

PART E — INVESTIGATION REPORT

CHAPTER I

PURPOSE AND REQUIREMENTS

1. Purpose of Aircraft Accident Report

The purpose of the aircraft accident report coincides with the purpose of aircraft accident investigation, **accident prevention**. To achieve this objective, the accident investigator must communicate his findings to agencies, officials, organizations, etc., having regulatory authority and preventive interests. Accident prevention action is initiated from the investigation findings presented in the accident report. Logically then, accident prevention can only be as effective as the accident report is adequate.

1.1 Public Record

The record of the aircraft accident investigation is the aircraft accident report. It reflects the facts, conditions, and circumstances as they were discovered during the course of the aircraft accident investigation.

The need for this record of investigative findings is impressed on the NTSB daily through requests for copies of reports of aircraft accident investigation findings. These requests come from various sources:

- a. Pilot organizations.
- b. Surviving passengers.
- c. Next of kin.
- d. Lawyers.
- e. Litigants.
- f. Government agencies.
- g. Insurance companies.
- h. Safety divisions of aviation organizations.
- i. Writers.

Frequently the NTSB receives requests for copies of reports of aircraft accidents that were investigated five or more years previously. This possibility of a delayed request has emphasized the need for complete documentation of investigative findings by the investigator. Each year brings an increase in requests for accident reports, deposing of investigators, and requests for investigators to testify in litigation cases.

The aircraft accident investigation report is prepared by the investigator with the knowledge that it is intended as a public document. (To avoid possible confusion here, it should be stated that the aircraft accident report is prepared in two parts, a **factual** and an **analysis**.) The **factual** is intended as a public document while the **analysis** is intended for within-agency use only.

2. Requirements

The writing of the aircraft accident report is a demanding task, particularly when consideration is given to uses of the report:

- a. Provide data for accident prevention recommendations and studies.
- b. Provide a permanent record of the aircraft accident investigation.
- c. Acquaint the public with the results of NTSB and FAA accident investigations and special studies.
- d. Provide information for determination of probable cause.

The demands placed on the accident report require that certain principles or rules of technical report writing be observed. Two of these principles essential to part I of an acceptable accident report are:

- a. Objectivity.
- b. Completeness.

The *objective* aircraft accident report cites only facts, and does not explain or comment on their significance. The report allows the reader the freedom of establishing the relevancy of these facts. This same freedom is afforded the five-man National Transportation Safety Board in determining the probable cause of civil aircraft accidents. Their determination of probable cause is based on the facts, conditions, and circumstances included in the report of the aircraft accident investigation.

The complete aircraft accident report that would satisfy all parties of interest may not exist. Attempts may be made to discredit the report via the incomplete documentation approach. The question is raised: Where, then, does the documenting of the on-scene investigation stop, and when is the report complete?

Consider the problem of the structures specialist who realizes that documenting airframe damage, even on a light aircraft, could involve a life's work. Suppose, for example, each broken part was examined microscopically, described in detail, tested for hardness, chemically analyzed, strength tested, dye penetrant and magnaflux tested, etc. An aircraft accident investigation could continue indefinitely, as could the investigation report, when these and similar details are considered.

In this sense, a complete investigation would be out of the question and a waste of valuable time and manpower. Realizing this, the NTSB and FAA established a standard for completeness in investigation and in report writing. The aircraft accident report must present sufficient facts, conditions, and circumstances to permit establishment of a probable cause. If the investigator bases his report on the investigation evidence and honestly feels that he has, to the best of his ability, investigated the accident, and in his best judgment presented the relevant evidence, then the investigation and subsequent report should be considered complete.

PART E — INVESTIGATION REPORT

CHAPTER II

TYPES OF REPORTS

In this text numerous references are made to the various reports associated with aircraft accident investigation and reporting. This chapter explains what these reports accomplish, why they are necessary, who writes them, and when they are prepared.

1. Accident Report

The report most familiar to the public is the **Accident Report** which is prepared by a Hearing Officer from the Hearing and Reports Branch of the Bureau of Aviation Safety. The Hearing Officer uses information gathered during the field and hearing phases of the investigation to prepare the **Accident Report**. Upon completion, the report is forwarded to the five-member National Transportation Safety Board for approval and assignment of *probable cause*. (Certain aircraft accidents are of such signifi-

cance and public interest they are subjects of an **Accident Report** even though a Public Hearing is not held.) The report is then released to the public.

Legal authority for the **Accident Report** is stated in the Federal Aviation Act of 1958, Title VII, section 701:

It shall be the duty of the Board to make rules and regulations governing notification and report of accidents involving civil aircraft and to make such reports public in such a form and manner as may be deemed by it to be in the public interest.

The purpose of the **Accident Report**, other than compliance with the Act, is to make public the Board's finding of *probable cause*, based on their study of the accident facts, conditions, and circumstances.

The following *Accident Report* format used by the Bureau of Aviation Safety is adopted from ICAO.

1. INVESTIGATION

1.1. *History of the Flight*: A brief narrative giving the following information:

Flight number, type of operation, last point of departure, time of departure (GMT), point of intended landing.

Description of the flight and events leading to the accident, including reconstruction, if any, of the significant portion of the flight path.

Location (latitude, longitude, elevation), time of the accident (GMT), whether day or night.

1.2. *Injuries to Persons*: Completion of the following (in numbers).

| Injuries | Crew | Passengers | Others |
|----------|------|------------|--------|
|----------|------|------------|--------|

| | | | |
|-------|--|--|--|
| Fatal | | | |
|-------|--|--|--|

| | | | |
|-----------|--|--|--|
| Non-Fatal | | | |
|-----------|--|--|--|

| | | | |
|------|--|--|--|
| None | | | |
|------|--|--|--|

Note: Fatal injuries include all deaths determined to be a direct result of injuries sustained in the accident.

- 1.3. *Damage to Aircraft:* Brief statement of the damage sustained by aircraft in the accident (destroyed, substantially damaged, slightly damaged, no damage).
- 1.4. *Other Damage:* Brief description of damage sustained by objects other than the aircraft.
- 1.5. *Crew Information:*
 - a) Pertinent information concerning each of the flight crew members including: age, validity of licenses, ratings, mandatory checks, flying experience (total and on type) and relevant information on duty time.
 - b) Brief statement of qualifications and experience of other crew members.
- 1.6. *Aircraft Information:*
 - a) Brief statement on the airworthiness and the maintenance of the aircraft (indication of deficiencies prior to and during the flight to be included, if having any bearing on the accident).
 - b) Brief statement whether the weight and center of gravity were within the prescribed limits during the phase of operation related to the accident. (If not, and if of any bearing on the accident give details.)
 - c) Type of fuel used.
- 1.7. *Meteorological Information:*
 - a) Brief statement on the meteorological conditions appropriate to the circumstances including both forecast and actual conditions, and the availability of meteorological information to the crew.
 - b) Natural light conditions at the time of the accident. (Sunlight, moonlight, or twilight)
- 1.8. *Aids to Navigation:* Information on navigational aids available including landing aids such as GCA, ILS . . . and their effectiveness at the time, if pertinent.
- 1.9. *Communications:* Information on communications and their effectiveness, if pertinent.
- 1.10. *Aerodrome and Ground Facilities:* Pertinent information associated with the aerodrome, its facilities and condition.
- 1.11. *Flight Recorders:* Location of the flight recorder installations in the aircraft, their condition on recovery and pertinent data available therefrom.
- 1.12. *Wreckage:* General information on the site of the accident and the distribution pattern of the wreckage; details concerning the location and state of the different pieces of the wreckage are not normally required unless it is necessary to indicate a breakup of the aircraft prior to impact. Diagrams, charts, and photographs may be attached.
- 1.13. *Fire:* If fire occurred, information on the nature of the occurrence and of the firefighting equipment used and its effectiveness.
- 1.14. *Survival Aspects:* Brief description of search, evacuation and rescue, location of crew and passengers in relation to injuries sustained, failure of structures such as seats and seat-belt attachments.
- 1.15. *Tests and Research:* Brief statements regarding the results of any necessary tests and research.
- 1.16. Give pertinent information not already included.

E II — TYPES OF REPORTS

2. ANALYSIS AND CONCLUSIONS

2.1. *Analysis*

2.2. *Conclusions*

Note: — In a) and b) below reproduce the text of the report in its entirety unless this is inadvisable because of length or complexity.

- a) *Findings*: Indicate the most significant determinations of the factfinding and analysis;
- b) *Cause or Probable Cause(s)*

3. RECOMMENDATIONS

Note: — As appropriate, from the report.

2. Group Chairman Report

Bureau of Aviation Safety personnel are assigned as Group Chairmen on every *Team*-type investigation. Each Group Chairman prepares a **Group Chairman Report** covering the facts, conditions, and circumstances in a specific area, e.g., structures, meteorology, air traffic, human factors, etc. The report is prepared in two parts. The **Factual**, or **Part I**, is written following the field phase of the investigation, and prior to the Public Hearing. **Part II**, the **Analysis**, is written after the Public Hearing. Part I is intended as a public document, while Part II is prepared for within-Board use only.

Group Chairman Reports (Part I) are included as Public Hearing exhibits. They are also used by the Hearing Officer as a source of information when writing the **Accident Report**.

3. Report of the Investigation

The Investigator-in-charge, either a Bureau of Aviation Safety, or Federal Aviation Administration field investigator, prepares the **Report of the Investigation**. The report, reflecting the facts, conditions, and circumstances, is prepared in two parts. **Part I (Factual)** is intended as a public document, and is a collection of facts concerning the investigation findings. Neither analysis nor opinion is included in the report. **Part II (Analysis)** is intended for within-Board use, and analyzes the significance of the facts in Part I.

The NTSB Form 6120.4 and pertinent supplements (Fig. E II-2, 3, 4, 5) are completion-type forms used in preparing this report. The forms are supplemented by witness statements, photographs, aircraft system diagrams, and any other evidence the investigator considers relevant to the investigation.

The **Report of the Investigation (Part I)** is intended as a complete and permanent record of the facts, conditions, and circumstances surrounding an aircraft accident, and remains on file at the Bureau of Aviation Safety in Washington, D.C. Copies may be obtained for the cost of printing.

4. Technical Specialist Report

Occasionally during the conduct of an aircraft accident investigation the assistance of a technical specialist is required in either the operations or airworthiness area. The specialist will be an investigator from either the Technical Services Branch of the Bureau of Aviation Safety, Washington, D.C., or the regional Engineering and Manufacturing Branch of FAA Flight Standards. He is required to submit a **Technical Specialist Report** of his findings to the IIC. The **Technical Specialist Report** is included as a supplement to the **Report of the Investigation** prepared by the IIC.

A **Technical Specialist Report** is prepared in two parts. **Part I (Factual)** is a collection of facts concerning the specialist's findings. **Part II (Analysis)** is an analysis of the significance of these facts, and the part they played in causing the accident. Part I of this report is intended as public information when it is a supplement to the **Report of the Investigation**.

5. Briefs of Accidents

Over 5,000 civil aircraft accidents occur annually in the United States. Approximately 20 of these are judged to be of sufficient significance and public interest to warrant the Board's issuance of a formal **Accident Report**. The remainder of the accidents are reported in a Board publication titled *Briefs of Accidents*.

Briefs of Accidents is published six times a year and each issue contains approximately 800 reports of U.S. civil aircraft accidents. A brief format is used as compared with the narrative type in the *Accident Report* (Fig. E II-1).

Briefs of Accidents contain information necessary to fulfill the requirements of the majority of persons using these reports. Persons needing more detailed information may obtain a reproduction of the **Report of the Investigation**.

6. FAA Reports

In addition to the reports required by the NTSB, the FAA requires the following:

- a. *Coordinator/Investigator's Accident Report*

E-II — TYPES OF REPORTS

Contains the complete file of all documents, records, exhibits, and reports which constitute the complete record of all evidence relevant to the facts, conditions, and circumstances disclosed in the investigation. This report becomes the FAA official report, and is the basis upon which action by the FAA is taken in fulfilling its responsibilities under the Federal Aviation Act of 1958. This report shall consist of three separate parts: Part I — Factual; Part II — Analysis; and Part III — Aircraft Accident Data Report, FAA Form 3660, for within-FAA use only.

b. Participants' Report

The report to the FAA coordinator/investigator shall consist of two parts: Part I — Factual; and Part II — Technical Analysis, Conclusions, and Opinions. It is prepared in the format prescribed in Handbook 8020.1A.

The report to the NTSB/Military shall be in the format requested and contain factual information only. Copies of such reports

will be furnished to the FAA coordinator/investigator.

c. Progress Reports

The written progress report is required on all air carrier accidents and on general aviation accidents when requested by FS-50 or the Area Manager. The written progress report shall consist of an FAA Form 2819, containing as much of the information as is available, with a brief resume of the investigation to date. Distribution of the progress report will be as prescribed by Handbook 8020.1A.

d. Supplement to the Final Report

In the event the NTSB accident hearing or taking of depositions is concluded subsequent to the coordinator's final report, the coordinator will prepare a supplemental narrative report. The supplemental comments shall contain the final conclusions of the FAA investigating team and Part III — FAA Form 3660. (Fig. E II-6.)

BRIEFS OF ACCIDENTS

| DOCKET | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|---|----------|---------------------------------|--|------------------------|--------------------------------|---|
| 3-4332 | 10/16/66 | NOVATO CALIF TIME - 1800 | PIPER PA-28 N-9530J DAMAGE - SUBSTANTIAL | CR- 0 0 1 PX- 0 0 3 | NONCOMMERCIAL PLEASURE | PRIVATE, AGE 21, 54 TOTAL HOURS, 6 IN TYPE. |
| TYPE OF ACCIDENT UNDERSHOOT COLLIDED WITH DITCHES PROBABLE CAUSE PILOT IN COMMAND - INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING PILOT IN COMMAND - SELECTED UNSUITABLE TERRAIN REMARKS - PLT LANDED ON ROUGH, DIRT TAXIWAY AT UNLIGHTED AIRPORT. | | | | | | |
| 3-4333 | 10/16/66 | SELDOVIA ALAS TIME - 0930 | CESSNA U206 N-2156F DAMAGE - SUBSTANTIAL | CR- 0 0 1 PX- 0 0 1 | COMMERCIAL AIR TAXI - PASSG | COMMERCIAL, AGE 26, 1225 TOTAL HOURS, 273 IN TYPE. |
| TYPE OF ACCIDENT GROUND-WATER LOOP-SWERVE NOSE OVER/DOWN PROBABLE CAUSE PILOT IN COMMAND - SELECTED UNSUITABLE TERRAIN FACTOR AIRPORT CONDITIONS - OTHER WEATHER - UNFAVORABLE WIND CONDITIONS REMARKS - DEBRIS ON RUNWAY. RIGHT CROSSWIND 80 DEGREES, GUSTING 30 KNOTS. | | | | | | |
| 3-4334 | 10/21/66 | PARKERSBURG W VA TIME - 1245 | BEECH D18S N-9111 DAMAGE - SUBSTANTIAL | CR- 0 0 1 PX- 0 0 2 | COMMERCIAL AIR TAXI - PASSG | COMMERCIAL, AGE 24, 2489 TOTAL HOURS, 811 IN TYPE. |
| TYPE OF ACCIDENT COLLIDED WITH DIRT BANK PROBABLE CAUSE PILOT IN COMMAND - FAILED TO MAINTAIN DIRECTIONAL CONTROL LANDING GEAR - BRAKING SYSTEM MISCELLANEOUS ACTS, CONDITIONS - MATERIAL FAILURE REMARKS - LEFT BRAKE FAILURE. INTERNAL HYDRAULIC LEAK IN PLTS LEFT BRAKE MASTER CYLINDER. | | | | | | |
| 3-4335 | 10/27/66 | AUGUSTA ME TIME - 1513 | CESSNA 182F N-3517U DAMAGE - SUBSTANTIAL | CR- 0 0 1 PX- 0 0 1 | COMMERCIAL AIR TAXI - PASSG | COMMERCIAL, AGE 37, 2300 TOTAL HOURS, 16 IN TYPE. |
| TYPE OF ACCIDENT UNDERSHOOT GEAR COLLAPSED PROBABLE CAUSE PILOT IN COMMAND - MISJUDGED DISTANCE AND SPEED PILOT IN COMMAND - MISUSED OR FAILED TO USE FLAPS FACTOR MISCELLANEOUS ACTS, CONDITIONS - SUNGLARE MISCELLANEOUS ACTS, CONDITIONS - OVERLOAD FAILURE | | | | | | |

Figure E II-1

INSTRUCTIONS

Insert "N/A" in all spaces where items are not applicable.

When gross weight and/or center of gravity are determined to be involved in the operation, describe in the narrative, and list computations.

Furnish all required information on pilots aboard the aircraft occupying pilot seats (includes side by side and tandem configuration).

Include only the pertinent pathological and/or toxicological information in the narrative section of the report.

In accidents involving landings or takeoffs, give all environmental factors, i.e., runway data, terrain, obstruction heights, distances, phase of flight aircraft configuration, etc.

For the purpose of wreckage examination, helicopter components have been divided into eight groups. These groups apply to all basic helicopters now in general use. The damage classification columns have been divided into two parts (1 and 2) for the engine group, and four parts (F (forward), L (left), A (aft), and R (right)) for the main rotor group. This has been done to adapt the form for use on twin-engined and/or tandem or side-by-side intermeshing rotor configured helicopters. The main rotor control system includes the entire system from the collective and cyclic controls back through the various linkages to the blades themselves. This would include all control linkages, hydraulic boost, servo paddles, weights, or any item applicable to the control or the main rotor. The same criteria would apply to the tail rotor control system.

DEFINITIONS

For use in this report, the following words or phrases are defined as follows:

FATAL INJURY – Any injury which results in death within 7 days.

SERIOUS INJURY – Any injury which (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) involves lacerations which cause severe hemorrhages, nerve, muscle, or tendon damage; (4) involves injury to any internal organ; or (5) involves second or third degree burns, or any burns affecting more than 5% of the body surface.

SUBSTANTIAL DAMAGE –

(1) Except as provided in subparagraph (2) of this paragraph, substantial damage means damage or structural failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component.

(2) Engine failure, damage limited to an engine, bent fairings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wing tips are not considered "substantial damage" for the purpose of this part.

DESTROYED – Consumed by fire, demolished or damaged beyond repair.

OPERATOR – Any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft.

PURPOSE OF FLIGHT

PLEASURE – Flying by individuals in which the principal reason is pleasure and not associated with business or profession.

BUSINESS – Flying done by an individual in his own, company owned, rented or leased aircraft in connection with his profession or occupation, or in furtherance of the business of his company.

CORPORATE EXECUTIVE – Use of aircraft owned or lease and operated by a corporation or business for the transportation of personnel or in the conduct of the firm's business and which are flown by professional pilots.

AIR TAXI – Flying which, at the time of the accident, is being done under and in accordance with the provisions of a valid Air Taxi Operator's Certificate.

INSTRUCTIONAL – Flying accomplished under the supervision and/or direction of an accredited instructor.

PRACTICE – Proficiency or training flying which is not under the direction and/or supervision of an accredited instructor.

OTHER – Specific kind of flying or type of activity being done at the time of the accident, i.e., pipe line patrol, ferry, test, fish spotting experimental demonstration, etc.

ATTACHMENT CHECKLIST

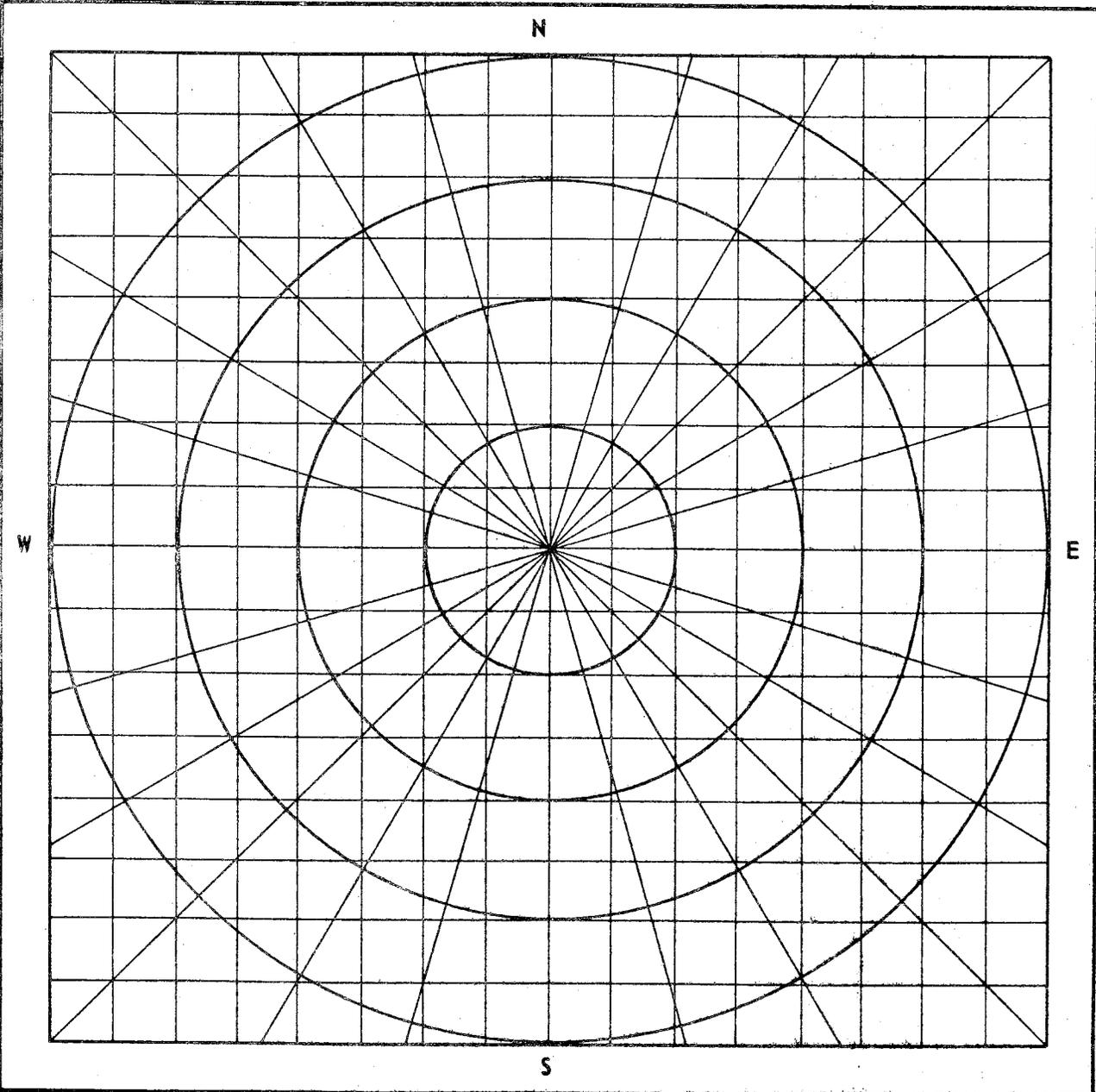
| | |
|---|--|
| NTSB Form 6120.1, PILOT/OPERATOR REPORT | PHOTOGRAPH |
| WITNESS STATEMENTS | FLIGHT PLAN |
| PASSENGER LIST | NTSB Form 6120.4a, MID-AIR COLLISION |
| FLIGHT COMMUNICATIONS | NTSB Form 6120.4b, AERIAL APPLICATION/CROP CONTROL |
| WEATHER REPORTS | ENGINEERING REPORT |
| OTHER (Describe) | |
| | |
| | |

| 7. ACCIDENT SITE | | | | | | | | | | | | | |
|--|---|-----------------------------|--------------|------------------------------------|--|------------------------------|-------------------|---|--|-----------------|--|--|--|
| <input type="checkbox"/> ON AIRPORT | TERRAIN FEATURES <small>(Check more than one if necessary)</small> | | | LEVEL | WOODED | PLOWED FIELD | LAKE | | | | | | |
| <input type="checkbox"/> OFF AIRPORT | | | | ROLLING | BRUSH | CROPS | CITY AREA | | | | | | |
| ELEVATION | | | | HILLY | SWAMP | OPEN WATER | OTHER (Specify) | | | | | | |
| MSL | | | | MOUNTAINOUS | DESERT | RIVER | | | | | | | |
| GRADE OF TERRAIN AT IMPACT | GENERAL CONDITION AT TIME AND PLACE OF ACCIDENT | | | | DAWN | DAYLIGHT | NIGHT-BRIGHT MOON | | | | | | |
| | | | | | TWILIGHT | NIGHT-DARK | | | | | | | |
| 8. WEATHER AT TIME AND PLACE OF ACCIDENT <small>(If possible factor, furnish weather documents)</small> | | | | | | | | | | | | | |
| OFFICIALLY REPORTED | | | | <input type="checkbox"/> CLEAR SKY | <input type="checkbox"/> FOG | CEILING | | VISIBILITY | | | | | |
| ESTIMATED BY WITNESS | | | | <input type="checkbox"/> CLOUDY | <input type="checkbox"/> THUNDERSTORM CONDITIONS | | | WIND DIRECTION AND VELOCITY <input type="checkbox"/> GUSTY | | | | | |
| | | | | <input type="checkbox"/> RAIN | OTHER (Specify) | | | | | | | | |
| | | | | <input type="checkbox"/> SNOW | | | | | | | | | |
| TEMPERATURE | DEW POINT | ALTIMETER SETTING | DENSITY ALT. | RESTRICTIONS TO VISIBILITY | | | | | | | | | |
| 9. FLIGHT BRIEFED ON WEATHER | | | | | | | | | | | | | |
| PRIOR TO TAKEOFF | | | | | | AFTER TAKEOFF | | | | | | | |
| <input type="checkbox"/> YES | | BY | | METHOD | | <input type="checkbox"/> YES | | BY | | METHOD | | | |
| <input type="checkbox"/> NO | | | | | | <input type="checkbox"/> NO | | | | | | | |
| 10. GROSS WEIGHT | | | | 11. C.G. CONDITION WITHIN LIMITS | | 12. FUEL LAST TAKEOFF | | 13. Obstacle Struck Before Principal Impact | | | | | |
| WITHIN MAX. AUTH. | | OVER MAX. AUTH. | | UN-KNOWN | | AMT. ON BOARD | | JET | | WIRES | | BRUSH | |
| | | | | | | | | A | | TREES | | BUILDING | |
| AT TAKEOFF | | | | NO | | OCTANE RATING | | B | | OTHER (Specify) | | | |
| AT OCCURRENCE | | | | UNKNOWN | | MIXED | | | | | | | |
| 14. AIRCRAFT COMPONENT INVOLVED WITH OBSTACLE | | | | PROPELLER | | RIGHT WING | | FUSELAGE | | MAIN ROTOR | | LANDING GEAR | |
| | | | | NOSE | | LEFT WING | | EMPENNAGE | | TAIL ROTOR | | <input type="checkbox"/> RT. <input type="checkbox"/> LEFT | |
| 15. MOVED AFTER PRINCIPAL IMPACT | | <input type="checkbox"/> NO | | 15a. CONDITION OF GROUND | | SOFT | | OTHER (Specify) | | 15b. FIRE | | <input type="checkbox"/> ON GROUND | |
| <input type="checkbox"/> YES (Give dist.) | | | | | | HARD | | | | | | <input type="checkbox"/> IN FLIGHT | |
| | | | | | | ROCKY | | | | | | <input type="checkbox"/> NONE | |
| 16. SKETCH OF IMPACT POINTS <small>(Sketch gouge marks with dimension and magnetic heading; include initial and final impact points)</small> | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 17. APPROXIMATE ATTITUDE AT IMPACT IN RELATION TO HORIZON | | | | | | | | | | | | | |
| USE ONLY WHEN SUPPORTED BY DOCUMENTED EVIDENCE. CIRCLE AIRPLANES IN THREE VIEWS TO INDICATE APPROXIMATE ATTITUDE AT TIME OF IMPACT WITH OBJECTS PRIOR TO HITTING GROUND; DRAW SQUARES AROUND AIRPLANES TO INDICATE APPROXIMATE ATTITUDE AT TIME OF IMPACT WITH GROUND. | | | | | | | | | | | | | |
| VIEWED FROM FRONT | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| VIEWED FROM SIDE | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| VIEWED FROM ABOVE | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

18. SKETCH

| DESCRIPTION OF SKETCH | | | SCALE |
|-----------------------|-----------------------------------|------------------|-------|
| WRECKAGE DISTRIBUTION | PROBABLE FLIGHT PATH | OTHER (Describe) | |
| WITNESS LOCATION | RUNWAY DATA (With wind component) | | |

LEGEND



| 19. EXAMINATION OF WRECKAGE | | | | WRECKAGE MOVED PRIOR TO EXAMINATION | | | | | | | | | | | |
|--|------------|---------------|---------------------|-------------------------------------|------------------------|-----------------------|-----------------|------------|--------------|-------|-------|-----|------|-----|-----|
| | | | | NO | | YES (Provide details) | | | | | | | | | |
| SEAT BELTS | | NO. INSTALLED | NO. USED | NO. FAILED | DESCRIPTION OF FAILURE | | | | | | | | | | |
| SHOULDER HARNESS | | | | | | | | | | | | | | | |
| DAMAGE (Complete applicable column) 1-IMPACT F-FIRE | | | | | | | | | | | | | | | |
| AIRCRAFT COMPONENT | | DES-TROYED | SUB-STANT. | MINOR | NONE | ROTORCRAFT COMPONENT | Destroyed | | Substan. | | MINOR | | NONE | | |
| | | | | | | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | |
| PROPELLER | NO. 1 | | | | | POWERPLANTS | | | | | | | | | |
| | NO. 2 | | | | | ACCESSORIES | | | | | | | | | |
| ENGINE | NO. 1 | | | | | CONTROL SYSTEMS | | | | | | | | | |
| | NO. 2 | | | | | LUBRICATION SYSTEMS | | | | | | | | | |
| FUSELAGE | | | | | | FUEL SYSTEM | | | | | | | | | |
| FLIGHT CONTROL SYSTEM | | | | | | MOUNTS | | | | | | | | | |
| ENGINE CONTROLS | | | | | | | 1/ | F-L | A-R | F-L | A-R | F-L | A-R | F-L | A-R |
| LANDING GEAR | | | | | | MAIN ROTORS | | | | | | | | | |
| HORIZONTAL STABILIZER | | | | | | BLADES | | | | | | | | | |
| ELEVATORS | | | | | | HUBS | | | | | | | | | |
| VERTICAL FIN | | | | | | MASTS | | | | | | | | | |
| RUDDER | | | | | | CONTROL SYSTEM | | | | | | | | | |
| TRIMTABS | RUDDER | | | | | TRANSMISSIONS | | | | | | | | | |
| | ELEVATOR | | | | | ACCESSORIES | | | | | | | | | |
| | AILERON | | | | | DRIVE(S) SYSTEM(S) | | | | | | | | | |
| LEFT WING | | | | | | LUBRICATION SYSTEM | | | | | | | | | |
| LEFT FLAP | | | | | | AIRFRAME | | | | | | | | | |
| LEFT AILERON | | | | | | COCKPIT | | | | | | | | | |
| LEFT WING STRUTS | | | | | | CABIN | | | | | | | | | |
| RIGHT WING | | | | | | TAIL BOOM/CONE/PYLON | | | | | | | | | |
| RIGHT FLAP | | | | | | LANDING GEAR | | | | | | | | | |
| RIGHT AILERON | | | | | | TAIL ROTOR GUARD | | | | | | | | | |
| RIGHT WING STRUTS | | | | | | STABILIZERS | | | | | | | | | |
| SEATS | FRONT | | | | | TAIL ROTOR | | | | | | | | | |
| | REAR | | | | | BLADES | | | | | | | | | |
| SYSTEMS | FUEL | | | | | HUB | | | | | | | | | |
| | OIL | | | | | DRIVE SYSTEM | | | | | | | | | |
| | ELECTRICAL | | | | | CONTROL SYSTEM | | | | | | | | | |
| | HYDRAULIC | | | | | LUBRICATION SYSTEM | | | | | | | | | |
| | ANTI-ICE | | | | | SYSTEMS | ELECTRICAL | | | | | | | | |
| VACUUM | | | | VACUUM | | | | | | | | | | | |
| CABIN HEATER | | | | | | HYDRAULIC | | | | | | | | | |
| OTHER (Specify) | | | | | | SEATS | FRONT | | | | | | | | |
| | | | | | | | REAR | | | | | | | | |
| OXYGEN | INSTALLED | USED | ANY BEARING ON CASE | | CABIN HEATER | | | | | | | | | | |
| | | | | | OTHER (Specify) | | | | | | | | | | |
| PRESSURIZATION | | | | | | | | | | | | | | | |
| IF A KNOWN FAILURE OR MALFUNCTION OF ANY COMPONENT IS INDICATED, SUBMIT A DETAILED DESCRIPTION | | | | | | | | | | | | | | | |
| | | | | YES | NO | EXTERNAL LOAD | | | | TRIM | | | | | |
| FIXED PITCH PROPELLER(S) INSTALLED | | | | | | LITTER | SLING | SPRAY TANK | LONGITUDINAL | | FORE | | | | |
| | | | | | | | | | AFT | | | | | | |
| VARIABLE PITCH PROPELLER(S) INSTALLED | | | | | | HOIST | OTHER (Specify) | LATERAL | | RIGHT | | | | | |
| | | | | | | | | LEFT | | | | | | | |
| BLADE ANGLES (If known) | NO. 1 | FRICITION | | ON FULL | | PARTIAL | | OFF | | | | | | | |
| | | | | | | | | | | | | | | | |
| | NO. 2 | COLLECTIVE | | | | | | | | | | | | | |
| | | CYCLIC | | | | | | | | | | | | | |
| | | FORE AND AFT | | | | | | | | | | | | | |

20. PILOT HISTORY

A. Pilot-in-Command

| | | | | | | | | | | | |
|-------------------------------------|-------------------------|-----------------------------------|--------------------|---------------|---------------------|---|---------------|--------------------------|-----------------------|--------------------------|-------|
| NAME AND ADDRESS | | | | DATE OF BIRTH | | NATIONALITY | | SEAT OCCUPIED | REG. NO. OF RESIDENCE | | |
| FAA PILOT CERTIFICATE HELD | | | | | | FAA MEDICAL CERTIFICATE | | | | | |
| CERTIFICATE NO. | DATE OF ISSUE | INSTRUMENT TRAINING PRIOR TO SOLO | | YES | BLUE SEAL | YES | DATE OF ISSUE | | | | |
| AIRLINE TRANSPORT | RATINGS AND LIMITATIONS | | | | | CLASS | | | | | |
| COMMERCIAL | AIRPLANE | | MULTI ENGINE LAND | | | <input type="checkbox"/> | FIRST | <input type="checkbox"/> | SECOND | <input type="checkbox"/> | THIRD |
| FLIGHT INSTRUCTOR | ROTORCRAFT | | MULTI ENGINE SEA | | | LIMITATIONS | | | | | |
| PRIVATE | GLIDER | | SINGLE ENGINE LAND | | | | | | | | |
| STUDENT | INSTRUMENT | | SINGLE ENGINE SEA | | | | | | | | |
| OTHER (Specify) | OTHER (Specify) | | | | | PATHOLOGICAL AND/OR TOXICOLOGICAL EXAMINATION PERFORMED | | | | | |
| | TYPE RATINGS | | | | | <input type="checkbox"/> NO <input type="checkbox"/> YES (Extent) | | | | | |
| PILOT FLIGHT TIME (To nearest hour) | | SOURCE OF INFO. | PILOT'S FLT. LOG | FAA RECORDS | OPERATOR'S ESTIMATE | OTHER (Specify) | | | | | |
| TYPE | LAST 24 HOURS | | LAST 90 DAYS | | | TO DATE | | | | | |
| | DUAL | SOLO | DUAL | SOLO | TOTAL | DUAL | SOLO | TOTAL | | | |
| (1) THIS MAKE AND MODEL | | | | | | | | | | | |
| (2) NIGHT | | | | | | | | | | | |
| (3) DAY | | | | | | | | | | | |
| (4) INSTRUMENT | ACTUAL | | | | | | | | | | |
| | SIMULATED | | | | | | | | | | |
| (5) SINGLE ENGINE | | | | | | | | | | | |
| (6) MULTI ENGINE | | | | | | | | | | | |
| (7) ROTORCRAFT | | | | | | | | | | | |
| (8) GLIDER | | | | | | | | | | | |
| TOTAL (5, 6, 7, 8) | | | | | | | | | | | |

B. Second Pilot

| | | | | | | | | | | | |
|-------------------------------------|-------------------------|-----------------------------------|--------------------|---------------|---------------------|---|---------------|--------------------------|-----------------------|--------------------------|-------|
| NAME AND ADDRESS | | | | DATE OF BIRTH | | NATIONALITY | | SEAT OCCUPIED | REG. NO. OF RESIDENCE | | |
| FAA PILOT CERTIFICATE HELD | | | | | | FAA MEDICAL CERTIFICATE | | | | | |
| CERTIFICATE NO. | DATE OF ISSUE | INSTRUMENT TRAINING PRIOR TO SOLO | | YES | BLUE SEAL | YES | DATE OF ISSUE | | | | |
| AIRLINE TRANSPORT | RATINGS AND LIMITATIONS | | | | | CLASS | | | | | |
| COMMERCIAL | AIRPLANE | | MULTI ENGINE LAND | | | <input type="checkbox"/> | FIRST | <input type="checkbox"/> | SECOND | <input type="checkbox"/> | THIRD |
| FLIGHT INSTRUCTOR | ROTORCRAFT | | MULTI ENGINE SEA | | | LIMITATIONS | | | | | |
| PRIVATE | GLIDER | | SINGLE ENGINE LAND | | | | | | | | |
| STUDENT | INSTRUMENT | | SINGLE-ENGINE SEA | | | | | | | | |
| OTHER (Specify) | OTHER (Specify) | | | | | PATHOLOGICAL AND/OR TOXICOLOGICAL EXAMINATION PERFORMED | | | | | |
| | TYPE RATINGS | | | | | <input type="checkbox"/> NO <input type="checkbox"/> YES (Extent) | | | | | |
| PILOT FLIGHT TIME (To nearest hour) | | SOURCE OF INFO. | PILOT'S FLT. LOG | FAA RECORDS | OPERATOR'S ESTIMATE | OTHER (Specify) | | | | | |
| TYPE | LAST 24 HOURS | | LAST 90 DAYS | | | TO DATE | | | | | |
| | DUAL | SOLO | DUAL | SOLO | TOTAL | DUAL | SOLO | TOTAL | | | |
| (1) THIS MAKE AND MODEL | | | | | | | | | | | |
| (2) NIGHT | | | | | | | | | | | |
| (3) DAY | | | | | | | | | | | |
| (4) INSTRUMENT | ACTUAL | | | | | | | | | | |
| | SIMULATED | | | | | | | | | | |
| (5) SINGLE ENGINE | | | | | | | | | | | |
| (6) MULTI ENGINE | | | | | | | | | | | |
| (7) ROTORCRAFT | | | | | | | | | | | |
| (8) GLIDER | | | | | | | | | | | |
| TOTAL (5, 6, 7, 8) | | | | | | | | | | | |

| | | | | | | | | | |
|---|---------------------|---|----------------------------|------------------|--|----------------------------|-----------------------------------|-------------------------------|------|
| 21. AIRCRAFT HISTORY | | | | | SOURCE OF INFORMATION | | | | |
| MAKE | | | MODEL | | SERIAL NO. | | | REGISTRATION MARK N | |
| AIRWORTHINESS CERTIFICATE | | | | | | | | | |
| ISSUANCE DATE | | TYPE | NORMAL, UTILITY, ACROBATIC | TRANSPORT | PROVISIONAL | RESTRICTED | LIMITED | EXPERIMENTAL | |
| TOTAL TIME | TIME SINCE OVERHAUL | | TYPE OF MAINTENANCE | | | LAST INSPECTION | | | |
| DATE OF LAST PERIODIC INSPECTION | PROGRESSIVE | PERIODIC (Give date of last inspection) | TYPE | | DATE | | AIRC. HOURS AT TIME OF INSPECTION | | |
| ENGINES | | | | | | | | | |
| NO. | MAKE AND MODEL | | | SERIAL NO. | | TIME | | TYPE OF INSPECTION | |
| | | | | | | TOTAL | SINCE OVERHAUL | SINCE LAST INSPECTION | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| PROPELLERS/ROTORS | | | | | | | | | |
| NO. | MAKE AND MODEL | | | SERIAL NO. | | TIME SINCE NEW OR OVERHAUL | | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| RADIO EQUIPMENT INSTALLED | | | | | | | | | |
| RECEIVERS | | | | | TRANSMITTERS | | | | |
| VOR | ILS | ADF/DF | MARKER BEACON | OTHER (Identify) | VHF | OTHER (Identify) | | | |
| VHF | DME | LF/MF | RADAR | | LF/MF | | | | |
| FLIGHT INSTRUMENTS INSTALLED | | | ELECT. | VACUUM | DEICER EQUIPMENT INSTALLED | | | | |
| COMPASS | | | | | NONE | | | | TYPE |
| TURN AND BANK | | | | | PROPELLER DEICERS | | | | |
| ALTIMETER | | | | | WING DEICERS | | | | |
| AIRSPEED INDICATOR | | | | | EMPENNAGE DEICERS | | | | |
| ATTITUDE INDICATOR | | | | | WINDSHIELD DEICERS | | | | |
| DIRECTIONAL GYRO | | | | | WINDSHIELD WIPERS | | | | |
| RATE OF CLIMB | | | | | PITOT HEATER | | | | |
| CLOCK | | | | | FUEL TANK VENT HEATER | | | | |
| INTEGRATED FLIGHT SYSTEM | | | | | | | | | |
| AUTOPILOT | | | | | MISCELLANEOUS EQUIPMENT INSTALLED | | | | |
| APPROACH COUPLER | | | | | NAVIGATION LIGHTS | | | | |
| ALTITUDE CONTROL | | | | | LANDING LIGHTS | | | | |
| FLIGHT RECORDER | | | | | ANTI-COLLISION LIGHTS | | | | |
| STALL WARNING INDICATOR | | | | | INSTRUMENT LIGHTS | | | | |
| SAFE FLIGHT INDICATOR | | | | | FLARES | | | | |
| OTHER (Identify) | | | | | FLASHLIGHT | | | | |
| | | | | | LANDING GEAR INDICATOR | | | | |
| 22. COLLISION ACCIDENTS | | | | | | | | | |
| <i>(For mid-air collisions, a separate NTSB Form 6120.4 is required for each aircraft involved, and a NTSB Form 6120.4A.)</i> | | | | | | | | | |
| OTHER AIRCRAFT INVOLVED | | | | | | | | | |
| MAKE AND MODEL | | | NAME AND ADDRESS OF OWNER | | | | | | |
| REGISTRATION MARK N | | | | | | | | | |
| 23. NARRATIVE STATEMENT OF FACTS, CONDITIONS, AND CIRCUMSTANCES SURROUNDING ACCIDENT <i>(Give a concise, chronological sequence of events and detail the environmental conditions at the time of occurrence)</i> | | | | | | | | | |
| | | | | | | | | | |

23. NARRATIVE STATEMENT OF FACTS, CONDITIONS, AND CIRCUMSTANCES (Cont'd.)

[Empty space for narrative statement]

24. PERSONS PARTICIPATING IN THIS INVESTIGATION

| NAMES AND ADDRESSES | AFFILIATION |
|---------------------|-------------|
| | |

25. INVESTIGATED BY

| DATE | AGENCY | SIGNATURE |
|------|--------|-----------|
| | | |



AIRCRAFT ACCIDENT REPORT - MID-AIR COLLISION

| AIRCRAFT IDENTIFICATION | AIRCRAFT "A" | | AIRCRAFT "B" | |
|---------------------------|--|-------|----------------------------------|-------|
| | REGISTRATION MARK | COLOR | REGISTRATION MARK | COLOR |
| HORIZONTAL ASPECTS | | | | |
| AIRSPED | <input type="checkbox"/> UNKNOWN | | <input type="checkbox"/> UNKNOWN | |
| MAGNETIC HEADING | <input type="checkbox"/> UNKNOWN | | <input type="checkbox"/> UNKNOWN | |
| ALTITUDE | <input type="checkbox"/> UNKNOWN | | <input type="checkbox"/> UNKNOWN | |
| RESULT | ANGLE 1 (Degrees) | | ANGLE 2 (Degrees) | |
| | COLLISION ANGLE (Add angles 1 and 2, and subtract from 180°) | | | |
| VERTICAL ASPECT | | | | |
| POSITION | CLIMBING | | CLIMBING | |
| | DESCENDING | | DESCENDING | |
| | LEVEL | | LEVEL | |
| | UNKNOWN | | UNKNOWN | |
| RESULTS | ANGLE 1 (Degrees) | | ANGLE 2 (Degrees) | |
| | COLLISION ANGLE (Add angle 1 and 2, and subtract from 180°) | | | |

NARRATIVE (If more space is required, attach additional sheets)

1. Lay out the pieces of wreckage to be compared so that the piece from Aircraft A is alongside Aircraft B in such a manner that the longitudinal axis of each are parallel to one another and pointed in the same direction relative to the nose of each aircraft.

2. Arbitrarily designate the slower aircraft as aircraft A; then angle 1 will necessarily be the larger scratch angle. If neither airspeed or only one airspeed is known, then designate as Aircraft A that aircraft on which appears the larger scratch angle.

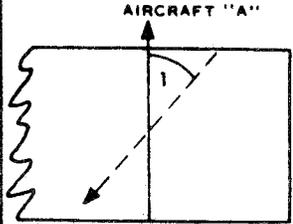
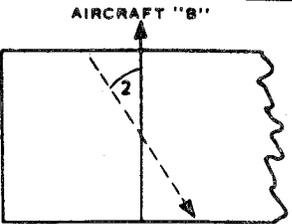
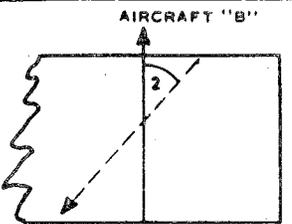
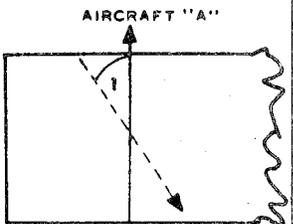
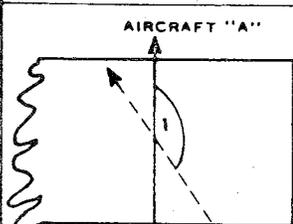
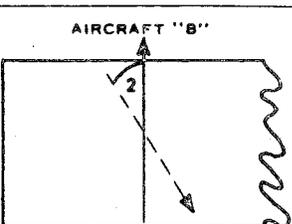
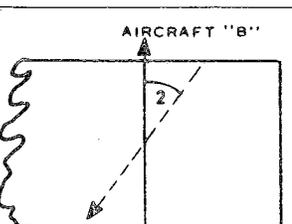
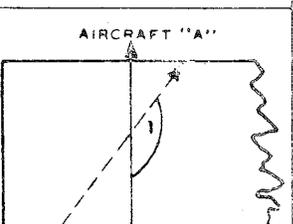
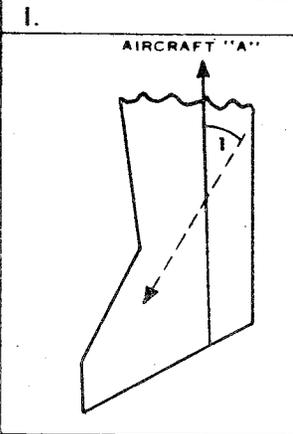
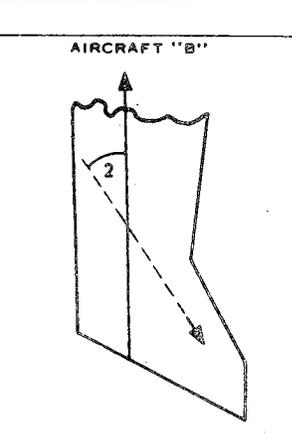
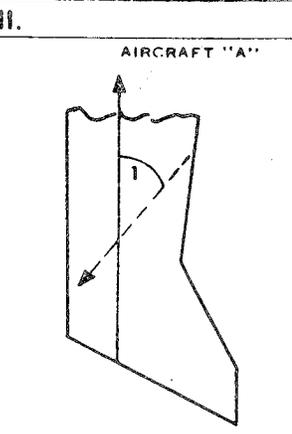
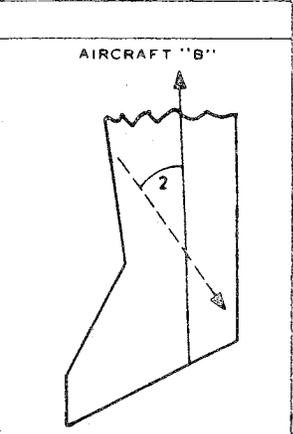
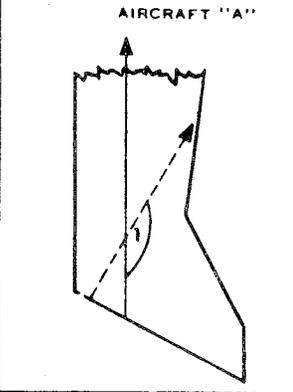
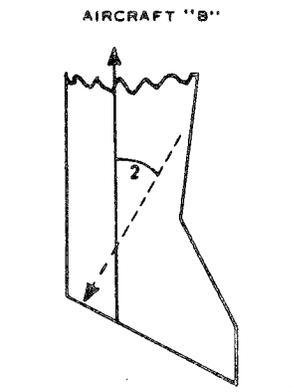
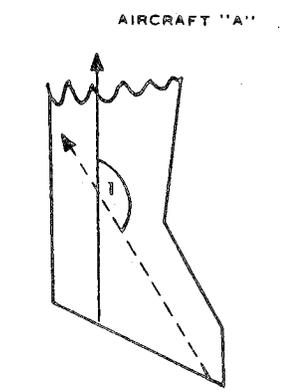
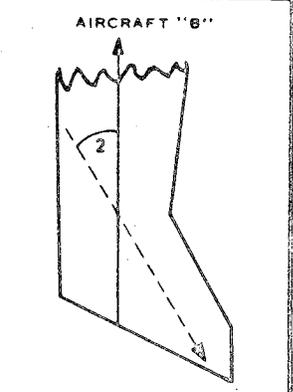
3. For accuracy, be sure that the two pieces being compared are those that actually made contact with each other.

4. The solid lines in the following conditions refer to lines parallel to the longitudinal axis and the arrow head points toward the front of the aircraft. The broken lines refer to the scratch marks with the arrow heads indicating the direction in which the mark was made.

5. Indicate the condition which fits the situation and indicate in RESULTS the degrees of the angles determined.

6. Include in the narrative portion all other facts (including sketches if necessary) relating to the mid-air collision. This could include such items as propeller slashes, evidence of evasive action such as witness statements, other collision marks, etc.

AIRCRAFT ACCIDENT REPORT - MID-AIR COLLISION

| AIRCRAFT "A" | REGISTRATION MARK N | AIRCRAFT "B" | REGISTRATION MARK N |
|--|---|---|------------------------|
| CONDITIONS - HORIZONTAL <i>(Complete appropriate diagram)</i> | | | |
| I. | AIRCRAFT "A"  | AIRCRAFT "B"  | II. |
| AIRCRAFT "B"  | AIRCRAFT "A"  | | |
| III. | AIRCRAFT "A"  | AIRCRAFT "B"  | IV. |
| AIRCRAFT "B"  | AIRCRAFT "A"  | | |
| CONDITIONS - VERTICAL <i>(Complete appropriate diagram)</i> | | | |
| I. | AIRCRAFT "A"  | AIRCRAFT "B"  | II. |
| AIRCRAFT "A"  | AIRCRAFT "B"  | | |
| III. | AIRCRAFT "A"  | AIRCRAFT "B"  | IV. |
| AIRCRAFT "A"  | AIRCRAFT "B"  | | |



| DEPARTMENT OF TRANSPORTATION NATIONAL TRANSPORTATION SAFETY BOARD | | | | | | | NTSB ACCIDENT IDENT. NO. | |
|--|------------------------------------|---|------------------|--|---|-------------|--------------------------|-------------------------|
| AIRCRAFT ACCIDENT REPORT FLIGHT INVOLVING AERIAL APPLICATION/CROP CONTROL | | | | | | | | |
| Complete this form for each accident involving an aircraft engaged in aerial application or crop control operations. | | | | | | | | |
| 1. ACCIDENT IDENTIFICATION | | LOCATION | | | DATE | | TIME | |
| 2. PILOT FLIGHT TIME - AERIAL APPLICATIONS (To nearest hour) | | DAY OF FLIGHT (Between midnight and time of accident) | | | 10-DAY PERIOD PRIOR TO ACCIDENT | | TOTAL HOURS | |
| 3. TYPE OF AERIAL APPLICATION OPERATION | | | | 4. KIND OF CROPS | | | | |
| SEEDING CROPS | SPRAYING FORESTS | BEANS | PASTURE | | | | | |
| SEEDING FORESTS | SPRAYING TOWNS | CLOVER | PEAS | | | | | |
| FERTILIZING (DUST) | AGITATING TREES | CORN | POTATOES | | | | | |
| FERTILIZING (LIQUID) | ANTI-FROST OPERATION | COTTON | RICE | | | | | |
| DEFOLIATION (DUST) | KNOCKING FRUIT OFF TREES | FLAX | SAGE | | | | | |
| DEFOLIATION (LIQUID) | SURVEY OF AREA | GRAPES | SPINACH | | | | | |
| SPRAYING CROPS | CHASING BIRDS | FOREST-TREES | STRAWBERRIES | | | | | |
| FERRY | PRACTICE | FRUIT ORCHARDS | TOBACCO | | | | | |
| DUSTING CROPS | TEST (CALIB. EQUIP.) | GRAIN FIELDS | TOMATOES | | | | | |
| OTHER DUSTING (Identify) | OTHER (Identify) | LETTUCE | OTHER (Identify) | | | | | |
| | | MESQUITE | | | | | | |
| | | MOSQUITO CONTROL | | | | | | |
| 5. CHEMICALS USED | | 6. TOXIC EXPOSURE | | | 7. TOXIC ANTIDOTES (If used during operation) | | | |
| DRY-TOXIC | EXPOSURE TO PILOT | DURATION | | | 8. RESPIRATOR | | | |
| | | 15 MINUTES OR LESS | | | AVAILABLE | | | |
| DRY-NONTOXIC | NOT AFFECTED | 30 MINUTES OR LESS | | | AVAILABLE-NOT USED | | | |
| | | 1 HOUR OR LESS | | | NOT AVAILABLE | | | |
| LIQUID-TOXIC | AFFECTED IN FLIGHT | 2 HOURS OR LESS | | | UNKNOWN | | | |
| | | 3 HOURS OR LESS | | | | | | |
| LIQUID-NONTOXIC | AFFECTED ON GROUND PRIOR TO FLIGHT | 4 HOURS OR LESS | | | AVAILABLE-USED | | | |
| | | 5 HOURS OR LESS | | | AVAILABLE-NOT USED | | | |
| BRAND OF CHEMICAL | UNKNOWN | OVER 5 HOURS | | | NOT AVAILABLE | | | |
| | | UNKNOWN | | | UNKNOWN | | | |
| 9. SPECIAL CLOTHING | | | | 10. GLOVES | | 11. GOGGLES | | 12. CRASH HELMET |
| USED | TYPE OF SPECIAL CLOTHING USED | | | USED | | USED | | USED |
| NOT USED | | | | NOT USED | | NOT USED | | NOT USED |
| UNKNOWN | | | | NOT USED | | NOT USED | | NOT AVAILABLE |
| 13. CRASH BAR INSTALLED | | YES | NO | 16. TANK/HOPPER | | | | 12. CRASH HELMET |
| | | | | AHEAD OF PILOT OR FRONT COCKPIT | | | | OTHER (Specify) |
| 14. COCKPIT CRASH PAD INSTALLED | | | | BEHIND PILOT OR REAR COCKPIT | | | | |
| | | | | WING | | | | |
| 15. STALL WARNING INDICATOR | | | | BELLY | | | | |
| | | | | SIDES | | | | |
| 17. OPERATIONAL DATA | | | | | | | | |
| SWATH RUN | | | | PROCEDURE TURNAROUND | | | | |
| LENGTH OF RUN (Feet) | | HEIGHT OF RUN (Feet) | | HOW FLOWN | | | | |
| | | | | CROSSWIND | | | | ENTRY TO PROCEDURE TURN |
| ELEVATION (MSL) | | | | UPWIND | | | | FIRST THIRD OF TURN |
| SWATH RUN | | ACCIDENT SITE | | DOWNWIND | | | | SECOND THIRD OF TURN |
| | | | | CALM | | | | THIRD THIRD OF TURN |
| | | | | NOT REPORTED | | | | DURING SWATH RUN |
| 18. TYPE OF TERRAIN BEING TREATED | | 19. OBSTRUCTIONS | | 20. REMARKS (If more space needed, attach additional sheets) | | | | |
| LEVEL-FLAT | | TREES | | | | | | |
| ROLLING | | WIRES-POLES | | | | | | |
| HILLY | | FENCES | | | | | | |
| MOUNTAINOUS | | BUILDING | | | | | | |
| SWAMP/WATER | | ELECTRONIC TOWERS | | | | | | |
| DENSE WITH TREES | | OTHER (Describe) | | | | | | |

| | | | | | | | |
|--|--|--|--|------------------------|-----|--|----|
| DEPARTMENT OF TRANSPORTATION NATIONAL TRANSPORTATION SAFETY BOARD ANALYSIS REPORT-GENERAL AVIATION ACCIDENT <i>For Official Use Only</i> | | NTSB ACCIDENT IDENT. NO. REGION AND DISTRICT OFFICE NO. -FAA USE | | | | | |
| 1. ACCIDENT IDENTIFICATION | | | | | | | |
| LOCATION OF ACCIDENT | | DATE | TIME | | | | |
| 2. NOTIFICATION RECEIVED | | | | | | | |
| DATE | TIME | FROM | BY (Investigative Office) | | | | |
| 3. ANALYSIS AND SUPPORTING COMMENTS <i>(Attach additional sheet if more space is required)</i> | | | | | | | |
| 4. INVESTIGATOR'S CONCLUSIONS AND CONTRIBUTING FACTORS | | | | | | | |
| 5. REMARKS | | | | | | | |
| ATTACHMENTS CHECKLIST | | INVESTIGATED BY | | | | | |
| <input type="checkbox"/> | NEGATIVES | DATE | <table border="1"> <tr> <td>ON SCENE INVESTIGATION</td> <td>YES</td> </tr> <tr> <td></td> <td>NO</td> </tr> </table> | ON SCENE INVESTIGATION | YES | | NO |
| ON SCENE INVESTIGATION | YES | | | | | | |
| | NO | | | | | | |
| <input type="checkbox"/> | WEATHER ANALYSIS | | | | | | |
| <input type="checkbox"/> | ENGINEERING ANALYSIS | AGENCY | | | | | |
| <input type="checkbox"/> | FAA FORM 3550, MEDICAL EXAMINER'S REPORT | | | | | | |
| <input type="checkbox"/> | PATHOLOGICAL AND/OR TOXICOLOGICAL REPORT | SIGNATURE | | | | | |
| <input type="checkbox"/> | OTHER | | | | | | |



| AIRCRAFT ACCIDENT DATA REPORT | | | Reports Identification Symbol FS 8020-25 | |
|---|----------------|---|---|----------|
| PART III - AIRCRAFT ACCIDENT REPORT | | | | |
| AIRCRAFT MAKE AND MODEL | REG. MARK | LOCATION OF ACCIDENT | DATE OCCURRED | |
| NOTIFICATION RECEIVED IN FLIGHT STANDARDS | | | | |
| DATE | TIME | FROM | BY | |
| 1. FAA RESPONSIBILITIES | | | | |
| 2. CORRECTIVE ACTION TAKEN OR UNDERWAY | | | | |
| 3. RESUME OF RECOMMENDATIONS MADE | | | | |
| 4. FAA MANPOWER EXPENDED BY THOSE ACTIVELY PARTICIPATING IN THE INVESTIGATION | | | | |
| FLIGHT STANDARDS | NO. OF PERSONS | MANHOURS | OTHER ORGANIZATIONAL SEGMENTS | MANHOURS |
| OPERATIONS | | | AIR TRAFFIC | |
| MAINTENANCE | | | AIRPORTS | |
| ENGINEERING | | | AVIATION MEDICINE | |
| FLIGHT INSPECTION AND PROCEDURES | | | SYSTEMS MAINTENANCE | |
| TOTAL | | | TOTAL | |
| DATE | OFFICE | SIGNATURE OF ACCIDENT INVESTIGATOR/ COORDINATOR | | |

PART E — INVESTIGATION REPORT

CHAPTER III

REPORT CONTENT

The various types of reports associated with aircraft accident investigation and reporting were mentioned in Chapter II. This chapter will explain the composition of those reports.

1. Accident Report

The **Accident Report** includes the Board's official public statement of the facts, an analysis of these facts, and a statement of *probable cause*. The format used in the **Accident Report** is that adopted by the International Civil Aviation Organization (ICAO). The Board uses this format for the reporting of catastrophic air carrier accidents and those accidents having widespread public interest. Since the United States is signatory to ICAO, the Board elected to adopt the format contained in ICAO Annex 13 as the official **Accident Report** format. The ICAO Annex 13 report format is included in this chapter.

Two attachments are included with the ICAO Annex 13 report format. These attachments do not constitute a part of Annex 13 **Aircraft Accident Inquiry**, but the material contained therein is intended to assist in the application of the Annex. Attachment A defines serious injury and substantial damage. Both of these definitions have been adopted by the Board, and are used in the Board's classification of accidents and incidents involving civil aircraft of the United States, either in the U.S., or on foreign soil.

Attachment B is a summary of the organization of an accident investigation. It contains a brief introduction to aircraft accident investigation and a more detailed description of the function of the various groups involved in a *Team* type investigation.

The Board, in the interest of making their **Accident Report** more inclusive and explana-

tory, has adopted a policy of adding additional attachments to the report. Typical additional attachments may include such information as a comparison of the flight track described by witnesses versus the flight recorder trace, a photograph of a significant instrument or component, or an explanation of the flight recorder readout.

It is significant that the **Accident Report** is the only public Board report that contains both a factual and an analysis section. Usually, any Board reports associated with aircraft accident investigation are written in two parts, a factual and an analysis. Only the factual section is intended for public release, while the analysis is for within-Board use.

2. Group Chairman Report

Every Bureau of Aviation Safety *Team* investigation involves Central Investigation Division personnel who head the various *Team* groups. Each of these investigative specialists prepares a **Group Chairman Report**. Part I of the report contains those facts, conditions, and circumstances found within the scope of a specific investigative area. Notes taken by a member of the group during the field phase of the investigation aid the Group Chairman in preparing the report.

Group Chairman Reports become a part of the official accident investigation file, and are also made Public Hearing exhibits. The uses of these reports make it essential that the reports thoroughly and accurately reflect the group investigative activities.

Part II of the **Group Chairman Report** is an analysis of the known facts. The known facts contained in Part I plus those additional facts elicited at the Public Hearing supply the ma-

material to be analyzed. **Part II** is an analysis of the facts, and a discussion of the part they played in causing the accident.

3. Report of the Investigation

Thousands of civil aircraft accidents occur annually in the United States. Less than one percent of these accidents are investigated using the *Team* concept. The remainder are investigated by and reported on, in most cases, by a single investigator. His **Report of the Investigation** is intended as a complete and permanent record of the facts, conditions, and circumstances surrounding an aircraft accident. This report is prepared in two parts, a factual and an analysis, and is composed of a completion-type report form and supplemental attachments. Examples of the completion-type format are contained in Figs. E II-2 through 5.

Attachments to the completion-type form of the **Report of the Investigation** may include such documents as witness statements, diagrams of the aircraft's structure or systems, technician reports, photographs, an ATC packet or any other document that the IIC feels will improve the quality of the report and make it more readily understood.

The **Report of the Investigation** is prepared exclusively by the IIC of the accident investigation. He may, however, elect to include with his report, the reports of technical specialists, but the IIC remains as the investigator responsible for the report contents.

The completion-type reporting form used by the Bureau of Aviation Safety (BAS) and FAA provide special supplements for specific types of accidents such as midair collisions, and accidents involving aerial applicators. These supplements allow the investigator to report spe-

cific facts unique to these two types of accidents.

4. Technical Specialist Report

During the conduct of an aircraft accident investigation a field investigator may require the assistance of a BAS technical specialist. The technical specialist will prepare a two-part report covering only his technical area, i.e., structures, systems, powerplants, air traffic, etc.

Part I of the report lists the facts found within the field of the technical specialist. The specialist may describe a spar separation, or he may report his findings concerning the operation of a hydraulic pump or system. He may describe the particular test equipment used and what facility assisted in conducting the test.

Part II of the report consists of an analysis of the facts in Part I and their significance relative to the accident.

The **Technical Specialist Report** may supplement his report with photographs, system diagrams, structural plans, etc.

5. Briefs of Accidents

This report is composed of that essential information determined to fulfill the requirements of the majority of persons reading the report. *Briefs* are prepared by the Accident Evaluation Branch, Field Investigation Division of the Bureau of Aviation Safety. Information reflected in the *Briefs of Accidents* is extracted from the **Report of the Investigation**, prepared by the IIC.

6. FAA Reports

FAA report content cited in chapter II paragraph 6.

PART E — INVESTIGATION REPORT

CHAPTER IV

PREPARATION OF THE REPORT

NTSB and FAA policy, in the preparation of reports associated with aircraft accident investigations, requires that fact and opinion be separated. The only report which could be interpreted as a deviation from this policy is the **Accident Report**. In this instance, one report, containing both fact and analysis, is published with the Board's official statement of *probable cause*. It contains three sections:

1. Investigation
2. Analysis and Conclusions
3. Recommendations.

The **Accident Report**, although based on facts contained in **Group Chairman Reports**, plus those elicited at the Public Hearing, is the only report which also makes public an *analysis* of these facts.

The **Report of The Investigation**, the **Group Chairman Report**, and the **Technical Specialist Report** all adhere to the policy of preparing reports intended for public release in two parts. Part I is released to the public, while Part II is intended for within-Board use. One additional Board report-writing policy has not been previously discussed. This is the requirement that accident investigators apply the principles of technical writing to their accident reports.

1. General Principles and Procedures

Aircraft accident investigation report writing is a unique adaptation of technical report writing. Most technical reports present a series of facts or findings, analyze them, and then proceed to discuss the significance of the facts or findings; conclusions are drawn and various possibilities are discussed. This process usually evolves within a single report. The report of

the aircraft accident investigation, however, departs from the technical single report. It is prepared in two separate parts: a **factual** which is intended for public release, and an **analysis** which is intended for within-agency use.

The NTSB and FAA have adopted most of the principles of technical report writing, but have maintained the two-part report. The adoption of technical report writing principles was intended as a means of improving accident investigation report quality. The report writer can now visit any library, obtain books on technical report writing, and apply tried and proven technical report writing principles to accident investigation report writing. One rule must be kept in mind in comparing technical writing and accident reporting, *fact and analysis must be separated in the aircraft accident report*.

The following principles of technical report writing are those deemed particularly applicable to aircraft accident investigation report writing.

- a. *Convey an attitude of impartiality:* It is not the responsibility of the aircraft accident report writer to fix blame. He merely reports the facts. His report of the investigation should not champion the cause of the pilot or the manufacturer, nor should it reflect the sympathies of anti-aviation groups who advocate noise abatement, steeper approaches, isolation of airports, etc.
- b. *Write objectively:* The accident report is prepared in two parts, the **factual** and the **analysis**. The **factual** must be objective. The facts, conditions, and circumstances are recorded by the investigator just as he discovers them. The significance of the facts or their relevancy to the acci-

dent are not dealt with in the **factual**, e.g.: "The right wing of the aircraft was found 1000 ft. from the site of the main wreckage, confirming an inflight separation."

The previous example should have a period after the word *wreckage*; *confirming an inflight separation* is a conclusion and is subjective rather than an objective statement. Any analysis, conclusion, or opinion should be reserved for the analysis section of the report.

- c. **Write clearly:** This is the continual cry of supervisors, editors and readers of accident reports. Why is the report content clear to the writer but not always to the reader? Reasons for this are many:
- (1) The writer omits bits of obvious information that to him are understood.
 - (2) The writer fails to lead the reader through the investigation. The reader was not at the accident site and did not participate in the investigation, so it is the writer's responsibility to present a word picture of the investigation.
 - (3) One means of achieving clarity is through the write-rewrite, read-reread process. The writer should allow his report to stand for a day or more following its completion. It should then be given a critical review to insure that the report conveys the intended meaning. Soliciting the comments of another investigator often pinpoints ambiguous report sections. Comments of another investigator should be accepted as constructive and not as personal criticism.
 - (4) Clarity in report writing can be enhanced through reporting sequentially. The *History of Flight*, for example, should describe the flight sequentially from start to finish. Placing events out of sequence tends to mislead the reader.
- d. **Write precisely:** Select the exact word which best describes accident site findings. Avoid the use of indefinite terminology,
- e.g.: "Damage to the aircraft *appeared* to be the result of impact loading."
- "An examination of the propeller *indicated* that the engine was developing power at the time of impact."
- "It was *presumed* that the aircraft started to cartwheel after striking the left wingtip; there was chordwise accordion damage to the leading edge of the right wing."
- Words such as *appeared*, *indicated*, *presumed* are not precise enough for the **factual** report. The investigator must report evidence found and not that which *appeared*, *seemed*, or was *presumed* to have been.
- e. **Avoid ambiguity:** Aircraft accident report investigation findings must be subject to only one interpretation, e.g.:
- (1) "Investigators questioned the fixed base operator whose chief mechanic had quit after lunch". Was the questioning done after lunch, or was this when the chief mechanic quit?
 - (2) "The pilot reported over the outer marker inbound at 0123Z, but failed to report his altitude, which is standard operating procedure." Is the standard operating procedure not to report altitude when reporting over the outer marker inbound?
 - (3) "Examination of the cabin attendant showed that she received impact injuries to the rib cage and back which would have precluded opening of the rear exit."
 - (4) "The pilot experienced difficulty with the left main landing gear warning light. Maintenance determined the source of the difficulty was due to incorrect wiring of the light socket at Washington National Airport." Obviously the writer is referring to incorrect wiring of the plane's left main landing gear warning light socket and not a socket at Washington National. Sentences such as this distract the reader and serve to degrade the accident report.

E IV — PREPARATION OF THE REPORT

f. *Write coherently:* Disorganized writing reflects a disorganized mind. The following are examples of incoherent writing.

- (1) "During the examination of the engine, the mechanic, while disconnecting the brass fitting of the gas line to the carburetor, with very little pressure, had the fitting break."
- (2) "The observer's altitude estimates varied from 50 to 100 ft., however, the airplane struck a fence prior to final impact."
- (3) "Impact occurred in a parking lot at an elevation of approximately 400 ft., owned by the airport operator."
- (4) "I think it will rain, however, no clouds are showing yet, therefore I will take my umbrella." What the writer probably intended was "Although no rain clouds are showing, I think it will rain, therefore I will take my umbrella."

g. *Use the straight descriptive narrative* which avoids personality clues, flowery descriptions, and human interest items. It's commendable to read a novel, book, or short story and be able to recognize the style as being that of Poe, Runyon, Hemingway, or Churchill. A recognizable style is not desirable in writing reports of aircraft accident investigations. The reader should be aware of the style as that typical of technical report writing.

Clues to the writer's personality or prejudices should not be apparent to the reader, e.g.: "Witnesses reported seeing the aircraft trailing smoke and descending steeply over the city. The plane reportedly leveled off over the populated area and subsequently crashed in the lake. The pilot is to be commended for his prudent action in guiding the aircraft to an open area." The previous sentence could lead a reader to believe that the writer feels the pilot did a good job, when in fact what occurred was perhaps negligence by the pilot in failing to preflight the aircraft.

Flowery descriptions and the indiscriminate use of adjectives and adverbs are not in keeping with acceptable aircraft accident report writing, e.g.:

"The accident occurred at twilight on a cold, bleak, ominous promontory with only the gulls and marine life bearing witness."

"The wind howled and the snow swirled about the mock-up which the Structures Group had so laboriously constructed in the cavernous expanse between the hangars."

h. *Write to express not to impress:* Explain the complicated in such a way that it becomes elementary. Frequently aircraft accident investigation reports delve into complicated areas dealing with advanced aerodynamics, metallurgy, or the operation of an aircraft system. The report need not be written to be understandable to a child, but it should be readily understandable to the reader who has a purpose in reading the report. *Write to express not to impress.*

i. *Short versus the long word:* Where aviation terminology calls for a long well-defined word, use it. The report cannot be written limiting the vocabulary to words of two syllables. A long, obscure word should be avoided when a short, familiar choice would serve, e.g.:

Peruse vs read

Clandestine vs secret

Hygrosopic nuclei vs dust

Terminology vs words

Subsequently vs after

True facts vs facts

Completely destroyed vs destroyed

Necessary requirements vs requirements

Absolutely complete vs complete

Consensus of opinion vs consensus

j. *Interest via suspense:* Avoid the technique of the novelist who arouses interest by creating suspense. Few reports of aircraft accident investigations are read for pleasure. Sequential description of the investigation will hold the interest of the reader who seeks information from the report rather than amusement.

- k. *Sentence length*: Short sentences are more easily understood than long sentences. This does not mean that the report should consist entirely of simple sentences. Long sentences are acceptable if understandable. Any sentence which must be read and re-read to be understood is too long.
- l. *Scientific style*: The subtle, factual, scientific method of presenting the facts lessens the possibility of style distracting the reader. This style offers the reader maximum opportunity to grasp the significance of the facts. The writer of the report of the aircraft accident investigation should not prejudice the reader. Assume that the reader is intelligent but uninformed, and give him the privilege of weighing the facts and making his own decision.
- m. *Don't explain the obvious*: Avoid wasting the time of the reader with extraneous, irrelevant data. Self-evident information tends to mislead the reader and may cloud the causal area. When the investigator stereotypes his report and religiously prepares one page on each area investigated, how is the reader to single out the area of primary significance?

The following is out of context but will serve as an example of *explaining the obvious*: "Flight X departed the gate at 2200 and was airborne at 2206 on an instrument flight plan. Captain Brown occupied the left-hand pilot seat, First Officer Black was in the right-hand pilot seat, Second Officer Green was in the Flight Engineer seat located between the two pilot seats and aft of the control pedestal, and Captain White occupied the jump seat located aft of the right-hand pilot seat."

Why waste the time of the reader with a detailed seating plan when the statement "Captain Brown was flying the aircraft from the left seat" would be adequate?

Superfluous information falls in the same category as explaining the obvious. Contrary to popular belief, the weight of the accident report does not have to equal the certificated gross weight of the aircraft.

The following paragraph leads the reader to the conclusion that this is a landing or takeoff accident where runway dimensions, construction, and location play a significant part.

"Runway 35 runs approximately due north and south; it is 5,387 ft. long and 150 ft. wide. The equally-spaced runway lights are 200 ft. apart and are positioned 10 ft. outboard of the paved runway surface. Runway 35 has a macadam surface with concrete overruns at each extremity. The surface is five years old and shows evidence of frequent patching and repair."

(The probable cause of this accident was: "Failure to remove rudder batten prior to takeoff.")

- n. *Keep reader in mind*: Write the report with the reader in mind. Remember that the reader did not participate in the investigation. The report should convey a word picture of the findings as though the reader was collecting the information in person.
- o. *Use an outline*: An outline is a common-sense approach to any kind of writing. Five or ten minutes spent in the preparation of an outline will reward the writer many times over in achieving report readability and organization.
- p. *Use balanced construction*: Subjects of equal importance should be given equal coverage. Should the accident warrant a lengthy description of the left wing structural damage, the right wing damage description should not be merely "right wing was also damaged."
- q. *Substantiate*: Substantiate the facts, conditions, and circumstances via documentation. The factual part of the aircraft accident investigation report is intended as a public document and it is also used in statistical analysis. These two intended uses of the report require substantiation of the facts, e.g.: Any statement that "there was no evidence found of failure or malfunction prior to impact" should be re-

stricted to wreckage, which (because of its condition) *provided evidence* to support the statement. Evidence may be substantiated through the use of supporting documents, technical reports, aircraft and pilot records, photographs, or other documentation, e.g.:

- (1) The altimeter hands, face, and internal mechanism were distorted and burned. No readings were available. (See photograph of altimeter.)
 - (2) Both the right and left wing fuel cells were ruptured. The soil directly beneath the ruptured fuel cells was damp, and it bore the order and color of the fuel which was drained from cells of both tanks. The drain cocks were examined and operated as designed. Gasoline was found in the line from the wing tank to the cockpit selector and in the line from the selector to the carburetor.
 - (3) The existence of icing conditions was confirmed by the U.S. Weather Bureau. Witnesses in the immediate vicinity of the crash reported hazardous driving conditions, ice on windshields, and ice visible on tree limbs and electrical wires. Pieces of ice found at the crash site matched the leading edge contour of the horizontal stabilizer and the wings. (See enclosed U.S. Weather Bureau exhibit.)
- r. *Fact vs analysis:* While the elimination of analysis, opinion, and conclusion is not a tenet of technical writing, it is mandatory in writing the factual report of the aircraft accident investigation. Avoiding analytical statements in the factual would appear to be a relatively simple task, but random sampling of accident reports disproves this. The problem appears when a conscientious investigator feels he must not only acquaint the reader with the facts, but must also explain their significance. Some investigators believe that analytical statements are permissible in the factual if the investigator can convince himself of how

a break occurred, how heat discoloration resulted, or that all damage resulted from the crash impact. Bear in mind that the reader has only the cold written word available, and he may not be so easily convinced.

The following examples of analytical writing were extracted from factual reports of aircraft accident investigations.

- (1) "The hydraulic pump had been exposed to the ground fire. The rear cover was removed and the fluid found to be jellied to cup-grease consistency by the externally-applied heat. The fluid had changed color from the normal purple to a yellowish-gray. The top surface of the valve plate was blackened over 75% of its area."

How was the investigator able to confirm that the externally applied heat caused the "jellied cup-grease consistency"?

How was it confirmed that the fluid changed color? Perhaps it was this color when originally inserted.
- (2) "Tree limbs sharply severed by the propeller blades were found at the point where witnesses reported tree contact."

It is a fact that severed tree limbs were found at the point where witness reported tree contact, but it is also possible that these limbs were severed by a local resident with a chain saw.
- (3) "The engine was separated from the fuselage at impact."

A statement such as this should not be in a factual report unless the investigator happened to be an eyewitness to the accident, and saw the engine separate from the structure.
- (4) "The engine was thrown 75 feet up the slope from the point where the fuselage struck the ground."

Analysis could have been avoided in this instance by stating that: "The engine was located 75 feet up the slope, etc."

- (5) "The wreckage scatter pattern indicated an in-flight separation."

Describe the wreckage location, but allow the reader to form his own opinion as to the significance of the scattered pieces.

- (6) "There were large indentations (marks-furrows) in the terrain caused by impact."

Granted, these (marks-furrows) were caused by impact, but was it from the aircraft? Could damage to aircraft structure be matched and mated with ground scars?

- (7) A popular analytical statement guaranteed to insure the eventual subpoenaing of an investigator as an expert witness is: "Damage to the propeller indicated that the aircraft engine was developing power at the time of impact."

The investigator's job is to prepare a report of the facts, not to analyze them in the report of the aircraft accident investigation. Describe the damage to the propeller, how it was scarred or scratched, where and how it was bent or distorted, whether pieces of it were missing, and if it was separated from the shaft, but do not interpret propeller damage as an indication of power development at the time of impact.

Discussion would be incomplete without a few words relating technical writing to grade school grammar. Why is it necessary for an aviation technical expert to concern himself with the tedium of acceptable writing? Is it not enough that the aviation expert has con-

ducted a thorough investigation and confirmed a cause? Why must he prepare a report like a school boy?

A number of commonsense answers to these questions are:

- a. Report writing is a part of the accident investigator's job and the cost of employing a staff of technical report writers is prohibitive.
- b. A correct record of the accident investigation is desirable for accident prevention studies.
- c. A report of the facts, conditions, and circumstances is required by the Federal Aviation Act.
- d. Correct spelling, grammar and punctuation are established conventions in our society, like table manners they —
 - help keep the respect of the reader.
 - are essential for effective understanding and communication.
 - improve the quality of the report.
 - reflect the attitude of the writer toward his position.
- e. Employee capability is often judged on the quality of written reports. Superior investigative performance may be momentarily recognized at the site, but the written report of the investigation remains as the only permanent official record. All supervisors cannot visit the accident site. They must rely on the written report of the investigator to reflect the facts, and the quality of the investigation.

PART E — INVESTIGATION REPORT

CHAPTER V

PROCESSING THE AIRCRAFT ACCIDENT REPORT

1. Coding and Analysis

The coding and analysis of the Report of the Accident Investigation is accomplished by the NTSB and FAA. The NTSB analyzes accident reports to determine probable cause. The FAA analyzes accident reports to determine whether or not any FAA personnel, facilities or responsibilities were involved in the accident.

The original of all accident reports involving civil aircraft of U.S. registry is retained by the NTSB. The report information is analyzed and a probable cause assigned. Accident report data such as: aircraft type, total airframe hours, time since overhaul, engine make and model, engine hours, human factors data, meteorological data, crew history, etc., is coded and placed in an automatic data processing system. All computerized information is available to both government and non-government personnel. The Board uses this information in safety promotion studies, accident prevention research, and various NTSB statistical reports.

Safety studies are conducted by both government personnel and the public, using data available from accident reports. Safety Alert Bulletins based on accident report data are disseminated throughout the aviation community. Hazardous aviation practices are published, concerning such problems as:

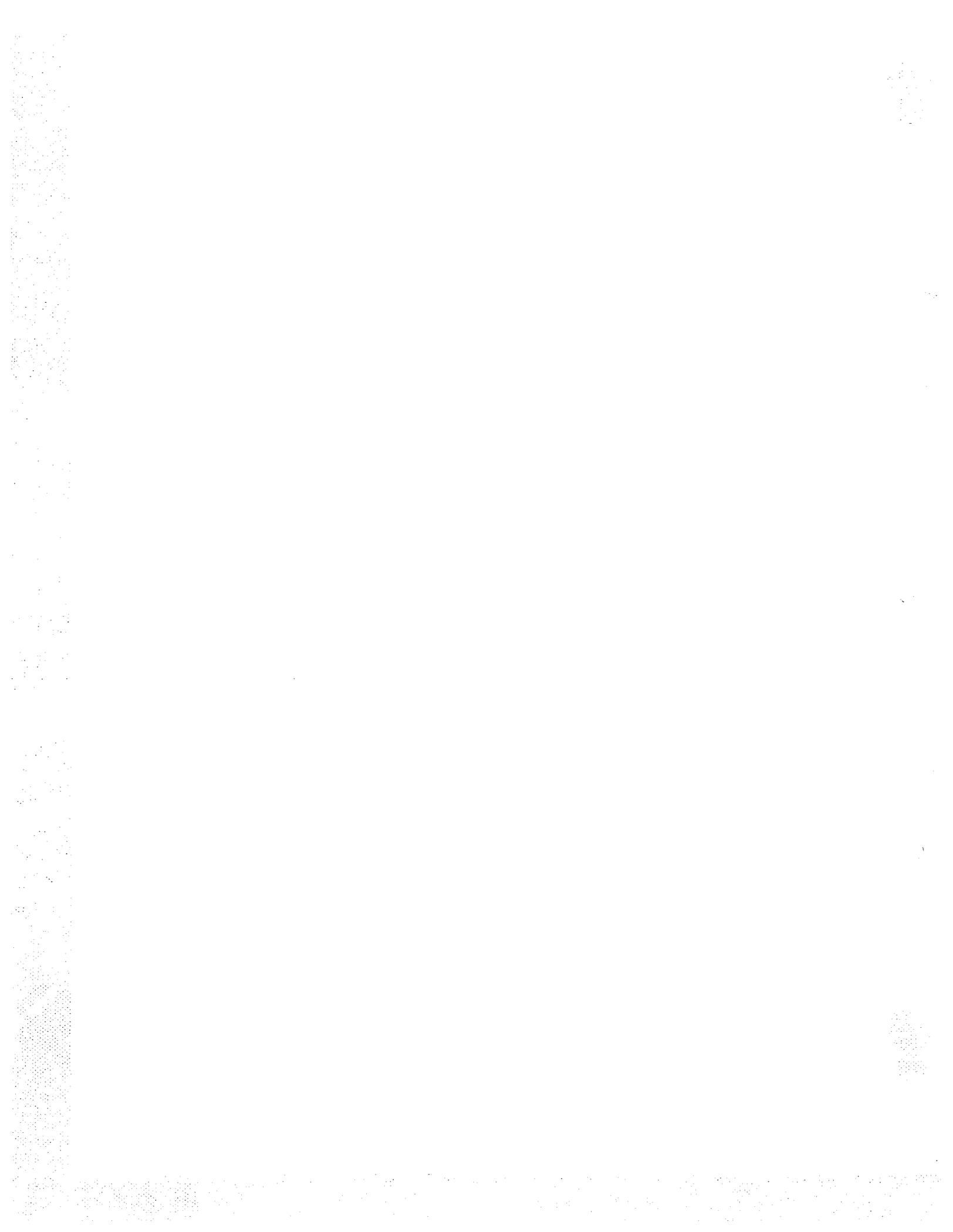
| | |
|------------------|----------------------------|
| Wake turbulence | Marginal weather |
| Buzzing | Alcohol and flying |
| Low aerobatics | Pilot physical limitations |
| Ground jet blast | Hydroplaning |

Advisory Circulars, General Aviation Inspection Aids, safety editorials, formal Board releases, Briefs of Accidents, and special studies are distributed to the aviation public.

Most available accident prevention information exists because an investigator included it in his aircraft accident investigation report.

2. Availability

The factual section of all aircraft accident reports (Group Chairmen Reports; Report of the Investigation) are intended as public documents, and copies may be requested from the NTSB Administrative Operations Division, Accident Inquiry Section, Washington, D.C. 20591. There is a nominal copying charge. Formal Board releases of catastrophic accidents (Accident Reports, and Briefs of Accidents) are available to the public by annual subscription or by single copy from: National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151.



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