Wm. Timm Deposition Exhibits
10/20/81
Witness
Timm Exh. A, B, 1-7, L1, L1-A, L1-B

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

----------x

MELISSA HOPE MARCHETTI, also known as NGO THI HOA THUONG, a minor who sues by and through her next friends and adoptive parents, DENNIS A. and PAMELA MARCHETTI, 15 Tenth Street, Derby, Connecticut 06418, phone (203) 735-7933 and by and through her guardian ad litem, CHARLES R. WORK and PEABODY, RIVLIN, LAMBERT & MEYERS, Twelfth Floor, Connecticut Building, 1150 Connecticut Avenue, N.W., Washington, D.C. 20036, phone (202) 457-1016

Plaintiff,

v.

LOCKHEED AIRCRAFT CORPORATION

Civil Action No. 76-0544-3

Defendant and Third Party Plaintiff,

v.

THE UNITED STATES OF AMERICA

Third Party Defendant.

----------x

DEFENDANT LOCKHEED AIRCRAFT CORPORATION'S NOTICE TO TAKE ORAL DEPOSITIONS

TO: OREN R. LEWIS, ESQ.
LEWIS, WILSON, LEWIS & JONES
2054 NORTH 14TH STREET
ARLINGTON, VA 22216

SIR:

PLEASE TAKE NOTICE that pursuant to Rule 30 of the Federal Rules of Civil Procedure, the deposition upon oral examination of Mr. William Timm will be taken on behalf of defendant Lockheed Aircraft Corporation by its attorneys Haight, Gardner, Poor & Havens at its offices at 1819 H Street, N.W., Suite 1000, Washington, D.C. at 10:00 a.m. on October 20, 1981, to continue from day to day until completed.

DEFT. EX. [redacted]-A (TIMM)
DATE: 10/22/81
REPORTER: ALBERT J. GASDOR

Such deposition will be taken upon oral examination for the purposes of discovery or as evidence or both, pursuant to Rules 26 and 30 of the Federal Rules of Civil Procedure, before an officer authorized by law to administer oaths.

PLEASE FURTHER TAKE NOTICE that pursuant to Rule 34 of the Federal Rules of Civil Procedure, the plaintiff and the deponent are hereby requested to produce at the above deposition all documents in the possession, custody or control of the deponent, plaintiffs or their attorneys pertaining or relating to the medical or psychological condition of the above-named plaintiff or the cause of said condition, including but not limited to: any documents concerning aerospace medicine or related fields, reports concerning the C-5A, materials relating to trauma, G-forces or other forces or environmental conditions surrounding the accident on April 4, 1975, which plaintiff alleges are related to any condition from which she now claims to suffer, all medical reports, records, memoranda, notes, x-rays, test results and similar documents produced by or on behalf of the deponent or plaintiffs or plaintiffs' attorneys, and the deponent is hereby requested to produce all other documents, including, without limitation, photographs, slides or motion pictures reviewed or considered by the deponent with respect to any opinion he is expected to give at trial regarding the forces or environmental condition surrounding the accident on April 4, 1975, his examination of plaintiffs and/or his review of plaintiffs' medical record and history, whether such other documents were furnished to the deponent by plaintiffs, defendant or a third-party, or by any representative of plaintiffs.

PLEASE TAKE FURTHER NOTICE that pursuant to Rule 34 of the Federal Rules of Civil Procedure, the plaintiffs and the deponent are hereby requested to produce for inspection and copying at the above deposition the following documents and things in the possession, custody or controll of plaintiffs, their attorneys or expert witness pertaining or relating to or relied upon in connection with any claims by plaintiffs for the expert opinions to be rendered in this lawsuit including:

(1) All reports, letters, data, analyses, drawings, computer printouts, books, or any other documents or matter of whatever kind which deponent relied upon in forming an opinion as to any issue in these cases;

(2) All reports, letters, data, analyses, drawings, computer printouts, books, or any other documents or matter of whatever kind which deponent reviewed in forming an opinion as to any issue in these cases;

(3) All articles, books, treatises, monographs, papers, films, graphs, charts or any other document or matter authored or partially authored by deponent relating to any issue in these cases;

(4) All resumes, curricula, vitae, newspapers, magazine or journal articles, or advertisements concerning or relating to deponent.

Dated: Washington, D.C.
October 19, 1981

HAIGHT, GARDNER, POOR & HAVENS
Attorneys for Defendant
Lockheed Aircraft Corporation

By Carroll E. Dubuc

Carroll E. Dubuc
1819 H Street, NW
Washington, DC 20006
(202) 737-7847

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was hand-delivered this 19th day of October, 1981, to:

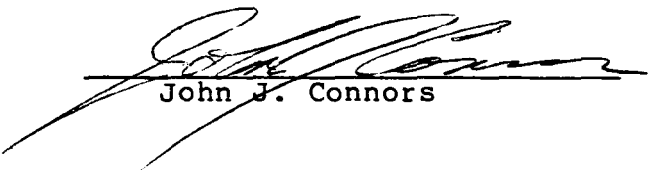
OREN R. LEWIS, JR., ESQ.
Lewis, Wilson, Lewis & Jones, Ltd.
2054 North 14th Street
Arlington, Virginia 22216

JAMES P. PIPER, ESQ.
Trial Attorney, Aviation Unit
Torts Section, Civil Division
U.S. Department of Justice
550 - 11th Street, N.W. - Rm. 906
Washington, D.C. 20530

CHARLES R. WORK, ESQ.
Peabody, Rivlin, Lambert & Meyers
1150 Connecticut Avenue, N.W.
Washington, D.C. 20036

and mailed postage prepaid to:

J. VERNON PATRICK, JR., ESQ.
Berkowitz, Lefkovits & Patrick
1400 City National Bank Bldg.
Birmingham, Alabama 35203



John J. Connors

October 15, 1981

Oren Lewis, Jr., Esq.
Lewis, Wilson, Lewis & Jones
2054 North 14th Street
Arlington, VA 22216

Marchetti v. Lockheed Aircraft Corporation
Our file 2041-1278-5C

Dear Oren:

We write to confirm our telephone conference call today between Judge Oberdorfer and our respective offices.

We understand that the Court has now ruled that defendants are entitled to take the depositions of any teachers who have teught the infant plaintiff since the date of the verdict in the original Marchetti trial. Notices of deposition of those we wish to depose have already been sent.

We further understand this Court has ruled that with regard to the depositions you have requested regarding the photographs and motion pictures recently produced by the government, that we are to provide a continuing Rule 30(b)(6) witness for you to depose for up to six hours on Monday, October 19, 1981. Accordingly, we will make Mr. Charles Lovelace, defendant's designee in response to your Rule 30(b)(6) notice, available to you commencing at noon on that date for purposes of completing your discovery in this area.

DEFT. EX. [redacted]- L (TIMM)
DATE: 10/22/81
REPORTER: ALBERT J. GASDOR

We understand that pursuant to the Court's order you will provide your witnesses for depositions on Tuesday, October 20, 1981. For good order, we note that we have requested the depositions of the following experts: Drs. Busby, Cromack, Liu, Mason, Snyder, Conners, Tanay and Malone and Mr. Timm. We are prepared to take the depositions of these experts concurrently up to four at a time commencing at 9:30 a.m. on Tuesday, should that be necessary.

With regard to the examinations of the plaintiff Marchetti, we are now scheduling examinations by four medical experts (psychology, pediatrics, neurology and psychiatry) to commence at 8:30 a.m. on Tuesday, October 20, 1981, and expect to complete those examinations late Wednesday afternoon, October 21, 1981. We will inform you before Monday afternoon (October 19, 1981) as to the times and places for the examinations of the Marchetti child.

Thank you for your cooperation in these matters.

Sincerely yours,

Carroll E. Dubuc

/db

cc: Honorable Louis P. Oberdorfer

WILLIAM TIMM, PE, Consulting Engineer 12 Laurel Hill Pl, Armonk, NY 10504

List of Articles & Publications

1. Section 3, 11, C. Hydraulic Performance High Temperature Water by Paul L. Geiringer
2. Fire Susceptibility Test of UFC Foam "Type K" Insulation - furnished U. F. Chemical Corp. April 1969
3. Education Law in New York Professional Engineer March 1975
4. Paese Versus Tarrytown Round 3 Begins in New York Professional Engineer March 1977
5. Engineers - Public Servants - Political Pawns in New York Professional Engineer March 1977
6. Advice to Engineers in Private Practice & Government in New York Professional Engineer July/August 1977
7. The Real Issues in the North Tarrytown Paving & Drainage Work in New York Professional Engineer July/August 1977
8. Energy Conservation in presentation at seminar in White Plains, New York on April 2, 1976
9. "Comparison of Insulation Materials for Buildings" presented to Westchester Chapter NYSSPE May 17, 1976
10. Westchester County Dilemma, The Westchester Engineer September 1978
11. Cause and Effects of Shrinkage in Urea Based Foam in ASTM STP to be Published Fall 1979
12. Operator's Manual for Hydrogen and Carbon Dioxide Generator (Methanol - Water Type) published by Engineer School 1953
13. Operator's Manual - Valdosta, Georgia - Rosin Treating Facility
14. Operator Manual CAP Camphur Plant

EXHIBIT
44-3

DEFT. EX. D-Timm Dep. Exh. 1
DATE: 10/20/81
REPORTER: ALBERT J. GASDOR

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

IN RE AIR CRASH DISASTER
NEAR SAIGON, SOUTH VIETNAM
ON APRIL 4, 1975

Misc. No. 75-0205
All Cases

ELEANOR S. DOBSON, Administratrix
of the Estate of JO-AN K. PRAY,
Deceased and on behalf of all other
similarly situated,

-and-

FRIENDS FOR ALL CHILDREN, INC.,
as Special Administrator of the
Estate of TRAN THI BA and Seventy-
Five other decedents,

Plaintiffs,

-against-

Civil Action No.
75-0874

LOCKHEED AIRCRAFT CORPORATION,
A California Corporation,

Defendant/Third-
Party Plaintiff,

-against-

THE UNITED STATES OF AMERICA,

Third-Party
Defendant.

PLAINTIFFS' ANSWERS TO DEFENDANT LOCKHEED'S
SUPPLEMENTAL WRITTEN INTERROGATORIES

Plaintiffs Burke C. Pray and Eleanor S. Dobson hereby submit answers to the Supplemental "expert witness" interrogatories propounded by defendant Lockheed Aircraft Corporation (hereinafter referred to as Lockheed). At the time of this submittal, plaintiffs' expert witness is in the process of his analysis, discovery is still in progress, important witnesses are yet to be deposed, and documents are yet to be received and/or analyzed. Plaintiffs are in the process of deciding whether to retain additional experts to testify at the trial (such individuals have not been retained and/or consulted by plaintiffs on any basis concerning this lawsuit). Plaintiffs reserve the right to change, alter, expand, refine, exclude, or otherwise modify the answers

EXHIBIT
44-1

provided herein as indicated by further formal and informal discovery in this proceeding, further analysis, a decision to retain and call additional expert witnesses and as otherwise appropriate.

INTERROGATORY NO. 80: State the names and addresses of each person whom plaintiff expects to call as an expert witness at trial and as to each such person state:

(a) the technical fields in which plaintiff claims him to be expert and the training, education and experience upon which such claims are made;

(b) the subject matter upon which each such person is expected to testify;

(c) the substance of the facts and opinions to which each such person is expected to testify; and

(d) a summary of the grounds for each opinion each such person is expected to give.

ANSWER 80:

A. William Timm, P.E.
William Timm and Associates
12 Laurel Hill Place
Armonk, New York 10504

(a) Plaintiffs claim William Timm, P.E. to be an expert in the following fields:

(1) technical writing

(2) safety engineering

(3) safety and maintenance manuals for armed service personnel

(4) chemical engineering

(5) design of locks, locking systems and other safety and securing mechanisms and other aspects of mechanical engineering

(6) compilation of failure mode and effects analyses

(7) structural testing

(8) metal analysis and selection; corrosion and corrosion related problems and testing

(9) adequacy of engineering design criteria

(10) hydraulic and pneumatic systems

(11) logistical and maintenance practices in the armed services, including the maintaining and rigging of aircraft

(12) drafting and interpretation of engineering specifications

(13) accident and damage investigations

The qualifications of William Timm, P.E. as an expert witness are as follows:

1. Holds a Bachelor and Masters Degree in Chemical Engineering and completed all courses, except for the writing of the thesis, for a Doctor of Engineering Degree. All such degrees and courses were obtained at New York University.

2. Is a licensed Professional Engineer in the states of New York, New Jersey, Connecticut and the Commonwealth of Virginia.

3. Is a member of the National Society and the New York State Society of Professional Engineers (NSPE and NYSSPE). Was a director and chairman of the Ethical Practice Committee of the Westchester Chapter and is a member of the State Society's Ethical Practice and Long Range Goal Committee.

4. Is a member of the American Society for Testing and Materials (ASTM) and is a member of C-16 (Thermal Insultations) and E-5 (Fire Standards) Committees.

5. Is a member of the National Fire Protection Association (NFPA) and a member of the Instrument Society of America (ISA).

6. Is a member of the American Institute of Chemical Engineers (AICHE) and the Association of Consulting Chemists and Chemical Engineers (ACC&CE).

7. Holds the rank of Lieutenant Colonel in the Army Reserves and has completed the following courses offered by the military:

   a) Both the Associated Engineer Company Officers and the Advanced Engineer Officers Course given by the Engineer School at Fort Belvoir, VA

   b) The Command and General Staff Officers Course from the United States Army Command and General Staff College at Fort Leavenworth, Kansas

   c) The National Security Management Course given by the Industrial College of the Armed Forces

   d) Is currently enrolled in the Logistical Management Course and has completed several phases of that course.

8. Reserve Assignment included 10 years with a Logistical Command during which time he taught and attended numerous classes on maintenance policies and during training at Fort Lee attended classes and demonstrations on aircraft loading and rigging.

9. Has worked in the aircraft industry and was employed by Curtis Wright Corporation in Woodridge, N.J. Was also assigned as a technical representative for the U.S. Air Force while employed with another company.

10. While in military service he prepared interim operating and spare parts manuals for gas generating equipment. Also supervised the military personnel who took part in the preparation of operating, maintenance and spare parts manuals for gas generating equipment.

11. In the course of his civilian engineering work he has:

a) prepared several manuals for the operation and maintenance of special pieces of equipment and large chemical complexes

b) drafted specifications for numerous different type projects ranging from buildings to complex machinery

c) prepared test procedures to verify the safety of components

d) prepared corrosion test procedures and conducted studies of corrosion problems, including stress calculations and the changes in corrosion resistant properties for various stress conditions

e) advised on the selection of the proper materials for high stress points and/or corrosive environments.

12. Has made stress analysis on piping systems, structural members, equipment and supports. Has devised tests to determine the structural integrity of systems which were too complex to calculate directly.

13. Has designed hydraulic and pneumatic systems as well as safety latches and interlocks for special equipment.

14. Has made safety inspections to eliminate potential hazards and to assure compliance with OSHA and various local rules and regulations.

15. Throughout his engineering work, he has conducted safety engineering analyses and has been involved in safety aspects of engineering.

16. Through his engineering work, he has performed mechanical engineering and related tasks.

17. In the course of his civilian engineering work, he has conducted and participated in accident and damage investigations.

18. Other learning, education and experience.

(b) At the present time, it is contemplated that William Timm, P.E. may testify on the following subject matters:

(1) Maintenance Manual T.O. 1C-5A-2-12

(2) The lack of verification procedure for the rigging of the aft ramp locking systems

(3) The location of the hydraulic lines and control cables in the torque deck area

(4) The design of the aft ramp locks and locking system

(5) The design criteria utilized in the design of the aft ramp locks and locking system, the aft pressure door, the aft cargo door complex generally and the location of the hydraulic lines and control cables in the torque deck area.

(6) The failure mode and effect analysis as such pertains to the aft ramp, aft ramp locking system, aft pressure door, aft cargo complex generally and the location of the hydraulic lines and control cables in the torque deck area.

(7) The static and fatigue testing (and other structural testing) of the aft ramp locks, components of said locks and the aft ramp locking systems

(8) The selection of certain aluminum alloys for components of the aft ramp locks

(9) Corrosion testing as such pertains to the aft ramp locks and locking systems

(10) Corrosion prevention techniques as such pertains to the aft ramp locks and locking system

(11) Safety engineering analysis as such pertains to the aft ramp locks and locking systems, the aft pressure door, the aft cargo door complex generally and the location of the hydraulic lines and control cables in the torque deck area

(12) The competancy of the safety assurance department

(13) The competancy of the maintenance manual drafting department

(14) Other subject matters

(c) William Timm, P.E. is expected to testify that Lockheed's efforts were defective and deficient in the subject areas identified in 80(b), that Lockheed committed some or all of the acts and/or omissions in such subject areas enumerated in 63(a) and that the consequences of such acts and/or omissions are indicated in 63(b).

(d) William Timm, P.E. will rely on the depositions taken in this proceeding, the documents which have been produced to all parties and his experience, education and training as grounds for the opinions he will render at trial.

B. Plaintiffs may decide to call Air Force personnel who have already been deposed and/or who are scheduled to be deposed as expert witnesses.

C. Other expert witnesses yet to be determined.

INTERROGATORY NO. 81: State the names and addresses of any and all expert witnesses with whom plaintiff or his representative have consulted in connection with this lawsuit and as to each such expert state:

(a) the technical field in which plaintiff claims him to be expert and the training, education and experience upon which such claims are made;

(b) the subject matter upon which each such person is expected to testify;

(c) the substance of the facts and opinions to which each such person is expected to testify; and

(d) a summary of the grounds for each opinion each such person is expected to give.

ANSWER 81:

A. See answers to No. 80.

B. Steve Chris
13220 Wye Oak Drive
Gaithersburg, MD 20760

Steve Chris will not testify at trial.

Burke C Pray
BURKE C. PRAY, Co-Administrator of the Estate of JO-AN K. PRAY, Deceased

STATE OF New Jersey

COUNTY OF Burlington, to-wit:

I, Irene A. Churchill, a Notary Public in and for the State and County aforesaid, do hereby state that the above BURKE C. PRAY did appear before me this 10th day of July, 1979, and after being first duly sworn, did depose and state that the above Plaintiffs' Answers to Defendant Lockheed's Supplemental Written Interrogatories are true and correct to the best of his knowledge, information and belief.

SUBSCRIBED and SWORN TO before me this 10th day of July, 1979.

Irene A. Churchill
Notary Public

My commission expires:
January 27, 1980

IRENE A. CHURCHILL
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires January 27, 1980

LEWIS, WILSON, LEWIS & JONES, LTD.
2054 North Fourteenth Street
Arlington, Virginia 22201
703/527-8800

Oren R. Lewis, Jr.
Richard H. Jones
John E. Fricker
Michael S. Marcus
Attorneys for Plaintiffs

CERTIFICATE OF SERVICE

I hereby certify that I have caused a true copy of the foregoing Plaintiffs' Answers to Defendant Lockheed's Supplemental Written Interrogatories to be mailed, postage prepaid, this 16th day of July, 1979, to the following counsel:

CARROLL E. DUBUC, ESQUIRE
Haight, Gardner, Poor and Havens
Federal Bar Building
1819 H Street, N. W.
Washington, D. C. 20006

ISAAC N. GRONER, ESQUIRE
Cole and Groner, P.C.
1730 K Street, N. W.
Washington, D. C. 20006

JAMES P. PIPER, ESQUIRE
Trial Attorney, Aviation Unit
Torts Section, Civil Division
U.S. Department of Justice
550 11th Street, Room 906
Washington, D. C. 20530

Michael S. Marcus

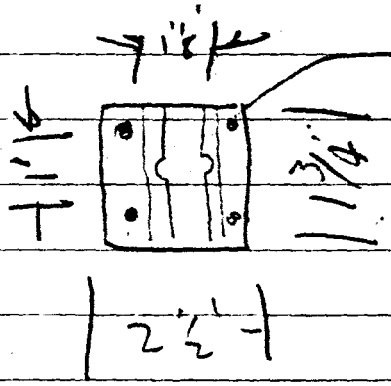
LEWIS W JON LEWIS + JONES

KELLY AIR FORCE BASE VISIT.

RAY

MR. REYNOLDS — BASE SECURITY

BOB CROMACK — ACCIDENT RECONSTRUCTION (PLANNING



PHILIPS HEAD SCREW
PROBABLE #10

FLOOR FASTENER

LANDING GEAR

TANDUM GEAR —

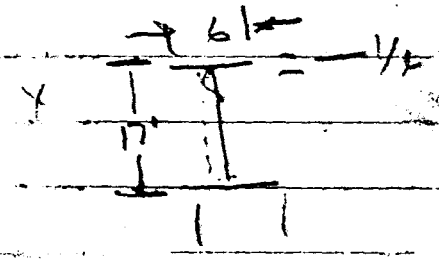
2 TIRES FORWARD

4 TIRES AFT

TUBE SECTION 10 1/2"

UPPER TUBE THICKNESS 11/16

AIR FRAME 17" Y



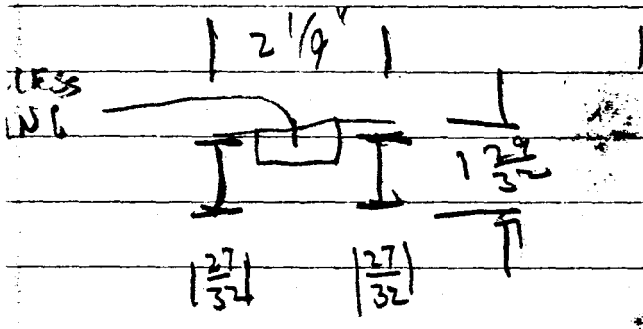
DEFT. EX. D-Timm Dep. Exh. 2

DATE: 10/20/81

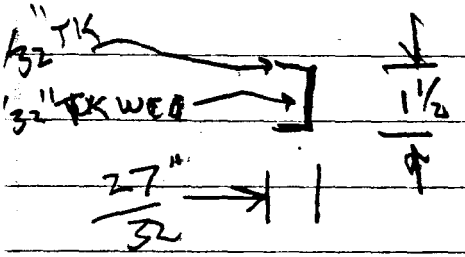
REPORTER: ALBERT J. GASDOR

- HOUSING COVER PLATE. } MELTED AREA
AGS # 82 —— 2? } OW WHITE
OIL PORT #1
SIZE 7½ X 18 17 BOLT HOLE

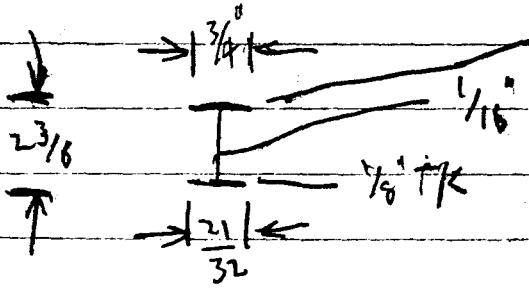
2- TIE DOWN RING



3) STRUT SECTION - I.D. NO. 7-4
LONG PIECE SHORT PIECE
SAME DIMENSIONS



4) I SECTION TOP FLANGE VARIES IN WIDTH



5) 4F5S101-103B
SER# 195 PWA CHG B CAT B

6) RH SIDE AFT LOCK

7) FWD RAMP WINCH WELL

8) STRUT COMPT AFT CARGO DOOR

9) RAMP EDGE I.D # 4-6

10) FUSELAGE SECTION
LABELLED SHEAR FRONT

11) RH PRESSURE DOOR SEAL

12 LARGE SECTION - TO BE IDENTIFIED
FIRE DAMAGE - ATR CYLINDER

13) RH FWD MLG
FUSELAGE FAIRING
STA - 1632 - FIRE DAMAGE

14 SMALL PIECE FIRE DAMAGE

15 FORWARD SECTION - FIRE DAMAGE

16- STRUT SECTION - FIRE DAMAGE

17- INTERNAL STRUT - FIRE DAMAGE

18- FRAME WITH FIRE DAMAGE

19- RH FWD MLG DOOR FIRE DAMAGE

20- FIRE DAMAGE - SKIN.

21- AIR FRAME SUPPORT FIRE DAMAGE AT DOORWAY

22) AIR FRAME SKIN FIRE DAMAGE

INSPECTION OF C-5A airCRAFT AT KELLY AIR FORCE BASE 19 June 1980

The seats in the troop compartment have one row of seats in the rear near the entrance ladder with two seats facing forward. All other seats in the troop compartment seem to be facing rear. Up near the bulkhead looking in between the troop compartment and the forward troop compartment there are just two seats instead of three seats in a row, These dpuble seating appeared to extend for at least two rows. This seat arrangement is bacuse of the lavatory located on the right side of the aircraft. Therefore there are two rows of two seats each starting from the front of the aircraft going rear. There ar-e twelve rows of ~~two~~ three seats each on each side of the isle. The bolting of the seats to the frame of the aricraft are by four bolts. The bolts diameter is 1/4" diameter, the hex haad on bolt is 9/16" across the hex. Nut diamter across the hex on the bolt is alos, 9/16". Correction on the bolt diameter it is actually a 3/8" diameter indtead of 1/4".. Note each seat has two 3/8" aluminum bolts holding a pivot on the seats.

Notation pressure door is 13'1" high by 19'4 1/2". Operating sequence of ~~air~~ AFT ramp is center cargo door opens first then side cargo doors open and then ramp is lowered by unhinging the pressure door from the top support and the ramp lowers to the lower position and then the pressnre door folds outward. Note the aft ramp length is 13' 41/2" measured from the cargo compartment to the pressure door. NOte that the locking system to the aft ramp is just about as conceived from previous drawings.

Length of troop oompartment ot hatch of stairway is 43' 2 1/4". Note

Note that the webs on the forward section or flight deck of the aircraft are 3" deep and approximately 20" on center. The channel has approximately a 1/2" flange. Width of forward troop compartment area of flight crew area is 12'4 3/4". Headroom is 80 5/16" in the crew area of the forward compartment. Note the aluminum skin on the top of the aircraft is 1/4" thick. The tickness of structural framig around the upper hatchway is 3 1/8" note that the aluminum skin is 1/4" thick in this area. Note the fastening for the pilots seat appears to be with two frames of 3/8" screws. There are four fasteners for the seat with four of these screws per fastener. The aluminum track in which the seat travels is 7/8" flange by 1/8" thick by 1 5/16" high shaped as a wide flange beam.

June 26, 1980

Cromack Engineering Assoc., Inc.
P. O. Box 28243
Tempe, Ar 85282

ATT: Mr. J. Robert Cromack, P.E.
SUBJ: Inspection of C-5A Aircraft at Kelly Air Force Base.

Dear Mr. Cromack:

It was a great pleasure to work with in June 19, 1980 in San Antonio, Texas where we inspected a C-5A Aircraft and the parts recovered from the Siagon crash April 4, 1975. Recent developments make the determination of the forces required to dislodge or break the seats in the troop compartment of vital importance to this case. The judge may change his opinions and release the moneys from case one and three if it can be shown that substantial force is required to break these seats loose from the aircraft.

During the inspection of the existing aircraft you were taking the most detailed notes of the seat construction, and probably are in the best position to calculate these forces. My notes indicate that a 3/8" bolt fastened the frame of the seat to a plate which connected to the floor flanges. The flanges were held in position by four screws which were assumed to be at least a number ten screw at maximum.

This aircraft was built with a 7075-T6 and 7079-T6 aluminum alloys and have the following properties:

	Aluminum Alloys 7075-T6	7079-T6
Modulus of Elasticity in kips per square inch, tension and compression	10,400	10,400
Modulus of Elasticity in kips per square inch, Shear	3,900	3,900

The ultimate strengths and yield strengths depend on whether the alloy is sheet or plate, extruded rods, bar or shapes, cold rolled rods or bars, pipe, extruded tubing; the strengths also depend on the thickness of the material or section. This data can be obtained out of the Alcoa Structural Handbook and I have copied the appropriate pages and enclosed them for your information.

-continued

DEFT. EX. [redacted]-Timm Dep. Exh. 3
DATE: 10/20/81
REPORTER: ALBERT J. GASDOR

The 7075-T6 and the 7079-T6 heat treated aluminum alloys are highly sensitive to stress corrosion which is known to degrade the strength of the high stress alloys. The C-5A aircraft has a serious defect in the wing structure which has reduced the service life of this wing from a design of 30,000 hours to less than 9,000 hours because of the fatigue cracking in the wings. The wings have been overhauled to give only an additional 10,000 hours of life after a considerable expenditure of funds on this modification.

The summary of the accident report, which you already have in your possession, is about the best document which gives the events leading up to this crash. The collateral report is almost identical to the accident report and does not add anything to the events up to and including the crash.

If I knew what additional data you require, I probably could locate the document in which this data appears, if it is available. The best description I can give you for the loading of the seat is as follows: The orphans were loaded two to a seat with the heads of the orphans placed closest to the back of the seat, and were held in the seat by a pillow placed over both babies and fastened in with the seat belt. The children ranged in age from 6 to 20 months of age and were quite small; a weight of 15 to 20 lbs. per baby would be quite high for determining the loading in each seat.

I have enclosed a copy of the time-altitude data whihh has been collected from various sources: The first set of data is the first altitude-time data given us by the Government which was ploted as altitude verus time and G-forces in the vertical direction were calculated. The summary of these sheets are enclosed for your information.

Madar data was furnished from the Air Force which gives the time, altitude and mach number; all data with a star does not have a corresponding data point from the Madar tape computer runout which was furnished from Lockeed. The last column gives the time intervals in which the altitude and mach number correspond to the Lockheed Madar tape data.

A Madar system is the abreviation for the malfunction automatic data acquisition and recording system which is refered to as MDR in the accident report or malfunction data record.

I am also furnishing you with a copy of the wreckage diagram alogg with a copy of the April 18, 1980 letter Warren R. Lewis Jr. from Carol E. Dubuce for your information and study. I have been unable to determine the accuracy of the Lockheed calculated data, nor do I have a key for the recording of the SLRP (05) message on record 11977. This letter does not explain any of this data but you may be able to derive something from it.

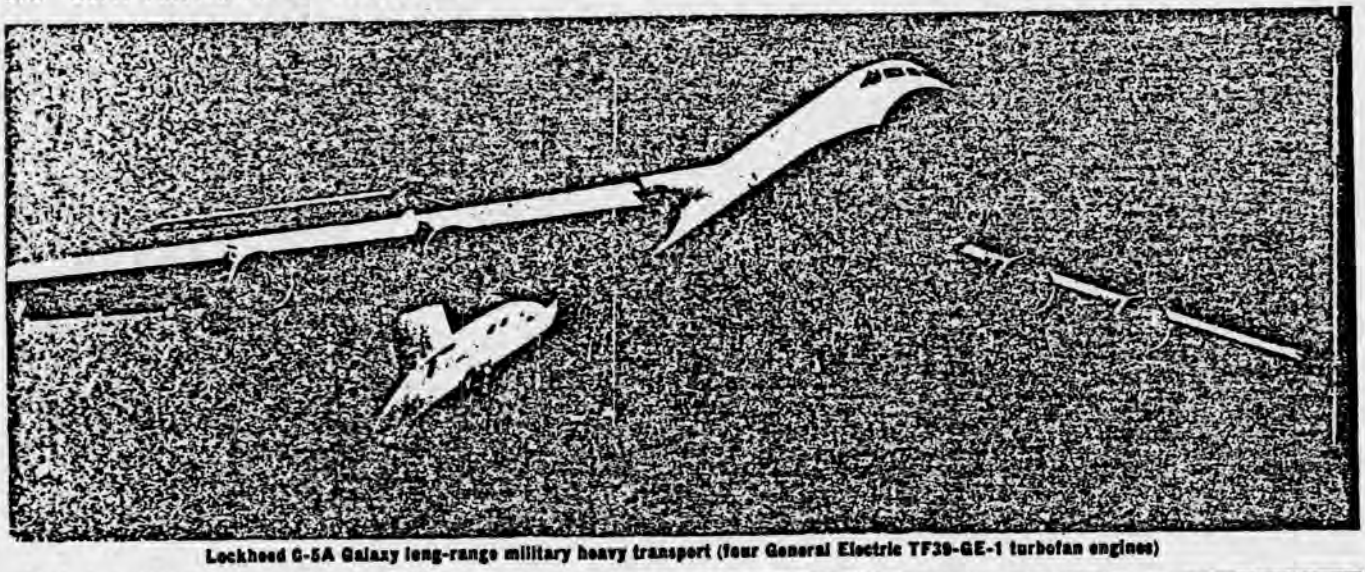
June 25, 1980
Mr. Cromack

I am also enclosing a copy of Mr. Edwards April 28, 1980 calculations for the average G-force on this aircraft. This information should get you started in being able to analyze and understand the testimony which has been given so far.

Very truly yous,

William Timm, P.E.
Consulting Engineer

WT:vh
Enclosures



Lockheed C-5A Galaxy long-range military heavy transport (four General Electric TF39-GE-1 turbofan engines)

In August 1965, the General Electric GE1/6 turbofan was selected for continued development. In October, Lockheed was nominated as prime contractor for the airframe. Construction of the first C-5A was started in August 1966, and it flew for the first time on 30 June 1968; the first operational aircraft (the ninth C-5A built) was delivered to Military Airlift Command on 17 December 1969. [illegible] and the USAF assigned the first eight aircraft to a flight test programme that extended into mid-1971. Contracts were placed covering the manufacture of 81 C-5As for the USAF. About 50% of the work, in terms of payments, was subcontracted.

In May 1973 the 81st C-5A was delivered, and by the end of 1974 the fleet had accumulated more than 186,000 flight hours. The value of the C-5A for rapid movement of large and/or heavy pieces of equipment has been demonstrated frequently since these aircraft became operational. Loads such as two M-48 tanks, each weighing 99,000 lb (45,000 kg), or three CH-47 Chinook helicopters, have been airlifted over transoceanic ranges.

Several combination tanker/cargo versions of the C-5A have been proposed to the USAF. These include the use of more powerful engines and increased structural strength to offer improved speed/altitude performance, greater fuel capacity, better payload-range and higher gross weights.

TYPE: Heavy logistics transport aircraft.

WINGS: Cantilever high-wing monoplane. Wing section NACA 0012 (mod) at 20% span, NACA 0011 (mod) at 43·7% and 70% span. Anhedral 5° 30′ at quarter-chord. Incidence 3° 30′ at root. Sweepback at quarter-chord 25°. Conventional fail-safe box structure of built-up spars and machined aluminium alloy extruded skin panels. Statically-balanced aluminium alloy ailerons. Modified Fowler-type aluminium alloy trailing-edge flaps. Simple hinged aluminium alloy spoilers forward of flaps. No trim tabs. Sealed inboard slats and slotted outboard slats on leading-edges. Ailerons and spoilers operated by hydraulic servo actuators. Trailing-edge flaps and leading-edge slats actuated by ball screwjack and torque tube system.

FUSELAGE: Conventional semi-monocoque fail-safe structure of 7079-T6 and 7075-T6 aluminium alloy and titanium alloy.

TAIL UNIT: Cantilever all-metal T-tail. All surfaces swept; anhedral on tailplane. All components are single-cell box structures with integrally-stiffened aluminium alloy skin panels. Variable-incidence tailplane. Elevators in four sections; rudder in two sections. No trim tabs. Rudder and elevators operated through hydraulic servo actuators. Tailplane actuated through hydraulically-powered screwjack. No anti-icing equipment.

LANDING GEAR: Retractable nosewheel type. Nose unit retracted rearward by hydraulically-driven ballscrews. Main units rotated through 90° and retracted inward via hydraulically-driven gearbox. Single nose shock-strut and four main-gear shock-struts are of Bendix oleo-pneumatic dual-chamber type. Four wheels on nose unit. Four main units (two in tandem on each side) each comprise a "triangular footprint" six-wheel bogie made up of a pair of wheels forward of the shock-strut and two pairs aft. All 28 tyres size 49 × 17·20 type VII 26-ply. Tyre pressures: main 111 lb/sq in (7·80 kg/cm²), nose 137 lb/sq in (9·63 kg/cm²) with in-flight deflation capability. Goodyear aircooled beryllium disc brakes, with [illegible] wind positioning of all units 20° to port or starboard by servo-controlled hydraulically-powered cylinders. Ground manoeuvrability enhanced by castoring forward main units.

POWER PLANT: Four General Electric TF39-GE-1 turbofan engines, each rated at 41,100 lb (18,642 kg) st. Twelve integral fuel tanks in wings between front and rear spars, comprising four main tanks (each 3,625 US gallons; 13,721 litres), four auxiliary tanks (each 4,625 US gallons; 17,507 litres) and four extended-range tanks (each 4,000 US gallons; 15,142 litres). Total usable capacity 49,000 US gallons; [illegible] each side, in forward part of main landing gear pods. Flight refuelling capability, via inlet in upper forward fuselage, over flight engineer's station (compatible with KC-135 tanker). Oil capacity 36·4 US gallons (138 litres).

ACCOMMODATION: Normal crew of five, consisting of pilot, co-pilot, flight engineer, navigator and loadmaster, with rest area for 15 people (relief crew, couriers, etc) at front of upper deck. Basic version has seats for 75 troops on rear part of upper deck, aft of wing box. Provision for carrying 270 troops on lower deck, but aircraft is employed primarily as freighter. Typical freight loads include two M-60 tanks or sixteen 2½ ton lorries; or one M-60 and two [illegible]

LOCKHEED C-5 GALAXY

USAF designation: C-5A

Design studies for a very large logistics transport for Military Airlift Command (then MATS) began in 1963, when the requirement was for a 600,000 lb (272,200 kg) aircraft known by the designation CX-4. Eventually, this and other requirements evolved into a specification known as CX-HLS (Cargo, Experimental—Heavy Logistics System).

Following an initial design competition in May 1964, contracts were awarded to Boeing, Douglas and Lockheed to develop their designs further. At this time, the requirement was for an aircraft with a gross weight of about 700,000 lb (317,500 kg), to which the definitive designation C-5A and the name Galaxy were allocated. Large contracts also went to Pratt & Whitney and General Electric, to finance the development of prototype power plants for the C-5A.

A Lockheed C-5A Galaxy of the USAF accepts what is, for it, part of a conventional load

Lockheed C-5A Galaxy four-turbofan military heavy transport aircraft (*Pilot Press*)

DEFT. EX. D-Timm Dep. Exh. 4
DATE: 10/20/81
REPORTER: ALBERT J. GASDOR

Iroquois helicopters, five M-113 personnel carriers, one M-59 2½ ton truck and an M-151 ¼ ton truck; or 10 Pershing missiles with tow and launch vehicles; or 36 standard 463L load pallets. "Visor" type upward-hinged nose, and loading ramp, permit straight-in loading into front of hold, under flight deck. Rear straight-in loading via ramp which forms undersurface of rear fuselage. Side panels of rear fuselage, by ramp, hinge outward to improve access on ground but do not need to open for air-drop operations in view of width of ramp. Provision for Aerial Delivery System (ADS) kits for paratroops or cargo. Two passenger doors on port side, at rear end of upper and lower decks. Two crew doors on port side, at forward end of upper and lower decks. Entire accommodation pressurised and air-conditioned.

SYSTEMS: Electronically-controlled air-conditioning and pressurisation systems: pressure differential 8·2 lb/sq in (0·58 kg/cm²). Four separate hydraulic systems, pressure 3,000 lb/sq in (210 kg/cm²) each, supply flying control and utility systems. Electrical system includes four 60/80kVA AC engine-driven generators. Two APUs to provide auxiliary pneumatic, hydraulic and electrical power.

ELECTRONICS AND EQUIPMENT: Communications and navigation radio to military requirements. Norden radar. Nortronics inertial navigation system. Special equipment includes electronic Malfunction Detection, Analysis and Recording subsystem (MADAR) which scans and analyses over 800 test points.

DIMENSIONS, EXTERNAL:

Wing span	222 ft 8½ in (67·88 m)
Wing chord at root	45 ft 5·3 in (13·85 m)
Wing chord at tip	15 ft 4 in (4·67 m)
Wing aspect ratio	7·75
Length overall	247 ft 10 in (75·54 m)
Length of fuselage	230 ft 7½ in (70·29 m)
Height overall	65 ft 1½ in (19·85 m)
Tailplane span	68 ft 8½ in (20·94 m)
Wheel track (between outer wheels)	37 ft 5½ in (11·42 m)
Wheelbase (c/l main gear to c/l nose gear)	72 ft 11 in (22·23 m)
Crew door (lower deck):	
Height	5 ft 11 in (1·80 m)
Width	3 ft 4 in (1·02 m)
Height to sill	12 ft 11 in (3·94 m)
Passenger door (lower deck):	
Height	6 ft 0 in (1·83 m)
Width	3 ft 0 in (0·91 m)
Height to sill	11 ft 8 in (3·56 m)
Aft loading opening (ramp lowered):	
Max height	12 ft 10½ in (3·93 m)
Max width	19 ft 0 in (5·79 m)
Aft straight-in loading:	
Max height	9 ft 6 in (2·90 m)
Max width	19 ft 0 in (5·79 m)

DIMENSIONS, INTERNAL:

Cabins, excl flight deck:	
Length:	
upper deck, forward	39 ft 4 in (11·99 m)
upper deck, aft	59 ft 8½ in (18·20 m)
lower deck, without ramp	121 ft 1 in (36·91 m)
lower deck, with ramp	144 ft 7 in (44·07 m)
Max width:	
upper deck, forward	13 ft 9½ in (4·20 m)
upper deck, aft	13 ft 0 in (3·96 m)
lower deck	19 ft 0 in (5·79 m)
Max height:	
upper deck	7 ft 6 in (2·29 m)
lower deck	13 ft 6 in (4·11 m)
Floor area:	
upper deck, forward	540 sq ft (50·17 m²)
upper deck, aft	776·1 sq ft (72·10 m²)
lower deck, without ramp	2,300·9 sq ft (213·76 m²)
Height to floor (kneeled):	
forward	4 ft 4½ in (1·34 m)
aft	4 ft 9 in (1·45 m)
Volume:	
upper deck, forward	2,010 cu ft (56·91 m³)
upper deck, aft	6,020 cu ft (170·46 m³)
lower deck	34,795 cu ft (985·29 m³)

AREAS:

Wings, gross	6,200 sq ft (576·0 m²)
Ailerons (total)	252·8 sq ft (23·49 m²)
Trailing-edge flaps (total)	991·7 sq ft (92·13 m²)
Leading-edge slats (total)	648·5 sq ft (60·25 m²)
Spoilers (total)	430·7 sq ft (40·01 m²)
Fin	961·1 sq ft (89·26 m²)
Rudder	226·7 sq ft (21·06 m²)
Tailplane	965·8 sq ft (89·73 m²)
Elevators	258·7 sq ft (24·03 m²)

WEIGHTS AND LOADINGS (for 2·25g):

Basic operating weight	337,937 lb (153,285 kg)
Design payload	220,967 lb (100,228 kg)
Max ramp weight	769,000 lb (348,810 kg)
Max T-O weight	769,000 lb (348,810 kg)
Max landing weight	635,850 lb (288,418 kg)
Max zero-fuel weight	558,904 lb (253,515 kg)
Max wing loading	124·0 lb/sq ft (605·4 kg/m²)
Max power loading	4·69 lb/lb st (4·68 kg/kg st)

PERFORMANCE (at max T-O weight, except where indicated):

Max never-exceed speed
469·5 knots (472 mph; 760 km/h) CAS or Mach 0·875

Max level speed at 25,000 ft (7,620 m)
496 knots (571 mph; 919 km/h)

High-speed cruise at 25,000 ft (7,620 m) at normal rated thrust
460-480 knots (530-553 mph; 853-890 km/h)

Average cruising speed
450 knots (518 mph; 834 km/h)

Aerial delivery drop speed
130-150 knots (150-173 mph; 241-278 km/h)

Stalling speed, 40° flap at max landing weight
104 knots (120 mph; 194 km/h) EAS

Rate of climb at S/L, ISA, at max rated thrust
1,800 ft (549 m)/min

Service ceiling at AUW of 615,000 lb (278,950 kg)
34,000 ft (10,360 m)

Min ground turning radius 75 ft 0 in (22·86 m)

Runway LCN:

Concrete	40
Asphalt	64
T-O run	7,000 ft (2,134 m)
T-O [illegible]	8,400 ft (2,560 m)
Landing from 50 ft (15 m)	3,600 ft (1,097 m)
Landing run	2,230 ft (680 m)

Range with 220,967 lb (100,228 kg) payload
3,256 nm (3,749 miles; 6,033 km)

Range with 112,600 lb (51,074 kg) payload
5,670 nm (6,529 miles; 10,505 km)

Ferry range 6,940 nm (7,991 miles; 12,860 km)

LAW OFFICES
LEWIS, WILSON, LEWIS AND JONES, LTD.
P. O. BOX 827
2054 14TH STREET, NORTH
ARLINGTON, VIRGINIA 22216

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John Sekelsky
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Mr. William Timm
12 Laurel Hill Place
Armonk, N.Y. 10504

26 SEP 81

LEWIS WILSON LEWIS + JOWE
C-5 A - SAIGON AIR CRASH

REVIEW OF PHOTOGRAPH;

COLORED PHOTOGRAPHS

4-H - BORN MARK ON TROOP COMPARTMENT.

4 I - SHEAR OF TROOP COMPARTMENT FROM CARGO COMPARTMENT - CLOSE-UP OF SCORCHED AREA

4-K, 4-L, 4 M > PIECES OF AIRCRAFT - FAR SHORE SHOWS - HARD IMPACT FIRST TOUCH DOWN

4R-, 4R, 4S > PATH OF PLANE NEAR SHORE + EVIDENCE OF FIRE

4AA, 4BB > BURNING WRECKAGE

4CC, 4DD > CARGO COMPARTMENT

4 HH - FLIGHT DECK

4 II TROOP COMPARTMENT IN HILL OVER VIEW

4 GG BURNING WRECKAGE - OUT OF FOCUS LOOKS LIKE TROOP COMPARTMENT

4EE, 4FF > SKIPPING OF TROOP COMPARTMENT

29 SEP 81 — LEWIS-WILSON-LEWIS & JONES-LTD
C-5A - SAIGON MIR CRASH

REVIEW OF PHOTOGRAPHS

4E > VEGATION SHOWS SIGNS OF HEAT &
4F FIRE

4C. TROOP COMPARTMENT - WITH SCORCH MARK
VEGATION SHOWS SIGNS OF HEAT & FIRE

(20)

BLACK + WHITE PHOTOGRAPHS

1 SCORCH MARK ON TROOP COMPARTMENT SEE 4H
2- SHEAR OF TROOP COMPARTMENT
3- HEAT BLISTER INSIDE TROOP COMPARTMENT
4- BREAK IN DIKE - FAR SHORE
5 TROOP COMPARTMENT
6- BEND CYLINDER (ACTUATOR)
7- TROOP COMPARTMENT INTO HILL
8. TROOP COMPARTMENT - LOOKS LIKE TELESCOPING - ALSO SKID MARKS
9. TROOP COMPARTMENT SKIP - PROOF TROOP COMPARTMENT WAS AIRBORN
10. PROOF OF TROOP COMPARTMENT SHEAR
11. AIRCRAFT NEAR SHORE SKIP
12- BROKE DIKE AND CLOSE-UP OF INITIAL SKIP
13- TROOP COMPARTMENT OUT OF FOCUS PHOTO LOOK LIKE AIR FRAME CRIMPED IN CENTER
14 BULK HEAD END OF TROOP COMPARTMENT
15 EVIDENCE OF SHEAR OF TROOP COMPARTMENT
16- DEPTH OF DITCH
17 TROOP COMPARTMENT SKID

C-5A AIR CRASH IN SAIGON

REVIEW OF PHOTOGRAPHS

BLACK + WHITE- PHOTOGRAPHS

18- TROOP COMPARTMENT- SCORCHED AREA-
NOTE FIRE EXTINGUISHERS

19- ACTUATOR (TIE RODS?)

20. WHEELS OF AIR CRAFT

21 HATCH-WAY

22. TROOP COMPARTMENT INTERIOR -OVER HEAD COMPARTMENT BROKEN LOOSE + FALLEN

23 PROOF TROOP COMPARTMENT AIRBORNE WHEELS IN FOREGROUND - HULL CRIMPED CARGO COMPARTMENT TO LEFT

24 TROOP COMPARTMENT IN HILL - CARGO COMPARTMENT IN BACKGROUND

25 ENGINES + WING

26 CARGO COMPARTMENT

27 SKID TROOP COMPARTMENT

28 TROOP COMPARTMENT. SIGN OF RIBBING

29- RAMP ACTUATOR

30. RAMP YOKE

31 HYDRAULIC LINES

32 > RAMP PRESSURE DOOR LIMIT SWITCH

33

34 ACTUATOR RAMP LOCK

35 HYDRAULIC LINES

36. RAMP YOKES

37. RAMP LOCKING MECHANISM

38- RAMP YOKE

39- CARGO COMPARTMENT

40 - 41 RAMP

42 CARGO + TROOP COMPARTMENTS

43- SMOKE

28 SEP 81

LEWIS WILSON LEWIS + JONES

C-5A AIR CRASH SIMLOW

PHOTOGRAPH REVIEW

BLACK + WHITE PHOTOGRAPHS

44 - SICIN TEAR TRY TO LOCATE AREA

45 - HINGE - LOOKS LIKE RAMP

46

47

48

49 - TIE ROD

50 TROOP COMPARTMENT SKIP. WHEELS IN FOREGROUND

51 FAR-SHORE SKIP

52 SEVERED HYDRAULIC LINES

FROM: MABS 17 Jun 80

SUBJECT: C5A Landing Gears

TO: MAB

The following is the present status of C5 landing gears.

AIRCRAFT	POSITION	REMARKS
69-011	Right Aft	Right aft gear developed an internal leak. OO-ALC instructed SA-ALC to replace the seals and recheck. Work was accomplished and gear seemed to have been "holding up" but on the 17 Jun, the leak returned while at Flight Prep. A new right aft gear that came in for aircraft 69-004 will replace it and the leaking gear will be returned to OO-ALC.
69-014		Has all its gears and will have gear verification accomplished 8 Jul 80.
69-016	Left Aft Left Forward	Left forward gear is being robbed from aircraft 69-004 with a replacement requested from OO-ALC. Left aft gear is robbing the new gear that came in from OO-ALC 9 Jun for aircraft 70-456. On 10 Jun, the second left aft gear failed aircraft operations check. It was operating at 800 PSI in normal and 950 PSI in emergency. It will be replaced by the second gear received for aircraft 70-456 from OO-ALC 15 Jun.
67-169	Right Aft	Has all its gears. One forward gear needs a new collar lock (corroded) ordered from OO-ALC. We are waiting for test stand space to assemble these gears and run gear pressure checks. The test stand is presently in use by gears for aircraft 69-016.

AIRCRAFT	POSITION	REMARKS
69-004	Left Forward Right Aft Left Aft	Aircraft 69-011 robbed the left aft gear that was received from OO-ALC and aircraft 69-016 robbed the left forward gear and we have not yet received a left aft gear (due 18 Jun).
69-018	Right Aft Left Aft	Need a right aft and left aft gear from OO-ALC by 10 Jul.
70-456	Left Aft	We have received two gears from OO-ALC but both gears had to be robbed for aircraft 69-016.

Our total requirements are:

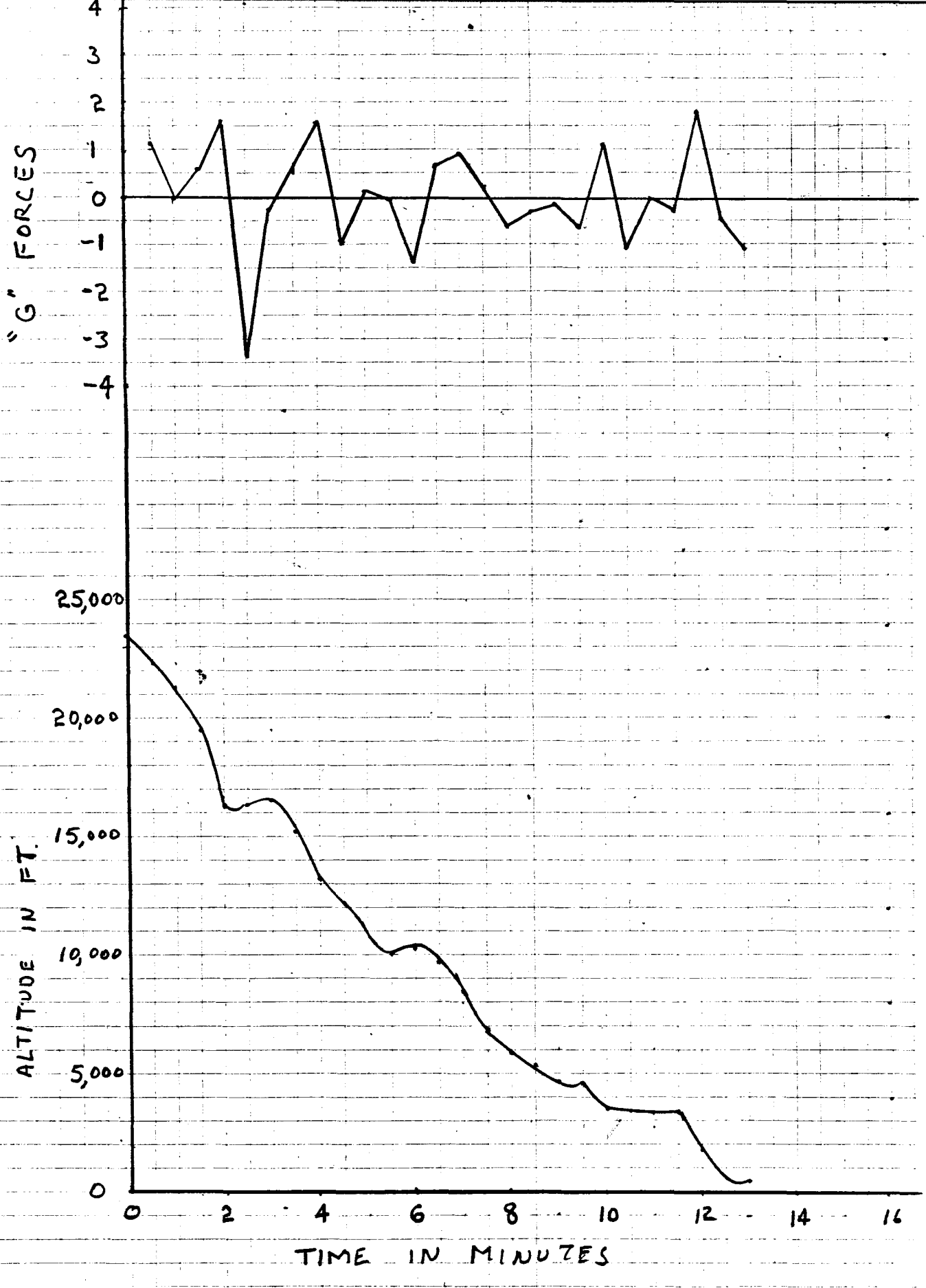
1 each left forward gear
2 each right aft gear
3 each left aft gear

57817

WILLIAM TIMM
12 LAUREL
HILL PLACE
ARMONK, N.Y.
10504
212 8892 0153
914 273 3098

Martin
57817
Capt Dightman
BRIDGERS DC
4195
221 5203

DESK
3 BDLGS FROM PARTS


"G" FORCES
4
3
2
1
0
-1
-2
-3
-4
ALTITUDE IN FT.
25,000
20,000
15,000
10,000
5,000
0
0
2
4
6
8
10
12
14
16
TIME IN MINUTES

FIRST ALTITUDE DATA

TIME (MIN)	ALTITUDE FT	ΔH FT	$\frac{\Delta H}{\Delta t}$	$\frac{\Delta^2 H}{\Delta t^2}$	g FORCE
0	23,424	✗ 0.0	0		
0.5	22,313	-1111.0	-37.03	+37.03	1.15
1.0	21,202	-1111.0	-37.03	0.0	0.0
1.5	19,535	-1667.0	-55.57	+18.54	0.58
2.0	16,313	-3222.0	-107.40	+51.83	1.61
2.5	16,313	- 0.0	0	+107.4	-3.34
3.0	16,536	+ 223.0	+ 7.43	+ 7.43	-0.23
3.5	15,202	-1334.0	-11.13	+18.56	0.58
4.0	13,314	-1888.0	-62.93	+51.80	1.61
4.5	12,314	-1000.0	-33.33	+29.60	-0.92
5.0	—	-1107.5	-36.92	+ 3.59	0.11
5.5	10,099	-1107.5	-36.92	0	0.0
6.0	10,314	+ 215.0	+7.17	-44.09	-1.37
6.5	9,870	- 444.0	-14.80	+21.97	0.68
7.0	8,536	-1334.0	-44.47	+29.67	0.92
7.5	6,981	-1555.0	-51.83	+ 7.36	0.23
8.0	5,981	-1000.0	-33.33	+18.50	-0.58
8.5	5,315	- 660.0	-22.00	-11.33	- 0.35
9.0	4,759	- 555.0	-18.50	- 3.50	- 0.11
9.5	4,759	0.0	0.0	-18.50	- 0.58
10.0	3,648	-1111.0	-37.03	+ 37.03	1.15
10.5	3,537	-111.0	- 3.70	- 33.33	- 1.04
11.0	3,426	- 111.0	- 3.70	0.0	0.0
11.5	3,537	+ 111.0	+3.70	- 7.40	- 0.23
12.0	1,870	1667.0	- 55.57	+ 59.27	1.84
12.5	648	1222.0	- 40.73	- 14.84	- 0.46

FIRST ALTITUDE DATA

TIME (MIN)	ALTITUDE FT	ΔH FT	$\frac{\Delta H}{\Delta t}$	$\frac{\Delta^2 H}{\Delta t^2}$	g FORCE
0	23,424	~~*~~ 0.0	0		
0.5	22,313	-1111.0	-37.03	+37.03	1.15
1.0	21,202	-1111.0	-37.03	0.0	0.0
1.5	19,535	-1667.0	-55.57	+18.54	0.58
2.0	16,313	-3222.0	-107.40	+51.83	1.61
2.5	16,313	- 0.0	0	+107.4	-3.34
3.0	16,536	+ 223.0	+ 7.43	+ 7.43	-0.23
3.5	15,202	-1334.0	-11.13	+18.56	0.58
4.0	13,314	-1888.0	-62.93	+51.80	1.61
4.5	12,314	-1000.0	-33.33	+29,60	-0.92
5.0	—	-1107.5	-36.92	+ 3.59	0.11
5.5	10,099	-1107.5	-36.92	0	0.0
6.0	10,314	+ 215.0	+ 7.17	+44.09	-1.37
6.5	9,870	- 444.0	-14.80	+21.97	0.68
7.0	8,536	-1334.0	-44.47	+29.67	0.92
7.5	6,981	-1555.0	-51.83	+ 7.34	0.23
8.0	5,981	-1000.0	-33.33	+18.50	-0.58
8.5	5,315	- 660.0	-22.00	-11.33	- 0.35
9.0	4,759	- 555.0	-18.50	- 3.50	- 0.11
9.5	4,759	0.0	0.0	-18.50	- 0.58
10.0	3,648	-1111.0	-37.03	+ 37.03	1.15
10.5	3,537	-111.0	- 3.70	- 33.33	- 1.04
11.0	3,426	- 111.0	- 3.70	0.0	0.0
11.5	3,537	+ 111.0	+3.70	- 7,40	- 0.23
12.0	1,870	1667.0	- 55.57	+ 59.27	1.84
12.5	648	1222.0	- 40.73	- 14.84	- 0.46
13.0	537	111.0	-3.70	- 37.03	- 1.15

RADAR DATA FROM LOCKHEED

TIME FROM	TO	ALT.	MACH
5:1:15	5:1:18	—	0.146
5:1:19	5:1:22	—	0.146
5:1:23	5:1:25	—	0.172
5:1:26	5:1:28	—	0.172
5:1:29	5:1:32	—	0.204
5:1:33	5:1:35	537.20	0.216
5:1:36	5:1:39	537.20	0.234
5:1:40	5:1:44	648.30	0.246
5:1:45	5:1:49	648.30	0.246
5:1:50	5:1:53	870.50	0.256
5:1:54	5:1:59	981.60	0.258
5:2:0	5:2:5	1203.80	0.264
5:2:7	5:2:9	1426.00	0.266
5:2:10	5:2:13	1648.20	0.272
5:2:14	5:2:20	1870.40	0.272
5:2:21	5:2:27	2425.90	0.276
5:2:28	5:2:35	2759.20	0.276
5:2:36	5:2:43	3203.60	0.284
5:2:44	5:2:52	3536.90	0.296
5:2:53	5:3:1	3870.20	0.314
5:3:8	5:3:11	4314.60	0.326
5:3:12	5:3:20	4647.90	0.332
5:3:21	5:3:30	5092.30	0.330
5:3:31	5:3:38	5536.70	0.340
5:3:39	5:3:45	5647.80	0.342
5:3:46	5:3:52	5981.10	0.350
5:3:53	5:4:2	6425.50	0.360
5:4:3	5:4:13	7092.10	0.364
5:4:14	5:4:22	7647.60	0.372
5:4:23	5:4:32	7980.90	0.378
5:4:33	5:4:43	8314.20	0.378
5:5:2	5:5:5	8314.20	0.378
5:5:6	5:5:16	9869.60	0.390
5:5:17	5:5:27	10091.80	0.406
5:5:28	5:5:37	10536.20	0.422

TIME FROM	TO	ALT	MACH
5:5:38	5:5:49	10969.50	0.430
5:5:50	5:6:0	11536.10	0.434
5:6:1	5:6:11	11869.40	0.432
5:6:12	5:6:22	12313.80	0.438
5:6:23	5:6:33	12758.20	0.446
5:6:34	5:6:43	12980.40	0.456
5:6:55	5:6:57	13535.90	0.452
5:7:38	5:7:48	15091.30	0.478
5:7:50	5:7:59	15202.40	0.484
5:8:0	5:8:13	15646.80	0.494
5:8:14	5:8:23	15980.10	0.502
5:8:24	5:8:35	16535.60	0.502
5:8:36	5:8:48	16868.90	0.502
5:8:49	5:8:59	17091.10	0.506
5:9:1	5:9:10	17535.50	0.506
5:9:11	5:9:21	17979.90	0.506
5:9:22	5:9:27	18202.10	0.506
5:9:34	5:9:45	18535.40	0.512
5:9:46	5:9:57	18868.70	0.522
5:9:58	5:10:8	19090.90	0.530
5:90:9	5:10:21	19424.20	0.536
5:10:22	5:10:31	19757.50	0.540
5:10:33	5:10:42	20090.80	0.542
5:10:43	5:10:54	20424.10	0.542
5:11:7	5:11:14	20424.10	0.542
5:11:15	5:11:25	20979.60	0.544
5:11:26	5:11:36	21312.90	0.554
*9:30:11	4:62:40	21312.90	0.554
5:12 7	5:12:17	21979.50	0.590
5:12:18	5:12:22	22090.60	0.590
5:12:23	5:12:26	22201.70	0.594
5:12:27	5:12:34	22201.70	0.594
5:12:35	5:12:41	22423.90	0.598
5:12:42	5:12:52	22646.10	0.602
5:12:53	5:13:0	22868.30	0.602

TIME			
FROM	TO	ALT	MACH
5:13:1	5:13:9	22979.40	0.608
5:13:10	5:13:17	23201.60	0.610
5:13:18	5:13:19	23201.60	0.610
5:13:20	7:63:63	23201.60	0.610
2:16:22	5:13:27	23201.60	0.610
5:13:28	5:13:34	23423.80	0.606
5:13:35	5:13:41	23423.80	0.600
5:13:42	5:13:49	23312.70	0.620
5:13:50	5:13:56	22979.40	0.638
5:13:57	5:14:2	22757.20	0.648
5:14:3	5:14:11	22312.80	0.664
5:14:12	5:14:16	22312.80	0.664
5:14:18	5:14:23	21868.40	0.680
5:14:24	5:14:29	21757.30	0.682
5:14:30	5:14:34	21646.20	0.674
5:14:36	5:14:43	21424.00	0.654
5:14:44	5:14:51	21201.80	0.648
5:14:52	5:14:59	20868.50	0.640
5:15:0	5:15:7	20646.30	0.634
5:15:8	5:15:13	20090.80	0.632
5:15:14	5:15:18	19535.30	0.626
5:15:19	5:15:24	18979.80	0.630
5:15:25	5:15:31	18535.40	0.634
5:15:32	5:15:39	18313.20	0.634
5:15:40	5:15:47	17313.20	0.640
5:15:48	17:32:31	17313.20	0.640
5:15:56	5:16:1	16646.70	0.656
5:16:2	5:16:5	16313.40	0.660
5:16:6	5:16:12	16091.20	0.658
5:16:13	5:16:18	16091.20	0.648
5:16:19	5:16:23	16091.20	0.648
5:16:24	5:16:28	16091.20	0.620
5:16:29	5:16:33	16313.40	0.582
5:16:34	5:16:41	16980.00	0.528
5:16:43	5:16:51	17091.10	0.514

TIME		ALT	MACH
FROM	TO		
5:16:52	5:16:58	17091.10	0.500
5:17:2	5:17:2	17091.10	0.500
5:17:15	5:17:22	16535.60	0.518
5:17:23	5:17:30	16202.30	0.526
5:17:31	5:17:40	15980.10	0.530
5:17:41	5:17:50	15646.80	0.536
5:17:51	5:17:58	15313.50	0.530
5:17:59	5:18:6	15202.40	0.530
5:18:7	5:18:14	14980.20	0.526
5:18:15	5:18:24	14758.00	0.508
31:23:46	5:18:34	14313.60	0.502
5:18:35	5:18:40	13980.30	0.502
21:20:46	5:18:52	13313.70	0.498
5:18:53	5:19:0	12980.40	0.504
5:19:1	5:19:9	12758.20	0.508
5:19:10	5:19:16	12424.90	0.510
5:19:17	5:19:24	12424.90	0.504
5:19:25	5:19:31	12313.80	0.494
5:19:32	5:19:41	12202.70	0.482
5:19:42	5:19:49	11980.50	0.476
5:19:51	5:19:59	11869.40	0.472
5:20:0	5:20:8	11647.20	0.472
5:20:10	5:20:16	11647.20	0.472
5:20:20	5:20:26	10980.60	0.472
5:20:27	5:20:34	10758.40	0.474
5:20:35	5:20:42	10314.00	0.486
5:20:43	5:20:51	10314.00	0.490
5:20:52	5:21:0	10091.80	0.480
5:21:1	5:21:8	10091.80	0.470
5:21:10	5:21:17	9869.60	0.468
5:21:18	5:21:25	9869.60	0.470
5:21:26	5:21:32	10091.80	0.460
5:21:34	5:21:39	10314.00	0.452
7:43:46	5:21:43	10314.00	0.452
5:21:46	5:21:52	10758.40	0.438

TIME		ALT	MACH
FROM	TO		
5:21:53	5:21:59	10869.50	0.414
5:22:0	5:22:7	10758.40	0.406
5:22:8	5:22:16	10314.00	0.410
5:22:17	5:22:24	9869.60	0.442
5:22:25	5:22:32	9091.90	0.476
5:22:33	5:22:38	8869.70	0.476
5:22:39	5:22:43	8758.60	0.462
5:22:44	5:22:49	8758.60	0.462
5:22:50	5:22:56	8425.30	0.434
5:22:58	5:22:59	8425.30	0.434
5:23:9	5:23:11	8425.30	0.434
5:23:12	5:23:18	7647.60	0.434
5:23:19	5:23:25	7203.20	0.442
5:23:26	5:23:32	7092.10	0.442
5:23:33	5:23:38	6981.00	0.438
5:23:39	5:23:43	6758.80	0.426
5:23:44	5:23:50	6758.80	0.422
5:23:51	5:23:56	6425.50	0.414
5:23:57	5:24:6	6092.20	0.410
5:24:7	5:24:14	5981.10	0.412
5:24:15	5:24:19	5870.00	0.416
5:24:22	5:24:30	5536.70	0.442
5:24:31	5:24:38	5425.60	0.438
5:24:39	5:24:45	5425.60	0.426
5:24:46	5:24:52	5314.50	0.414
5:24:53	5:24:58	5314.50	0.418
5:25:0	5:25:3	5314.50	0.418
5:25:4	5:25:9	5203.40	0.384
5:25:10	5:25:15	5092.30	0.380
5:25:16	5:25:23	4759.00	0.418
5:25:24	5:25:31	4425.70	0.448
5:25:34	5:25:37	4314.60	0.452
5:25:38	5:25:42	4314.60	0.442
5:25:43	5:25:47	4314.60	0.426
5:25:48	5:25:53	4314.60	0.400

TIME		ALT	MACH
FROM	TO		
5:25:54	5:26:2	4203.50	0.380
5:26:3	5:26:9	4092.40	0.388
5:26:10	5:26:14	3759.10	0.416
5:26:15	5:26:21	3648.00	0.434
5:26:22	5:26:25	3648.00	0.434
5:26:26	5:26:31	3648.00	0.412
30:27:63	5:26:35	3648.00	0.412
5:26:36	5:26:35	3648.00	0.412
5:26:42	5:26:46	3648.00	0.388
5:26:47	5:26:49	3536.90	0.382
5:26:50	5:26:54	3536.90	0.384
5:26:55	5:26:58	3536.90	0.384
5:26:59	5:27:4	3536.90	0.384
5:27:5	5:27:8	3648.00	0.384
5:27:9	5:27:13	3536.90	0.378
5:27:14	5:27:17	3425.80	0.378
5:27:19	5:27:23	3425.80	0.382
30:7:47	0:16:0	3425.80	0.382
5:27:30	5:27:34	3648.00	0.384
5:27:35	5:27:39	3648.00	0.384
5:27:39	5:27:43	3536.90	0.356
5:27:44	5:27:49	3425.80	0.340
5:27:50	5:27:55	3203.60	0.344
5:27:56	5:27:59	2870.30	0.390
5:28:0	5:28:2	2870.30	0.390
5:28:3	5:28:6	2537.00	0.412
5:28:7	5:28:10	2537.00	0.412
5:28:11	5:28:14	2314.80	0.444
31:59:61	31:59:61	2314.80	0.444
5:28:20	5:28:23	2314.80	0.444
5:28:24	5:28:27	1870.40	0.416
5:28:28	5:28:31	1426.00	0.420
5:28:32	5:28:34	1426.00	0.420
5:28:35	5:28:37	981.60	0.432
5:28:39	5:28:42	981.60	0.432

TIME		ALT	MACH
FROM	TO		
5:28:43	5:28:45	648.30	0.424
5:28:49	5:28:50	537.20	0.410
5:28:51	5:28:52	537.70	0.410

1) LICENSE ENGINEER - ~~33~~ 23 years

2) MILITARY BACKGROUND
(AIRCRAFT) < AVIATION ENGRS. - DESIGN AIRFIELD DESIGNING PAVEMENT FOR IMPACT LOADS. - GLIDE PATH
3) ASSOCIATIONS < READ DEPOSITION
4) ACCIDENCE INVESTIGATION
STRUCTION FAILURE, MECHANICAL FAILU
EXPLAIN - PARTS OF EQUIPMENT FROM
CORROSION ~~CORRECTION~~, EXPLOSION, FIRING, APHIXYATIONS FIRE SOURCE

STUDIES DONE BY AIR FORCE AFTER ACCIDENT

5) Competent for Mechanical Engineering Prob
WHAT DID YOU DO TO
6) INVESTIGATE CRASH

COLLATERAL REPORT

DEPOSITIONS

HISTORY TRANSCRIPTS

A Review AIR FORCE ACCIDENTS Rep.
B- FILE CABINET - DOCUMENT AIR FORCE
C- FILE CABINET - DOCUMENT LOCKHE
7) PURPOSE OF ACCIDENCE REPORT
SAFETY INVESTIGAT
8) COLLATERIAL REPORT
PERSERVE RECORDS AF. REG 127-4
9) —
10) PURPOSE OF FLIGHT
11) - INTRODUCTION (I)
12- GUY CUT-WAY PLAIN EXHIBIT 22
13- INDENTIFY - C-5A - - CUTAWAY
14 DESCRIBE - C-5A - II C-5A
15- AT- 23,400 Ft
LOCK MECHANISM OF THE AFT RAMP CARGO SYSTEM FAILED CAUSING A RUPTURE OF THE AFT RAMP CARGO SYSTEM. + SEVERING OF THE PART OF THE AFT RAMP CARGO SYSTEM FROM THE AIRPLANE

TIME	ALT	MACH			
052000	11647	—		5:20:0	5:20:8
*052008	(18313)	0.470			
052030	10758	0.474		5:20:27	5:20:34
*052305	10536	0.480			
052092	10314	0.486		5:20:38	5:20:42
052053	10092	0.490		5:20:52	5:21:0
*052111	9980.7	0.466			
052117	9869.6	0.468		5:21:10	5:21:17
052129	10091.8	0.460	←	5:21:26	5:21:32
052135	10314	0.452		5:21:36	5:21:39
052149	10758	0.438		5:21:46	5:21:52
052156	10869.5	0.414		5:21:53	5:21:59
052207	10758	0.406		5:22:0	5:22:7
052212	10314	0.410		5:22:8	5:22:16
052219	9869.6	0.442		5:22:17	5:22:24
*052225	9425	0.468			
052231	9092	0.476		5:22:25	5:22:32
052237	8870	0.472		5:22:33	5:22:38
052243	8758.6	0.462		5:22:39	5:22:43
*052250	8536.4	0.446			

~~0522 60~~
0813 60
950

SHORT

16- EXHIBIT # 18

17- EXHIBIT # 20 - 23,400 FT

18- EXHIBIT # 21

19- LOCKING SYSTEM FAILURE TO HUGE HOLE

20- SIZE OF HOLE - 13X19' - 2 TRUCKS

21- AIR - RUSH OUT - EXPLOSIVE DECOMPRESSION DROP OF PRESSURE LACK OF O. TEMP DROP

22- SEVERING HYDRAULIC LINE & CONTROL CABLES

FLIGHT OF AIRCRAFT - USING CHART

23- TIME TO CRASH (EXCESS) 15 MINUTE

24- NO. OF IMPART. -

25- FIRST IMPACT - VIOLENT COLLESION FORCE - + SPEED

26- EXHIBIT # 26 (LENGTHY

27- IN AIR PORTION

28- EXHIBIT 25 (LENGTHY)

29- VIOLENT COLLESION (ALL) PART BREAKING UP (BIG DESCRIPTION)

30- EXHIBIT 27

31- EXHIBIT 37

LENGTHY

EXHIBIT 3H - MAP CRASH VIOLENT CRASH

EXHIBIT 3E SEEN DISTANCE

EXHIBIT 3D EMPENNAGE - TAIL

EXHIBIT 3C FLIGHT DECK

EXHIBIT 3A - WING SECTION

EXHIBIT 3B - TROOP COMPARTMENT

TIME	ALT	MACH	DATA "A"	MADDR INTERPRETATION
051546	17313	0.640	5:15:40	5:15:47
051603	16313	0.660	5:16:2	5:16:5
*051608	16202	—		
051612	16091	0.658	5:16:6	5:16:12
051629	16313	0.582	5:16:24	5:16:33
*051635	16758	0.550		
051640	16980	0.528	5:16:34	5:16:41
051645	17091	0.514 ←	5:16:43	5:16:51
*051716	16757.8	0.510		
051721	16536	0.518	5:17:15	5:17:22
051730	16202	0.526	5:17:23	5:17:30
*051734	16091	0.528		
051739	15980	0.530	5:17:31	5:17:40
*051743	15869	0.532	8	
051748	15647	0.536	5:17:41	5:17:50
051758	15313.5	0.530	5:17:51	5:17:58
051804	15202	—	5:17:55	5:18:6
051810	14980	0.526	5:18:7	5:18:14
*051815	14869	0.518		
051820	14758	0.508	5:18:15	5:18:24
051830	14313.6	0.502	31:23:46	5:18:36
*051834	14091	—		
051851	13314	0.498	21:20:46	5:18:52
051857	12980	0.504	5:18:53	5:19:0
051904	12758	0.508	5:19:1	5:19:9
*051910	12536	0.510		
051914	12424	—	5:19:10	5:19:16
051925	12314	0.496	5:19:25	5:19:31
051935	12203	0.488	5:19:32	5:19:41
*051944	12092	0.478		
051948	11980.5	0.476	5:19:42	5:19:49
051952	11869	0.474	5:19:51	5:19:59

MADAR DATA FROM AIR FORCE

TIME	ALT.	MACH		
*05 12 36	22312	0.596		
05 12 39	22423	0.598	5:12:35 TO	5:12:41
*05 12 44	22535	—		
05 12 52	22646	0.602	5:12:42 TO	5:12:52
*05 12 56	22757			
*05 1300	22868	—	← EVENT	
05 1304	22979	0.604		
05 1314	23201	0.610	5:13:10 -	5:13:17
05 1329	23423.797	—	5:13:29 ←	5:13:30 ALTITUDE
05 1348	23313	0.620	5:13:42	5:13:49
05 1353	22979	0.638	5:13:50	5:13:57
05 1358	22757	0.648	5:13:57	5:14:2
*05 1404	22535	0.656		
*05 1407	22423	0.658		
05 1411	22318	0.664	5:14:12	5:14:16
*05 1417	22090	0.672		
05 1422	21868	0.680	5:14:18	5:14:23
05 1427	21757	0.682	5:14:24	5:14:29
05 1433	21646	0.674	5:14:30	5:14:34
05 1423	21535	0.668		
05 1443	21424	0.654	5:14:36	5:14:43
05 1449	21202	0.648	5:14:44:	5:14:51
*05 1453	21090	0.646		
05 1459	20868.5	0.640	5:14:52	5:14:59
05 1504	20646	0.630 (?)	5:15:0	5:15:7
*05 1508	20313	—		
05 1512	20091	0.632	5:15:4	5:15:13
05 1518	19535	0.626	5:15:14	5:15:18
05 1529	18535	0.634	5:15:25	5:15:31
05 1534	18313	—	5:15:32	5:15:39
*05 1540	17646.6	0.630		

3A) LOCKHEED SLIDES

3B) SUMMARY OF ACCIDENT

1975 Bill Xmas

	72	75	76	77	79
1. Robert Kriegler OK (Bob & Dorothy) Hawley Rd. N. Salem, Ny 10560	OK	✗	? ✓		
2. Donald Wall OK Cuf Park Rd. Katonah Ny 10536	OK	✓	? ✓		
3. Stephen Moss Box 134 Cross River, Ny 10518		✓			
4. Julius Roehrs Co. Box 144, Rt 33 Farmingdale, N.J. 07727 Herb Frey + ~~Wm Wurtz~~		✓✓	✓✓	✓✓	✓
5. Mr+Mrs William Hoppen Cay Ardsley-on-Hudson Ardsley, Ny 10503 OK		✗			
6. H. Soto ~~Gerard~~ Lucchese ~~Jerry~~ Decanio Dept Slay, 1932 [illegible]		✓ ✓ ✓		✓ ✓ ✓	

Summary to dexter

	23,424
30 flts	22,313
100	21,202
1.30	19.535
2.00	16,313
2:30	16 313
3:00	16,536
3:31	15 202
4:00	13 31L
4:30	12 31F
—	
5:30	10,092
6.00	10.314
6:30	9,870
7:00	8,536
7:30	6,981
8:00	5,981
8:30	5,315
9:00	4,759
9:30	4,757
10.00	3,648
10:30	3,537
11:00	3,426
11:30	3,537
12:00	1,670
13:30	648
13:00	537

Dow Jones up 4.60
See page A4

Tiant blows cool as Yanks chill Jays
See page B4

Sleepy Hollow tops Byram Hills laxmen
See page B7

Carter leads Golden Lights III
See page B1

Gannett Westchester Newspapers

THE REPORTER DISPATCH ★★

Saturday, May 31, 1980

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Latest news

$1 million to orphan

WASHINGTON (AP) — A federal court jury awarded $1 million in civil damages to a 6-year-old girl who survived the Saigon crash of a C-5A Air Force plane flying the Vietnamese orphans to new countries in 1975.

Melissa Hope Marchetti, whose adoptive parents are Denis and Pamela Marchetti of Derby, Conn., was the second young survivor of the crash to win a damage award. A third survivor whose case went to trial was awarded no money.

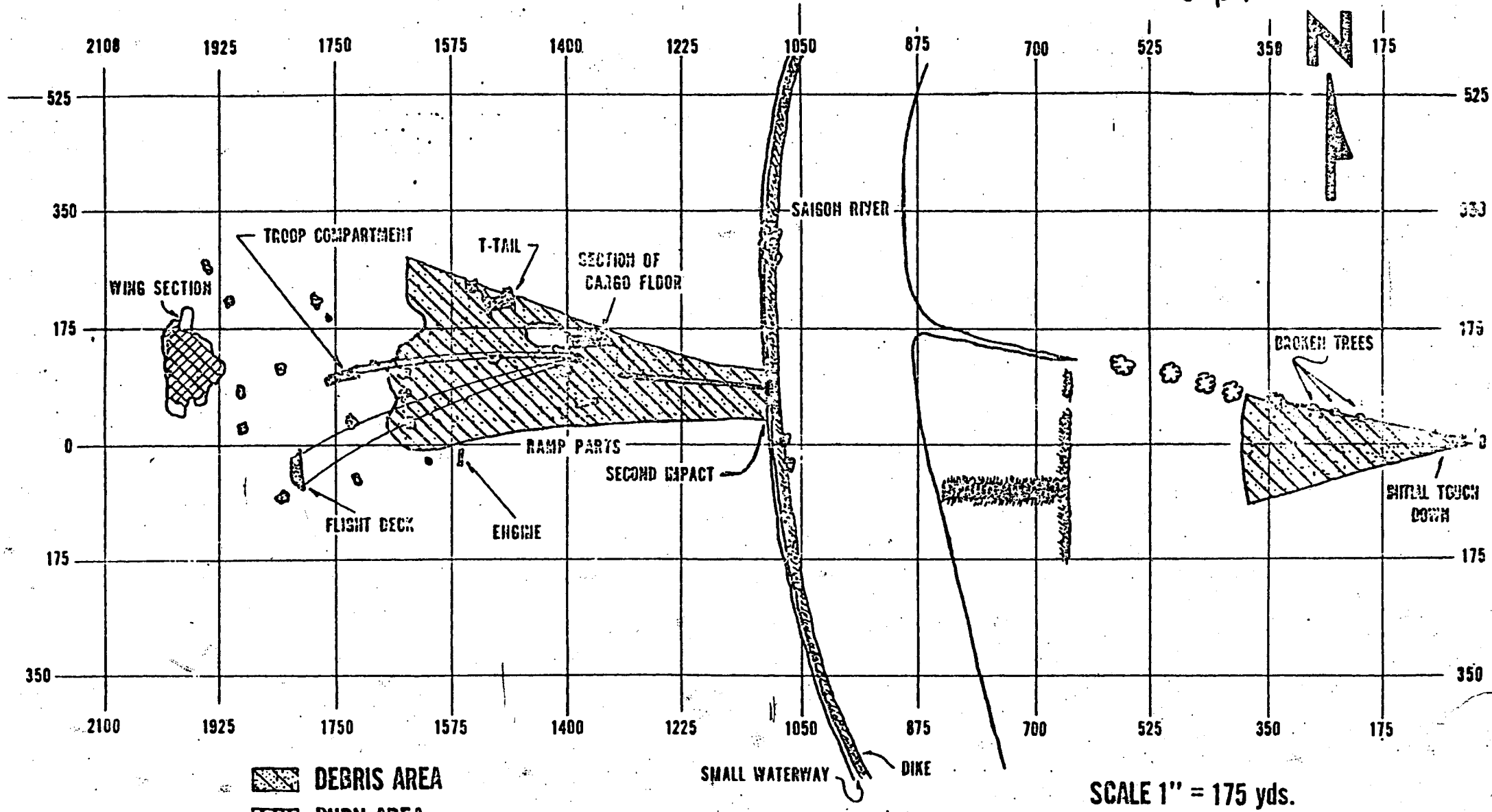
The six-member U.S. District Court jury found that Melissa suffered permanent brain damage as a result both of the crash and of the plane's loss of oxygen before it slammed into a rice paddy.

In dividing the $1 million, the jurors said $416,000 was for medical expenses; $225,000 went for special education; $104,000 was for loss of future income; $130,000 was for physical disability and $116,000 went for pain and suffering.

Melissa and her parents sued the airplane's manufacturer, Lockheed Aircraft Corp.

WRECKAGE DIAGRAM

C-5A SN 68-218 4 APRIL 1975



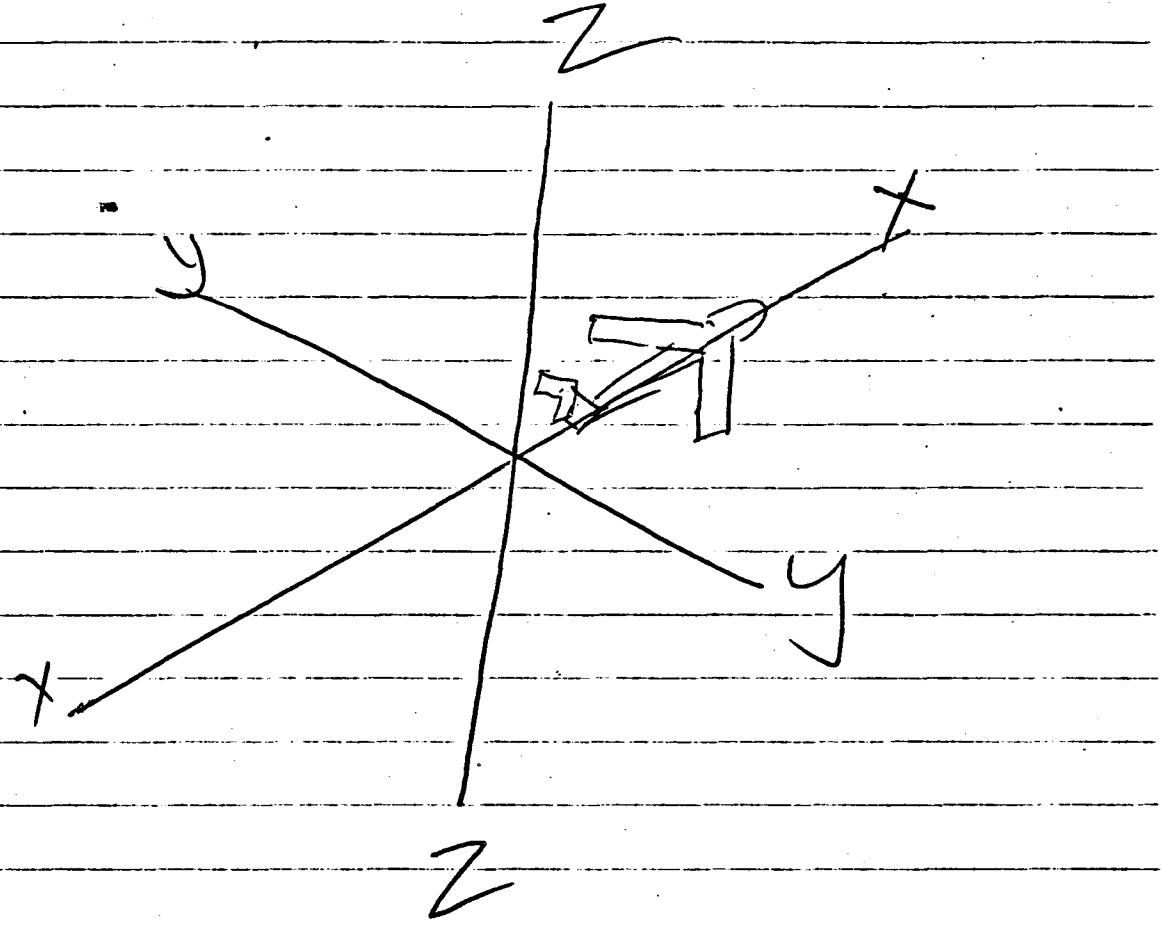
WRECKAGE DIAGRAM

C-5A SN 68-218 4 APRIL 1975

DSC 4-28-80 Edwards AF

DEFENDANT'S EXHIBIT D-7

4-28-86
Edwards D&C



CAPT TRAYNOR

1- President televised statement that U.S. would begin the immediate airlift of orphans out of Saigon, manning the C-5 as one of the carriers. — General Carlton directed the next C-5 available to take orphans out of Saigon

2- Take out as many orphans and their attendants as were ready to go, floorloading them as necessary.

3- Supplies for 500 max possible - combat loaded - 1000

4- Orphans loaded - infants in troop compartment older kids and attendants in Cargo compt

5. Newsmens pictures ← GET 10 COPIES —

TAB-3 CAPTAIN DENNIS W. TRAYNOR STATION PILOT

BAGGAGE LOADED AT AFT CARGO DOOR RAMP

✓ TAB 4 CAPTAIN TILFORD W. HARP - CO PILOT

TAB 5 CAPTAIN KEITH D MALONE - (JUMP SEAT)

TAB 6 - CAPTAIN JOHN T LAWGFORD NAVIGATOR

TAB-12 TSGT PETER P DOUGHTY - LOADMASTER

PARKER PERKINS →

TAB 13 - TSGT ALLEN R EWELS ENGINEER

TAB-14 1ST LT REGINA CAUNE AERO MED EVAC.

TAB 15 1ST LT HARRIET GOFFINET AERO MED EVAC

TAB 16 LT MARCIA WIRTZ AERO MED EVAC

TAB 17 M/SGT OLEN HENRY BOUTWELL AERO MED EVAC

TAB 18 S/SGT JAMES A HADLEY JR AERO MED EVAC

TAB 19 SGT GREGORY B CAMERER AERO MED EVAC

TAB 20 SGT PHILIP R WISE AERO MED EVAC

TAB 21 THELMA L THOMPSON PASSENGER

TAB 22 SUSAN ELIZABETH DAVIS PASSENGER

TAB 23 THERESA DAVIS PASSENGER

TAB 24 LINDA D ADAMS PASSENGER

~~TAB 7 GEORGE T JENKINS~~

TAB 32 M/SGT GARY R JOHNSON

TAB 35 MAJOR ANTHONY F. DIFERDINANDO

TAB 36 CAPTAIN ROBERT L. COVERT

TAB 45 CASUALTY REPORT

TAB 55 CREW LOCATION AT RAPID DECOMPRESSION

TAB 79 WRECKAGE DIAGRAM

TAB 80 CRASH SCENE PICTURES (USE ORIGINALS)

TAB 81 AUDIO TRANSCRIPT

TAB 86 DIAGRAMS

TAB 87 RADAR TAPE ANALYSIS

TAB 98 NEW YORK TIMES FRI. JUN 13, 1975

Headquarters US Air Force
Washington DC 20330

1 November 1973

Judge Advocate General Activities

COLLATERAL INVESTIGATIONS OF AIRCRAFT AND MISSILE ACCIDENTS

This regulation tells when and how collateral investigations of aircraft and missile accidents are made. It applies to all persons who have the power to convene collateral investigations, and provides procedures to be followed by the investigating authority and by custodians of the records of the completed investigations.

1. Air Force Policy on the Investigation of Aircraft and Missile Mishaps. Aircraft and missile accident and incident investigations and reports under AFR 127-4 are safety investigations for the sole purpose of accident prevention; collateral investigations under this regulation are *separate and apart* from investigations under AFR 127-4, and are made to obtain and preserve all available evidence for use in claims, litigation, disciplinary action, and adverse administrative proceedings, and for all other purposes except for safety and accident prevention purposes. Investigations under AFR 127-4 take priority over other investigations in interviewing witnesses, obtaining and analyzing evidence, and inspecting the scene of the accident. Collateral investigations directed under this regulation may be conducted concurrently with, but may not interfere with, investigations under AFR 127-4. In this regard the following rules apply:

a. Members of the safety investigation board will not be assigned to conduct a collateral investigation of the same accident in any capacity.

b. No member of the collateral investigation board nor an officer assigned to conduct a single officer collateral investigation may attend the safety investigation board proceedings.

c. Witnesses may not testify in a collateral investigation until they have been released by the safety investigation board.

d. In the case of witnesses testifying in a collateral investigation, each witness must be advised fully of his constitutional rights or of the provisions of UCMJ, Article 31, as appropriate.

e. The statement or testimony reduced to writing or recorded electronically for the safety accident investigation board by a witness or by personnel involved in an accident may not be used or compared with it in whole or in part by the board or officer conducting a collateral investigation. Testimony to the safety investigation board is given with the understanding that it cannot be used for other than accident prevention purposes, and witnesses are advised that it will be treated in confidence.

f. Under no circumstances may a witness who appeared before a safety investigation board, pursuant to AFR 127-4, be required to divulge what was contained in any statement or testimony he gave to such safety investigation board, nor what opinions, suggestions, recommendations, evaluations, analyses, discussions, conjectures, or speculations he gave to a safety investigation board. Furthermore, no witness can be required to give any findings, conclusions, recommendations, or cause factors contained in a safety investigation. These restrictions apply to any person who may have knowledge of the substance of a report of a safety investigation and who may be called as a witness before any other proceedings (such as a collateral investigation). It is imperative that all witnesses go

---

Supersedes AFR 110-14, 29 February 1972. (For summary of revised, deleted, or added material, see signature page.)

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ATCH 2

C-5A Close-up: The Incredible Hulk That Flies

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FLYING

April Contents • Volume 106 • Number 4

Jimmy Doolittle's Gee Bee: a page in the record book/page 82

FLYING (ISSN 0015-4806) is published monthly at One Park Avenue, New York, New York 10016 by the Ziff-Davis Publishing Company, Philip B. Korsant, President, Selwyn Taubman, Treasurer, Bertram A. Abrams, Secretary. One-year subscription rate for U.S. and possessions $15, Canada $17, all other countries one-year subscription rate $18. Controlled circulation postage paid at Glasgow, Kentucky 42141. Authorized as second-class mail by the Post Office Department, Ottawa, Canada and for payment for postage in cash.

Pilot Report

Record Pace

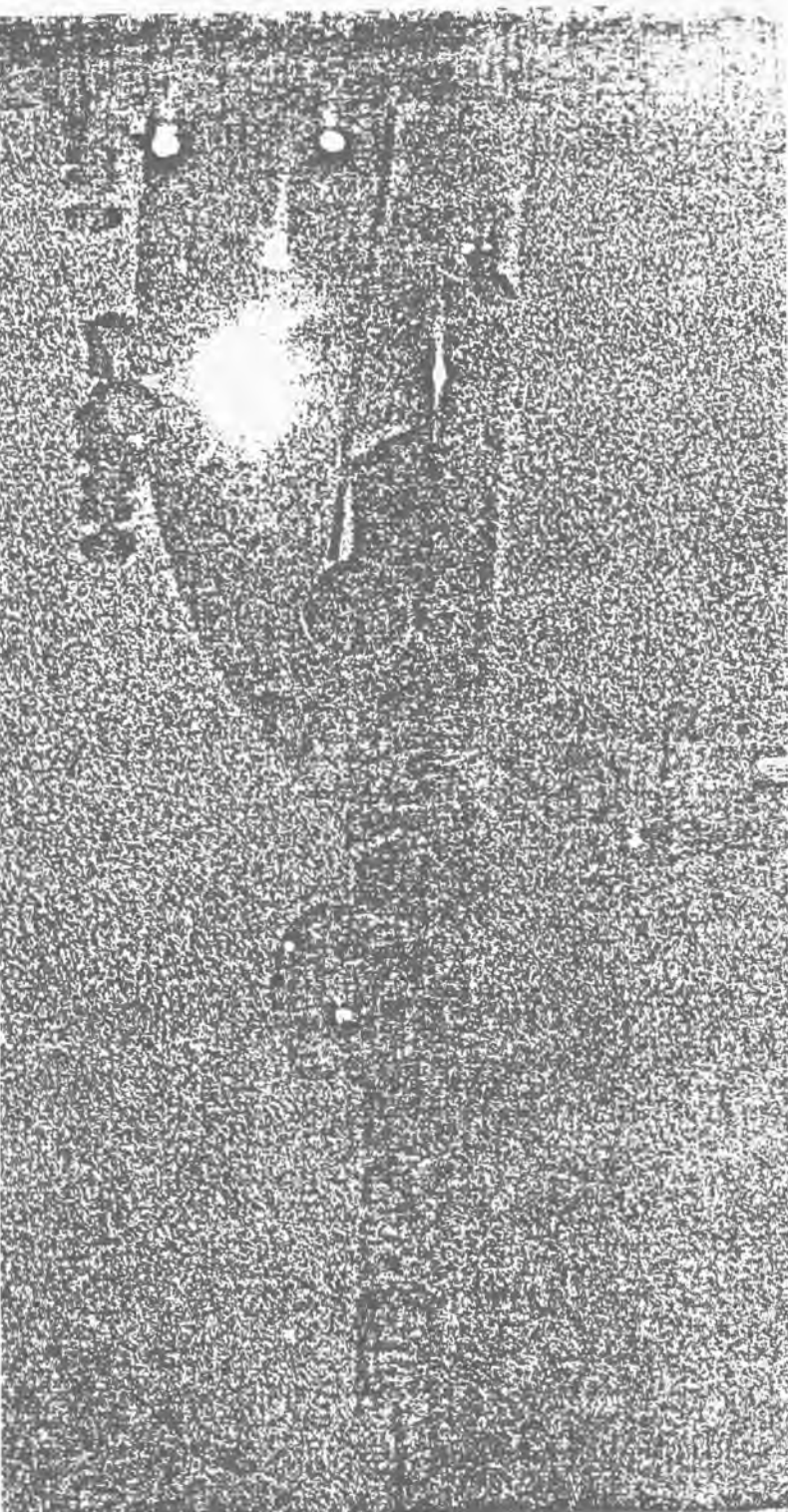
Features

Technique

Columns

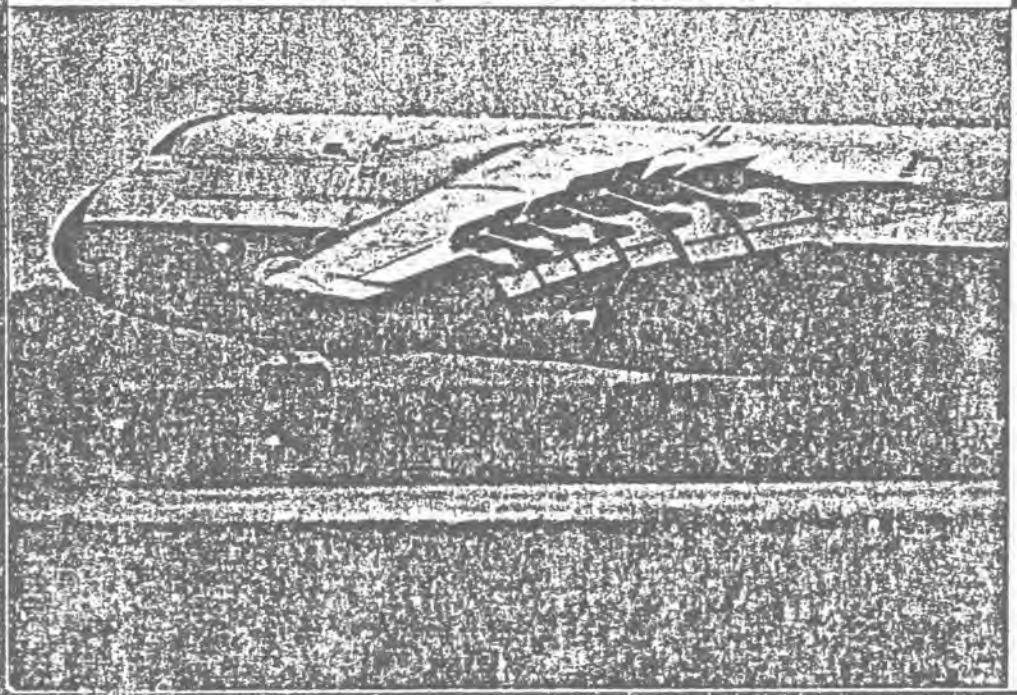
Topics

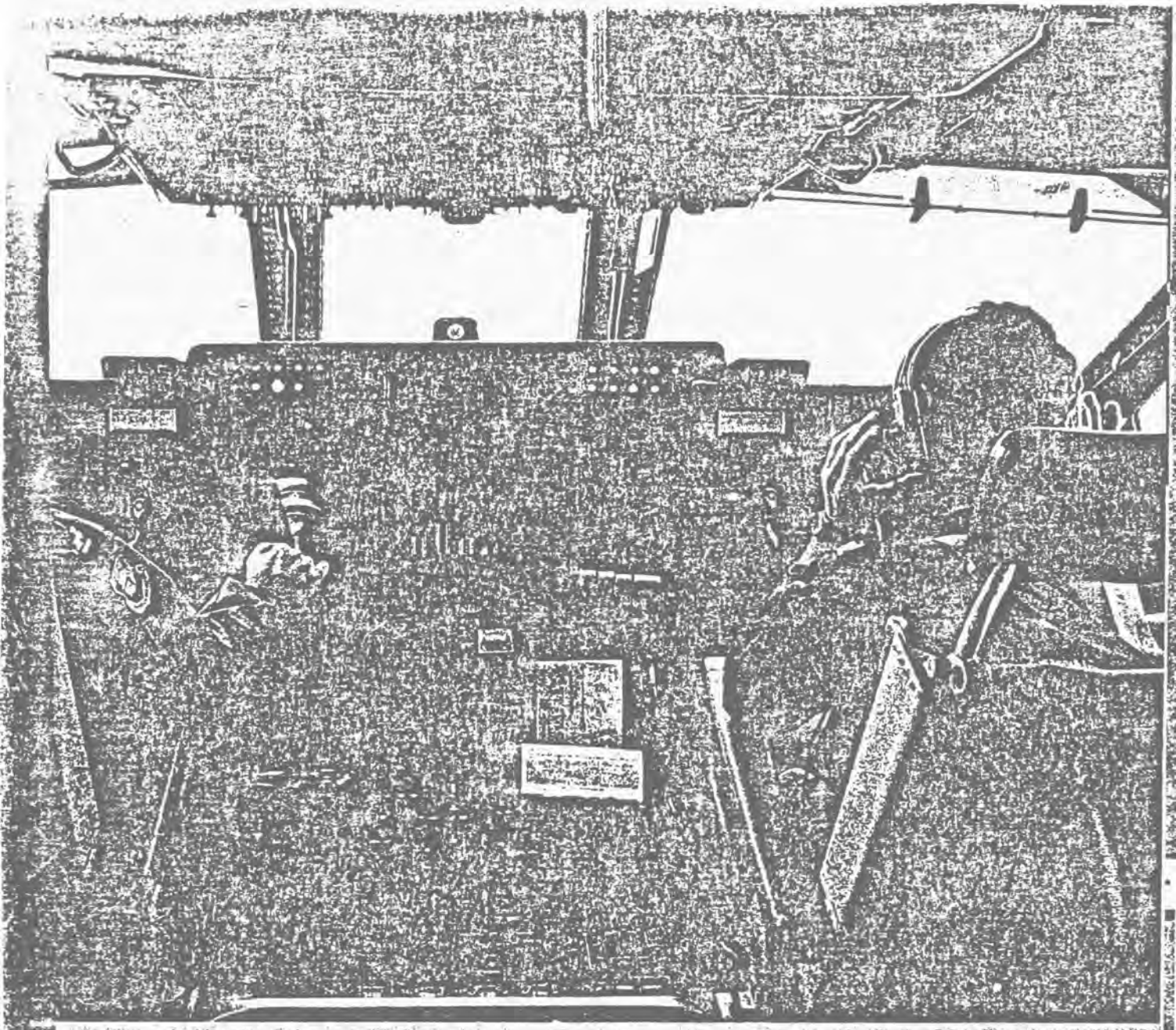
Cover/ Saratoga SP, with semitapered wing and traditional tail. Photograph by Berl Brechner.



NIMBLE GIANT

A practice solar fix by the navigator and a cockpit scan by pilot Magathan; then a silk-smooth landing for the massive Galaxy.





It searched through the evening haze with powerful beams and shrieked a fanjet whine to others of its kind on the ground. Slowly, with great determination, this bizarre creature grunted down the glideslope like a hog sniffing for the trough. I got out of my car to watch, for this was no ordinary airplane. First came an outlandish black nose followed by drooping wings, and beneath an engorged belly there dangled tiny feet on thin bird ankles.

The closer it came the more it seemed to represent a basic aeronautical misunderstanding. The scale was all wrong: the body was too fat, the wings too short, the wheels too small; and bulging from the rear of the spine was a clearly malignant hump. No, this was no ordinary flying machine. This was a C-5A, a Galaxy, and it appeared to me that any illusion of flight must be due to Lockheed's mastery of mass hypnosis.

But first impressions can be misleading. For all its enormous bulk, the craft touched down with great tenderness, its substantial weight revealed only by thick blue clouds of enough rubber to keep a Pinto shod for life. Spoilers extended immediately to kill any remaining lift, and the wings sagged with an almost audible sigh of relief.

I had come to Dover Air Force Base in Delaware to fly in one of these beasts, and I watched with great interest as it taxied to the ramp.

A C-5A would not be called beautiful by anyone other than its mother, Mrs. Necessity, but everyone would agree that it is large—the world's largest airplane, in fact. The top of its tail is six stories high, and one inboard flap is as large as a lightplane wing. The landing-gear struts that had looked so dainty in the air are the diameter of tree trunks.

The Air Force was asking for a lot when it ordered the Galaxy. It wanted an airplane that could carry an enormous load almost anywhere in the world, refueling in the air, if necessary, and that could land on a relatively unprepared surface, unload cargo in a matter of minutes with the engines running and take off again immediately.

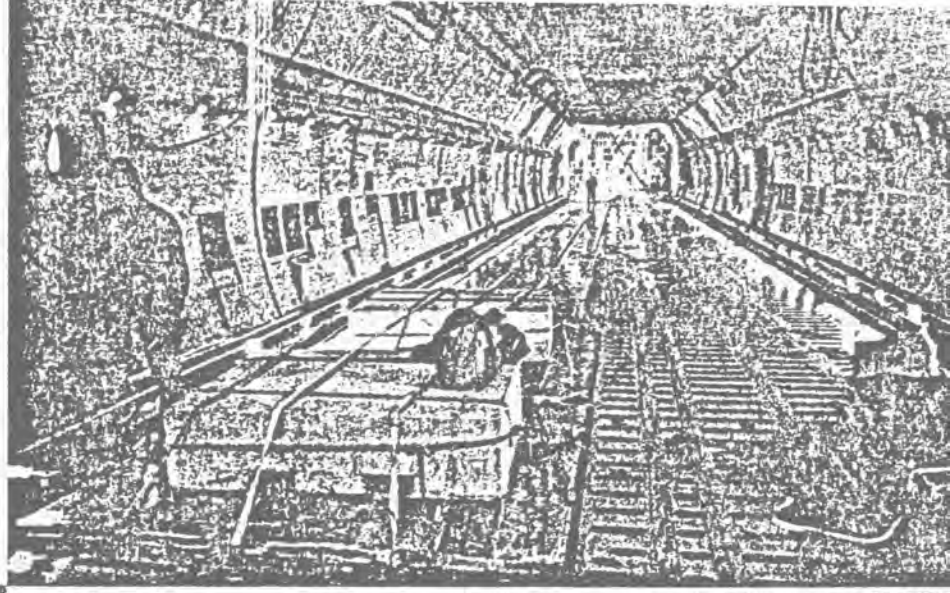
Lockheed built a machine that would do all of that, but not without complexity, controversy and cost. The problems, both technical and financial, were the result of trying something totally new while saddled with the terms of a McNamara-era contract.

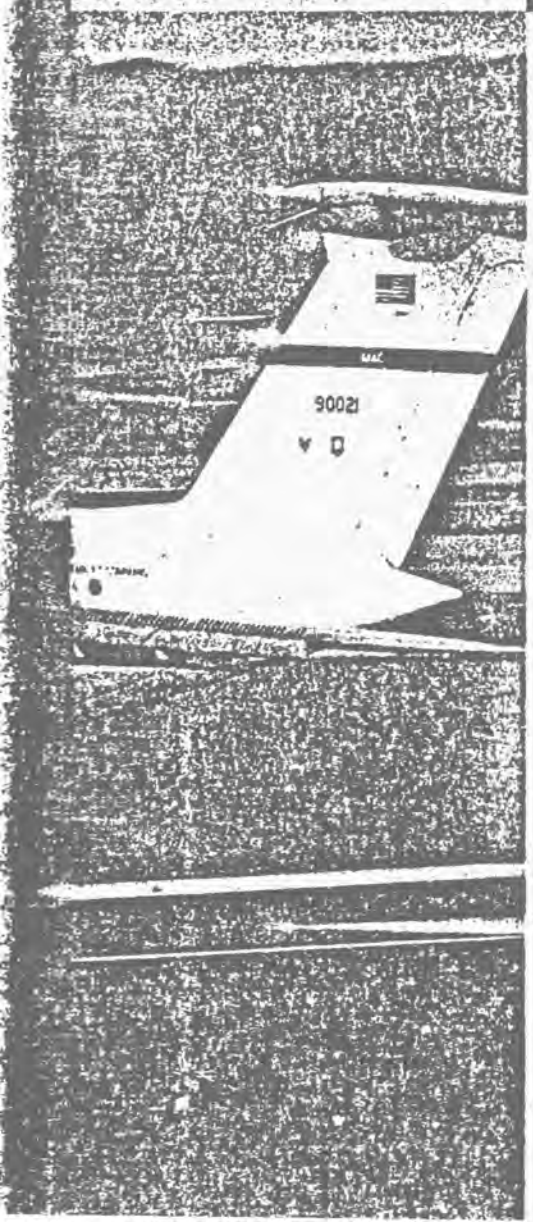
What the Air Force got was an airplane with a maximum takeoff weight of 769,000 pounds that is able to carry a 220,967-pound payload. The fuselage is divided into two levels and opens dramatically at both ends to give the cargo deck full-width, drive-through access. A C-5A ready for

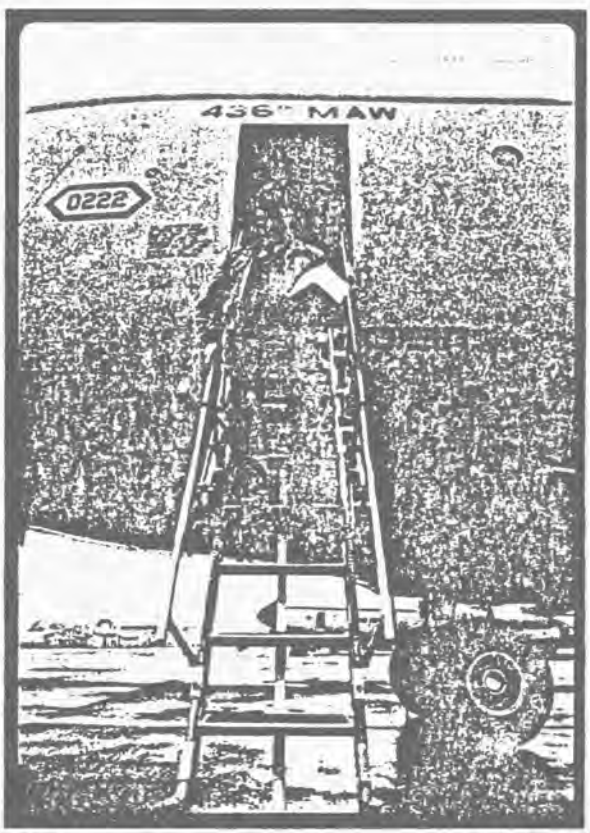
bland tan and hospital green with what appears to be 1940 kitchen linoleum on the floor. Unless I miss my guess, the decorator was the same guy who did the DC-4s for Air Iguana.

It is easy to poke fun at such a visible target, but, in fact, almost the entire burden of quickly transporting heavy military equipment rests on the wings of the C-5A and its smaller but prettier sibling, the C-141 Starlifter. They are affectionately referred to in the Military Airlift Command as Big Mac and the Quarterpounder—and they are doing their jobs.

At Dover, I was able to fly the C-5A simulator, and far from handling like an apartment house, as I had feared, the ship was responsive for such a giant. Most of the



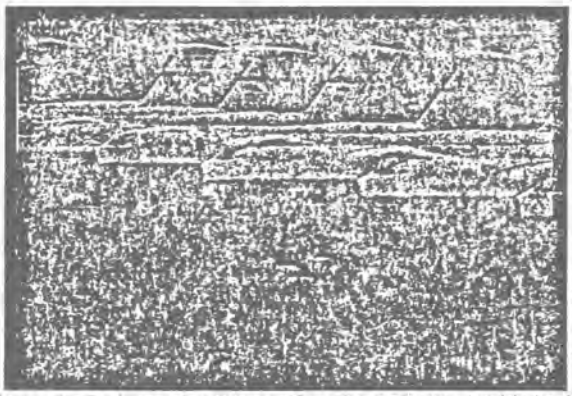




NIMBLE GIANT

At the end of a practice run, it's a long descent from the enormous cavity of the cargo deck. Twenty-eight tires bear the burden on touchdown.

NIMBLE GIANT



crew I accompanied later in flight were current and experienced lightplane pilots as well as Galaxy drivers, and I could understand their enthusiasm in flying both extremes of aircraft.

The head man on the navigational training flight I rode on was Capt. Wally Magathan. Like the others aboard, he is an Air Force Reservist with the 512th Military Airlift Wing (Associate) at Dover and, except for a period of active duty each year, flies C-5As only on weekends. Monday through Friday he is an FAA lawyer in Washington, D.C. Wally likes the challenge of flying the biggest airplane in the world, but for a forthcoming business trip to Minnesota he was renting a Cessna Cardinal RG. A helicopter pilot in Viet Nam and an airplane nut since childhood, Wally likes anything that flies.

Two flight engineers and three loadmasters spent two and a quarter hours preflighting our Galaxy the morning we took off—and it was raining. I knew the moment I climbed up to the cargo deck and saw puddles on the floor that some things in aviation never change. The C-5A leaks, just as airplanes always have.

From my jumpseat between the two pilots, the Galaxy cockpit seemed like a room detached from the rest of the world. Sights and sounds familiar to me from other cockpits were distorted in this one. A lineman on the ramp was so far below us he looked like a midget, and when Wally fired up number one it was nearly inaudible. Only the stuttering clatter of the copilot's windshield wiper seemed real.

On our way to the runway, the wide Air Force taxiways appeared impossibly narrow from my perch, but we never wavered from the white line. Once lined up on the active, Wally pushed the levers forward, and, somewhere, far away, 160,000 pounds of thrust propelled our relatively light 494,000 pounds down the concrete and into a ground-hugging overcast. The airplane shrugged through low-level turbulence, and after climbing a few thousand feet we were on top.

An average cruise speed for the Galaxy is 450 knots, burning something like 20,000 pounds or 3,300 gallons of fuel per hour—enough fuel to run a Diesel Rabbit 165,000 miles. The airplane's tanks can carry 49,000 gallons.

During our flight, which took us over Bermuda and back, I asked some of the crew about the controversy over the C-5A's wing. I was told the wing originally was supposed to have a life of 30,000 hours. Current computer projections say new wings will be needed in 8,000 hours, although no aircraft have yet reached that time. If that's true, a bundle is going to be spent getting a reasonable length of service from the airplane. They are currently flown at reduced weights to save the structure.

There are two sides to the story, and it is complicated to determine who did what, but a Lockheed spokesman told me that the Air Force changed the specs to require a lighter airplane after production had started. At that point, the only feasible place to remove weight was from the wing, which Lockheed did.

My crew didn't mind, though. Those who weren't working slept, while others told me how much they liked the reserves—being paid to do what they enjoyed. The airplane trucked on over the ocean with little need of human guidance.

It was late afternoon when we returned to Dover. The air was clear after the passage of a cold front, and the computed approach speed for our 427,000-pound landing weight was 115 knots. The book said 4,094 feet of runway was all we needed. When you consider that the world's biggest airplane can operate within roughly the same speed and runway requirements of the smallest jet airliners, the C-5A Galaxy stands out as a remarkable technological achievement.

Once we were parked back at the feed lot with a row of other Galaxys, Flt. Engr. Bernie Coleman was anxious to get to the local civilian airport where he keeps his 172. He wasn't going to waste such a beautiful night for flying.

"My wife can't understand how I can fly all day in these and then jump in the 172 and fly some more," he said.

C-5A or 172, giant or gnat, each airplane has its own style of flying, and if you really like airplanes, you're likely to understand Bernie. □

No list of witnesses

Edward
Traynor
Kahp
Cpt Malone
Neal
Tate
Acene
Gregory
Clay
Neebly
Raymond
Sr. Grace
R. Taylor
W. Grant
E. Norris
Col Stewart
Prof Ziegler
Stevens

G. Johnson
Wonder
Feldman
Quinn
Schottenden
Dr Stark
Fr. Challesbois
USAID

Jan Wallace

I - INTRODUCTION

A - ON APRIL 4, 1975, BABIES, INCLUDING THE PLAINTIFF, MICHAEL SCHNEIDER, CHILDREN AND ESCORTING ADULTS WERE LOADING ABOARD A C-5A AIRCRAFT -68-218

B - THE AIRCRAFT WAS DESIGNED AND BUILT BY LOCKHEED.

C - THE BABIES WHERE FROM NURSERY OPERATED BY FFAC

D - THE PURPOSE OF THE FLIGHT WAS TO EVACUATE THE BABIES AND CHILDERN

II C-5A AIRCRAFT (EXHIBIT - C-5A CROSS SECTIONS)

A - LARGEST CARGO AIRCRAFT (HUGE)

B - WING SPAN 223FT - ABOUT 75 YDS

1. FOOTBALL FIELD - GOAL LINE TO 25YL

C BODY - 247/8 FT.

1 - FOOTBALL FIELD GOAL LINE TO MYD LN

D - HEIGHT 65 FT

1 - ABOUT THE HEIGHT OF 6 STORY BLDG

E - CARRYING CAPACITY - 2 - M-60 TANKS OR 16 3/4 TOW TRUCKS

F - PART OF AIRCRAFT.

1 - FLIGHT DECK - WITH COMPARTMENT FOR RELIEF CREW

2 - AFT TROOP COMPARTMENT - WHERE MICHAEL SCHNEIDER WAS + THE OTHER BABIES. - SOME ESCORTING ADULTS.

3 - A - TROOP COMPARTMENT HAS 75 SEAT DESIGN FOR ADULTS.

B - 3 - ADULT SEAT ARE IN A ROW. ON EACH SIDE OF THE AISLE

II C-5A AIRCRAFT CONTINUED

C- ABOVE EACH SEAT IS AN OXYGEN MASK DESIGN FOR AN ADULT; ONE OXYGEN MASK FOR EACH SEAT

D- BABIES IN THE TROOP COMPARTMENT WERE LOADED, WITH TWO BABIES BEING PLACED IN EACH ADULT SEAT ADULT SEAT BELT WAS PLACE OWER THE TWO BABIES IN THE ADULT SEAT

G - CARGO COMPARTMENT

1 - 121' LONG + 13'-5" HIGH

2 - CARRY TANK, TRUCK, HELICOPTERS, ARMORED PERSONEL CARRIERS, GUIDED MISSELS WITH LAUNCHERS OR PALLETS

3 - SOME OF THE OLDER CHILDERNS LOADED IN IN CARGO COMPARTMENT ALLONG CATWALK + HELD WITH CARGO STRAPS

4 REMAINER OF THE BABIES, CHILDERN, AND ESCORTS WERE PLACED ON BLANKE ~~[illegible]~~ AND HELD DOWN WITH CARGO STRAPS STRETCH ACROSS THE FLOOR.

5- NO OXYGEN (SEATS OF CREW WAS AVAILABLE FOR ~~[illegible]~~ FOR, BABIES, CHILDERN AND ESCORTS IN CARGO COMPARTMENT

175

5

131.75

528.00

109

131
175

350
131

481.

2+175

4-175

11/14

5/14

34 CHILDREN EXAMINED.

DR BOOK: GENERAL EVALUATION - PEDIATION

1- HYPOXIA - O_2
2- DECOMPRESSION - CAISSON DISEASE
3- TOXIC GASES - (CO) + →
4- CYANIDE POISION - (CN_2)
5- DECELERATION - "G" FORCES (MOMENTUM)
6- JOULES-THOMSON EFFECT

DR REDMOND - FRIEND OF ALL CHILDREN

DR DENHOFF -

DR LOOSI - IMPACT STUDY
35 GS in 30 millseconds.

DR BERMAN.
7- FAMILY CO. POISONINGS

MR CROMA - FORCES

DR SNYDER - TOLERANCE TO IMPACT
TIME DURATIONS 0.2 SEC
1000 # FORCE TO FRACTURE LAEL
6000 # FORCE TO TUMBLE SEAT
25,000 FT # energy - survival unlikely
18 + under 600 GP deceleration
under 18 month - falls fracture -
Fall over - ten feet - cause skull fracture

Decompression
5000 ft (632 mm Hg to 24,000 (303 mm Hg))
in 0.3 sec
temperature -27 °F

HYPOXIA — DECOMPRESSION SICKNESS
no change in concentration only
reduced Partial pressure

(760 − 47) 0.21 = 150 mm Hg in trachea
carbon dioxide 40 mm Hg mixes in lung
IN LUNG 102 mm Hg

(303)(0.21) = 63.63 − 40
with pressure loss 303 mm Hg 23
only 14 mm Hg O_2

{ saturation decreases to 65% results in unconsciousness }
Defusion rate of absorbing church
as Partial pressure of O_2
Sleeping CO_2 rises up to 6 mm Hg
Cooling increase susceptibility to HYPOXIA
G forces increase tolerance tolerance

Difference 90 mm Hg — can not be equalized
150 mm Hg will disrupt ear drum
decent rate 300 ft/min near ground
80 mm Hg across lung damages lung

fucking on Bottom could have ruptured lung. Explosive Decompression occur under 1 Atm

Decompression Sickness
release of N_2 - Joint - Bends
Skin - Creeps
Blood - Lung - bloodvessel Chokes

Neurocirculatory Problems

SERVAN CROWN
WISCONSON AVE

> 6:30

TILFORD HARP – U.S AF – CAPT CO P/207

Page 52 line 20 – "And the nose went sharply down at that particular point; is that correct.

Page 53 – line 9 air speed – excess of 260

Page 57 line 28 saw a gigantic ball of fire

Page 60 line 15 wing section + engines on fire ball

Page 66 line 7 worried about fire – Fuel all around

REGINA AUNE – USAF CAPTAIN

X – children

A – NHY – C-5A – X – upper
Y lower

nursery center – Friend for all Children

B – Size C-5 —— Exhibit [illegible]

C – TAKE-OFF

D – LOCKS FAILED –
RAMP left –
Cables + hydraulic line

E – EXPLOSIVE DECOMPRESSION
LACK OF O_2
LACK OF PRESSURE

F LOSS OF CONTROL OF AIRCRAFT
Roller coaster ride

G – collision with ground < MAX Church 110 Kn

H – Collision AGAIN.

I INTRODUCTION

A - DOTE FEAC

B- CHILDREN - FRIEND OF ALL THE CHILDREN

C- NAME OVER SEAS

II C-5A

SIZE — HUGE

TROOP COMPARTMENT - BABY

OR WASHS - NUMBER, LENGTH SIZE

SEATS — 2- BABIES IN

ADULT SEATS — PILLOWS SIZE

III TAKE - OFF

CHILDREN - 1

III CLIMB TO 23,000 FT + 270 KNOTS

IV LANDINGS -

V LOCKS FAILED

RAMP DROPPED

PRESSURE DOOR BROKE LOOSE

STRUCK TORQUE DECK

BIG HOLE

VI DE COMPRESSION

1- BIG HOLE

VII AIRCRAFT OUT OF CONTROL

1- NO CONTROL OF RUDDER

2- Roller Coaster Ride

3- "G" FORCE

VIII VIOLANT COLLISION

GREATER THAN 260 KNOTS

TWICE THE NORMAL LANDING SPEED

reflection at ___ KNOTS

TRAIN HIGHWAS SPEED LANDING 900 MPH 9 football FIELD

XI VIOLENT CRASH

1- PLANE DISCINERATED -

1- FLIGHT DECK, ENDED

2- WING ENDED UP IN FLAMES

3- EMPENNAGE END UP

4- TROOP COMPARTMENT ENDED UP

5- CARGO COMPARTMENT

FORCE STRIKING GROUND.

IS X TIMES THE FORCE

TWO TRAIN COLLIDING AT 80 MPH

III TAKE-OFF (EXHIBIT - PHOTO OF TAKEOFF)

1) HUGE HOLE AIR RUSHES OUT 0.35E
2) AIR (RUSHING OUT) CARES OUT ANYTHING IN PATH
   1- PARTS OF AIRCRAFT
   2- BAGGAGE
   3- ONE CREW MEMBER
3) RAPID DROP IN PRESSURE.
   A - KNOW AS EXPLOSIVE DECOMPRESS.
   B - BALLOON EXAMPLE
4) (TRAPPED) AIR ~~IN INDIVIDUAL BODY~~ (SUCH AS) ~~SUCH AS~~ (LIKE THE) (OF A BAB) HEAD + LUNGS EXPANDS.
   A - AIR TRAPPED IN BUBBLES
      LIKE FOAM SEAT CUSHON
      PLASTIC DIAPERS
   B - FOAM INSULATION
   C - TRAP AIR WILL CAUSE
      AN EXPANSION DURING
      EXPLOSIVE DECOMPRESSION
   D - THE CONTAIN WILL EXPAND
      LIKE BLOWING UP BALLON
   E - OR IF CONTAIN IS WEAK &
      CAN NOT EXPAND ANY
      MORE WILL BREAK LIKE
      THE BALLOON IN EXAMPLE
      IF CONTINUE TO BLOW IT UP

5- ~~BABIES~~ ~~MICHAEL SCHNEIDER~~ IN TROOP COMPARTMENT WHERE ~~SUBJECTED~~ TO THIS EXPLOSIVE DECOMPRESS

6. DROP IN PRESSURE
   1. REDUCTION LOWERING OF AVAILABLE O_2 FOR BREATHING.
   2. HYPOXIA
   3. AT 23,400 FT THE O_2 CONCENTRATION WOULD DROP IN HALF OF WHAT THE BARRIES & MICHAEL SCHNEIDER WOULD NORMALLY BREATHING.

CALCULATE

7- DROP IN TEMPERATURE
   1- JOULE THOMSON EFFECT
   2- INFILTRATION OF COOL OUTSIDE AIR IN CABIN.
   3. @ 23,400 FT THE AIR TEMPERATURE IS $-24°F$
   4. AIR SUCKED BACK IN AS AIRCRAFT DESCENDED-
      AT 10,000 FT STANDARD ATMOSPHERE IS ABOUT $23°F$

ON APRIL 4, 1975, BABIES, INCLUDING MICHAEL SYNDER, PAGE 1
THE PLAINTIFF OLDER CHILDREN, AND ESCORTING ADULTS WERE LOAD ON A C-5A AIRCRAFT. ~~DESIGN~~
APRIL 4, 1975 THIS AIRCRAFT WAS DESIGN & BUILT BY LOCKHEED

I- ~~IN~~TRODUCTION

A-C-5A, AIRCRAFT, DESIGN + BUILT BY LOCKHEED,

A- ~~AFTERNOON~~ OF APRIL 4, 1975

B- LOADED INCLUDING MICHAEL SYNDER OLD CHILDREN + ADULT ESCORTS ~~243~~ ~~BABIES~~ ~~LOADED ON C-5A AIRCRAFT~~

C- ~~A~~ BABIES ~~WHERE~~ CAME FROM ~~FRIENDS FOR ALL CHILDREN~~ FFAC OPERATED NURSIES (FFAC)

NURSIES.

~~D~~ ~~[illegible] - KNOWN AS FFAC~~

THE PURPOSE OF THE BABIES CHILDREN ~~WERE BEING EVACUATED FROM VIETNAM~~ ~~[illegible]~~
FLIGHT WAS TO EVACUATE THE BABIES FROM VIETNAM

~~AND BUILT~~ ~~DESIGN~~ ~~BY LOCKHEED~~

II C-5A, AIRCRAFT. (EXHIBIT C-5A CROSS SECTION)

A- LARGEST CARGO AIRCRAFT — HUGE AIRCRAFT

B- WING SPAN - 222'-8½" ... , ABOUT 75 YDS

3/4 OF A FOOTBALL FIELD - GOAL LINE TO 25 YARD

BODY - 248' ~~10"~~ - ABOUT 83 yards.

GOAL LINE TO 17 YARD LINE

HEIGHT - 65'-1½" - ABOUT THE HEIGHT 6 STORY BUILDING

CAPACITY - 2 - M-60 TANKS - OR 16 - 3/4T TRUCKS

C- FLIGHT DECK

D- CREW - QUARTERS -

E- FORWARD TROOP COMPARTMENT

F- AFT - TROOP COMPARTMENT.

CARRY CAPACITY ~~[illegible]~~ SPECIALLY DESIGN FOR ADULTS

1 - 75 SEAT - A GROUP OF THREE - - 6 SEAT/ROW ABOUT (ADULT)

EACH 2 - 1 OXYGEN - MASKS - ONE / SEAT FOR ADULT

G- ~~SMALLEST CHILDREN~~ BABIES PLACED 2 BABIES/SEAT

BABIES LAID IN TROOP COMPARTMENT SEATS.

1 - STRAPPED IN + ~~PILLOW [illegible]~~ IN.

2 - ~~CRITERIA WAS IF COULD [illegible]~~

SEAT BELT PLACE OVER TWO BABIES

~~SEAT BUCKLE - CAR SEAT [illegible]~~

~~3 - HEIGHT, 7' [illegible] ABOUT CEILING HEIGH~~

I CONTINED

H- CARGO COMPARTMENT

1- REMAINING BABIES + CHILDERN STRAPPED IN WITH CARGO STRAPS ON CATWALK - OR ON BLANKETTS ON FLOOR

2- CARGO COMPARTMENT IS 121'-1" LONG TO AFT RAMP. - +

3- HEIGHT 13'-5" TO HANDLE ANY MILITARY VEHICLE OF HEAVY EQUIP.

4- CARRY - - TWO- M-60 TANKS SIXTEEN - 3/4" TRUCKS

NO SEAT- .. CHILDERN PLACE ON FLOOR.

III TAKE-OFF (EXHIBIT - TAKE-OFF PHOTO)

1- C-5A - HUGE AIRCRAFT TOOK OFF AT ABOUT 400 PM- SAIGON TIME

2- 247 BABIES ON BROAD

IV - CLIMBED TO 23,400 FEET

~~+ TRAVELING AT 420 KNOTS~~

(310 MPH)

2- ~~PLANE TRAVELING ABOUT 6 TIMES LEGAL HIGH WAY SPEED OR - 4 TIME FASTER THAN AMTRACK TRAIN RUNNING BETWEEN NEW YORK + WASHINGTON.~~

3- ~~THE PLANE WAS ALMOST THREE AS HIGH AS PIKES PEAK~~

EXPLOSIVE DECOMPRESSION

1- BIG HOLE- CAUSED THE AIR TO RUSH OUT IN 3/10 OF A SEC.

4- LIKE THE AIR RUSHES OUT OF A BALLOON WHEN IT IS S-

3- AIR RUSH OUT SUCKING ANYTHING OUT OF THE OPEN

2- RAPID LOSS OF AIR RESULTED IN RAPID DROP OF PRESSURE. KNOWN AS A EXPLOSIVE DECOMPRESSION

CAUSES IN TROOP COMPARTMENT WERE SUBJECT TO

5- DUE IN SEN OF AIR- PRESSURE TO THIS RAPID DECOMPRESSION

LACK OF TEMPERATURE

ALWAYS

6- PISTON EXPANSION

A- DEFINATION OF PRESSURE

5 TRAPPED AIR → B- TRAPPED AIR.

C- EXPANSION + RUPTION

7- CAUSES SUBJECT TO EXPLOSIVE DECOMPRESSION

8- AIR RUSHING OUT OF HEAD - AIR EXPANSE

9- RAPID DROP IN OR LEVEL - KNOW HYPOXIA

Reduction of Or Normal

11 REDUCTION IN TEMPERATION

TEMPERATURE REDUCED ____ °F

REDUCES OF ABOUT 50% THAT THE BABIES HAD TO BREATH.

1- HUGE HOLE - AIR OUT- 0.3 SEC

V LOCKS FAILED (LOCK EXHIBITS)

1- AFT RAMP DROPPED

2- PRESSURE DETACHED FROM RAMP

3- PRESSURE DOOR FORCED BACK BY CABIN AIR PRESSURE

4- PRESSURE DOOR ROTATED UP AND STRUCK TORQUE DECK

5- SEVERED CONTROL CABLE + RUPTURED HYDRAULIC LINES

6- AFT CARGO DOORS - AFT RAMP + PRESSURE DOORS LEFT AIRCRAFT

7- LEAVE BIG HOLE IN BACK OF AIR CRAFT
SIZE: 2 - TWINS - SIDE BY SIDE OUT OF AIRCRAFT -

VI DE COMPRESSION

DEFINATION OF PRESSURE

1- NORMAL SEA LEVEL PRESSURE IS 29.92 IN Hg - OR 760 mm m. Hg.

2- CABIN PRESSURE WAS AT 5,000 FT ABOUT 24.89 IN Hg OR 632 mm m Hg

3- OUT SIDE PRESSURE 11.58 IN Hg OR 301.75 m

4- BIG HOLE CAUSE ABOUT 45,000 FT3 OF AIR TO RUSH OUT OF THIS BIG HOLE IN 3/10 SEC

5- AIR SUCK OUT ANYTHING IN ITS PATH -

6- ONE CREW MEMBER WAS SUCK OUT OF THE AIR CRAFT

GIVE TABLE

7- LIKE RUSHED OUT LIKE A BALLOON WHEN STUCK WITH A PIN

VI DE COMPRESSION - CONTINUED

DEFINATION OF PRESSURE

1- AIR IN CYLINDER

2- AIR MADE UP OF N_2 - + O_2

3- WE USE THE O_2 TO BREATH - NECESSARY FOR LIFE

4- PRESSURE IS THE STRIKING OF MOLECULES STRICING THE SURFACE

5- PARTIAL PRESSURE OXYGEN IS THE NUMBER OF OXYGEN STRIKING THE SURFACE

6- PARTIAL PRESSURE NITROGE- N_2 STRIKE

7- TOTAL PRESSURE IS $P_{O_2} + P_{N_2}$

8- TEMPERATURE - HOW FAST THE MOLECULES MOVE. Comment for O_2 & H_2O

	TEMP	P	P_{O_2}
SEA LEVEL	59°F	760 mm Hg	200. 3 mm Hg
5,000 FT	41.169°F	632	133 mm Hg
CABIN	70°F	632	133
23,420 F	-24.634°F	301.75	43

9- EXPANSION - ALSO COOLES AIR BY JOULE THOMSON EFFECT - TEMP WILL DROP FROM 70° TO

DECOMPRESSION CONTINUED

B- EXPLOSIVE DECOMPRESSION
- RAPID DROP IN PRESSURE IN 3/10 SEC

C- ANY AIR TRAP IN BABIES HEAD OR BARTS EXPANSES

D- CONTAINER EATHER EXPANSE OR RUPTURES TO RELEASE

RUSH OF AIR EXPANDING AIR OUT OF THE AIRCRAFT - LOWERED THE O_2 LEVEL FOR THE

E- O LEAVE FOR BREATH DROPS.

F- KNOW AS HYPOXIA

G- TEMPERATURE DROPS

VII AIR CRAFT OUT OF CONTROL

1- BREAKING CONTROL CABLE
RUPTURE HYDRAULIC LINES -
~~AIRCRAFT OUT OF CONTROL~~

2. LOST CONTROL OF ELEVATOR + RUDDER

3- PILOT TURNED + PLANE START TO DIVE

4. PILOT TRIES TO CONTROL PLANE BUT REALIZES NOT CONTROL

5- USES THROTTLE TO PULL OUT OF DIVE

6- ROLLER COASTER RIDE

7- TRIES TO MAKE TAN SON NHUT

8- TRY TO BANK - AIRCRAFT DIVES.

9- FULL THROTTLE TO PREVENT DIVE

13 MINUTES AFTER THE EXPLOSIVE DECOMPRESSION AND AFTER A ROLLER COASTER RIDE PILOT

VIII VIOLENT COLLISION ~~WITH~~

1- RATE OF DECENT - 500 TO 600 FT/MIN.

2 TRAVELING AT 270 KNOT - 310 MPH
A GREATER THAN 5.5 TIME LEGAL HIGHWAY SPEED OR 4 TIME FASTER THAN AMTRACK TRAIN

3- FORCE WAS EQUIVALENT TO TO ___ TIME TO TRAIN COLIDING AT 50 MPH
EACH TRAVEL

4- ABOUT TWICE NORMAL LANDING SPEED

5- BOUNCE OF GROUND AT ___ KNOTS

6- TRAVELED 1,100 YARD - 11 football fie

FORCE

XI VIOLENT CRASH
FORCES - SPEED

1- PLANE DISINTEGRATE & CAUGHT FIRE

2- PART FLEW - 900 YARD - 9 FOOTBALL FIELD

3- FLIGHT DECK SHOOT & TUMBLED 800 YARD

4- WING- SECTION - 900 YARD IN FLAMES

5- TAIL 500 YARD
MICHAEL SYNDER & OTHER BABIES

6- TROOP COMPARTMENT 650 YARD

7- CARGO COMPARTMENT - 150 YARDS

9- ~~ART~~ ROCKS CRASH ~~SECOND~~ IMPACT
DENSE

8- SMOKE & TOXIC FUMES.

DURING THESE EVENTS THE PLAINTIFF AND THE

SUMMARY MICHAEL SYNDER, AND OTHER BYSTANDERS SUBJECTED TO THE

1- EXPLOSIVE DECOMPRESSION

2- REDUCTION IN O2 HYPOXIA

3- TEMP DROP

4- OUT OF CONTROL

5- ROLLER COASTER RIDE

6- VIOLENT COLLISION -

7- VIOLENT CRASH

8- DISINTEGRATION OF AIRCRAFT

9- SMOKE & TOXIC FUMES

SEIZING OF TROOP COMPARTMENT FOR 650 Y.D.S

1) PHOTO - C-5A - OW TAKE-OFF

2) GUY - DRAWING OF C-5A (SECTION

3) JONES #2 - AFT RAMP & PRESS DOOR - COMPLETE

4) JONES #3 AFT RAMP & PRESSURE DOOR FAILURE (1)

5) JONES #4 AFT RAMP & PRESSURE DOOR FAILURE (2)

6) GUY - CHILDREN IN CARGO COMPARTMENT

7) JONES - PART LEAVING AIRCRAFT

8 GUY - TAIL VIEW OF PART LEAVING

9 - GUY FIRST IMPACT - TOUCHDOWN - FRONT VIEW

10- GUY - IMPACT SEQUENCE

11- GUY - SECOND IMPACT

12- GUY FINAL WRECKAGE

13- PHOTO - COLORED AIR FORCE - TROOP-COMPT, FLIGHT DECK EXPENDABLE, + WING

14- PHOTO - COLORED - AIR FORCE - TROOP COMPARTMENT

15- PHOTO - COLORED - AIR FORCE FLIGHT DECK

16- PHOTO B+W - CARGO - COMPT

17- PHOTO B+W WING SECTION - FIRE IN DISTANCE

DEPOSITIONS CHECKED FOR "SMOKE" REFERENCES

1) HARP

2) AUNE

3) TRAYNOR

4) GOFFINET (NEAL) – ACTUALLY ONLY INFERENCES AS TO A LACK OF SMOKE!

5) TATE

COLLATERAL REPORT – STATEMENTS EXAMINED

1) HARP

2) TRAYNOR

3) MALONE

4) AUNE

5) GOFFINET (NEAL)

6) WIRTZ – ONLY REFERENCE TO SMOKE

7) GMERECK

8) THOMPSON

9) DUKE

JANE'S - ALL THE WORLDS AIRCRAFT 1972-73

Page 353 LOCKHEED C-5 GALAXY

USAF DESIGNATION C-5A

YEAR 1969-1970 Page 367

TAKE OFF RUNWAY- 8,000 FT

LANDING RUNWAY 4,000 FT

ENGINE G.E. 1/6 TURBOFAN

Construction started AUG 1966

First Flight 30 JUN 1968

OPERATIONAL AIRCRAFT DELIVERED LATE 1969

Contracted for 115 aircraft

FLIGHT TESTED TAKE-OFF 762,800# (EXCESS OF 3...

FUSELAGE: - 7079-T6 AND 7075-T6 ALUMINIUM ALLOYS AND TITANIUM ALLOYS

ELEVATORS IN FOUR SECTIONS, RUDDER IN TWO SECTIONS OPERATED THROUGH HYDRAULIC SERVO ACTUATORS.

TAILPLANE ACTUATED THROUGH HYDRAULICALLY-POWERED SCREW-JACKS.

POWER PLANT: FOUR G.E. TF 39-GE-1 TURBOFAN ENGINES, EACH RATED AT 41,000# - 12 INTEGRAL FUEL TANKS IN WINGS BETWEEN FRONT & REAR SPARS COMPRISING FOUR MAIN TANKS (EACH 3625 U.S. GAL)

4 AUXILIARY TANKS (EACH 4,625 GAL)

4 EXTRA RANGE TANKS (EACH 4,000 GAL)

TOTAL USABLE CAPACITY: 49,000 U.S. GAL)

ACCOMMODATION: NORMAL CREW OF FIVE, CONSISTING OF PILOT, CO PILOT, FIGHT ENGINEER, NAVIGATOR, AND LOAD-MASTER, WITH REST AREA FOR 15 PEOPLE (RELIEF CREW, COURIERS, ETC) AT FRONT OF UPPER DECK.

→ INITIAL VERSION HAS SEATS FOR 75 TROOPS ON REAR PART OF UPPER DECK, AFT OF WING BOX PROVISION FOR CARRYING 270 TROOPS ON LOWER DECK, BUT AIRCRAFT IS INTENDED PRIMARILY AS FREIGHTER - FREIGHT LOAD - 2 M-60 TANKS OR 16 - 3/4 TON LORRIES, OR ONE M-60 + TWO BELL IROQUOIS HELICOPTERS, FIVE M-113 PERSONNEL CARRIERS, ONE M-59 2½ TON TRUCK AND AN M-151 ¼ TON TRUCK; OR 10 PERSHING MISSILES WITH TOW AND LAUNCH VEHICLES; OR 36 STANDARD 463 L LOAD PALLETS.

SYSTEM - ELECTRONIC-CONTROLLED BOOTSTRAP AIR CYCLE PRESSURISATION SYSTEM; PRESSURE DIFFERENTIAL 8.2 #/IN² - HYDRAULIC SYSTEM 3,000 #/IN²

ELECTRICAL - 4 - 60/80 KVA AC ENGINE DRIVEN GENERATORS

ANALYSIS AND RECORDING SUBSYSTEM (MADAR) WHICH OPERATES BY SCANNING AND ANALYSING OVER 600 TEST POINTS

74

DIMENSIONS: EXTERNAL

WING SPAN 222 FT - 8½ IN 3 (223)

WING CHORD AT ROOT - 45 FT - 5.3 IN.

WING CHORD AT TIP 15 FT 6 IN

WING ASPECT RATIO 7.75

LENGTH OVERALL 247 FT 10 IN. 248

LENGTH OF FUSELAGE - 230 FT - 7¼ IN.

HEIGHT OVERALL 65 FT - 1½ IN

TAIL PLANE SPAN 68 FT - 8½ IN

WHEEL TRACK (BETWEEN OUTER WHEELS = 37 FT - 5½ IN

WHEELBASE - C/L MAIN GEAR TO C/L NOSE GEAR = 72 FT - 11 IN

	CREW DOOR LOWER	CREW DOOR UPPER	PASS DOOR LOWER	PASS DOOR UPPER
HEIGHT	5'-11"	5'-0"	6'-0"	5'-0"
WIDTH	3'-9"	2'-6"	3'-0"	2'-6"
HEIGHT TO SILL	12'-11"	26'-11"	11'-8"	26'-11"

	MAX HEIGHT	MAX WIDTH
AFT LOADING OPENING (RAMP LOWER	12'-10½"	19'-0"
AFT STRAIGHT IN LOADING	9'-6"	19'-0"

DIMENSIONS INTERNAL

CABIN EXCLUDING FLIGHT DECK -

LENGTH:

UPPER DECK FORWARD: 39'-9"

UPPER DECK AFT 59'-8½"

LOWER DECK WITH OUT RAMP. 121-1"

LOWER DECK WITH RAMP 144'-7"

89,694
42,925 ÷32 = 301.75

$5,869,781.25

MAX WIDTH:

UPPER DECK FORWARD	13'-9½"
UPPER DECK AFT	13'-0"
LOWER DECK	19'-0"

MAX HEIGHT

UPPER DECK	7'-6"
LOWER DECK	13'-6"

FLOOR AREA

UPPER DECK FORWARD	540 FT²
UPPER DECK AFT	776 FT²
LOWER DECK WITHOUT RAMP	2,300 FT²

VOLUME

UPPER DECK FORWARD	2,010 FT³	2,235 FT
UPPER DECK AFT	6,021 FT³	
LOWER DECK	34,795 FT³	

WEIGHTS AND LOADING (A = WEIGHT FOR 2.5 g, B: WEIGHT FOR 2.25 g)

BASIC OPERATING WEIGHT

A, B	325,244 #

DESIGN PAYLOAD

A -	220,000 #
B	265,000 #

MAX TAKE-OFF WEIGHT

A -	728,000 #
B	764,000 #

LONG RANGE MISSION TAKE-OFF WEIGHT WITH 100,000# PAYLOAD = 712,000 #

MAX RAMP WEIGHT: A = 732,500 #

B = 769,000 #

MAX ZERO FUEL WEIGHT

A = 545,244 #

B = 590,244 #

MAX LANDING WEIGHT A+B = 635,850 #

MAX WING LOADING A = 117.5 #/FT²

MAX POWER LOADING A = 4.45 #/H ST

PERFORMANCE (ESTIMATED AT MAX TAKE-OFF WEIGHT

MAX LEVEL SPEED @ 25,000FT 496 KNOTS (571 MPH)

MAX PERMISSIBLE DIVING SPEED 409.5 KNOTS (472 MPH) MACH 0.8

HIGH SPEED CRUISE @ 25,000FT 460-480 KNOTS (530-553 MPH

AERIAL DELIVERY DROP SPEED 130-150 KNOTS (150-173 MPH)

STALL SPEED 40° FLAPS 108 KNOTS (124 MPH)

RATE OF CLIMB AT S/L, STANDARD DAY AT LONG RANGE MISSION

WEIGHT AT MAXIMUM RATED THRUST 2,500 FT

SERVICE CEILING AT AUW OF 615,000 #, 34,000 FT

TAKE OFF RUN

A = 6,500 FT

B = 7,300 FT

TAKEOFF TO 50FT (15m) AT LONG RANGE MISSION WEIGHT - 7,500 FT

LANDING FROM 50FT WITH 100,000 # MIDPOINT OF 2,878 MILES RADIUS

MISSION - SEA LEVEL - TROPICAL DAY - WET RUNWAY - 4,000 FT

LANDING RUN AT MAX LANDING WEIGHT 2,350 FT

RANGE: WITH 220,000 # PAYLOAD @ 440 KNOTS (507 MPH): 3,512 MILES

RANGE WITH 112,600 # PAYLOAD (MAX 259 T.O WEIGHT: 6,333 MI

FERRY RANGE 8,429 mile

BOEING:

WING SPAN	195FT 8IN.
WING CHORD AT ROOT	54FT-4IN
WING CHORD AT TIP	13FT 4IN
WING ASPECT RATIO	6.96
LENGTH OVERALL	231FT-4IN
LENGTH FUSELAGE	225FT-2IN
HEIGHT OVERALL	63FT. 5IN.
TAILPLANE SPAN	72FT 9IN
WHEEL TRACK	36FT 2IN
WHEEL BASE	83FT 11½IN

CABIN

LENGTH —	185FT 0IN
MAX WIDTH —	20FT 0IN
MAX HEIGHT	8'-4"
FLOOR AREA -	3,316FT²
VOLUME	27,860FT³

(33) ft³ 5250

BAGGAGE VOLUME	FWD CONTAINERIZED - 2800FT³
	AFT CONTAINERIZED - 2450 FT³
BULK VOLUME	1000 FT³

MARVIN MARTIN

VOL III Pg 49-50 - VIOLANT ACCIDENT

GORDON DODSON VOL V Pg 773-774

CREW MEMBER BEING SUCKED OUT OF AIRCRAFT

VOL VIII Pg 1285-1284

DAMAGE OR AIR FORCED INTO EMPENNAGE AREA

DAVID O GUNSON VOL VIII Pg 1155-1156

270 KNOT TOUCH DOWN SPEED +

DESIGN LANDING SPEED

RUSSEL L GREGORY - MECHANICAL ENGINEER

BACHELOR + MASTER OF SCIENCE IN MECHANICS

- ROTOR C-5 SPEC

MARCIA R WIRTZ (LATE)

Page 30- VERY BIG HOLE

Page 45- WINGS ON FIRE

DENNIS WARREN TRAYNOR

MARVIN MARTIN NOT AN ENGINEER

III-50 - SCENE INDICATED A VERY VIOLENT INCIDENT

YES SIR IT WOULD

GORDON ARTHUR ROBSON

STRUCTURAL DESIGN GROUP ENGR - NO. P.E.

DAVID O GUNSON - ELECTRICAL ENGR

PAGE 1155 270 KNOTS IS WELL ABOVE THE DESIGN REQUIREMENT FOR ANY AIRPLANE NORMAL TOUCH DOWN 110-120 KNOTS. UNPREPARED FIELD

HAROLD HOWARD AERO. ENGR

① John Edwards - B.S. Duke 1948
EE Electrical Engineering

② David O. Gunson - p. 6. BEE Degree 1944 from Georgia Tech.; MEE Degree 1950 from
EE Georgia Tech.

③ Gordon Dobson - p. 4-24 Nat'l Cert 1965, B.S. Mechanical Engineering Redding
ME College, N. H.

④ Jessie Perry - 2 years of college credits from USC + East Carolina Teachers College (did not attend East Carol. - rec'd service connected credits); graduated USC Flying Safety Officers Corp.

* ⑤ James H. Monte B.S. in Mechanical engineering with aeronautical option from Case Western Reserve in 1941.

* ⑥ William Perry
p. 134 Attended Georgia Tech for a Masters in Aeronautical Engineering - 3 quarters on part-time basis.

⑦ Julian Arnold B.S. Electrical engineering 1943
EE Naval Academy, Annapolis.

* ⑧ James Neilson, Jr - Bachelor's of Aeronautical
AE, Engineering degree from Rensselaer Polytechnic Institute.

* ⑨ Norman C. Appold - Bachelors + Master's degree in Chemical
CHE. Engineering from U. of Mich. + Masters in Aeronautical Engineering from Cal. Institute of Technology.

⑩ Don K. McLaughlin - BA in English from U. of

NOT ENOR (12) William Current No engineering or any other degree.

(13) Billy Justice BS in Elec. Engineering from Tennessee Tech 1967.

E.E

Russell L. Gregory - AF technical Advisor to AIB M.E.

Harold Howard - " " " " M.E.

Marvin Martin - " " " " NOT ENGR

John Edwards - LAC technical advisor to AIB E.E.

Gordon Dobson - " " " M.E.

Warner E. Newby - President, AIB

David Gunson - LAC CSA Project Engineer E.E.

William Current - LAC Safety Engineer NOT ENGR

J. Arnold - LAC Safety Engineer E.E.

Tilford Harp - Co-pilot

Regina Aune - Flight nurse

Dennis Traynor - Pilot

William Spillers - APEX Board member

Norman Appold - LAC CSA Project Director CH.E.

James Marshall - APEX Board member

Don McLaughlin - Manual Writer ENGLISH

Billy Wayne Justice - Manual writer E.E.

William Perry - LAC Design Engineer M.E.

Stephen Williamson - LAC Design Engineer M.E.

William Hell - AF maintenance

Noah Fields - " "

James Monti - LAC Design engineer

P EX 1 ENGR ANALYSIS OF DATA FROM AF 68-218

P EX 2 LOCK MECHANISM ASSEMBLY

P EX 3 CUT-AWAY C-5A AIRCRAFT

P EX 4 ACCIDENT INVESTIGATION BOARD REPORT

P EX 5 S.O. A-39 DEPT OF AIR FORCE, SCOTT AIR FORCE BASE 9 APR 7

*P EX 6 > STATEMENT OF WITNESS TSGT NOAH E. FIELD

*P EX 7 AF TECH MANUAL _____

*P EX 8 STATEMENT OF WITNESS WILLIAM E HELL GRADE L-11

* P EX 9 " " " GLEN CRITCHFIELD " WG-11

* P EX 10 " " " SGT LARRY G. VAN DYNE,

P EX 11 C-5A FLIGHT DECK AREA

* P EX 12 SPECIAL REPORT 6-52-71 - SAFETY FACTORS OF THE AFT CARGO PRESSURE DOOR SYSTEM 23 JUN 71

* P EX 13 REPORT ON TRIP TO CHARLESTON AIR FORCE BASE, SOUTH CAROLINA, - FORWARD AND AFT CARGO SYSTEMS ON C-5A AIRCRAFT

P EX-19 AF REGULATION 122-4 DATED 1 JAN 73 WITH SUPPLEMENT DATED 20 FEB 74

P EX-20 LOCKHEED PRIVATE DATA MEMO. L.O. KITCHEN FROM N.C. APPOLD - SUBJECT TELEPHONE CONVERSATION: GEN WARNER E NEWBY TO N.C. APPOLD 05-29-75, C-5 ACCIDENT REPORT

P EX-21 C-5 CATEGORY III JOINT TEST FORCE

P EX-22 APPENDIX A. COLLATERIAL REPORT -LAB ANALYSIS REPOR

P EX-23 TRIP REPORT FOR TASK 2

P EX 41 DESIGN DESCRIPTION FWD RAMP

P EX 42 AIRCRAFT 0021 (68-0218) ACTION PLAN

P EX 43 DESIGN STUDY OF FORWARD + AFT RAMP LOCK MECHANISM C-5A AIRCRAFT JULY 15, 1975

P EX 44 MEMO FR G. DOBSON TO D.O. GUNSON - SUBJECT TECHNICAL DATA ON LOCKS

P EX 46 MEMO TO D.O. GUNSON FROM G. A DOBSON - 27 MAY 75

[illegible] REPORT RELATED TO INVESTIGATION OF C-5 CRASH

P EX 50	TECHNICAL DISCUSSION - MODE OF FAILURE
P EX 66	INVESTIGATION OF AFT RAMP LOCKING MECHANISM
P EX 69E	FORWARD RAMP LOCK RIGGING
P EX 69F	FOURTH INCIDENT ON C-5
P EX 71	EXCERPTS FROM DOBSON'S BOOK OF NOTES
P EX 73	SUMMARY REPORT OF C-5A ACCIDENT
P EX 81	C-5A CARGO COMPARTMENT DECOMPRESSION
P EX 84	INVESTIGATION OF SHIP 21 (AF 68-218) FLIGHT OF 4 APR 79
~~P EX 87~~	
P EX 97	EDWARDS VS CUNSON
P EX 98	APEX BRIEFING 16-JON 75
P EX 99	PART V - ENGINEERING - APEX STUDY
P EX 100	CIVIL AIR WORTHINESS STANDARD
P EX 101	PART XVIII CIVIL AIR WORTHINESS STANDARD
P EX 106	MODEL C-5A RAMP LATCH FATIGUE TEST INVESTIGATION OF FAILED YOKE
P EX 107	MANAGEMENT DIRECTIVE - AIRCRAFT ACCIDENTS
P EX 108	" " " " / INCIDENTS
P EX 109	ITEM 4- ADEQUACY OF C-5 CORROSION CONTROL PROGRAM.
* P EX 119	APEX REPORT "N" ATTACHMENT H TO REQUEST 0005
* P EX 120	TASK 10
P EX 121	JESSE PERRY'S NOTES OF WHAT HAPPENED WITH RESPECT TO THE ACCIDENT
P EX 122	WILLIAM PERRY DOCUMENTS
P EX 125	GAO SUMMARY OF DATA C-5A
P EX 139	TELCON - RE AFT RAMP LOCK TIE ROD ASSEMBLY
P EX 144A	TELCON. RE - ACCIDENT
P EX 144B	TELCON RE ACCIDENT
P EX 145	TO D.L. BRAUND FROM A.H McCRUM. SUBJECT LOSS OF C-5 AIRCRAFT AF 68-0218
P EX [illegible]	C-5A [illegible] TRANSCRIPT.

D. EX. I STATEMENT OF WITNESS. CAPT. DENNIS W TRAYNOR

D EX LL TECHNICAL REPORT C-5A AIRCRAFT 66-218 (?)

D EX UU-2
D EX UU6 > MY DEPOSITION
D EX UU7

D EX MMW - TO. W. M PERRY FROM W. E. HUIE.
- SBBJECT. C-5A CABIN PRESSURE DIFFERENTIA
DURING CLIMB

JANES.- ALL THE WORLDS AIRCRAFT 1972-1973
+ LATER

MACH NUMBER FUNCTIONS AN ALTITUDE TABLE
CURTIS - WRIGHT CORP.

LICKHEED PRETRAIL CONTENTIONS #17 - PAGE 40.
ELAPSED TIME + ALTITUDE ABOVE SEA LEVE

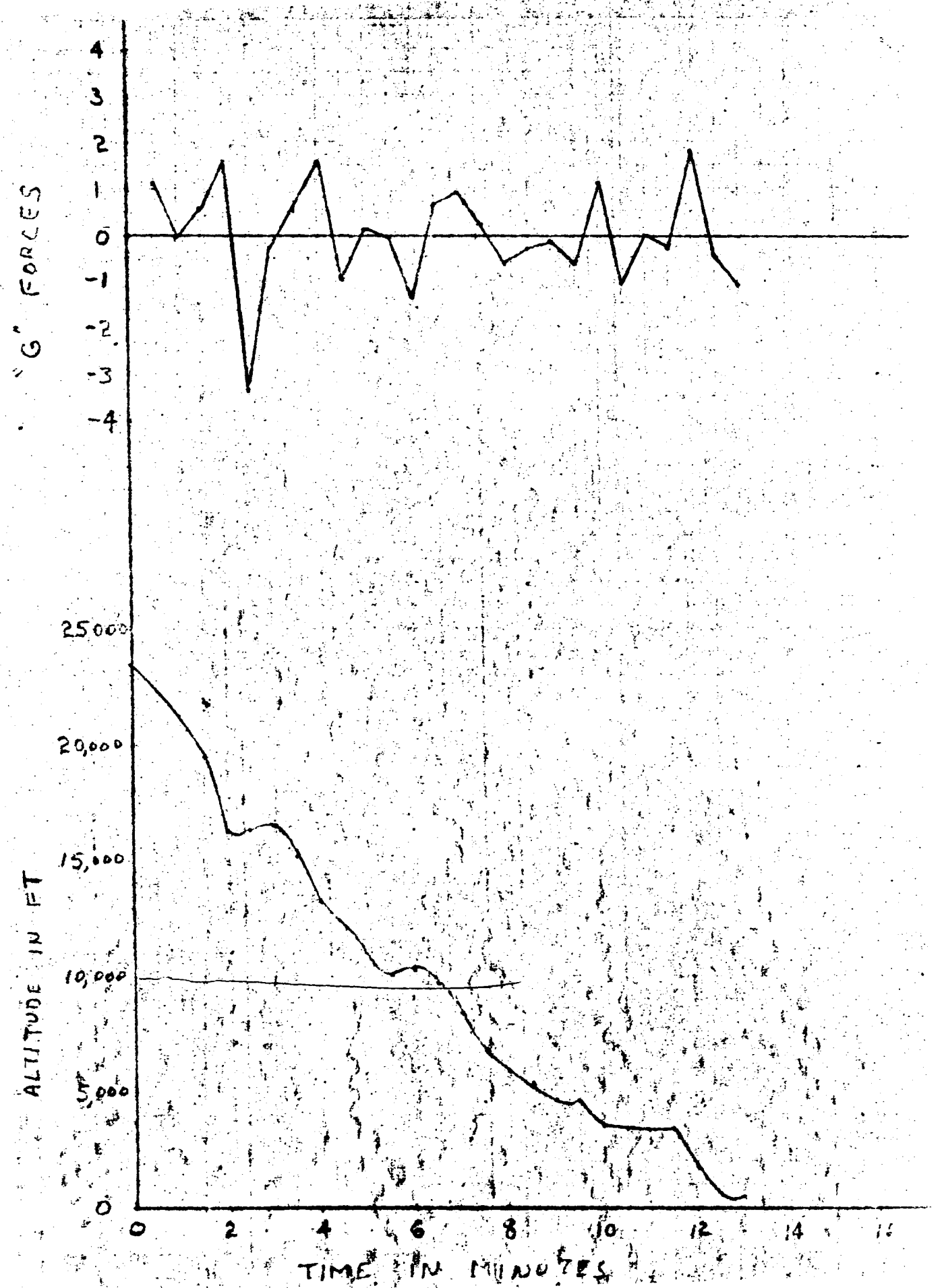
MADAR DATA - FURNISHED BY AIRFORCE

THE ENGINEERS MANUAL BY HUDSON

ENGINEERING MECHANICS BY SINGER

1- MOVIES - VIDO CLIPS OF ACCIDENT
2. PHOTOGRAPHS FROM AIR FORCE
35 MM SLIDES FROM LOCKHEED
PHOTOGRAPHS - UP + AP

COLLATERAL REPORT STATEMENTS.


"G" FORCES
4
3
2
1
0
-1
-2
-3
-4
ALTITUDE IN FT
25000
20,000
15,000
10,000
5,000
0
0
2
4
6
8
10
12
14
TIME IN MINUTES

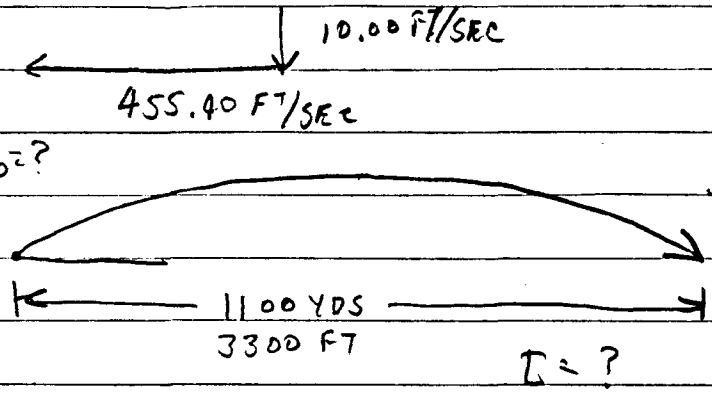
ATTACK ANGLE

RATE OF DECENT : 600 FT/MIN.

LINEAR VELOCITY : 270 KNOTS, 310.50 MPH, 27, 324.00 FT/MIN

APPROACH VECTOR ∴ ANGLE ϕ = 1.25794°

ϕ = 1°-15'-28"



a_y = 32.17 FT/SEC²

$$d_h = \frac{V_0^2 \sin 2\phi}{a} \quad \therefore \quad V_0 = \sqrt{\frac{d_h\, a}{\sin 2\phi}}$$

$$V_0 = \sqrt{\frac{(3300\,FT)\ 32.17\ ft/sec^2}{\sin 2(1.25794)}} = 1555.13695\ FT/SEC$$

$\sin 2(1.25794)$ = (0.04390)

NOTE: AIRCRAFT GAINED LIFT.

VELOCITY V_0 IS 3.41488 FIRST IMPACT

ASSUME SAME INITIAL V_0 ∴ T = 7.24638 SEC

HEIGHT $d_y = \frac{V_0^2 \sin^2\phi}{2a} = \frac{(1555.13695)^2 \sin^2 1.25794}{(2)(32.17)}$

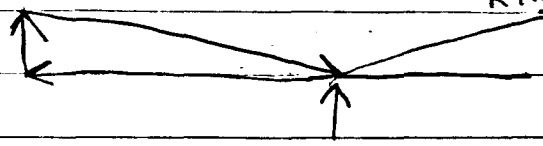
d_y = CAN NOT CALCULATE HEIGHT WITHOUT CONSIDERING LIFT

FIRST IMPACT FORCE

WEIGHT OF AIRCRAFT = 464,000 #

ATTACK ANGLE = 1.25794°

VELOCITY : 270 KNOTS, 310.50 MPH, 455.40 FT/SEC

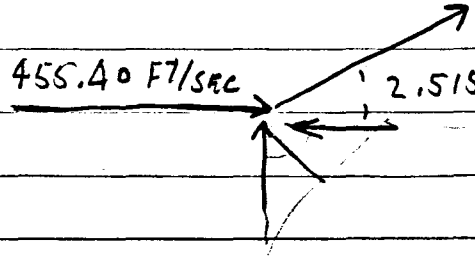


KINETIC ENERGY = $\frac{(464{,}000)(455.40)^2}{(2)\ 32.17}$

$= 2.99125 \times 10^9$ ft#/sec²

ANGLE DEFLECTED = 1.25794 (2) = 2.51588°

ASSUME ELASTIC IMPACT



$N_1 = (455.40) \cos 2.51588$

$= 454.96104$ FT/SEC

$\Sigma X \cdot t = \frac{W}{g}(N_x - N_{0x})$

$N_y = 19.99037$ FT/SEC

$P_x t = \frac{464{,}000}{32.17}(0.44) = 6{,}346.29$ #FT#-sec

$P_y t = \frac{464{,}000}{32.17}(19.99037) = 288{,}328.62$ FT#-SEC

TRAIN KINETIC ENERGY = $\frac{356{,}000}{32.17}(73.22)^2 = 5.95116 \times$

25 TIME THE KINETIC ENERGY OF 2 TRAINS CRASHING HEAD ON

ASSUMING NO LIFT FROM AIRCRAFT + JUST ELASTIC BOUNCE VELOCITY BEFORE + AFTER [illegible]

$X = 3300$ FT $V_0 = 455.40$ FT/SEC

$$\cos\phi = \frac{3300}{(455.40)(t)} \qquad t \approx 8 \text{ SEC}$$

$$\cos\phi = \frac{3300}{(455.40)(8)} = 0.91 \qquad \phi = 25.07°$$

NOTE: RATE OF DESCENT = 192.96 FT/SEC
THIS ANGLE IS TOO SHARP
AIRCRAFT WOULD DISINTEGRATE

$$\text{VERTICAL HEIGHT} = \frac{(455.4)\sin^2 25.07}{(2)(32.17)} = 1.27 \text{ FT}$$

NOTE: FIRST IMPACT MUST HAVE SLOWED AIR SPEED ASSUME AIR SPEED REDUCED IN HALF

$V_0 = 227.70$ $t = 16$ SEC

$$\cos\phi = \frac{3300}{(227.70)(16)} = 0.91 \qquad \phi = 25.07°$$

$$\text{VERTICAL HEIGHT} \frac{(227.70)(\sin^2 25.07)}{(2)\,32.17} = 0.64$$

STANDARD ATMOSPHERE

ALT.	TEMP	PRESS	P_{O_2}
SEA LEVEL	59 °F	760 mmHg	200
5,000	41 °F	632 mmHg	133
23,422	-24.5 °F	301 mmHg	63
CABIN	70 °F	632	133
10,000	23 °F	523	110

$$\rho_{@23,422} = \frac{29}{359}\Big|\frac{435.5}{520}\Big|\frac{760}{301} \quad 0.03794 \text{ \#/ft}^3$$

(760)(0.21)

760
152
7240

(40000)

133

28405

65.

0.3

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los angeles, california 90049
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CROMACK ENGINEERING ASSOCIATES, INC.

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P. O. BOX 28243
TEMPE, ARIZONA 85282

J. ROBERT CROMACK, P. E.
PRESIDENT

AREA CODE 602
831-7512

YOUR ITINERARY

DEPARTURE						ARRIVAL	
DATE	AIRLINE	FLIGHT	AIRPORT	TIME	MEAL	AIRPORT	TIME

144.00
67.00
211.00

AIR FARE: $ 142.00
TRANSPORTATION 29.00
AIRPORT 16.00
TAXES 22.50

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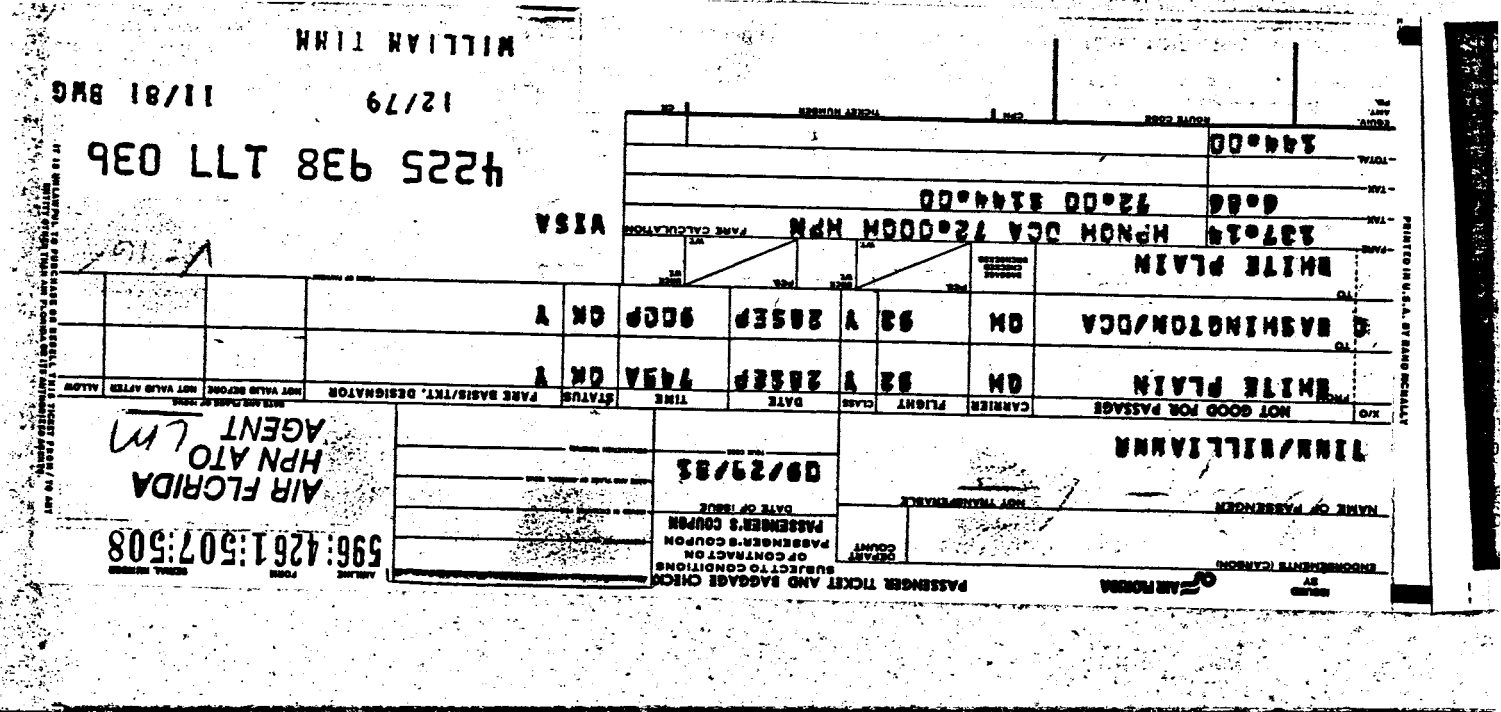
528-1333
FOR RESERVATIONS

CUSTOMER	DATE	AMOUNT	CHECK NO.
	9/28	158.00	352831

BUSINESS FORMS, SHELBY, O.

Flight/Date 9/2 USED SEP 28
Destination DCA
airflorida
Boarding Pass
6A
Seat No./NO SMOKING
Seat No./SMOKING

Seat No./SMOKING
Seat No./NO SMOKING
Boarding Pass
airflorida
#093 USED SEP 28
Flight/Date



GENERAL INFORMATION

RECONFIRMATION

Air Florida will cancel the reservation of any passenger remaining in The Bahamas more than 48 hours unless passenger reconfirms with Air Florida at least 48 hours before departure from The Bahamas to a point in the U.S.

BAGGAGE INFORMATION

Limits of Liability on Baggage

Liability for loss, delay or damage to baggage is limited as follows unless a higher value is declared in advance and additional charges are paid:

1. For most international travel (including the domestic portions of international journeys) to approximately $9.07 per pound ($20.00 per kilo) for checked baggage and $400 per passenger for unchecked baggage.
2. For travel wholly between U.S. points, to $750 per passenger.

Baggage Allowance

Each passenger is permitted carry-on baggage so long as it fits beneath their seat. All other baggage must be checked. Three pieces including carry-on will be carried free of charge. There is a nominal charge for each additional piece or those over 70 pounds. International weight limitations for combinations of all 3 pieces cannot exceed 90 pounds.

Excess valuation may not be declared on certain types of valuable articles. Carriers assume no liability for fragile or perishable articles. Further information may be obtained from the carrier.

CHECK-IN POLICY

Customers are required to present their tickets at the Air Florida departure gate at least 10 minutes prior to scheduled departure time. Otherwise reservations may be cancelled.

DISCLOSURE NOTICE—DELIBERATE OVERBOOKING

The no-show factor approaches 25% on peak period flights. Please cancel your reservations if your plans change, or you are unable to use them for any reason. There are many customers desiring confirmed seats that cannot be accommodated because of reserved space that will not be used.

Airline flights may be overbooked, and there is a slight chance that a seat will not be available on a flight for which a person has a confirmed reservation. A person denied boarding on a flight may be entitled to a compensatory payment. Liability rules for denied boarding compensation are available at all airport ticket counters.

The reason some flights are overbooked is that invariably a number of passengers who hold confirmed reservations become "no shows" at flight departure time. Because the minimum number of "no shows" can be predicted quite accurately based on historical data, the practice of overbooking avoids wasteful empty seats and enables thousands of additional passengers each year to travel on flights they prefer.

(Times and fares shown in the schedule subject to change without n

AIR FLORIDA

Rev.

1772 23

11 MAY 80 - C-5A AIR CRASH

MERLISA MARCHETTI - IN TROOP COMPARTM...

REDUCTION IN PRESSURE

I 1) 7.0 x 19. x ___ +

2) MEMBRANE WILL EXPAND

3) GAS CREATED < opening of a soda

REDUCTION IN OXYGEN

II DROP IN OXYGEN

1) - PIN PONG BALLS < 4 - WHITE, 1 - GREEN (63 / 2...)

2) O₂ NOT SUFFICIENT TO SUPPORT BURNING OF A CANDLE.

3 - OXYGEN - SUBSTANTIAL & GREATLY REDUCTED

~~II~~ III STOMACH

CHECK LANDING.

KENECTIC ENERGY → GIVE NUMBER

NUMBER - Calculate

TRAINS - (25) FREE FALL

FOR TO BREAK LANDING GEAR.

160,000 # DRAG LOAD

250,000 # ULTERMATE DRAG

SECOND IMPACT. - FORCE

DISCINTERGRATION

FORCE FROM FREE FALL

FORCES - TO ~~PLATE~~ PLANE APART

EDWARDS THREE CRASH - SUSAN BERGE

86 Pages

$V = \frac{dD}{dt}$

$A = \frac{d^2D}{dt^2}$

$D = \int_0^t \int_0^t A\,dt$

IF $V = at + B$

$\frac{d^2D}{dt^2} = \frac{dV}{dt} = a$

$D = \int_0^t V\,dt =$

$D = \frac{at^2}{2} + Bt \Big]_0^t$

$D = \frac{at^2}{2} + Bt$

@ $D = 0$ $t = 0$

$D = ?$ $t = ?$

$-at_1 = 310$

$V = at + B$

@ t_1

$-at_1 = B$

$B = 310$

$at^2 + Bt - D = 0$

$t^2 + \frac{B}{a}t - \frac{D}{a} =$

$t_1^2 - \frac{at_1}{a}t - \frac{D}{a} = 0$

$D = -a$

23-424 ft

Edwards testimony.

Page 17 - Given traces of MADAR TAP.

Page 18 - claims data is recorded - but [redacted] claims power interruption which erased data of first impact

Page 22 - Claim MADAR Record Y + Z lines.

Page 57 - didn't calculate force to sever the leveling gear

Page 95 Explosive Decompression 23,100 to 23400 ft

Page 68 HUDSON

$V = \frac{S}{t}$. V = average velocity
S = distance
t = TIME

INSTANTANEOUS VELOCITY $V = \frac{ds}{dt}$

ACCELERATION $a = \frac{V}{t}$ or $\frac{dV}{dt}$ or $\frac{d^2s}{dt^2}$

EDWARD CALCULATION

1) DEFINATION OF VELOCITY IS FOR AVERAGE VELOCITY

Pressure	SEA LEVEL	760	
	5000 ft	632 –	
	23,420 ft	301 –	40 %

START WITH 100 PING PONG BALL
80 WHITE N_2
20 GREEN O_2

TAKE OUT 60 BALLS
32 WHITE N_2
8 GREEN O_2

O_2 Reduction $\frac{63}{200}$ = 0.32 %

WING-	900	yard
FLIGHT DECK	750	yard
TAIL	600	yard
TROOP COMPART	550	yard
CARGO Compart	100	yards

LANDING SPEED 126.72 - 136.24 MPH

$V^2 = V_0^2 + 2aS$

$$\frac{V^2 - V_0^2}{2S} = a$$

$V_{av} = \frac{D}{t}$ $\quad V = \frac{dD}{dt}$ $\quad a = \frac{d\dot{D}}{dt^2}$

$V = At + B$ $\quad$ @ $t = 0$ $\quad B = 456$

$t = t_1 \quad V = 0$

$\therefore A t_1 = B$

$$\int_0^D dD = \int_0^{t_1} V\,dt = \int_0^{t_1} (At + B)\,dt =$$

$A = \frac{B}{t}$

$$D = \frac{At^2}{2}\Big]_0^{t_1} + Bt\Big]_0^{t_1}$$

$$D = \frac{456}{2t_1} t_1^2 + 456t =$$

$D = 684t$

$t = \frac{D}{684}$ $\quad$ mi sec

WING $t = \frac{5400}{684}$ $\quad$ 3.95 SEC

FLIGHT DECK $t =$ $\quad$ 3.29 SEC

TAIL $t =$ $\quad$ 1.75 SEC

TROOP COMPARTMENT: $t = 2.41$

CARGO COMPARTMENT $t = 0.41$

FRIENDS FOR ALL CHILDREN, INC., as legal guardian and next friend of the named 150 infant individuals, et al, Plaintiff, -vs- LOCKHEED AIRCRAFT CORPORATION, Defendant and Third-Party Plaintiff, -vs- THE UNITED STATES OF AMERICA, Third-Party Defendant.	Civil Action No. 76-0544
JAMES EVERETT REYNOLDS, et cetera, Plaintiff, -vs- LOCKHEED AIRCRAFT CORPORATION, Defendant and Third-Party Plaintiff, -vs- THE UNITED STATES OF AMERICA, Third-Party Defendant.	Civil Action No. 76-0544-62

INTERROGATORIES

TO: The United States of America
c/o James P. Piper, Esquire
Trial Attorney, Aviation Unit
Torts Section, Civil Division
U.S. Department of Justice
550 11th Street, Room 906
Washington, D.C. 20530

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RLINGTON, VA. 22216

COME NOW the Plaintiffs, by counsel, and pursuant to Rule 33 of the Federal Rules of Civil Procedure, hereby propound the following Interrogatories to the Third-Party Defendant, The United States of America (hereinafter "Third-Party Defendant"), to be answered under oath, within five (5) days after service of these Interrogatories.

A. Knowledge of information of Third-Party Defendant shall include, without limitation, that of its executives, employees, agents, attorneys, representatives, departments, and divisions. For any knowledge or information which is asserted to be privileged or otherwise excludable from discovery, the basis for such claims of privilege or other ground for exclusion shall be expressly stated.

B. Unless other specified, each Interrogatory related to, covers, and requests information for any and all periods prior to the date answers were filed and requires a continuing answer.

C. With respect to each answer to each of the following Interrogatories, identify each person who assisted or participated in preparing and/or supplying any of the information given in the answers to or relied upon in preparing answers to these Interrogatories.

D. As specified by the Federal Rules of Civil Procedure, these Interrogatories shall be deemed to be continuing so as to require supplemental answers, and each supplemental answer required to maintain the accuracy of Third-Party Defendant's Answer(s) shall be served upon Plaintiffs' counsel at reasonable intervals, but, in any event, no later than thirty (30) days before any date set for trial of this cause.

E. Each Interrogatory requesting information concerning "Plaintiffs" shall be answered separately as to each Plaintiff identified in the caption to this set of Interrogatories.

Definitions

A. "Accident" means the aircrash involving the Lockheed C5A aircraft occurring on April 4, 1975, which was the subject of the pleadings herein.

B. The term "document" or word or words of similar import, in the singular or plural, shall include and mean, without limitation, the original and each copy of each and any writing, document, note, evidence of indebtedness, memorandum, letter, entry, print, print-out, representation, record or report and any tangible item or thing of readable or visual

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material, whether written, handwritten, typed, Xeroxed, photostated, printed, duplicated, reproduced (including photographic, photostatic, microfilm, microcard, or miniature photographic reproduction and magnet impulse, mechanical, electronic, or computer transcription), containing, reflecting, or recording, in whole or in part, any information (including, without limitation, any correspondence, communication, discussion, conclusion, report, recordation, notation, minutes of meetings or papers), arising out of or concerning the action, occurrence, event, or subject matter inquired of (including, without limitation, all interim as well as final drafts, reports, pictures, drawings, sketches, diagrams, handwritten notes, or other written or recorded material of any kind or nature), and in the possession or subject to the control of or known to exist or have existed by the person answering these Interrogatories or the Third-Party Defendant to which these Interrogatories are directed.

C. Each of the terms "identify," "identity," or "identification," or words of like import, shall include and mean:

(i) When referring to a natural person, to provide information sufficient to notice the deposition of such person and to serve such person with process requiring his or her attendance at a place of examination and shall include, without limitation, his or her full name, present or last known address, the last date when such address was known or believed to be correct, his or her present or last known business affiliation, title, or occupation, and each of his or her positions, titles, or job descriptions during the applicable period of time covered by any Answer referring to such person.

(ii) When referring to a business organization or entity or Third-Party Defendant, to provide the full name of such organization or entity, the address of its principal place of business or operation, the names of each employee, agent, or representative who acted for such organization or entity with respect to the matters which are relevant to the Interrogatory involved.

D. The term "person" means natural persons, groups of natural persons acting as individuals, groups of natural persons acting in a collegial capacity (e.g., as a committee, board of directors), corporations, partnerships, and joint ventures, and any other incorporated, unincorporated business or social entity. It also means "you" as defined herein.

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E. The pronoun "you" refers to the party to whom these Interrogatories are addressed, including, but not limited to, all of its executives, employees, agents, attorneys, representatives, departments, and divisions.

F. "Aircraft" means the C5A aircraft which was involved in the "accident."

Interrogatories

1. Was any component, assembly, or portion of any component or assembly, which was located in or connected to the aft troop compartment of the C5A 68-218, including but not limited to, a seat, seat assembly, and/or seat assembly fastener, recovered from the crash of the C5A (i.e., removed from Vietnam). If so, as to each such recovered part, state the following:

(a) The identifying number or other designation for the part, component, or assembly, sufficient to permit proper identification of same by Plaintiffs for the purpose of a request for production, inspection, and testing, pursuant to Rule 34, Federal Rules of Civil Procedure, and/or for the issuance of a subpoena duces tecum;

(b) A description of the part, component, assembly, or portion thereof;

(c) The present location of the part, and the full name and complete address of its custodian;

(d) Which, if any, of the parts identified by the parties during Plaintiffs' inspection of same at Kelly Air Force Base on June 19, 1980, were among other components, assemblies, or parts, which are the subject of this Interrogatory;

(e) The specific location of part in, or where connected to, the C5A immediately prior to taking off from Ton Son Nhut Air Base on April 4, 1975, including the identification (by part number and description) of each other part, assembly, or component adjacent thereto;

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(f) The nature and quantum of forces which the part (as installed, and aboard the C5A 68-218 on April 4, 1975) was designed and/or required by specification (then in effect) to withstand in a crash without failure or distortion, including the parts' ultimate strength limit(s);

(g) Whether the part was subjected to any type of testing to determine:

(1) The nature and quantum of forces to which the part was subjected from the moment of explosive decompression until the C5A 68-218 came to rest after the crash; and

(2) The nature and quantum of forces which caused the part to fail, not perform as designed, or distort as a result of the events occurring between the time of explosive decompression and the C5A 68-218 coming to rest after the crash (if your answer to this subparagraph is different from that given in response to the preceding subparagraph).

(h) Whether any report, datum, or document (including photographs) was prepared or developed concerning the parts' performance in, or in relationship to, the April 4, 1975 crash, and if so, state:

(1) Whether the information which was prepared or developed disclosed any failure of, or distortion to, the part;

(2) The present location of the information and the full name and complete address of its custodian; and

(3) The nature, description, and (if applicable) the title (including author) of the document or other information obtained.

2. State in complete detail all facts known to you which in any way support the findings contained in Tab A Summary to the Air Force Accident Report (Exhibit 4 to the Gregory Deposition) at paragraph 26, that "the loadmaster's seat in the troop compartment came out of its mountings," or that relate to one or more seats, seat assemblies, and/or seat fasteners or portions thereof, being distorted, bent, or separated from one another following take-off from Ton Son Nhut Air Base on April 4, 1975, including:

(a) The identity of all subsidiary reports, data, tests (including their titles, authors, and custodians), photographs or similar information relating thereto;

(b) The specific identity of each part, component, or assembly, which was the subject of the distortion, bending, and/or separation, including:

(1) The identifying number or the designation for the part, component, or assembly;

(2) A description of the part, component, assembly, or portion thereof;

(3) A description of the location and relationship of each affected part to one another;

(4) The nature and quantum of forces which the part (as installed, and aboard the C5A 68-218 on April 4, 1975) was designed and/or required by specification (then in effect) to withstand in a crash without failure or distortion, including the parts' ultimate strength limit(s); the point or points at which the part, component, or assembly distorted, bent, or separated; and

(5) The metallurgical composition, specific dimensions, weight, and configuration of the part (sufficient to permit engineering calculations of the forces required to cause such distortion, bending, or separation); or in the alternative (if you will do so without a formal request for production), a copy of such manual, drawing, sepcification, or other information that will disclose this data.

3. Do you contend that the distortion, bending, or separation of any aft troop compartment seat component aboard the C5A 68-218, which occurred on April 4, 1975, was caused by a defect in the manufacture, installation, or maintenance of such component. If so, state in detail the facutal bases for this contention, including:

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including engineering reports and tests, witness statements, and photographs; and

(b) When it was first determined that such a defect caused the part to fail, distort, bend, or separate.

4. Do you contend that the specifications (metallurgical composition, specific dimensions, weight, or configuration) or use of any part aboard C5A 68-218 on April 4, 1975 and identified in response to Interrogatories 1 or 2 above, have been changed since April 4, 1975 so as to make its replacement or successor part (now available for testing upon appropriate Court order) in other C5As incomparable for testing (e.g., destructive testing to determine ultimate strength limits) purposes. If so, state which parts and state specifically all engineering, design, or other data pertaining to such replacement or successor part as make such part incomparable or inappropriate for such testing.

5. Will you, without formal request for production and/or formal court order directing production for testing, produce such parts as are, by the responses to these Interrogatories, identified as being parts currently used on C5As which are comparable for testing purposes to similar or identical parts aboard C5A 68-218, for destructive testing purposes, to determine the nature and quantum of forces which said parts are designed to withstand in a crash situation.

FRIENDS FOR ALL CHILDREN, INC.

JAMES EVERETT REYNOLDS,
suing by his Next Friends and
by the Guardian ad Litem

BY COUNSEL

Oren R. Lewis, Jr., Esquire
John E. Fricker, Esquire
Michael S. Marcus, Esquire
LEWIS, WILSON, LEWIS & JONES, LTD.
2054 North Fourteenth Street
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Arlington, Virginia 22216
(703) 527-8800

Counsel for the Infant Plaintiffs

Counsel for Charles R. Work, Esquire
and Peabody, Rivlin, Lambert & Meyers,
as Guardian ad Litem

Lead and Liaison Counsel for
Subcommittee on Vietnamese
Orphans and Foreign Nationals
Pursuant to the Order of
The Honorable William B. Jones
of February 19, 1976

J. Vernon Patrick, Esquire
BERKOWITZ, LEFKOVITS & PATRICK
1400 City National Bank Building
Birmingham, Alabama 35203

Counsel for the Infant Plaintiffs

Counsel for Charles R. Work, Esquire
and Peabody, Rivlin, Lambert & Meyers,
as Guardian ad Litem

By: John E. Fricker
John E. Fricker, Esquire
One of Counsel for the Infant
Plaintiffs, the Guardian ad Litem
and the Subcommittee

Certificate of Service

I hereby certify that I have caused a true copy of the foregoing Interrogatories to be hand-delivered this the 23rd day of June, 1980, to the following counsel:

Carroll E. Dubuc, Esquire
Haight, Gardner, Poor & Havens
Federal Bar Building
1819 H Street, N.W.
Washington, D.C. 20006

James P. Piper, Esquire
Trial Attorney, Aviation Unit
Torts Section, Civil Division
U.S. Department of Justice
550 11th Street, Room 906
Washington, D.C. 20530

John E. Fricker

FRIENDS FOR ALL CHILDREN, INC., as legal guardian and next friend of the named 150 infant individuals, et al., Plaintiff	)	
v.	)	Civil Action No.
LOCKHEED AIRCRAFT CORPORATION,	)	76-0544
Defendant and Third-Party Plaintiff	)	
v.	)	
THE UNITED STATES OF AMERICA, Third-Party Defendant.	)	
JAMES EVERETT REYNOLDS, et cetera, Plaintiff	)	
v.	)	Civil Action No.
LOCKHEED AIRCRAFT CORPORATION,	)	76-0544-62
Defendant and Third-Party Plaintiff	)	
v.	)	
THE UNITED STATES OF AMERICA, Third-Party Defendant.	)	

ANSWER OF UNITED STATES OF AMERICA
TO INTERROGATORIES OF PLAINTIFF

In answer to plaintiff's interrogatories to third-party defendant, without waiving any objection that might be raised at trial, and upon information and belief, third-party defendant, United States of America, replies as follows:

1. Yes.

(a) A small portion of the troop compartment floor, attached to the pressure door roller assembly. This portion was cut away in order to allow removal of the pressure door roller assembly. This part bears the number 1-L and 1-R assigned by members of the accident investigation team.

(b) See answer to 1(a) above.

(c) The part is located at Section C, Building 4207, San Antonio Air Force Station, San Antonio, Texas. The custodian is Lt. Col. Vernon E. Steerman, Deputy Staff Judge Advocate, San Antonio Air Logistics Center, Kelly Air Force Base, Texas 78241.

(d) None.

(e) See answer to 1(a) above.

Part Numbers: 4F41272-101B; 4F41272-102A.

Spare Parts Numbers: 4F41272-103A; 4F41272-104A.

Stock Numbers: 1560-00-438-9357-LH; 1560-00-438-9358-LH.

(f) Unknown.

(g) No testing.

(h) No.

2. No information is available other than that previously produced to plaintiffs during discovery in this matter, including message 2319362, APR 75, from Headquarters MAC to numerous addressees, produced by defendant Lockheed Aircraft Corporation as a portion of the Tenth Supplemental Response to Plaintiffs' Request for Production.

3. No.

4. Subsequent to April 4, 1975, all seat belts in the aft troop compartment were modified pursuant to Technical Order 1-C-5A-1883. A copy of this Technical Order is being procured for production.

5. Assuming that all parties can agree upon the details of such testing, third-party defendant will release such part for testing.

ALICE DANIEL
Assistant Attorney General

CHARLES F. C. RUFF
United States Attorney

By: JAMES P. PIPER
Trial Attorney, Torts Branch

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing Answers of United States of America to Interrogatories of Plaintiff was mailed, postage pr paid, this 27th day of June, 1980, to the following counsel of record:

John E. Fricker, Esquire
LEWIS, WILSON, LEWIS & JONES, LTD.
2054 North Fourteenth Street
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Carroll E. Dubuc, Esquire
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Federal Bar Building
1819 H Street, N.W.
Washington, D. C. 20006

Barbara J. Hirst

Employee of:
U. S. Department of Justice
Washington, D. C. 20530

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF COLUMBIA

FRIENDS FOR ALL CHILDREN, INC., as legal guardian and next friend of the named 150 infant individuals, et al.,	)	
Plaintiff	)	
v.	)	Civil Action No.
LOCKHEED AIRCRAFT CORPORATION,	)	76-0544
Defendant and Third-Party Plaintiff	)	
v.	)	
THE UNITED STATES OF AMERICA,	)	
Third-Party Defendant.	)	
JAMES EVERETT REYNOLDS, et cetera,	)	
Plaintiff	)	
v.	)	Civil Action No.
LOCKHEED AIRCRAFT CORPORATION,	)	76-0544-62
Defendant and Third-Party Plaintiff	)	
v.	)	
THE UNITED STATES OF AMERICA,	)	
Third-Party Defendant.	)	

VERIFICATION

DISTRICT OF COLUMBIA) SS.

MARK A. DOMBROFF, being duly sworn, deposes and states:

That he is a Director of the Torts Branch, Civil Division, of the United States Department of Justice, Washington, D. C.; that JAMES P. PIPER, Trial Attorney, has been assigned the primary responsibility for the instant action; that Mr. Piper prepared and read the foregoing answers to interrogatories

and believes them to be true and correct on his present knowledge and information.

MARK A. DOMBROFF

Sworn to before me, this 27th day of June, 1980.

NOTARY PUBLIC

My Commission Expires: May 14, 1982

15 F

APR 24 01 09 '75

orig to QA
cys sent to: EN
SE
Lgd/610425
(Refer to #17)

RTTEZYUW RUCIMAA3054 1132802-EEEE--RUCLBLA.
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FM MAC SCOTT AFB IL/LGMK
TO AIG 8333
ZEN/375AAW SCOTT AFB IL
BT
UNCLAS E F T O
FOR MAINT, SUBJ: ONE-TIME INSP C-5A SEAT INSTALLATION, THIS MSG IN FOUR PARTS, PART ONE, THE FOLLOWING PARTIAL QUOTE OF ACCIDENT INVESTIGATION BOARD 200325Z APR 75, LOADMASTER SEAT, AFT TROOP COMPARTMENT, IS PROVIDED FOR YOUR INFO. QUOTE:
THE FOLLOWING REPORT SUBMITTED AS A RESULT OF ACCIDENT BOARD INVESTIGATION:
FLIGHT CREW MEMBERS STATED THAT ON INITIAL IMPACT THE FORWARD FACING LOADMASTER SEAT IN AFT TROOP COMPARTMENT DISENGAGED FROM FLOOR, DUE TO CRASH SITE LOCATION EXHIBIT NOT AVAILABLE FOR ANALYSIS, SUBSEQUENT INSPECTION OF THE (4) FOUR C-5A AIRCRAFT AT THIS STATION REVEALED THE FOLLOWING DISCREPANCIES THAT WOULD INDICATE PROBABLE CAUSE FOR SEAT DISENGAGEMENT:
INSPECTION OF C-5A 670013 BY ACCIDENT BOARD ADVISORS AND
0044

PAGE 2 RUCIMAA3054 UNCLAS E F T O
QUALITY CONTROL PERSONNEL FOUND THE FORWARD FACING LOADMASTER SEAT FASTENERS RETAINING THE AFT FITTINGS (REF T. O. 1C-5A-4-1 FIG 163, INDEX 63) HAD BEEN INSTALLED USING SCREWS THROUGH THE FITTING AND CARGO FLOOR BUT NO WASHERS AND NUTS WERE UTILIZED ON THE SCREWS TO SECURE BRACKET TO AIRCRAFT STRUCTURE. FASTENERS IN THE AREA FROM RIGHT HAND EDGE OF GRATE TO APPROXIMATELY ONE FOOT OUTBOARD OF THE RIGHT HAND SEAT FITTING, APPEAR TO HAVE BEEN REPLACED DURING PREVIOUS MAINTENANCE ACTION.
AIRCRAFT HISTORY NOT AVAILABLE THIS STATION. 0056
INSPECTION OF C-5A 690029, REVEALED THE FORWARD FACING SEAT HAD BEEN INSTALLED WITH THE INBOARD LEG NOT INSTALLED IN THE SEAT FLOOR FITTING SLOT, THEREBY NEGATING 50 PERCENT OF THE SEAT RETENTION CAPABILITY, FLOOR FASTENERS IN THE AREA FROM RIGHT HAND EDGE OF GRATE TO APPROXIMATELY ONE FOOT OUTBOARD OF THE RIGHT HAND SEAT FITTING HAVE BEEN REPLACED DURING PREVIOUS MAINTENANCE ACTION. AIRCRAFT 690020 AND 690021 WERE ALSO INSPECTED BUT NO DISCREPANCIES ON THESE FITTINGS WERE NOTED. HOWEVER, IT WAS OBVIOUS THAT THE FLOOR FASTENERS HAD BEEN REPLACED,
0057 0052

DATE: APR 24 1975
FROM: LGL (W Henry)
SIGNED: [signature]

RECEIVED 24 APR 1975 CONTRACTS DEPT. 82-02

4/24/75 1555 S-TA/RL; AGNE

PAGE 3 RUCIMAA5294 UNCLAS E F T O

THE DISCREPANCIES WHICH WERE INDENTIFIED ON 690625 AND 690613 WOULD SEEM TO HAVE BEEN CAUSED BY A TCTO OR OTHER MAINTENANCE ACTION WHICH REQUIRED THE REMOVAL OF THE FLOOR FITTINGS. DUE TO THE DISCREPANCIES FOUND ON TWO OF THE FOUR AIRCRAFT INSPECTED AT THIS STATION, RECOMMEND AN IMMEDIATE ONE TIME INSPECTION OF ALL SEAT INSTALLATIONS ON THE UPPER DECK, INCLUDING RELIEF CREW AND COURIER SEATS FOR POSITIVE LOCKING ACTION. ALSO THAT ALL FLOOR FITTINGS BE INSPECTED FOR SECURITY AND COMPLETENESS. UNQUOTE.

PART TWO, A ONE-TIME INSP AND CORRECTION OF DISCREPANCIES IS REQUIRED BEFORE NEXT FLIGHT OF ALL RELIEF CREW SEATS, COURIER SEATS AND FORWARD FACING LOADMASTER SEATS FOR POSITIVE LOCKING ACTN, SECURITY AND COMPLETENESS. PART THREE, A ONE-TIME INSP AND CORRECTION OF DISCREPANCIES IS REQUIRED NLT THE NEXT HOME STATION CHECK ON ALL TROOP COMPARTMENT SEATS FOR POSITIVE LOCKING ACTN, SECURITY AND COMPLETENESS. THESE SEATS WILL NOT BE OCCUPIED IN FLIGHT PRIOR TO COMPLETION OF THE INSP. PART FOUR, COMPLIANCE WITH INSPECTIONS IN PARTS TWO AND THREE WILL BE REPORTED TO MAC AFS AND MAC/LGM WEEKLY BY MSG TO INCLUDE DISCREPANCIES

PAGE 4 RUCIMAA5294 UNCLAS E F T O

FOUND.

ST

#5294

Distribution: (F. J. Ochsenfeld:jj - C-5 Project Coordination 4-24-75)

NOTE: Loadmaster seat in aft crew compartment disengaged from floor on initial impact of ship 0021. *Thorp*

ACTION: Quality to check if any DR's, squawks, etc., were worked in this area on ship 0021 during recycle/update in 1974. Engineering to determine any ECP's affecting this area.

NNNN

Advance copy to W. H. Hoeing.

K. L. Ammerman (ACTION)	C. L. Wharton (ACTION)
C. J. Bollech	D. P. Wheeler
E. Freeman	Ship 0021 File
D. O. Gunson	C-5 Contracts
R. M. Gunter	Central Files
G. H. Hollingsworth	LGD File
R. M. Morrison	Log
J. A. Nellson	WEC
J. W. Perry ✓	FJO
G. W. Reddien	

LUCKINBILL / LOCKHEED ACCIDENT INVEST.

DOBON - AF DESIGN ENGR RESPONSIBLE FOR LOCKS

CURRENT - SAFETY ENGR

EDWARD -

ARNOLD - SAFETY MANAGER

GUNSON - PROJECT ENGR

GREGORY -
MARTIN -
HOWARD -
} A.F. ACCIDENT INVESTIGATION / ACCIDENT INVESTIGATION TEAM

NEWBY - PRESIDENT ACCIDENT INVES.

TRAYNOR PILOT

HARP CO-PILOT

AUNE NURSE

GOFFINET - NURSE

WIRTZ NURSE

LEWIS WILSON LEWIS + JONES

2000 NORTH 14TH STREET

ARLINGTON, VA. 22216

DESCRIPTION OF EVENTS LEADING UP TO THE CRASH OF THE C-5 AIRCRAFT NEAR SIAGON ON APRIL 4, 1975

GENERAL

The C-5A aircraft is the largest aircraft ever built, and it has a wingspan almost of one football field in length. This aircraft was built to carry troops in the upper troop compartment and cargo in the lower compartment. (Use illustration of cutaway of aircraft) The lower troop compartment was also built to carry personnel in cases of emergancy. When personnel were to be carried in the cargo compartment, palletized seats with portable oxygen equipment were to fastened to the floor of the cargo compartment. The aircraft that was utilized to transport the orphans out of Saigon on this ill-fated mission were not equiped with palletized seats in the cargo compartments.

IT MAKES THE 707 LOOK LIKE A MIDGET IN COMPARISON

THE CARGO COMPARTMENT IS 121 FT LONG, 13.5 FT HIGH AND 19 FT WIDE,

ILLUSTRATION # 1

OR AXULLARY OXYGEN SUPPLY.

HISTORY OF EVENTS OCCURRING ON AIRCRAFT 68-218 PRIOR TO LANDING AT SAIGON

The U.S. Air force had a policy in 1975 that all operational aircraft must be flown at least once every 30 days. During this period they were also having a logistical problem of obtaining sufficient spare parts to properly maintain the C-5A aircraft. The policy of cannabalization was instituted to alleveate the spare part problem and enable the Air Force to continue to fly their aircraft every 30 days.

TO MAINTAIN IT'S FLIG

Aircraft 68-218 was in a cannabalized status from March ,3 1975 until April 1, 1975. Parts of the aft ramp locking assembly had been cannabalized to provide spare parts for other aircraft. On March 24, 1975 these cannabalized tie rods were reinstalled in this aircraft, and the rigging on this aircraft was verified on March 29, 1975.

ALLED

Aircraft C-5A, Serial number 68-218 departed Travis Air Force Base 0647 Zulu April 1, 1975 to unload 105mm Howitzers at Warner-Robin Air Force base Georgia. The flight then continued to Travis Air Force

base and then to Hickham Field Air BASE, Anderson Base, and finally CLARK Air Base, the Philippenes. Because of the high priority of this mission, this aircraft departed Hickham Field without fixing the co-pilot's windshield but took the part along to have it fixed at CLARK Air base; this action avoided incurring another day of maintainence which would have delayed the departure of this aircraft. En route to Clark Air Base number two engine was shut down because it exceeded the vibration parameters on the MADAR; this maintainence work was performed at Clark and delayed the departure for the completion of this work. Number two engine was completely inspected and found that there was no sign of wear, therefore it was supposed that the MADAR was not reading correctly.

While this crew was at Clark Air base, President Ford made a televised announcement that the U.S. would begin an immediate air lift of orphans out of Saigon and named the C-5 aircraft as one of the carriers that would accomplish this mission. Following this announcement General Carlton had directed the next available C-5 aircraft to take the orphans out of Saigon. Aircraft number 68-218 was advised by the 22nd Air Force that they were to take out as many orphans and attendants as were ready to go and to floor load them as necessary. Necessary supplies and medical gear such as blankets, pillows, 500 milks, 500 juices, box lunches, baby bottles, etc. were collected and placed aboard the aircraft. Five members from the combined 9 and 10th Aeromedical Evacuation Group joined this aircraft for the flight to Saigon, Tan Son Nhut Air Base.

The aircraft departed Clark Air Force Base on April 4, 1975 at 0214 Zulu or 10:13 local time and arrived at Saigon on the same day at 0450 Zulu or 12:51 local time. At Saigon they were taxied to a parking spot on the diagonal taxi way heading north just in front of the tower.

STARTING OPERATION BABY LIFT

The crew members provided the security for the aircraft while it was on the ground during the off- and on-loading process. The 105 mm howitzers and recoilless rifles were off-loaded which took about an hour and then the orphans and their escorts, who were waiting on buses and cars near the aircraft, were started to load the aircraft. Initially the orphans were carried two by two by the escorts completely up the ladder near the aft loading ramp and placed in seats in the troop compartment. It was soon realized that this loading procedure was ineffective and the escorts made a CHAIN to pass the babies up the ladder from one person to another. Most of the small children were loaded aboard the aircraft in the troop compartment.

To make maximum utilization of the space available, the ARM RESTS between the seats were removed and two babies were placed in each seat; the babies were then held in the seat by placing blankets and pillows over them and strapping them with the seatbelts. (Try to find photographs showing the loading of orphans on the aircraft) Most of the small children were accomodated in the troop compartment and where an older child was available, they were placed next to a young baby to help take care of the infant. One of the flight nurses and two of the medics were assigned to the troop compartment FROM THE ORGINAL CREW. In addition, members of another Medi Vac Team that arrived on a C-141 that was not going to fly out orphans, had requested and were assigned

the C-5 aircraft to help with operation "baby lift." The location and distribution of this Medi Vac team is not known but it is assumed that two medics and one flight nurse were also assigned the troop compartment and one flight nurse and medic were assigned the cargo compartment.

Some of the escorts that were being stationed in the cargo compartment were requested to assist in the caring of the babies in the troop compartment. All the available seats were used to strap infants in the seats, and there were no seats available for the medical team, the escorts, or the crew members.

All the escorts and orphans that could not be accomodated in the troop compartment, were placed on the floor of the cargo compartment. Two layers of blankets were spread on the floor of the cargo compartment near the forward portion of the aircraft. The children were placed on the blankets and strapped down with cargo straps. Escorts were placed next to the smaller infants to help care for them. Some of the larger children and some of the escorts sat on benches on the sides of the cargo compartment. They were also strapped into these benches by straps that held groups of them together on the bench.

It was quite hot on the ground in Saigon during the loading process and many of the children were frightened and crying. The escorts and medical personnel were attempting to give the babies orange juice and water in an attempt to quiet them. This time was quite confusing and no reliable head count was made in the aircraft. Also there this no manifest or list of orphans that were placed aborad this aircraft

As best as can be determined there were 145 orphans on board in the troop compartment of this aircraft along with 7 attendents; of this number 143 orphans survived the crash and 6 attendants survived the crash that were located in the troop compartment. It is estimated that 102 orphans were located in the cargo compartment along with 47 other people; 96 orphans are estimated to have perished in the cargo compartment along with 45 other people.

These numbers are based on the casualty report submitted by ~~Chief~~ CWO-4 ~~Warrant Officer~~ Scott, and are the most reliable numbers that can be ascertained from this unfortunate incident. Exact numbers cannot be given because there was no manifest of orphans, there was conflicting testimony of crew and other people in several categories, civilian attendants were moving around the aircraft while head counts was being done and may have been counted twice or not at all, several American children were on board and it could not be ascertained whether they were counted as orphans or civilian attendants. After the crash the exact number of survivors could not be counted because they were immediately taken to a number of hospitals and orphanages throughout Saigon, the counts of attendants in the troop compartment was confused because some of the attendants were going to from and cargo compartment. The exact number of remains of children were estimated at 93 but it was possible that there were more and if was difficult to determine at the time (18 April) because of the status of the remains.

At the arrival at Tan Son Nhut Air Base the cargo door was openned for the first time for off-loading since it was openned for the on loading at Warren-Robins Air Force Base. The takeoff weight 464,000lbs. and fuel weight of 96,200 lbs. was computed at Tan Son Nhut Air Base

At the last minute newsmen arrived on the scene and Lt Col. Mitchell asked if it was possible to take some pictures. One of the crew members escorted each camera crew and one at a time they proceeded up through the left troop door and through the cargo compartment and out the crew door. There are records of the television news film showing the start of this operation which was shown on American television just in time of the crash.

The aircraft took off from Saigon at 0501 Zulu or 16:03 local time on 4 april 1975. Everything proceeded in an orderly manner and the climb proceeded with all engines operating within limits. The aircraft climbed at 200 KIAS until approximately 16,000 feet and then began a slow acceleration to 270 knots indicated air speed. The air crew discussed the possibility of flying at 37,000 feet due to bad weather off the coast of Saigon, but because of the oxygen requirement in the case of rapid decompression it was planned to proceed to Clark Air Force Base at 33,000 feet. It is noted that there was no oxygen available for the personnel traveling in the cargo compartment. The aircraft proceeded on course to Vung Tau radio beacon and approximately three minutes past Vung Tau at 0513 Zulu the aircarft was traveling a .610 Mach at an altitude of 23,424 feet. At this point a rapid decompressuion occurred.

RAPID DECOMPRESSION

The causes and complete sequence of the rapid decompression will be discribed without attempting to define the exact cause and sequence which intiated this failure. Experts reports claim it occurred in the locking system of the aft ramp. Whether it was a failure of locks one and two or any other pairs of locks is unimportant at this time. The failure of the locking system caused the ramp to lower

slightly which then caused the pressure door to become disconnected from the ramp. The pressure within the cargo compartment forced the pressure door to rotate about its upper hinge position and crash into the ~~tailboom~~ TORQUE deck with a violent impact which ruptured the hydraulic systems lines in systems ~~one~~ ONE and ~~three~~ TWO and ruptured the control cables which control both the elevators and rudders of this aircraft.

Approximately 65,800 cubic feet of air flew out of the rear cargo compartment doorway at sonic velocity in a matter of a few seconds. Normal atmospheric pressure at sea level is 29.92 inches of mercury if the cabins were pressurized to an equavlent altitude of 6,000 feet, the interior atmospheric pressure would have been reduced to 23.98 inches of mercury. This pressure suddenly dropped to 11.88 inches of mercury. The effects of this decompression of quite dramatic and observed in the crews and other witness testimony of a fog existing in the cabin immediately upon decompressiom. They also described the floating particles which appearred to be like exploding diapers in the atmosphere. This description can be quite accurate because any material which could entrap and hold air and was not completely permeable would tend to expand rapidly and possibly explode upon the sudden reduction in pressure. Materials like cellular insulation, which contains closed cells would explode on this rapid decompression.

The sequence would start with what would appear to be an explosion or a loud bang or report at the point of time which the pressure door was forced from its hinges connecting the aft ramp and forced back into the ~~tailboom~~ TORQUE deck. It is possible that there could have been a hissing similar to a hole in a tire which is reflating rapidedly, just prior to the actual decompression. This hissing sound would initially occur from the leakage of air from around the seals of the aft ramp

as it tends to deform and break away from the aircraft because of the lcoking mechanism failure. Personnel in the aircraft during sudden decompression could experience extremely painful ears because of the unequalization of pressure exerted from the inside of the body out. An experience similar to this but in reverse is the pain that some individuals can experience when a aircraft descends rapidly during an approach for a landing. Dnring this sudden decompression there would be no opportunity to equalize the pressure inside the ear drums with the pressure that was being lowered to in the environment.

When the rapid decompression occurred there was a complete loss of oxygen inthe cabin and if personnel were not supplied with oxygen promptly, they would slowly pass out in time periods as short as 20 seconds. Upon loss of cabin pressure the oxygen masks were deployed out of the cabinets in the troop compartments, unfortunately there was no oxygen supply for the personnel in the cargo compartment. So it is obvious that all these individuals would lose concesness during the subsequent decent of the aircraft. The discription of what occurred, from one of the surviving witnesses in the cargo compartment. Sgt. Philip R. Wise, it is apparant that personnel in the cargo compartment did not regain conscesness during the decent of this aircraft. They were all suffering Hypoxia and Sgt. Wise's testimony did not recall any impact or anything further after he hit the deck and grabbed on to a cargo tie down strap.

It should be remembered that the large volume of air which was flowing out the openning the aircraft would carry any partices or personnel within the vincinty out the openning. It is reported that Donald Dionne was thrown from the aircraft at the rapid compopression from his location in the cargo compartment. Most of the luggage, which was

stored on the off-ramp also blew out of the aircraft at the decompression It is not known whether any of the orphans were lost at this time. Because of the lack of an exact count of the number of orphans or personnel, besides the crew, on this aricraft, it is impossible to ascertain if any of the passangers where lost during decompression. Sgt. Howard Perkins, load master, was on the air ramp ladder leading to the troop compartment at the time of decompression. The lower portion of this ladder was torn away and Sgt. Perkins was only saved by crew members holding on to him and pulling him up into the troop compartment.

All the personnel in the cargo compartment would slowly become ~~unconscious~~ unconscious from hypoxia. Personnel in the troop would also become ~~unconscious~~ unconscious from hypoxia unless they donned oxygen masks. It should be remembered that there were twice as many orphans sitting in the seats as there were oxygen masks. Each group of seats had only three oxygen masks and there were 6 orphans sitting in the seats. The oxygen masks would not fit on the infants and the infants would tend to push the mask off their face. The escorts and crew had to don some of these oxygen masks so that they would remain concious and would be able to assist the infants. The oxygen masks the crew and escorts used further reduced the oxygen masks to the infants strapped in the seats. It is reported that the oxygen masks did not reach the level of the infants strapped in the seats, and it was necessary for the medical crew and escorts to lift the babies up to the oxygen masks to give them oxygen. It was not possible to provide the infants with oxygen during this period of decompression and many of the escorts and medical personnel stated that they just gave oxygen to the infants that appeared to need it most. It is noted that all the infants became very quiet during this panic period which is contrary to what would be expected. The only reasoning for this lack

of crying and general commotion would be that the infants were suffering from hypoxia and drifting off into ~~unconsciousness.~~ unconsciousness
The testimony of all the crew members that were in the troop compartment, stated that the infants were quiet even after impact.

The aircraft had to descend from 23,424 feet to 10,000 before oxygen would no longer be required.

CONTROL OF THE AIRCRAFT AFTER DECOMPRESSION

Upon the rapid decompression the pilot turned left and made a slow descending left turn back to Saigon. Immediately after the turn the pilot realized that he had lost control of the elevators and rudders of the aircraft, the engineer had immediately reported the loss of number two hydraulic pressure after the rapid decompression and the loss of number one hydraulic system while he was trying to pressurize from the other systems. The loss of number two and number one hydraulic systems caused the lose of all trim controls that provide power for the elevator and rudders and also losing power to the left aileron and half the power of the right aileron and flight ~~spoilers~~ spoilers on each wing and one of the two systems that powers the flaps and slats. The aircraft had lost all control to control its attitude and rate of descent. His only control was the control surfaces of the right aileron and the left spoiler. The pilot was descending rapidly and had to apply power to reduce the rate of descent. And the aircraft was controlled by controlling the throttle to the engines as well as using the right aileron and left spoiler to maintain the aircraft level. The prime source of hydraulic power to the landing gears were also lost and the emergancy extension of the landing gears was necessary. The landing gears were initially attempted to be lower when the aircraft was at 10,000 feet and was only completed a few

seconds before impact. In the turn to the final 7 or 8 miles from the end of the runway, the nose pitched down rapidly and the addition of maximum throttle would not bring the nose back up. The pilot then decided to take the aircraft straigth ahead towards an open area and was expecting to recover from the nose low attitude as he had done before. The aircraft initially impacted on the east side of the Saigon river and strue a path of debris approximately 400 yards long. The aircraft then became airborne and traveled approximatley 1,100 yards from the point of the first touchdown over the bank and onto the wast side of the Saigon river. Upon the second impact the aircraft started to break up and sections of the aircraft were covered over another 1,000 yards area. The cargo section floor stuck in the mud approximately 1,400 yards from the point of initial impact. The troop compartment traveled a distance of 750 yards from the point initial impact and the flight deck traveled approximately 800 yards from the point of initial impact. The section that traveled the furthest was the wing section and that section started to burn. These distances are shown on the pictorial sketch showing the crash diagram.

It should be remembered that the personnel in the cargo section were probably ~~conconcious~~ unconscious from hypoxia and never knew the plane impacted at all. Most of the deaths occured from personnel located in the cargo compartment. The troop compartment separated from the cargo compartment and traveled an additional 350 yards. Some of the infants were thrown free from the seats in which they were bound and some seats were overturned. There were injuries to personel who were not properly braced for the impact but the number of casualties in this section were minimum. From the description of the crew members and escorts most of the babies appeared to come through the impact with only minor injuries. This assumption can also be based on the fact that many

of the infants may also still been unconscious from hypoxia because oxygen masks could not be lowered down to them during the period of lack of oxygen after the rapid decompression. The medical experts will describe the individuals injuries of the orphans and relate the actual causes of these injuries.

HYPOXIA
ASPHYXIA
ASPHYXIA

MEDICAL WORKSHOP
AGENDA

Saturday, February 16, 1980

HYATT ROSSLYN
Mary C. Lee Room

Preliminary Results On
Vietnamese Orphan
Project

10:00-10:20	The Work of Friends for All Children .....Wende Grant
10:30-10:50	The Pediatrician's Viewpoint .....Dr. Itzhak Brook
11:00-11:20	Psychological Aspects .....Dr. Bruce Copeland
11:30-11:50	Pediatric Neurological Aspects .....Dr. Marianne Schuelein
12:00-12:20	Psychiatric Aspects .....Dr. Thomas Lustberg
12:30-12:50	Orthopedic Aspects .....Dr. Richard Reff
1:00-1:30	Lunch Break
1:40-2:00	General History of Minimal Brain Dysfunction and Related Disorders .....Dr. Eric Denhoff
2:10-2:30	Organic Correlates of Behavioral Problems in Children .....Dr. Alan Berman
2:40-3:00	Special Objective Systems for the Diagnosis of Hyperactivity....Dr. Keith Conners
3:10-3:30	The Influence of Rehabilitation on the Prognosis of Minimal Brain Dysfunction .....Dr.Stephen Feldman
4:00-4:20	The Treatment Experience of a Case that Failed ...MR. Joesph Denhoff
4:30-4:50	The Educator's Viewpoint .....Dr. Harry Novak

8 MAR

DR. MICHAEL COHN

ILLUSTRATION #1 - Sectional view of C-5A showing troop compartment (forward and aft), flight deck, cargo compartment, aft ramp, pressure door, sloping torque deck, and aft center and side cargo doors.

(See drawings A-1, A-2, A-3, A-4, A-5, A-6, A-7 and A-8).

Illustration #2 - Enlarged sectional view of aft ramp, pressure door, aft cargo doors, and sloping torque deck showing all above parts and hydraulic line and control cables in torque deck close to surface, baggage is stored on aft ramp near pressure door - show suitcases.

(See drawings B-1, B-2, B-3, B-4 and B-5).

Illustration #3 - Enlarged section of aft ramp showing locks failing in aft ramp causing ramp to drop slightly at pivot connecting the pressure door - show pressure door disconnecting from hinge and rotating upward around upper hinge.

(Use previous drawing as reference).

Illustration #4 - Enlarged section of aft ramp - showing pressure door striking torque deck and rupturing the hydraulic lines for system #1 and #2, and cutting control cables - aft cargo door would be departing from aircraft - baggage and one man being blown out of aircraft, ladder (lower portion) to troop compartment departing aircraft. Sgt. Perkins hanging on top of ladder and being pulled up by two crew members - try to show leak of hydraulic fluid from lines.

Illustration #5 - Section of aircraft in steep dive - baggage, man, and parts of aft ramp, pressure door, and rear cargo doors falling from aircraft over South China Sea - show sense of wind drawing part of aircraft through opening where aft ramp and pressure door used to be.

Illustration #6 - Bird's eye view of crash site - place scale at bottom of drawing - show initial impact area, Saigon River, second impact area and parts where they ended up. Show smoke from burning wing section.
(see drawing C-1 and colored Xerox).

Illustration #7 - Bird's eye view of C-5A at first impact - use Saigon River as reference - try to place partial scale below drawing.

Illustration #8 - Bird's eye view of C-5A after first impact and again airborne over Saigon River - place partial scale at bottom with zero reference the point of first impact.

Illustration #9 - Bird's eye view of C-5A at second impact with plane breaking up. Show wind section catching fire and smoke around troop compartment - cargo compartment should be shearing off and grinding in mud - tail section breaking off and traveling over cargo compartment. Partial scale at bottom with reference zero point of first impact.

Illustration #10 - Bird's eye view of C-5A with parts at final resting place - wing section on fire and smoke drifting over troop compartment. Cargo floor dug in mud. Show slide path for part in rice patty.

ILLUSTRATION #1 - Sectional view of C-5A showing troop compartment (forward and aft), flight deck, cargo compartment, aft ramp, pressure door, sloping torque deck, and aft center and side cargo doors.

(See drawings A-1, A-2, A-3, A-4, A-5, A-6, A-7 and A-8).

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MEDICAL WORKSHOP
AGENDA

Saturday, February 16, 1980

HYATT ROSSLYN
Mary C. Lee Room

Preliminary Results On Vietnamese Orphan Project

10:00-10:20	The Work of Friends for All Children .....Wende Grant
10:30-10:50	The Pediatrician's Viewpoint .....Dr. Itzhak Brook
11:00-11:20	Psychological Aspects .....Dr. Bruce Copeland
11:30-11:50	Pediatric Neurological Aspects .....Dr. Marianne Schuelein
12:00-12:20	Psychiatric Aspects .....Dr. Thomas Lustberg
12:30-12:50	Orthopedic Aspects .....Dr. Richard Reff
1:00-1:30	Lunch Break
1:40-2:00	General History of Minimal Brain Dysfunction and Related Disorders .....Dr. Eric Denhoff
2:10-2:30	Organic Correlates of Behavioral Problems in Children .....Dr. Alan Berman
2:40-3:00	Special Objective Systems for the Diagnosis of Hyperactivity....Dr. Keith Conners
3:10-3:30	The Influence of Rehabilitation on the Prognosis of Minimal Brain Dysfunction .....Dr.Stephen Feldman
4:00-4:20	The Treatment Experience of a Case that Failed .....Dr. Joesph Denhoff
4:30-4:50	The Educator's Viewpoint .....Dr. Harry Novak

children's hospital
national medical center 111 MICHIGAN AVENUE, N.W., WASHINGTON, D.C. 20010 • (202) 745-5000
DEPARTMENT OF CHILD HEALTH AND DEVELOPMENT, GEORGE WASHINGTON UNIVERSITY
CHILD HEALTH CENTER • RESEARCH FOUNDATION OF CHILDREN'S HOSPITAL

May 25, 1978

Oren R. Lewis, Jr., Esquire
Lewis, Wilson, Lewis & Jones, Ltd.
2054 North Fourteenth Street
Post Office Box 827
Arlington, Virginia 22216

Dear Mr. Lewis:

In response to your letter of May 18, 1978, I have given considerable thought to the hypothetical data which you asked me to assume and to the questions which followed. Based on my medical education and experiences as a Board Certified Pediatrician, I will answer the questions you posed, assuming the accuracy of the hypothetical data.

There are four basic mechanisms of trauma to which the crash victims aboard the C5A were subjected. They include direct trauma, decompression, hypoxia and emotional stress. Direct trauma and emotional stress as a function of an air transport accident are so well understood and expectable as to not warrant further elaboration at this writing. This is not true, however, of the effects of decompression and hypoxia on infants and young children.

The exposure of a large group of infants to high-altitude decompression and prolonged hypoxia due to rarefied air has never been studied. A thorough review of the literature failed to reveal any documented case studies of subatmospheric decompression and hypoxia in children. This is not suprising in view of the fact that civilian commercial aircraft capable of high-altitude flight are required to provide an immediate oxygen supply in the event of cabin decompression. It is also the case that the population of those who have survived high-altitude decompression with or without hypoxia have been well-conditioned and otherwise healthy, young adult aviators. What we know medically of subatmospheric decompression injury in healthy, young adults is substantial, but inferences drawn to the exposure of young children and infants who are more fragile and less able to cope with atmospheric changes must at this time be drawn inferentially.

The potential effects of a sudden decompression at high altitude are hemodynamic changes and Caisson's Disease. The latter is a precipitation of nitrogen gas bubbles in small end arteries causing ischemic injury to such critically oxygen-dependent tissues as those in the brain and spinal cord.

The children were subjected to prolonged hypoxia as a result of breathing rarefied air. The concentration of oxygen at 23,000 feet is approximately 40% of what is available at ground level. While all tissues are susceptible to injury through the mechanism of hypoxia, it is those of the central nervous system which are at greatest risk. It is probable that the combined effects of decompression and hypoxia caused substantial injuries to the children aboard the C5A.

The potential scope of the injuries sustained by these children is broad. Some injuries such as stress ulcers of the gastrointestinal tract would be expected to be temporary; others, such as injury to the motor centers of the brain, are expected to be permanent. Some injuries, such as perforated eardrums and fractures of bones, are diagnosable immediately. Others, however, such as learning disabilities due to minimal organic brain damage and psychoneurotic reactions, should be expected to have long, silent, latent periods.

If an in-depth medical and psychological evaluation of the surviving children were carried out, one must reasonably expect to find a wide variety of permanent injuries, some of which are remedial and some of which are not. These injuries would include, but by no means be limited to, brain damage, primarily intellectual and motor deficits; psychophysiological diseases and psychoneurotic reactions; sleep disorders; a variety of reinopathies; vestibular disorders causing problems in maintaining balance; recurrent middle ear infections due to ruptures of the tympanic membranes; epilepsy; abnormal epiphysial bone growth secondary to fractures; chronic pulmonary problems; nephropathies and assorted focal injuries secondary to direct trauma, too numerous to mention.

It is probable that there are a number of sequelae resulting from the crash which are not yet detected by the children's adoptive parents. Examples of such sequelae include abnormal bone growth which will not become manifest until the period of rapid bone growth during the child's later development, psychological problems, fine motor incoordination, opthalmologic problems and learning disabilities. The children must be watched for late developing sequelae.

Thorough medical and psychological evaluation of the children at this time would lessen the impact of the injuries sustained by the children at the time of the crash. Tympanoplasties, osteotomies, psychotherapy, special education and hearing aids are but a few treatment modalities available to these children, many of whom are yet too young to manifest injuries which resulted from the air crash.

In order to document the nature and extent of the children's injuries, nothing less than a complete medical examination on each child is necessary. I recommend such a program.

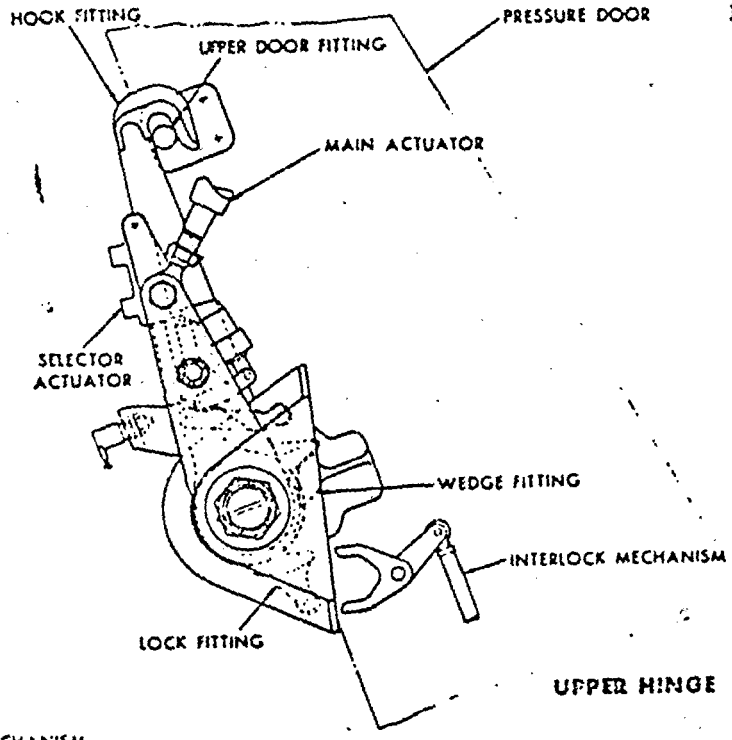
It is my opinion that, within reasonable medical probability, the children aboard the C5A were traumatized either directly or by decompression, hypoxia or emotional stress. Many of these injuries manifested themselves immediately, but many others have long latent periods. Some are presently subclinical and have yet to surface. Some are transient and others permanent, but the scope of the injuries is wide and varied. Prompt and thorough medical evaluation of the children should be carried out. There is little doubt that proper treatment following thorough medical evaluation will lessen the impact of the injuries sustained by many, if not all, of the children.

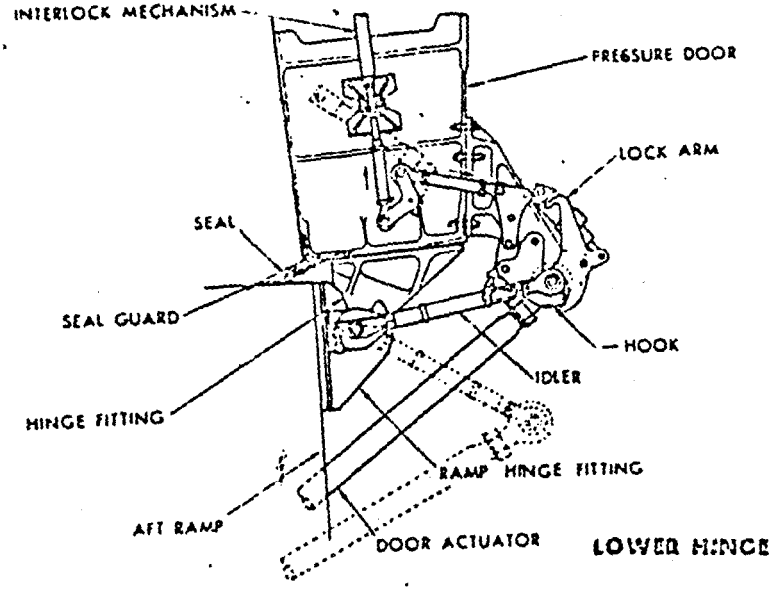
Thank you for allowing me to review this medical problem for you. I hope that this information is of assistance to you and to the children whom you represent.

Very truly yours,

Itzhak Brook

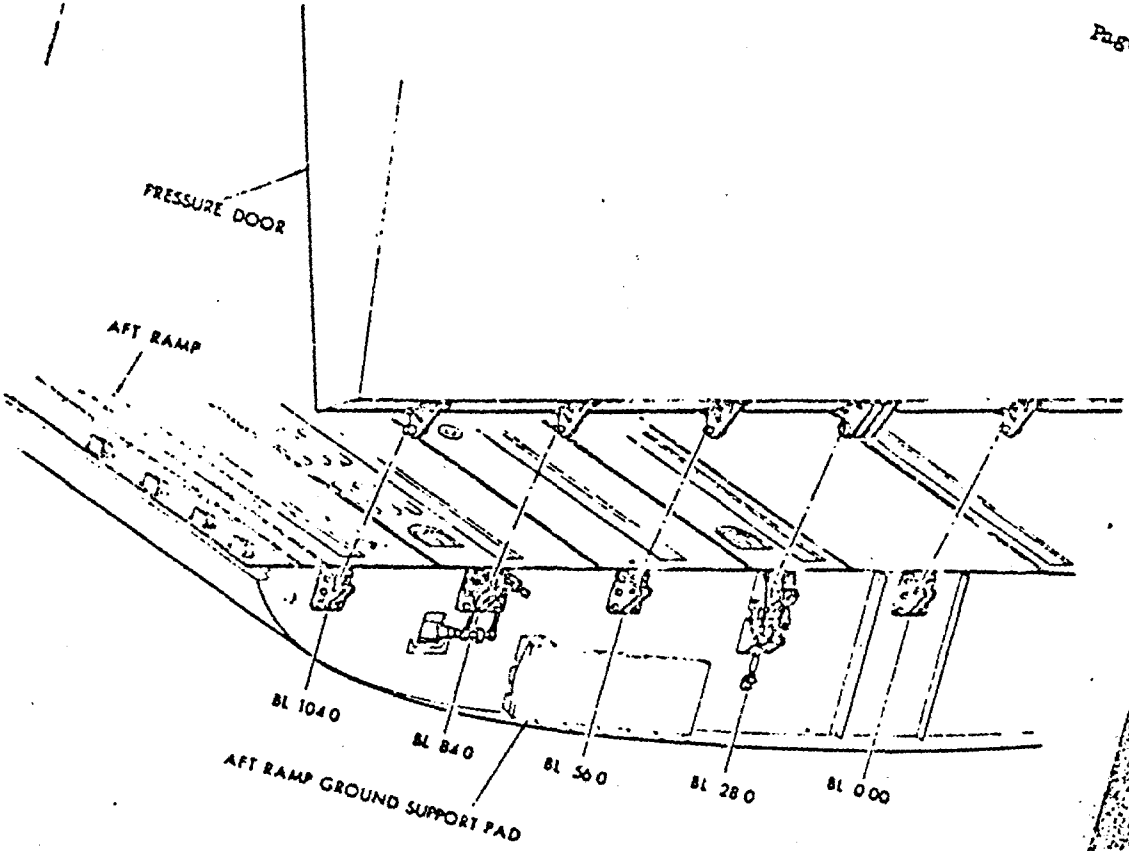
Itzhak Brook, M.D., M.S.
Assistant Professor
Child Health Development
George Washington University
School of Medicine





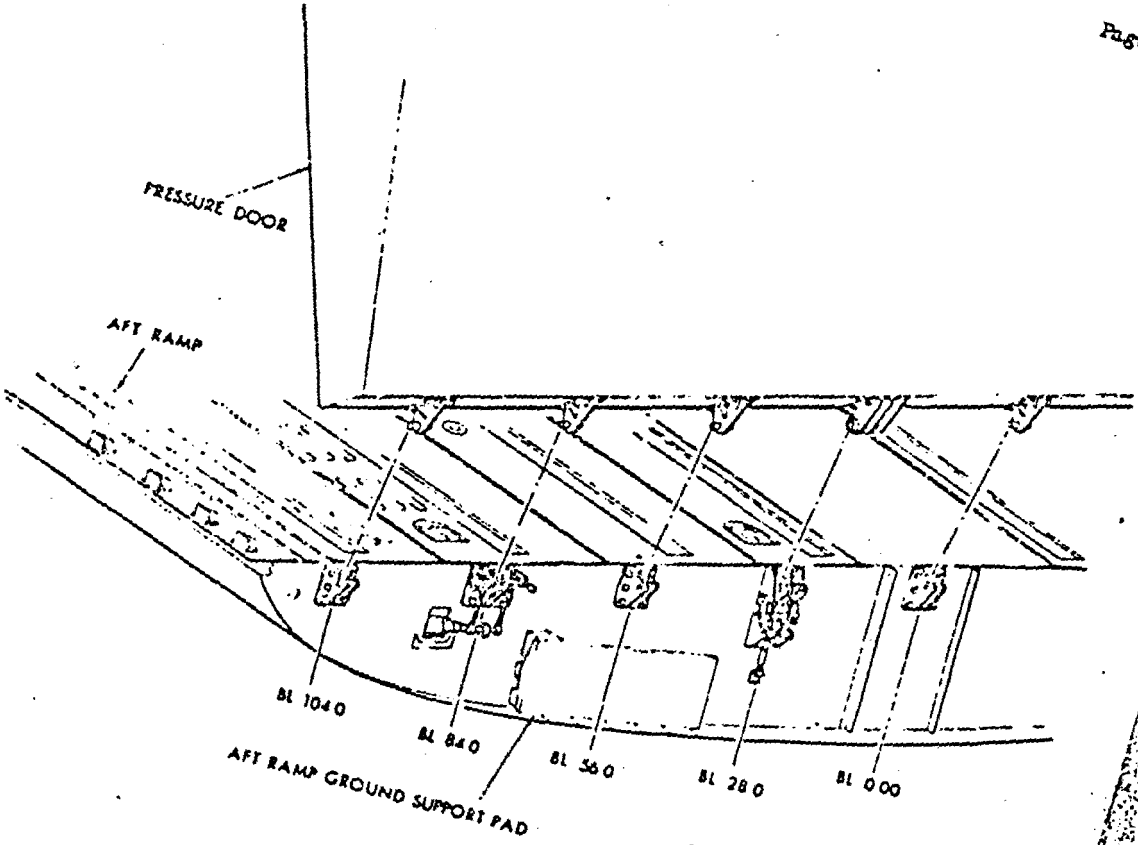
PRESSURE DOOR UPPER & LOWER HINGES

Figure 3.2-27



PRESSURE DOOR/AFT RAMP
HINGE INSTALLATION

Figure 3.2-25



PRESSURE DOOR/AFT RAMP
HINGE INSTALLATION

Figure

PRESSURE DOOR FAILURE

ACCIDENT/INCIDENT REPORT

ACCIDENT REPORT NO. ______ INCIDENT REPORT NO. 046

1. Date 8 October 1970	Time (local) 1446 (1846Z)	Dawn, Dusk, Day, Night Day	
2. Location of Occurrence 50DME,349°Radial Pope Tacan	3. Type/Model/Series C-5A	LAC No. 0008	AF No. 67-169

4. Assignment Station
Lockheed-Georgia Company, Pope AFB, N.C.

5. Classification (incident/minor/major) INCIDENT.	Manhours to Repair 140

. Description of Damage Pressure door, forward 1/3 and aft 1/3 of center cargo door lost in flight. Center 1/3 of center cargo door remained on airplane with associated structural damage and components attached. Damage to left and right side doors structure and hydraulic components/lines. Failure of Troop Compartment frangible bulkhead. Environmental Center door in courier compartment area pulled from hinge and forced rearward through door opening into environmental area. [illegible] trim pulled loose.

6. Pilot/Operator W. B. Hadley (left seat)	Degree of Injury None	Safety/Survival Equipment N/A
Total Pilot Hours 2,589	Total Pilot Hours this Model 105	Pilot Hours last 90 days 53
7. Other Crewmembers	Degree of Injury	Safety/Survival Equipment
H. T. Bialock (right seat)	None	N/A
A. K. Graves (Flt. Eng.)	None	N/A
G. H. Lyddane, Capt. (Obs. seat)	None	N/A
W. W. Harris (Test Dir.)	None	N/A
A. S. Verser (Flt Test Eng.)	None	N/A
8. Passengers (Loadmasters) C. E. Rozell (SMSgt) [illegible]	None None	N/A N/A
9. Mission FUNCTIONAL CHECK FLIGHT	Flight Clearance VFR (Local FD 175)	Takeoff Time 1410
Destination Pope AFB, N.C.	Duration of Flight 1:00	Test Phase ADS Program

10. Phase of Operation - Functional test of aft door complex for ADS Operations. Airplane was being flown at 150 KIAS at 3,000 ft.

11. Narrative Description of events leading to mishap. After functionally testing aft door system on the ground the aircraft was released for flight. Takeoff was accomplished at 1410, and after completing normal and emergency gear check the #2 eng was shut down and normal air start accomplished at 1438. The A/C was then configured for inflight functional test of the aft door complex. Altitude was established at 3,000 and air speed 150K. Flaps were set at 60%. The pressure door up function was selected. The aft ramp unlocked normally. As the ramp was lowered the pressure door came out of the lower hinge fittings and rapidly moved aft, causing the pressure door to free itself from the upper pressure door hinges.

Weather 1500 EDT (1900Z), Pope AFB; 4,000' scattered, 25,000' thin broken, visibility 7, Wind 070° at 02K, and altimeter setting 30.01.

13. Known or Suspected Cause Factors
Apparently the aircraft was pressurized to some undetermined amount at the time the aft door system operation was initiated. As the pressure door disengaged from the lower hinges the abrupt aft movement caused the upper hinges to free the door. The rapid change in pressure on the aft center door caused it to fail in down bending. The front third and aft third separated and fell from the aircraft.

14. Known or Suspected Meteriel Deficiency
None.

15. Other Damage or Injury : No property damage reports received by Pope AFB Legal Department to date. Return flight to Pope AFB from Liberty, N. C. was over sparsely populated areas.

16.a. Preventative Action
Checklists are being expanded to ensure that the aircraft is completely depressurized prior to operating the aft door system. It should be noted that inflight operation of the aft door system is prohibited on all C-5 aircraft except test aircraft 67-169 which is conducting the cargo handling and ADS tests.

b. Disposition of Wreckage	c. Date FAA/NTSB Notified	d. Violation
C5A Maintenance Area/Pope AFB	N/A	N/A
e. Classified Material	f. News Release? When?	g. Other Info.
N/A	None at Pope AFB, N.C.	

17. Cognizant Official	Telephone No.
Major R. H. Ledbetter	4-3737

Remarks:
-APSN BEELINE- Report submitted by Pope AFB Command Post to Tactical Air Command Hqs. and report of incident coordinated with Pope Office of Safety on 8 October 1970. Property Damage Report PAFB 0254-70 sent to Lockheed-Georgia Company.

Approvals:

J. Arnold, Manager
Aerospace Safety Engineering Dept.

T. Haley, Deputy Chief,
Devl. Test Engineer, C-5

R. D. Gilson
C-5 Chief Engine

Figure IX-2

DEPARTMENT OF THE AIR FORCE
MILITARY AIRLIFT COMMAND
SCOTT AIR FORCE BASE, ILLINOIS 62225

LG

2 May 1975

Apex Study Group Questions & Answers

MEMO FOR THE RECORD

The attached notes were obtained by MAC/LG during visit to Travis AFB, 28-30 April 1975. Discussions were held with personnel from the offices indicated wherein the questions were proposed.

W. H. SPELLERS, JR., Brig Gen, USAF
Deputy Chief of Staff, Logistics

1 Atch
Ques & Ans

APEX STUDY QUESTIONS

TRAVIS AFB (22 AF and 60 MAW)

1. Comment on the effectiveness of the EUMR System.

   a. Are we submitting all that should be?

   b. Control of exhibits.

   c. AFLC responses.

   d. How can be improved?

22 AF/LG

Problem with control of exhibits. Problem getting exhibit in the right hands in a timely manner. Need some special handling identifier, such as 999. New T. O. will help. Can't send message RMDR anymore. Poor answers received, not doing tear down analysis. Problem clearing DIFM records with supply for exhibit items. Problem keeping MIP open. AFLC quick to close and slow to open.

60 MAW/LGM

Highly stylized. Slow orderly process. Unable to differentiate between routine and emergency. Too often the treatment is routine. Too often the space of time between problem and time determined need for exhibit, the exhibit gets away. System too cumbersome. Need a quick action system, that is system to spotlight a problem. Present system takes too much red tape. Need simple format. Lower ranks not familiar with system. Really need a "fault identifier" system.

2. What, in your opinion, is the worst potential hazard involving C-5?

a. Materiel/Systems area.

b. Supply support.

c. Maintenance support.

d. What action is necessary to eliminate hazard?

22 AF/LG

Atmosphere of cann of parts. 85% manned, imbalance of skills and then expending large numbers of M/H canning parts. Precipitates many other problems; handling DIFM, morale, etc. (If you take MSgt and make crew chief, then you don't have enought for other key positions.) Personnel experience level going down. C-5 should have #1 priority. Should have a personnel system identifier (PALACE CLAWS), but will probably find will conflict with some of the people programs, i. e., base of choice. Will find that everything will have been said before, but not listened to. Commanders don't want to hear what is being said. Physical problems with females coming into career field -- should draw the line some place. Supply: Can't get what you need when you need it. The little bits and pieces. Start to accept substitutes which leads to poor quality maintenance. Leads to leaving screws out, unofficial/unrecorded canns. Should have what is required to support and operate the aircraft. Aircraft is a good aircraft but takes special handling -- and need what it says it takes to operate. No large margin

of safety built into the C-5 system.

60 MAW/LGM

Launch cycle and jacking most hazardous periods. Wear and tear and frustration involved in cann creates hazardous condition. C-5 is a temperamental highly sophisticated system requiring highly skilled people. Over-specialization. We are rapidly approaching an approach of Blue Ribbon team for all systems. Due to lack of parts, are putting back marginal condition parts. We have fine-tuned our judgment on parts based on lack of availability of parts. We have been forced in to over-specialization. We over-extend our top managers. Cowling (cowl rods) not attached. Difficult to use, only use one. If not secured, can interfere with fuel control. TCTO submitted but turned down. Many times we don't have the proper support equipment to do the job. Don't believe we should ever use the crew entrance door. Eyebrow panels (panels behind flap) are blowing off, could cause problem. EUMR submitted -- no action. Should use B-2 stand at rear door. Need more authorization for more B-2 stands. MAC turned down. Need about 12 more stands.

3. Comments on the C-5 Corrosion Control Program

   a. Is it adequate?

   b. What priority is it receiving?

   c. Are our people adequately trained?

   d. How could it be improved?

22 AF/LG

No different than any other system. Don't give the people the time needed for the job to be done. Disappointed with the C-5 in view of emphasis during design. Example: The keel beam problem being experienced. C-5 should have been better tolerant of corrosion. On the right track in the last couple of years -- neglected the first three years. Should assess the manning for this function. Would be problem in scheduling specific tail numbers. Should look at quality of personnel.

60 MAW/LGM

Just coming into the "find" cycle. Question whether we have technique to really find or identify problem areas. We presently just beginning. Once we find we get good support to fix. Would not put corrosion big on list of current problems.

4. Comment on C-5 Ramp Rigging Requirements and Procedures

   a. Are inspection requirements adequate?

   b. Are TOs adequate?

   c. What are requirements for "Blue Ribbon Team?"

   d. Are our people qualified?

   e. What special training do they receive?

   f. Are the skills and numbers adequate?

   g. How can we improve maintenance in this area?

22 AF/LG

Inspection requirements there but standards inadequate. Must establish standards. TOs are inadequate. No Blue Ribbon teams for ramp. "On-time departure" concept leads to shortcuting procedures. Don't forget the ISO dock training requirements. Need Blue Ribbon team concept for both OMS and Aero Repair people, or change procedures to involve the right people. Too prone to tie job to rank. Can't use people resource as required. Have an accident and the solution is tied to rank (towing example). Should tie to skill level and qualification vs simply rank. Local management doesn't have the flexibility to manage resources properly. Give more attention to working environment, i. e., Travis, high winds most of time, Charleston, good weather. Investigate concept of little PDM at Charleston, but could create many problems.

60 MAW/LGM

Have had B. R. T. concept for long time. Formal course set up and approved by HQ MAC. Start with best people and train together. Have set up special formal course (selection, formal course, train together). Not too impressed with FTD. Are working problem.

5. Comments on Landing Gear Rigging

   a. Are inspection requirements adequate?

   b. Are TOs adequate?

   c. What are requirements for "Blue Ribbon Team?"

   d. Are our people qualified?

e. What special training do they receive?

f. Are the skills and numbers adequate?

g. How can we improve maintenance in this area?

22 AF/LG

Inspection requirements there but standards inadequate. Must establish standards. TOs are inadequate. No Blue Ribbon teams for ramp. "On-time departure" concept leads to shortcuting procedures. Don't forget the ISO dock training requirements. Need Blue Ribbon team concept for both OMS and Aero Repair people, or change procedures to involve the right people. Too prone to tie job to rank. Can't use people resource as required. Have an accident and the solution is tied to rank (towing example). Should tie to skill level and qualification vs simply rank. Local management doesn't have the flexibility to manage resources properly. Give more attention to working environment, i. e., Travis, high winds most of time, Charleston, good weather. Investigate concept of little PDM at Charleston, but could create many problems.

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Have had B. R. T. concept for long time. Formal course set up and approved by HQ MAC. Start with best people and train together. Have set up special formal course (selection, formal course, train together). Not too impressed with FTD. Are working problem.

6. Comments on adequacy/redundancy of field level inspection requirements

a. What were results of the expanded preflight tests?

b. Are we over-inspecting or not enough?

22 AF/LG

In favor of expanded preflight. Believe can extend ISO to 100 days (or 98) with 20-day home-station check. Need capability to extend ISO flow for corrosion control, etc.

60 MAW/LGM

Think we are inspecting the aircraft to death with present low ute rate. Expanded preflight will make money for us. ISO should be on order of 120 days. Hung up on having to inspect for both wartime and peacetime rates on same cycle. (Concern about losing manpower if go to longer cycle). We can inspect to death but if we don't have nickle/dime parts we don't accomplish anything but delayed discrepancies. Fill rate for bits and pieces out of dock is not good. Supply and demand takes about 7-9 days. In dock 2 days. Delayed discrepancies counterproductive. Supply response when have all panels off in dock is not good. Recommend take out upper trim panels - aid maintenance - not really needed, expensive. Aid inspection - can't fix anyway.

7. Comment on C-5 Maintenance Manpower and Personnel Manning adequacy and policy.

a. Has the dual (C-141/C-5) support provided by FMS and other shop support impacted C-5 safety?

b. Are current manning and skills adequate?

c. What would be the best maintenance organization?

d. What personnel policy changes are needed?

e. How can we best use rated supplement?

f. Flying crew chief -- (MS requirement)

22 AF/LG

Dual support - no impact, but should concentrate training on C-5 with fall-out being C-141. Shop support doesn't make any difference. Travis is specializing regardless of what the book calls for. Management side - doesn't make much difference if man properly trained. Travis and Altus is no place to OJT Chief of Maintenance. (McChord OJT). Manpower additives are not adequate to take care of the local weather conditions -- also facilities. Travis needs another pull-through hangar. (Hanger not available for unscheduled maintenance). Give more attention to working environment. Investigate concept of little PDM at Charleston, but could create many problems. Must recognize that we have a deficiency in people. We are not presently manned to what is authorized. But problem is probably not quantity but quality (experience) of people. Low ute rate generates highest potential of maintenance. Manhour per flying hour is questionable. Rate supplement -- believe we are doing outstanding at lower levels. Don't bring in at higher ranks. Destroy morale of non-rated. Concept that Squadron Commanders must be rated destroys non-rated professional maintenance officers - low morale.