

UNITED STATES OF AMERICA  
NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: February 4, 1972

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD  
at its office in Washington, D. C.  
on the 15th day of December 1971

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FORWARDED TO: )  
Air Line Pilots Association )  
Air Transport Association of America )  
Allied Pilots Association )  
National Air Carrier Association )  
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SAFETY RECOMMENDATION A-72-11

The National Transportation Safety Board conducted a special study in the Pacific area to review meteorological, communications, and air traffic control facilities and services of the United States, as well as those of other countries. As a part of the special study, the staff members involved rode in the cockpits of various U.S. air carrier aircraft on regularly scheduled flights and discussed with flightcrews their views on the myriad facilities, services, and procedures in the Pacific area. In order to improve operating conditions over the Pacific for all flights, we would like you to know that we are transmitting, to various agencies, a number of safety recommendations.

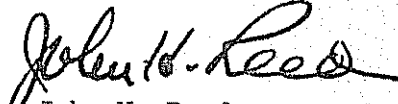
Discussions with personnel of the International Forecast Office at Honolulu brought to light a problem they are having which concerns meteorological information derived from in-flight pilot reports. It appears that little if any weather information, except wind and temperature data, is being received from civilian aircraft as compared with that from military flights. Since such information is helpful to the meteorologist in updating himself in order better to serve the man in flight, it would certainly benefit all concerned if additional information could be made available.

Accordingly, the Safety Board is soliciting your assistance by recommending:

Bringing to the attention of your members operating in the Pacific, the desirability and importance of including in Section 3 of their air reports, supplementary information which is authorized under Item 12 of the recording and reporting instructions of the AIREP form, a copy of which is enclosed for your convenience.

This recommendation will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date.

Reed, Chairman; Laurel, McAdams, Thayer and Burgess, Members, concurred in the above recommendation.



By: John H. Reed  
Chairman

Enclosure

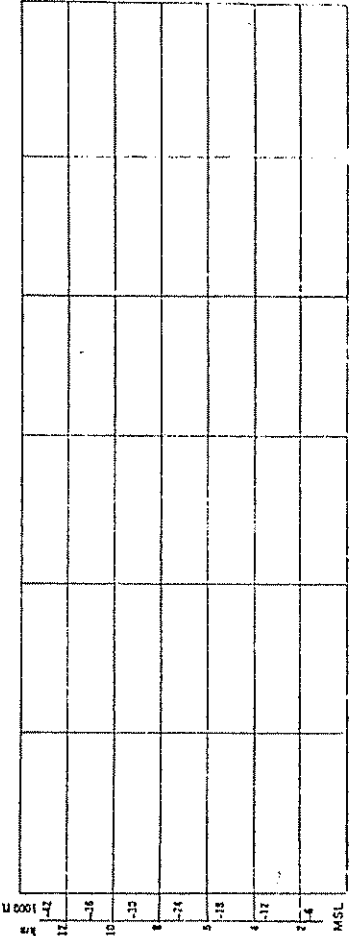
# ATTACHMENT B. — MODEL FOR RECORDING AND REPORTING IN THE AIREP FORM OF AIR-REPORT

MODEL AR AIRREP

Company..... Flight No..... Captain..... Dep. from..... Time..... GMT  
 Arr. at..... Date..... Time..... GMT

1	Aircraft identification			
2	Position			
3	Time			
4	Flight level or altitude			
5	Next position and time over			
6	Estimated time of arrival			
7	Endurance			
8	Air temperature			
9	Spot wind or mean wind and position thereof			
10	Turbulence			
11	Aircraft icing			
12	Supplementary information			
Time transmitted				

PICTORIAL CROSS-SECTION\*\*



**SYMBOLS**

RAIN	ICE	WATERFOOT	SEVERE TURBULENCE
FREEZING RAIN	PELLETS	ICE	TURBULENCE
SNOW	SNOW AND RAIN MIXED	SNOW	SEVERE TURBULENCE
SNOW AND RAIN MIXED	SNOW	SNOW	SEVERE TURBULENCE
SNOW	SNOW	SNOW	SEVERE TURBULENCE
SNOW	SNOW	SNOW	SEVERE TURBULENCE
SNOW	SNOW	SNOW	SEVERE TURBULENCE
SNOW	SNOW	SNOW	SEVERE TURBULENCE
SNOW	SNOW	SNOW	SEVERE TURBULENCE
SNOW	SNOW	SNOW	SEVERE TURBULENCE

\*\*Information entered on this pictorial cross-section is intended to supplement the observations recorded on this form when, in the opinion of the pilot-in-command, a graphical representation will adequately amplify or assist in clarifying the observations recorded elsewhere on this form.

<p>RECORD as appropriate:</p> <p>1. Aircraft identification</p> <p>2. Position (latitude/longitude) OVER (ASX place)</p> <p>3. Time</p> <p>4. FL number</p> <p>5. ALT (altitude/M or FT)</p> <p>6. IAS (FL number or altitude/M or FT)</p> <p>7. DES (FL number or altitude/M or FT)</p> <p>8. Next position (time)</p> <p>9. ETA (large time)</p> <p>10. Hours</p> <p>11. PS (degrees)</p> <p>12. MS (degrees)</p> <p>13. Direction (knots)</p> <p>14. Turbulence (altitude)</p> <p>15. TURB MOD</p> <p>16. TURB SEV</p> <p>17. ICE MOD</p> <p>18. ICE SEV</p> <p>19. SN</p> <p>20. SN</p> <p>21. SN</p> <p>22. SN</p> <p>23. SN</p> <p>24. SN</p> <p>25. SN</p> <p>26. SN</p> <p>27. SN</p> <p>28. SN</p> <p>29. SN</p> <p>30. SN</p> <p>31. SN</p> <p>32. SN</p> <p>33. SN</p> <p>34. SN</p> <p>35. SN</p> <p>36. SN</p> <p>37. SN</p> <p>38. SN</p> <p>39. SN</p> <p>40. SN</p> <p>41. SN</p> <p>42. SN</p> <p>43. SN</p> <p>44. SN</p> <p>45. SN</p> <p>46. SN</p> <p>47. SN</p> <p>48. SN</p> <p>49. SN</p> <p>50. SN</p> <p>51. SN</p> <p>52. SN</p> <p>53. SN</p> <p>54. SN</p> <p>55. SN</p> <p>56. SN</p> <p>57. SN</p> <p>58. SN</p> <p>59. SN</p> <p>60. SN</p> <p>61. SN</p> <p>62. SN</p> <p>63. SN</p> <p>64. SN</p> <p>65. SN</p> <p>66. SN</p> <p>67. SN</p> <p>68. SN</p> <p>69. SN</p> <p>70. SN</p> <p>71. SN</p> <p>72. SN</p> <p>73. SN</p> <p>74. SN</p> <p>75. SN</p> <p>76. SN</p> <p>77. SN</p> <p>78. SN</p> <p>79. SN</p> <p>80. SN</p> <p>81. SN</p> <p>82. SN</p> <p>83. SN</p> <p>84. SN</p> <p>85. SN</p> <p>86. SN</p> <p>87. SN</p> <p>88. SN</p> <p>89. SN</p> <p>90. SN</p> <p>91. SN</p> <p>92. SN</p> <p>93. SN</p> <p>94. SN</p> <p>95. SN</p> <p>96. SN</p> <p>97. SN</p> <p>98. SN</p> <p>99. SN</p> <p>100. SN</p>	<p>SAY:</p> <p>1. POSITION</p> <p>2. FLIGHT LEVEL</p> <p>3. ALTITUDE</p> <p>4. CLIMBING TO</p> <p>5. DESCENDING TO</p> <p>6. NEXT POSITION</p> <p>7. ESTIMATING ARRIVAL</p> <p>8. ENDURANCE</p> <p>9. PLUS</p> <p>10. MINUS</p> <p>11. AT</p> <p>12. TURBULENCE MODERATE</p> <p>13. TURBULENCE SEVERE</p> <p>14. ICING MODERATE</p> <p>15. ICING SEVERE</p> <p>16. RAIN</p> <p>17. SNOW</p> <p>18. FREEZING RAIN</p> <p>19. WATERFOOT</p> <p>20. THUNDERSTORM</p> <p>21. FRONT</p> <p>22. SCATTERED</p> <p>23. BROKEN</p> <p>24. CONTINUOUS</p> <p>25. CUMULONIMBUS</p> <p>26. BASE FLIGHT LEVEL</p> <p>27. TOP FLIGHT LEVEL</p> <p>28. TURBULENCE MODERATE</p> <p>29. ICING MODERATE</p> <p>30. D-VALUE PLUS</p> <p>31. D-VALUE MINUS</p> <p>32. AT</p>
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To be used also for transmission in telephony (including teletypewriter).  
 (Precise identification by "AIREP SPECIAL", if relevant.)

RECORDING AND REPORTING INSTRUCTIONS — AIRREP

Item 10 — **TURBULENCE (TURB).** Record and report severe turbulence (SEV) as soon as practicable after occurrence. THIS REQUIRES AIRREP SPECIAL. Record moderate turbulence (MOD) if encountered within 10 minutes prior to reaching position in Item 2, if turbulence is reported in cloud add: INC. Omit if only light or no turbulence is observed.

The following specifications apply:  
 Moderate — There may be moderate changes in aircraft attitude and/or altitude but the aircraft remains in positive control at all times. Usually, small variations in air speed. Changes in acceleration meter readings of 0.5 g to 1.0 g at the aircraft's centre of gravity. Difficulty in walking. Occupants feel strain against seat belts. Loose objects move about.

Severe — Abrupt changes in aircraft attitude and/or altitude. Aircraft may be out of control for short periods. Usually large variations in air speed. Changes in accelerometer readings greater than 1.0 g at the aircraft's centre of gravity. Occupants are forced violently against seat belts. Loose objects are tossed about.

Item 11 — **AIRCRAFT ICING (ICE).** Record and report severe icing (SEV) as soon as practicable. THIS REQUIRES AIRREP SPECIAL. Record moderate icing (MOD) when encountered within last 10 minutes. Omit if light or no icing is observed.

The following specifications apply:  
 Moderate — change of heading and/or altitude may be considered desirable.

Severe — immediate change of heading and/or altitude considered essential.

Item 12 — **SUPPLEMENTARY INFORMATION.** Record requested data or data which in the opinion of the pilot-in-command are of aeronautical interest. The following are examples as guidance:

- Rain (RA)
- Snow (SN)
- Freezing rain (FRZ)
- Waterspout (WTSPT)
- Tornado (TO)
- Thunderstorms on or near flight path (TS)
- Front (FRONT)

Heights (FL) of cloud bases, and/or tops (BASE/TOP) that can be accurately ascertained (especially cumulonimbus (CB)) and the amount of these clouds (scattered (SCT) if clear intervals predominate, broken (BKN) if cloud masses predominate or continuous (CNS)).

Moderate turbulence or moderate overall icing observed prior to the last 10 minutes. (TURB MOD, ICE MOD).

D-value — reading of radio altimeter minus reading of pressure altimeter set to 1013.2 mb and corrected for calibration and position error, the difference being recorded (PS or MS) in metres or feet.

Operationally significant weather radar echoes (echo at echo line), true bearing of centre of echo or line and distance from aircraft in nautical miles; if appropriate, indicate whether intensifying or weakening and whether no gaps or some gaps or frequent gaps are observed.

Significant differences between conditions encountered and those forecast for the flight, e.g., forecast thunderstorms not observed at freezing rain not forecast.

If the position of the phenomenon reported is not the same as the position given under item 2, report it after the phenomenon.

TIME TRANSMITTED. Record only when Section 3 is transmitted.

5. — Transmission of air-reports

5.1 Items of an air-report are reported in the order in which they are recorded on the form.

ADDRESSEE. Record station called and, when necessary, relay required.

Item 1 — **AIRCRAFT IDENTIFICATION.** Record aircraft identification as shown in the flight plan, preceded by "AIRREP SPECIAL" if relevant.

Item 2 — **POSITION.** Record position in latitude and longitude, or geographical feature or by identification of the navigational aid at the reporting point. Prefix name of reporting point by the word "obscure (ABM)" when aircraft is not immediately over the said reporting point.

Item 3 — **TIME.** Report time in hours and minutes GMT whenever Sections 1 and 3 or 1, 2 and 3 are sent. Report time in minutes past the hour when Section 1 or Sections 1 and 2 only are sent. The time reported must be the actual time of the aircraft at the position and not the time of origination or transmission. Time should always be recorded in hours GMT and minutes when making a special report.

Item 4 — **FLIGHT LEVEL (FL) or ALTITUDE (ALT).** Record flight level number when on standard pressure altimeter setting; flight level numbers are given in the Procedures for Air Navigation Services — Aircraft Operations, record altitude, in metres or feet in full when on QNH. Record "climbing to (ASC)" or "descending to (DESC)" when climbing or descending to a new level after passing the reporting point.

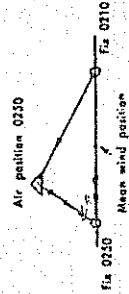
Item 5 — **NEXT POSITION AND TIME OVER.** Record next reporting point(s) and estimated time(s) over such reporting point(s) in minutes past the hour or record estimated position that will be reached one hour later, when required.

Item 6 — **ESTIMATED TIME OF ARRIVAL (ETA).** Record name of the aerodrome of first intended landing and time of arrival over this aerodrome in minutes past the hour or in hours GMT and minutes, when required.

Item 7 — **ENDURANCE.** Record fuel endurance in hours and minutes.

Item 8 — **AIR TEMPERATURE (PS or MS).** Record temperature in whole degrees Celsius, corrected for instrumental error and airspeed.

Item 9 — **SPOT WIND OR MEAN WIND AND POSITION THEREOF.** Whenever practicable record spot wind. The spot wind normally refers to the position given in item 2; when a spot wind is given for any other location, record its position. Whenever it is not practicable to record spot wind, record mean wind between fixes, followed by the word "MEAN", and the position at the mid point of the sector over which the mean wind was calculated (see diagram). Wind direction is given in degrees true and speed in knots. If wind position for either spot or mean wind is required, it is given in latitude and longitude to the nearest whole degree, and the indicators N or S and E or W are used as appropriate.



1. — Recording of routine air-reports

Section 1 is obligatory, although item 5 thereof may be omitted when prescribed in Regional Supplementary Procedures; Section 2 is added, in whole or in part, when so requested by the operator or his designated representative, or when deemed necessary by the pilot; Section 3, in whole or in part, is added in accordance with the Procedures for Air Navigation Services — Meteorology and the Regional Supplementary Procedures, Part 4 — Meteorology.

1.2 Section 3 is compiled as follows:  
 a) air temperature and wind are recorded at each time of observation;  
 b) moderate turbulence or moderate icing or both are recorded if encountered within the last 10 minutes;

c) supplementary information — such as heights of bases and/or tops of clouds that can be accurately ascertained, thunderstorms off track, frontal passage, D-value, etc., — is recorded if, in the opinion of the pilot-in-command, it is of aeronautical interest.

2. — Recording of special air-reports

2.1 Section 1 and such parts of Section 3 as are appropriate, are required from all aircraft, on all routes, as follows:

- a) whenever severe icing or severe turbulence is encountered; or
- b) whenever other meteorological conditions such as the other phenomena included under the definition of SIGMET information are encountered which in the opinion of the pilot-in-command are likely to affect the safety or markedly affect the efficiency, of other aircraft operations.

Note — The term "SIGMET information" refers to the following phenomena:

- Active thunderstorm area
- Tropical revolving storm
- Severe line squall
- Heavy hail
- Severe turbulence
- Severe icing
- Marked mountain waves
- Widespread sandstorm/duststorm.

2.2 All elements in Section 1 and those phenomena in Section 3 that warrant the special air-report are recorded in the appropriate places on the form.

2.3 Special air-reports carry the indicator "AIRREP SPECIAL" and are made as soon as practicable after a phenomenon calling for a special air-report has been observed.

2.4 If a phenomenon warranting the making of a special air-report is observed at or near the time or place where a routine air-report is to be made, a report containing the items required in routine air-reports, in addition to the phenomena warranting the making of a special air-report, is made instead. Such an air-report also carries the indicator "AIRREP SPECIAL".

3. — Recording of requested information

3.1 When aircraft observations are made in response to a request from a meteorological office or by agreement between the operator and a Meteorological Authority, they are recorded on the AIRREP form, as necessary.

4. — Use of abbreviations

4.1 Abbreviations given below in parentheses and listed in the first column on the front of the AIRREP form are used in recording by pilots in the air and by ground personnel receiving and retransmitting the report other than by voice communication.