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**STUDY OF
LESSONS TO BE LEARNED
FROM ACCIDENTS
ATTRIBUTED TO TURBULENCE**

ADOPTED: DECEMBER 15, 1971

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**NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D. C. 20591
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| 16. Abstract The study deals with 97 turbulence-involved U. S. air carrier accidents occurring from 1964-1969. Based on the detailed investigation of those accidents, there is discussed lessons to be learned primarily from the point of view of the meteorologist, the air carrier and the pilot. Observations are made and conclusions drawn in regard to such factors as the adequacy of CAT (clear air turbulence) versus thunderstorm-associated turbulence forecasts, the use of airborne weather radar as a thunderstorm avoidance tool, airborne weather radar maintenance problems, the requirement for real-time data in the cockpit, CAT detectors, turbulence associated losses, the nuisance problem and information derived from cockpit voice recorders and flight data recorders. | | | |
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FOREWORD

This study of Lessons to be Learned from Accidents Attributed to Turbulence was prepared by Meteorologist Alan I. Brunstein, National Transportation Safety Board. He presented the paper in London, England, at the Royal Aeronautical Society in May 1971. The occasion was the International Conference on Atmospheric Turbulence sponsored jointly by the American Institute of Aeronautics and Astronautics (AIAA), the Canadian Aerospace Institute (CASI) and the Royal Aeronautical Society (RAeS).

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NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D.C. 20591

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STUDY OF
LESSONS TO BE LEARNED FROM ACCIDENTS ATTRIBUTED TO TURBULENCE

Part I. Turbulence Experience

National Transportation Safety Board records for United States air carriers during the past 11 years show a total of 755 accidents, 147 of which involved turbulence. The discussion which follows concerns itself with the accidents occurring from 1964 through 1969, since these data are more easily retrievable because of the conversion of Safety Board records to Automatic Data Processing methods. During the 1964-69 period, the total number of air carrier accidents was 441, including 97 involving turbulence. Turbulence-involved accidents are defined as those in which turbulence was cited as a probable cause or related factor, as well as those in which turbulence was cited as a type of accident.

It is readily apparent from the air carrier data summarized in Tables 1 and 2 that approximately one out of every five total accidents over the 6-year period was a turbulence-involved accident, but that only one out of 16 fatal accidents was turbulence-involved. An optimistic look at Table 2, Injuries, and Table 3, Aircraft Damage, shows that in the total of 97 accidents, more than 90 percent of those aboard the aircraft sustained either minor injuries or none at all, and more than 90 percent of the aircraft involved sustained either minor damage or none at all. The optimist might consider, then, that

atmospheric turbulence is really no more than a nuisance generally and is of minor concern.

On the other hand, with 228 fatalities, 127 persons injured seriously, five aircraft destroyed, and four damaged substantially, we are forced to consider that turbulence is one of the major weather problems to be encountered by aircraft in flight. It should be kept in mind that the turbulence occurrences considered here are those meeting the criteria for an accident, i.e., a person suffered death or serious injury or the aircraft received substantial damage. We are aware that there were many relatively serious turbulence encounters not in our record books simply because the latter two criteria were not met and, therefore, the encounter was not required to be reported.

Little comment is required in regard to Table 4, which separates the clear air turbulence (CAT) involved accidents from those which occurred in association with convective activity. It does, however, highlight the fact that, despite the carriage and use of airborne weather radar equipment, there are many accidents in the convective category.

In view of the changing character of air carrier fleets, it is not surprising as shown in Table 5 that more than three-fourths of the accidents involved turb-jet aircraft. Table 5 also shows that the most favored flight regime for the accidents was in normal cruise (almost 65 percent) with the next most favored flight regime being

the descent phase (almost 20 percent). Discussions of accidents are never quite complete without a mention of accident rates. Accordingly, Table 6 has been assembled to show the turbulence accident rates per 100,000 aircraft-hours and the rates per million miles flown. Except for 1968, the latter rate decreased steadily over the 6-year period.

Part II. Case Studies and Lessons Learned

There are many lessons to be learned from those accidents attributed to turbulence. One basic lesson is that, regardless of the excellence of airborne weather radar equipment and the efficiency of its operator, that equipment was always intended to have been used as a thunderstorm avoidance tool and was never intended for use as a thunderstorm penetration aid.

This philosophy regarding the use of an extremely valuable electronic device was expressed by the Safety Board in a letter to the management of all U.S. scheduled air carriers several years ago following a series of thunderstorm-involved catastrophic accidents. The Board was well aware at that time, as it is now, that all of the carriers did have procedures and policies regarding appropriate use of airborne weather radar during severe weather conditions. Concern was expressed that nonadherence to those policies and procedures might have been involved. Fortunately, the catastrophic type of severe weather-involved accident occurs infrequently and the overall U.S. air carrier safety record was and is outstanding. The past 2 years, 1969 and 1970, have been particularly noteworthy.

Nevertheless, accidents involving turbulence associated with convective activity do occur. Of the turbulence-involved accidents from 1964-69 at least 58 occurred in or near convective activity. It is recognized that, in some of these cases, the flightcrews were aware of the turbulence potential, but that deviations were not authorized by Air Traffic Control because of conflicting traffic or other airspace problems.

There were also numerous cases in which the pilots indicated that their weather radar did not reveal thunderstorm activity to them in the area in which the turbulence encounter took place. There are documented cases in the latter category wherein photographs were taken of ground-based weather radarscopes within a few minutes of the accident and show thunderstorm cells of such intensity that one is forced to conclude that a properly operating and properly operated airborne weather radar set would have revealed the activity.

One such case involved a regularly scheduled air carrier flight of a DC-8 which encountered severe turbulence and hail upon penetration of a thunderstorm during cruise westbound over the central United States at Flight Level 390. Six passengers were injured, two of them seriously, and the aircraft was damaged as follows: Nos. 2 and 4 heat exchangers damaged, all four engine chin scoops cracked at island, No. 1 engine PT2 probe damaged and bent, left cabin heat exchanger door damaged, fuselage skin just aft of radome lifted, radome damaged - replaced, splitter between Nos. 3 and 4 compressors damaged, left wingtip window cracked, numerous static wicks missing, five seat tables damaged, hole in right aft lavatory ceiling, isolation band on vertical stabilizer damaged and right horizontal stabilizer damaged.

The turbulence was encountered between about 1545 and 1552 G.m.t. within approximately 50 nautical miles of an operating WSR-57, long range, ground-based weather radar, whose operator was photographing the Plan Position Indicator (PPI) scope. Figs. 1, 2, and 3, are enlargements of several of those photographs. In all three photographs, the radar was on the 250-mile range and the range markers were at 50-mile intervals. In Fig. 1 and 2, which were taken during the turbulence encounter, there was 1/2 degree antenna up-tilt, while in Fig. 3, taken shortly after the encounter, the antenna up-tilt was 3°. Cell penetration is estimated to have occurred at about the 50-mile range marker east-northeast of the antenna. Tops in that cell at the time of the encounter

were reported by the radar operator as 51,000 feet.

Fig. 4 is a reproduction of a portion of the flight data recorder graph associated with this accident. It can be seen that the maximum variance in vertical acceleration was from + 2.23 g's to -0.99 g or an incremental peak variation of 3.22 g's, while several variations of more than 2 g's are noted. During the worst of the encounter, airspeed fluctuated as much as 52 knots, the heading varied 20° and there were two successive altitude losses of almost 1,000 ft. Although the turbulence in this case has been categorized as severe, the variations in the parameters above, particularly the variation in vertical acceleration, meet the criteria for extreme turbulence.

The captain of the flight later stated that just prior to the encounter the flight was on instruments, the weather radar was on the 150-mile scale, 4° to 5° down tilt, the seat belt sign was on, the air was slightly choppy, light ice was encountered and anti-ice systems were activated. When the turbulence and hail were encountered, the Area Control Center was asked for a vector out of the weather, but the flight was informed that they were unable to comply because they were not "painting" any weather. Various adjustments were made to the airborne radar, but "there was no echo." The ATC radar controller later confirmed the captain's statement regarding his inability to provide the requested vector and indicated, *inter alia*, that the traffic control radar was operating on circular polarization and that "weather" didn't start to show on his radar until it had moved eastward another 25 miles. It was also learned that ground checks of the airborne radar showed that it was functioning normally.

Another DC-8 flight at the same altitude and about 30 miles, or 4 minutes behind the first DC-8, requested and received clearance to deviate from course and remained in the clear about 15 miles south of the original route. That flight confirmed the large, strong echo shown in Fig. 1-3. Neither the company nor the National Weather Service (NWS) forecasts warned of

severe thunderstorm activity for the area and time pertinent to this accident.

During the period 1964-69, the Board's records show that at least 34 accidents occurred in clear air. The clear air turbulence accidents listed are those for which available information indicated that they were not associated with convective activity. One of the CAT accidents occurred during a regularly scheduled eastbound flight of a Boeing 720B, in cruise at Flight Level 370, over the western portion of the north-central United States at 1937 G.m.t. The crew indicated that the flight was above a scattered cloud deck whose tops were estimated as having been some 4,000 to 6,000 feet below the aircraft. There was mountainous terrain below. Because of turbulence described as "light turbulence" or "light chop," the seatbelt sign was turned on 15 minutes or more prior to the encounter of concern. An appropriate announcement had been made by the captain. According to passenger statements, the turbulence became progressively worse. During the worst of the turbulence encounter, a male passenger left his seat to assist in securing his infant grandson who was in the seat directly in front of him. The man was observed to have been thrown against the overhead, then slammed to the floor, striking the armrest of an aisle seat. Because of the seriously injured passenger, the flight diverted and made an emergency landing at a relatively nearby airport. No other serious injuries were reported and there was only minor damage to the aircraft.

A reproduction of a portion of the flight data recorder graph concerning this flight is shown as Fig. 5. It is evident that considerable turbulence was experienced for about 3 minutes and the worst of the occurrence took place during a period of approximately 30 to 40 seconds. During that period, the maximum incremental g forces were about 4.8, i.e., from about +3 g's to -1.8 g. Heading changes were relatively minor and just prior to the maximum g forces, the captain had begun a normal descent in order to vacate the area of turbulence. The airspeed fluctuated about 40 kts. and built up during the

beginning of the descent, but diminished as the turbulence diminished then increased as the turbulence ceased. Safety Board records show that company forecasts called for CAT, but in areas adjacent to the latter occurrence. Some National Weather Service forecasts, including SIGMET, did indicate that CAT was anticipated over an area which included the one in which the accident occurred. It is interesting to note that when the flightcrew was interviewed, they stated that the temperature dropped 10° approximately 3 to 5 minutes prior to the turbulence encounter. As in many other cases of CAT, this one generated a number of detailed meteorological studies, or aftercasts, including one by the Safety Board. These studies agreed generally that the area in which the accident took place was characterized by the proximity of the jet stream core, a cold air trough, it was at or close to the tropopause, and that mountain wave conditions probably existed. There was some doubt in one of the studies in regard to the contribution of the mountain wave effect, since the winds, even though strong, were not from the most favorable direction for strong mountain wave formation over the area of concern. It also appears that, in this particular case, large vertical wind shears did exist, but probably several thousand feet below the altitude of the occurrence.

Particularly in those accident investigations in which the Board's meteorological staff becomes involved, there is an attempt to assess the adequacy of available forecasts. Unfortunately, data are not available for the total 97 turbulence accidents. The data on forecast adequacy are available for 74 of those accidents and show that, for 58 cases, or almost 78.5 percent of the time, the forecast was considered to have been substantially correct. In the remaining 16 cases, or approximately 21.5 percent of the time, the weather was considered to have been worse than forecast. A review of the adequacy of the CAT forecasts indicates that the ratio of good to bad in the CAT cases was about 2 1/2 to 1, while in the thunderstorm cases, the ratio was about 4 1/2 to 1. The obvious lesson to be learned here

is that there is room for considerable improvement in the forecasting of CAT. In fairness to the meteorological community, it is recognized that the majority of these accidents occurred regardless of the adequacy of the forecasts and it is also recognized that good forecasting has no doubt been at least partly responsible for keeping the turbulence accident statistics to their current levels. However, it is noted that in half the fatal turbulence-involved accidents, the forecasts were not posted in the "substantially correct" column.

Until our understanding of the atmosphere is more comprehensive and has led us to develop CAT forecasts which are much more accurate than they are today, there is a continuing requirement for an efficient, economical, airborne CAT detection system. Ground-based CAT detection would also be desirable, particularly in terminal areas.

Following the several thunderstorm-involved catastrophic accidents, and the Board's letter to U.S. air carrier management mentioned earlier, it became apparent that large segments of the industry were reviewing, amending, and updating their safety and training programs, as well as some of their operational procedures. At about that time, a Government/Industry meeting was convened to discuss generally the subject of severe weather avoidance. Those discussions might be considered as having revealed a series of lessons to be learned from involvement in thunderstorm type turbulence. Most of the lessons were learned well, but our accident statistics would indicate that a certain amount of homework still needs to be accomplished.

Like any other piece of equipment, airborne weather radar is not perfect but, as pointed out previously, a properly operating and properly operated set is an invaluable tool for the avoidance of hazardous weather conditions. Some carriers, having had problems maintaining the equipment, have changed over to solid-state equipment which represents a big step forward in maintenance reliability. At least one large carrier has learned that poor water drainage from the radome, which was made of a honey-

comb material, has caused signal interference. As a result, their radomes are being replaced. The new radomes are made of a fluted material to enhance water drainage. Unfortunately, a properly operating radar is of limited value unless the operator is not only familiar with the mechanics of the system, but he must be trained adequately in its operational use with considerable emphasis on the interpretation of the weather echoes displayed. While all carriers have some type of training program for pilots in the use of airborne weather radar, there are some which require more formalizing. At the Government/Industry meeting mentioned above, the lack of recurrent training was also emphasized.

A most valuable lesson learned as a result of turbulence-involved accidents, and by complaints of the pilot group, is the requirement in the cockpit for up-to-date information concerning the location, intensity and movement of thunderstorm activity and for CAT information as well. Real-time information is also required at originating points and at en route stops. The U.S. Government services have made progress in expediting the flow of weather radar information, particularly via the National Facsimile Network and in the not too distant future the flow of data via weather teletype should be expedited by means of a new and improved system. Meanwhile, in order to provide pilots with as near real-time data as possible, several U.S. air carriers have rented drops on a Government teletype network which carries, among other things, raw weather radar data, i.e., weather radar observations made and transmitted almost immediately.

One of these carriers plots the weather radar data, CAT information and other material such as forecasts on a special plotting board located at their headquarters. The information is coded, sent to outlying stations and is also transmitted directly to the affected aircraft. A flightcrew member plots the coded message on a special chart and deviations are planned accordingly. It is interesting to note that since the system became operational in October 1968, the Safety

Board's records show that the aircraft of that carrier have not been involved in a single turbulence accident.

Another method for obtaining real-time information is by means of radar remoting. The radarscope image is displayed at locations remote from the radar equipment, either by microwave links or by scan conversion with telephone line connections. The telephone line links are either dedicated lines with constant readouts, or can be on a dial-up basis. This allows government forecast centers to receive pictures from selected radars at great distances. There is also considerable air carrier interest in the dial-up capability.

Radar remoting is expanding rapidly in the NWS. At the beginning of 1971, there were eight transmitters and 32 receivers installed. By the end of the year, there should be a total of 25 transmitters and 49 receivers in operation. It is anticipated that eventually all long-range weather radar will have transmitters, and all forecast and warning offices will have receivers. By the end of 1971, there will be approximately 50 long-range radars in operation. This would mean that in the not too distant future, it will be possible, for the price of a telephone call, to receive a radarscope picture, either on a television monitor or on a facsimile receiver, from about 50 locations in the United States. This capability could certainly revolutionize the dispatching and routing of aircraft.

Some years ago, as a result of a catastrophic accident involving severe turbulence shortly after takeoff, joint action was taken by Australian Civil Aviation and Meteorological authorities to develop a system to provide advice and guidance to flights in the terminal areas, in order for pilots to avoid severe convective activity. The experimental system has been in operation at three of the larger terminals, Sydney, Brisbane, and Melbourne, and is known as the Joint Approach Control Meteorological Advisory Service (JACMAS). Based on radar storm cell information from ATC radar, AIREPS and other visual observations, ATC authorities may close airspace or authorize diversions. The

system is in effect within a 50-mile radius of the three airports mentioned.

Additional dissemination of JACMAS advice is made by broadcasting it in plain language over the appropriate NDB and VOR channels. Flightcrews have been informed that, on occasion, there have been areas which were forecast to contain severe turbulence, but have been reported by pilots to have been clear. Accordingly, pilots were instructed to regard the information received as an "advisory service." However, one of the basic principles of the JACMAS system was that clearances issued to insure that aircraft do not enter areas of severe turbulence are mandatory, and a pilot who considers that a clearance is unnecessarily restrictive should request an alternative clearance and advise the reason. If ATC approves the alternative, the pilot must accept full responsibility for the intended course of action. It is understood that evaluations of the JACMAS system indicated that it had, in fact, provided effective storm warning information in the three areas where it was in operation and that there were plans to remove the "experimental" label.

Air carriers have learned that the economic penalties of turbulence accidents are severe. There are no current figures available on the economic loss, but, according to a study made by the Flight Safety Foundation for the National Aeronautics and Space Administration, in 1964 there was a total (U.S.) expense attributable to turbulence of \$18,090,000. That figure did not include loss of use of grounded aircraft, loss of employable time by injured occupants, and overhead involved in settling claims for injuries. There is little reason to assume that the losses are any less today.

An interesting sidelight to turbulence accident investigation is the use of new techniques. One means of postaccident determination of the existence of turbulence is the cockpit voice recorder (CVR). This device reflects not only intracockpit conversation (which might be related to the subject), but the sound of objects

being tossed about on the flight deck, the "tin-canning" sounds made by the aircraft as it encounters successive air masses moving from different directions, sounds of hail and/or heavy rain striking the airframe and other sounds within the cockpit. In addition, on aircraft whose CVR is powered by Direct Current, such as the turbo-Convairs and the F-27, PH-227 series, there is installed an impact switch on the CVR power circuit which causes electrical power to be removed when the associated accelerometer senses a fore-to-aft acceleration of 2 g's or more. This type of power failure cannot be rectified until after landing. In the case of an F-27 which lost a wing in CAT conditions over Alaska, this type of power shutdown was observed to have occurred coincident with the wing failure. Another new technique is the use of weather satellite pictures especially for areas from which data are sparse. Jet streams may be located, some wind information may be inferred, convective clouds as well as lenticulars may be located and identified, as may many other local and synoptic scale features.

To summarize the main lessons learned from turbulence-involved accidents it can be said that:

1. Turbulence is one of the major in-flight weather problems.
2. Airborne weather radar is an excellent thunderstorm avoidance tool.
3. Airborne weather radar must be maintained and operated properly.
4. Training should be formalized in the use and interpretation of airborne weather radar.
5. Recurrent airborne weather radar training is desirable.
6. CAT forecasts need considerable improvement.
7. CAT detection systems, airborne and ground-based, are needed.
8. Real-time weather data are needed on the ground, and most certainly in the cockpit.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

/s/ JOHN H. REED
Chairman

/s/ OSCAR M. LAUREL
Member

/s/ FRANCIS H. McADAMS
Member

/s/ LOUIS M. THAYER
Member

/s/ ISABEL A. BURGESS
Member

December 15, 1971

THE FOLLOWING STATISTICAL TABLES ARE BASED ON
TURBULENCE ACCIDENTS INVOLVING U. S. AIR CARRIERS, 1964-1969

TABLE 1 - ACCIDENTS

| TOTAL ACCIDENTS | YEAR | TURBULENCE ACCIDENTS |
|-----------------|------|----------------------|
| 79 | 1964 | 15 |
| 83 | 1965 | 14 |
| 75 | 1966 | 13 |
| 70 | 1967 | 13 |
| 71 | 1968 | 22 |
| 63 | 1969 | 20 |
| <u>441</u> | | <u>97</u> |

TABLE 2 - INJURIES

| | FATAL | SERIOUS | MINOR | NONE | TOTAL |
|-----------------|------------|-----------|------------|-------------|-------------|
| PILOT | 5 | - | - | 92 | 97 |
| COPILOT | 5 | - | - | 91 | 96 |
| CHECK PILOT | - | - | - | 2 | 2 |
| FLIGHT ENGINEER | 3 | - | 1 | 80 | 84 |
| NAVIGATOR | - | - | - | 4 | 4 |
| CABIN ATTENDANT | 9 | 50 | 42 | 245 | 346 |
| EXTRA CREW | - | 1 | - | 12 | 13 |
| PASSENGERS | <u>206</u> | <u>76</u> | <u>198</u> | <u>6021</u> | <u>6501</u> |
| TOTAL | 228 | 127 | 241 | 6547 | 7143 |

INVOLVES 97 TOTAL ACCIDENTS INCLUDING 6 FATAL ACCIDENTS

TABLE 3 - AIRCRAFT DAMAGE

| YEAR | DESTROYED | SUBSTANTIAL | MINOR | NONE | TOTAL |
|-------|-----------|-------------|-------|------|-------|
| 1964 | 2 | 2 | 3 | 8 | 15 |
| 1965 | - | - | - | 13 | 13 |
| 1966 | 1 | - | - | 12 | 13 |
| 1967 | - | - | 3 | 10 | 13 |
| 1968 | 2 | 1 | 2 | 17 | 22 |
| 1969 | - | - | 2 | 18 | 20 |
| TOTAL | 5 | 4 | 10 | 78 | 97 |

TABLE 4 - CATEGORY OF WEATHER INVOLVEMENT

| YEAR | CAT | CONVECTIVE ACTIVITY | UNKNOWN* | TOTAL |
|-------|----------|---------------------|----------|-----------|
| 1964 | 5 | 9 | 1 | 15 |
| 1965 | 2 | 12 | - | 14 |
| 1966 | 4 | 7 | 2 | 13 |
| 1967 | 4 | 8 | 1 | 13 |
| 1968 | 10 | 11 | 1 | 22 |
| 1969 | <u>9</u> | <u>11</u> | <u>-</u> | <u>20</u> |
| TOTAL | 34 | 58 | 5 | 97 |

*The investigations of these cases are under the jurisdiction of other governments and the data were not available.

TABLE 5 - TYPE OF POWER VS. FIRST PHASE OF OPERATION

| | PISTON | TURBOJET | TURBOPROP | ACCIDENT | PERCENT |
|-------------------|----------|----------|-----------|----------|-------------|
| INITIAL CLIMB | 2 | - | - | 2 | 2.06 |
| CLIMB TO CRUISE | - | 8 | 1 | 9 | 9.28 |
| NORMAL CRUISE | 6 | 50 | 7 | 63 | 64.95 |
| DESCENT | 2 | 15 | 2 | 19 | 19.59 |
| UNCNTRLD. DESCENT | - | 1 | - | 1 | 1.03 |
| INITIAL APPROACH | 1 | - | - | 1 | 1.03 |
| OTHER | <u>-</u> | <u>-</u> | <u>2</u> | <u>2</u> | <u>2.06</u> |
| ACCIDENTS | 11 | 74 | 12 | 97 | |
| PERCENT | 11.3 | 76.3 | 12.4 | | |

TABLE 6 - TURBULENCE ACCIDENT RATES BY AIRCRAFT HOURS AND MILES FLOWN

| YEAR | TURBULENCE ACCIDENTS | AIRCRAFT-HRS. FLOWN | AIRCRAFT-MI. FLOWN (000) | TURBULENCE | ACCIDENT RATE |
|-------|----------------------|---------------------|--------------------------|---------------------------------|----------------------------------|
| | | | | PER 100,000 AIRCRAFT-HRS. FLOWN | PER MILLION AIRCRAFT-MILES FLOWN |
| 1964 | 15 | 4,312,764 | 1,336,867 | .347 | .011 |
| 1965 | 14 | 4,690,882 | 1,536,393 | .298 | .009 |
| 1966 | 13 | 5,104,984 | 1,768,458 | .255 | .007 |
| 1967 | 13 | 5,868,812 | 2,179,739 | .222 | .006 |
| 1968 | 22 | 6,404,260 | 2,498,848 | .328 | .009 |
| 1969 | <u>20</u> | <u>6,612,161</u> | <u>2,726,815</u> | <u>.302</u> | <u>.007</u> |
| TOTAL | 97 | 32,993,893 | 12,057,122 | | |

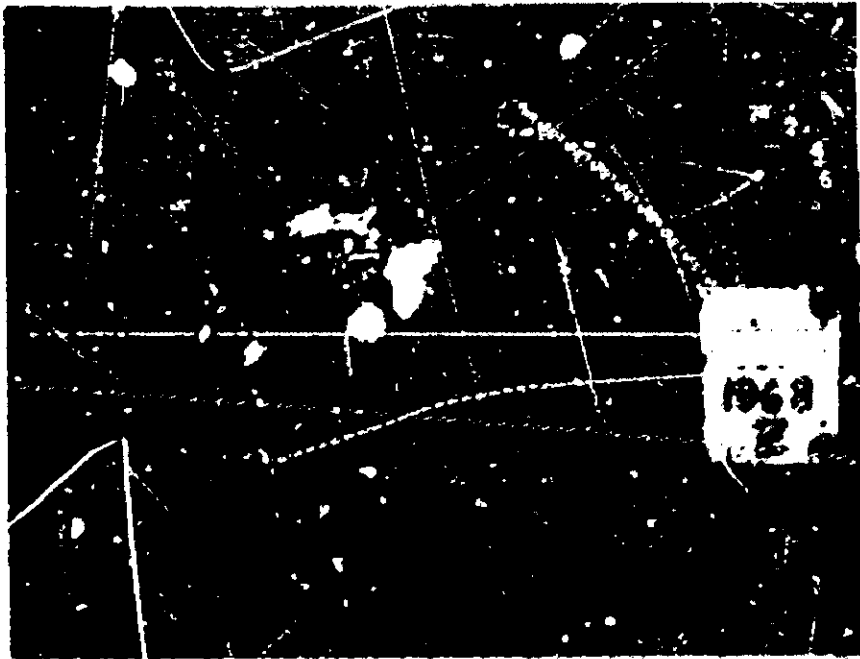


Figure 1

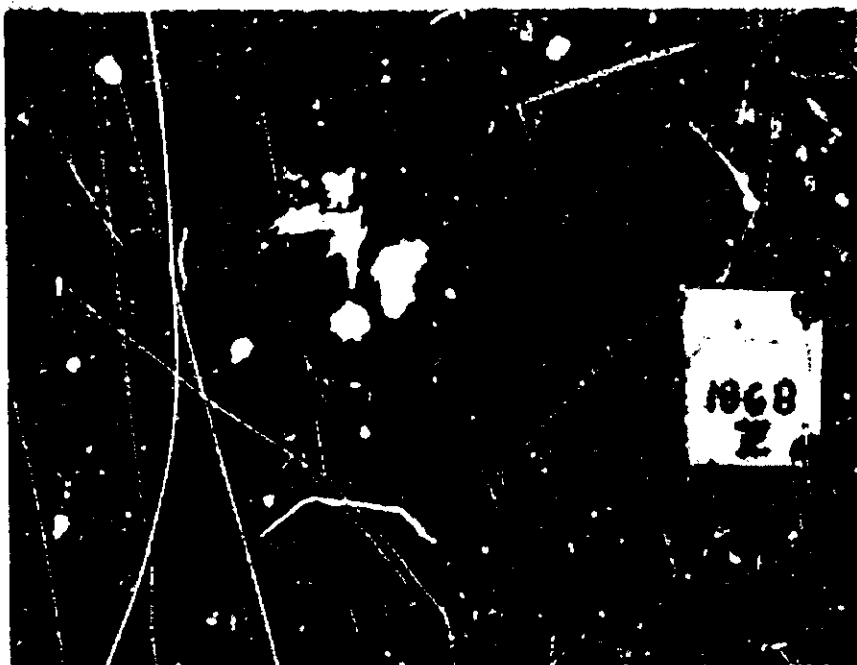


Figure 2

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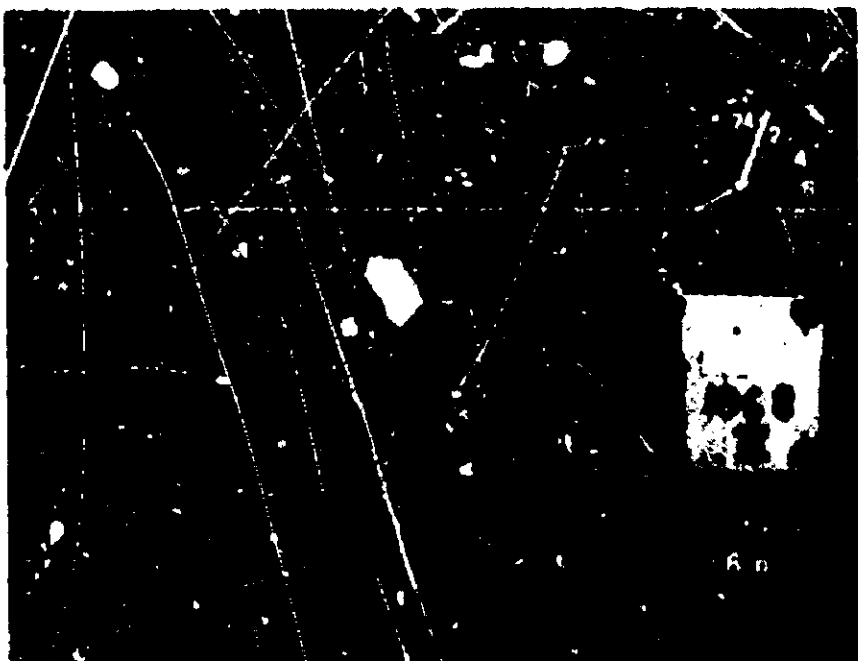


Figure 3

THUNDERSTORM PENETRATION

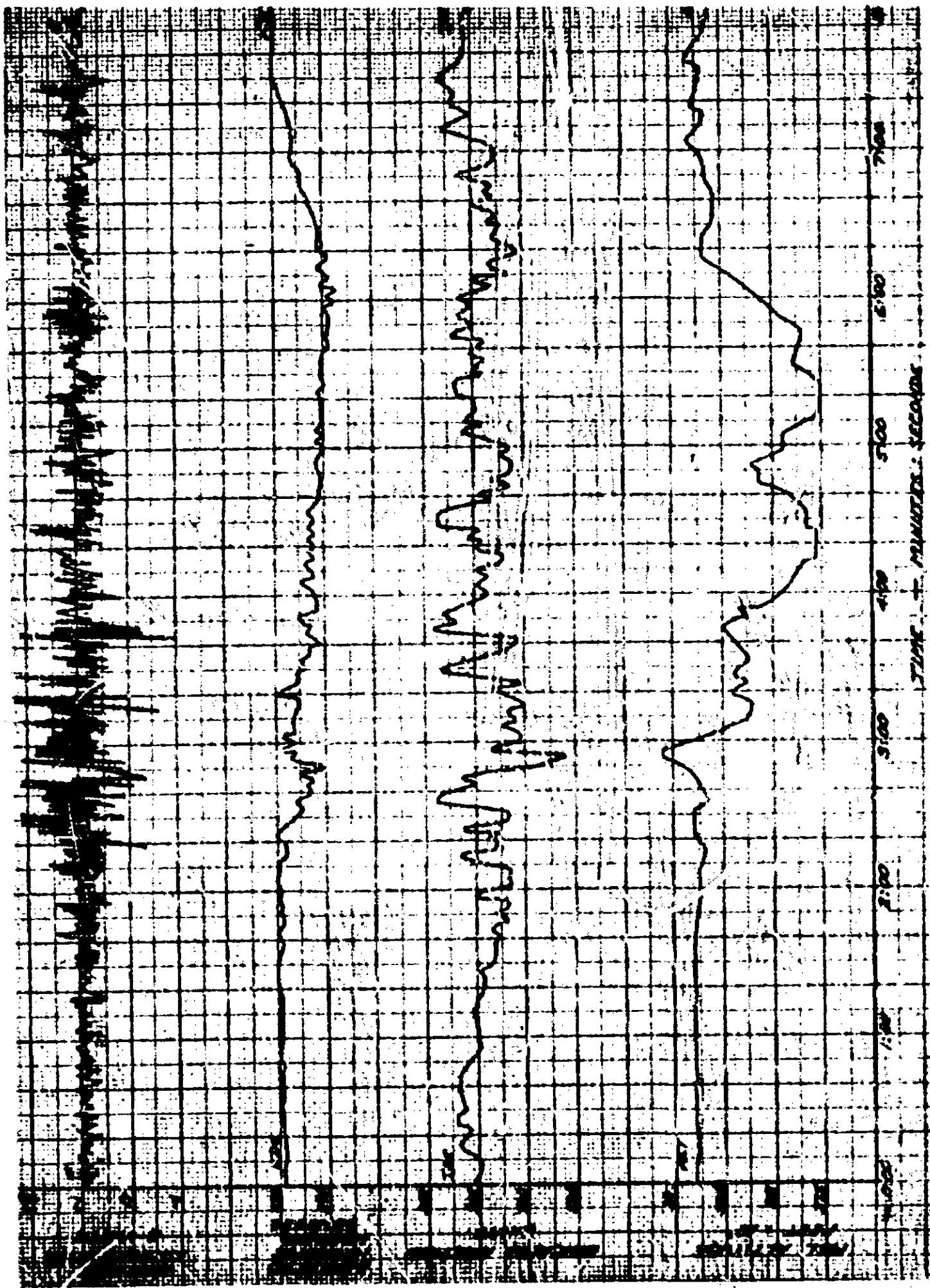


Figure 4 FLIGHT DATA RECORDER GRAPH
THUNDERSTORM PENETRATION

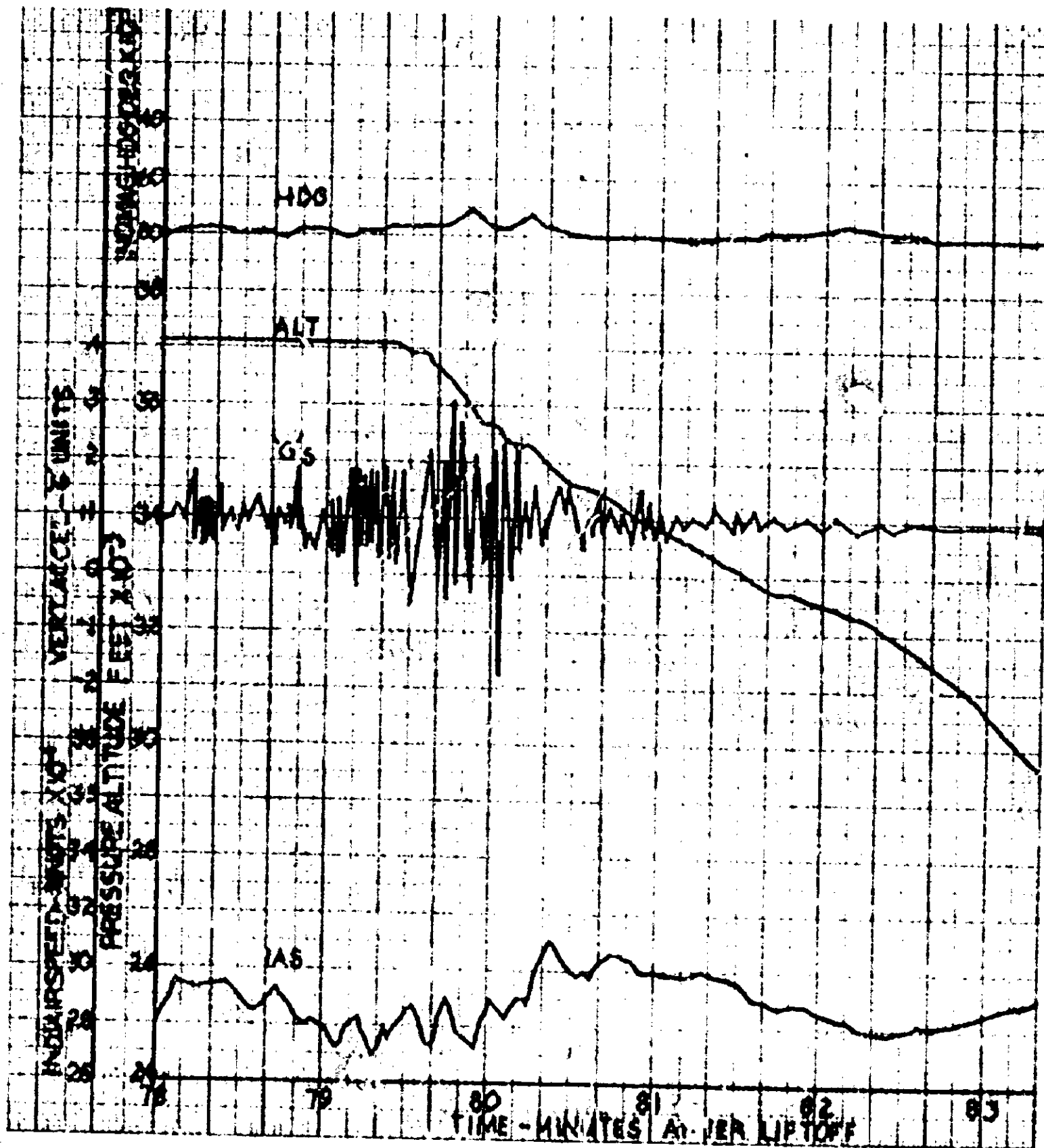


Figure 5 FLIGHT DATA RECORDER GRAPH CAT PENETRATION

APPENDIX

BRIEFS OF TURBULENCE ACCIDENTS

NATIONAL TRANSPORTATION SAFETY BOARD
 BUREAU OF AVIATION SAFETY
 WASHINGTON, D. C. 20591
 BRIEFS OF TURBULENCE ACCIDENTS
 AS A TYPE OF ACCIDENT
 OR AS A CAUSE/FACTORS (LESS VORTEX)
 U.S. AIR CARRIERS
 1964-1969

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES | | | FLIGHT PURPOSE | PILOT DATA |
|----------------------------------------------------------------------|------------------------|--------------------|--------------------------------------------|---------------------------------|---|-----|---------------------------|---------------------------------------------------------------------------------------|
| | | | | F | S | N/W | | |
| 1-0006 | 2/23/64 TIME - 0206 | NR. NEW ORLEANS LA | DOUGLAS DC-8 N8607 DAMAGE-DESTRUCTED | CA- 7 | 0 | 0 | SCHED INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE 47, 19140 TOTAL HOURS, 92% IN TYPE, INSTRUMENT RATED. |
| OPERATOR - EASTERN AIR LINES, INC. | | | | PHASE OF OPERATION | | | | |
| TYPE OF ACCIDENT | | | | IN FLIGHT: UNCONTROLLED DESCENT | | | | |
| COLLISION WITH GROUND/WATER: UNCONTROLLED | | | | | | | | |
| PROXIMATE CAUSES: | | | | | | | | |
| SYSTEMS - FLIGHT CONTROL SYSTEMS: HORIZONTAL STABILIZER DRIVE SYSTEM | | | | | | | | |
| MISCELLANEOUS ACTS/CONDITIONS - REFRIAL FAILURE | | | | | | | | |
| WEATHER - TURBULENCE ASSOCIATED w/ CLOUDS, THUNDERSTORMS | | | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | | | |
| SKY CONDITION | | | | CEILING AT ACCIDENT SITE | | | | |
| OVERCAST | | | | 1000 | | | | |
| VISIBILITY AT ACCIDENT SITE | | | | PRECIPITATION AT ACCIDENT SITE | | | | |
| 5.04 OVER | | | | NONE | | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | | TEMPERATURE-F | | | | |
| VSMC | | | | 46 | | | | |
| WIND DIRECTION-DIGREES | | | | WIND VELOCITY-KNOTS | | | | |
| 140 | | | | 12 | | | | |
| TYPE IN WEATHER CONDITIONS | | | | TYPE OF FLIGHT PLAN | | | | |
| VFR | | | | IFR | | | | |
| REMARKS- AIRCRAFT CRASHED IN LAKE PONCHARTRAIN WITH DISI | | | | RECOVERING FORCE. | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES P S M/W | FLIGHT PURPOSE | PILOT DATA |
|--------------------------------------------------------|---------|------------------|------------------------------------------------------------------|-------------------------|---------------------|-----------------------------------------------------------------------------------------------|
| I-0010 | 2/13/64 | MEMPHIS, TN | VISCONT V-745D N742N DAMAGE-NONE | CA- 0 1 2 PX- 0 0 20 | SCHED DOM PASSG SVY | AIRLINE TRANSPORT, AGE UNK/HR, UNK/HR TOTAL HOURS, UNK/HR IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: CLIMB TO CRUISE | | | |
| WORKABLE CAUSE(S) | | | TYPE OF FLIGHT PLAN | | | |
| PERSONNEL - MISCELLANEOUS-PASSENGER FACTOR(S) | | | IFR | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAN AIR | | | REMARKS- FAILURE OF A PASSENGER TO COMPLY WITH SEAT BELT ON SIGN | | | |
| WEATHER BRIEFING - UNKNOWN, NOT REPORTED | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| TYPE OF WEATHER CONDITIONS | | | | | | |
| IFR | | | | | | |
| I-0022 | 7/17/64 | NR-BILLINGS MONT | BOEING B-720W N712US DAMAGE-NONE | CR- 0 1 0 PX- 0 0 33 | SCHED DOM PASSG SVY | AIRLINE TRANSPORT, AGE 48, 18510 TOTAL HOURS, 310 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - NORTHWEST AIRLINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| WORKABLE CAUSE(S) | | | TYPE OF FLIGHT PLAN | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAN AIR | | | IFR | | | |
| MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED | | | REMARKS- STEWARDESSES ATTENDING TO CABIN DUTIES | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| CLEAR | | | UNLIMITED | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 IN OVER | | | NONE | | | |
| INSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | VFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | EMPLOYEES P S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|----------------------------------------------------------------------------------------|
| I-0027 | 7/1/64 TIME - 2033 | NR ALLENTOWN PA | COHVAIR CV-880 NR0374 DAMAGE-NONE | CR- 0 1 6 PR- 0 0 38 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 45, 16220 TOTAL HOURS, 229 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - TRANS WORLD AIRLINES-INC. | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| TYPE OF ACCIDENT TURBULENCE | | | | | | |
| POSSIBLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR PERSONNEL - FAILURE HOSTESS TO COMPLY CO PROCEDURES. FACTORS: MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED WEATHER BRIEFING - UNKNOWN/NOT REPORTED WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF WEATHER CONDITIONS VFR | | | |
| SKY CONDITION UNKNOWN/NOT REPORTED OBSTRUCTIONS TO VISION AT ACCIDENT SITE HAZE TYPE OF FLIGHT PLAN IFR | | | | | | |
| I-0090 | 3/26/64 TIME - 1244 | MI TAMPA FLA | COMVAIR CV-880 NR0052 DAMAGE-MINOR | CR- 0 0 6 PR- 0 2 36 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 47, 19970 TOTAL HOURS, 1829 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - DELTA AIR LINES, INC. | | | PHASE OF OPERATION IN FLIGHT: CLIMB TO CRUISE | | | |
| TYPE OF ACCIDENT TURBULENCE | | | | | | |
| POSSIBLE CAUSE(S) PILOT IN COMMAND - INADEQUATE SUPERVISION OF FLIGHT WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS: MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | CEILING AT ACCIDENT SITE 800 OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF FLIGHT PLAN IFR | | | |
| SKY CONDITION OVERCAST VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF WEATHER CONDITIONS IFR | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES P S R/W | FLIGHT PURPOSE | PILOT DATA |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|---------------------------------------------------------------------------------------|
| I-0035 | 2/22/66 TIME - 1846 | HUNTSVILLE ALA | DOUGLAS DC-3 N655A DAMAGE-NONE | CA- 0 0 3 PX- 0 1 25 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 42, 8097 TOTAL HOURS, 6000 IN TYPE, INSTRUMENT RATED. |
| <p>NAME OF AIRPORT - MADISON COUNTY OPERATOR - SOUTHERN AIRWAYS, INC. TYPE OF ACCIDENT TURBULENCE</p> | | | <p>PHASE OF OPERATION IN FLIGHT, DESCENDING</p> | | | |
| <p>POSSIBLE CAUSE(S) MISC - PASG SEAT BELTS RELEASED FOR UNK REASON. FACTORS) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> | | | <p>CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR</p> | | | |
| <p>SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN VFR</p> | | | | | | |
| I-0041 | 7/20/64 TIME - 1210 | PUEBLO COLO | DOUGLAS DC-3 N91003 DAMAGE-NONE | CA- 0 1 2 PX- 0 0 11 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 32, 4837 TOTAL HOURS, 5376 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - CENTRAL AIRLINES, INC. TYPE OF ACCIDENT TURBULENCE</p> | | | <p>PHASE OF OPERATION IN FLIGHT, DESCENDING</p> | | | |
| <p>POSSIBLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> | | | <p>CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR</p> | | | |
| <p>SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR</p> | | | | | | |
| <p>REMARKS- STEWARDESS COMPLETING OUTLET THROWN AGAINST CABIN STRUCTURE.</p> | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S R/W | FLIGHT PURPOSE | PILOT DATA |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|----------------------------------------------------------------------------------------|
| I-0049 | 7/15/64 TIME - 1525 | NEW YORK NY | LUCIFER L-1047 N6723C DAMAGE-NONE | CR- 0 1 4 PX- 0 0 15 | SCHED DOM PASSG LAY | AIRLINE TRANSPORT, AGE 46, 16996 TOTAL HOURS, 2503 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - EASTERN AIR LINES, INC. TYPE OF ACCIDENT MISCELLANEOUS | | | PHASE OF OPERATION TAKEOFF: INITIAL CLIMB | | | |
| PROBABLE CAUSES: PERSONNEL - OTHER FLIGHT PERSONNEL FACTORS: WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| SKY CONDITION SCATTERED VISIBILITY AT ACCIDENT SITE 5 DK OVRK INSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |
| I-0054 | 7/15/64 TIME - 1210 | NR. KNOXVILLE TENN | CAHAVELLE N1007U DAMAGE-NONE | CR- 0 0 5 PX- 1 0 48 | SCHED DOM PASSG SKY | AIRLINE TRANSPORT, AGE 36, 27000 TOTAL HOURS, 206 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: CLIMB TO CRUISE | | | |
| PROBABLE CAUSES: WISL - SEAT BELT FAILED TO HOLD PAX REASON UNKNOWN. WEATHER - UNKNOWN, UPON REPORTS WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - BRIEFING RECEIVED-METHOD UNKNOWN WEATHER FORECAST - UNRECORDED REPORTED | | | | | | |
| SKY CONDITION BAGGY/CLIMB SCATTERED VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED INSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | CEILING AT ACCIDENT SITE 19000 PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|------------------------------------------------------------------|----------|-------------------|-----------------------------------------------|------------------------|---------------------|----------------------------------------------------------------------------------------|
| B-0084 | 12/24/66 | SAN FRANCISCO CAL | LOCKHEED L-1049 N6915C DAMAGE-DESTROYED | CR- 3 0 0 PX- 0 0 0 | SCHED DOM CARGO SRV | AIRLINE TRANSPORT, AGE 49, 14911 TOTAL HOURS, 3967 IN TYPE, INSTRUMENT RATED. |
| NAME OF AIRPORT - SAN FRANCISCO INT | | | PHASE OF OPERATION | | | |
| OPERATOR - FLYING TIGER LINE, INC. | | | TAKEOFF INITIAL CLIMB | | | |
| TYPE OF ACCIDENT | | | | | | |
| COLLISION WITH GROUND/WATER: CONTROLLED | | | | | | |
| PROBABLE CAUSE(S) | | | | | | |
| PILOT - DEVIATED FROM COURSE FOR UNDETERMINED REASON | | | | | | |
| WEATHER - DOWNDRAFT/TURBULENCE | | | | | | |
| WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| WEATHER BRIEFING - BRIEFED BY WEATHER BUREAU PERSONNEL, BY PHONE | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| OVERCAST | | | 1100 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 OR OVER | | | RAIN | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TEMPERATURE-F | | | |
| FOG | | | 59 | | | |
| WIND DIRECTION-DEGREES | | | WIND VELOCITY-KNOTS | | | |
| 240 | | | 22 | | | |
| TYPE OF WEATHER CONDITIONS | | | TYPE OF FLIGHT PLAN | | | |
| VFR | | | IFR | | | |
| FINE AFTER IMPACT | | | | | | |

SUMMARY OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------|
| L-0085 | 11/20/76 | VALHIKES ALAS TIME - 1055 | PIE-PIPER PC-6A N14212 DAMAGE-SUBSTANTIAL | CH- 0 0 1 PX- 0 0 4 | SCHED DOM PASSG SRV | COMMERCIAL, AGE 36, 5663 TOTAL HOURS, 263 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - WEST ALASKA AIRLINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT WAS COLLAPSED | | LANDING LEVEL OFF/TOUCHDOWN | | |
| <p>POSSIBLE CAUSES:</p> <p>WEATHER - LANDING GEAR MAIN GEAR-SHOCK ABSORBING ASSY, STRUTS, ATTACHMENTS, ETC.</p> <p>MISCELLANEOUS ACTS/CONDITIONS - BRUISES, MISSTROKE FACTORIES</p> <p>MISCELLANEOUS ACTS/CONDITIONS - OVERLOAD FAILURE</p> <p>WEATHER - TURBULENCE IN FLIGHT, GEAR AIR</p> <p>WEATHER - WEATHERING - NO WEATHERING RECEIVED</p> <p>WEATHER - FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>EMERGENCY CIRCUMSTANCES - FORCED LANDING ON AIRPORT/SEAPLANE BASE/HELIP.</p> | | | | | | |
| | | SKY CONDITION CLEAR | | CEILING AT ACCIDENT SITE UNLIMITED | | |
| | | VISIBILITY AT ACCIDENT SITE 5.00 VFR | | PRECIPITATION AT ACCIDENT SITE NONE | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | TEMPERATURE - -30 | | |
| | | WIND VELOCITY - KNOTS CALM | | TYPE OF WEATHER CONDITIONS VFR | | |
| | | TYPE OF FLIGHT PLAN VFR | | | | |
| | | REMARKS - DAMAGED IN FLIGHT - STRUT WHICH WAS FROZEN IN COMPRESSED POSITION - WATER GOT IN STRUT TUBE | | | | |
| L-0086 | 11/20/76 | WASH DC/VIRGILIA FLA TIME - 1041 | BOEING 737-400 N14212 DAMAGE-NONE | CH- 0 0 7 PX- 0 1129 | SCHED INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE 56, 27453 TOTAL HOURS, 381 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - EASTERN AIR LINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT TURBULENCE | | IN FLIGHT NORMAL CRUISE | | |
| <p>POSSIBLE CAUSES:</p> <p>WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS</p> <p>WEATHER - MISCELLANEOUS-PASSENGER RESPONSIBLE</p> <p>FACTORIES</p> <p>WEATHER - THUNDERSTORM ACTIVITY</p> <p>MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED</p> <p>WEATHER - WEATHERING - COMPANY DESCRIPTION</p> <p>WEATHER - FORECAST - UNKNOWN/NOT REPORTED</p> | | | | | | |
| | | SKY CONDITION UNKNOWN/NOT REPORTED | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | |
| | | VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | PRECIPITATION AT ACCIDENT SITE RAIN | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | TEMPERATURE - | | |
| | | TYPE OF FLIGHT PLAN IFR | | TYPE OF WEATHER CONDITIONS IFR | | |
| | | REMARKS - INJURED PASSENGER DID NOT COMPLY WITH FASTEN-SEAT-BELTS SIGN. | | | | |

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PILOTS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|----------|---------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------|---------------------|----------------------------------------------------------------------------------------|
| 1-0041 | 9/7/64 | NE MINNAPOLIS MINN | BOEING 737-200 N73602 DAMAGE-MINOR | CR- 0 1 6 PK- 0 1 46 | SCHD DOM PASSG SVY | AIRLINE TRANSPORT, AGE 52, 24071 TOTAL HOURS, 1627 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - NORTHWEST AIRLINES-INC. | | PHASE OF OPERATION IN FLIGHT DESCENDING | | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| | | PRIMARY CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | |
| | | WEATHER BRIEFING - COMPANY DISPATCH | | | | |
| | | WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION OVC CASTLE W/ SCATTERED | | CEILING AT ACCIDENT SITE 5000 | | |
| | | VISIBILITY AT ACCIDENT SITE 3 MILES OR LESS | | PRECIPITATION AT ACCIDENT SITE RAIN | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE 000 | | TEMPERATURE-F 70 | | |
| | | WIND DIRECTION-DEGREES 260 | | WIND VELOCITY-KNOTS 7 | | |
| | | TYPE OF WEATHER CONDITIONS 185 | | TYPE OF FLIGHT PLAN IRM | | |
| 1-0074 | 11/29/64 | WICHITA KANS | LOCKHEED L-749A N4212C DAMAGE-MINOR | CR- 0 0 5 PK- 0 2 13 | SCHD INTR PASSG SVY | AIRLINE TRANSPORT, AGE 44, 14279 TOTAL HOURS, 6718 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - TRANS WORLD AIRLINES-INC. | | PHASE OF OPERATION LANDING INITIAL APPROACH | | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| | | PRIMARY CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | |
| | | WEATHER BRIEFING - COMPANY DISPATCH | | | | |
| | | WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION OVC | | CEILING AT ACCIDENT SITE 600 | | |
| | | VISIBILITY AT ACCIDENT SITE 3 MILES | | PRECIPITATION AT ACCIDENT SITE NONE | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE 000 | | TEMPERATURE-F 56 | | |
| | | WIND DIRECTION-DEGREES 260 | | WIND VELOCITY-KNOTS 28 | | |
| | | TYPE OF WEATHER CONDITIONS 185 | | TYPE OF FLIGHT PLAN IRM | | |
| | | REMARKS - SEAT BELT FAILURE 90% PASSENGER WAS INJURED TURBULENCE CONSIDERED EXTREME RENDERED A/C UNCONT | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES P S M/W | FLIGHT PURPOSE | PILOT DATA |
|-----------------------------------------------------------------------------------------------------------|---------|-------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------|---------------------------|----------------------------------------------------------------------------------------|
| I-1075 | 4/11/64 | NR-SAN JOSE COSTA RI TIME - 2055 | DOUGLAS DC-6A N6520C DAMAGE-SUBSTANTIAL | CR- 0 1 4 PX- 0 0 20 | SCHED INTERNATL PASSG SVY | AIRLINE TRANSPORT, AGE 46, 14440 TOTAL HOURS, 4629 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT: NORMAL CRUISE | | | |
| TURBULENCE | | | REMARKS- INVESTIGATION UNDER JURISDICTION COSTA RICA GOVT MISC-TURBULENCE CAUSED BY NEARBY VOLCANO | | | |
| I-0009 | 1/24/65 | NR-ALLENTON PA TIME - 1225 | CARAVELLE VFR N1001 DAMAGE-NONE | CR- 0 1 4 PX- 0 0 26 | SCHED DOM PASSG SVY | AIRLINE TRANSPORT, AGE 43, 18000 TOTAL HOURS, 310 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT: NORMAL CRUISE | | | |
| TURBULENCE | | | PRIMARY CAUSE(S) | | | |
| | | | WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | |
| | | | WEATHER BRIEFING - COMPANY DISPATCH | | | |
| | | | WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| OVERCAST | | | UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| UNKNOWN/NOT REPORTED | | | SNOW GRAINS/SNOW PELLETS | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TEMPERATURE-F | | | |
| UNKNOWN/NOT REPORTED | | | -23 | | | |
| TYPE OF WEATHER CONDITIONS | | | TYPE OF FLIGHT PLAN | | | |
| IFR | | | IFR | | | |
| REMARKS- STEWARDESS WAS PERFORMING GALLEY DUTIES, THROWN TO THE FLOOR-SEAT BELT SIGN ON-WEATHER INVOLVED. | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------|
| I-0009 | 4/1/65 TIME - 1655 | NR. JULIAN CALIF | FAIRCHILD F-27A N750L DAMAGE-NONE | CR- 0 0 3 PR- 0 1 39 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 43, 14297 TOTAL HOURS, 3382 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - BONANZA AIR LINES, INC. | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| | | PROBABLE CAUSE(S) PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER PERSONNEL - OTHER FLIGHT PERSONNEL WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION BROKEN | | CEILING AT ACCIDENT SITE UNKNOWN, REPORTED | | |
| | | VISIBILITY AT ACCIDENT SITE 5 OR OVER | | PRECIPITATION AT ACCIDENT SITE NONE | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | TYPE OF WEATHER CONDITIONS VFR | | |
| | | TYPE OF FLIGHT PLAN VFR | | | | |
| | | REMARKS- NONREVENUE PASSENGER AND STEWARDESS TALKING IN GALLEY DID NOT COMPLY WITH FASTEN SEAT BELT SIGN. | | | | |
| I-0075 | 1/31/65 TIME - 1218 | NR. BERMUDA ISLANDS | BOEING 707 321C N797PA DAMAGE-NONE | CR- 0 0 10 PR- 0 2 63 | SCHED INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE 47, 17943 TOTAL HOURS, 1207 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER FACTORS(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT EMERGENCY CIRCUMSTANCES - PRECAUTIONARY LANDING ON AIRPORT ADVERSE/UNFAVORABLE WEATHER | | | | |
| | | SKY CONDITION OVERCAST/LOWER SCATTERED | | CEILING AT ACCIDENT SITE UNKNOWN | | |
| | | VISIBILITY AT ACCIDENT SITE 5 OR OVER | | PRECIPITATION AT ACCIDENT SITE RAIN | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | TYPE OF WEATHER CONDITIONS IFR | | |
| | | TYPE OF FLIGHT PLAN IFR | | | | |
| | | REMARKS- AIRSPEED AT TIME OF TURBULENCE 400 KNOTS | | | | |

SHIPS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S N/A | FLIGHT PURPOSE | PILOT DATA |
|--------|----------|-----------------------|------------------------|-------------------------|---------------------|-------------------------------------------------------------------------------|
| L-0020 | 12/27/55 | PRESCOTT, ARIZ - 1330 | CHILD F-27A GE-NONE | CM- 0 0 3 PX- 0 1 37 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 36, 10467 TOTAL HOURS, 4453 IN TYPE, INSTRUMENT RATED. |

OPERATOR - PANAMA A
TYPE OF ACCIDENT
TURBULENCE

PHASE OF OPERATION
IN FLIGHT: DESCENDING

PROBABLE CAUSES:
CAUSE - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
PERSONNEL - MISCELLANEOUS-PERSONNEL PASSENGER
CAUSE - MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED

SKY CONDITION
UNKNOWN
VISIBILITY AT ACCIDENT SITE
5 ON 1000
OBSTRUCTIONS TO VISION AT ACCIDENT SITE
NONE
TYPE OF FLIGHT PLAN
IFR
REMARKS - SEAT BELT SIGN ON PILOT SKIRTING CLOUD BUILD-UPS

CILING AT ACCIDENT SITE
UNKNOWN/NOT REPORTED
PRECIPITATION AT ACCIDENT SITE
RAIN SHOWERS
TYPE OF WEATHER CONDITIONS
VFR

PASSENGER LEFT SEAT FOR LAVATORY

L-0017 12/26/55
TINN - 1412

CONVAIR CV-440
REG-127M
DAMAGE-NONE

CM- 0 0 7
PX- 0 1 45

AIRLINE TRANSPORT, AGE
UNK/UNK, UNK/UNK TOTAL
HOURS, UNK/UNK IN TYPE,
UNK/UNK INSTRUMENT RATED.

OPERATOR - TRANS WORLD AIRLINES, INC.
TYPE OF ACCIDENT
TURBULENCE

PHASE OF OPERATION
IN FLIGHT: CLIMB TO CRUISE

PROBABLE CAUSES:
PERSONNEL - MISCELLANEOUS-PERSONNEL PASSENGER
MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED
PILOT IN COMMAND - INADEQUATE SUPERVISION OF FLIGHT
FACTORS:
WEATHER - THUNDERSTORM ACTIVITY
WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
WEATHER - BRIEFING - COMPANY DISPATCH
WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT

SKY CONDITION
OVERCAST
VISIBILITY AT ACCIDENT SITE
UNKNOWN/NOT REPORTED
OBSTRUCTIONS TO VISION AT ACCIDENT SITE
NONE
TYPE OF FLIGHT PLAN
IFR
REMARKS - CREW DID NOT ANNOUNCE SEAT BELT SIGN ON, PASSENGER STATEMENTS INDICATED LACK OF AWARENESS OF SIGN

CILING AT ACCIDENT SITE
4500
PRECIPITATION AT ACCIDENT SITE
THUNDERSTORM
TYPE OF WEATHER CONDITIONS
IFR

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------|
| 1-0079 | 7/6/65 | NALCOMMA NCPA | BOEING 707 1319 N756YH DAMAGE-NONE | CR- 0 1 6 PX- 0 0 45 | SCHOO DOM PASSG SRV | AIRLINE TRANSPORT, AGE 49, 20930 TOTAL HOURS, 3900 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - TRANS WORLD AIRLINES, INC. TYPE OF ACCIDENT TURBULENCE | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | PRINCIPLE CAUSE(S) MISC - SEAT BELT ATTACH FITTING FAILED FACTORS: WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER - THUNDERSTORM ACTIVITY MISCELLANEOUS ACTS/CONDITIONS - PATENT/ FAILURE WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | |
| | | SKY CONDITION UNKNOWN/NOT REPORTED VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF FLIGHT PLAN IFR | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED PRECIPITATION AT ACCIDENT SITE THUNDERSTORM TYPE OF WEATHER CONDITIONS IFR | | |
| 1-0061 | 8/27/65 | NALCOMMA VT | DOUGLAS DC-3 N19424 DAMAGE-NONE | CR- 0 1 2 PX- 0 0 5 | SCHOO DOM PASSG SRV | AIRLINE TRANSPORT, AGE 45, 4746 TOTAL HOURS, 1527 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - EASTLASE AIRLINES, INC. TYPE OF ACCIDENT TURBULENCE | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | PRINCIPLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS: MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION OVERCAST VISIBILITY AT ACCIDENT SITE 1/2 OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE WIND DIRECTION-SPEEDS /30 TYPE OF WEATHER CONDITIONS VFR | | CEILING AT ACCIDENT SITE 6000 PRECIPITATION AT ACCIDENT SITE NONE TEMPERATURE-F 65 WIND VELOCITY-KNOTS 12 TYPE OF FLIGHT PLAN IFR | | |
| | | REMARKS- CABIN ATTENDANT WAS NOT SEATED WHEN TURBULENCE WAS ENCOUNTERED-SM/ WAS ATTENDING PASSENGERS. | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|----------------------------------------------------------------------------------------|
| I-0042 | 8/12/65 TIME - 1316 | RATTLE MTN. NEV | LOCKHEED L-188 N7139C DAMAGE-NONE | CR- 0 1 4 PX- 0 0 89 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 44, 14200 TOTAL HOURS, 950 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - WESTERN AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | | | |
| SKY CONDITION OVERCAST/LOWEN SCATTERED PRECIPITATION AT ACCIDENT SITE HAIL, THUNDERSTORM TYPE OF FLIGHT PLAN IFR | | | VISIBILITY AT ACCIDENT SITE 2 MILE OR LESS TYPE OF WEATHER CONDITIONS VFR | | | |
| I-0050 | 1/23/65 TIME - 1140 | ML, CHICAGO ILL | BOEING B-720B N7294S DAMAGE-NONE | CR- 0 0 7 PX- 0 2 41 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 51, 21895 TOTAL HOURS, 2631 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - NORTHWEST AIRLINES, INC. TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: DESCENDING | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS PERSONNEL - WEATHER PERSONNEL, INCORRECT WEATHER FORECAST PERSONNEL - DISPATCHING, OTHER FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF MISCELLANEOUS ACTS, CONDITIONS - CIRCUIT BREAKER POPPED WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - WEATHER CONSIDERABLY WORSE THAN FORECAST | | | | | | |
| SKY CONDITION OVERCAST VISIBILITY AT ACCIDENT SITE 2 MILES OR LESS OBSTRUCTIONS TO VISION AT ACCIDENT SITE FOG WIND DIRECTION-DEGREES 220 TYPE OF WEATHER CONDITIONS IFR | | | CEILING AT ACCIDENT SITE 500 PRECIPITATION AT ACCIDENT SITE RAIN SHOWERS, SNOW SHOWERS TEMPERATURE-F 31 WIND VELOCITY-KNOTS 161 TYPE OF FLIGHT PLAN IFR | | | |
| REMARKS- SEAT BELT SIGN DID NOT STAY ON DUE TO TRIPPED CIRCUIT BREAKER-MX BOX AND CO FINDER PRCSYS INACCUR | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|------------------------------------------------------------------------------------------------------------|----------|-----------------------------------|-----------------------------------------------|-------------------------|------------------------|------------------------------------------------------------------------------------------------|
| I-0095 | 9/12/65 | NR. SALEM OREG TIME - 1126 | CURTISS C-46A N7764B DAMAGE-SUBSTANTIAL | CA- 0 0 2 PX- 0 0 0 | MILITARY CTR CARGO DOM | AIRLINE TRANSPORT, AGE 39, 6065 TOTAL HOURS, UNK/HR IN TYPE, UNK/HR INSTRUMENT RATED. |
| OPERATOR - ZANTOP AIR TRANSPORT | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSE(S) | | | | | | |
| WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| WEATHER BRIEFING - OTHER | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| EMERGENCY CIRCUMSTANCES - PRECAUTIONARY LANDING ON AIRPORT SUSPECTED OR KNOWN AIRCRAFT DAMAGE | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| BROKEN | | | 5500 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 OR OVER | | | RAIN | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | VFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |
| REMARKS- CARGO TIEDOWN LINGS SEPARATED IN TURBULENCE, LOOSE CARGO DAMAGED UPPER FUSELAGE, WX BRIEF BY NIL. | | | | | | |
| I-0064 | 10/17/65 | GLENWOOD SPRGS COL TIME - 1555 | BOEING 707 920C N17521 DAMAGE-NONE | CA- 0 1 7 PX- 0 1105 | SCHED COM PASS SVR | AIRLINE TRANSPORT, AGE 47, 20637 TOTAL HOURS, 3000 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - CONTINENTAL AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSE(S) | | | | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR | | | | | | |
| FACTORS) | | | | | | |
| PERSONNEL - WEATHER PERSONNEL: INCORRECT WEATHER FORECAST | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - WEATHER CONSIDERABLY WORSE THAN FORECAST | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| BROKEN/LOWER SCATTERED | | | 0 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| ZERO | | | NONE | | | |
| TEMPERATURE-F | | | WIND DIRECTION-DEGREES | | | |
| -38 | | | 13 | | | |
| WIND VELOCITY-KNOTS | | | TYPE OF WEATHER CONDITIONS | | | |
| 57 | | | IFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |
| REMARKS- COMPANY AND WEATHER BUREAU FORECASTS WERE INADEQUATE WITH REGARD TO TURBULENCE. | | | | | | |

CAUSES OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F. S. N/A | FLIGHT PURPOSE | PILOT DATA |
|--------|----------|-----------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------|-------------------------|----------------------------------------------------------------------------------------|
| 1-0072 | 12/27/65 | NE SAN DIEGO, CALIF. | DOUGLAS DC-8 N4081U DAMAGE-NONE | CR- 0 1 0 PK- 0 0 3 | SCHED DOM PASSENGER SKY | AIRLINE TRANSPORT, AGE 53, 27000 TOTAL HOURS, 4300 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - UNITED AIR LINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT | | IN FLIGHTS DESCRIBING | | |
| | | TURBULENCE | | | | |
| | | POSSIBLE CAUSES: | | | | |
| | | WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | |
| | | PERSONNEL - | | | | |
| | | MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED | | | | |
| | | WEATHER BRIEFING - COMPANY DISPATCH | | | | |
| | | WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | |
| | | SKY CONDITION | | CEILING AT ACCIDENT SITE | | |
| | | UNKNOWN | | 3300 | | |
| | | VISIBILITY AT ACCIDENT SITE | | PRECIPITATION AT ACCIDENT SITE | | |
| | | 5 IN OVER | | NONE | | |
| | | CONSTRAINTS TO VISION AT ACCIDENT SITE | | TEMPERATURE-F | | |
| | | NONE | | 52 | | |
| | | WIND VELOCITY-KNOTS | | TYPE OF WEATHER CONDITIONS | | |
| | | CALM | | VFR | | |
| | | TYPE OF FLIGHT PLAN | | | | |
| | | IFR | | | | |
| | | REMARKS - SEATBELT FASTENING SEAT BELT, AIRCRAFT ENCOUNTERED UNANTICIPATED MOD TO SEVERE TURBULENCE | | | | |

| | | | | | | |
|--------|--------|-------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------|-------------------------|--------------------------------------------------------------------------------------------|
| 1-0073 | 1/2/66 | W. WILMINGTON DE | CONVAIR CV-440 N4994H DAMAGE-NONE | CR- 0 0 0 PK- 0 2 27 | SCHED DOM PASSENGER SKY | AIRLINE TRANSPORT, AGE ORL/NR, 17200 TOTAL HOURS, 3100 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - NORTHEAST AIRLINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT | | IN FLIGHTS NORMAL CRUISE | | |
| | | TURBULENCE | | | | |
| | | POSSIBLE CAUSES: | | | | |
| | | WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | |
| | | PERSONNEL - OTHER FLIGHT PERSONNEL | | | | |
| | | MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED | | | | |
| | | WEATHER BRIEFING - COMPANY DISPATCH | | | | |
| | | WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION | | CEILING AT ACCIDENT SITE | | |
| | | UNKNOWN/NOT REPORTED | | UNKNOWN/NOT REPORTED | | |
| | | VISIBILITY AT ACCIDENT SITE | | TYPE OF WEATHER CONDITIONS | | |
| | | UNKNOWN/NOT REPORTED | | VFR | | |
| | | TYPE OF FLIGHT PLAN | | | | |
| | | IFR | | | | |
| | | REMARKS - ACCIDENT NOTIFICATION 17-17-65-CR-EN DID NOT CHECK PASSENGERS SEATBELTS FOR PROPER SECURITY | | | | |

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REPORTS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES K S M/T | FLIGHT PURPOSE | PILOT DATA |
|--------------------------------------------------------------------|---------|-------------------------------------|------------------------------------------------|------------------------|---------------------|----------------------------------------------------------------------------------------|
| I-0074 | 4/19/65 | Near TALLAHASSEE FLA TYPE - 1413 | EMBRAER 1-100 N742P DAMAGE-NONE | C- 0 1 4 PK- 0 0 53 | SCHED COM PASSG SHV | AIRLINE TRANSPORT, AGE 50, 17474 TOTAL HOURS, 1910 IN TIME, INSTRUMENT RATED. |
| OPERATOR - EASTERN AIR LINES, INC. | | | | | | |
| TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| PARENT CAUSE(S) | | | | | | |
| WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| FACTORS | | | | | | |
| WEATHER - THUNDERSTORM ACTIVITY | | | | | | |
| PERSONNEL - OTHER FLIGHT PERSONNEL | | | | | | |
| MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED | | | | | | |
| WEATHER SLEEPING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| OVERCAST | | | 21000 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| UNKNOWN/NOT REPORTED | | | RAIN | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | IF# | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IIR | | | | | | |
| REMARKS- FIF ATTENDANT PERFORMING DUTIES-INJURED RETURNING TO SEAT | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES | FLIGHT PURPOSE | PILOT DATA |
|-------------------------------------------------------------|---------|---------------------|-----------------------------------------|-------------------------|--------------------|---------------------------------------------------------------------------------------------------|
| 1-0004 | 8/1/66 | W. FALLS CITY, NEBR | BRITISH AC NISS3 DAMAGE-DESTROYED | CR- 4 0 0 PX- 38 0 0 | COMM DOV PASSG SKY | AIRLINE TRANSPORT, AGE 47, 20767 TOTAL HOURS, 51% IN TYPE, INSTRUMENT RATED. |
| OPERATOR - HAWAIIAN AIRWAYS, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT: NORMAL CRUISE | | | |
| AIRFRAME FAILURE: IN FLIGHT | | | IN FLIGHT: NORMAL CRUISE | | | |
| FIRE OR EXPLOSION: IN FLIGHT | | | | | | |
| PRIMARY CAUSES | | | | | | |
| PILOT - OPERATED ACFT IN AREA OF UNUSUAL WX HAZARD | | | | | | |
| WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| AIRFRAME - FLIGHT CONTROL AIRFACES OTHER | | | | | | |
| AIRFRAME - REEPLACES OTHER | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - QUALITY CARELINE | | | | | | |
| FACTORS: | | | | | | |
| WEATHER - SMALL LITE | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEPARATION IN FLIGHT | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - WEATHER CONSIDERABLY WORSE THAN FORECAST | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| OVERCAST | | | 2000 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 ON OVER | | | NONE | | | |
| INSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | VFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |
| DAMAGE - FIN, RT TAILPLANE AND RT WING FAILED. | | | | | | |
| 1-0009 | 2/30/66 | LOS ANGELES, CALIF | BOEING-707-123 N7520A DAMAGE-NONE | CR- 0 0 7 PX- 0 1 67 | SCHED DM PASSG SKY | CERTIFICATE UNKNOWN, AGE UNKNOWN, UNL/HR TOTAL HOURS, UNKNOWN IN TYPE, UNL/HR INSTRUMENT |
| OPERATOR - AMERICAN AIRLINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT: DESCENDING | | | |
| TURBULENCE | | | | | | |
| PRIMARY CAUSES | | | | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR | | | | | | |
| FACTORS: | | | | | | |
| PERSONNEL - WEATHER PERSONNEL INCORRECT WEATHER FORECAST | | | | | | |
| WEATHER BRIEFING - UNKNOWN/NOT REPORTED | | | | | | |
| WEATHER FORECAST - WEATHER CONSIDERABLY WORSE THAN FORECAST | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| CLEAR | | | UNLIMITED | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 ON OVER | | | NONE | | | |
| INSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | VFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/F | FLIGHT PURPOSE | PILOT DATA |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------|---------------------------------------|-------------------------|---------------------------|-----------------------------------------------------------------------------------------|
| 1-0027 | 8/6/68 1968 - 1913 | MEXICO CITY MEX | BOEING 720B 43277 DAMAGE-NONE | CR- 0 0 7 FR- 0 1 00 | SOUND INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE 59, OHR/HR TOTAL HOURS, 4000 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - WESTERN AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE PHASE OF OPERATION IN FLIGHT NORMAL CRUISE REMARKS- INVESTIGATION UNDER THE JURISDICTION OF THE GOVT OF MEXICO.</p> | | | | | | |
| 1-0028 | 8/7/68 TIME - 1305 | HARRISBURG PA | BOEING 707123 47504 DAMAGE-NONE | CR- 0 0 8 FR- 0 1131 | SOUND COM PASSG SRV | AIRLINE TRANSPORT, AGE 59, OHR/HR TOTAL HOURS, 4000 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - AMERICAN AIRLINES, INC. TYPE OF ACCIDENT TURBULENCE PHASE OF OPERATION IN FLIGHT DESCENDING PROBABLE CAUSE(S) PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER FACTOR(S) WEATHER - TURBULENCE IN FLIGHT-CLEAR AIR MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT SKY CONDITION NONE VISIBILITY AT ACCIDENT SITE 5 PK OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR CEILING AT ACCIDENT SITE 4000 PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR REMARKS- SEAT BELT SIGN WAS ON AND CREW HAD ISSUED WARNINGS. PASSENGER WAS STANDING IN AISLE.</p> | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S R/N | FLIGHT PURPOSE | PILOT DATA |
|--------|--------|------------------------------------|----------------------------------------|--------------------------|----------------------------|----------------------------------------------------------------------------------------|
| 1-0027 | 9/9/65 | NP. HONOLULU HAWAII TIME - 1900 | BOEING 707321 N401PA DAMAGE-NONE | CR- 0 0 10 PK- 0 113R | NEL CONTACT PASSENGER INTL | AIRLINE TRANSPORT, AGE 52, 19740 TOTAL HOURS, 1432 IN TYPE, INSTRUMENT RATED. |

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OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC.
 TYPE OF ACCIDENT
 TURBULENCE

PHASE OF OPERATION
 IN FLIGHT: NORMAL CRUISE

PRINCIPAL CAUSE(S)
 WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
 FACTOR(S)
 MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN OFF
 WEATHER REPORTING - COMPANY DISPATCH
 WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT

SKY CONDITION
 PARTIAL OBSCURATION
 VISIBILITY AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 TYPE OF WEATHER CONDITIONS
 VFR
 REMARKS - THUNDERSTORM BUILD-UP WAS NOT OBSERVED ON ACFT RADAR

CEILING AT ACCIDENT SITE
 3000
 OBSTRUCTIONS TO VISION AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 TYPE OF FLIGHT PLAN
 IFR

1-0029 4/22/65 DEL. MACON GA
 TIME - 0700

DOUGLAS DC-8
 N420E
 DAMAGE-NONE

CR- 0 0 7 SCHED DOM PASSENGER SRV
 PK- 0 1 30

AIRLINE TRANSPORT, AGE
 54, 26893 TOTAL HOURS,
 2675 IN TYPE, INSTRUMENT
 RATED.

OPERATOR - DELTA AIR LINES, INC.
 TYPE OF ACCIDENT
 TURBULENCE

PHASE OF OPERATION
 IN FLIGHT: CLIMB TO CRUISE

PRINCIPAL CAUSE(S)
 WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR
 PILOT IN COMMAND - INADEQUATE SUPERVISION OF FLIGHT
 FACTOR(S)
 MISCELLANEOUS ACTS/CONDITIONS - DISREGARD OF GOOD OPERATING PRACTICE
 MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN OFF
 MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED
 WEATHER REPORTING - COMPANY DISPATCH
 WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT

SKY CONDITION
 CLEAR
 VISIBILITY AT ACCIDENT SITE
 5 OR OVER
 OBSTRUCTIONS TO VISION AT ACCIDENT SITE
 NONE
 TYPE OF FLIGHT PLAN
 IFR

CEILING AT ACCIDENT SITE
 UNLIMITED
 PRECIPITATION AT ACCIDENT SITE
 NONE
 TYPE OF WEATHER CONDITIONS
 VFR

REMARKS - FLT WAS BRIEFED TO EXPECT CLR AIR TURB IN AREA WHERE FLT ENCOUNTERED IT. INADEQUATE WARNING TO PAS

BRIFING OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES P S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|---------|--------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------|---------------------|---------------------------------------------------------------------------------------|
| 1-0030 | 9/29/66 | NR. RAPID CITY S DAK | DOUGLAS DC-3 N4906E DAMAGE-NONE | CH- 0 1 2 PX- 0 0 7 | SCHD DOM. PASSE SVY | AIRLINE TRANSPORT, AGE 39, 7718 TOTAL HOURS, 2438 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - FRONTIER AIRLINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT TURBULENCE | | IN FLIGHT NORMAL CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | |
| | | FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | |
| | | WEATHER BRIEFING - COMPANY DISPATCH | | | | |
| | | WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION CLEAR | | CEILING AT ACCIDENT SITE UNLIMITED | | |
| | | VISIBILITY AT ACCIDENT SITE 5.00 OVER | | PRECIPITATION AT ACCIDENT SITE NONE | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | TYPE OF WEATHER CONDITIONS VFR | | |
| | | TYPE OF FLIGHT PLAN VFR | | | | |
| | | REMARKS - STEWARDESS WAS ASSISTING PASSENGERS, FLY WAS OPERATING VFR IN THE VICINITY OF THUNDERSTORMS. | | | | |
| 1-0032 | 9/29/66 | INDIANAPOLIS IND | LICKHED L-104 N120 DAMAGE-NONE | CH- 0 1 4 PX- 0 0 70 | SCHD DOM PASSE SVY | AIRLINE TRANSPORT, AGE 35, 11669 TOTAL HOURS, 286 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - AMERICAN AIRLINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT TURBULENCE | | IN FLIGHT NORMAL CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | |
| | | FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | |
| | | WEATHER BRIEFING - COMPANY DISPATCH | | | | |
| | | WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION OVERCAST | | CEILING AT ACCIDENT SITE 12000 | | |
| | | VISIBILITY AT ACCIDENT SITE 5.00 OVER | | PRECIPITATION AT ACCIDENT SITE NONE | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | TYPE OF WEATHER CONDITIONS VFR | | |
| | | TYPE OF FLIGHT PLAN IFR | | | | |
| | | REMARKS - STEWARDESS SERVING IN FLIGHT NEAR BROKE ANGLE DUE TURBULENCE. | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S A/N | FLIGHT PURPOSE | PILOT DATA |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------|---------------------------------------|-------------------------|-------------------------|---------------------------------------------------------------------------------------------|
| I-0031 | 9/30/66 | N. KINGSTON JAMAICA | BOEING 720H N783PA DAMAGE-NONE | CR- 0 0 8 PX- 0 1102 | SCHED INTNATL PASSG SRV | APRILINE TRANSPORT, AGE 50, 17555 TOTAL HOURS, UNK/HR IN TYPE, INSTRU- MENT RATED. |
| OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. TYPE OF ACCIDENT TURBULENCE REMARKS- INVESTIGATION UNDER JURISDICTION OF THE GOVERNMENT OF JAMAICA. | | | | | | |
| I-0037 | 7/15/66 | W. WINDFELL MESA | DOUGLAS DC-8 N9015U DAMAGE-NONE | CR- 0 0 7 PX- 0 2 31 | SCHED DOM PASSG SRV | APRILINE TRANSPORT, AGE 44, 12100 TOTAL HOURS, 1090 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | | | | |
| PROBABLE CAUSES: WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER - THUNDERSTORM ACTIVITY MISCELLANEOUS ACTS, CONDITIONS - DISREGARD OF GOOD OPERATING PRACTICE MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF WEATHER SPECIFIC - COMPANY DISPATCH WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FCHECAST | | | | | | |
| SKY CONDITION OVERCAST VISIBILITY AT ACCIDENT SITE NONE OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR CEILING AT ACCIDENT SITE 3500 PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS IFR | | | | | | |
| REMARKS- FLT OPERATED IN AREA OF SQUALL LINE, CREW MADE ALT AND COURSE CHNGES TO AVIOD, DID NOT ALERT PAX. | | | | | | |

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RIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------|
| I-0040 | 6/18/66 TIME - 1500 | MELBOURNE FLA | BOEING B-727 N8136N DAMAGE-NONE | CR- 0 1 5 PX- 0 0 82 | SOME DOW PASSG SVY | AIRLINE TRANSPORT, AGE 46, 7082 TOTAL HOURS, 965 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - EASTERN AIR LINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT TURBULENCE | | IN FLIGHT: NORMAL CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS PILOT IN COMMAND - DIVERTED ATTENTION FROM OPERATION OF AIRCRAFT | | | | |
| | | FACTOR(S) PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | |
| | | SKY CONDITION BROKEN | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | |
| | | VISIBILITY AT ACCIDENT SITE 5 OR OVER | | PRECIPITATION AT ACCIDENT SITE NONE | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | TYPE OF WEATHER CONDITIONS VFR | | |
| | | TYPE OF FLIGHT PLAN IFR | | | | |
| | | REMARKS- PILOT INADVERTENTLY ENTERED TOP OF RAPIDLY BUILDING CUMULUS CLOUD, FASTEN SEAT BELT SIGN WAS ON. | | | | |
| I-0044 | 8/27/66 TIME - 1500 | NR. SAN DIEGO CALIF | LOCKHEED L-188A N7137C DAMAGE-NONE | CR- 0 0 5 PX- 0 1 63 | SOME DOW PASSG SVY | AIRLINE TRANSPORT, AGE 42, UNK/MP TOTAL HOURS, UNK/MP IN TYPE, INSTRU- MENT RATED. |
| | | OPERATOR - WESTERN AIR LINES, INC. | | PHASE OF OPERATION | | |
| | | TYPE OF ACCIDENT MISCELLANEOUS | | UNKNOWN/NOT REPORTED | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | |
| | | SKY CONDITION UNKNOWN/NOT REPORTED | | CEILING AT ACCIDENT SITE 2 | | |
| | | VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | PRECIPITATION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | |
| | | TYPE OF WEATHER CONDITIONS VFR | | TYPE OF FLIGHT PLAN IFR | | |
| | | REMARKS- AIRSICK PX IN LAVATORY INJURED, FASTEN SEAT BELT SIGN ON DUE TURBULENCE. | | | | |

SUMMARY OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|---------------------------------------------------------------------------------------|
| 1-0048 | 11/12/46 | MILWILLINGS, MONT TIME - 1334 | BOEING 4-720 N7203U DAMAGE-NONE | CM- 0 0 7 PX- 0 1 73 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 51, 1555 TOTAL HOURS, 2343 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR PERSONNEL - MISCELLANEOUS-PERSONNEL PASSENGER PERSONNEL - OTHER FLIGHT PERSONNEL WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | | | |
| SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE WIND VELOCITY-KNOTS 45 TYPE OF FLIGHT PLAN IFR | | | CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE WIND DIRECTION-DEGREES 290 TYPE OF WEATHER CONDITIONS VFR | | | |
| REMARKS- PX FELL WHILE RETURNING TO SEAT, CROCKET WARNING GIVEN, ATTENDANTS FAILED TO OBSERVE PX MOVEMENTS. | | | | | | |
| 1-0013 | 3/5/47 | PILCOILL TIME - 1440 | BOEING 727 N7412U DAMAGE-NONE | CM- 0 1 5 PX- 0 0 64 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 47, 1500 TOTAL HOURS, 728 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: CLIMB TO CRUISE | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR PERSONNEL - OTHER FLIGHT PERSONNEL FACTORS(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |
| REMARKS- SEAT BELT SIGN WAS ON. | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES & S/M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|---------|-------------------|-----------------------------------------|-------------------------|---------------------|-----------------------------------------------------------------------------------------|
| I-0024 | 6/27/67 | NEWSPYRHOPT-LOUIS | TRIMMELAS DC-4 N4017U DAMAGE-NONE | CA- 0 0 7 PX- 0 1 59 | SCHED DOM PASSG SRV | ATR, FLIGHT INSTR., AGE 47, 23336 TOTAL HOURS, 2528 IN TYPE, INSTRUMENT RATED. |

OPERATOR - UNITED AIR LINES, INC.
TYPE OF ACCIDENT
TURBULENCE

PHASE OF OPERATION
IN FLIGHT: NORMAL CRUISE

INDICABLE CAUSES:
WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
SEAT BELT FASTENING - COMPANY DISPATCH
WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT
EMERGENCY CIRCUMSTANCES - PRECAUTIONARY LANDING ON AIRPORT
PHYSICAL CONDITION OF PASSENGER

SKY CONDITIONS
OVERCAST
VISIBILITY AT ACCIDENT SITE
5 IN OVR
OBSTRUCTIONS TO VISION AT ACCIDENT SITE
NONE
TYPE OF FLIGHT PLAN
IFR

CEILING AT ACCIDENT SITE
15000
PRECIPITATION AT ACCIDENT SITE
NONE
TYPE OF WEATHER CONDITIONS
IFR

REMARKS - PASSENGER N4017U, FELL BACK LEG WHILE RETURNING TO SEAT, SEAT BELT SIGN TURNED ON WHILE PX WAS IN LAVATORY

| | | | | | | |
|--------|---------|----------------|-----------------------------------|-------------------------|---------------------|---------------------------------------------------------------------------------------|
| I-0026 | 7/27/67 | WASH DC-DENVER | DC-8-62 N7220U DAMAGE-VINCH | CA- 0 0 7 PX- 0 1 41 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 46, 14000 TOTAL HOURS, 935 IN TYPE, INSTRUMENT RATED. |
|--------|---------|----------------|-----------------------------------|-------------------------|---------------------|---------------------------------------------------------------------------------------|

OPERATOR - UNITED AIR LINES, INC.
TYPE OF ACCIDENT
TURBULENCE

PHASE OF OPERATION
IN FLIGHT: NORMAL CRUISE

INDICABLE CAUSES:
WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR
PERSONNEL - MISCELLANEOUS-PERSONNEL PASSENGER
MISCELLANEOUS ACTS & CONDITIONS - SEAT BELT NOT FASTENED
PERSONNEL - MISCELLANEOUS-PERSONNEL OTHER
WEATHER FORECAST - COMPANY DISPATCH
WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST

SKY CONDITIONS
CLEAR
VISIBILITY AT ACCIDENT SITE
5 IN OVR
OBSTRUCTIONS TO VISION AT ACCIDENT SITE
NONE
WIND VELOCITY-KNOTS
25
TYPE OF FLIGHT PLAN
IFR

CEILING AT ACCIDENT SITE
UNLIMITED
PRECIPITATION AT ACCIDENT SITE
NONE
WIND DIRECTION-DEGREES
210
TYPE OF WEATHER CONDITIONS
VFR

REMARKS - CAPTAIN DID NOT REFLECT TURBULENCE REPORTS CLOSER TO SEAT. INJURY PASSENGER SUBSEQUENTLY DIED DUE HEART CONDITION.

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F. S. N/W | FLIGHT PURPOSE | PILOT DATA |
|--------------------------------------------------------------------------------------------------------------|------------------------|-------------------|---------------------------------------|-------------------------|---------------------------|----------------------------------------------------------------------------------------|
| 1-0030 | 4/26/67 TIME - 1940 | MI. DETROIT, MICH | DOUGLAS DC-8 N24210 DAMAGE-NONE | CR- 0 1 7 PK- 0 0 57 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 49, 20909 TOTAL HOURS, 42% IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSES: | | | | | | |
| WEATHER - THUNDERSTORM ACTIVITY | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| OBSCURATION | | | 0 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| ZERO | | | THUNDERSTORM | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | IFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |
| REMARKS- FLIGHT ATTENDANTS INJURED WHILE PERFORMING IN FLIGHT DUTIES. | | | | | | |
| 1-0036 | 5/15/67 TIME - 1800 | PHILADELPHIA, PA | BOEING 727 N8144N DAMAGE-NONE | CR- 0 0 6 PK- 0 1 92 | SCHED INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE 47, 25000 TOTAL HOURS, 105% IN TYPE, INSTRUMENT RATED. |
| OPERATOR - EASTERN AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSES: | | | | | | |
| WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| PERSONNEL - MISCELLANEOUS-PASSENGER | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | | | |
| EMERGENCY CIRCUMSTANCES - PRECAUTIONARY LANDING ON AIRPORT ADVERSE/UNFAVORABLE WEATHER | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| OVERCAST/LOWEN SCATTERED | | | 800 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| ZERO | | | RAIN | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | IFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |
| REMARKS- PK OUT OF SEAT WHEN ACFT ENCOUNTERED TURBULENCE. SEAT BELT SIGN ON WELL BEFORE TURBULENCE ENCOUNTER | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|---------------------------------------------------------------------------------------------------------------|------------------------|--------------------|------------------------------------------------------------|-------------------------|--------------------|---------------------------------------------------------------------------------------|
| 1-3038 | 6/20/67 TIME - 1825 | TOE HAYES CR. NEBR | DOUGLAS DC-6B N37567 DAMAGE-NONE | CR- 0 1 4 PX- 0 0 47 | SOME DON PASSE SVY | AIRLINE TRANSPORT, AGE 40, 14677 TOTAL HOURS, 75% IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSE(S) | | | | | | |
| MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED | | | | | | |
| WEATHER - TURBULENCE, ASSOCIATED W/ CLDS, THUNDERSTORMS | | | | | | |
| WEATHER - SMALL LINE | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION OVERCAST | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | PRECIPITATION AT ACCIDENT SITE SNOW GRAINS/SNOW PELLETS | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | TYPE OF WEATHER CONDITIONS IFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- 30-40 SEC BELT OF MODERATE TURB BTWN RAIN CELLS. SEAT BELT SIGN ON. STENAPPOSSES SEAT BELT NOT PSND. | | | | | | |

SUMMARY OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES # S / #N | FLIGHT PURPOSE | PILOT DATA |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------|--------------------------------------|--------------------------|---------------------|---------------------------------------------------------------------------------------|
| L-0059 | 12/30/67 | COCOA, FLA | DOUGLAS DC-9 N6615 DAMAGE-NONE | CR- 0 1 7 PX- 0 1002 | SOUND DON PASSE SKY | AIRLINE TRANSPORT, AGE 50, 21212 TOTAL HOURS, 486 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - EASTERN AIR LINES, INC. | | PHASE OF OPERATION: | | |
| | | TYPE OF ACCIDENT TURBULANCE | | IN FLIGHT: NORMAL CRUISE | | |
| <p>POSSIBLE CAUSES:</p> <p>PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC.</p> <p>WEATHER - TURBULANCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS</p> <p>FACTORS:</p> <p>WEATHER - THUNDERSTORM ACTIVITY</p> <p>MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED</p> <p>MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN OFF</p> <p>WEATHER - WEATHER - COMPANY DISPATCH</p> <p>WEATHER - FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST</p> <p>EMERGENCY CIRCUMSTANCES - PRECAUTIONARY LANDING ON AIRPORT</p> <p>PHYSICAL CONDITION OF PASSENGER</p> | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| 24 MEN/NOV SCATTERED | | | 15000 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 4 OR MORE | | | NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TEMPERATURE-F | | | |
| NONE | | | 83 | | | |
| WIND DIRECTION-DEGREES | | | WIND VELOCITY-KNOTS | | | |
| 110 | | | 9 | | | |
| TYPE OF WEATHER CONDITIONS | | | TYPE OF FLIGHT PLAN | | | |
| VFR | | | IFR | | | |
| REMARKS- PLT FAILED TO DIVERT AROUND CLOUDS ON ADVICE OF GND RADAR. | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/A | FLIGHT PURPOSE | PILOT DATA |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------|--------------------------------------------------|-------------------------|---------------------------|---------------------------------------------------------------------------------------|
| 1-0041 | 10/27/67 | N. JACKSONVILLE, FLA | DOUGLAS DC-8 N8610 DAMAGE-MINOR | CR- 0 0 7 PX- 0 1103 | SCHED INTERNATE PASSE SVR | AIRLINE TRANSPORT, AGE 45, 10576 TOTAL HOURS, 420 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - EASTERN AIR LINES, INC. | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| TYPE OF ACCIDENT TURBULENCE | | | | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, TURBULENCE PERSONNEL - MISCELLANEOUS-PASSENGER MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED WEATHER BREEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION CLEAR | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE 5 OR OVER | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- FAILURE OF PX TO HEARIN IN SEAT, FASTEN SEAT BELTS, AFTER BEING ALERTED BY CREW. SEAT BELT SIGN ON. | | | | | | |
| 1-0044 | 3/25/67 | N. ATLANTIC OCEAN | DOUGLAS DC-8 N8610 DAMAGE-MINOR | CR- 0 2 4 PX- 0 1101 | SCHED INTERNATE PASSE SVR | AIRLINE TRANSPORT, AGE 56, 24995 TOTAL HOURS, 43 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - EASTERN AIR LINES, INC. | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| TYPE OF ACCIDENT TURBULENCE | | | | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTORS MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN OFF WEATHER BREEFING - COMPANY DISPATCH WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST | | | | | | |
| SKY CONDITION CLEAR | | | CEILING AT ACCIDENT SITE UNLIMITED | | | |
| VISIBILITY AT ACCIDENT SITE 5 OR OVER | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | WIND DIRECTION-DEGREES 270 | | | |
| WIND VELOCITY-KNOTS 13 | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- TURBULENCE OF 5-8 SECS DURATION. | | | | | | |

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44-3810-72-1

CHIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------|
| 1-0050 | 11/7/67 | NR JACKSONVILLE, FLA TIME - 2225 | CUNYALZ 380 N94966 DAMAGE-NONE | CA- 0 0 4 PX- 0 1 18 | SCHED DOM PASSG SVY | AIRLINE TRANSPORT, AGE 54, 19177 TOTAL HOURS, 1829 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - NORTHEAST AIRLINES, INC. TYPE OF ACCIDENT TURBULENCE | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS) PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC. MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF WEATHER REPORTING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | |
| | | REMARKS- ACFT PENETRATED TOP OF CUMULUS 4020 W/ PCA 30 TO 60 SEC. AIRBORNE RADAR NOT IN USE. | | | | |
| 1-0056 | 12/1/67 | NR MANILA, P.I. TIME - 2115 | CESSNA 441 N17322 DAMAGE-NONE | CP- 0 1 8 PX- 0 0 123 | MIL CONTRACT PASSG INTL | AIRLINE TRANSPORT, AGE 46, UNK/NR TOTAL HOURS, UNK/NR IN TYPE, UNK/NR INSTRUMENT RATED. |
| | | OPERATOR - CONTINENTAL AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE | | PHASE OF OPERATION IN FLIGHT: CLIMB TO CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS PERSONNEL - OTHER FLIGHT PERSONNEL MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED FACTORS) WEATHER - THUNDERSTORM ACTIVITY WEATHER REPORTING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION UNKNOWN/NOT REPORTED VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF WEATHER CONDITIONS VFR | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF FLIGHT PLAN IFR | | |
| | | REMARKS- SEAT BELT SEGA CN. STEWARDESS THROWN FROM SEAT. PLT HAD ADVISED CREW AND PAX OF EXPECTED TURB. | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S/N/A | FLIGHT PURPOSE | PILOT DATA |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------|---------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------|--------------------------------------------------------------------------------------------------------|
| I-0057 | 6/9/67 | NY-MASSENA,NY | BOEING 727 N715N DAMAGE-NONE | CR- 0 0 0 PR- 0 1 72 | SCHED INTERNATE PASSE SVY | AIRLINE TRANSPORT, AGE 40, 10629 TOTAL HOURS, 23 IN TYPE, INSTRUMENT RATED. |
| OPERATION - EASTERN AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT CLIMB TO CRUISE | | | |
| TURBULENCE | | | | | | |
| <p>PROBABLE CAUSES:</p> <p>WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS</p> <p>PERSONNEL - MISCELLANEOUS-PERSONNEL PASSENGER FACTORIES</p> <p>MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED</p> <p>PERSONNEL - TRAFFIC CONTROL PERSONNEL OTHER</p> <p>WEATHER NOTICING - COMPANY DISPATCH</p> <p>WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| OVERCAST/LOWER SCATTERED | | | 17000 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 ON OVER | | | RAIN SNOW | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TEMPERATURE-F | | | |
| NONE | | | TYPE OF FLIGHT PLAN | | | |
| TYPE OF WEATHER CONDITIONS | | | IFR | | | |
| VFR | | | REMARKS- ACFT PENETRATED ISOLATED TSTM CELL, PAX WERE ACCURATELY WARNED, REQ TO DIVERT DELAYED BY DEP CONTROL | | | |
| REMARKS- ACFT PENETRATED ISOLATED TSTM CELL, PAX WERE ACCURATELY WARNED, REQ TO DIVERT DELAYED BY DEP CONTROL | | | | | | |
| I-0050 | 9/29/67 | NR-UJON, THAILAND | BOEING 707 N417PA DAMAGE-NONE | CR- 0 1 8 PR- 0 0 83 | SCHED INTERNATE PASSE SVY | CERTIFICATE UNKNOWN, AGE UNK/HR, UNK/HR TOTAL HOURS, UNK/HR IN TYPE, UNK/HR INSTRUMENT RATED. |
| OPERATION - PAN AMERICAN WORLD AIRWAYS, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT NORMAL CRUISE | | | |
| TURBULENCE | | | | | | |
| REMARKS- INVESTIGATION UNDER JURISDICTION OF GOVT. OF THAILAND. STEWARDESS FRACTURED PELTS DURING FALL. | | | | | | |

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RECORDS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INMATES F S N/W | FLIGHT PURPOSE | PILOT DATA |
|--------|----------|-------------|---------------------------------------------|-------------------------|---------------------|----------------------------------------------------------------------------------------|
| 1-0005 | 12/26/63 | WASSON, TEX | LOCKHEED L-131 N707C DAMAGE-DESTROYED | CA- 5 0 P PX- 00 0 0 | SCHED DOM PASSE SRV | AIRLINE TRANSPORT, AGE 46, 10000 TOTAL HOURS, 1300 IN TYPE, INSTRUMENT RATED. |

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OPERATOR - TRANSIF AIRWAYS, INC.
 TYPE OF ACCIDENT -
 TURBULENCE
 AIRFRAME FAILED IN FLIGHT

PHASE OF OPERATION
 IN FLIGHT: NORMAL CRUISE
 IN FLIGHT: OTHER

PRIMARY CAUSES:
 PILOT IN COMMAND - IMPROPER IN-FLIGHT DECISIONS IN PLANNING
 PILOT IN COMMAND - EXCEEDED DESIGNED STRESS LIMITS OF AIRCRAFT
 AIRFRAME - WINGS, OTHER
 MISCELLANEOUS ACTS/CONDITIONS - OVERLOAD FATIGUE
 WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
 FACTORS:
 MISCELLANEOUS ACTS/CONDITIONS - SEPARATION IN FLIGHT
 WEATHER BRIEFING - SELF-HELP PILOT CHECKED WEATHER DATA
 WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT

SKY CONDITION
 UNKNOWN/NOT REPORTED
 VISIBILITY AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 INSTRUCTIONS TO VISUAL AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 TYPE OF FLIGHT PLAN
 IFR

CEILING AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 PRECIPITATION AT ACCIDENT SITE
 HAIL, RAIN
 TYPE OF WEATHER CONDITIONS
 IFR

REMARKS - QUAG ATTEMPTED RECOVERY FROM UNUSUAL ATTITUDE INDUCED BY TSTM TURB. R WING FAILED IN OVERLOAD.

| | | | | | | |
|--------|---------|---------------|-------------------------------------|-------------------------|---------------------------|-----------------------------------------------------------------------------------------|
| 1-0007 | 1/13/63 | PACIFIC OCEAN | BOEING 707 N713PA DAMAGE-NONE | CA- 0 0 9 PX- 0 2 54 | SCHED INTERNATL PASSE SRV | ATR, FLIGHT INSTR., AGE 52, 10107 TOTAL HOURS, 4607 IN TYPE, INSTRUMENT RATED. |
|--------|---------|---------------|-------------------------------------|-------------------------|---------------------------|-----------------------------------------------------------------------------------------|

OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC.
 TYPE OF ACCIDENT -
 TURBULENCE

PHASE OF OPERATION
 IN FLIGHT: NORMAL CRUISE

PRIMARY CAUSES:
 WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
 PASSENGER - MISCELLANEOUS - PT-SOMEONE PASSENGER
 FACTORS:
 MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED
 WEATHER BRIEFING - COMPANY DISPATCH
 WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST

SKY CONDITION
 UNKNOWN/NOT REPORTED
 VISIBILITY AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 INSTRUCTIONS TO VISUAL AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 TYPE OF FLIGHT PLAN
 IFR

CEILING AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 PRECIPITATION AT ACCIDENT SITE
 UNKNOWN/NOT REPORTED
 TYPE OF WEATHER CONDITIONS
 IFR

REMARKS - PAX WERE PREVIOUSLY ADVISED TO KEEP SEAT BELTS LOOSELY FASTENED. PADAR DID NOT SHOW RETURN.

INDEX OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES P. S. N/A | FLIGHT PURPOSE | PILOT DATA |
|---------------------------------------------------------------------------|---------|---------------------|---------------------------------------|-------------------------|---------------------------|--------------------------------------------------------------------------------------------------------|
| I-0017 | 5/13/68 | NA-MASON CITY, IOWA | BOEING 720B N7549AP DAMAGE-NONE | CA- 0 0 7 PX- 0 1 77 | SCHED DOM PASSG SRV | CERTIFICATE UNKNOWN, AGE UNK/NR, UNK/NR TOTAL HOURS, UNK/NR IN TYPE, UNK/NR INSTRUMENT RATED. |
| OPERATOR - AMERICAN AIRLINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT: NORMAL CRUISE | | | |
| TURBULENCE | | | | | | |
| POSSIBLE CAUSE(S) | | | | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR | | | | | | |
| FACTORS(S) | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| NONE | | | 5000 | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 IN OVER | | | NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | VFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |
| REMARKS- CAPT BARND PAX TO KEEP SEAT BELTS FASTENED DUE TO POSSIBLE TURB. | | | | | | |
| I-0022 | 7/14/66 | NA-PRESQUM ISLE, NH | DOUGLAS DC-9 N812PA DAMAGE-NONE | CA- 0 0 9 PX- 0 1756 | SCHED INTERNATL PASSG SRV | CERTIFICATE UNKNOWN, AGE UNK/NR, UNK/NR TOTAL HOURS, UNK/NR IN TYPE, UNK/NR INSTRUMENT RATED. |
| OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT | | | IN FLIGHT: NORMAL CRUISE | | | |
| TURBULENCE | | | | | | |
| POSSIBLE CAUSE(S) | | | | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR | | | | | | |
| FACTORS(S) | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | | | |
| SKY CONDITION | | | CEILING AT ACCIDENT SITE | | | |
| CLEAR | | | UNLIMITED | | | |
| VISIBILITY AT ACCIDENT SITE | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 OR OVER | | | NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | VFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | |
| IFR | | | | | | |
| REMARKS- PAX FELL IN AISLE, FRACTURED LEFT FOOT. | | | | | | |

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9-81-0 910-910

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S R/N | FLIGHT PURPOSE | PILOT DATA |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------|--------------------------------------------------------|-------------------------|--------------------|--------------------------------------------------------------------------------------------------------|
| 1-0027 | 7/11/68 | NL-PHILIPSBURG, PA TIME - 1310 | BOEING 727 N994TM DAMAGE-NONE | CR- 0 2 5 PX- 0 0 34 | SOME DON PASSG SRV | CERTIFICATE UNKNOWN, AGE UNK/HR, UNK/HR TOTAL HOURS, UNK/HR IN TYPE, UNK/HR INSTRUMENT RATED. |
| OPERATOR - TRANS WORLD AIRLINES, INC. | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| TYPE OF ACCIDENT TURBULENCE | | | | | | |
| PROBABLE CAUSE(S) PERSONNEL - OTHER FLIGHT PERSONNEL WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | | | |
| SKY CONDITION OBSCURATION | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE ZERO | | | PRECIPITATION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | TYPE OF WEATHER CONDITIONS IFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- UNABLE TO CHNG ATC CLNC. PENETRATED CUMULUS LINE. SEAT BELT SIGN ON CREW AND PAX WARNED. | | | | | | |
| 1-0035 | 1/24/68 | NR-HILO, HAWAII TIME - 1015 | CONVAIR 440 N5510K DAMAGE-NONE | CR- 0 0 3 PX- 0 1 41 | SOME DON PASSG SRV | AIRLINE TRANSPORT, AGE 47, 19350 TOTAL HOURS, 875 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - HAWAIIAN AIRLINES, INC. | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| TYPE OF ACCIDENT TURBULENCE | | | | | | |
| PROBABLE CAUSE(S) PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - BRIEFED BY WEATHER BUREAU PERSONNEL, BY PHONE WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION OVERCAST/LOWER SCATTERED | | | CEILING AT ACCIDENT SITE 1000 | | | |
| VISIBILITY AT ACCIDENT SITE ZERO | | | PRECIPITATION AT ACCIDENT SITE NIL | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- SEAT BELT SIGN ON. PAX INADVERTENTLY RELEASED SEAT BELT DURING TURB. WAS THROWN FROM SEAT. | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------|-----------------------------------------------|-------------------------|---------------------------|--------------------------------------------------------------------------------------------------------|
| I-0036 | 11/23/68 | NH-CACHIMBÉ, BRAZIL TIME - 0240 | BOEING 707 N428PA DAMAGE-NONE | CR- 0 1 8 PX- 0 0 0 | SCHED INTERNATL PASSG SRV | CERTIFICATE UNKNOWN, AGE UNK/HR, UNK/HR TOTAL HOURS, UNK/HR IN TYPE, UNK/HR INSTRUMENT RATED. |
| <p>OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. TYPE OF ACCIDENT - TURBULENCE PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE. REMARKS - INVESTIGATION UNDER JURISDICTION OF GOVT OF BRAZIL. NO OF PAX ABO UNREPORTED. SCTD TSTNG.</p> | | | | | | |
| I-0039 | 12/2/58 | PEHO ROY, ALAS TIME - 0936 | FAIRCHILD F-27B N4905B DAMAGE-DESTROYED | CR- 3 0 0 PX- 36 0 0 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 37, 40557 TOTAL HOURS, 5927 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - WICA CONSOLIDATED AIRLINES, INC. O - WETUP POINT INTENDED DESTINATION ANCHORAGE, ALAS DEILTNCHAN, ALAS TYPE OF ACCIDENT - TURBULENCE AIRFRAME FAILURE: IN FLIGHT LAST EN-ROUTE STOP KING SLEMON, ALAS PHASE OF OPERATION IN FLIGHT: DESCENDING IN FLIGHT: DESCENDING</p> <p>Possible Causes: PERSONNEL - MAINTENANCE, SERVICING, INSPECTIONS: IMPROPER MAINTENANCE (MAINTENANCE PERSONNEL) PERSONNEL - WEATHER PERSONNEL: INCORRECT WEATHER FORECAST AIRFRAME - WINGS: SKIN AND ATTACHMENTS MISCELLANEOUS ACTS, CONDITIONS - FATIGUE FRACTURE WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR</p> <p>FACTORS: MISCELLANEOUS ACTS, CONDITIONS - SEPARATION IN FLIGHT WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - WEATHER CONSIDERABLY WORSE THAN FORECAST</p> <p>SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR</p> <p>REMARKS - ENCTR SRV TO EXTRM UNPCST TURBC. R KING WIND INDETERMINATE DEG BY PRE-EXISTING FATIGUE CRACKS.</p> | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/A | FLIGHT PURPOSE | PILOT DATA |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------|----------------------------------------------------------------------------------------|
| 1-0043 | 8/27/60 | ELWOOD, PA | 540 AVIATR SE 210 N1005 DAMAGE-NONE | CR- 0 1 4 PX- 0 0 47 | SCHED DOM PASSENGER | AIRLINE TRANSPORT, AGE 44, 11245 TOTAL HOURS, 2987 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - UNITED AIR LINES, INC. TYPE OF ACCIDENT TURBULENCE</p> <p>POSSIBLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTORS MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN OFF WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER INSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IRM REMARKS - TWO SHARP HILTS OF TURBULENCE ENCOUNTERED.</p> | | | <p>PHASE OF OPERATION IN FLIGHT: DESCENDING</p> <p>CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR</p> | | | |
| 1-0045 | 12/16/60 | W. ATLANTIC OCEAN | BOEING 707 N757PA DAMAGE-NONE | CR- 0 0 9 PA- 0 1137 | SCHED INTERNATL PASSENGER | AIRLINE TRANSPORT, AGE 45, 10946 TOTAL HOURS, 3869 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. TYPE OF ACCIDENT TURBULENCE</p> <p>POSSIBLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>SKY CONDITION SCATTERED VISIBILITY AT ACCIDENT SITE 5 OR OVER INSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IRM REMARKS - INSUFFICIENT TIME FOR PAX GET TO SEATS WHEN SEAT BELT SIGN WAS TURNED ON.</p> | | | <p>PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE</p> <p>CEILING AT ACCIDENT SITE 39000 PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR</p> | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|-------------------------------------------------------------|---------|--------------------|----------------------------------------|-------------------------|---------------------|---------------------------------------------------------------------------------------|
| 1-0049 | 7/20/64 | MR. BILLINGS, MONT | LOCKHEED 188C N130US DAMAGE-NONE | CR- 0 2 3 PX- 0 1 15 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 38, 5000 TOTAL HOURS, 700 IN TYPE. INSTRUMENT RATED. |
| OPERATOR - NORTHWEST AIRLINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSE(S) | | | | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR | | | | | | |
| FACTORS | | | | | | |
| PERSONNEL - WEATHER PERSONNEL INCORRECT WEATHER FORECAST | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - WEATHER CONSIDERABLY WIKSE THAN FORECAST | | | | | | |
| SKY CONDITION CLEAR | | | CEILING AT ACCIDENT SITE UNLIMITED | | | |
| VISIBILITY AT ACCIDENT SITE 5 OR OVER | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TEMPERATURE-F 69 | | | |
| WIND DIRECTION-DEGREES 210 | | | WIND VELOCITY-KNOTS 24 | | | |
| TYPE OF WEATHER CONDITIONS VFR | | | TYPE OF FLIGHT PLAN NONE | | | |
| REMARKS- PTN WAVE EFFECT NOT FCST. SEAT BELT SIGN ON. | | | | | | |
| 1-0050 | 4/27/64 | YAKIMA, WASH | NOVINC 727 N7407U DAMAGE-NONE | CR- 0 0 6 PX- 0 1 57 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 43, 12692 TOTAL HOURS, 429 IN TYPE. INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CRUISE | | | |
| PROBABLE CAUSE(S) | | | | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION OVERCAST | | | CEILING AT ACCIDENT SITE 12000 | | | |
| VISIBILITY AT ACCIDENT SITE 5 OR OVER | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------|--------------------------------------------------------------------------------------------|
| 1-0052 | 1/11/69 TIME - 0650 | INTERNATL WATERS | DOUGLAS DC-6A N90702 DAMAGE-PINCH | CR- 0 1 6 PX- 0 0 0 | NS/CTR REVENUE CARGO INTL | AIRLINE TRANSPORT, AGE 39, 10800 TOTAL HOURS, 97 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - SOUTHERN AIR TRANSPORT, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CHUISE | | | |
| PROBABLE CAUSES: WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | CEILING AT ACCIDENT SITE 16000 PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |
| SKY CONDITION OVERCAST VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | REMARKS- ACCOT LOCATION, 133 MI NW OF HANGCHUN, SUMMA. C/P DUTY CREW MEMBER THROWN FROM CABIN. | | | |
| 1-0053 | 1/29/69 TIME - UNK/NI | N. ATLANTIC | DOUGLAS DCB N818PA DAMAGE-NONE | CR- 0 0 10 PX- 0 1 93 | SCMED INTRNATL PASSG SVY | AIRLINE TRANSPORT, AGE UNK/NI, 20304 TOTAL HOURS, 5715 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. | | | PHASE OF OPERATION | | | |
| TYPE OF ACCIDENT TURBULENCE | | | IN FLIGHT: NORMAL CHUISE | | | |
| PROBABLE CAUSES: WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER WEATHER BRIEFING - UNKNOWN/NOT REPORTED WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED PRECIPITATION AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF WEATHER CONDITIONS UNKNOWN/NOT REPORTED | | | |
| SKY CONDITION UNKNOWN/NOT REPORTED VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF FLIGHT PLAN IFR | | | REMARKS- PX SAID HAD SEAT BELT FASTENED LOOSELY, NO INSTRUCTIONS. CREW SAID SEAT BLY SIGN ON ANNOUNCEMENT MADE. | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------|-------------------------------------|-------------------------|---------------------|----------------------------------------------------------------------------------------|
| 1-0059 | 7/23/64 | LAFAYETTE, IND | BOEING 707 N455US DAMAGE-NONE | CR- 0 1 6 PX- 0 0 57 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 46, 10347 TOTAL HOURS, 1667 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - NORTHWEST AIRLINES, INC.</p> <p>TYPE OF ACCIDENT TURBULENCE</p> <p>PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE</p> <p>PROBABLE CAUSE(S) PERSONNEL - OTHER FLIGHT PERSONNEL MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT NOT FASTENED WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>SKY CONDITION UNKNOWN/NOT REPORTED</p> <p>CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED</p> <p>VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED</p> <p>PRECIPITATION AT ACCIDENT SITE THUNDERSTORM</p> <p>OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE</p> <p>TYPE OF WEATHER CONDITIONS IFR</p> <p>TYPE OF FLIGHT PLAN IFR</p> <p>REMARKS- CABIN ATTENDANT WAS NOT SEATED. SEAT BELT SIGN ON.</p> | | | | | | |
| 1-0065 | 1/75/68 | MH. KANDAHAR, AFGHAN | BOEING 707 N627PA DAMAGE-NONE | CR- 0 1 9 PX- 0 5 63 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 59, 26183 TOTAL HOURS, 5117 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC.</p> <p>DEPARTURE POINT TENZAN, IRAN</p> <p>INTENDED DESTINATION NEW DELHI, INDIA</p> <p>TYPE OF ACCIDENT TURBULENCE</p> <p>PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE</p> <p>REMARKS- INVESTIGATION UNDER JURISDICTION OF GOVT OF AFGHANISTAN.</p> | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S A/N | FLIGHT PURPOSE | PILOT DATA |
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| I-0006 | 7/2/64 TIME - 0745 | NEW RICHMOND, MASS | DOUGLAS DC-8 N4010U DAMAGE-SUBSTANTIAL | CR- 0 0 4 PX- 0 0 2106 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 47, 11000 TOTAL HOURS, 3327 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. DEPARTURE POINT DISTRIBUTION, MASS TYPE OF ACCIDENT TURBULENCE | | | INTENDED DESTINATION SEATTLE, WASH | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | |
| POSSIBLE CAUSES: WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS: MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED WEATHER - THUNDERSTORM ACTIVITY WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST | | | | | | |
| SKY CONDITION OVERCAST | | | CEILING AT ACCIDENT SITE 5000 | | | |
| VISIBILITY AT ACCIDENT SITE ZERO | | | PRECIPITATION AT ACCIDENT SITE NIL | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | REMARKS - CAPT AND ACFT PASSENGERS DIDNT SHOW CELL PHONE FCST INACCURATE AS TO TIME AND LOCATION OF TSTM. | | | |
| I-0007 | 10/1/64 TIME - 1350 | MC FILLMORE, CALIF | ACEING 727 N7922U DAMAGE-NONE | CR- 0 0 6 PX- 0 0 38 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 43, 12740 TOTAL HOURS, 460 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. DEPARTURE POINT SAN FRANCISCO, CALIF TYPE OF ACCIDENT TURBULENCE | | | INTENDED DESTINATION LOS ANGELES, CALIF | | PHASE OF OPERATION IN FLIGHT: DESCENDING | |
| POSSIBLE CAUSES: WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS: MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION UNKNOWN/NOT REPORTED | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE ZERO | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | REMARKS - HADNT SHOWN NO RETURN. | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S N/A | FLIGHT PURPOSE | PILOT DATA |
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| I-0068 | 1/24/68 | NO. ATLANTIC OCFAN | DOUGLAS DC-9 N4900C DAMAGE-MINOR | CR- 0 1 6 PX- 0 113 | SCHED INTERNATE PASSG SRV | AIRLINE TRANSPORT, AGE 57, 20000 TOTAL HOURS, 900 IN TYPE, INSTRUMENT RATED. |
|--------|---------|--------------------|----------------------------------------|------------------------|---------------------------|---------------------------------------------------------------------------------------|

OPERATOR - EASTERN AIR LINES, INC.
DEPARTURE POINT - NEW YORK, NY
INTENDED DESTINATION - SAN JUAN, PR

TYPE OF ACCIDENT - TURBULENCE

PHASE OF OPERATION - IN FLIGHT: NORMAL CRUISE

PROBABLE CAUSE(S):
WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
PERSONNEL - WEATHER PERSONNEL: INCORRECT WEATHER FORECAST
FACTORS:
MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN ON
WEATHER BRIEFING - COMPANY DISPATCH
WEATHER FORECAST - WEATHER CONSIDERABLY WORSE THAN FORECAST

SKY CONDITION - CLEAR
VISIBILITY AT ACCIDENT SITE - 5 OR OVER
OBSTRUCTIONS TO VISION AT ACCIDENT SITE - NONE

CEILING AT ACCIDENT SITE - UNLIMITED
PRECIPITATION AT ACCIDENT SITE - NONE
TYPE OF WEATHER CONDITIONS - VFR

REMARKS - WEA PRIC CHART INACCURATE AS TO LOCATION OF CB CLOUDS AND TURB INTENSITY. RADAR DID NOT SHOW RETURN.

| | | | | | | |
|--------|---------|-----------------|---------------------------------------|--------------------------|---------------------|---------------------------------------------------------------------------------------|
| I-0069 | 6/12/68 | W. WINDFOLK, VA | DOUGLAS DC-9 N4775 DAMAGE-MINOR | CR- 0 0 10 PX- 0 1 94 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 47, 19377 TOTAL HOURS, 420 IN TYPE, INSTRUMENT RATED. |
|--------|---------|-----------------|---------------------------------------|--------------------------|---------------------|---------------------------------------------------------------------------------------|

OPERATOR - EASTERN AIR LINES, INC.
DEPARTURE POINT - JFK INTL, NY
INTENDED DESTINATION - MIAMI, FLA

TYPE OF ACCIDENT - TURBULENCE

PHASE OF OPERATION - IN FLIGHT: NORMAL CRUISE

PROBABLE CAUSE(S):
WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS
FACTORS:
PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC.
MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN ON
WEATHER BRIEFING - COMPANY DISPATCH
WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT

SKY CONDITION - OVERCAST
VISIBILITY AT ACCIDENT SITE - ZERO
OBSTRUCTIONS TO VISION AT ACCIDENT SITE - NONE
TYPE OF FLIGHT PLAN - IFR

CEILING AT ACCIDENT SITE - UNKNOWN/NOT REPORTED
PRECIPITATION AT ACCIDENT SITE - THUNDERSTORM
TYPE OF WEATHER CONDITIONS - VFR

REMARKS - KNOWN TSTM ACTIVITY IN AREA. PLOT DID NOT GIVE VERBAL WARNING TO PX AND CREW.

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|--------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1-0070 | 7/7/68 | MR. HECTOR, CALIF TIME - 1317 | BOEING 727 N898PC DAMAGE-NONE | CR- 0 1 5 PX- 0 0 6 | SCHED DOM PASSG SRV | ATR- FLIGHT INSTR., AGE 49, 23000 TOTAL HOURS, 871 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - AIR WEST, INC. DEPARTURE POINT LAS VEGAS, NEV TYPE OF ACCIDENT TURBULENCE | INTENDED DESTINATION LOS ANGELES, CALIF | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTORS) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | |
| | | SKY CONDITION BROKEN VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | | |
| | | REMARKS- CUMULUS BUILDUP TO RT. UNABLE TO STEER LEFT DUE TO RESTRICTED AREA 2501. | | | | |
| 1-0071 | 10/28/68 | NS. PACIFIC OCEAN TIME - 2200 | BOEING 707 N624PA DAMAGE-NONE | CR- 0 2 9 PX- 0 0 53 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 57, 19300 TOTAL HOURS, 5226 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. DEPARTURE POINT TOKYO, JAPAN TYPE OF ACCIDENT TURBULENCE | INTENDED DESTINATION SAN FRANCISCO, CALIF | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTORS) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | |
| | | SKY CONDITION BROKEN VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | | |
| | | REMARKS- PX WARNED TO KEEP SEAT BELTS LOOSELY FASTENED. | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|--------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| I-0011 | 3/20/69 | NR-HONOLULU, HAWAII | BOEING 707 N427PA DAMAGE-NONE | CR- 0 0 8 PX- 0 1 70 | SCHED INTL MAIL PASSG SRV | AIRLINE TRANSPORT, AGE UNK/HR, 17200 TOTAL HOURS, 3423 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. | DEPARTURE POINT LOS ANGELES, CALIF | INTENDED DESTINATION NEW YORK, NY | LAST ENROUTE STOP LONDON, ENGLAND PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | |
| | | SKY CONDITION CLEAR | | CEILING AT ACCIDENT SITE UNLIMITED | | |
| | | VISIBILITY AT ACCIDENT SITE 5 OR OVER | | PRECIPITATION AT ACCIDENT SITE NONE | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | TYPE OF WEATHER CONDITIONS VFR | | |
| | | TYPE OF FLIGHT PLAN IFR | | | | |
| | | REMARKS- PX RETURNING TO SEAT FROM BLUE ROOM AS SEAT OPLT SIGN WAS TURNED ON WAS THROWN TO FLOOR. | | | | |
| I-0012 | 3/16/69 | NR-PULASKI, VA | DOUGLAS DC-8 N803BA DAMAGE-NONE | CR- 0 1 0 PX- 0 0 59 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 44, 22778 TOTAL HOURS, 1452 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - DELTA AIR LINES, INC. | DEPARTURE POINT NEW ORLEANS, LA | INTENDED DESTINATION DULLES AIRPORT, VA | PHASE OF OPERATION IN FLIGHT: DESCENDING | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - UNKNOWN/NOT REPORTED WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION UNKNOWN/NOT REPORTED | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | |
| | | VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | PRECIPITATION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | TYPE OF WEATHER CONDITIONS VFR | | |
| | | TYPE OF FLIGHT PLAN IFR | | | | |
| | | REMARKS- STEWARDESS THROWN TO CEILING WHILE IN AISLE. | | | | |

BNIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|--------------------------------------------------|-------------------------|---------------------------------------------|--------------------------------------------------------------------------------------|
| I-0015 | 2/4/54 TIME - 1515 | SEATTLE, WASH | BOEING B-727 N70560 DAMAGE-NONE | CR- 0 0 6 PX- 0 1 75 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 38, 7000 TOTAL HOURS, 345 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - UNITED AIR LINES, INC. | | | INTENDED DESTINATION SEATTLE, WASH | | PHASE OF OPERATION IN FLIGHT: DESCENDING | |
| DEPARTURE POINT LOS ANGELES, CALIF | | | TYPE OF ACCIDENT TURBULENCE | | | |
| POTENTIAL CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR PERSONNEL - MISCELLANEOUS-PERSONNEL PASSENGER | | | | | | |
| FACT(S) MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - BRIEFING RECEIVED-METHOD UNKNOWN WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | | | |
| SKY CONDITION CLEAR | | | CEILING AT ACCIDENT SITE UNLIMITED | | | |
| VISIBILITY AT ACCIDENT SITE 5 OR OVER | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | REMARKS- PX RETAINING TO SEAT BELL, BROKE ANKLE. | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/W | FLIGHT PURPOSE | PILOT DATA |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1-0018 | 4/27/67 TIME - 1345 | OVER CUBA | DOUGLAS DC-8 N8764 DAMAGE-MINOR | CR- 0 0 8 PX- 0 6177 | NS/CTR REVENUE PASSG INTL | AIRLINE TRANSPORT. AGE 56. 24289 TOTAL HOURS. 1805 IN TYPE. INSTRUMENT RATED. |
| | | OPERATOR - EASTERN AIR LINES, INC. | DEPARTURE POINT BOSTON, MASS | INTENDED DESTINATION JAMAICA, BMT | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| <p>POSSIBLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACT(S) PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC. MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER - THUNDERSTORM ACTIVITY WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST</p> | | | | | | |
| | | SKY CONDITION OVERCAST | VISIBILITY AT ACCIDENT SITE ZERO | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | TYPE OF FLIGHT PLAN IFR | | PRECIPITATION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | |
| | | REMARKS- PLY GAVE CREW AMPLE WARNING BUT DID NOT SLOW ACFT TO COMPANY MAX TSTM PENETRATION A/S. | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S A/R | FLIGHT PURPOSE | PILOT DATA |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|--------------------------------------------------------|--------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------|
| I-0029 | 4/27/57 TIME - 1055 | NO. ATLANTIC OCEAN | DOUGLAS DC-8 N8401 DAMAGE-MINOR | CR- 0 0 7 PK- 0 0 100 | SOME INTERNATL PASSG-SKY | AIRLINE TRANSPORT, AGE SEX, AGE/YR, TOTAL HOURS, UNKNOWN IN TYPE, INSTRUMENT RATED. |
| OPERATOR - EASTERN AIR LINES, INC. REGISTRATION - SAN JUAN, PR | | | INTENDED DESTINATION PHILADELPHIA, PA | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | |
| TYPE OF ACCIDENT TURBULENCE | | | | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS) PERSONNEL - OTHER FLIGHT PERSONNEL MISCELLANEOUS ACTS/CONDITIONS - SEAT BELT SIGN ON WEATHER - THUNDERSTORM ACTIVITY WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION UNKNOWN/NOT REPORTED | | | CFILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | PRECIPITATION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- RADAR INOPERATIVE. FLT WARNED FLT ATTENDANTS, BUT THEY DID NOT CHECK PK SEAT BELTS. | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES | | FLIGHT PURPOSE | PILOT DATA | |
|--------------------------------------------------------------------------------|---------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------|---------------------|-------------------------------------------------------------------------------|--|
| | | | | F | S R/W | | | |
| 1-0073 | 7/26/69 | NE-JANESVILLE, WIS | BOEING 720 N7215U DAMAGE-NONE | CR- 0 0 7 | PX- 0 1110 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 52, 20130 TOTAL HOURS, 1250 IN TYPE, INSTRUMENT RATED. | |
| OPERATOR - UNITED AIR LINES, INC. | | | DEPARTURE POINT DENVER, COLO | | INTENDED DESTINATION CHICAGO, ILL | | | |
| TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: DESCENDING | | | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | FACTORS(S) PERSONNEL - DISPATCHING: FAILURE TO KEEP FLIGHT PROPERLY ADVISED PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC. MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST | | | | | |
| SKY CONDITION OVERCAST | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | | | |
| VISIBILITY AT ACCIDENT SITE (LMD) | | | PRECIPITATION AT ACCIDENT SITE RAIN SHOWERS | | | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | | | |
| TYPE OF FLIGHT PLAN IFR | | | REMARKS- FLT DID NOT GIVE VERBAL WARNING TO CABIN. SEVERE WEA FCST WAS NOT RELATED TO ACFT BY DISPATCHER. | | | | | |
| 1-0029 | 6/2/69 | MO-ST. LOUIS, MO | BOEING 707 N7717M DAMAGE-NONE | CR- 0 1 6 | PX- 0 0 92 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 49, 21745 TOTAL HOURS, 257 IN TYPE, INSTRUMENT RATED. | |
| OPERATOR - TRANS WORLD AIRLINES, INC. | | | DEPARTURE POINT KANSAS CITY, MO | | INTENDED DESTINATION MIAMI, FLA | | | |
| TYPE OF ACCIDENT TURBULENCE | | | LAST ENROUTE STOP ST. LOUIS, MO | | | | | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | FACTORS(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | |
| SKY CONDITION UNKNOWN/NOT REPORTED | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | | | |
| VISIBILITY AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | PRECIPITATION AT ACCIDENT SITE RSM | | | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | | | |
| TYPE OF FLIGHT PLAN IFR | | | REMARKS- ARTC HAS RADAR VECTERING ACFT AROUND WORST TSTM ACTIVITY. ACFT RADAR ON AND OPERATING. | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S N/R | FLIGHT PURPOSE | PILOT DATA |
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| 1-0070 | 7/22/67 | EVERGREEN, ALA | DOUGLAS DC-8 N612E DAMAGE-NONE | CR- 0 1 6 PX- 0 0 75 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 47, 13850 TOTAL HOURS, 140 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - DELTA AIR LINES, INC. DEPARTURE POINT - ATLANTA, GA INTENOD DESTINATION - NEW ORLEANS, LA TYPE OF ACCIDENT - TIMBULANCE PHASE OF OPERATION - IN FLIGHT: NORMAL CRUISE</p> <p>PROBABLE CAUSE(S) PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC. WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS(S) WEATHER - THUNDERSTORM ACTIVITY WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>SKY CONDITION - UNKNOWN/NOT REPORTED PRECIPITATION AT ACCIDENT SITE - UNKNOWN/NOT REPORTED TYPE OF WEATHER CONDITIONS - VFR</p> <p>REMARKS - SEAT BELT SIGN WAS TURNED ON TOO LATE. BEVERAGE SERVICE IN PROGRESS.</p> | | | | | | |
| 1-0021 | 7/7/69 | N. ATLANTIC OCEAN | DOUGLAS DC-8 N8775 DAMAGE-NONE | CR- 0 0 9 PX- 0 1 00 | SCHED INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE 55, 24000 TOTAL HOURS, 1000 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - EASTERN AIR LINES, INC. DEPARTURE POINT - NEW YORK, NY INTENOD DESTINATION - JFK INTL, NY TYPE OF ACCIDENT - TURBULENCE PHASE OF OPERATION - IN FLIGHT: NORMAL CRUISE</p> <p>PROBABLE CAUSE(S) WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS(S) SCATTERED ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>SKY CONDITION - OVERCAST PRECIPITATION AT ACCIDENT SITE - NONE TYPE OF WEATHER CONDITIONS - VFR</p> <p>REMARKS - PA WAS RETURNING TO SEAT FROM BLUE ROOM. ACFT ABOUT MIDWAY BETWEEN BERMUDA AND NY.</p> | | | | | | |

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BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|-----------------------------------------------------------------------------------------------------|----------|------------------|--------------------------------------------------|-------------------------|-----------------------------------------|----------------------------------------------------------------------------------------|
| 1-0032 | 11/26/69 | W. PACIFIC OCEAN | BOEING 707 N17521 DAMAGE-NONE | CR- 0 1 7 PX- 0 0 65 | MIL CONTRACT PASSG INTL | AIRLINE TRANSPORT, AGE 49, 21715 TOTAL HOURS, 5510 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - CONTINENTAL AIR LINES, INC. | | | DEPARTURE POINT HONOLULU, HAWAII | | INTENDED DESTINATION CLARK AFB, TX | |
| TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | | |
| PRINCIPLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| FACTORS) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION UNKNOWN/NOT REPORTED | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE ZERO | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- HADAM DIONT SHOW RETURN. FLT HAD AVOIDED KNOWN TSTM ACTIVITY, HALFWAY BETWEEN CAAH AND PI. | | | | | | |
| 1-0074 | 9/26/69 | NR JACKSON, MISS | CONVAIR 440 N8406E DAMAGE-NONE | CR- 0 1 5 PX- 0 0 48 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 50, 21000 TOTAL HOURS, 6100 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - DELTA AIR LINES, INC. | | | DEPARTURE POINT CHICAGO, ILL | | INTENDED DESTINATION NEW ORLEANS, LA | |
| TYPE OF ACCIDENT TURBULENCE | | | PHASE OF OPERATION IN FLIGHT: DESCENDING | | | |
| PRINCIPLE CAUSE(S) PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC. | | | | | | |
| WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| FACTORS) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF | | | | | | |
| WEATHER BRIEFING - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION UNKNOWN/NOT REPORTED | | | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE ZERO | | | PRECIPITATION AT ACCIDENT SITE NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE | | | TYPE OF WEATHER CONDITIONS VFR | | | |
| TYPE OF FLIGHT PLAN IFR | | | | | | |
| REMARKS- SGTD TSTMS FCST FOR ROUTE OF FLT. | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S N/A | FLIGHT PURPOSE | PILOT DATA |
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| I-0038 | 11/25/69 | N. PACIFIC OCEAN | DOUGLAS DC8-63 N8635M DAMAGE-NONE | CR- 0 2 8 PX- 0 0219 | MEL CONTRACT PASSG INTL | AIRLINE TRANSPORT, AGE 44, 13475 TOTAL HOURS, 600 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - SEABOARD WORLD AIRLINES, INC. DEPARTURE POINT YACOMA, WASH TYPE OF ACCIDENT TURBULENCE INTENDED DESTINATION CAN RAMH, S VIETNAM LAST ENROUTE STOP ANDERSON AFB GUAM PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE</p> <p>PROBABLE CAUSE(S) PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC. WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - BRIEFING RECEIVED-METHOD UNKNOWN WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>SKY CONDITION SCATTERED VISIBILITY AT ACCIDENT SITE 2 MILES OR LESS OBSTRUCTIONS TO VISION AT ACCIDENT SITE UNKNOWN/NOT REPORTED TYPE OF FLIGHT PLAN IFR CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR</p> <p>REMARKS- TCU AND CU IN AREA. FLT ENCTRD CHOP APRX 2 MIN BFR HARD GUSTS. SEAT BELT SIGN TURNED ON TOO LATE.</p> | | | | | | |
| I-0039 | 8/2/69 | N. PACIFIC OCEAN | BOEING 707 N765PA DAMAGE-NONE | CR- 0 1 10 PX- 0 2 85 | SCHED INTERNATL PASSG SKY | AIRLINE TRANSPORT, AGE 59, 19148 TOTAL HOURS, 7807 IN TYPE, INSTRUMENT RATED. |
| <p>OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. DEPARTURE POINT SYDNEY, AUS TYPE OF ACCIDENT TURBULENCE INTENDED DESTINATION HONOLULU, HAWAII PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE</p> <p>PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTOR(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT</p> <p>SKY CONDITION CLFR VISIBILITY AT ACCIDENT SITE 4 MILES OR LESS OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR</p> | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
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| 1-0041 | 10/11/69 TIME - 0245 | NO-PACIFIC OCEAN | BOEING 707 N18701 DAMAGE-NONE | CR- 0 2 4 PX- 0 0 62 | SCHED INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE 53, 25096 TOTAL HOURS, 6440 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - TRANS WORLD AIRLINES, INC. DEPARTURE POINT HONOLULU, HAWAII TYPE OF ACCIDENT TURBULENCE | | | INTENDED DESTINATION AGANA, GUAM | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTORS(S) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |
| SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | REMARKS- MAIL BAGS TIED IN NEAR SEATS PREVENTED FLT ATTNDS FROM OBSERVING SEAT BELT SIGN. | | | |
| 1-0042 | 10/12/69 TIME - 0130 | NO-PACIFIC OCEAN | BOEING 707 N18709 DAMAGE-NONE | CR- 0 0 8 PX- 0 1146 | MIL CONTRACT PASSG INTL | AIRLINE TRANSPORT, AGE 55, 20250 TOTAL HOURS, UNK/NR IN TYPE, INSTRUMENT RATED. |
| OPERATOR - TRANS WORLD AIRLINES, INC. DEPARTURE POINT KAJENA, HAWAII TYPE OF ACCIDENT TURBULENCE | | | INTENDED DESTINATION HONOLULU, HAWAII | | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | |
| PROBABLE CAUSE(S) WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR PILOT IN COMMAND - FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC. MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN OFF WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |
| SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR | | | REMARKS- FLT NEAR A TYPHOON AREA. | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|----------------------------------------------------------|---------|----------------|-------------------------------------------------------|-------------------------|-------------------------------------|---------------------------------------------------------------------------------------|
| 1-0043 | 2/21/64 | M-HOUSTON, TEX | BOEING 720 N790PA DAMAGE-NONE | CM- 0 1 7 PR- 0 0 23 | SCHED INTERNATL PASSG SVY | AIRLINE TRANSPORT, AGE 51, 21348 TOTAL HOURS, 860 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. | | | DEPARTURE POINT - MEXICO CITY, MEX | | INTENDED DESTINATION - HOUSTON, TEX | |
| TYPE OF ACCIDENT - TURBULENCE | | | PHASE OF OPERATION - IN FLIGHT; DESCENDING | | | |
| POSSIBLE CAUSES: | | | | | | |
| WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | | | |
| PERSONNEL - OTHER FLIGHT PERSONNEL | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | | | |
| FACTORS: | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON | | | | | | |
| WEATHER - WEATHER - COMPANY DISPATCH | | | | | | |
| WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | | | |
| SKY CONDITION - OVERCAST | | | CEILING AT ACCIDENT SITE - UNKNOWN/NOT REPORTED | | | |
| VISIBILITY AT ACCIDENT SITE - ZERO | | | PRECIPITATION AT ACCIDENT SITE - UNKNOWN/NOT REPORTED | | | |
| INSTRUCTIONS TO VISION AT ACCIDENT SITE - NONE | | | TYPE OF WEATHER CONDITIONS - IFR | | | |
| TYPE OF FLIGHT PLAN - IFR | | | | | | |
| REMARKS - SEAT BELT ANNOUNCEMENT HAD BEEN MADE. | | | | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S R/M | FLIGHT PURPOSE | PILOT DATA |
|--------|------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------|
| I-3047 | 8/27/64 TIME - 1243 | ATLANTA, GA | DCUG-11 DC-8 N1302L DAMAGE-NONE | LR- 0 1 0 PR- 0 0 07 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 57, 24339 TOTAL HOURS, 4342 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - DELTA AIR LINES, INC. | DEPARTURE POINT ATLANTA, GA | INTENDED DESTINATION TAMPA, FL | PHASE OF OPERATION IN FLIGHT CLIMB TO CRUISE | |
| | | TYPE OF ACCIDENT TURBULENCE | | | | |
| | | PROBABLE CAUSE(S) | | | | |
| | | WEATHER - TURBULENCE ASSOCIATED W/ CLOUDS, THUNDERSTORMS | | | | |
| | | PERSONNEL - OTHER FLIGHT PERSONNEL | | | | |
| | | MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT NOT FASTENED | | | | |
| | | FACTORS(S) | | | | |
| | | MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON | | | | |
| | | WEATHER - THUNDERSTORM ACTIVITY | | | | |
| | | WEATHER BRIEFING - COMPANY DISPATCH | | | | |
| | | WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION | CEILING AT ACCIDENT SITE | | | |
| | | HEAVEN/LIGHT SCATTERED | 1000 | | | |
| | | VISIBILITY AT ACCIDENT SITE | PRECIPITATION AT ACCIDENT SITE | | | |
| | | ZERO | RAIN SHOWERS, THUNDERSTORM | | | |
| | | OBSTRUCTIONS TO VISION AT ACCIDENT SITE | TYPE OF WEATHER CONDITIONS | | | |
| | | None | VFR | | | |
| | | TYPE OF FLIGHT PLAN | | | | |
| | | IFR | | | | |
| | | REMARKS- PLY HDG VECTOR AROUND STORM, ATC RADAR WAS INOP. STEWARD/ESS INADVERTENTLY RELEASED SEAT BELT. | | | | |

STATISTICS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES F S M/N | FLIGHT PURPOSE | PILOT DATA |
|--------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------|
| I-0057 | 6/24/59 | NW LAS VEGAS, NEV TIME - 1644 | DOUGLAS DC-9 N9337 DAMAGE-NONE | CR- 0 0 5 PX- 0 1 28 | SCHED DOM PASSG SRV | AIRLINE TRANSPORT, AGE 46, 24500 TOTAL HOURS, UNK/NR IN TYPE, INSTRU- MENT RATED. |
| | | OPERATOR - AIR WEST, INC. DEPARTURE POINT RENO, NEV TYPE OF ACCIDENT TURBULENCE | INTENDED DESTINATION PHOENIX, ARIZ | LAST ENROUTE STOP LAS VEGAS, NEV PHASE OF OPERATION IN FLIGHT: DESCENDING | | |
| | | PROBABLE CAUSE(S) PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR FACTORS) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - WEATHER SLIGHTLY WORSE THAN FORECAST | | | | |
| | | SKY CONDITION CLEAR VISIBILITY AT ACCIDENT SITE 5 OR OVER OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR REMARKS- PX FRACTURED KNEE WHILE IN LAVATORY. | CEILING AT ACCIDENT SITE UNLIMITED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |
| I-0057 | 2/7/69 | SO. PACIFIC OCEAN TIME - 0626 | BOEING 707 N614PA DAMAGE-NONE | CR- 0 0 10 PX- 0 1 72 | SCHED INTERNATL PASSG SRV | AIRLINE TRANSPORT, AGE UNK/NR, 20117 TOTAL HOURS, 4317 IN TYPE, INSTRUMENT RATED. |
| | | OPERATOR - PAN AMERICAN WORLD AIRWAYS, INC. DEPARTURE POINT HONG KONG, CHINA TYPE OF ACCIDENT TURBULENCE | INTENDED DESTINATION SYDNEY, AUSTRALIA | PHASE OF OPERATION IN FLIGHT: NORMAL CRUISE | | |
| | | PROBABLE CAUSE(S) WEATHER - TURBULENCE, ASSOCIATED W/ CLOUDS, THUNDERSTORMS FACTORS) MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON WEATHER BRIEFING - COMPANY DISPATCH WEATHER FORECAST - FORECAST SUBSTANTIALLY CORRECT | | | | |
| | | SKY CONDITION BROKEN VISIBILITY AT ACCIDENT SITE 3 MILES OR LESS OBSTRUCTIONS TO VISION AT ACCIDENT SITE NONE TYPE OF FLIGHT PLAN IFR REMARKS- PENETRATED TOP OF CB CLOUD FLYING IN STRATUS LAYER. RADAR DIDNT SHOW CB. | CEILING AT ACCIDENT SITE UNKNOWN/NOT REPORTED PRECIPITATION AT ACCIDENT SITE NONE TYPE OF WEATHER CONDITIONS VFR | | | |

BRIEFS OF ACCIDENTS

| FILE | DATE | LOCATION | AIRCRAFT DATA | INJURIES | | FLIGHT PURPOSE | PILOT DATA |
|---------------------------------------------------------------------------------------------|----------|------------------|-------------------------------------|--------------------------------|----------------------|---------------------|-------------------------------------------------------------------------------|
| | | | | P | S | | |
| 1-0061 | 12/71/69 | NR. DENVER, COLO | BOEING 720 N17207 DAMAGE-NONE | CR- 0 0 7 | PX- 0 1 06 | SCHED DOM PASSG SVY | AIRLINE TRANSPORT, AGE 38, 10000 TOTAL HOURS, 2000 IN TYPE, INSTRUMENT RATED. |
| OPERATOR - CONTINENTAL AIR LINES, INC. | | | DEPARTURE POINT | | INTENDED DESTINATION | | |
| | | | LOS ANGELES, CALIF | | DENVER, COLO | | |
| TYPE OF ACCIDENT | | | PHASE OF OPERATION | | | | |
| TURBULENCE | | | IN FLIGHT: DESCENDING | | | | |
| PROBABLE CAUSE(S) | | | | | | | |
| PERSONNEL - MISCELLANEOUS-PERSONNEL: PASSENGER | | | | | | | |
| PERSONNEL - OTHER FLIGHT PERSONNEL | | | | | | | |
| WEATHER - TURBULENCE IN FLIGHT, CLEAR AIR | | | | | | | |
| FACTORS(S) | | | | | | | |
| MISCELLANEOUS ACTS, CONDITIONS - SEAT BELT SIGN ON | | | | | | | |
| WEATHER BRIEFING - BRIEFING RECEIVED-METHOD UNKNOWN | | | | | | | |
| WEATHER FORECAST - UNKNOWN/NOT REPORTED | | | | | | | |
| SKY CONDITION | | | | CEILING AT ACCIDENT SITE | | | |
| SCATTERED | | | | 1-000 | | | |
| VISIBILITY AT ACCIDENT SITE | | | | PRECIPITATION AT ACCIDENT SITE | | | |
| 5 OR OVER | | | | NONE | | | |
| OBSTRUCTIONS TO VISION AT ACCIDENT SITE | | | | TYPE OF WEATHER CONDITIONS | | | |
| NONE | | | | VFR | | | |
| TYPE OF FLIGHT PLAN | | | | | | | |
| IFR | | | | | | | |
| REMARKS- VERBAL AND VISUAL WARN ISSUED IN ANTICIPATION OF TURBC. STEWARDESS AND PX INJURED. | | | | | | | |

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