up issues).

d. Examine how characteristics of the pilot-vehicle interface and resulting interactions support pilot situational awareness or contribute to system-level safety vulnerabilities.

e. Mission pressures, budget, and time constraints have been factors in previous UAS mishaps. Look for organizational lapses in using the right platform for the job.

(8) AERODYNAMICS/RECORDED DATA (see also Attachment 2)

a. The vehicle may not have a well-documented aerodynamic model.

b. UAS operations may be data-intensive, but this is not guaranteed. Look for various recorded data, such as on board, in the ground control station, in the communication system, in the payload, or in the navigation/terrain database.

c. There are as yet no UAS-recorded data standards.

d. Recorded data may include security-sensitive information.

e. Consider a lost link as a possible symptom rather than the problem and look for terrain masking, high-intensity radio frequency interference, poor spectrum management, etc.

f. Law enforcement and certain federal operations may be at risk of cyberattack, which may mimic an accidental problem. Coordinate with OAS, the MD, and General Counsel (GC) for support.

g. Recording media may be nonstandard, proprietary technology and may be remotely located.

h. Look for operator "chat" links.

(9) AIRPORTS/SURVIVAL FACTORS

a. If a UAS event occurs on airport property, document the airport operator's awareness of and coordination with the UAS operator (communications, agreements, NOTAMs, etc.).

b. If a UAS event involves serious injury or a fatality, document the emergency response (timeline, equipment, personnel, actions, post-event debrief) whether it is on or off airport.

8. External Reporting Requirements. None.

9. Definition.

A. **UAS**: A UAS, also known as remotely piloted aircraft, comprises an airborne component and a number of ground-based components. The airborne component may resemble a fixed-wing or rotary-wing aircraft, a dirigible, or something completely unconventional. The ground-based components will likely include a ground control station and communications links, such as satellite antennas, microwave links, etc. The ground control station may be a sophisticated unit with many computerized components and an aircraft-like

control station or as simple as a portable transmitter, similar to that used to operate a radio-controlled model aircraft.

10. Attachments.

A. Attachment 1, Reporting and Notifications—Investigation Authority

B. Attachment 2, Recorded data issues (Flight data, payloads, telemetry, sensors etc.)

C. Attachment 3, Standard Operating Procedures for NTSB Use of UAS at Accident Sites

Attachment 1

Reporting and Notifications—Investigation Authority

On August 24, 2010, the NTSB published an amendment to 49 *CFR* 830.2 to define public and civil unmanned aircraft accidents.

Unmanned aircraft accident means an occurrence associated with the operation of any public or civil unmanned aircraft system that takes place between the time that the system is activated with the purpose of flight and the time that the system is deactivated at the conclusion of its mission, in which:

(1) Any person suffers death or serious injury; or

(2) The aircraft has a maximum gross takeoff weight of 300 pounds or greater and sustains substantial damage.

The revised wording places UAS in the same framework as manned aircraft. Use of the term "system" indicates the airborne, ground, and communications components are all of interest. A simplified checklist follows:

- UAS operators are required to report an accident and specified serious incidents.
- An accident is defined by the occurrence of fatalities or serious injuries, and/or substantial damage to the aircraft.
- An occurrence that only consists of substantial damage to a UAS, in which the airborne vehicle is less than 300 lbs maximum gross takeoff weight, is not an "accident" – however, section 830.5 may apply.
- The NTSB will investigate an accident (as defined in 49 *CFR* 830.2).
- Required notifications are the same as for manned aircraft (that is, 49 *CFR* 830.5 incident reporting rules also apply to UAS).
- The NTSB may investigate a serious incident; an investigated incident may or may not align with section 830.5.
- The distinction of civil, public, military, and contractor are all the same as manned aircraft.
- The FAA will have its own reporting requirements to meet the nine responsibilities, similar to manned aircraft.
- UAS flown for hobby and recreational use are not included in the definition of accident.

Tips, examples, and frequently asked questions:

The FAA permits unmanned aircraft to fly in the national airspace system (NAS) through one of two approval mechanisms: a COA or an experimental certificate of airworthiness (EC). A COA is granted to a public aircraft-eligible operator or a Section 333 exemption holder and may be considered to be analogous to the airworthiness and operating certificates all rolled into one. An

EC is granted to a manufacturer and will likely also specify operational provisions upon which the airworthiness approval is contingent. At this time, the vast majority of UAS operational approvals granted by the FAA are COAs. Unmanned aircraft may or may not have an "N" number. Government-owned UASs may have an inventory number rather than a civil registration number.

When you hear of a UAS event, you should find out whether the UAS was approved to fly under a Section 333 exemption (civil, commercial), a public aircraft COA, or an EC and/or to whom the approval was issued. If the approval was issued to a DoD agency (Air Force, Army, etc.), then the operation is likely military, and you would consider it as any other military aircraft operation. Even if FAA civilian ATC is involved, the operation is still military, and we do not have statutory authority to investigate. It is also important to see if a manufacturer or contractor is involved, which may move the operation back into civil category.

Public Aircraft are currently defined in FAA Advisory Circular 00-1.1a, Public Aircraft Operations.

The type of occurrence was specified in the new section 830 wording. Many UAS airborne components are quite small and pose very little risk to the public and the transport of persons, goods, or services--thus, the 300 lb cut-off in the reporting requirement. Three hundred lbs is roughly the equivalent weight of a powered ultralight, full fuel, without the pilot. It also is roughly equivalent to the European definition of a "small UAS" (for instance, 150 kilograms).

Examples: A Predator or Shadow crashes into a field. It is reportable if the damage to the aircraft is substantial; it is an accident, and the NTSB will investigate it with a report, docket, probable cause, etc. A ScanEagle or DJI S-1000 (popular multi-rotor videography) is too small (less than 300 lbs). If it crashes in the woods and there are no injuries, there is no requirement to notify the NTSB.

The airborne component size exemption does not apply if there are serious injuries or fatalities. An S-1000 that hits someone on the ground and causes serious injury is an accident and will be investigated.

The serious injuries or fatalities reporting requirement also applies to the nonairborne components of the system. A ground control station that catches fire and results in a serious injury or fatality is an accident, regardless of the size of the airborne vehicle.

Many UASs have frangible components and the existing definition of "substantial damage" should be sufficient. A frangible component is unlikely to require a major repair and, therefore, would not qualify.

All other immediate notification items in section 830.5 now apply to UASs, since the rule change has defined an unmanned aircraft. Note that UASs are still unique and newsworthy, so events that may not have been anticipated by the rule change can be captured under the NTSB authority to investigate incidents. A hobby and recreational ("model aircraft") use is not intended to be investigated, but the NTSB retains the ability to do so if warranted.

Attachment 2

Recorded data issues (Flight data, payloads, telemetry, sensors etc.)

Very few, if any, UAS have flight data recorders or cockpit voice recorders similar to those that are in manned aircraft. However, many systems have a great deal of recorded data available.

Data may be associated with the command and control, telemetry, and other status indicators for the aircraft. Data may be associated with the payload, which in many cases is a sensor package of varying types. In some systems these two categories overlap.

In UAS derived from military platforms, the data will typically be recorded at a site some distance from the aircraft.

Sensor data may be visible light video, or other remote sensing, such as LIDAR, synthetic aperture radar, signals intelligence gathering, etc.

Small UAS handheld controllers may not capture any recorded performance data, however telemetry may be stored in a computer or tablet device, and on-board memory is typical. There are currently no standardized formats for recording or playback of recorded data.

There will almost certainly be some level of sensitivity to the payload data – perhaps security sensitive or privacy issues.

The investigator may have to carefully discuss data handling with the operator or government agency. The investigator is cautioned to not make any promises and should consult with the AS-10 UAS point of contact, the RE-60 Recorders Lab, and GC as soon as possible.

Attachment 3

Standard Operating Procedures for NTSB Use of UAS at Accident Sites

This attachment provides guidance to the investigator to correctly use unmanned aircraft resources. If the investigator cannot ensure that the UAS use complies with all the listed items in the procedures that follow, then he or she should refrain from using the data, photographs, or evidence from the UAS until speaking with AS-1 and/or GC.

If the investigator has determined that aerial imaging is desirable for the investigation, a UAS may be an appropriate platform. Currently, the NTSB does not have the statutory authority to acquire and operate a UAS. NTSB investigators may not use their personally owned UAS for imaging accident sites. This would violate Section 336 of Public Law 112-95, among others.

For a major investigation, OAS and the MD Law Enforcement Liaison can coordinate with other federal agencies to obtain appropriate support on a resources-available basis and in accordance with existing memorandums of understanding and guidance. In other cases, the investigator may be approached by a state or local government agency (typically law enforcement) or a private sector commercial entity or private citizen offering UAS imagery of the site. In those situations, the procedures below apply.

Procedures

1. Ensure that the UAS operator has appropriate FAA authorization
   a. A law enforcement agency or other government agency must have an FAA COA that applies to the area and type of operation. The agency may have the ability to exercise a jurisdictional COA, anywhere in a specified geographical area, or may be able to obtain an Emergency COA from the FAA to support the investigation.
   b. The area and type of operation in the COA must apply to the accident site imaging. For example, a COA for the purposes of training, or with a geographical area not encompassing the accident site, is not sufficient.
   c. Currently, a commercial operator must be under the provisions of an FAR exemption per Section 333 of Public Law 112-95. All exemptions granted to date are limited to very specific geographic areas and types of operation. It is extremely unlikely that a legitimate commercial operator could provide accident site imaging. This may change with the issuance of a final rule on small UAS.
   d. An operator who approaches the investigator claiming to be a commercial operator and who does not have a Section 333 exemption is not authorized to provide UAS services and related products. The investigator must not give tacit approval by "hiring" or "allowing" the operation. The investigator should advise the operator that unauthorized commercial use of a UAS could lead to FAA enforcement action.
   e. Private individuals offering to fly over the accident site do not meet the criteria in Section 336 of Public Law 112-95. The investigator must not give tacit approval by "allowing" private individuals to fly UAS over an accident site.
   f. Members of the public using UAS for recreational purposes may capture images of an accident site, in a similar manner to any passerby with a camera. If the individuals offer the imagery to the NTSB for no cost, and the flight was not performed at NTSB or other participant initiation, the investigator may accept the imagery and place into

the docket with appropriate credits, in the same manner as any other bystander photos. The investigator should make it clear to the operator that the NTSB use of the imagery is in no way a commercial endorsement.

g. If an investigator finds UAS imagery of the site on public internet sources, it should be treated as any other open source information and understood to be of unknown accuracy.

2. Ensure that the local public is informed of the operation
   a. UAS operations by federal and/or law enforcement agencies come under great public scrutiny for privacy issues. Before authorizing any UAS flight over your site, coordinate with the NTSB Office of Safety Recommendations and Communications, Public Affairs Division, and any local government public information officials to ensure that the local citizens are informed of the flights and that they are solely being used in support of the accident investigation.
   b. Use SRC-10 and local agency public information officials to inform the public that private UAS flights in the vicinity of the accident site are not authorized, may be hazardous, and may result in FAA enforcement action. This includes the landowner of the accident site and is consistent with manned aircraft.

3. Ensure site safety during UAS operation
   a. Establish a perimeter in which the aerial imaging will take place and determine entry and exit routes and "bail out" points in case of an in-flight emergency.
   b. Coordinate with the FAA for any authorized flights into an accident site temporary flight restriction or other controlled airspace.
   c. Remove all nonessential personnel from the perimeter and a reasonable buffer zone.
   d. Have a specific imagery plan and ensure that the operator is completely aware of the plan and can follow it.
   e. Ensure the operator does not overfly areas that contain hazardous materials without a specific risk management plan. (*Coordinate with AD Site Safety and ICS site commander*)
   f. Ensure that the operational control of the flight remains with the authorized operator at all times; do not give the appearance that NTSB is taking over operational control.
   g. Coordinate with the ICS site commander to ensure that he/she is aware of the flight and can provide emergency medical or fire personnel in the event of a mishap.
   h. The investigator or his designee shall remain in close contact with the UAS operator to ensure the plan is followed and that any necessary deviations are appropriately coordinated.
   i. The NTSB requires that the operator provide a separate pilot and camera/sensor operator. The pilot must not be responsible for the imaging.
   j. The NTSB requires that at least one visual observer is positioned to look for aircraft potentially entering the area, or for ground hazards that arise, such as nonparticipating pedestrians or vehicles. The visual observer(s) should be appropriately trained and may be provided by the UAS operator or designated by the investigator.

National Transportation Safety Board

Office of Aviation Safety

Operations Bulletin AS-INT-029
AS Project Status Board Procedures

1. Issuing Organization. The Office of Aviation Safety (OAS) issued Operations Bulletin AS-INT-029, "AS Project Status Board Procedures," on July 28, 2015. It is due for review by July 27, 2017.

2. Purpose. Operations Bulletin AS-INT-029 provides OAS policy guidance and establishes procedures for the use of the AS Project Status Board. This status board is intended to help AS and RE management track and prioritize projects in the Materials Lab RE-30, the Recorders Lab RE-40, accidents requiring Medical Review RE-1, and accidents requesting assistance aviation engineering (AS-40), and from air traffic control (ATC) and meteorology (MET) specialists. Further, this status board will help investigators to quickly establish the status of their requests and projects in the different AS and RE divisions and if necessary, determine if another method of evaluation would be more appropriate.

3. Policy. This bulletin does not set forth additional or new policy.

4. Cancellation. AS-INT-029 is in operational effect as of the issued date and will remain in effect unless cancelled or revised, in writing, by the OAS Director.

5. Responsibilities.

   A. The OAS Director is responsible for:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

6. Procedures.

   These procedures are designed to help formalize and track the workload in the materials lab, recorders lab, from the medical officers, and within the other support offices. These procedures are not designed to replace the preliminary communications

and troubleshooting that often take place between the investigators, the lab or the other support offices.

A. ATC Requests – This assistance includes, but is not limited to radar plots, accident packages, ATC recordings, ATC transcripts, and formal investigations. Your request should include the following information.

   1. Accident Number
   2. Accident Date and Time
   3. Accident Location
   4. IIC
   5. Work or assistance requested
   6. Justification

   Once the request has been logged, AS-30 management will assign an investigator within the database. The AS-30 investigator and the IIC will then be responsible for determining the final product and updating the status of the request in the database, as it progresses and is completed.

B. Meteorology Requests – This assistance includes, but is not limited to basic weather information for background for the IIC's report, email correspondence providing facts and/or analysis for the docket, or an official report with or without an accompanying formal analysis report. Your request should include the following information.

   1. Accident Number
   2. Accident Date and Time
   3. Accident Location (including latitude and longitude)
   4. IIC
   5. Work or assistance requested
   6. Product requested
   7. Justification
   8. Additional information such as altitudes of concern (e.g. altitude where departure from controlled flight occurred), and whether or not a radar track is being requested from ATC.

   Once the request has been logged, AS-30 management will assign an investigator within the database. The AS-30 investigator and the IIC will then be responsible for determining the final product and updating the status of the request in the database, as it progresses and is completed.

C. Aviation Engineering Requests – This assistance includes, but is not limited to systems, structures, powerplants, helicopters, and maintenance records. Assistance can include on scene support, follow-up examination support, and component testing. Final products will range from an email response to a factual

report and analysis. Your request should include the following information:

1. Accident Number
2. Accident Date and Time
3. Accident Location
4. IIC
5. Aviation Engineering Division
6. Work Requested
7. Product Requested
8. Justification

Once the request has been logged, AS-40 management will assign an investigator within the database. The AS-40 investigator and the IIC will then be responsible for updating the status of the request in the database, as it progresses and is completed.

D. Medical Review Request - This assistance includes, but is not limited to review of toxicological reports, review of autopsy reports, and report and analysis to support areas of medical concern within an investigation. Your request should include the following information.

1. Accident Number
2. Accident Date
3. Accident Location
4. IIC
5. Medical request
6. Justification
7. Additional information
8. Submit autopsy report, toxicology report, FAA medical review email, and other applicable documents through Accellion.

E. Materials Lab Request - This assistance includes, but is not limited to a quick failure point examination, materials testing, and full scale investigative involvement. Your request should include the following information.

1. Accident Number
2. Accident Date
3. Accident Location
4. IIC
5. Component Submitted
6. Work or assistance requested

7. Product requested
8. Justification for the work requested
9. Attach materials lab request and evidence tracking paperwork

F. Recorders Lab Request - This assistance includes, but is not limited to a data dump, data recovery and full scale investigative involvement. Your request should include the following information.

1. Accident Number
2. Accident Date
3. Accident Location
4. IIC
5. Component Submitted
6. Work or assistance requested
7. Product requested
8. Justification
9. Attach recorders lab request and evidence tracking paperwork

F. Case Ranking and Prioritization – Senior OAS management will be responsible for establishing the case rank and case prioritization. This information will be forwarded to the appropriate division chief if the rank changes, in order to ensure that everyone involved understands any changes that might be made and how this affects the work on other cases. Decisions on case ranking and prioritization will be made considering the following criteria:

1. Immediate safety issues or concerns
2. Fatal accidents
3. Age of case
4. Importance of examination to the probable cause
5. Product requested/needed

National Transportation Safety Board

Operations Bulletin AS-INT-030

International Participants in NTSB Aviation Investigations

1. Issuing Organization. Operations Bulletin AS-INT-030 was developed by the Office of Aviation Safety (OAS) and was issued 3/17/2015. It is due for review by 3/17/2017.

2. Purpose. Operations Bulletin AS-INT-030 provides NTSB policy regarding participation of foreign accredited representatives and advisors in NTSB-led accident and incident investigations.

3. Policy.

   A. Annex 13 to the Convention on International Civil Aviation contains specific requirements for the notification, investigation, and reporting of certain aviation accidents and incidents.

   B. The NTSB attempts to comply with the Standards and Recommended Practices (SARPs) in Annex 13. However, the United States has filed "differences" with ICAO that specify a limited number of specific standards in Annex 13 to which the United States cannot adhere. These exceptions stem primarily from U.S. statutory limitations or prohibitions. For example, the NTSB's obligations under the Freedom of Information Act (FOIA) conflict with some aspects of Annex 13's limitations on release of investigation materials. The U.S.-filed differences are listed in a supplement to Annex 13.

4. Cancellation. Operations Bulletin AS-INT-030 does not cancel any previous guidance.

5. References/Links.

   ICAO Annex 13 and supplement: http://portal/Guidance/ICAO/Pages/default.aspx

   ICAO list of foreign authorities: http://portal/Guidance/ICAO/Pages/default.aspx

6. Responsibilities.

   A. The OAS Director is responsible for the following:

(1) Ensuring that OAS staff fulfills U.S. obligations related to the participation of accident investigation authorities and their advisors under the provisions of ICAO Annex 13.

(2) Ensuring timely notification of accidents in the U.S. and its territories to foreign governments. A database of foreign authorities can be found on the portal at http://portal/Guidance/ICAO/Pages/default.aspx or by contacting the ROC. If necessary, the Department of State may also assist in establishing communications with foreign investigative authorities.

(3) Coordinating entry of foreign visitors to NTSB offices in accordance with OPS-GEN-109.

7. Procedures.

A. Civil Aircraft.

(1) Annex 13 provides for the participation of an accredited representative and advisors for the states of operation, manufacture, design, and registry in an NTSB investigation. Annex 13 specifies that notification shall occur "with minimal delay" to provide a reasonable opportunity for the foreign states to participate in the investigation to the fullest extent possible. **Note:** It is not necessary or desirable to delay notification until all notification information is assimilated; additional information can be subsequently provided once it is identified.

(2) For an accident involving launch of NTSB investigative staff, the IIC will ensure that foreign investigation authorities are promptly notified of the accident so as to allow each state to make a determination on the need for immediate travel to the U.S. When available, the IIC will also provide the location of the NTSB command post and the time and place for the organizational meeting. Regardless of any initial verbal notification, written notification of the accident shall always be sent to the foreign authority. The attached NTSB international notification form, "Accident/Incident Notification," should be used. Per Annex 13, notifications should be sent to ICAO (via aiginbox@icao.int) when involving aircraft that are turbojet-powered or over 2,250 kg (4,960 pounds) maximum weight.

(3) For NTSB investigations that do not involve the launch of an NTSB investigator or are of a less significant nature, the IIC will ensure that foreign investigation authorities are provided the notification form as soon as practical.

(4) When providing the initial notification for foreign authorities, IICs are encouraged to also inform U.S. subsidiaries of foreign manufacturers whose products may be involved (for example, Airbus Helicopters or Turbomeca USA). This will facilitate any response and support (although it is officially the responsibility of accredited representatives to identify and notify their advisors). The state in which the type certificate is held should be the primary guide on determining whether a manufacturer would be considered as U.S. or foreign.

(5) If the powerplants or major components have a potential role in the accident, the respective state(s) of manufacture should be notified and afforded the opportunity to participate in the NTSB's investigation through appointment of an accredited representative and advisors.

(6) States that experience fatalities or serious injuries to their citizens are entitled to appoint an "expert" with limited privileges, as specified in Annex 13, paragraph 5.27. However, IICs are not expected to notify these states as they would for accredited representatives. Next-of-kin notification is primarily the responsibility of coroners, medical examiners, or hospitals; NTSB TDA staff or State Department personnel can assist when necessary.

(7) Accredited representatives and advisors are not "parties" to the NTSB investigation per 49 CFR part 831 and are therefore not required to sign the Certification of Party Representatives form. IICs may wish to provide the form and the associated "Information and Guidance for Parties" for reference to ensure that foreign participants are familiar with NTSB investigative protocols, including items such as release of information, the party and docket system, and transportation disaster assistance.

(8) IICs should establish some understanding with accredited representatives on the ability for NTSB to interact and communicate directly with foreign advisors during the investigation, especially when accredited representatives do not accompany their advisors to the accident scene.

(9) Unless otherwise noted, the IIC will provide a copy of the full draft report (factual, brief/analysis, and probable cause) to each accredited representative for review and comment. Accredited representatives may consult or share the report with their advisors for comment; however, IICs should request one set of comments from each state combining any comments from the accredited representative and the advisors. Investigators should also inform accredited representatives that the draft final report is not to be shared with family members.

(10) Although Annex 13 specifies that states are entitled to 60 days to provide comments on the draft final report, the U.S. has filed a difference with ICAO noting that its comment period will be 30 days. In rare situations, there may be situations where an even shorter comment period is necessary, and IICs should not hesitate to work with the foreign authorities to request a shorter timeframe when necessary.

(11) IICs should consult with their management regarding the appropriate timeframes for sending the draft report and receiving foreign comments. The draft should represent a 'final' version of the investigation and findings, but one that can be sent early enough to allow for incorporation of comments to meet deadlines for final NTSB review and adoption.

(12) Per Annex 13, the NTSB is obligated to either amend the draft final report to include the "substance of the comments received" or, if requested, append the foreign state's comments to the final report. IICs should acknowledge receipt of states' comments and ultimately provide an overview of the response to the comments and changes to the report. Because it is

always preferable to avoid having to append states' comments to the final report, IICs should attempt to explain the rationale for not making requested changes.

(13) Minor changes to the report that occur after foreign comments have been incorporated do not warrant any additional review by the accredited representatives. However, IICs should inform accredited representatives in the event of substantial changes to the report (i.e., to findings or probable cause). If requested, the IIC should provide a summary of the significant changes and afford the accredited representatives a brief opportunity for review and any final comments.

(14) Unlike submissions, which may be provided by *parties* to the investigation and are placed into the public docket, draft final report comments from foreign authorities should not be placed into the public docket. Instead, they should be placed into the official-use-only portion of the docket.

(15) In the event of potential NTSB recommendations that will be issued independent of the final report, the IIC should provide the draft recommendations to accredited representatives for their review and input. Although there is no review timeframe specified by Annex 13, the draft should be provided at a point in the recommendation process that provides for beneficial input that can ultimately be incorporated into the notation version.

(16) C-form Cases – In the event that the investigation involves a foreign-manufactured or -registered aircraft, IICs should note in the initial notification and/or in follow-up correspondence with the foreign authority that the investigation will be conducted for 'data collection' purposes and that no draft final report will be circulated for review.

B. Public Aircraft.

(1) Unless otherwise established, public aircraft investigations by NTSB that involve a foreign-manufactured aircraft will follow nominal NTSB/Annex 13 protocols. In the event of an accident in the U.S. involving an aircraft operated by a foreign government, OAS management will consult with the General Counsel's office and the U.S. State Department in determining investigation protocols and participants.

8. External Reporting Requirements. None.

9. Definitions. None.

10. Attachment. NTSB Accident/Incident Notification Form.

NTSB | National Transportation Safety Board

Operations Bulletin OHS-INT-001

Highway Crash Notification Criteria

Issue Date: January 30, 2023

1. Issuing Organization. Operations Bulletin OHS-INT-001 was developed by the Office of Highway Safety (OHS) and issued September 3, 2008. It was reviewed on November 3, 2010; August 27, 2014; August 3, 2017; and January 30, 2023. It is due for review by January 29, 2028, or earlier if needed.

2. Purpose. Operations Bulletin OHS-INT-001 defines crash notification criteria for crashes or events that may be investigated by the Office of Highway Safety.

3. Policy. It is the policy of the NTSB to use specific criteria within each modal office to determine whether to launch to an accident. The launch decision process and procedures for launching of investigative staff to highway crashes or events may be found in the standard operating procedure (SOP) for OHS duty officers. The attachment lists the criteria for crashes and events that require notification and has been updated to reflect current highway safety issues and agency policies.

4. Cancellation. This bulletin supersedes OHS-INT-001 dated August 3, 2017, and cancels all previously dated selection or notification criteria for the OHS.

5. References/Links.

   Title 49 *United States Code*, Section 1131(a)(1), which provides, in part, that–

   > The National Transportation Safety Board shall investigate or have investigated (in detail the Board prescribes) and establish the facts, circumstances, and cause or probable cause of Highway accidents, including railroad grade crossing accidents, the Board selects in cooperation with a State.

   NTSB Board Order 100

6. Responsibilities.

   A. OHS is responsible for–

      (1) Ensuring compliance with the guidance set forth in this bulletin.

      (2) Updating this bulletin according to the schedule, or earlier if needed.

B. The ROC is responsible for notifying the OHS duty officer upon learning that a crash or event meets the criteria associated with one of the three tiers defined in this bulletin.[1]

C. The OHS duty officer is responsible for following the procedures specified in the SOP for OHS duty officers.

7. Procedures.

Establishment of Crash Notification Criteria.

A. OHS has established a three-tiered system to identify candidate crashes and events for investigation.

B. OHS uses the NTSB Response Operations Center (ROC) to receive notifications based on these tiers and the notification levels defined in section 9 of this bulletin.

8. External Reporting Requirements. None.

9. Definitions.

Tier 1 - Major crash or event for which the ROC will always be on the alert and about which the ROC will immediately notify the OHS duty officer upon learning of the crash or event.

Tier 2 - Any "Watch List" crash or event that could support one or more previous NTSB safety recommendations or support issues being developed in current OHS investigations. Based on the need for updates, criteria for this tier may change. Notifications may be made by phone, text, or email during business hours.[2]

Tier 3 - Any crashes or events not listed in Tier 1 or 2 but that might have significant safety issues. Notifications for Tier 3 crashes or events are at the discretion of ROC staff and are based on occurrences having a high level of media interest.

10. Attachment.

Highway Crash Notification and Evaluation Criteria (January 10, 2023)

[1] In the event of a transportation accident, the ROC notifies the appropriate modal duty officer based on the modal office's established notification criteria, which are maintained and updated by the modal office and provided to the ROC (see Board Order 100 References 5.A through 5.E for more information).

[2] For the purposes of this document, business hours are 8:00 a.m. through 5:00 p.m. eastern time.

Attachment (Updated January 10, 2022)

Highway Crash Notification Criteria

Tier 1 – Major Crashes or Events – Urgent Notification
Crashes or events that have ***six*** or more fatalities ***or*** that have one or more of the following characteristics:

- Crash or event that involves any commercial motor vehicle and results in three or more fatalities.
- Crash or event that involves a school bus, motorcoach, or other type of bus and results in one or more passenger fatalities.
- Crash or event that involves the highway/roadway transport of hazardous materials resulting in fatalities of non-crash-related participants.
- Event that involves catastrophic highway/roadway infrastructure failures such as a highway bridge collapse, tunnel fire, or tunnel collapse.
- Fatal crash that involves an autonomous/automated vehicle.
- Fatal crash that involves an alternatively fueled vehicle fire.
- Crash or event that involves a "high level" of national media attention.
- Crash that involves "platooning" commercial motor vehicles.
- Crash that involves connected technologies such as vehicle-to-vehicle, vehicle-to-infrastructure, and vehicle-to-pedestrian/bicyclist.

Tier 2 – Watch List – Do Not Require Urgent Notification (Subject to changes based upon updates to investigative issue areas)

Crashes or events that have ***two*** or more fatalities ***and*** one or more of the following characteristics:

- Crash or event that involves a Most Wanted List issue.
- Crash that involves new technologies such as alternative fuels or advanced driver assistance systems commonly utilized in Level-2 vehicle automation operation.[3]
- Crash that involves autonomous vehicle operations while being evaluated or tested on public roadways.
- Crash that involves tour, shuttle, or other services (including any vehicle occupied by nine or more passengers).
- Crash that occurs at a grade crossing and involves 1. a school bus, motorcoach, or other type of bus, hazardous materials carrier, or emergency vehicle and 2. a fatality.
- Crash that occurs within or that involves highway construction or work zone activities.

[3] Includes non-fatal crashes involving commercial vehicles operating on high-speed facilities

- Crash that involves first or secondary responders involved in the performance of their duties while on or near an active roadway.[4]

Tier 3 – Response Operations Center Discretionary Accident Notification (Subject to changes based upon updates to investigative issue areas)

- Any crash or event not listed in Tier 1 or 2 but that might have significant safety issues.
- Any crash or event involving highway safety issues in any other mode (including bridge allisions and hazardous materials incidents) when the crash or event is reported to that mode's duty officer.
-

[4] These crashes are exempt from the requirement of having two or more fatalities.

National Transportation Safety Board

Operations Bulletin RPH-INT-001
Office of Railroad, Pipeline and Hazardous Materials Investigations

1. Issuing Organization. Operations Bulletin RPH-INT-001 was developed by the Office of Railroad, Pipeline and Hazardous Materials Investigations (RPH) and was issued on October 1, 2007. This operations bulletin was revised on February 1, 2011; July 24, 2014; and August 1, 2017, and is due for review by July 31, 2022.

2. Purpose. The Operations Bulletin RPH-INT-001 does the following:

   A. Defines the National Transportation Safety Board's (NTSB) RPH safety program.

   B. Assigns the tasks associated with the program to the organizational unit.

   C. Establishes guidelines, fatigue policy, and priorities for accident investigation-related activities.

3. Policy. It is NTSB policy to investigate certain railroad and pipeline accidents and accidents involving the transportation of hazardous materials, in accordance with the NTSB's authority under the Independent Safety Board Act of 1974, as amended.

4. Cancellation. Operations Bulletin RPH-INT-001 supersedes Operations Bulletin RPH-INT-001, dated July 24, 2014.

5. References/Links.

   A. Independent Safety Board Act of 1974, (49 *United States Code (USC)* Section 1131, "General Authority") states in part:

   > *(a) General. -(1) The National Transportation Safety Board shall investigate or have investigated (in detail the Board prescribes) and establish the facts, circumstances, and cause or probable cause of—*
   >
   > *...*
   >
   > *(C) a railroad accident in which there is a fatality or substantial property damage, or that involves a passenger train;*
   >
   > *(D) a pipeline accident in which there is a fatality, substantial property damage, or significant injury to the environment.*

   B. Title 49 *USC* 1116 "Reports and Studies" (b)(5): Evaluate the adequacy of safeguards and procedures for the transportation of hazardous material and the

performance of other departments, agencies, and instrumentalities of the Government responsible for the safe transportation of that material.

C. Title 49 *Code of Federal Regulations (CFR)*, Section 800.3 "Functions": (a) states in part:

The Board is responsible for the investigation, determination of facts, conditions, and circumstances and the cause or probable cause or causes of: ... railroad accidents in which there is a fatality, substantial property damage, or which involve a passenger train; pipeline accidents in which there is a fatality, significant injury to the environment, or substantial property damage.

D. All NTSB accident investigations conducted under the authority of the Independent Safety Board Act of 1974 shall be conducted using the procedures mandated in 49 *CFR* 831.

6. Responsibilities.

A. The issuing organization is responsible for:

(1) Ensuring compliance with the procedures set forth in this bulletin.

(2) Updating this bulletin in accordance with its posted schedule or earlier, if a need is identified.

B. Director

(1) Has overall responsibility for railroad, pipeline, and hazardous materials accident investigations; ensures adequate resources are committed to investigations, all applicable NTSB policies and procedures are complied with during investigations and the report development process, and office products reflect the highest standards of excellence.

(2) Supervises the deputy director.

(3) Informs the Managing Director of factors that may affect established schedules for project completion.

(4) Coordinates with other modal office director(s) to set scheduling priorities for staff providing investigative support; and resolves work schedule conflicts among RPH and other modal office personnel participating in an investigation.

(5) Oversees or delegates oversight of all meetings related to the development of office products, forums, and hearings; approves accident reports and other products prior to submittal to Board members for consideration and vote.

(6) Approves, or delegates approval to the deputy director, the probable cause of accidents when issued in office products, especially in the "Brief of Accident" format as authorized by 49 *CFR* 800.25 and letters prepared by

RPH staff addressed to the public, outside organizations, and other government agencies.

C. Deputy Director

(1) Assists the RPH director with RPH project management plans to ensure that each is implemented and executed in a timely and effective manner.

(2) Supervises the division chiefs and administrative staff.

(3) Provides guidance to RPH staff on: management and direction of investigations and reporting processes, recommendation development and evaluation follow-up, and safety program outreach and oversight.

(4) Assesses feasibility of RPH work plans and priorities, especially those related to RPH investigative issues and strategic plans for implementation of RPH objectives.

(5) Approves division training plans, outreach plans, and advocacy support by the staff.

(6) Approves external training offered to other organizations.

(7) Establishes and maintains cooperative relationships with federal, state, industry, and professional agencies in the railroad, pipeline, and hazardous materials transportation arenas.

D. Chief, Railroad and Chief, Pipeline and Hazardous Materials Divisions

(1) The Chief, Railroad Division supervises the deputy chief and railroad division staff; the Chief, Pipeline and Hazardous Materials Division supervises the pipeline and hazardous materials division staff.

(2) Are responsible for the scope of accident investigations. Additionally, responsible for assigning personnel and resources within their divisions to accident investigations to accomplish high quality products and meeting the scheduled timeline for all products.

(3) Assist staff in identifying safety issues and researching and drafting safety recommendation letters for Board approval. To further improve safety, ensure staff conduct outreach and advocacy projects, particularly those related to NTSB Most Wanted List items.

(4) Notify key staff, RPH division chiefs, and, when necessary, other office managers of an accident; oversee the collection of pertinent information necessary for a launch decision and make a launch recommendation to the director; seek input from other chiefs and dispatches the initial investigative team; coordinate technical support with the RPH director, deputy director, and

other division chiefs involved in the investigation; and prepare the initial notification and oversee the preparation of status reports (SITREPS).

(5) In accordance with Operations Bulletin INV-GEN-005, "Situation Reports During Launches", ensures SITREPS are prepared and distributed to the NTSB ROC at the end of each day of on-scene work.

(6) Ensure the preliminary report is published within 10 business days in accordance with Operations Bulletin IP-GEN-002, "Preliminary Reports", for major investigations involving Board Member participation. Make recommendation to director for publishing a preliminary report for other investigations based on media interest and initial safety issues identified by investigative team.

(7) Ensure hearing memos are drafted, signed by the RPH director, and forwarded to Board members within 45 business days after an accident as required in Board Order 400, "Investigative Hearings, and Symposiums, Forums, and Conferences".

(8) Coordinate with director and other modal chiefs and offices, as necessary, the organization and execution of investigative hearings, symposiums, forums, and conferences as required in accordance with Board Order 400, "Investigative Hearings, and Symposiums, Forums, and Conferences".

(9) Support RPH director and facilitates resolution of differences among staff regarding investigation scope, resources, and analyses.

(10) Review and approve documents in the Document Management System (My DMS) in accordance with Operations Bulletin OPS-GEN-113 and Board Order 700, "Preparation and Release of Public Dockets".

(11) Ensure that technical review meetings are planned, staffed, and executed in accordance with Operations Bulletin OPS-GEN-125, "Procedures for Holding Technical Reviews".

(12) Ensure investigation schedules are established and maintained, provide update briefs to inform director and division chiefs of the status of investigations, including any potential delays that may affect established schedules; review group chairman and draft reports to ensure that safety issues are clearly stated; and findings and safety recommendations are supported by facts and analyses and properly explained at Board briefings and Sunshine Act meetings.

(13) Coordinate with appropriate RPH and/or the Office of Research and Engineering (RE) staff on all aspects of safety studies, including design, implementation, analysis, and report writing.

(14) Ensure technical accuracy and timeliness of NTSB responses to notices of proposed rulemaking on railroad, pipeline, and hazardous materials issues.

(15) Liaison to railroad, pipeline, and hazardous materials industries, safety groups, labor organizations, associations, and government agencies.

(16) Review safety recommendation response letters, letters from the public, and other documents assigned through the agency document tracking system. Refer to Board Order 70, "NTSB Safety Recommendations Program".

(17) Ensure that presentations are drafted and finalized for significant accident investigations for presentation at quarterly Administrative Board Meetings.

(18) Coordinate draft responses to Petitions for Reconsideration when assigned though the agency document tracking system, in accordance with Board Order 600, "Reconsideration of Probable Cause Determination" and Operations Bulletin OPS-GEN-119 "Procedures for Responding to Petitions for Reconsideration".

(19) Coordinate with NTSB training center to develop and deliver accident investigation courses as assigned.

(20) Develop, manage, and continually monitor for improvement employee development plans (including training, professional experiences, networking, and technical advocacy) of all division personnel to ensure the highest standards.

(21) Support RPH director and facilitate resolution of differences among division chiefs regarding investigation scope, resources, and analyses.

(22) Support director and government affairs in the development of response to Congressional inquiries.

(23) Support director and media relations with development of press releases, media inquiries, and media interviews.

(24) Establish and maintain cooperative relationships with federal, state, industry, and professional agencies in the railroad, pipeline, and hazardous materials transportation arenas.

(25) Develop and maintain training plan, outreach plan, and advocacy support for staff and submit to deputy director for approval.

(26) Pipeline and Hazardous Materials Division Chief coordinates with PHMSA or the state pipeline regulator regarding pipeline accident desk investigations (see attachment E).

E. Chief, Human Performance and Survival Factors Division

(1) Coordinates with the modal chiefs and the IIC to establish the scope of an investigation or study; establishes content and technical standards for factual reports, exhibits, and analytical reports of human performance and survival factors issues for those products. Supports the RPH director and facilitates

resolution of differences among other division chiefs regarding investigation scope, resources, and analyses.

(2) Participates in accident launch recommendations with the chiefs of Rail and Pipeline and Hazardous Materials Divisions and assigns investigators within the division to the launch team or to any phase of the accident investigation based on available staff resources and required skills.

(3) Develops and maintains training plans, outreach plans, and advocacy support for staff and submits to deputy director for approval.

(4) Ensures division staff accomplish a comprehensive and timely investigation that complies with the investigation schedule. Advises the chief of the Railroad Division, the chief of the Pipeline and Hazardous Materials Division, and RPH management when potential delays may adversely affect the schedule.

(5) Recommends human performance and survival factor technical issues to be addressed during investigations, report preparation, and development of safety improvements; supervises and approves division staff's identification of safety issues, as well as their research and drafts of safety recommendation letters for Board approval. To further improve safety, ensures staff conduct technical advocacy and outreach projects.

(6) Coordinates with RPH management regarding the need for and allocation of staff resources for on-scene and follow-up investigative activities.

(7) Ensures, through complete and comprehensive review of all office products, that the technical aspects of human performance, survival factors, and organizational issues are evidence-based and accurate, and the products reflect the highest standards for the integrity of the human performance and survival factors involved.

(8) Reviews safety recommendation response letters, letters from the public, and other documents assigned through the agency document tracking system.

(9) Develops, manages, and continually monitors for improvement employee development plans (including training, professional experiences, networking, and technical advocacy) of all division personnel to ensure the highest standards.

F. Chief, Report Development Division

(1) Oversees the production and tracking of RPH accident reports and briefs, special investigative reports, safety recommendation letters, general correspondence, and other products distributed internally and externally through the agency document tracking system.

(2) Assigns writers to respond to letters from the public through the agency document tracking system.

(3) Assigns resources (writing, editorial, and proofing), as needed, to facilitate timely document completion.

(4) Reviews all products developed by division staff to ensure product quality.

(5) Works with the division chiefs, report writers, report editors, and IICs to identify, clarify, and improve arguments or to add support for conclusions or safety recommendations contained in draft reports. Coordinates with division chiefs through final draft review to ensure factual accuracy of written products.

(6) Develops, manages, and continually monitors for improvement employee development plans (including training, professional experiences, networking, and technical advocacy) of all division personnel to ensure the highest standards.

(7) Consults with RPH management and division staff on schedules and milestones for report preparation and establishes schedules and sets milestones as necessary.

(8) Ensures that division staff comply with the product development schedule. Advises the division chiefs and RPH management when potential delays may adversely affect the schedule.

(9) Develops and maintains outreach plan and advocacy support for staff and submits to deputy director for approval.

(10) Liaison to the NTSB Executive Secretariat on procedures related to preparation of notation items and all document tracking system issues

(11) Advises office staff on document formats, changes in NTSB styles and practices, and publishing requirements.

(12) Attends and participates in work planning meetings, technical review meetings, and report planning meetings.

(13) Attends meetings and conferences related to report planning, preparation, and web posting.

(14) Develops RPH data for input in the NTSB's Annual Report to Congress.

G. Investigator-in-Charge (IIC)

(1) Organizes and manages the on-scene phase of the investigation and all related group activities of NTSB and non-NTSB personnel in a manner that effectively develops all pertinent facts, conditions, and circumstances surrounding the accident.

(2) Invites qualified organizations to be parties and executes party status requirements in accordance with Operations Bulletin OPS-GEN-115, "Naming Parties to NTSB Investigations".

(3) Assigns tasks to team members that are directly related to recognized areas of responsibility and expertise.

(4) Provides timely information to the director and deputy director about the circumstances of an accident and potential safety issues.

(5) While on scene, drafts and submits daily SITREP to director, deputy director, and modal chief at the end of each work day.

(6) Responsible for evidence collection and management in cooperation with RE and in accordance with Board Order 900, "Evidence Collection and Management", and Operations Bulletin OPS-GEN-116 "Evidence Collection and Management".

(7) Supports Board member and media relations with on-scene press conferences and press releases. Responsible for on-scene media relations when Board member is not on-scene. Refer to Board Order 6, "Media Relations".

(8) Facilitates an on-scene root cause analysis.

(9) Coordinates with division chief to create a comprehensive project schedule for the investigation within 30 days after returning from an accident and updates the schedule as necessary. Refer to Board Order 300, "Report Preparation Process".

(10) Plans, organizes, and chairs technical review meetings as required by Operations Bulletin OPS-GEN-125, "Procedures for Holding Technical Reviews"; and work planning meetings and report planning meetings as required by Board Order 300, "Report Preparation Process".

(11) Informs the RPH director, deputy director, division chiefs, and other modal office managers (for example, RE) of pertinent developments, use of agency resources, potential safety recommendations, proposed follow-up activities, and special tasks necessary to the investigation.

(12) Monitors and reviews, in coordination with appropriate division chiefs, the adequacy and timeliness of special tasks and the specialist/group chairperson factual and analytical reports. Notifies the director and appropriate division chiefs of any work product delays that may affect the investigation schedule in a timely manner.

(13) Coordinates all testing and examination work performed by RE in support of an investigation. Ensures contracts are properly established for all outside support before any work is performed by a third-party.

(14) Prepares a draft of the preliminary report as required by Operations Bulletin OPS-GEN-118, "Preliminary Reports", accident report, accident brief, and special investigation report and ensures that essential issues are adequately addressed and all findings and recommendations are supported by analysis. Reviews subsequent reports for the same information; including previous NTSB accident investigation findings and safety recommendation to support identified safety issues in these products. Prepares draft Safety Alert when urgent safety issues should be shared with industry in accordance with Board Order 15, "Safety Alerts".

(15) Prepares draft notation memo for products requiring Board approval (for example: Accident Investigation Reports, Urgent Safety Recommendations, and Special Investigation Reports).

(16) Ensures safety issues are identified and addressed by a safety recommendation. Coordinates development of safety recommendations with Safety Recommendations Division. Provides recipient information to Report Development Division.

(17) Populates the docket in accordance with Board Order 700, "Preparation and Release of Public Dockets" and Operations Bulletin OPS-GEN-113, "Docket Procedures".

(18) Supports hearings or forums, as appropriate, in accordance with Board Order 400, "Investigative Hearings, and Symposiums, Forums, and Conferences".

H. Report Writer/Editor

(1) Consults with the IIC, group chairpersons, modal chief(s), and managers in specialty areas to ensure that all pertinent evidence is properly evaluated and presented.

(2) Assists IIC in writing accident investigation report as necessary.

(3) Participates in work planning meetings, technical review meetings, and report planning meetings.

(4) Prepares the final reports, briefs, and safety alerts for distribution and web posting and ensures that essential issues are adequately addressed and all findings and recommendations are supported by analysis.

(5) Coordinates, under the direction of the division chief, all editorial processing of report drafts until the notation draft is completed and sent to the RPH director and deputy director.

(6) Ensures that draft reports progress on schedule. If schedule delays are incurred or anticipated, conveys that information promptly to the division chief.

(7) Finalizes response letters to inquiries from Congressional members and staff, the public, and other organizations.

(8) Prepares the final comment letters in response to an Advance Notice of Proposed Rulemaking (ANPRM), Notice of Proposed Rulemaking (NPRM), or Interim Final Rule, ensuring that comment letters are submitted in accordance with agency timeline and requirements of the Federal Register notice.

I. Specialist/Group Chairperson

(1) Manages the assigned investigative group while on-scene under the direction of the IIC.

(2) Responsible for on-site safety of personnel in assigned group during the on-scene phase of the investigation.

(3) Ensures adequate coverage and documentation of all evidence pertinent to the assigned investigative group. Assigns tasks to group members and prescribes investigative methods.

(4) Keeps the IIC and appropriate division chiefs informed of the progress and developments in the specialty area, especially when the group work plan may affect other groups.

(5) Completes factual reports, exhibits, and analytical reports within the allocated time. Ensures that each working group member has the opportunity to review, comment, and approve the factual report. Ensures that each factual and analytical report has the scope and content that satisfies the technical standards set by the appropriate division chiefs and the IIC. Ensures that all factual and analytical reports are written to be easily incorporated in the final report.

(6) Prepares Issues and Justification memoranda to support proposed safety recommendations and probable cause in advance of report planning meeting.

(7) Participates in work planning, technical review, and report review meetings.

(8) Serves as a member of the technical panel at investigative hearings when assigned. Recommends the specialty areas to be examined and the witnesses to be questioned.

(9) Reviews the draft reports for technical accuracy and respond to comments affecting the appropriate area of expertise. Populates the docket in accordance with Board Order 700, "Preparation and Release of Public Dockets" and Operations Bulletin OPS-GEN-113, "Docket Procedures".

(10) Helps to ensure safety issues are identified and addressed.

J. Duty Officer

(1) Reviews National Response Center (NRC) notifications and Response Operations Center (ROC) summaries of the NRC notifications in accordance with division instructions. Advises the division chief/deputy chief, deputy director, and director of events that may warrant further investigative efforts based on statutory requirements (see attachment A) and advises management on the need for a launch. (Launch criteria is contained in attachments A to D.)

(2) Reviews daily news reports and advises management on the need for action.

(3) Reviews Federal Register for notices relevant to RPH, reviews and conducts preliminary analysis of those notices, and includes information in morning report.

Note: RPH-10 duty officers will provide the information to RPH-10 management who will assign to appropriate staff to evaluate.

K. Administrative Officer:

(1) Forecasts, allocates, and tracks the annual budget for RPH. Analyzes the training and outreach accounts to assess priorities and office requirements, makes requests for additional funding as required.

(2) Works closely with the director, deputy director, and division chiefs to ensure program goals, objectives, and operations are realistic in relation to financial plans and regulatory requirements.

(3) Develops internal operating procedures to accomplish administrative and financial objectives.

(4) Verifies purchase card expenditures to ensure accuracy of charges and account allocations using government accounting systems. Provides CFO with required documentation for all purchases including management approval, receipts and invoices.

(5) Procures all purchasing needs for the office.

(6) Coordinates office space with the Office of Administration; serves as liaison to other offices/organizations for financial reporting, payroll, HR and resolves administrative issues.

(7) Assists with personnel recruitment and personnel information systems. Coordinates all administrative functions including office personnel performance evaluation plans, telework reports, HR system actions, training approvals and tracking, maintains personnel files and position description records.

(8) Assists with E2 employee travel authorizations and vouchers and serves as backup for payroll administration.

(9) Assists new hires with gaining access to and learning software programs such as E2 and WebTA and obtaining their government purchase and travel credit cards.

(10) Serves as training officer for divisions.

7. Procedures.

A. Fatigue Management.

All employees must adhere to Operations Bulletin OSH-GEN-015, "Fatigue Management Program", for their own safety and for others on-scene who are involved in the accident investigation. As stated in the operations bulletin, the intent of the program is not to establish specific duty time limits; rather, the program provides the guidance that employees need to evaluate whether they might be at risk of impairment due to fatigue, and whether strategies are available to help mitigate this risk.

Operations Bulletin OSH-GEN-015 permits the IIC or supervisor to authorize an employee to work in excess of 16 hours as long as the employee is not driving or performing any other NTSB-related safety sensitive operations (for example, the employee needs to draft field notes or make photocopies or perform other non-safety sensitive work). However, to make this decision, the IIC or supervisor must take into consideration the planned duties, activities, and the employees scheduling for the following day, and the likely opportunity for additional recovery sleep. "Working extended hours on one day must not be allowed to adversely affect your safety on subsequent days." The employee, IIC, and supervisor must establish a fatigue mitigation strategy if it appears an employee(s) will need to work consecutive 16-hour days.

Fatigue mitigation strategies may include, but are not limited to:

- Sending additional non-group chairmen staff on site to assist
- Using designated drivers who are not fatigued to transport staff to/from the accident site
- Taking public transportation and resting during the trip

B. Overtime Authorization.

In accordance with federal directives, all employees must request and receive approval for overtime (comp time, travel comp time, and overtime pay) from their supervisors prior to doing the work.

The RPH Director authorizes RPH staff to work 12-hour days during launches without prior approval from their immediate supervisor; however, if there is an

indication that work will extend beyond 12 hours, employees must contact their supervisor for approval prior to the end of 12-hour period, if possible. Note: Staff may not be able to contact their supervisor due to the location of the accident site). For example, employees drafting field notes in their hotel room may be able to work longer periods than someone working at the accident site who will need to drive back to the hotel and return to the accident site early the next day and make critical decisions during the day. Supervisors, in consultation with the employee and IIC, if necessary, will determine the type of work necessary, alternative plans, and fatigue countermeasures.

C. Case Classification.

(1) Each accident, incident, or special occurrence will have a unique designator consisting of at least 10 characters (example: RRD17FR001).

(2) The first 3 characters will be capitalized and define the division responsible for the investigation. **RRD**17FR001. The 3-character codes are:

RRD Railroad Division

PLD Pipeline Division

HMD Hazardous Materials Investigations

(3) The fourth and fifth characters define the fiscal year in which the event occurred. RRD**17**FR001

(4) The sixth character denotes the type of investigation. RRD17**F**R001.

The following defined codes shall be used as appropriate:

M = Major investigation: A multidisciplinary, in-depth effort to document the facts, conditions, and circumstances of an accident that involves a Board Member launch.

F = Field investigation: Same as a major investigation but no Board Member launches.

L = Limited or desk investigation. An investigator may either travel to the accident site (limited) or not travel to the accident site (desk) to document one or more safety issues that may or may not result in a probable cause determination.

(5) The seventh character indicates that the event is RPH related. RRD17F**R**001

(6) The eighth, ninth and tenth characters define the sequence of case assignment for the applicable division or region during the fiscal year. RRD17FR**001**

8. External Reporting Requirements. None.

9. Definitions.

   A. **Safety Study:** An evaluation of the effectiveness of transportation safety programs by examining procedural and policy issues, program coverage, and the impacts of safety management systems. Studies of transportation accident trends also are conducted. Safety study reports with recommendations for corrective actions are prepared for public release.

   B. **Special Investigation:** An investigation that focuses on a specific safety topic involved in one or more accidents. A special investigation examines the circumstances surrounding the safety topic to improve understanding and/or to enhance safety strategies and safeguards. A special investigation report, often developed in collaboration with the RE, is prepared for public release. RPH investigative staff conduct the special investigations.

   C. **Safety Recommendation:** A formal NTSB suggested action to improve public or worker safety, or environmental protection. Each recommendation is submitted through a letter signed by the Board and issued to a federal agency, or public or private entity, requesting that specific action be taken to promote safety and prevent accidents.

10. Attachments.

   A. Accident Launch Evaluation Criteria: Statutory Requirement.

      1. Statutory Requirement.

      2. Accident Launch Evaluation Criteria.

   B. Railroad Accident - Launch Evaluation Criteria.

   C. Pipeline Accident - Launch Evaluation Criteria.

   D. Hazardous Materials Accident - Launch Evaluation Criteria.

   E. Pipeline Accident Desk Investigation Guide.

   F. Fatigue Management.

Attachment A

Office of Railroad, Pipeline and Hazardous Materials Safety

Accident Launch Evaluation Criteria

Statutory Requirement

Investigate or have investigated (in such detail as the Board prescribes) and establish the facts, circumstances, and cause or probable cause of—

- A railroad accident in which there is a fatality or substantial property damage, or that involves a passenger train;
- A pipeline accident in which there is a fatality, substantial property damage, or significant injury to the environment;
- Any other accident related to the transportation of individuals or property when the Board decides the accident is catastrophic, the accident involves problems of a recurring character; or the investigation of the accident would carry out this chapter; and
- Evaluate the adequacy of safeguards and procedures used for transporting hazardous material, and evaluate the performance of government organizations responsible for safely transporting such hazardous material.

Accident Launch Evaluation Criteria

The Office of Railroad, Pipeline and Hazardous Materials Investigations is supported in its efforts to obtain accident notification by the NTSB Response Operations Center (ROC). The ROC is staffed on a 24-hour basis and receives information about the accidents from sources including the National Response Center, federal government agencies, railroads, pipeline operators, public and private sectors, and news media.

Because of the thousands of accidents that occur each year that meet the statutory mandate for investigation and the limited resources available, RPH will use the four-tier systems set forth in Attachments B through D to evaluate and prioritize the selection of accidents for launches.

Attachment B

Railroad Accident - Launch Evaluation Criteria

Tier 1: Catastrophic – Highest Public Risk

- Collision between passenger and freight trains with fatalities or severe injuries.
- High speed collision between passenger trains.
- High speed derailment of passenger train with fatalities or severe injuries.
- Passenger train derailment in tunnel with fatalities, severe injuries, or significant fire.
- Freight train accident resulting in significant release of hazardous materials cargo that results in fatalities or injuries from acute exposure to the material.

Tier 2: Severe – Significant Public Risk

- High speed derailment of passenger train, no fatalities, but significant damage to passenger cars and crashworthiness issues.
- High speed collision of freight trains with fatalities.
- Freight train accident resulting in a significant release of hazardous materials that results in significant threat to public safety, and significant public evacuation.
- Train accidents with evidence of train signal control system failures.
- Grade crossing accident with fatalities and evidence of train warning protection system malfunction.

Tier 3: Moderate – Public Risk

- Passenger fatalities due to factors other than train collision or derailment.
- Railroad employee fatalities related to train movements, such as those involved in maintenance-of-way or switching activities.
- Low speed passenger train derailment or incident with no fatalities.
- Freight train accident resulting in the release of hazardous materials but public evacuation is limited to shelter-in-place.

Tier 4: Low priority

- Accident does not meet the criteria in Tier 1, 2, or 3, but has an identified safety issue.
- Accident that would provide additional support for safety issues identified in previous accident investigations.

Note: Office of Highway Safety will be the lead on grade crossing accidents.

Attachment C

Pipeline Accident - Launch Evaluation Criteria

Tier 1: Catastrophic - Highest Public Risk

- Flammable, toxic, or corrosive gas transmission, distribution, or hazardous liquid pipeline accident that results in more than 3 fatalities or severe property damage.

Tier 2: Severe - significant Public Risk

- Flammable, toxic, or corrosive gas transmission, distribution or hazardous liquid pipeline accident that results in severe damage to a commercial or public building and 1-3 fatalities.
- Hazardous liquid pipeline accident involving severe environmental damage or significant contamination to ground water, rivers, lakes, or other bodies used as drinking water supplies or reservoirs in high consequence areas.

Tier 3: Moderate - Public Risk

- Flammable, toxic, or corrosive gas transmission, distribution or hazardous liquid pipeline accident that results in one or more fatalities.
- Pipeline accident with significant impact upon the operation of public facilities, such as schools or hospitals, or resulting in significant evacuations.

Tier 4: Low Priority

- Hazardous liquid pipeline accident that results in some environmental damage, or contamination to ground water, rivers, lakes, or other bodies used as drinking water supplies or reservoirs in other than high consequence areas.
- Accident does not meet the criteria in Tier 1, 2, or 3, but has an identified safety issue.
- Accident that would provide additional support for safety issues identified in previous accident investigations.

Attachment D

Hazardous Materials Accident - Launch Evaluation Criteria

Tier 1: Catastrophic – Highest Public Risk

- Freight train, highway tank truck, or marine tank vessel accident resulting in a significant release of poisonous inhalation hazard (PIH) or toxic cargo and public fatalities or significant acute exposure injuries.
- Transportation accident resulting in the release of radioactive materials (for example, spent nuclear fuel, enriched uranium or plutonium) or Class 1.1 explosives (associated with a mass explosion), or significant release of highly infectious pathogens.
- Aviation, highway, or marine accident suspected of being caused by unexpected physical or chemical behavior of a hazardous material (for example, explosion, rapid self-reaction or decomposition).

Tier 2: Severe – Significant Public Risk

- Public fatalities caused by the release of hazardous material in a transportation accident or bulk cargo transfer operation.
- Release of a hazardous material from a package aboard a passenger aircraft resulting in a significant in-flight emergency or fire.
- Unexpected physical or chemical behavior of a hazardous material (for example, explosion, rapid self-reaction or decomposition) during transportation or cargo transfer operations, and resulting in catastrophic rupture or over-pressurization of the container or tank.

Tier 3: Moderate - Public Risk

- Release of a hazardous material from a package aboard a cargo aircraft resulting in an in-flight emergency or fire.
- Hazardous material release in transportation that results in a significant contamination of groundwater, rivers, lakes, and other bodies used as drinking water intakes or reservoirs.
- Non-accident failure of a railroad tank car, highway cargo tank, or intermodal bulk container in transportation resulting in a significant safety issue.

Tier 4: Low Priority

- Accident does not meet the criteria in Tier 1, 2, or 3, but has an identified safety issue.
- Accident that would provide additional support for safety issues identified in previous accident investigations.

Attachment E

Pipeline Accident Desk Investigation Guide

A. Purpose

This guide describes how desk investigations of pipeline accidents are selected, assigned to the federal or state regulator, and the NTSB delegated accident report review process.

B. Scope

This guide applies to all pipeline accident desk investigations initiated by the Chief, Pipeline and Hazardous Materials Division.

C. Procedure

1. The Chief, Pipeline and Hazardous Materials Investigations Division, shall identify pipeline accidents that are not investigated by the NTSB but involved one or more fatalities, significant injuries, or significant environmental damage; and likely involve recurring or new industry issues.

2. The Chief may request that PHMSA investigate and report on an accident only when government misfeasance or nonfeasance is not alleged. When permitted, the chief shall issue a written request to PHMSA or the state pipeline regulator to provide the NTSB with their written investigation report of the accident.

3. Pipeline staff shall review the outside agency accident report and prepare the accident report evaluation memo addressed to the Director, Railroad, Pipeline and Hazardous Materials Investigations, that summarizes the accident investigation findings and actions taken by the regulator. This memo shall be "official use only."

4. Pipeline staff shall prepare an accident summary memo that briefly summarizes the accident event and corrective actions taken by the regulator and enter it into the docket. The memo shall contain the NTSB probable cause statement prepared by the pipeline investigation staff.

5. The Chief, Pipeline and Hazardous Materials Investigations Division, shall submit the evaluation memo and docket memo to the Director, Railroad, Pipeline and Hazardous Materials Investigations, for review.

6. The Director shall approve the accident summary memo with the probable cause statement for release to the public docket.

7. Pipeline staff shall post the accident summary memo in the public docket.

Attachment F

Fatigue Management

Operations Bulletin OSH-GEN-015, "Fatigue Management Policy", provides policy, procedures, and guidance to staff and managers on managing fatigue.

In addition, the Director, RPH, provided blanket approval for 12-hour work days during accident launches and on scene activities. If the situation demands a work day longer than 12 hours, each employee must contact their supervisor prior to working over 12 hours, explain the situation, and obtain the supervisor's approval. If approved, the supervisor will help the employee develop a fatigue mitigation strategy.

Based on the accident scenario, additional staff, who are not assigned as a group chairman, may be sent to assist to mitigate the development of fatigue.

National Transportation Safety Board

Operations Bulletin ACQ-GEN-001
Acquisition Policy and Procedures

1. Issuing Organization. Operations Bulletin ACQ-GEN-001 was developed by the Acquisition and Lease Division (AD-20), and was issued November 17, 2006. It was revised April 4, 2014 and is due for review by April 3, 2016.

2. Purpose.

   A. General – NTSB Acquisition Bulletins set forth policies and procedures applicable to agency contractual activities.

   B. Specific – This Bulletin establishes National Transportation Safety Board (NTSB) policy and procedures for the acquisition of property and services. It replaces NTSB Order 1540 (11-3-95).

3. Policy. It is NTSB policy to deliver, on a timely basis, the best value product or service to the customer, while maintaining the public's trust and fulfilling public policy objectives. Participants in the acquisition process should work together as a team and should be empowered to make decisions within their area of responsibility (FAR 1.102(a)).

4. Cancellation. Operations Bulletin ACQ-GEN-001 cancels NTSB Order 1540 (11-3-95) and NTSB Order 1541 (2-12-96).

5. References/Links.

   A. Federal Acquisition Regulations (FAR). Title 48 Code of Federal Regulations.

6. Responsibilities.

   A. The Acquisition and Lease Management Division, AD-20, is responsible for the following:

      (1) Ensuring compliance with the procedures set forth in this bulletin.

      (2) Updating this bulletin according to the schedule or earlier if there is an identified need.

7. Procedures. See attached.

I. Definitions

1. Acquisition means the acquiring by contract with appropriated funds of supplies or services by and for the use of the NTSB.

2. Contract means a mutually binding legal relationship obligating the seller to furnish supplies or services and the buyer to pay for them.

3. Contract Administration means carrying out post-award functions related to the administration of contracts.

4. Contracting Officer (CO) means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings.

5. Contracting Officer's Representative (COR) is the individual, designated by the CO, who is responsible for the technical evaluation of contractor proposals and the monitoring of contractor performance after a contract has been awarded.

6. Delivery Order means an order for supplies or services placed against an established contract or with Government sources of supply.

7. Federal Acquisition Regulation (FAR) (Title 48 Code of Federal Regulations) is the primary regulation used in the acquisition of supplies and services with appropriated funds.

8. Governmentwide Point of Entry (GPE) means the single point where Government business opportunities greater than $25,000, including synopses of proposed contract actions, solicitations, and associated information, can be accessed electronically by the public. The GPE is located at http://www.fedbizopps.gov/.

9. Procurement Request is the document used to request supplies or services.

10. Purchase Order (OF-347) is an offer by the NTSB to buy certain supplies or nonpersonal services and construction from commercial sources, upon specified terms and conditions, the aggregate amount of which does not exceed the simplified acquisition threshold of $150,000.

11. Ratification is the act of an authorized official to approve a contractual commitment made by an official not authorized to contractually bind the Federal Government.

II. Roles and Responsibilities

1. **Program Office** – COR's (COR) Role:

   CORs are appointed by the CO and are delegated authority for such functions as inspecting, testing, accepting deliverables, overseeing contractor performance, controlling Government furnished property, and reviewing and approving vouchers and invoices.

   The COR **does not** have the authority to take any action, directly or indirectly that will change the pricing, quantity, or delivery schedule. Also, CORs do not have the authority to accept a product or service that differs from that which was originally contracted for by the NTSB. Only the CO has this authority.

2. **Acquisition and Lease Management Division** – CO's Role

   The CO is the person with the authority to enter into, modify, administer, and terminate contracts and make related determinations and findings. It is the CO who is responsible for all contract actions. Only a warranted CO may contractually bind the Federal Government. For a Government contract to be valid, it must be entered into by a duly appointed CO acting within the scope of his or her authority. (FAR 1.603).

   Any unauthorized commitment by Government personnel beyond their delegated authority, unless ratified or approved after the fact, may be declared invalid. This is so regardless of the appearance of authority or position of responsibility of the Government Official. If ratification is denied, the Government employee acting in excess of his or her authority may be held personally liable for the unauthorized action. FAR 1.602-3 defines "unauthorized commitment", as an agreement that is not binding because the Government representative who made it lacked the authority to enter into that agreement on behalf of the Government. Such actions may be ratified (FAR 1.602-3 (b)(2)), by the Managing Director if the conditions set forth in FAR 1.602-3(c) are met.

III. Policies & Procedures

A. General – The following matters are called to the attention of all NTSB personnel involved in the acquisition process:

1. **Business Practices**

   a. Standards of Conduct - Government business shall be conducted in a manner above reproach and, except as authorized by statute or regulation, with complete impartiality and with preferential treatment for none. Transactions relating to the expenditure of public funds require the highest degree of public trust and an impeccable standard of conduct. The general rule is to avoid strictly any conflict of interest or even the appearance of a conflict of interest in Government-contractor relationships. (FAR 3.101).

b. Procurement Integrity – Section 3.104 of the FAR implements section 27 of the Office of Federal Procurement Policy Act (the Procurement Integrity Act) (41 U.S.C. 423). It addresses the following prohibitions:

i. Disclosing Procurement Information – For competitive procurements current and former Federal officials shall not knowingly disclose proposal or bid information or source selection information, before the award of a contract to which the information relates.
ii. Obtaining Procurement Information – For competitive procurements, a person shall not, other than as permitted by law, knowingly obtain proposal or bid information or source selection information, before the award of a contract to which the information relates.
iii. Discussing Employment with Contractors – NTSB employees who are participating in a competitive procurement valued in excess of the simplified acquisition threshold of $150,000 must promptly report any contact by a prospective contractor regarding possible non-Federal employment to his or her supervisor and the NTSB ethics officer.
iv. Accepting Compensation from a Contractor – A former NTSB employee may not accept compensation from a contractor as an employee, officer, director, or consultant of the contractor for a period of one year after the date that the former NTSB employee served in an official capacity in the selection process or contract administration of a contract with said contractor in excess of $10 million. This post employment prohibition does not apply to divisions or affiliates of a contractor that do not produce the same or similar products or services as the entity of the contractor referred to above.

It also mentions other statutes, such as 18 U.S.C. 201 and 10 U.S.C. 2207, which addresses prohibitions from offering or accepting a bribe or gratuity. NTSB employees and former employees are urged to confer with the agency's ethics officer whenever dealing with the prohibitions and limitations set forth in section 3.104. The NTSB ethics officer is located in the Office of General Counsel.

c. Confidentiality – A high level of business security must be maintained in order to preserve the integrity of the acquisition process. When it is necessary to obtain information from potential contractors and others outside the Government for use in preparing Government estimates, action must be taken to ensure that the information is not publicized or discussed with potential contractors. (FAR Part 5.4)

d. Competition Advocate – Section 20 of the Office of Federal Procurement Policy Act requires the head of each executive agency to

designate a competition advocate for the agency and for each procuring activity of the agency. Competition advocates are responsible for promoting full and open competition. (FAR Part 6.5)

2. Automated Financial System

The NTSB utilizes a Windows-based acquisition software application, to facilitate the purchase of goods and services. The automated financial system automates the entire purchasing process, from creation of the purchase request, through an electronic approval process, issuance of the award, and eventually contract closeout.

3. Ratification Procedures

The following procedures shall be used for ratification of an unauthorized commitment: (see ratification checklist Attachment #1).

a. The individual who is responsible for actions that result in an unauthorized commitment must provide the following information to the ratifying official:
   1. A description of the circumstances that resulted in an unauthorized commitment;
   2. The reasons why normal procurement procedures were not followed;
   3. The *bona fide* Government requirement including a complete description of how the goods or services purchased fulfilled the Government requirement;
   4. The name of the vendor and a list of other sources considered;
   5. What goods/services have been received thus far, or what will be received and their value;
   6. The estimated or agreed upon price;
   7. Copies of orders, invoices, or other evidence of the transaction;

b. If the supervisor concurs in the ratification, he or she forwards the paperwork to the CO, with an endorsement that:
   1. Verifies the accuracy and completeness of the documentation being forwarded;
   2. Describes any corrective measures taken;
   3. Includes a statement explaining whether disciplinary action is appropriate.

b. A funded purchase request must be entered into the automated financial system by the requesting office.

c. The CO who would have been responsible for the procurement, if it had gone through proper channels shall:
   1. Prepare a summary statement assessing the facts and circumstances in the case to include the adequacy of the records and documentation provided and recommendations.

d. Recommendations for Ratification shall include findings that:
    1. It is in the best interest of the Government;
    2. The ratifying official could have granted authority to enter or could have entered into a contractual commitment at the time it was made and still has the authority to do so;
    3. The contract would otherwise have been proper, if it had been procured by the appropriate CO;
    4. The price is fair and reasonable;
    5. Funds are available and were available at the time the unauthorized commitment was made.

e. Obtain legal opinion on the propriety of ratification, if required.

g. Obtain Managing Director approval to ratify unauthorized commitment, if required.

B. Program Office Functions –Although the Acquisition and Lease Management Division has the ultimate responsibility for the procurement process, the following Policies and Procedures address actions in which the Program Office takes the lead with the Acquisition and Lease Management Division being available to provide support to the Program Office in carrying out these functions:

1. Acquisition Planning

Acquisition planning involves a general consideration of all the elements that will be required in connection with a particular acquisition. The process may be simple or complex depending on the transaction. Acquisition planning, which is primarily the responsibility of the Program Office, begins with concept development, and continues to the point of submitting a Procurement Request to the Acquisition and Lease Management Division. The following are typical steps in the planning process:

a. Acquisition Forecast– Program offices must submit their annual acquisition forecast, for actions valued at more than $3,000, to the Chief of the Acquisition and Lease Management Division by the specified date of each year (see Acquisition Forecast Form).

This is the first step in acquisition planning. It is at this point that a determination is made that an acquisition action is necessary. Preparation of the forecast includes reviews of historical records, literature searches and interaction with experts in the field. Care must be taken when interacting with the private sector to avoid providing information on specific plans so that NTSB does not create the impression of providing a particular party with an unfair competitive advantage.

b. Market Research - FAR Part 10 requires agencies to conduct market research. It prescribes policies and procedures for conducting market research to arrive at the most suitable approach to acquiring, distributing, and supporting supplies and services. Market research is conducted to determine if commercial items or non-developmental items are available to meet the Government's needs, or could be modified to meet the Government's needs. Market research accomplishes the goal of fulfilling Government needs by acquiring commercial products when such products would adequately satisfy those needs. In addition, market research is further required to:

i. Promote full and open competition;
ii. Ensure that the need is met in a cost-effective manner.

2. **Independent Government Cost Estimate** – The Independent Government Cost Estimate is the Government's assessment of the probable cost of the product or services to be acquired. This action insures that appropriate funds are available for the acquisition.

3. **Specifications** – A "specification" can be defined as a description of the technical requirements for goods or services that includes the criteria for determining whether these requirements are met.

4. **Statement of Work** – The Statement of Work (SOW) is the foundation, which sustains the acquisition from concept to completion. It tells prospective contractors what the Government desires to buy by defining requirements clearly and concisely and ultimately becomes a part of the contract. FAR 11.101 provides an order of precedence for writing agency requirements. (See NTSB Acquisition ACQ-GEN-003, "Statement of Work (SOW) Guidance."

5. **Source Selection Plan** - The Source Selection Plan (SSP) establishes the benchmarks for evaluating proposals. It sets forth the factors that will serve as the criteria to be applied by the Technical Evaluation Team when reviewing proposals. There is a clear linkage between the SOW, the SSP, and evaluation of proposals. The SOW serves as the basis for the evaluation factors contained in the source selection plan, and these factors are used to evaluate the proposals.

6. **Requirement for Competition** - The Competition in Contracting Act (41U.S.C. 253) established "full and open" competition as the standard for awarding Federal contracts for property or services. "Full and Open" competition is defined as permitting all responsible sources the opportunity to submit proposals for a proposed procurement. The Act requires that COs provide for full and open competition in soliciting offers and awarding Government contracts that exceed $3,000, unless one of the exceptions contained in Paragraph 7 applies.

7. **Exceptions to Competition Requirements:**

   a. **FAR Exceptions –** Section 6.3 and 8.4 of the FAR set forth exceptions to the requirement for Full and Open Competition. The four exceptions that typically apply to NTSB transactions are:

      1. Only one responsible source or brand name and no other supplies or services will satisfy agency requirements.
      2. Unusual and Compelling urgency
      3. International Agreement.
      4. Authorized or required by statute.

      Program Offices are responsible for preparing Justifications for Other Than Full and Open Competition (JOFOC) or Limited Sources Justifications (LSJ). These justifications must accompany the PR when it is submitted to AD-20 for processing. See Bulletin ACQ-GEN-004 "Sole Source Guidance."

   b. **Accident Phase Investigations** - Special statutory authority is granted to the NTSB under section 4 of the "National Transportation Safety Board Reauthorization Act of 2003", (Public Law 108-168), to make awards on a non-competitive basis for the purpose of expediting accident investigations. However, only a warranted CO may sign a purchase order or contract relating to these actions. Therefore, the Government Purchase Card is recommended for all on-scene phase procurement actions. See Bulletin ACQ-GEN-004 "Sole Source Guidance" for additional guidance.

8. **Procurement Requests** - Program Offices are required to prepare a Procurement Request in accordance with the procedures set forth in Bulletin ACQ-GEN-002, "Procurement Request (PR) Procedures".

9. **Inspection and Acceptance** - Government contract quality assurance (inspection) shall be performed at such times and places as may be necessary to determine that the supplies or services conform to contract requirements (FAR Part 46.401). Acceptance constitutes acknowledgment that the supplies or services conform to applicable contract quality and quantity requirements. (FAR Part 46.501)

10. **Contract Monitoring**- Contract monitoring is a function of contract administration used to determine contractor progress and to identify any factors that may delay performance. It is normally accomplished by CORs review of contractor progress reports and conducting site visits. (FAR 42.11)

11. **Payment** – FAR Part 32 sets forth procedures for contract payments. Specifically FAR 32.9 describes the requirements for adherence to the provisions of the Prompt Payment Act.

C. **AD-20 Functions** – The following Actions and Determinations are carried out by AD-20 with input from the Program Office:

1. **Contract Award –** Only a warranted CO acting within the limits of his or her contracting authority may sign a Contract on behalf of the NTSB.

2. **Required Sources** - Federal agencies must comply with the requirements of FAR Part 8, Required Sources of Supplies and Services, Subpart 8.002 - Priorities for Use of Government Supply Sources. The priorities set forth in that section are listed below in descending order of priority:

   Supplies:

   (a) Agency Inventories
   (b) Excess from Other Agencies
   (c) Federal Prison Industries (FPI) - A general listing of the available supplies from FPI is available online at www.unicor.gov. Purchase from FPI is not mandatory if the items total less than $3,000.
   (d) Supplies which are on the Procurement List maintained by the Committee for Purchase From People Who Are Blind or Severely Disabled (AbilityOne Program) - A general listing of the supplies available from this organization is available online at www.abilityone.gov.
   (e) Wholesale supply sources, such as stock programs of GSA (see 41 CFR 101-26.3)
   (f) Mandatory Federal Supply Schedules
   (g) Optional use Federal Supply Schedules
   (h) Commercial Sources

   Services:

   (a) Services which are on the Procurement List maintained by the Committee for Purchase From People Who Are Blind or Severely Disabled (AbilityOne Program) - A general listing of the services available from this organization is available online at www.abilityone.gov.
   (b) Mandatory Federal Supply Schedules
   (c) Optional use Federal Supply Schedules
   (d) Commercial Sources

3. **Socioeconomic Programs** - The Federal Government is committed to providing maximum opportunities in its acquisitions to certain categories of small and historically disadvantaged businesses (FAR 19.1). All actions exceeding $3,000 and not exceeding $150,000 are reserved exclusively

for small business concerns ((FAR13.003 (b)(1)). The Small Business Administration is responsible for the administration of these programs.

4. **Commercial Products and Services** - The Federal Acquisition Streamlining Act of 1994 (Public Law 103-355) established a Federal Government preference to acquire commercial items and components available in the commercial marketplace (FAR. 12).

5. **Types of Actions –** The CO will determine which of the following is appropriate:

   a. **Micro-Purchases -** "Micro-purchase' means an acquisition which does not exceed $3,000. Micro-purchases are to be made only by a warranted CO or authorized purchase cardholder. These actions do not require competition so long as the contemplated price is fair and reasonable.

   b. **Simplified Acquisition** - Federal agencies are required to use simplified acquisition procedures to the maximum extent practicable for all purchases of supplies or services not exceeding $150,000.00 for commercial products or services (FAR Part 13).

   c. **Sealed Bid –** Sealed bidding is a method of contracting that employs competitive bids, public opening of bids, and awards. (FAR 14.101)

   d. **Negotiated Procurements** – Contracts awarded using other than sealed bidding procedures are negotiated contracts. (FAR Part15)

   e. **Inter-Agency Agreements (IAA)** – IAAs are awarded to other federal agencies for supplies or services. (FAR Part 17.5)

6. **Types of Contracts –** The CO will determine which of the following types of contract is appropriate for individual transactions:

   a. **Firm-Fixed Price** – **Firm-**fixed-price types of contracts provide for a firm-fixed price or, in appropriate cases, an adjustable price. A firm-fixed price contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract. A firm-fixed price contract with economic price adjustment provides for upward and downward revision of the stated contract price upon the occurrence of specified contingencies (FAR 16.2).

   b. **Cost Reimbursement** – Cost reimbursement types of contracts provide for payment of allowable incurred costs, to the extent prescribed in the contract. These contracts establish an estimate of total cost for the purpose of obligating funds and establishing a ceiling that the contractor may not exceed (except at its own risk) without the approval of the CO.

They are suitable for use only when uncertainties involved in contract performance do not permit costs to be estimated with sufficient accuracy to use any type of fixed-price contract. (FAR 16.3)

c. **Indefinite-Delivery** – There are three types of indefinite-delivery contracts: definite-quantity contracts, requirements contracts, and indefinite-quantity contracts. The appropriate type of indefinite-delivery contract may be used to acquire supplies and/or services when the exact times and/or exact quantities of future deliveries are not known at the time of contract award. (FAR 16.501-2)

d. **Options** – An option is a contract provision that grants to the government a unilateral right, for a specified time, to purchase additional supplies or services, or elect to extend the term of the contract. Options may be included in contracts when it is in the Government's interest. (FAR 17.2)

e. **Foreign Acquisitions** -The Buy American Act restricts the purchase of supplies that are not domestic end products. (FAR 25)

7. **Purchase Card Guidance** -The government wide commercial purchase card is authorized for use in making and/or paying for purchases of supplies, services, or construction. (FAR 13.301). Also see Bulletin ACQ-GEN-005.

8. **Intellectual Property** - The Government encourages the maximum practical use of inventions made while performing government contracts. (FAR 27)

9. **Acquisition of Information Technology & Financial Management Systems** - In acquiring information technology, agencies shall identify their requirements pursuant to Office of Management and Budget (OMB) Circular A-130, including consideration of security of resources, protection of privacy, national security and emergency preparedness, accommodations for individuals with disabilities, and energy efficiency. Agencies must follow OMB Circular A-127, Financial Management Systems, when acquiring financial management systems. (FAR 39.101)

10. **Subcontracting** - FAR 44 prescribes policies and procedures for consent to subcontracts or advance notification of subcontracts and for review, evaluation, and approval of contractor's purchasing systems.

11. **Post-Award Meeting** - A post-award meeting aids both Government and contractor personnel to (1) achieve a clear and mutual understanding of all contract requirements, and (2) identify and resolve potential problems. (FAR 42.501)

12. **Contract Modifications** - Only COs acting within the scope of their authority are empowered to execute contract modifications on behalf of the Government. Other personnel shall not: execute contract

modifications; act in a manner to cause the contractor to believe that they have authority to bind the Government; or direct or encourage the contractor to perform work that should be the subject of a contract modification. CORs should contact the CO if they believe there is a need to issue a contract modification. (FAR 43.102). There are two types of modifications:

a. Bilateral – A bilateral modification is signed by both parties and their uses include: negotiated equitable adjustments resulting from the issuance of a change order, definitive letter contracts, and other agreements of the parties modifying the terms of the contract.

b. Unilateral – A unilateral modification is used to make administrative changes, issue termination notices, and make changes authorized by clauses other than a changes clause.

13. **Government Property** - FAR Part 45 prescribes policies and procedures for providing Government property to contractors, their use and management of Government property, and reporting, redistributing, and disposing of contractor inventory of Government property.

14. **Termination** - The termination clauses contained in Government contracts authorizes COs to terminate contracts for convenience, default, or cause and to enter into settlement agreements. The CO shall terminate a contract, whether for convenience, default, or cause only when it is in the government's interest.

15. **Protests, Disputes and Appeals**-

a. **Protests**-COs shall consider all protests and seek legal advice, whether protests are submitted before or after award and whether filed directly with the agency or the Government Accountability Office (GAO). (FAR 33.102)

b. **Disputes and Appeals**-The Government's policy is to try to resolve all contractual issues in controversy by mutual agreement at the CO's level. Reasonable efforts should be made to resolve controversies prior to the submission of a claim. Agencies are encouraged to use Alternative Disputes Resolution (ADR) procedures to the maximum extent practicable. (FAR 33.204)

16. **Contract Files** – AD-20, is responsible for establishing and maintaining the contract file system for NTSB. (FAR 4.802)

17. **OMB Approval Under the Paperwork Reduction Act** - The Paperwork Reduction Act of 1980 (Pub L. 96-511) imposes a requirement on Federal agencies to obtain approval from OMB before collecting information from 10 or more members of the public. (FAR 1.106)

18. **Closeout of Contract Files** - Simplified Acquisition files are considered closed when the CO receives evidence of receipt of property or services and final payment. All other contract files shall be closed as soon as practicable after the CO receives a contract completion statement from the program office. (FAR 4.804)

19. **Freedom of Information (FOIA)** – The Freedom of Information Act (5 U.S.C. 552, as amended) provides that information is to be made available to the public by; Publication in the Federal Register, providing an opportunity to read and copy records at convenient locations, or upon request, providing a copy of a reasonably described record. (FAR 24.201)

    COs may receive requests for records that may be exempted from mandatory public disclosure. The Records Management Division (CIO-10) is responsible for responding to public inquiries relating to NTSB and is authorized to make exemption determinations for the agency. The exemptions most often applicable are those relating to classified information, trade secrets and confidential commercial or financial information. (FAR 24.203)

Attachment #1

RATIFICATION CHECKLIST
NECESSARY DOCUMENTATION

1. **FROM THE INDIVIDUAL WHO MADE THE UNAUTHORIZED COMMITMENT:** Signed statement from the individual(s) who made the unauthorized commitment which explains:

   _____ The circumstances surrounding the commitment.
   _____ Why normal procurement procedures were not used.
   _____ The bona fide Government requirement including a complete description of how the goods or services purchased fulfilled the Government requirement.
   _____ The name of the vendor and a list of other sources considered.
   _____ What goods/services have been received thus far, or what will be received and their value.
   _____ The estimated or agreed upon price.
   _____ Copies of orders, invoices, or other evidence of the transaction.

2. **FROM THE INDIVIDUAL'S SUPERVISOR:** If the supervisor concurs in the ratification, he forwards the paperwork to the Contracting Officer, with an endorsement that:

   _____ Verifies the accuracy and completeness of the documentation being forwarded.
   _____ Describes any corrective measures taken.
   _____ Includes a statement explaining whether disciplinary action is appropriate.

3. **FROM THE REQUESTING OFFICE:** a funded purchase request in the automated financial system.

4. **FROM THE COGNIZANT CONTRACTING OFFICER:** The Contracting Officer who would have been responsible for the procurement, if it had gone through proper channels shall:

   _____ Prepare a summary statement assessing the facts and circumstances in the case to include the adequacy of the records and documentation provided and recommendations.

5. **RECOMMENDATIONS:** Recommendations FOR RATIFICATION shall include findings that:

   _____ It is in the best interest of the Government.
   _____ The ratifying official could have granted authority to enter or could have entered into a contractual commitment at the time it was made and still has the authority to do so. (FAR 1.602-3(c)(2))
   _____ The contract would otherwise have been proper, if it had been procured by the appropriate Contracting Officer. (FAR 1.602-3(c)(3))
   _____ The price is fair and reasonable. (FAR 1.602-3(c)(4))
   _____ Funds are available and were available at the time the unauthorized commitment was made. (FAR 1.602-3(c)(6))

6. _____ Obtain legal opinion on propriety of ratification, if required. (FAR 1.602-3(c)(5))

7. _____ Obtain Managing Director approval to ratify unauthorized commitment, if required.