AIRCRAFT ACCIDENT REPORT

NORTHWEST AIRLINES, INC.,
BOEING 747-151, N606US
OVER THE NORTH PACIFIC OCEAN
105 NAUTICAL MILES WEST OF 150° EAST
LONGITUDE AT 36° NORTH LATITUDE
APRIL 12, 1972
AIR CRAFT ACCIDENT REPORT
NORTHWEST AIRLINES, INC.,
BOEING 747-151, NOCUS
OVER THE NORTH PACIFIC OCEAN
165 NAUTICAL MILES WEST OF 150° EAST
LONGITUDE AT 30° NORTH LATITUDE
APRIL 12, 1972
ADOPTED: OCTOBER 4, 1972

NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D. C. 20561
REPORT NUMBER: NTSB-AAR-12-27
**Title and Subtitle** Aircraft Accident Report

**Author(s)** National Transportation Safety Board

**Performing Organization Name and Address**

National Transportation Safety Board
Bureau of Aviation Safety
Washington, D.C. 20591

**Abstract**

Northwest Airlines Flight 22, on April 12, 1977, a Boeing 747-151B, N940NW, encountered unexpected light to severe, clear-air turbulence for a period of 10 seconds while climbing at 20,000 feet on a route from Anchorage, Alaska, to Houston, Texas. There were 196 passengers and a crew of 14 aboard. Seven of the passengers received minor injuries, and two received serious injuries. Five cabin attendants received minor injuries. The aircraft was undamaged. The accident occurred at approximately 1100 Greenwich mean time.

The National Transportation Safety Board determined that the probable cause of the accident was the entry of the aircraft into an area of unexpected and unforecast severe clear-air turbulence when numerous occupants did not have their seatbelts fastened.

This accident supports previous recommendations made to the Federal Aviation Administration and to pilots associations.

**Key Words** Aircraft accidents; unexpected clear-air turbulence; seatbelts; improperly seated; unfastened seatbelts; injured persons; postcrash speed

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APRIL 12, 1972

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SPECIAL NOTICE

This report contains the essential items of information relevant to the probable cause and safety message to be derived from this accident/incident. However, for those having a need for more detailed information, the original factual report of the accident/incident is on file in the Washington office of the National Transportation Safety Board. Upon request, the report will be reproduced commercially at an average cost of 15c per page for printed matter and 95c per page for photographs, plus postage. (Minimum charge is $1.00.)

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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D. C. 20591
AIRCRAFT ACCIDENT REPORT

Adopted: October 3, 1972

NORTHWEST AIRLINES, INC.,
BOEING 747-15L, N606US
OVER INT. NORTH PACIFIC OCEAN
105 NAUTICAL MILES WEST OF 150° EAST LONGITUDE
AT 30° NORTH LATITUDE
APRIL 12, 1972

SYNOPSIS

Northwest Airlines Flight 22 of April 12, 1972, a Boeing 747-15L, N606US, encountered unforeseen severe turbulence at cruise altitude approximately 40 minutes after departure from Tokyo, Japan, while on route to Honolulu, Hawaii. There were 146 passengers and a crew of 24 aboard the aircraft. Seven of the passengers received minor injuries, and two received serious injuries. Five cabin attendants received minor injuries.

The aircraft was in level flight at 33,000 feet in smooth air when it encountered turbulence which ranged in intensity from light to severe for approximately 55 seconds. The "Fasten Seatbelt" sign was illuminated immediately when the turbulence was encountered; however, during the period of the turbulence, none of the passengers and flight attendants were thrown about in the cabin and sustained the aforementioned injuries.

The aircraft was undamaged and continued on to Honolulu where the injured persons were deplaned and hospitalized.

The National Transportation Safety Board determines that the probable cause of this accident was the entry of the aircraft into an area of unforeseen and unexpected severe clear air turbulence when some occupants did not have their seatbelts fastened.

Subsequent to the investigations of previous 747 accidents involving turbulence, the Safety Board recommended that the Federal Aviation Administration require regulatory improvements concerning seatbelt discipline, air carrier policy on deviation of flight with injured passengers, and reassessment of the required number and types of on-board first-aid kits and adequacy of their contents. Also, as the result of a special study in the Pacific area to review meteorological, communications, and air traffic control facilities and services of the United States, a recommendation was made to various pilots associations for improvement of the reporting of meteorological information in flight pilot reports.
INVESTIGATION

Northwest Airlines, Inc., Flight 22, of April 12, 1972, a Boeing 747-101, N6008, was a regularly scheduled passenger flight between Tokyo, Japan, and Minneapolis, Minnesota, with intermediate stops at Honolulu, Hawaii, and Los Angeles, California. There were 146 passengers and a crew of 16 aboard the aircraft.

The flight departed from Tokyo at 1050 G.M.T. 1/ on an Instrument Flight Rules flight plan and was cleared to climb to and maintain flight at an altitude of 33,000 feet (flight level 330). According to the crew, light turbulence was encountered during the climb to approximately 29,000 feet. At this level the aircraft was on top of an overcast. The air was smooth, the visibility was excellent, and the stars overhead were clearly visible. Lightning was observed to the left or north of the aircraft, as well as below and rearward of the aircraft. The distance from the lightning was estimated to have been at least 50 miles or more. The flight deck crew continued operating the No. 2 weather radar system with one and one-half increments of down tilt to the antenna. The climb continued to 33,000 feet where the flight leveled off at its assigned altitude.

Shortly before the flight reached the cruising altitude, the crew turned off the seatbelt sign. The purser made an announcement to the passengers, stating that although the seatbelt sign was off, for their personal safety, the passengers should leave their seatbelts fastened while in their seats.

At 1140, approximately 20 minutes after reaching the cruise altitude, unexpected flight-to-severe turbulence was encountered for a period of 55 seconds. Weather radar provided no forewarning of the turbulence. Immediately upon encountering the turbulence, the seatbelt sign was illuminated, the autopilot was disengaged, and the aircraft was flown manually by the captain. The captain experienced no difficulty in controlling the aircraft during this encounter.

At the termination of the turbulence encounter, the second officer went back to the cabin to assess the situation and reported to the captain that a total of nine passengers and five stewardesses were injured.

1/ All times are Greenwich mean, based on the 24-hour clock.
Despite the pilot’s advisory announcement, none of the injured passengers had their seat-belts fastened, although the majority of them were in their seats. The few seat-belts were standing. All those injured were located in rear cabin areas.

The two most severely injured passengers were a young boy who sustained a fracture of his left arm just above the elbow and a young girl who sustained a dislocated right shoulder. The other injured passengers and the stewardesses received bruises, abrasions, and small lacerations. The cabin was visited by the injured persons and discussed with the parents of the two most severely injured passengers the advisability of returning to Tokyo or continuing on to Honolulu. The parents requested that the flight continue on to Honolulu. Flight 22 landed at Honolulu at 1730. The injured persons aboard were taken to a hospital where they were examined and treated for their injuries.

While at Honolulu, the aircraft was given a maintenance check for turbulence damage and none was found. Following this maintenance inspection, the airplane was returned to service and continued its flight to Los Angeles, California, and Minneapolis, Minnesota.

A readout of the aircraft’s flight data recorder for the period covering the turbulence encounter disclosed that acceleration reached a maximum of +1.49 g’s and a minimum of -0.91 g’s. The duration of the turbulent period was 55 seconds. Approximate penetration values for altitude, speed, and heading were 19,000 feet, 300 KIAS, and 290° magnetic, respectively.

The gross weight of Flight 22 at takeoff was 610,000 pounds and the center of gravity was 19.6 percent of MAC (Mean Aerodynamic Chord). At the time of the turbulence encounter, the gross weight was 578,000 pounds and the center of gravity was 20.0 percent of MAC. The gross weight and the center of gravity were within allowable limits during the entire flight.

The 1300 surface weather chart prepared by the National Meteorological Center at Suitland, Maryland, showed a low-pressure system centered near the accident site, an occluded front extending eastward from the low-pressure center to near 15°N, a warm front extending east-southeastward from the point of occlusion and a cold front extending southeastward and then south-southeastward from the point of occlusion.

2/ Atticament 2 depicts the positions and degree of injury of the personnel injured at the time of the turbulence encounter.

3/ KIAS = Knots Indicated Air Speed.
The 300 mb chart (approximately 30,000 feet m.s.l.) which was prepared by the National Meteorological Center showed a low-pressure system centered over the northern Sea of Japan with troughs extending southward and southeastward from the low.

The Matsum and Sendai, Japan, 1200 radiosonde ascents showed the tropopause at 260 mb (approximately 31,000 feet m.s.l.).

The captain received a weather briefing from Northwest Airlines' Meteorological Department prior to departing from Tokyo. Additionally, he was provided with weather documents which included appropriate terminal forecasts, winds and temperatures aloft forecast, and a 300-mb prognostic chart. The prognostic chart contained the following: temperature, wind direction and speed, tropopause height and stratospheric lapse rate, vertical wind shear, turbulence, and quality of ride. A smooth ride was forecast for the area of the turbulence encounter. Where were no in-flight reports of turbulence from other flights regarding turbulence in the area in which it was encountered by Flight 22.

**Analysis**

Northwest Airlines Flight 22 was routine as it climbed out of Tokyo toward Honolulu. The climb was through an overcast where the aircraft encountered light turbulence, which the flight crew anticipated. At flight level 290, the aircraft was on top of the overcast where excellent visibility and smooth air prevailed. Twenty minutes after reaching its assigned flight level 330, it encountered severe turbulence for a very brief period of time.

Nine passengers and five stewardesses received injuries during this turbulence encounter.

The seatbelt sign was not on at the time the turbulence was encountered, but the passengers were advised to keep their seatbelts fastened while they were in their seats. All of the injuries were sustained by persons not secured by seatbelts. Most of the injured passengers were seated, but all of the injured stewardesses were standing.

Deficiencies were reported in the first-aid equipment aboard the aircraft. There were not enough large bandages nor pain-relieving medication for children, and there were no appropriate splints for immobilizing fractured limbs.

The Boeing Company's recommended severe turbulence penetration speed for the B-707 is 280 KIAS or 0.82 Mach, whichever is lower, and it is also recommended that the autopilot be used on turbulence mode. The aircraft encountered this unforecast and unexpected turbulence at approximately
300 KIAS, and the flight data recorder airspeed trace indicated that the flightcrew made every effort to reduce to turbulence penetration speed as soon as the turbulence was encountered. The captain elected to fly the aircraft manually rather than to use the autopilot on turbulence penetration mode.

The flight data recorder indicated that the aircraft was in level flight at approximately 33,000 feet when it encountered turbulence, which lasted about 55 seconds and ranged in intensity from light to severe. One brief, severe jolt produced a positive load factor of 1.32 g and a negative load factor of minus 0.91 g. The aircraft gained about 1,000 feet of altitude during the turbulence encounter. Changes in heading were minor. Upon entry into the turbulence, the airspeed increased to a peak of 418 knots, then decreased to 283 knots, increased again to a peak of 392 knots, and decreased again to 272 knots at the end of the turbulence. The characteristic sine waves exhibited in the acceleration and airspeed traces suggest that the aircraft encountered two waves in the atmosphere.

The aircraft encountered the turbulence near the tropopause, near an upper level trough, and near a jet stream, all of which are likely locations for clear air turbulence. The turbulence encountered was probably produced by gravity waves in the tropopause boundary.

A smooth ride was forecast for the area of the turbulence encounter and the aircraft’s weather radar showed no echoes which might have produced convective turbulence. None of the pilot weather reports that were reviewed pertinent to the area and time of concern indicated any turbulence; however, it appears that only wind and temperature data were being transmitted in those reports. The inclusion in those reports of information concerning turbulence and other supplementary weather data would have been very helpful to the forecaster, dispatcher, and all others concerned. The science of forecasting has not advanced to the point where accurate, clear air turbulence forecasts can be made, particularly over large oceans where meteorological data are very sparse.

DECISION CAUSE

The National Transportation Safety Board determines that the probable cause of this accident was the entry of the aircraft into an area of unforecast and unexpected severe clear air turbulence when some occupants did not have their seatbelts fastened.

RECOMMENDATIONS

Although no specific recommendations resulted from the Board’s investigation, this accident does support those previously made to the Federal Aviation Administration and pilots’ associations regarding seatbelt usage.
discipline, deviation from flight plan when injuries occur aboard aircraft, the adequacy of first-aid equipment on large aircraft, and pilots' in-flight meteorological reporting. Copies of these previous recommendation letters to the FAA, and FAA's responses, and the recommendation letter to the pilots' associations are included in Attachment ?.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

/s/ JOHN H. ROOD  
Chairman

/s/ FRANCIS H. MCADAMS  
Member

/s/ ISABEL A. WHITFORD  
Member

/s/ WILLIAM R. WISE  
Member

Louis H. Thayer, Member, was absent, not voting.

October 4, 1972
NEW INFORMATION

Captain William Hazen Arnold, aged 55, holds Airline Transport
Pilot Certificate No. 32721-40. The date of his last proficiency
check was April 18, 1972. His first-class airmen's medical certifi-
cate was dated October 20, 1971, with the limitation that he possess
corrective glasses for near vision while exercising the privileges
of his airmen certificate. Captain Arnold, at the time of the accident,
had a total of 23,378 flight hours, of which 9,532 were in the Boeing 747.

First Officer Harry L. Camp, aged 42, holds Commercial Pilot
Certificate No. 1032006 for airplane single- and multiengine land.
His last proficiency check was in May 1971. His first-class medical
certificate was dated April 16, 1971, with no limitations. He had,
at the time of the accident, a total of 4,664 flight hours, of which
1,272 were in the Boeing 747.

Flight Engineer John D. Kelley, aged 44, holds Flight Engineer
Certificate No. 1603001. His last proficiency check was on September 1,
1971. His first-class medical certificate was dated December 2, 1971,
with no limitations. He had a total of 10,872 flight hours, of which
372 were in the Boeing 747. Additionally, Mr. Kelley holds Commercial
Pilot Certificate No. 376804 for airplane single- and multiengine land
and instrument rating.
UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: April 28, 1971

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 7th day of April, 1971

FOREWORD TO:
Honorable John H. Shaffer
Administrator
Federal Aviation Administration
Department of Transportation
Washington, D.C. 20590

SAFETY RECOMMENDATION A-71-25 THROUGH 20

As a result of a recent incident involving a Boeing 747 which encountered severe turbulence, six passengers and one stewardess were hospitalized, and 15 passengers and one stewardess were treated for minor injuries. All injuries were the result of the severe turbulence encountered while climbing through flight level 280 at an indicated air speed of 290 knots.

The National Transportation Safety Board believes the following areas require review by the Federal Aviation Administration:

Seatbelt Discipline: During this accident, seatbelt signs were on throughout the flight; however, of two hospitalized passengers, one indicated she did not have her seatbelt fastened, and another had his seatbelt fastened, but it was very loose because he was not able to take up the slack of the belt. Both of these passengers were injured when their heads struck the ceiling on the initial sharp downdraft but were able to maintain their seated position during the remaining turbulence encounter.

The Safety Board recommends that:

1. Seatbelt discipline be strictly enforced when the seatbelt sign is on. Attendants should make
a careful visual inspection of all seatbelts before takeoff and offer assistance to anyone encountering difficulty with a seat belt. When the seat belt sign is on for prolonged periods, a public address announcement should be made at regular intervals.

747 Overhead Bin Failures: During this encounter with turbulence, several of the overhead storage bins in the passenger compartment dropped open, allowing their contents to spill out. It is not known if these reported failures contributed to any injuries of cabin occupants. However, the Safety Board recommends that:

3. Locking mechanisms be inspected and either be replaced with ones of a new design or the defective lock mechanisms be returned to serviceable condition by rework or repair.

3. The FAA correct any crashworthiness deficiencies in Boeing 747 overhead storage bins by establishing a deadline date for compliance with any modification requirements.

Economy Seat Headrest Separations: During this accident, several seat headrests were reported to have been thrown from their seat units. Examination of like headrests in another FAA 747 revealed that all such units tested were easily removed by hand without deactivating the lock mechanism. It is not known if these reported failures contributed to injuries, but the Safety Board recommends that:

4. FAA examine these seats with a view toward improving the crashworthiness of seats/headrests and establishing a deadline date for compliance with any modification requirements.

Narrow Aisle Stretcher: Following the abort of the flight and the landing, difficulty was encountered in removing from the aisle passengers suspected of having back injuries. This was because the aisle widths were too narrow for standard stretchers, resulting in great difficulty transferring patients from lying positions in the aisle to stretchers. The Safety Board recommends that:
5. The FAA advise medical facilities serving airports to stock narrow "carrying boards" or narrow stretchers that can be easily used in the space of an air carrier passenger compartment aisle to facilitate removal of non-ambulatory patients.

Air Carrier Policy on Deviation of Flights: Following this encounter with turbulence, the flight service director went forward to the cockpit and advised the captain that several passengers were severely injured or ill. The captain requested the service director to return to the passenger compartment and to reassess the situation. After reassessing the cabin injuries, the attendant reported to the captain a second time that several persons appeared to be severely injured. Ten to fifteen minutes elapsed between the initial report of passengers injuries and the captain's decision to divert the flight and return to his destination. The aircraft was met by the chief physician at John F. Kennedy International Airport. The Safety Board recommends that:

6. The FAA review and, where appropriate, amend air carrier policy concerning in-flight assessments of injury or illness of passengers in order to preclude unnecessary delays in securing necessary medical assistance.

Members of the Safety Board staff would be pleased to discuss these recommendations with your staff should you feel further clarification is required.

These recommendations 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.

Ivied, Chairman; Laurel, McAdams, Thayer and Burgess, Members, concurred in the above recommendations.

By: John H. Reed
Chairman
May 1971

Honorable John H. Reed
Chairman, National Transportation Safety Board
Department of Transportation
Washington, D.C. 20590

No. Action 600

Dear Mr. Chairman:

This is in reply to your communication issued 28 April 1971 concerning a safety recommendation R-71-23 that resulted from a B-747 turbulence encounter in which passengers were injured. We have carefully reviewed these recommendations and their rationale and have the following comments to offer.

Seatbelt Dispensing

PAR 121.317(b) requires that "... each passenger shall fasten his seat belt and keep it fastened while the seat belt sign is lighted." It is apparent that some passengers do not abide by this rule especially when the seat belt sign is lighted for protracted periods. We will issue an operations bulletin to all of our inspectors having certificate responsibility for air carriers and their training programs, emphasizing the importance of oral in-cab regulations and better surveillance to assure compliance with seat belt fastened commands and security. PAR 121.317(a) requires that seat belt signs be visible to all passengers.

Overhead Air Inflator

During the B-747 type certification program special attention was given to the adequacy of the latching mechanisms for the new type overhead storage bins. The investigation currently underway has revealed that the stationary latch pins in the supporting structure failed, allowing the bins to fall open under flight loads. A corrective retrofit modification has been accepted by Boeing in Service Bulletin number SB-7070. We are studying this matter and assessing the need for mandatory action.

Aircraft Seat Hardware Separation

The headrests which became separated from seats are parts of the Aerobreeze seats installed in the coach sections of Pan American's B-747s. We understand the problem is limited to those Pan American coach seats only. A corrective service bulletin is being prepared and retrofit modification parts for 14 airplanes, about 40 percent of the Pan American B-747 fleet, have been delivered. A deadline for accomplishment of the retrofit will be established as soon as details of the retrofit are finalized. No delay is anticipated.

-12-
3.

NARROW AISLE CREWING

We will include this item in our Operations Bulletin and have our inspectors require all operators that narrow stretchers be checked at each station not only for B-MF's, but all aircraft having narrow aisles.

AIR CARRIER POLICY ON DEVIATION OF FLIGHT

We will request our inspectors to review current air carrier directives and policies on this subject. Where necessary, directives will be amended, and policies developed to minimize delays in securing medical assistance for injured passengers, as recommended.

Sincerely,

[Signature]

J. B. Becher
Administrator
The National Transportation Safety Board conducted a special study in
the Pacific area to review meteorological, communications, and air traffic
central 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
sat in the cockpits of various U.S. air carrier aircraft on regularly
scheduled flights and discussed with flight crews their views on the aerial
facilities, services, and procedures in the Pacific area. In order to
improve operating conditions over the Pacific for all flights, we would like
to ask you to know that we are transmitting, to various agencies, a number of safety
recommendations.

Discussions with personnel of the International Forecast Office at
Hollywood brought to light a problem they are having which concerns meteoro-
gological 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 would 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 flight reports, supplementary information
which is authorized under Item 15 of the recording and
reporting instructions of the AERF item, 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, Nodine, Thayer and Burgess, Members, concurred in the above recommendation.

By John J. Reed
Chairman

Enclosure
ATTACHMENT B.—MODEL FOR RECORDING AND REPORTING IN THE AIREP FORM OF AIR-REPORT
SAFETY RECOMMENDATIONS A-72-101 A-102

The National Transportation Safety Board has under investigation the National Airliner Boeing 747, Flight 41, turbulence accident which occurred on January 4, 1972, near Grand Isle, Louisiana.

Our investigation has disclosed an area of concern regarding the adequacy of first-aid supplies on board the airplane. The number of first-aid kits, as well as the contents of the kits, appeared to have been inadequate to treat the 38 passengers and four crew members who sustained injuries. It was necessary for more than 3 hours to make makeshift arrangements to immobilize fractures, stop bleeding, and dress wounds.

As you know, the requirement for providing first-aid kits is contained in FAR 121.304. Appendix A of Part 121 specifies the type of first-aid kit and the kit contents based upon the capacity of the airplane. Thus, a No. 1 kit is required for airplanes of one to five passenger capacity, a No. 2 kit is required for airplanes of six to 25 passenger capacity, and a No. 3 kit is required for airplanes of over 25 passenger capacity. The type of supplies in these kits are essentially the same, however, the quantities of items are in ratios of approximately one, two, and three, respectively.

Although the rationale of relating kit size to aircraft occupant capacity is logical, it seems to us that the present requirement does not consider adequately the large differences in capacity of
today's airline aircraft. In this regard, it would seem highly unlikely that one kit size would be appropriate for capacities ranging from 26 to the more than 500 passengers. We believe that a ratio specifying some minimum number of revised No. 3 kits should be required for airplanes capable of carrying 26 to 500 plus occupants. Two further considerations are suggested. First, kit size should be kept to a minimum to assure ease of handling in confined space. Second, kits should be strategically located throughout the cabin to permit ready access for treatment of in-flight injuries. Also, the location of kits should be considered from the standpoint of accessibility following cabin deformation resulting from survivable takeoff and landing accidents, as well as ditching.

Although the stewardesses on National Flight 41 were aided by trained medical personnel, assistance of this type is not always available, nor can it be expected. A sufficient supply of materials should be available to permit treatment of lacerations and immobilization of fractures without having to rely on makeshift arrangements to compensate for the lack of certain supplies. Additionally, existing first-aid kit contents should be augmented by including, for example, larger compresses, adhesive tape, additional triangular bandages, aspirin, tongue depressors, and inflatable splints.

Moreover, although a large percentage of accidents occur in the vicinity of airports, the aforementioned accident illustrates that two or more hours' time may elapse from the time that injuries are incurred until ground-based treatment is administered. Current requirements for on-board medical supplies appear inadequate to afford appropriate means for treatment for such time periods.

In view of the situation illustrated by this accident, the Safety Board recommends that the Federal Aviation Administration:

1. Amend FAR 121.309 to provide a more appropriate base for determining the number, type, and location of first-aid kits required on airplanes capable of carrying more than 25 persons.

2. Upgrade the required first-aid kit contents to ensure satisfactory capability for treatment of fractures and severe lacerations for extended periods of time.

Our technical staff is available for any further information or clarification, if required.
These recommendations 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; McAdoo, Thayer, Burgess, and Haley, Members, concurred in the above recommendations.

By John N. Reed
Chairman
14 JUL '72

Honorable John H. Reed
Chairman, National Transportation
Safety Board
Department of Transportation
Washington, D.C. 20591

Dear Mr. Chairman:

This is in response to the recommendations contained in your
transmittal of FHD Safety Recommendations 72-102 and 103
referring to the National Airliner Boeing 747, Flight 41,
turbulence accident which occurred 6 January 1972 near Grand
Isle, Louisiana.

The substance of Safety Recommendations 72-102 and 103 has
been reviewed by our technical personnel in consultation with
the Aeromedical Applications Division of the Office of Aviation
Medicine. The wide-bodied transport aircraft may necessitate a
reconsideration of the first aid supplies currently required in
FAR 111 operations. We are currently working with the ASA
Medical Committee on this problem in conjunction with our program
of improving overall cabin safety. If the documented service
history after our joint study indicates a need for a change, we
will initiate the necessary action to modify the regulations.

Sincerely,

[Signature]

J. J. Krafft
Administrator