

主 编：肖 凌

副主编：陈 方 向 燕

审 校：陈艾莎



# 全球飞行事故 案例分析英文导读



**CASE STUDIES OF AVIATION ACCIDENTS**

外语教学与研究出版社

FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS



# 全球飞行事故 案例分析英文导读

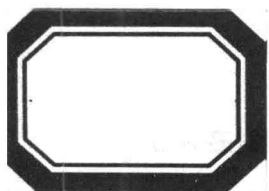
Case Studies of Aviation Accidents

主 编：肖 凌

副主编：陈 方 向 燕

审 校：陈艾莎

外语教学与研究出版社  
FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS  
北京 BEIJING



## 编目(CIP)数据

全球飞行事故案例分析英文导读 = Case Studies of Aviation Accidents / 肖凌主编. — 北京: 外语教学与研究出版社, 2011. 8

ISBN 978-7-5135-1143-8

I. ①全… II. ①肖… III. ①英语—阅读教学—高等学校—教材 IV. ①H319.4

中国版本图书馆 CIP 数据核字 (2011) 第 167588 号

出 版 人: 蔡剑峰

责任编辑: 程 序

封面设计: 张 峰

版式设计: 梁 东

出版发行: 外语教学与研究出版社

社 址: 北京市西三环北路 19 号 (100089)

网 址: <http://www.fltrp.com>

印 刷: 北京京科印刷有限公司

开 本: 787×1092 1/16

印 张: 10

版 次: 2011 年 8 月第 1 版 2011 年 8 月第 1 次印刷

书 号: ISBN 978-7-5135-1143-8

定 价: 21.90 元

\* \* \*

购书咨询: (010)88819929 电子邮箱: [club@fltrp.com](mailto:club@fltrp.com)

如有印刷、装订质量问题, 请与出版社联系

联系电话: (010)61207896 电子邮箱: [zhijian@fltrp.com](mailto:zhijian@fltrp.com)

制售盗版必究 举报查实奖励

版权保护办公室举报电话: (010)88817519

物料号: 211430001

## 编写委员会

主 任：陈布科

副 主 任：李卫东 郝劲松 刘德仲 何秋钊 陈 方 肖 凌

主 编：肖 凌

副 主 编：陈 方 向 燕

审 校：陈艾莎

编委成员：黄大勇 龙大友 谢 冬 胡 涛 郑 丽 李明良

何 莉 高云峰 黄 音 岳红梅 陈 莉

# 前言

传说中代达罗斯用蜡和羽毛制造的翅膀带着他的儿子伊卡洛斯逃离克里特岛，自由地飞翔在大海之上、蓝天之下。出发前父亲告诫儿子，既不要飞得太低也不要飞得太高，否则要么翅膀被海水打湿，要么蜡遇热融化羽翼脱落。

对飞行的狂喜和迷恋占据了少年单纯的心灵。伊卡洛斯很快就忘记了父亲谨慎的叮咛，他义无反顾地向着无限的高空和辉煌的太阳飞去，丝毫不知道洒落在翅膀上的光芒不是阿波罗的爱抚，而是死神的阴影。当炽热的阳光逐渐融化了封蜡，伊卡洛斯翅膀飞散，急剧坠落，如同浪花撞击礁岩，碎成千万，葬身大海。

时光荏苒，岁月轮回，高速发展的民航科技又一次为人类制造出自由翱翔的翅膀，也把人类对神圣星空的尊敬和畏惧逐渐消除。但是代达罗斯之痛延续千年，在特内里费的浓雾中，在乌伯林根的暗夜里，年迈的父亲为儿子的每一次折翅而悲痛欲绝。

本书节选了近年来世界范围内十大空难事件，根据官方事故报告、舱音记录和空管录音等内容编写而成。每单元分为阅读和陆空通话两大部分，旨在建立大学基础英语到民航专业英语过渡的桥梁。阅读部分以飞行中的非正常情况为背景，通过术语演练、问题回答、模拟通话等方式来帮助读者逐步了解民航英语的特点，增强口语表达能力，实现用口语化的通用英语来讨论与航空专业相关话题的目的。陆空通话部分依据原始座舱通话记录器和航管记录重建，让读者了解在特定的航空英语工作环境以及在非正常情况下无线电陆空通话的使用情况。

本书根据国际民用航空组织（ICAO）的语言标准和中国民航飞行人员英语能力测试系统（PEPEC）考试大纲编写，可以作为飞行、空管等专业民航英语学习的教材，也为航空爱好者开启了解民航英语的一扇窗口。

本书在编写过程中使用了网络上的一些图片，在此对相关作者表示感谢。如果有图片作者看到本书，请与本书作者联系。

当上帝对伊卡洛斯妄图僭越神性进行无情惩罚的时候，我们知道，征服天空的历史在这一刻已经开始。



肖凌

2010年5月于中国民航飞行学院

# Contents

<b>Unit 1</b>	Out of Control.....	1
<b>Unit 2</b>	Miracle on the Hudson .....	13
<b>Unit 3</b>	Flying Blind.....	27
<b>Unit 4</b>	Blow Out .....	41
<b>Unit 5</b>	Ghost Plane.....	55
<b>Unit 6</b>	Kamikaze Attack .....	67
<b>Unit 7</b>	Überlingen Disaster.....	81
<b>Unit 8</b>	Miracle Flight.....	93
<b>Unit 9</b>	Missed Approach .....	107
<b>Unit 10</b>	Tenerife Disaster.....	119
<b>Key to the Exercises .....</b>		<b>133</b>

# Unit 1 Out of Control

## Preview

Please watch the video carefully and prepare to answer the following questions.

1. Is there anything wrong with the conversation between the pilots and the controllers?
2. What do you think of the flight skills of the crew on JAL123?

## Text

In 2005, JAL President climbed up to the mountainous site of history's worst airplane disaster in a ceremony marking the 20th anniversary of a JAL Boeing jumbo jet crash that killed 520 people.

**Obon** is one of the traditional festivals in Japanese culture, **characterized** by **kimonos** and river lantern floating, it is also a time for busy Japanese to relax and visit relatives. During the Obon in 1985, a Japan Airlines B747 cabin was filled with holiday atmosphere. The aircraft was almost full, and the passengers were wearing only the lightest of clothes in anticipation of a **clammy** mid-summer evening.

The Boeing 747 Short Range—a **jumbo** specially **adapted** and **reinforced** to carry as many as 550 passengers on domestic short-haul routes in Japan—was the early evening **shuttle** from Tokyo Airport to Osaka, Japan's second largest city 400 kilometers away to the South. As in a number of flights that end in disaster, the flight number was easy to remember, "JAL123".

Everything seemed to be going well with this aircraft until an explosion in the rear of the cabin awakened all the **dozy** passengers. The jet was en route when it lost its vertical tail section. The loss of cabin pressure at high altitude had also caused a lack of oxygen



throughout the cabin, and emergency oxygen masks for passengers soon began to fail. The pilots, including captain, first officer, and flight engineer, set their transponder to broadcast a distress signal to Tokyo Area Control Center, which directed the aircraft to descend and gave it heading vectors for an emergency landing. By then all hydraulic fluid had drained away through the **rupture**. With total loss of hydraulic control, the aircraft began to wave up and down. The pilots managed a measure of control by using engine

thrust. They found that giving more power to the left or right engine and reducing power to the opposite would cause the plane to turn somewhat. These actions proved helpful, but further measures to exert control, such as lowering the landing gear and flaps, were interfered with control by throttle, and the plane's uncontrollability once again **escalated**.

Thirty-two minutes elapsed from the time of the explosion to the time of the final crash, long enough for some passengers to write farewells to their families. What moved the public is a piece of note, found in a seat pocket, which had the last words to his beloved wife. All passengers have realized the aircraft was out of control and might be crashed. In contrast, old couples stayed calm, hand in hand. A little girl leaned against the chair back, **snuggling** her lovely doll. With a boy's model JAL plane falling down to the aisle, this big aircraft crashed into a steep, forested mountainside about 70 miles northwest of the capital. All but four people on board were killed.

Subsequent simulator **re-enactments** of the mechanical failures suffered by Flight 123 failed to produce a better solution, and in fact none of the four flight crews in the simulations were able to keep the plane **aloft** for as long as the 32 minutes achieved by the actual crew.

After the crash in the mountains, the offers by American forces of help to guide Japanese forces and of rescue assistance were rejected by Japanese officials. Poor visibility and the difficult mountainous terrain prevented JSDF from landing at the site. The pilot of the Japan Self-defense Force (JSDF) helicopter reported from the air that there were no signs of survivors. Based on this report, JSDF ground personnel were dispatched to spend the night at a **makeshift** village 63 kilometers from the wreck. JSDF did not set out for the actual crash site until the following morning. The rescue was delayed. One doctor said "If the discovery had come ten hours earlier, we could have found more survivors."

As the event was **unprecedented** and no flight had ever encountered such strange uncontrollability, suspicion was once directed to the design of B747, and Boeing Company was pushed to public criticism. With formidable corporation with Japan Airlines and NTSB, Boeing designers finally cleared their names. After a series of investigation, the cause emerged.



The aircraft was involved in a tailstrike incident 7 years before this crash, and the aircraft's rear pressure bulkhead was damaged. The **subsequent** repair of the bulkhead did not conform to Boeing's approved repair methods. This technical mistake led to the bulkhead giving way; the resulting explosive decompression broke the lines of all four hydraulic systems. With the aircraft's flight controls disabled, the aircraft became uncontrollable.

In the wake of the disaster, the President of JAL took the blame and resigned. Another JAL employee, a manager of maintenance department committed **suicide** for **remorse**. The Japanese public's confidence in Japan Airlines took a dramatic **downturn** and the passenger numbers on domestic routes dropped by one-third.

## New Words

<b>Obon</b> /ɒb'əʊn/	<i>n.</i> a Japanese Buddhist custom to honor the departed (deceased) spirits of one's ancestors 盂兰盆节
<b>Kimono</b> /kɪ'məʊnəʊ/	<i>n.</i> a loose Japanese robe, fastened with a sash 日式和服
<b>characterize</b> /'kærɪktəraɪz/	<i>v.</i> to describe or portray the character or the qualities or peculiarities of 是……的特征, 以……为特征
<b>clammy</b> /'klæmi/	<i>adj.</i> being damp, soft, sticky, and usually cool 湿黏的
<b>jumbo</b> /'dʒʌmbəʊ/	<i>n.</i> a jumbo jet, a large plane for a lot of passengers 巨型喷气式飞机
<b>adapt</b> /ə'dæpt/	<i>v.</i> to make fit for, or change to suit a new purpose 修改, 适应
<b>reinforce</b> /,riːn'fɔːs/	<i>v.</i> to strengthen by additional assistance, material, or support 加强
<b>shuttle</b> /'ʃʌtl/	<i>n.</i> public transport that consists of a bus or train or airplane that plies back and forth between two points 短程穿梭运行的飞机
<b>dozy</b> /'dəʊzi/	<i>adj.</i> not looking or feeling awake 困倦的
<b>rupture</b> /'rʌptʃə/	<i>n.</i> an injury in which sth. inside the body breaks apart or bursts 破裂, 断裂
<b>escalate</b> /'eskəleɪt/	<i>v.</i> to become or make sth. greater, worse, more serious 扩大
<b>snuggle</b> /'snʌgəl/	<i>v.</i> to move or arrange oneself in a comfortable and cozy position 紧靠; 拥抱
<b>re-enactment</b> /,riː'næktmənt/	<i>n.</i> reappearance of a scene 重现, 重塑现场
<b>aloft</b> /ə'lɒft/	<i>adv.</i> in the higher atmosphere above the earth 在空中
<b>makeshift</b> /'meɪkʃɪft/	<i>adj.</i> used temporarily for a particular purpose 临时的

<b>unprecedented</b> /ʌnˈpresɪdəntɪd/	<i>adj.</i> having no precedent; novel 空前的，史无前例的
<b>subsequent</b> /ˈsʌbsɪkwənt/	<i>adj.</i> following in time or order; succeeding 随后的
<b>suicide</b> /ˈsuːɪsaɪd/	<i>n.</i> the act of killing oneself 自杀
<b>remorse</b> /rɪˈmɔːs/	<i>n.</i> a feeling of deep regret 悔恨，自责
<b>downturn</b> /ˈdaʊntɜːn/	<i>n.</i> a downward turn especially toward a decline in business and economic activity 低迷时期

Phrases and Expressions

<b>JSDF: Japan Self-defense Force</b>	日本自卫队
<b>drain away</b>	渐渐枯竭、流尽
<b>clear one’s name</b>	证明名声清白
<b>conform to</b>	遵从，符合
<b>in the wake of</b>	紧随……而来；作为……的结果

Aviation Terminology

<b>short range=short-haul</b>	短途的
<b>vertical tail section</b>	垂直尾翼
<b>transponder</b>	应答机
<b>distress signal</b>	遇险信号
<b>hydraulic fluid</b>	液压油
<b>engine thrust</b>	发动机推力
<b>elapsed (ET=elapsed time)</b>	消逝时间，航程时间，已飞时间
<b>throttle</b>	油门
<b>tailstrike</b>	擦机尾
<b>pressure bulkhead</b>	压力隔墙

Exercises

Crossword

Complete the crossword by filling in a word that fits each clue.

Across:

- 1. fracture, break
- 2. sweaty, sticky

Down:

- 1. succeeding, following
- 2. reduction in economy

3. increase in extent or intensity

4. stopgap

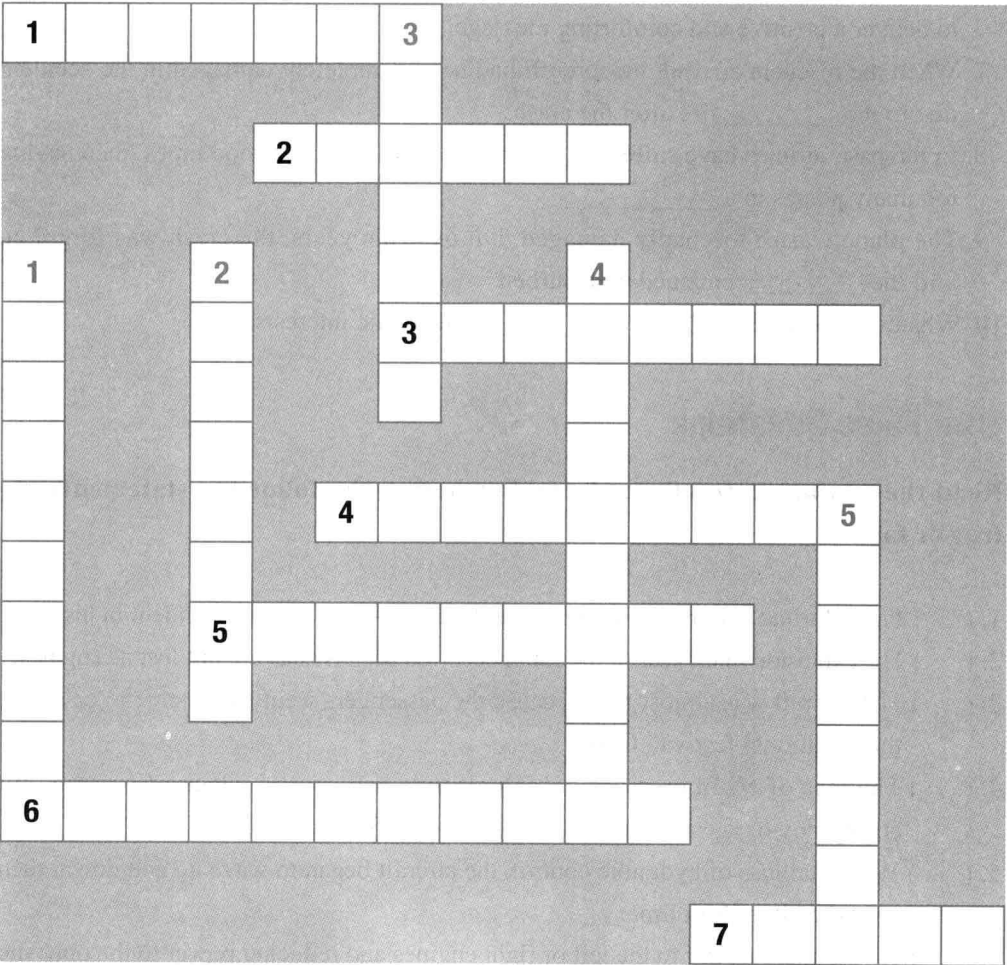
5. strengthen

6. electrical device designed to receive a specific signal and automatically transmit a specific reply

7. ruin
3. passed, slipped

4. the rear end of an aircraft strikes the runway

5. a piece of equipment to control the amount of fuel going to the engine



Vocabulary

Fill in the blanks with words given below. Change the form where necessary.

clammy	reinforce	dozy	rupture	escalate
makeshift	wreck	subsequent	conform to	downturn

1. It is important to regularly \_\_\_\_\_ safety guidelines for pilots.
2. Fuel and hydraulic fluid may easily drain away from \_\_\_\_\_ on the fuselage.
3. After a week's rain, everything in the house became damp and \_\_\_\_\_.
4. Flight attendants must keep calm when encountering emergency, as their panic may \_\_\_\_\_ fears among passengers.
5. It will be dangerous if pilots become \_\_\_\_\_ in the cockpit, so there has been strict limitation for their working time.
6. In earthquake-stricken area, hand-in-hand logo was displayed on the \_\_\_\_\_ house to deliver a positive and comforting message.
7. When the rescuers arrived, the aircraft had been completely damaged in the accident due to the \_\_\_\_\_ fire after the crash.
8. In the past, airlines have suffered a lot from placing orders in good times, then having too many planes in a \_\_\_\_\_.
9. The plane wasn't too badly damaged, but over the years, the crash was forgotten and the \_\_\_\_\_ remained undisturbed.
10. Whatever the officials do should \_\_\_\_\_ the public interests.

## True/False Questions

**Read the passage carefully and decide whether the following statements are true or false.**

1. (    ) Japan Airlines Flight 123 remains the deadliest single-aircraft accident in history.
2. (    ) The explosion in the rear of the cabin occurred because this aircraft lost its engines.
3. (    ) The aircraft was almost full, because the passengers went back home to celebrate the traditional festival, Obon.
4. (    ) The loss of cabin pressure at high altitude had caused a lack of oxygen, but emergency oxygen masks for passengers still functioned.
5. (    ) With total loss of hydraulic control, the aircraft began to wave up and down, then it crashed in a short time.
6. (    ) Giving more power to the left or right engines and reducing power to the opposite made things worse.
7. (    ) Delayed rescue led to more loss of lives.
8. (    ) The cause of the disaster is that the aircraft's rear pressure bulkhead was damaged 7 years ago but the subsequent repair did not conform to Boeing's approved repair methods.

## Comprehension of the Text

Answer the following questions:

1. Why was this giant B747 loaded to its full capacity?  
\_\_\_\_\_
2. What caused the loss of cabin pressure at high altitude?  
\_\_\_\_\_
3. What happened to the aircraft that made the passengers realize their aircraft have been out of control?  
\_\_\_\_\_
4. What made the aircraft out of control?  
\_\_\_\_\_
5. What delayed the rescue?  
\_\_\_\_\_
6. Do you think the situation could be optimized if other pilots were dispatched to JAL 123? Why?  
\_\_\_\_\_
7. After learning this lesson, what do you think of the ground maintenance?  
\_\_\_\_\_
8. What lessons can you learn from this accident?  
\_\_\_\_\_

## Dialogue

The following dialogue is based on the original ATC and CVR transcript.

**C:** JAL 123, contact Tokyo Departure.

**P:** Roger, JAL 123.

**P:** Tokyo Departure, JAL 123 passing 800.

**P:** Tokyo, JAL 123. Request for immed...  
e...trouble. Request return back to Haneda. Over.



C: Roger, approved as you requested. Turn right, heading 090.  
C: 123, negative, negative, negative, please confirm you are declaring emergency?  
P: That's affirmative.  
C: Request your nature of emergency.  
P: Hydro...all no good.  
C: You are now 72 miles from Nagoya; can you land at Nagoya?  
P: Request return to Haneda.  
C: 123, can you descend?  
P: Roger, now descend.  
P: JAL 123, uncontrollable.  
C: All stations, all stations except JAL 123, keep silent until further advised.  
P: Uncontrollable!  
C: Understood, do you wish to contact Haneda?  
P: Stay with us!  
P: JAL123, request radar vector to Haneda!  
C: Roger, understood, keep heading 090.  
C: Can you control the aircraft now?  
C: JAL 123, switch your radio frequency to 119.7. 119.7 Please.  
C: If you read, change frequency to 119.7. We are all ready.  
P: JAL 123, we are on 119.7. Where is our position?  
C: JAL 123, your position five ah, five ah, 45 miles northwest of Haneda.  
P: Northwest of Haneda. Eh, how, how many miles?  
C: Yes, that's correct. According to our radar it is 55 miles northwest, ah 25 miles west of Kumagaya. I will talk in Japanese. We are ready for your approach any time. Yokota is also available for landing. Let us know your intentions.  
**An airplane nearby:** 50 miles—correction 60 miles. A huge burst of flame in the Nagano Mountain...

## Exercise

### Simulating Radiotelephony Communication

You will play a role of a pilot and have a conversation with an air traffic controller in an aviation-related context.

(Your call sign is JAL 307, you are over WXY at flight level 310, make initial contact with Beijing Control.)

**P:** \_\_\_\_\_

**C:** Station calling Beijing Control, say again your call sign.

**P:** \_\_\_\_\_

**C:** JAL 307, pass your message.

(Tell the air traffic controller that you want to descend.)

**P:** \_\_\_\_\_

**C:** JAL 307, descend to FL 250, report passing FL 300.

(You are reaching FL 300 now.)

**P:** \_\_\_\_\_

**C:** Roger JAL 307.

(You hear a loud bang in the rear of the cabin; you make immediate descent due to cabin altitude rising fast and declare distress to ATC.)

**P:** \_\_\_\_\_

**C:** JAL 307, copy your Mayday call, report your intentions.

(Tell the ATC that you want to divert to Wuhan.)

**P:** \_\_\_\_\_

## 参考译文

### 失控的飞机

2005年,“日航123”空难20周年罹难纪念日时,日本航空公司董事长来到当年事发地点,以祭奠这场惨烈空难里逝去的520个亡灵。

盂兰盆节是日本传统节日之一,节庆日一到,人们都换上和服,放水灯,它同时也是日本人走亲访友、放松的好时节。1985年,一架日航波音747飞机乘客满载,由于考虑到那是一个湿热的夏日傍晚,大多数人只穿了薄衣,时值盂兰盆节,客舱里洋溢着节日的气氛。

波音747,一大型喷气式客机,经过改装特别用于日本国内的短途航线,可以搭载550名乘客。这架飞机在傍晚执行东京至大阪的往返航线,大阪是日本第二大城市,位于东京以南400公里处。在一系列的灾难中,此次航班号格外好记,因为它的航班号为123。

飞行中一切正常,直到客舱尾部一声巨响,惊醒了昏昏欲睡的乘客们。飞机在航路上丢失了垂尾。高空中的座舱失压造成了客舱中缺氧,乘客们的氧气面罩很快也开始失效。驾驶舱内的机长、副驾以及工程师利用应答机向东京区调中心发送了遇险信号,区调管制指挥飞机下降并且引导了紧急着陆。到那时,所有的液压油都已从飞机尾端的裂口流失,飞机开始摇摆不定。飞行员设法利用发动机推力控制飞机。他们发现,给一个发动机增加推力,给另一个发动机减小推力,可以在一定程度上实现飞机的转弯。这些操作的确有效,但是对飞机进一步地操纵(如放下起落架和襟翼)会受到油门的影响,飞机不稳定性就会加剧。

从爆炸声响起至飞机坠毁,前后相距32分钟,机上乘客们自知生还希望渺茫,纷纷为亲人留下遗嘱。事故发生后,在一个座位袋里,发现了一张写给挚爱妻子的字条,这张字条感动了在场的人们。所有的乘客都觉察到了,他们乘坐的飞机失去控制,有可能坠机。就在此时此刻,一对年迈的夫妇面容镇定,携手并肩;一个小女孩靠在椅背上,依偎着可爱的布娃娃,这些场景都与当时惊恐的状况形成鲜明的对比。飞到东京西北方70英里处,随着机上一个男孩的模型飞机掉落,这架巨大的波音747飞机撞上了草木丛生的陡峭山坡,整个飞机上只有四人生还。

事后,为了找出该空难情况下更好的解决方案,调查小组在模拟机上再现了空难时的紧急情况,选调了四套机组人员,却无一能像日航123机组人员那样,让飞机在空中维持32分钟之久。

事故发生后,美国军方曾表示愿意引领日本救援人员飞抵空难地点,并提供协助,却遭日本政府拒绝。当时能见度低,山区地形复杂,日本自卫队的飞机无法在事故地点着陆。由于自卫队直升机的飞行员在失事地上空并未观察到生还迹象,地面人员就没有直接赶赴救援,而是在63公里外的村子临时驻扎,直到第二天一早,才抵达事发地点。救援行动被延误了。事后有位救援医生说,如果提早10小时到达失事地点,或许更多的人可以幸存。



由于此事件前所未有，该飞机是第一架出现严重不可控性的飞机，因此人们一度将矛头指向了波音 747 的设计构造问题，将波音公司推向了风口浪尖。经过波音公司与日本航空公司和美国运输安全委员会艰苦卓绝的协作，波音公司的设计人员终于证实了自己的清白。经过一系列的调查后，“日航 123”空难的真实原因浮出水面。

原来，在事故发生 7 年前，飞机曾经发生过擦机尾事件，飞机的压力隔墙受到损坏。当时的修复工作未按照波音公司认可的修复方式进行，因此导致“日航 123”空难中隔墙折断，爆炸性减压造成了四套液压系统油路损毁。飞机的飞控系统失效，最终使飞机失去控制。

日航此事件发生后，日航的董事长因为此次故障引咎辞职，而公司的维修部经理更是自杀谢罪，日本民众对日本航空公司的信任率猛跌，国内航线的乘客数量减少了 1/3。

## 陆空通话

本段陆空通话依据原始座舱通话记录器和航管记录重建。

地：日航 123，请联系东京离场。

空：收到，日航 123。

空：东京离场，日航 123，爬升到 800。

空：东京，日航 123，请求立即，嗯，有麻烦。请求返航羽田机场。

地：收到，同意返航，右转航向 090。

地：日航 123，不对，不对，不对，请确认你宣布遇险。

空：我确认。

地：请告知遇险状态。

空：液压系统，嗯，都有问题。

地：你距离名古屋 72 英里，能在名古屋降落吗？

空：请求返航羽田机场。

地：日航 123，你能下降吗？

空：收到，开始下降。

空：日航 123，失去控制。

地：所有电台，除日航 123 外的所有电台，保持静默等候指令。

空：失去控制！

地：明白，你要联系羽田机场吗？

空：保持联系。

空：日航 123，请求雷达引导去羽田机场。

地：收到，明白，保持航向 090。

地：现在能控制飞机吗？