REPORT ON
ADC'S FLT. No. 086 CRASH

NOVEMBER 7, 1996

FEDERAL MINISTRY OF AVIATION

REPORT

OF

THE PANEL OF INVESTIGATION

INTO

ADC FLIGHT 086 BOEING 727

5N-BBG WHICH CRASHED AT EJIRIN,

NEAR EPE, LAGOS STATE

VOLUME 1

27TH FEBRUARY, 1997

ABUJA, NIGERIA

Federal Ministry of Aviation

ACCIDENT INVESTIGATION Department

FEDERAL SECRETARIAT
Shehu Shagari Way, Abuja.

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Ref. No: 04/359/S1/Vol.I/50

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26th February, 1997

Air Cdr. Ita Udo-Imeh FSS, psc, MSS, mni
Honourable Minister,
Federal Ministry of Aviation,
Federal Secretariat,
Shehu Shagari Way,
Abuja.

SUBMISSION OF THE REPORT OF THE PANEL OF INVESTIGATION INTO ADC PLANE CRASH B727 FLIGHT 086 5N-BBG WHICH CRASHED AT EJIRIN, NEAR EPE, LAGOS STATE ON 7TH NOVEMBER, 1996

By letter Reference No. 04/359/Vol.I/16 of 4th December, 1996 we were appointed as Chairman, members and secretary to the above Panel, to investigate the immediate and remote causes of Flight ADK 086, 5N-BBG which crashed at Ejirin, near Epe, Lagos State on 7th November, 1996.

The composition of the Panel took cognisance of the nature and the technical details involved which required the services of the cream of experts in aviation, including security. We seize this opportunity to express our profound gratitude to the Honourable Minister for the composition of this Panel and the privilege extended to members to serve.

We urge Government to give serious consideration to the findings and recommendations contained in this Report. They have been made with the utmost sense of responsibility to Government and the travelling public.

It is our hope that these recommendations would assist Government in formulating future aviation policies.

ENGR. A. I. AJUYAH
Chairman

CAPT. A. G. SHEHU
Member

CAPT. A.D.H. OKPE
Member

G. B. PREWARE
Member

ENGR.K.K. SAGOE
Member

T. O. AKERELE (MISS)
Member

A.O. EDUKUGHO
Representing DNATS

CAPT. W. M. ATABO
Member

DR. O. B. ALIU
Member

DR. I. KUBOR
Member

S. ILU
Member

ENGR. D. J. AWONIYI
Member

GP CAPT. J. A. KOLAWOLE
Member

GP. CAPT. J. A. ADENIYI
Member

DR. A. A. COKER
Member/Secretary

ACKNOWLEDGEMENT

We wish to place on record our appreciation to the Honourable Minister **Air Commodore ITA UDO IMEH** for the opportunity afforded us to serve the nation in this capacity and also for his support throughout the assignment.

This investigation would not have been possible without the support of the Director Safety Regulation and Monitoring (DSRAM) who provided both men and materials.

Many thanks also go to the Managing Director and Chief Executive of Federal Airports Authority of Nigeria (FAAN) and the Chief Executive of the National Carrier (NAL) for their unalloyed support throughout the period of this inquiry.

Finally, with all humility members of this Panel would wish to express the hope that the views and recommendations contained in this Report would be found useful by Government.

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INTRODUCTION

Following the crash of ADK 086 Boeing 727 5N-BBG, on Thursday 7th November, 1996 at Ejirin near Epe, Lagos State, the Honourable Minister of Aviation, Air Commodore ITA UDO IMEH set up an administrative inquiry to investigate the immediate and remote causes of the crash with the following **terms of reference:-**

(i) examine the immediate and remote causes of the accident;

(ii) ascertain the areas of deficiencies;

(iii) apportion blames where necessary; and

(iv) make recommendations that would help prevent accidents in future.

The Panel consists of the following members:-

1.	Engr. A. I. Ajuyah	-	Chairman
2.	Capt. W. M. Atabo	-	Member
3.	Capt. A.G. Shehu	-	"
4.	Dr. O. B. Aliu	-	"
5.	Dr. I. Kubor	-	"
6.	Capt. A. D. H. Okpe	-	"
7.	Engr. K. K. Sagoe	-	"
8.	Miss. T. O. Akerele	-	"
9.	Alhaji S. Ilu	-	"
10.	Engr. D. J. Awoniyi	-	"
11.	Mr. G. B. Preware	-	"
12.	Group Capt. J. A. Adeniyi	-	"
13.	Group Capt. J. A. Kolawole	-	"
14.	Rev. A. O. Edukugho representing DNATS		"
15.	Dr. A. A. Coker	-	Member/Secretary

The following persons were co-opted:-

(i) Wing Commander O. G. Adetu - expert in Air Traffic Control and air space management.

(ii) Mr. Nenyiaba V. U. and;

(iii) Mr. Adeleke W. A. both of whom served as assistant secretaries to the Panel.

(iv) Mr. Akinwumi Otuyelu also served as Verbatim reporter to the Panel.

METHODOLOGY

In order to adequately cover all probable dimension during the investigation of the accident, the Panel was restructured into four (4) sub Committees namely:

FLIGHT OPERATIONS

Members

Capt. W. M. Atabo;
Capt. A. G. Shehu;
Capt. A.D. H. Okpe, and
Engr. K. K. Sagoe.

Terms of Reference

i. Interview the Director National Air Traffic Services;
ii. Carry out discussions with the Air Controllers in general and Air Controllers on duty for ADC Flt. ADK 086 in MMA & P/H;
iii. Carry out discussions with the Airport Managers on state of Navigational Aids at the time of accident;
iv. Obtain the transcript and tape of communication between Flt. 086 and the Control Tower.
v. Determine other traffic(s) in the vicinity before and after Flt. 086 crashed.
vi. Identify such traffic and operating crew, and
Conduct, if necessary, questioning of "these" other traffic;
vii. Obtain and interpret FDR & CVR print outs.
viii. Reconstruct the last 15 minutes of the flight;
ix. Reconstruct the entire flight and attitude of the aircraft graphically, using the FDR records from take off to crash point at Ejirin;
x. Interview other ADC pilots and;
the Air Safety Officer of the Airline and also
Interview Pilots from other airlines, e.g. WT, Triax,
Oriental; Kabo and
xi. Present a detailed report to the Panel.

SECURITY COMMITTEE

Members:-

1. Group Capt. J. A. Adeniyi;
2. Group Capt. J. A. Kolawole;
3. Engr. D. J. Awoniyi
4. Capt. A.D.H. Okpe
6. Mr. G. B. Preware

Terms of Reference

(i) Obtain reports from Organisations that conducted rescue operations.
Interview Search and Rescue Officers of FAAN.

(ii) Conduct interviews as necessary to determine the following:-

(a) Radius of scatter of debris/human remains;
(b) Depth of water where most of the debris/human remains were found;
(c) Determine the point of impact between the airplane and the water;

(iii) Locate eye-witnesses and debrief them accordingly;

(iv) Secure all fragments/human remains on this accident until investigation is over;

(v) Visit Lagos mortuary and sight the human remains;

(vi) Determine as far as possible with the aid of experts what led to the dismemberment/mutilation of the bodies;

(vii) Examine fragments of the airplane and;
determine if there was explosion, what type of explosion and at what point the explosion occurred; and
Use bomb experts if required ;

(viii) Locate the airplane fuselage and cockpit or produce fragments/debris of same and

(ix) Present a detailed report to the Panel.

AIRCRAFT MAINTENANCE AND ENGINE COMMITTEE

Members:-

1. Engr. A. I. Ajuyah
2. Miss T. O. Akerele
3. Dr. A. A. Coker
4. Engr. D. J. Awoniyi
5. Dr. O. B. Aliu

Terms of Reference

(i) Determine type(s) of engine used on the B727-23l, Reg. 5N-BBG;

(ii) If different engines were on aircraft, determine if engine intermix procedures were observed;

(iii) Determine all engine maintenance procedures and predict the health of each engine before crash.

(iv) Examine all crashed engines and debris from crashed engines and determine the operational mode of the engines before impact);

(v) Call for a six month one year Tech. log sheets on this airplane and determine Pilot complaints and Engineers rectifications. Comment on the health of the airplane;

(vi) Call for the (D.D.R.) Deferred Defects Registrar and compare with the approved MEL (Minimum equipment list).

(vii) Check all maintenance records including Service Bulletins Modifications, Airworthiness Directives, and determine compliance.

(viii) Obtain records of last 'C' and 'D' checks;

(ix) Obtain records of last Engine Shop visit;

(x) Obtain approved maintenance schedule of A/C and determine compliance;

(xi) Present a detailed report on the maintenance procedure of ADC on this airplane.

AIRCRAFT STRUCTURAL INTEGRITY

Members

Engr. A. I. Ajuyah
Dr. O. B. Aliu; and
Dr. Imoro Kubor

Terms of Reference

Carry out a thorough examination of the debris on the B727-231, 5N-BBG. Determine the presence if any of stress cracks, fatigue cracks, any structural failure or disintegration due to explosion. You may call in Metal experts if needed.

(i) Present a comprehensive metallurgical report to the Panel.

(ii) Check for fine hairlike cracks;

" " striation lines and;
" " burnt metals

(iii) Determine the structural integrity of the airplane at the time it was purchased.

(iv) Determine structural integrity of the airplane from the time it joined ADC's fleet until the time it crashed.

(v) Check all ADC records and determine compliance with requirement on Ageing airplane as well as corrosion Prevention and Control operation of Ageing airplane as per Boeing C.P.C. Progamme and;

(vi) Present a detailed structural Integrity report of the airplane as at the time it crashed to the Panel.

In addition, seven other engineers with diverse areas of specialization were also co-opted to assist the structure group in the wreckage parts identification exercise.

The Report of the various Sub-Committees were thereafter synthesied to form the main text of this Report.

Interviews

The Panel interviewed several persons including pilots, engineers, traffic controllers, eye witness etc., The Panel was led in these interviews by relevant Sub-Committees.

The Panel also sought opinion of bomb experts as well as obtain medical reports from the Chief Medical Pathologist Lagos State Hospital Management Board.

Visits and Inspections

The Panel visited the crash site as well as the operational units and the Control Tower of Port-Harcourt and Murtala Muhammed Airports. It also visited the Rescue Co-ordination centre at Ikeja and the site where the wreckage dedris is stored. The Panel further visited the Lagos State General Hospital where it inspected the human remains.

PANEL OF INVESTIGATION INTO ADC FLT 086 CRASH DSRAM CONFERENCE ROOM, IKEJA, LAGOS

AIRCRAFT ACCIDENT REPORT

Adopted February 24 1997

AVIATION DEVELOPMENT COMPANY'S (ADC) BOEING 727-231, REGN. NO. 5N-BBG, FLT # 086 AT EJIRIN, EPE LOCAL GOVERNMENT AREA, LAGOS - NOVEMBER 07, 1997

SYNOPSIS

About 1603 UTC i.e 5.03 p.m. on the 7th of November, 1996, Aviation Development Company's (ADC) Flight 086, Boeing 727-231 airplane with registration number 5N-BBG, crashed into the lagoon at Ejirin in Epe Local Government area of Lagos State, 32 nautical miles to the field. ADK 086 was maintaining a heading of 330 and trying to avoid Triax 185 when it disappeared from the radar screen and the radar controller lost all contacts with it. The air plane crashed into the lagoon and disintegrated due to the forces of impact killing all 144 passengers and crew members on board.

The Panel confirmed that untidy Traffic separation by the radar controller and the pilot electing to continue on a heading of 330 led to a near-miss between ADC's Flt. 086 and Triax's Flt 185. The Pilot of ADC's Flt 086, in trying to avoid an imminent Mid Air Collision must have subjected the airplane to an unusual manoeuvre from which the airplane could not recover.

Contributing to the accident was the fact that the airplane was subjected to a performance level well beyond the design stress limit, the result of which would have been apparent structural failure even before impact.

1. INVESTIGATION

1.1 HISTORY OF THE FLIGHT

History of Flight

(a)	Call sign	-	ADK 086
(b)	Routing	-	Port-Harcourt/Lagos
(c)	A/c Type and Registration	-	B727, 5N-BBG
(d)	Operator	-	Aviation Development Company, (ADC)
(e)	Crew:	-	10, made up of 4 Cockpit and 6 cabin
(f)	Crew Qualification	-	All duly qualified, licensed and current
(g)	No. of Passengers	-	134
(h)	Take-off Endurance	-	02 Hrs 20 minutes

ADK 086 departed Port-Harcourt Airport for Murtala Muhammed Airport, Lagos at 1552 UTC on 7th November, 1997 with a total of 144 persons on board. The trainee co-pilot was at the controls and the Captain was on the radio. It was cleared by Port-Harcourt Air Traffic Control to Flight level 240 (24,000 feet above mean sea level), which it climbed to and cruised at. Thereafter the sequence of events was as follows:-

(i) At 1547.27 the flight established initial contact with Lagos Approach Control, and was assigned a transponder code.

(ii) At 1554 the flight reported crossing SEPER point. After this position report, the flight appeared not to be maintaining a listening watch, as it gave no reply to two consecutive calls from Approach Control, and then after some time replied to a transmission not meant for it.

(iii) At 1556.42 the flight replying to a query not directed at it, requested for a descent.

(iv) At 1556.59 It gave its distance as 73 miles whilst still pursuing its request for descent.

(v) At 1559.07 the flight reported a distance of 55 miles and a Traffic Alert and Collision Avoidance System (TCAS) indication of an opposite direction traffic (5N-APN) which it was crossing at that time.

(vi) At 1559.28 Approach Control cleared the flight to FL 160 (16,000ft)

(vii) At 1559.43 the flight reported leaving FL 240

(viii) At 1600.21 Approach Control asked the flight to contact Lagos Radar.

(ix) At 1600.39 the flight reported passing through FL 210 (21,000ft) enroute to FL 160 and gave its distance as 44 miles.

(x) At 1601.57 Lagos Radar identified the traffic (ADK 086) at 41 miles south east of the field, and instructed it to fly heading of 320° for vectors around traffic, and to descend to FL 50.

(xi) At 1602.41 Radar Control requested for the actual heading of Flight 086 and was told 315 enroute to 320.

(xii) At 1602.50 Radar Control instructed the aircraft (086) two times in succession to maintain heading 300.

(xiii) At 1603.08 the flight reported it had "the traffic" and that it was continuing its turn to 330 to avoid the said traffic. This was the flight's last transmission.

The Radar Controller then reported that the flights radar label suddenly dropped off his scope. He gave the distance of this occurrence as 32 miles from the field. All subsequent efforts to re-establish contact with the flight after this, failed. Twenty four hours later, the wreckage of the aircraft was located in the Lagos Lagoon at position NO637.08, EO349.35) near the fishing village of Ejirin. The aircraft was totally destroyed, and no survivor nor bodies of the 144 persons on board were recovered. However about 70% of the total wreckage and some human remains were eventually picked up from the crash site.

1.2 EYE WITNESS ACCOUNT

All the eye witnesses interviewed at Oriba Village near the crash site, stated that they heard the sound of the airplane in the sky and that it was not unusual in their village for airplanes to pass through there. However, none of them actually saw the airplane as it plunged into the lagoon. The closest eye witness to the crash was a fisherman Mr. Ogungbamila and his son who were fishing at the lagoon waters at about 4.58 p.m. L.T. when the airplane came down. Mr. Ogungbamila stated that he was fishing at a location, now estimated to be about 100 yards from the scene of the accident when suddenly he noticed a severe turbulence and agitation from the waters and his canoe almost capsided. He said as he was struggling to save his own life, he heard an explosion that was closely followed by

another explosion coming a distance of about 100 yards away and after a few seconds, the turbulence and agitation subsided. He said he knew something terrible had happened and he suspected that the airplane, the sound of which he had just heard in the sky must have crashed into the lagoon. However, he was not very sure as he could not see anything floating on the water; neither the tail nor the wing of an airplane was sticking out of the water. All he did was to put some sticks in the ground to mark the point were he was standing and went back to the village after fishing. Mr. Ogungbamila and most of the villagers interviewed did not physically sight the airplane either in the sky or as it came down into the waters. They did not observe any fire, smoke or explosion in midair and they did not see any objects falling out from the clear sky into the lagoon waters. Like the accident itself everything happened so fast and nobody really saw anything.

1.3 INJURIES TO PERSONS

Injuries	Crew	Passenger	Others
Fatal	10	134	-
Non-fatal	-	-	-
None	-	-	-

Total dead: 144 souls

1.4 DAMAGE TO AIRCRAFT

The aircraft was destroyed

1.5 OTHER DAMAGES

None

1.6 CREW INFORMATION

(a)	Captain D. E. Sama	-	Pilot-in-Command
(b)	" B. A. Afonja	-	First Officer
(c)	" L. E. Usen	-	Supernumerary (SNY)
(d)	Flight Engineer Folorunsho	-	Flight Engineer (FE)

The above listed crew members were qualified and certificated for the flight. The three pilots and Flight Engineers had put in only five hours on the day of the crash. One of the flight crew members, Captain Usen was on the final part of his training and was flying as SNY before the crash. The flight crew had the required crew resting time and were not suffering from crew fatigue.

1.7 AIRCRAFT AND MAINTENANCE INFORMATION

1.7.1 The Panel has thoroughly investigated the activities of ADC Airlines as regards the maintenance and airworthiness of the crashed aircraft B727-200, Reg. No. 5N-BBG. The investigations were aimed at establishing, inter alia, the following:

(i) The maintenance history as well as history of accidents, if any, of the aircraft prior to ADC acquisition.

(ii) ADC capability as regards maintenance of the aircraft as well as adequacy of existing maintenance arrangements and practices.

(iii) Status of compliance with airworthiness regulations and the airworthiness of the aircraft prior to crash.

(iv) Effects, if any, of factors attributable to aircraft maintenance on the accident of flight 086

(v) Other factors both immediate and remote that are consequential to degradation of maintainability and continuous airworthiness of aircraft and sustenance of safety.

1.7.2 In carrying out its investigations the Panel reviewed the following aircraft documents and pertinent information:

(i) Certificate of Registration and particulars of previous operations

(ii) Certificate of airworthiness (C of A)

(iii) Approved Maintenance Schedule

(iv) Status List of Airworthiness Directives (AD) Service Bulletins (SB), Corrosion Prevention and Control Programme (CPCP) and Ageing Aircraft Requirements.

(v) Alteration/Repair/Modification records.

(vi) Details of Technical Logbooks and pilot reports for the six months period proceeding the accident.

(vii) Details of deferred defects register.

(viii) Minimum Equipment List (MEL)

(ix) Time controlled and life limited component status for airframe and engines.

(x) Aircraft weight and balance records

(xi) Flight operations Manual

(xii) List and ratings of ADC Airlines B727 engineering and maintenance and quality assurance personnel.

In addition to the review of above listed documents and information, the Panel also took cognisance of other facts gathered through interviews of the ADC engineering and maintenance personnel as well as the DSRAM surveyor-in-charge.

1.7.3 Pertinent technical information on the aircraft collated during the course of the investigations are summarized in Appendix A. The Panel further notes the following findings and observations on the aircraft and ADC's Maintenance before the crash.

(a) The aircraft was manufactured in February, 1969 with Serial No.20049. It was operated by TWA an American airline, and it had registration No. N44316 until its acquisition by ADC Airlines in 1995. The aircraft is not known to have been involved in any previous accident. The aircraft was subsequently registered in Nigeria as 5N-BBG on the 10 July 1995.

(b) The aircraft was maintained by ADC Airlines in accordance with a maintenance schedule approved by DSRAM. The maintenance schedule is in conformity with the TWA's FAA approved schedule and the manufacturers maintenance planning document. The maintenance schedule provides for the following checks:-

A - Check	-	Consists of AI-A6 with 75 hours interval between each segment.
B- Check	-	Consists of B1-B4 with 600 hours or 180 days interval between each segment.
C - Check	-	Every 3000 hours or 18th months whichever occurs first.

D- Check - Every 19000 hours or 6 years whichever occurs first.

(c)I ADC Airlines has approval to conduct up to B check while C and D checks are to be conducted at other maintenance stations approved by DSRAM. The last A check carried out on the aircraft was on the 4/11/96 i.e. three days prior to the accident. The last B check was on 28/8/96. There has been no C and D checks conducted since Nigerian registration of the aircraft. The next B check was to be due 27/2/97, C check - 13/1/97 and D check 18/7/97. The airline has rated B727 engineers to ensure maintenance and aircraft release into service up to the approved check level.

(d) The aircraft falls under the Ageing Aircraft programme which calls for special inspections and modifications at 60,000 flight. The Corrosion Prevention and Control Program also specifies continous corrosion inspection and rectification actions. DSRAM confirms that prior to its initial C of A issue, all due ageing aircraft programme tasks were performed. There is further evidence of corrossion inspection undertaken by the airline as per the Boeing Document D6-54929.

(e) A review of the technical documents indicated that the airline's operation of the MEL and implementation of the AD(s) and SB(s) were not contributory factors to the accident.

(f) On the day of the ill-fated flight, the aircraft was duly released into flight by approved personnel in accordance with the approved procedures which certified that the aircraft was airworthy. The current Certificate of Airworthiness was valid until the 28 February, 1997.

(g)I The airline maintains its engines on hard time only, without any engine condition monitoring programme in place. The airline also does not undertake any comprehensive reliability programme in respect of the aircraft systems.

(h) In the review of the aircraft component, the Panel took special cognisance of avionics components, particularly as the Traffic Alert and Collision Avoidance System (TCAS) on the aircraft played an important role in the last phase of the flight. The Panel noted that there are no Directorate of Safety Regulations and Monitoring (DSRAM) regulations requiring installation of TCAS on Nigerian registered aircraft. Only the Ground Proximity Warning System (GPWS) and Global Positioning System (GPS) have been made mandatory. Apart from these the DSRAM is yet to put in place a comprehensive policy concerning acquisition and installation of other aircraft navigation aids. DSRAM's activities have been limited to monitoring serviceability of the installed equipment which an airline may choose to instal to aid the navigation of its aircraft. The Panel further noted that all the avionics equipment on the aircraft were serviceable as at the time of the last flight.

(i) The Panel is satisfied that the aircraft B727-231, 5N-BBG was airworthy and properly maintained according to DSRAM requirements before the crash.

1.8 METEOROLOGICAL INFORMATION

The synoptic situation and weather reports over Lagos environs, Port-Harcourt - Lagos route from 3.00 p.m. to 7.00 p.m. on Thursday 7th

November, 1996 indicated only moderate harmattan haze during the period which could not pose any problem to aircraft flights and operations.

In particular, from sea level to 20,000ft. (6.8km) above sea level, the weather was fine, with ground visibility of 8 kilometres from 3.00 p.m. to 7.00 p.m. on that day.

Other Meteorological Information for that day and time are listed below:

1300GMT - Visibility 8,000 meters in dust haze, cloud ceiling estimated at 300 meters scattered wind 030 at 6 knots, altimeter setting 1012 hector pascal.

1400 GMT - Visibility 8,000 meters in dust haze, cloud ceiling estimated at 300 meters scattered, wind 090 at 8 knots, altimeter setting 1012 Lector pascal.

1500GMT - Visibility 3,000 meters in dust haze, cloud ceiling estimated at 3000 meters broken, wind 090 at 06 knots, altimeter setting 1007 hector pascal.

1600 GMT - Visibility 8,000 meters in dust have, cloud ceiling estimated at 300 meters scattered, wind 090 at 04 knots, altimeter setting 1011 Hector pascal.

(a) Weather charts for atmospheric levels from 1.5km (5,000ft) to 6.8km (20,000ft.) above mean sea level for the period 1300 - 1700 UTC. (are provided in appendix B).

1.9 FLIGHT RECORDERS/BLACK BOXES

The FDR LAS 1090 being the old model and having not been modified, recorded only three traces as against eleven traces in current and modified models. These traces are the pressure altitude, indicated airspeed and vertical acceleration. The final few minutes of the FDR and the CVR were read out and transcribed. Relevant ATC, CVR and FDR data were correllated as follows:-

(a) At 1555 (34) - Radar advised TIX 185 that he was 6NM North West of the field and to turn right and to resume own navigation.

(b) At 1558 (15) - "TIX 185 10 mile East of the field, radar services terminated maintain squawk, contact approach 124.7". This handover is considered to be too early as the traffic was still within Radar Control limits.

(c) At 1559 (07) - 5N-MPN, an opposite direction traffic at FL 230 crossed ADK 086 at 55 mile from Lagos. This led to a delayed descent for ADK 086, whose ideal top of descent for maintaining a good profile should have been at 75NM out. It is thought that because of this delayed descent, the ADK 086 would have had to use a high rate of descent configuration i.e. full speed brakes and some power for effective de-pressurisation. The aircraft's lateral stability is considerably

reduced with speed brakes deployed; gentle lateral control inputs are recommended.

(d) At 1559 (40) - ADK 086 was cleared from FL 240 to FL/160 and at 1559 (43) the aircraft called, leaving FL 240 for 160.

(e) AT 1601 (57) ADK 086 was radar identified 41 miles South East of the field, "Fly Heading, fly heading eh 320 vector round traffic. Descend and maintain FL 50"
The radar controller erred by turning ADK 086 right initially. This is not to say that the situation was not redeemable. However a left turn from the present track, or maintaining the same track and heading would have been more appropriate.

(f) At 1602 (41) ADK 086, "what is your actual heading now"
The radar controller guessing that ADK 086 should have established on 320°M by then and sensing the proximity of a traffic closing in, asked for his heading. When ADK 086 replied, "we are heading eh 3.....15, turning 320°, he then re-cleared him to "maintain heading 300, maintaining heading 300", with a note of urgency which underscored the presence of a threat.

(g) At 1602 (55) As the Pilot of ADK 086 gave indication of having the traffic by saying "Ah, Ok we have the ..... TCAS gave a traffic advisory.

(h) At 1602 (57) TCAS, "Traffic, Traffic". At this point, the Captain took over command of the aircraft from the SNY when at 1602(58) he said " I have it.

(i) At 1603 (08) The Captain of ADK 086 said "I have the traffic ..... and I continue my heading to 330, to avoid him". The pilot must have physically sighted the other traffic (TIX 185) and elected to turn right to avoid him instead of complying with the radar controller's re-clearance to maintain heading 300, maintain heading 300.

(j) **Note:**

(i) ADK 086 had delayed descent clearance from Approach Control.

(ii) ADK 086 was initially vectored untidily to heading 320°M

(iii) This was later changed hurriedly, when the RC reviewed his initial decision. He told him to maintain heading 300, maintain heading 300.

(iv) ADK 086 received a TCAS warning at this time and the Captain immediately took over the Control from the SNY and turned from 315° to 330°.

(v) The captain made an error of judgement by continuing to 330° "to avoid him". The radar controller agreed with the pilot's decision by saying "that's better".-

(vi) ADK 086 then got a further TCAS resolution advisory - "Reduce descent, reduce, climb, climb climb". From this point on the aircraft must have gone into unusual attitude from which it could not recover as evidenced by the high speed clacker and other cockpit sounds.

2.0 AIRCRAFT PERFORMANCE ANALYSIS

2.1 B727-231 REGN NO. 5N-BBG, ADK 086

The Panel analysed the performance of 5N-BBG, Flt 086 to determine the unusual manoeuvre that the airplane was subjected to from which it could not recover. Using the FDR as the data base; the Panel was able to find the correlation between the vertical acceleration (G) of Flt 086 and the various bank angles during the last 50 seconds of the flight. For a steady co-ordinated vector similar to that which Flt 086 was undergoing, the lift produces a horizontal component of force and the steady turn is achieved by a vertical component of lift which is equal to the weight of the aircraft. It can therefore be deduced that for a correct manoeuvre of Flt 086, a specific bank angle is required for a specific vertical acceleration of (G(s). From the values of G(s) given in the FDR for the last 50 seconds of the Flight, we can deduce the corresponding bank angles as shown in Appendix C.

2.2 UNUSUAL MANOEUVRE

The records of the FDR show clearly that Flight 086 was maintaining a steady co-ordinated turn towards heading 330 for the first 10 seconds of the last 50 seconds of the flight. After 15 seconds, the airplane was put in a bank Angle of 43.2 degrees. It maintained this configuration for only 10 seconds before the bank angle was increased to 65.6° and 68.80° degrees respectively. This attitude was observed for 5.54 seconds before it was further increased to 83.2, 83.3, 83.1 and 83.3 respectively. The airplane must have suffered from a High Speed stall and gone into a roll with a nose down configuration. This must have happened between the time the aircraft took on about 68.80° and 83.3 degrees bank.

The aircraft appeared to be recovering just before it impacted the Lagoon water because it succeeded in reducing the vertical acceleration to 2.10 (G) and the bank angle to 61.6°. But it did not have sufficient height to make a full recovery.

The panel therefore determines that the Unusual Manoeuvre from which the aircraft could not recover was **A roll caused by a bank angle of over 80° in a nose down pitch configuration and subsequent high speed stall that could not be arrested as a result of insufficient height and excessive vertical acceleration of up to 8.44 G(s).**

3.0 CRASH SITE

This Panel did not take part in the recovery exercise nor was it present during the operation. The report of the exercise, however, reveals that the aircraft came down at North 06°37.08 and East 03°.49.35 very close to Oriba Village in the South, Orugba in the North and Ologogoro Village in the East (see appendix D). The report also stated that the wreckage of the aircraft scattered over an area of about 100 meters in length and 25 meters in width. The depth of water where most of the debris was found was said to be about 10 feet of water on a sediment of mud about 8 feet deep.

4.0 WRECKAGE DISTRIBUTION

The Wreckage distribution was localized covering only an area of about 2,500 sq. meters. This is a clear indication that there was no mid-air explosion, the conflicting traffic, TIX 185 was also not aware of FLT. 086 and the fact that it landed safely at Enugu, is a further proof that there was no midair collision. The aircraft, 5N-BBG, developed a tremendous speed in excess of 490 knots as against a descent speed of 280 knots, a vertical

acceleration of up to 8.4 G(s) as against a maximum of 2.5 G. (One G is the force of gravity exerted on a free falling body and is usually given as 9.8 m/Sec/Sec). It is only a military aircraft designed for acrobatic manoeuvres that could have recovered from such action provided it is not limited by altitude.

All the pieces of aircraft parts recovered were found to have either suffered from severe buckling or compressive forces. Others like the landing gears and beams of the centre section of the aircraft were found to have experienced severe torsion and shear forces. Both the cockpit and fuselage windows were crumbled beyond recognition.

4.1 Wreckage Distribution Chart

The wreckage distribution chart is shown in appendix E. It shows that the debris from the wreckage cut across every chapter of the Air Transport Associations code. (ATA-100). The debris from the following ATA chapters are hereby highlighted.

(a) **ATA 21, 23 & 24 i.e. Airconditioning, Communications and Electrical**

Aircraft debris recovered from these chapters consist of cable looms, damaged flight engineers control panel, broken pneumatic ducts and broken pieces of air-conditioning bay door. In the communications sector, only the CVR and the FDR were recovered intact. Others like the VHF Comm. Transceiver and ACARS control units were all destroyed.

(b) **ATA 25 & 26 i.e Equipment & Furnishing, Fire protection and Detection**

Items recovered included broken seat tracks, parts of cabin seats, large quantities of torn life vest, broken pieces of seat belts, escape slides and others. Below this compartment is the main Cargo Hold and some of the items recovered included broken cargo compartment beams and cargo net hold down.

Most of the engine fire bottles were found. Some were compressed, one split in two halves and one simply punctured. See accompanying photographs.

(c) **ATA 27, 28,29, 30 & 31 i.e Flight Controls, Fuel, Hydraulics, Ice and rain protection and Instrument**

Aircraft debris found in these Chapters fall under the Flight Control Systems, Fuel, hydraulics, Ice and rain protection and instruments. The state of these items were found not different from the other ATA Chapters as stated above.

(d) **Chapter 32 Landing Gear**

The type of damage found in this section is typical of the great force with which the aircraft with all its weight impacted the lagoon water. The landing gear support struts, main gear beams, Rear spar attachments and other heavy members were completely broken and dismembered as a result of torson, compression and shear forces.

(e) **ATA 34, 35, 36, 38, 49 Navigation, Oxygen, Phneumatics, Water and Waste and APU**

Aircraft debris recovered here represent materials for Navigation, Oxygen Systems, Pneumatics, Water and Waste and APU. All these materials were badly deformed torn and completely destroyed.

(f) **ATA 52,53,55,56,57 - Structures**

Doors, Fuselage, Tail, Windows and Wings

These chapters represent the main structural components and they comprise the Fuselage (Main Hub), the tail, windows and parts of the wing. They are characterised by their metalic nature. They are either 7075 clad material, 2025-T3 or other special metallic parts. Some of the fuselage skin were found to be torn along the rivet lines, some rivets including Hi-locks were forcefully pulled from the skin. Evidence of metal tearing fractures was very prominent. The biggest piece recovered from this section is the Horizontal stabilizer, left side. The upper skin had been badly torn (see picture) revealing the internal members such as webs and various intercoastals. Other parts include the seat track assembly, the screw jack, main landing gear (MLG) tyres, and a piece showing a segment of the wingroot. The wing root segment is the first evidence that the wing separated from the fuselage at impact.

(g) **ATA 72-80: ENGINES**

Parts of the engines recovered included the Nos. 1,2 and 3 turbine disc assemblies, the combustion chambers, compressor disc and blades, support beams, accoustic intake and other parts. Some of the engine parts recovered had human flesh sticking to them while some contained traces of human blood.

The Wreckage distribution chart, appendix E shows that the force of impact was evenly distributed over the entire surface of the aircraft. This is very typical of the force on a body immersed in a fluid. There was no part of the aircraft that was spared; and as such no soul was equally spared.

THE Panel confirms that more than 70% of the crashed aircraft has been recovered. The Panel further affirms that no major part such as the fuselage or mainhub is still under the Lagoon waters.

12 **EXPLOSIONS**

Eye witness accounts revealed that there were some explosions all coming from the inside of the lagoon at the point where the airplane went down. The medical report on the human remains, however states:-

> "In my opinion, the pieces of human parts examined might have been fragmented from the main body by a tremendous force produced by mid-air explosion combined with/or chopped off effect created by disintegrated or flying metal frame of the aircraft and the pressure effects on the body on final Landing" (See medical report on page 40 to 43)

We have no evidence to support a mid air explosion. Usually, a mid-air explosion is indicated by the wreckage scattering over a wide area. In this case, the radius of scatter was localized and it covered a small area of 100 meters by 25 meters. It is also significant that the fisherman and his son who were just about one hundred yards from the crash point did not see the aircraft as it came down. They only reported severe turbulence and agitation of the lagoon waters. There was no evidence of fire in the air nor

in the water. The police report also points at explosion in the water after impact.

The Panel is satisfied that there was no Mid air explosion. The Panel affirms the fact that there were two or more explosions, one at impact and the others after impact in the water.

13.0 FIRE

There was no evident of fire.

14.0 SURVIVAL ASPECTS

The accident generally was not survivable because of the complete destruction of the aircraft's structure. The aircraft structure was subjected to a manouevre well beyond its design limit and structural failures would have been apparent even before impact.

The terrain was a limiting factor to the survival aspects of the accident. The muddy lagoon waters would have made any swimming absolutely impossible.

ANALYSIS AND CONCLUSIONS

15.0 ANALYSIS

The aircraft was certificated, insured, equipped, and maintained in accordance with regulations and approved procedures. There was no evidence of malfunction or failure of the aircraft or its components that would have affected its performance.

All three engines were operating normally until impact. The presence of debris and Foreign objects on the nos. 1, 2 and 3 turbine disc assemblies

on all three engines is further evidence that the engines where operating normally when the debris was ingested into them. The shearing and liberation of all the fan blades and compressor section on all the engines is consistent with a high power setting at impact.

The flight crew was properly certificated and each crew member had received the training and off-duty times prescribed by regulations. One of the flight crew members, Captain Usen was on the final part of his training and was flying as SNY before the crash. There was no evidence of medical or physiological problems that might have affected their performance.

The synoptic situation and weather reports over Lagos environs, Port-Harcourt-Lagos route from 3.00 p.m. to 7.00 p.m. on Thursday 7th November, 1996 indicated only moderate harmattan haze during the period which could not pose any problem to FLT 086.

Given the above circumstances, two causal aspects of this accident require discussions and analysis.

(i) Traffic separation by the Radar Controller and how this affected the accident.

(ii) Avoidance Manoeuvre and its effect on flight 086.

15.1 **How traffic separation affected FLT 086**

In order to examine what happened, it is pertinent to look at three other relevant traffic which were in close proximity to the ADK 086.

They were:-

(a) **Kabo Flight 645:** This flight was about 3 to 5 minutes and about 20 miles behind the ADK 086 on the same Port-Harcourt/

Lagos route at FL 220. This Flight gave wrong position reports and estimates which contributed to the circumstances leading to reduction in Longitudinal spacing between **ADK 086** and **QNK 645**. This brought QNK 645 close enough to ADK 086. However, QNK 645 did not constitute a hazard to ADK 086 since there was adequate vertical separation between them.

(b) **5N-MPN:** This was an opposite direction traffic at FL 230 which was 1000ft below the flight level of the ADK 086. This traffic (5N-APN) caused the delayed descent of FLT 086.

(c) **Triax 185**: This was an opposite direction traffic to ADK 086. Radar services was terminated for him prematurely at 10 NM.

15.2 Air Traffic Control

The MMA ATC units comprise of Aerodrome Control Tower, Radar and Approach Controls. Aerodrome Control provides Air Traffic Control Service to aerodrome traffic, which is described as all traffic in the manoeuvering area of an aerodrome and all traffic flying in the vicinity of an aerodrome. Radar Control Service is provided to all traffic within the limits of the Terminal Control Area (TMA) which is 65NM horizontal distance and from ground level to FL 145 vertical.

15.3 Analysis of Air Traffic

Position Reports and Estimates Analysis of QNK645:

(a) At 1559:50 GMT - QNK645 reported 70NM to 'LG' VOR.
At 1603:30 GMT - Radar Control (RC) positively identified QNK 645 at 36NM

Distance difference between the 2 position reports = 70Nm -- 36NM = 34NM.

Time difference between the 2 position reports:- 1603:30 - 1559:50

= 3minutes: 40 seconds

Deductions:

(i) The above position reports implied that QNK645 covered 34NM distance in 3 mins: 40 Secs.

QNK 645 needed about 567 knots ground speed (G.S) or (10 NM/min) speed to cover 34 NM within 3 mins:40 secs.

(ii) Since QNK 645 "DS" was estimated at 300 kts, 5NM/min), the aircraft could only cover about 18NM within 3 mins:40secs.

(iii) The error in QNK 645 position reports = 34 - 18Nm - 16 or over 3 mins.

d) **Vertical Position Analysis of QNK 645:**

(i) At 1602.35 GMT - QNK 645 reported descending through 20,000ft (FL 200) to APC.

(ii) At 1602'52 GMT - About 17 seconds after (i) above QNK 645 reported descending through 20,500ft (FL 205) to RC.

(e) **Deductions:**

(i) At 3,000ft/min Rate of Descent (ROD); QNK 645 should be approaching 19,000ft (FL 190) and not 20,500ft at time 1602.52 GMT.

15.4 **Analysis of Traffic Conflict between ADK 086, TIX 185 and QNK 645**

Traffic Situation

(a). 1558 GMT - RC transferred TIX 185 to APC at 10NM from "LG" on Track 099°m.

(b) 1600.39 GMT - ADK 086 contacted RC at 44NM on Track 303°m descending through 21,000ft.

(c) 1601.57 GMT - 1602 GMT - RC identified ADK 086 at 41NM and cleared the aircraft to 5,000 ft (FL 50) on right turn heading (Hdg) 320°m.

(d) 1602.52 GMT — QNK 645 contacted RC about 38NM descending through 20,500ft (FL 205) on Track 303°m.

15.5 **Calculation of Crossing Time, Level and Positions**

Assumptions - (Aircraft Operating Performance)

(a) ADK 086/QNK 645 Descent Speed (DS) - 300kts (5NM/Min.)

(b) ADK086 Rate of Descent (ROD) - 2,000ft/min due Company restriction.

(c) QNK 645 Rate of descent (ROD) - 3,000 ft/min.

(d) TIX 185 Climbing Speed (CS) - 300Kts (5NM/Min.)

(e) TIX 185 Rate of Climb(ROC) - 1,500 ft/min

ATC Manual, Chapter 7, Part 1-19 Refers; The estimate of ADK 086 and TIX 185 crossing time must be the **time half-way** between the estimates of the 2 aircraft at the same reporting point (i.e **41NM**):-

(i) ADK 086 time at 41NM - **1602** GMT: TIX 185 was 30NM at **1602**GM

(ii) TIX 185 estimate for 41NM

At 1558 GMT - TIX 185 was 10NM east of LG

*Time at 41NM (at 300 knots i.e 5NM/Min) = 1558 + $\frac{(41-10)\ \text{Mins}}{5}$

= 1558 + 6 GMT = **1604.12** GMT

TIX 185 estimate at 41NM = 1604.12 GMT

*Half-way time between ADK 086 and TIX 185 estimates = $\frac{1602 + 1604.12}{2}$ GMT

= 1603.6 GMT

= **1603 GMT**

Distance at one min. flying (i.e 1602 GMT -1603 GMT) time = 5NM for each aircraft = ADK 086 and TIX 185 would cross at about 40 - 5NM or 30 + 5NM respectively

= **35NM or 34NM** to LG

15.6 Calculations of ADK 086, TIX 185 QNK 645 Flight Levels

(a) **Flight Level of ADK 086 at 1603 GMT:**

(i) At 1600.39 GMT - ADK 086 descending through 21,000ft (ROD 2,000ft/min).

(ii) At 1603 GMT i.e. 2 mins 21 secs after; (1603 GMT -1600.39 GMT) height loss = 2.21 x 2,000 = 4,660ft.

* At 1603 GMT = ADK 086 would be descending through (21,000-4,660ft) =

16,340ft
16,000ft

(b) **Flight Level of TIX 185 at 1603 GMT**

(i) 1553 GMT - Departure time of TIX 185

(ii) 1603 GMT - TIX 185 recorded 10 mins flying time on departure. (i.e 1603-1553)

*Flight Level of TIX 185 at 1603 GMT
(using ROC of 1,500ft/min = 1,500 X 10ft
15,000ft

(c) **Flight Level of QNK 645**

(I) 1601.20 GMT - QNK 645 leaving 22,000ft for 18,000ft

(ii) 1603 GMT - QNK 645 approaching 19,000 ft.

(d) **Distance of QNK 645**

(I) At 1603.30 GMT - QNK 645 identified by RC at 36NM.

(ii) At 1603 GMT - QNK 645 would be at about 38.5NM (using 5NM/Min speed) = **38NM**

(e) **QNK 645 Heading** - 303° Track at 1603 GMT.

(f) **Separation at 1603 GMT**

15.7 **General Separation Between ADK 086 and TIX 185:**

(i) ADK 086 - Approaching 16,000ft
TIX 185 - Approaching 15,000 ft.

*Vertical Separation: Tending to Nil as TIX 185 was climbing through ADK 086 level.

15.8 **DEDUCTIONS:**

ADK 086 and TIX 185 did not have the required ICAO separation minima. The two aircraft therefore posed collision hazard. With this proximity hazard, ADK 086 would undoubtedly give audible collision avoidance alert and possible evasive action to the pilot of ADK 086 aircraft. TCAS surveillance area normally stretched 10NM either side of an aircraft at 3,000 ft above or below. The TCAS collision avoidance alert would also come on when the conflicting aircraft comes within 6NM and 1,200ft to the aircraft.

A plot of the track of TIX 185 and ADK 086 as presented in the report gives the following findings:-

(i) The initial tracks, of TIX 185 ADK 086 were only 24° apart before Radar vector.

(ii) At 1558 ADK 086 left FL 240 for 160 as per clearance

(iii) At 1601.57 ADK 086 was identified at 41 miles and asked to fly heading 320.

(iv) At 1602.51 the TCAS on ADK 086 issued traffic advisory;(TA) and at 1603.11 it followed with the following resolution alert "Reduce descent, reduce and climb. climb, climb.

(v) With TIX 185 climbing, and the ADK 086 apparently in a high rate of descent, and being instructed to turn right towards the track of TIX 185, the stage was being set for a possible mid-air collision.

(vi) The TCAS transmissions did infact indicate a threat of collision.

(vii) The ADK 086 which was TCAS equipped must have initiated a structurally stressful action resulting in loss of control.

15.9 **Avoidance Manoeuvre**

The avoidance manoeuvre as interpreted from the FDR is a combination of very high speed of over 490 knots, a high rate of descent and a vertical acceleration of over 8.4 G (s). There is also evidence that the aircraft went into a bank of up to 80 degrees. It is to be expected that the pilot would have deployed its speed brakes/spoilers and selected full power setting to avoid TIX 185.

The aircraft appeared to have stalled and gone into a roll with a nose down configuration.

The B727-231 is not designed for such stressful manoeuvre. The limit load factor it can accommodate is only 2.5.G. A manoeuvre that put FLT 086 to a load factor or 8.4. G for over are second would have caused structural damages on the aircraft even before impact.

The radar controller stated in his report that the label of FLT 086 dropped off his radar screen suddenly as FLT 086 and TIX 185 crossed at a distance 32NM to Lima Gulf (L..G.)

0 CONCLUSION

1 FINDINGS

There was no evidence of a malfunction of the aircraft's flight instruments, flight controls or power plants before impact with the Lagoon waters.

The aircraft had a valid insurance including hull risk, passenger and cargo as well as third party liability as at the time of the crash.

ADK was on approach and was being vectored round a traffic by the radar controller. The supernumerary (SNY) was flying the aircraft until about 55 seconds to the crash.

) The pilot of QNK 645 (Kabo Airline) of 7th November, 1996 gave wrong estimates and position reports to Approach Controller (APC) based on QNK 645 traffic analysis.

) The Radar Controller deviated from Air Traffic Separation Standard and coordination procedure in the handling of TIX 185 and ADK 086 control. The RC was supposed to have vectored ADK 086 away from TIX 185 track and ensured that TIX 185 was sufficiently separated from other conflicting traffic before transferring it to the Approach Controller (APC).

) The Radar Controller should have turned ADK 086 left on initial contact but he turned him right thereby setting up a possible midair collision situation with TIX 185.

(g) There was poor traffic co-ordination between the Radar Control and the Approach Control.

(h) The incessant interference of Automatic Terminal Information Service (ATIS) transmission with ATC frequency created undue communication congestion.

(i) The Pilot of ADK 086 saw TIX 185 at 16.03.08 when he said "I have the traffic..... and I continue my heading to 330 to avoid him"

(j) At 16.02.50 the RC advised the pilot of ADK 086 to "maintain heading 300, maintain heading 300". This could have turned ADK 086 left, away from TIX 185.

(k) The Pilot of ADK 086 made an **ERROR OF JUDGEMENT** when he decided to continue his heading to 330 and to try to "avoid him".

(l) The RC agreed with the pilot judgement when he said 'that's better'

(m) **The avoidance manoeuvre by FLT 086 to avoid a midair collision with TIX 185 (Triax Airliner) was the result of untidy Traffic Separation by the Air Traffic Controllers**

16.2 **IMMEDIATE CAUSE**

The Panel of Inquiry into the ADC B727-231, Regn # 5N-BBG and FLT # ADK 086 determined the Immediate cause of this accident to be the untidy traffic separation by the radar controller which resulted from the Vectoring of ADK 086 towards the track of the opposite direction traffic TIX 185.

16.3 **REMOTE CAUSE**

The error of judgement by the pilot of ADK 086 to continue his turn to heading 330° M to avoid TIX 185 and his subsequent collision avoidance manoeuvres constituted the remote causes of this accident.

17.0 **RECOMMENDATIONS**

17.1 A. **Air Traffic Control**

(i) Air Traffic Controllers must be made to adhere strictly to laid down procedures for air traffic separations and co-ordinations between all the air traffic control units.

(ii) Radar Controllers must ensure that the stipulated 65 nautical miles horizontal coverage and FL 145 vertical limit are maintained at all times.

(iii) FAAN must ensure that appropriate reports are filed to DSRAM for necessary action regarding violation of air traffic procedures.

(iv) DSRAM should streamline the regulations regarding the introduction of new navigational equipment such as TCAS for use in the Nigerian Airspace.

(v) MMA control area should be sectorised and equiped with more functional RADAR for safe expeditious flow and co-ordination.

(vii) Air Traffic Data Display and Monitoring should be provided for MMA ATC for effective traffic monitoring and co-ordination.

(viii) The existing communication equipment at MMA should be adequately maintained while the obsolete ones be replaced with modern and reliable ones.

(ix) The existing communication equipment at Murtala Muhammed Airport (MMA) should be adequately maintained while the obsolete ones should be replaced with modern and reliable ones.

17.2 SEARCH & RESCUE

I. It is important that a National Disaster Management Organisation be put in place to determine national plans, agencies to execute such plans, the effectiveness of structural framework and procedures for achieving these plans. However, since the Terms of Reference of this panel does not provide for any submission on disaster management in Nigeria, we therefore, consider it necessary to recommend to government that a new Panel be set up to consider the issue of National Disaster Management in its entirety, and make recommendations.

II. This Panel feels very strongly about the above recommendation for the following reasons:-

(a) Nigeria does not have an effective organisational framework for disaster management.

(b) The only government agency, National Emergency Relief Agency (NERA), and the Non-Governmental Organisations (NGOS) have been unable to effectively forecast, prevent, mitigate, provide relief and recovery measures or rehabilitate disaster victims adequately because they neither had the mandate nor the capabilities.

(c) All agencies, be they Federal, State, Local Government or voluntary agencies, acted mostly independently because city, local Government, State or Federal management plans do not exist.

(d) Most Government agencies who have responsibility for disaster control or mitigation functions are handicapped due to lack of adequately trained manpower, specialised equipment and poor logistics supports.

(e) Most agencies that have coordination functions cannot effectively carry them out because basic infrastructural and commercial facilities are not functional.

(f) There is an absence or low level of data availability on which historical patterns can be constructed. Data banks, where they exist, are not functional, therefore, disaster planning or forecasting based on accurate data hardly exists.

(g) There is the absence of the right institutions, organisations and procedures at the various level of government to cater for the pro-impact, impact and post-impact phases of disasters.

(h) There is the necessity for a new framework for disaster management in Nigeria.

(i) Areas identified for structural changes are the organisational and procedures which will affect the handling of the pre-impact, and Post-impact phases of Disaster management.

(j) Some changes will be required in the administration of funding and laws guiding the management of disaster

17.3 **Airline Operation**

(i) Airlines should be mandated to set up engineering planning and system engineering sections to ensure adequate monitoring and sustenance of reliability of equipment. DSRAM should fully implement regulations regarding approved engineering and maintenance organisations in the issuance of Air Operators Certificate to aircraft operators.

(ii) The Ministry should discourage the acquisition and operations of aged aircraft in Nigeria. With particular reference to B727, no aircraft should be imported into the country with an age of more than 25 years or 60,000 flight whichever occurs first, without a certificate to confirm that all ageing aircraft and CPCP tasks have been adequately accomplished.

(iii) Government should set up a Structural Working Committee to undertake a comprehensive technical-economic analysis of all other aircraft types with the aim of specifying the age and conditions for importing such aircraft and ensuring continuous structural integrity of ageing aircraft in the country.

(iv) No extension on check interval should be granted to any airline operator beyond the intervals provided for by the maintenance schedule, and checks approved for the particular aircraft.

18.0 OTHER INFORMATION AND REPORTS

18.1 Search and Rescue

The Panel notes and commends the role played by the official Agencies and private sector outfits that participated in the Search and Rescue operations. For record purpose, the following participated actively in the effort.

- The Nigerian Army
- The Nigerian Airforce | NIGERIAN NAVY.
- The Nigerian Police
- The NNPC
- Lagos State Ministry of Health
- Julius Berger
- Schlumberger
- Federal Road Safety Corps (FRSC)
- Westerminister Dredging
- The Embassies of the U.S.A., Great Britain and Israel

The Panel notes with regret the fact that there is no standing National Disaster/Search and Rescue Organisation other than the Search and Rescue outfit of the FAAN.

A standing National Search and Rescue or Emergencies Organisation would have provided a well-coordinated pool of agencies and the specialist skills and equipment needed for more timely and effective response to the ADC flight crash.

18.2 SECURITY REPORT

18.2.1 Preflight Security Checks

(a) Oral and documentary evidence available to the Panel confirmed that all necessary pre-flight and in-flight procedures were complied

with including the mandatory checks on engines, instruments etc. The checks were carried out on the aircraft 5N-BBG both in Lagos and Port-Harcourt when it was enrolled as Flt 085 from Lagos to Port-Harcourt and as Flt 086 from Port-Harcourt to Lagos. All luggages were checked-in appropriately: including "identifying" luggage to individual passengers. The Panel is satisfied that there has been no omission in pre-flight procedures and that the flight departed - Port-Harcourt with the necessary clearance from the Air Traffic Control (ATC) authorities. The Panel is also satisfied from the available evidence, that the flight from Port-Harcourt was uneventful up to 1600Hrs UTC (1700 HRS Local Time) and approximately three minutes to the time the accident occurred.

(b) In spite of the difficult terrain, fairly effective physical security was established within 24 hours of the crash with the presence of Army, Airforce and Police personnel. However, considering the wide maritime expanse of the crash site it must be conceded that the physical security cordon established would not be totally effective as far as floatable debris-(clothing, small purses, handbags, cash, etc,) were concerned.

(c) Lack of proper fencing of airport premises within the country makes the airports porous and poses danger to security of aircraft in general; most-especially to pirates opening and closing baggage compartments while aircraft are holding for take - off, especially in Murtala Muhammed Airport, Lagos.

(d) Government officials, VIPs, including senior military officers continue to drive unauthorised vehicles within the airport premises all over the country despite repeated warnings.

(e) Regular calibration of air Navigational equipment is lacking, to the extent that when these equipments are declared serviceable, they could be several degrees off the airfield.

(f) ATC and radar controllers lack continuity training.

(g) Most of the airlines pilots are found of giving wrong position reports with the sole aim of taking advantage of other aircraft and most probably to have landing priority.

(h) DSRAM lacks an up to date library which could enhance professionalism within the department.

(i) The air traffic and radar controllers would need to be placed on outside uniform salary structure (OUSS) to enhance safety and overall security of our air space.

(j) The ADC is yet to resolve the conflict in the passenger manifest of the crashed aircraft. ADK - 086 with the aim of determining actual persons on board up to the time of submitting this report.

(k) **The Panel is satisfied that the aircraft was not bombed, that there was no mid air explosion and that the accident was not an act of sabotage**

18.3 **MEDICAL/ PATHOLOGICAL REPORTS**

(a) Date and hour of receipt of corpse at Mortuary ..... 9/11/96 to 18/1196

(b) Condition of corpse an arrival ..... Fixed Human Parts

(c) Mode in which packed: ..... Packed

(d) Date and hour of holding examination: 6/11/97

(e) Name of deceased (if known): ..... Unknown Human Parts

(f) By whom identified: ..... Accident Investigation Team

(g) Approximate age: ..... Teenage to Adult

(h) Sex: ..... Unknown

(i) Height, Colour of Hair, Eyes peculis, clot and other marks or means of identity ..... Negroid and White Races

(j) Probable date of death: 7/11/96

MEDICAL REPORT

External Examination: 35 Nylon Bags of human parts examined
fragments of human parts
See Annex for Detailed Reports.

Internal Examination: Body Cavities
Skull Brain Meninjes: Not seen at post mortem.

Month Tongue ..... Not seen at post mortem

Lungs: Not seen at Post Mortem

Heart & Blood Vessels: Not seen at Post Mortem

Stomach & Intestines

& Appendix:	Not seen at post mortem
Liver & Gall Bladders	Not seen at Post Mortem
Spleen:	Not seen at Post Mortem
Kidneys & Other Generative Organs:	Not seen at Post Mortem
Other Remarks:	Nil
Anatomical Summary:	Nil
Consistent With:	Aircraft Accident

I certify the cause of death in my opinion to be Multiple fractures Mutilation

Signed: DR. H. A. PLUMPTRE
Chief Consultant (Pathologist)
L/S Laboratory Services

SUMMARY

A total of 35 Nylon bags were received at reception centre situated in Julius Berger workyard at Itokin from Saturday 9 November to Monday 18 November, 1996, and were deposited into our mortuary. Each bag was examined according to your directives on 6th January, 1997 as per your request. Each bag contained dismembered human parts which could not be pieced together to form a whole body. All these pieces were chunks of external tissues, mainly, scalps and skin (Flesh) that were torn off from many human bodies. These parts could not be typified to a particular person.

However, some were parts of the bodies of caucasian and Negroid races. Other parts of bodies recognisable included parts of bones, especially of humans, Femur and tibia. Internal organ such as Heart, Lungs, Intestines, Liver were not seen.

There was no evidence to show that the human parts had been bitten off from the main body by marine life. No evidence of burns were detected from the human part.

In my opinion, the pieces of human parts examined might have been fragmented from the main body by a tremendous force produce by mid-air explosion combine with/or chopped off effect created by disintegrated or flying metal frame of the aircraft and by pressure effects on the body on final landing. I was unable to weigh each bag because there was no weighing machine available to me. Also, I could not take the photographs of the contents of each bag since I have to photographer.

Both 2 procedures could be done if they are available (weighing machine and photographer). The total parts examined were 285 Human Parts.

We, in this Pathology Department, are glad to be part of the Investigation Team. We are sure this information will assist your Panel.

19.0 AREA OF DEFICIENCIES

19.1 Observation

The following observations were recorded during the Panel's visit to Murtala Muhammed International Airport (MMIA) and also based on the memoranda submitted by the Nigerian Air traffic Controllers Association and the National Association of Air Traffic Engineers of Nigeria.

(a) There was lack of technical backup for the telecommunications, navigational and surveillance systems in the country.

(b) The radar breaks down more often than not due to the old age of the equipment. The last reflection cord has been used up.

(c) There is no video tape for the radar equipment.

(d) There is shortage of Air Traffic Controllers. This puts a lot of stress on the available ones in terms of longer periods on the "hot seat" in violation of rest period requirement.

(e) ATC personnel were not undergoing refresher and recurrency checks.

(f) There are no direct telephone lines to operational rooms-Control Tower, Rescue Co-ordination Centre, equipment room etc.

(g) The Rescue Co-Ordination Centres-Lagos and Kano, are not adequately equipped. The six sub-centres of Maiduguri, Sokoto, Ilorin, Abuja, Port-Harcourt and Enugu are only on paper with no infrastructures.

- The licencing of Air Traffic Controllers is currently just being supervised by DSRAM. This is because there are no ATC experts in DSRAM. Also the safety Management and regulatory aspects of the Air Navigation sub-system of the Aviation Industry is left solely to the FAAN.

- Aerodrome Emergency of Air Traffic Services mock exercises and full scale Search and Rescue Exercise (SAREX) are not being held regularly.

- The managers of the Safety of the Nigerian Airspace - the Air Traffic Controllers and the Aerotels are not being adequately remunerated. The average Air Traffic Controller is on GL.09, yet he needs to have and defend his ATC licence to remain in business.

APPENDICES
A-R

APPENDIX "A"

DETAILED TECHNICAL INFORMATION ON ADC AIRLINES'S B727 5N-BBG

1.	(a)	Aircraft Type	-	B727 - 231
	(b)	Aircraft serial No.	-	20049
	(c)	Fuselage/Line number	-	693
	(d)	Date of Manufacture	-	February 1969
	(e)	Registration Number	-	5N-BBG
	(f)	Interior Configuration	-	134 - 12F/C, 122Y/C
2.	(a)	Previous Owner/Operator	-	TWA
	(b)	Previous Registration No.	-	N44316
3.	(a)	Total Airframe Hours	-	64956 HR + 52 Mins
	(b)	Total Airframe Cycles	-	44613
	(c)	Aircraft last flown	-	6 November 1996

4. **OPERATING WEIGHTS AND FUEL CAPACITY**

	(a)	Maximum Taxing weight	-	173,000lbs
	(b)	Maximum gross Takeoff Weight	-	172,000lbs
	(c)	Maximum Landing weight	-	150,000lbs
	(d)	Zero Fuel Weight	-	136,000lbs
	(e)	Fuel Capacity	-	~~7,600 gallons (51,451lbs)~~ 7,580 (51,456lbs)
	(f)	Operators Empty Weight	-	102,000lbs
5.	(a)	Engine Type	-	PRATT & WHITNEY JT 8D-9A JT8D-7B
	(b)	Engine Thrust Rating		
	(c)	Engine Records/Status as at 6 November 1996		

ENGINE NO. 1	-	**(JT8D-9A)**
Serial No.	-	665441
Total Time	-	56799
Total Cycles	-	39169
Last Shop visit	-	31 October 1994
Limiter hours	-	10,227
Limiter Cycles	-	2907 (2T)
ENGINE NO. 2 (JT8D-9A)		
Serial No.	-	665424
Total Time TSN	-	56747
Total cycles TSN	-	39708
Last Shop visit	-	12, December 1994
Limiter Hours	-	10729
Limiter cycles	-	59 (HUB)
ENGINE NO. 3 (JT8D) - 7B		
Serial No.	-	665327
Total Time	-	42731
Total Cycles	-	34755
Last Shop visit	-	4, February, 1993
Limiter Hours	-	3533
Limiter cycles	-	152 (C12)
UAP		
Type	-	660

Serial No.	-	35723
Total Time	-	10872 HRS
Hours remaining	-	3086

6. **MAJOR COMPONENTS OVERHAUL HISTORY LANDING GEAR**

Position	Serial No.	Life Count	Life Remain
Nose	216	19000 Hrs.	4820 Hrs.
Main Left	471	19000 Hrs.	4820 Hrs.
Main Right	422	19000 Hrs.	4820 Hrs.

7. **LIST OF AVIONICS SPECIFICATION ON THE AIRCRAFTS**

	QTY	MANUFACTURER/P/N/MODELS
Flight Director	2	COLLINS F. D. 108
Auto Pilot	1	SPERRY SP 50
Weather Radar	2	SPERRY (RCA) A.V.Q.
VHF Comm.	2	COLLINS 618M-2B
FDR	1	LAS 1090
CVR	1	FAIRCHILD 93-A100-20
Selcal	1	COLLINS 456C-1
ADF	1	BENDIX DFA-73
DME	2	COLLINS 680E-2
Marker	1	BENDIX MKA-28A
GPWS	1	COLLINS FPC-75
Radio ALT	2	BENDIX ALA-51

ATC Transponder	2	SPERRY (WILCOX) 914A	
Compass	2	BENDIX C8-60	
TCAS	1	COLLINS -	6228971-020
GPS	1	TRIMBLE -	2100T

8. **OTHER EQUIPMENT** **QTY**

Seats F/C	12	
Seats B/C	-	
Seats Coach Y/C	122	
Galleys Fwd/Ctr/Aft	5	(2FWD,3AFT)
Lavatories Fwd/Ctr/Aft	3	(1FWD,2AFT)

APPENDIX "B" 14

Federal Ministry of Aviation

METEOROLOGICAL SERVICES Department

FEDERAL SECRETARIAT
Shehu Shagari Way, Abuja.

Telegrams: DIMETEOR

Ref. No: MET/0706 ADC.086/Vol/21

10th January, 1997

The Secretary to Panel on
ADC Plane Crash,
Federal Ministry of Aviation,
Abuja.

Attention: Dr. A.A. Coker

Dear Sir,

PANEL OF INQUIRY INTO ADC PLANE
CRASH FLIGHT 086 REG. NO. 5N-BBG B727-231
AT EJIRIN, EPE ON 7 NOVEMBER, 1996

I wish to refer to your letter referenced CA04/359/SI/Vol.I/ of 21st December, 1996 on the above topic in respect of weather report on the day of the crash.

2. The synoptic situation and weather reports over Lagos environs, Port Harcourt - Lagos route from 3.00p.m to 7.00p.m on Thursday 7th November, 1996 indicated only moderate harmattan haze during the period which could not pose any problem to aircraft flights and operations.

3. In particular, from sea level to 20,000ft. (6.8km) above sea level, the weather was fine, with ground visibility of 8 kilometres from 3.00p.m to 7.00p.m on that day.

4. Enclosed for your information are copies of Meteorological Weather Information for 7th November, 1996 as follows:-

a. Four (4) copies of weather charts for atmospheric levels from 1.5km (5,000ft.) to 6.8km (20,000ft.) above mean sea level for the period 1300 - 1700 UTC;

b. Weather forecasts for Lagos and Port-Harcourt for the period 1300 - 1700 UTC.

5. Kindly acknowledge the receipt of this letter and its attachments.

Yours Sincerely,

Dr. E.D. Udoeka
for: Director of Meteorology
for: Hon. Minister of Aviation


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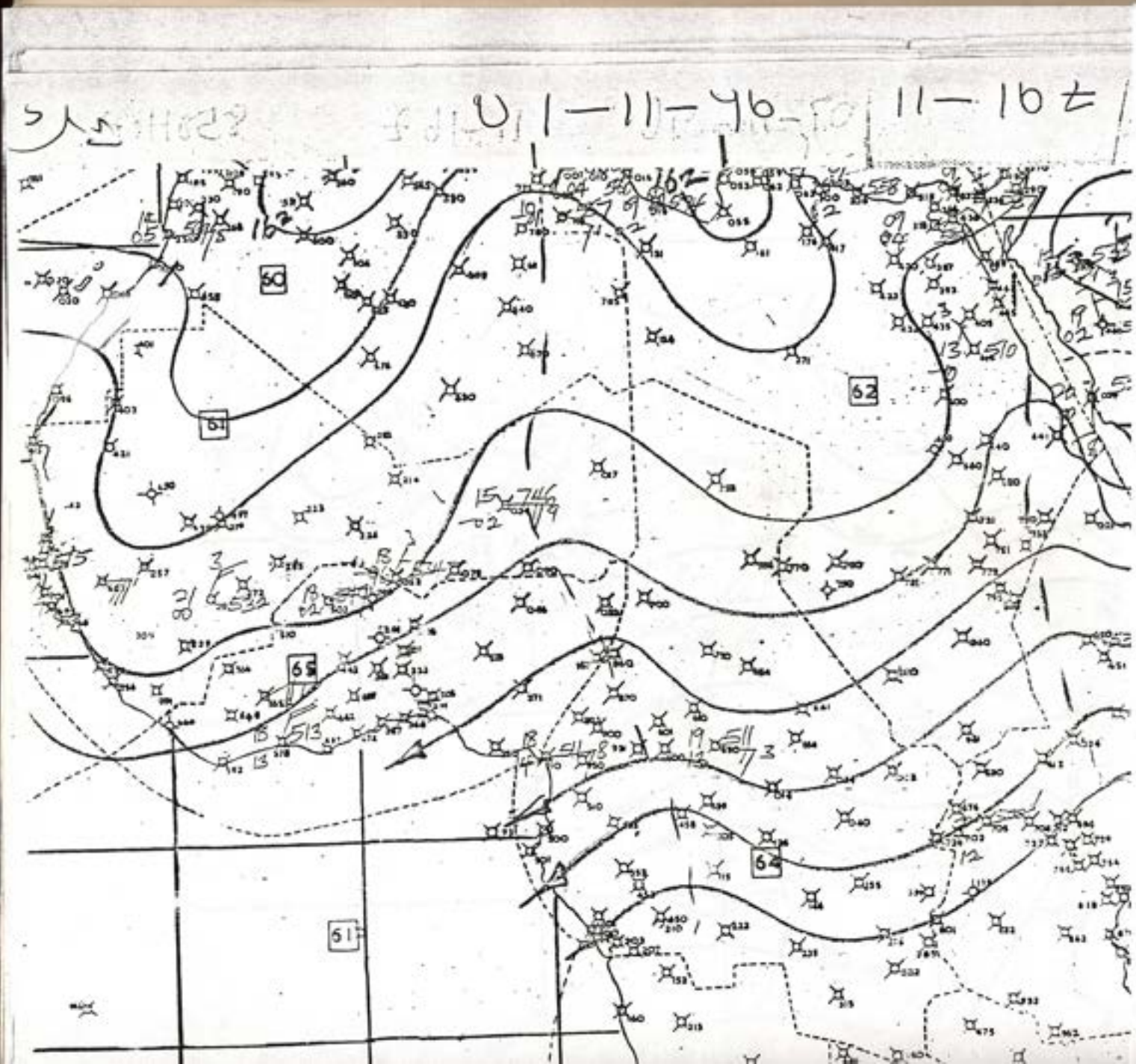
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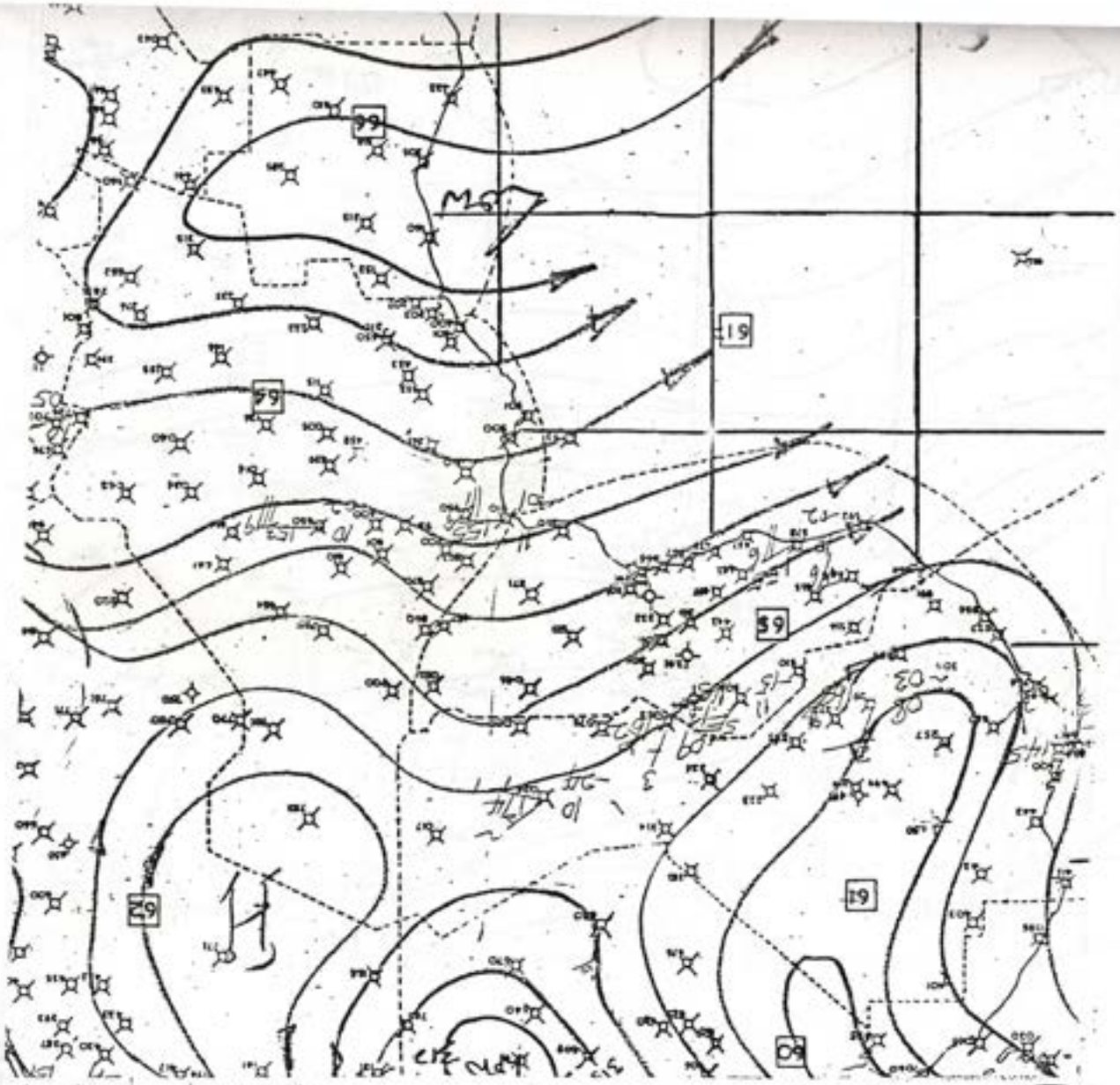

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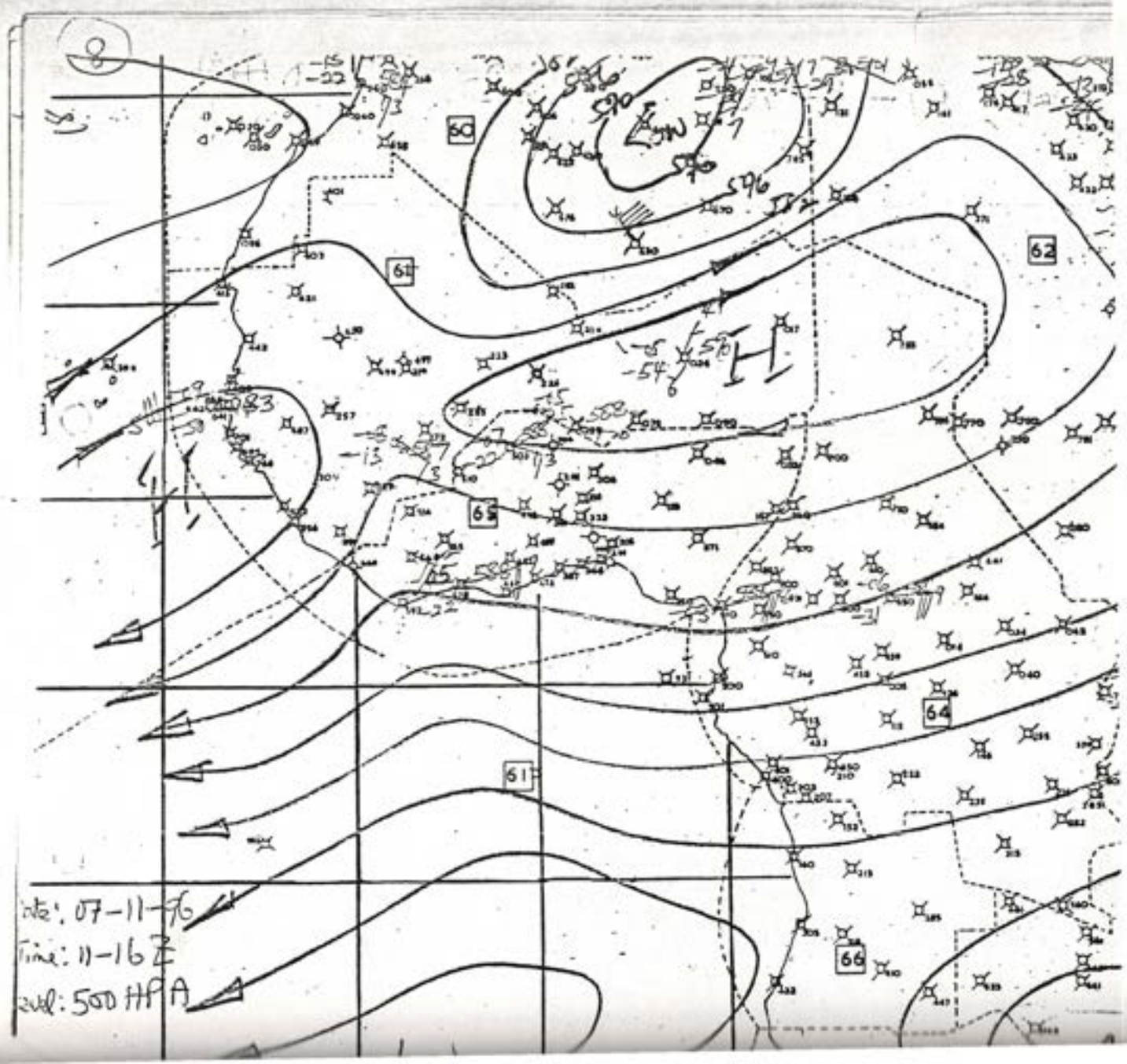
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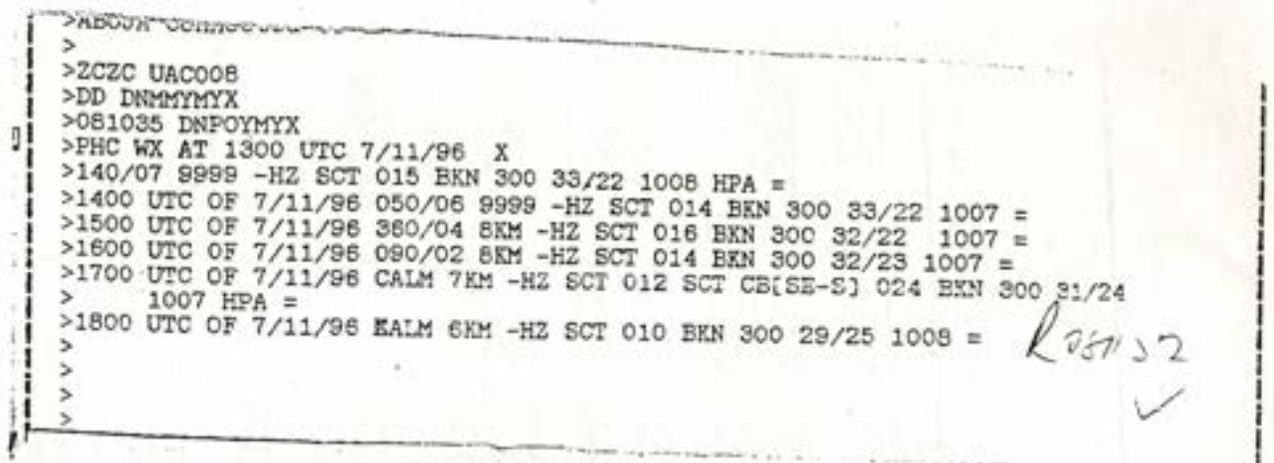

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>DD DNMMYMYX
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>1400 UTC OF 7/11/96 050/06 9999 -HZ SCT 014 BKN 300 33/22 1007 =
>1500 UTC OF 7/11/96 360/04 8KM -HZ SCT 016 BKN 300 32/22  1007 =
>1600 UTC OF 7/11/96 090/02 8KM -HZ SCT 014 BKN 300 32/23 1007 =
>1700 UTC OF 7/11/96 CALM 7KM -HZ SCT 012 SCT CB[SE-S] 024 BKN 300 31/24
>      1007 HPA =
>1800 UTC OF 7/11/96 CALM 6KM -HZ SCT 010 BKN 300 29/25 1008 =
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FAAN TH3 (18)

Date Stamp

FEDERAL AIRPORTS AUTHORITY OF NIGERIA
AERONAUTICAL TELECOMMUNICATIONS SERVICE

Heading 002

Address GG DNMMYMY

080931 DNAKYMY -

Text:- REF TR LOST AS PER YESTERDAY
MET WIX =
1300 03006 8000 NEG HZ
SCT 300 33/13 1012 NSG =

1400 09008 8000 NEG HZ
SCT 300 34/13 1012 NSG =

1600 41958 30606 10340 20136
40085 70522 80008 58003
83280 =
1600 09004 8000 NEG HZ SCT300
32/15 1011 NSG =

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To From	To	To	To
At	At	At	At
By	By	By	By

Originator's Signature (For SS/DD/ Tlaff

Priority

FAAN T113

19

FEDERAL AIRPORTS AUTHORITY OF NIGERIA
AERONAUTICAL TELECOMMUNICATIONS SERVICE

Date Stamp

21

Heading

Address

Origin

Text– 1700 CALM 8000 NEG HZ SCT300
31/17 1012 NSG =

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To/From	To DS VR	To	To
At	At R0807964	At	At
By	By	By	By

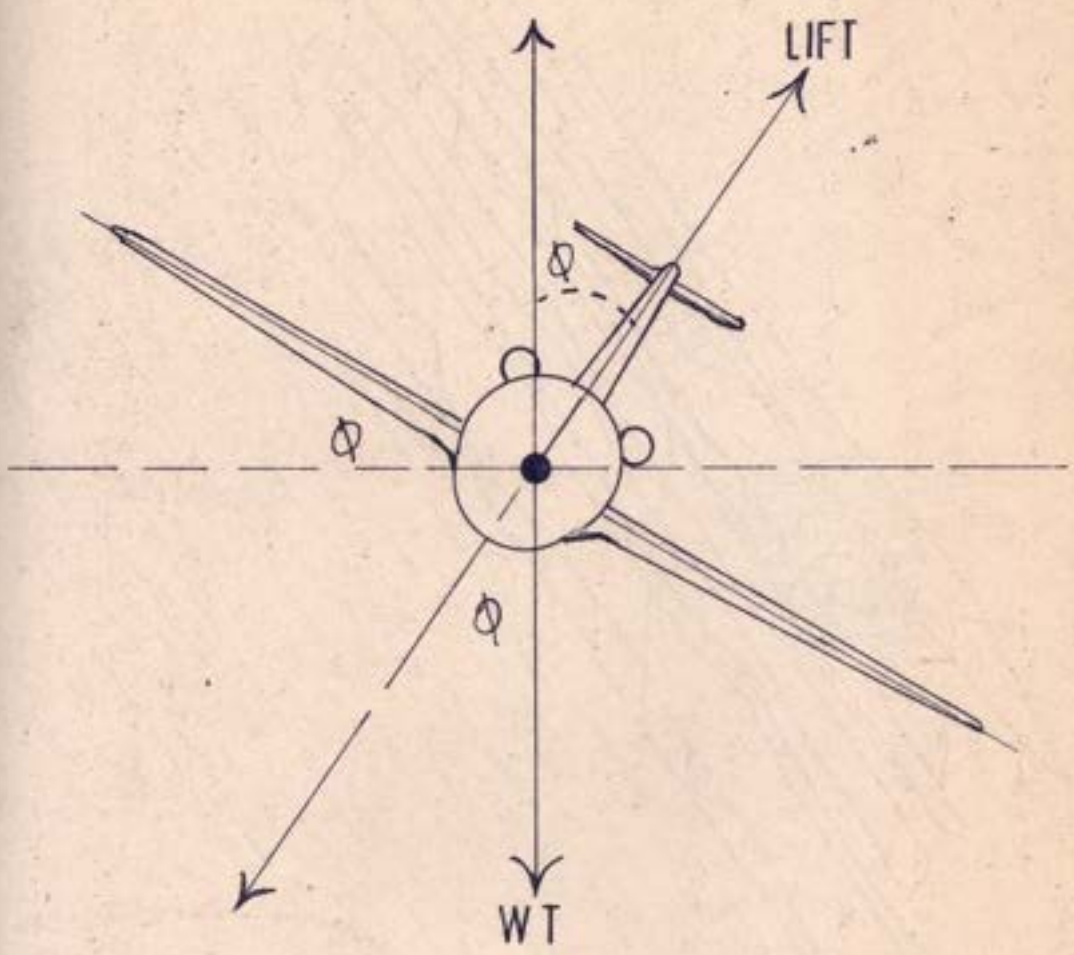
Originator's Signature
(For SS/DD/ Traffic)

Priority

APPENDIX "C"

FOR STEADY CO ORDINATED TURN

(HORIZONTAL COMPONENT)
(VERTICAL COMPONENT)

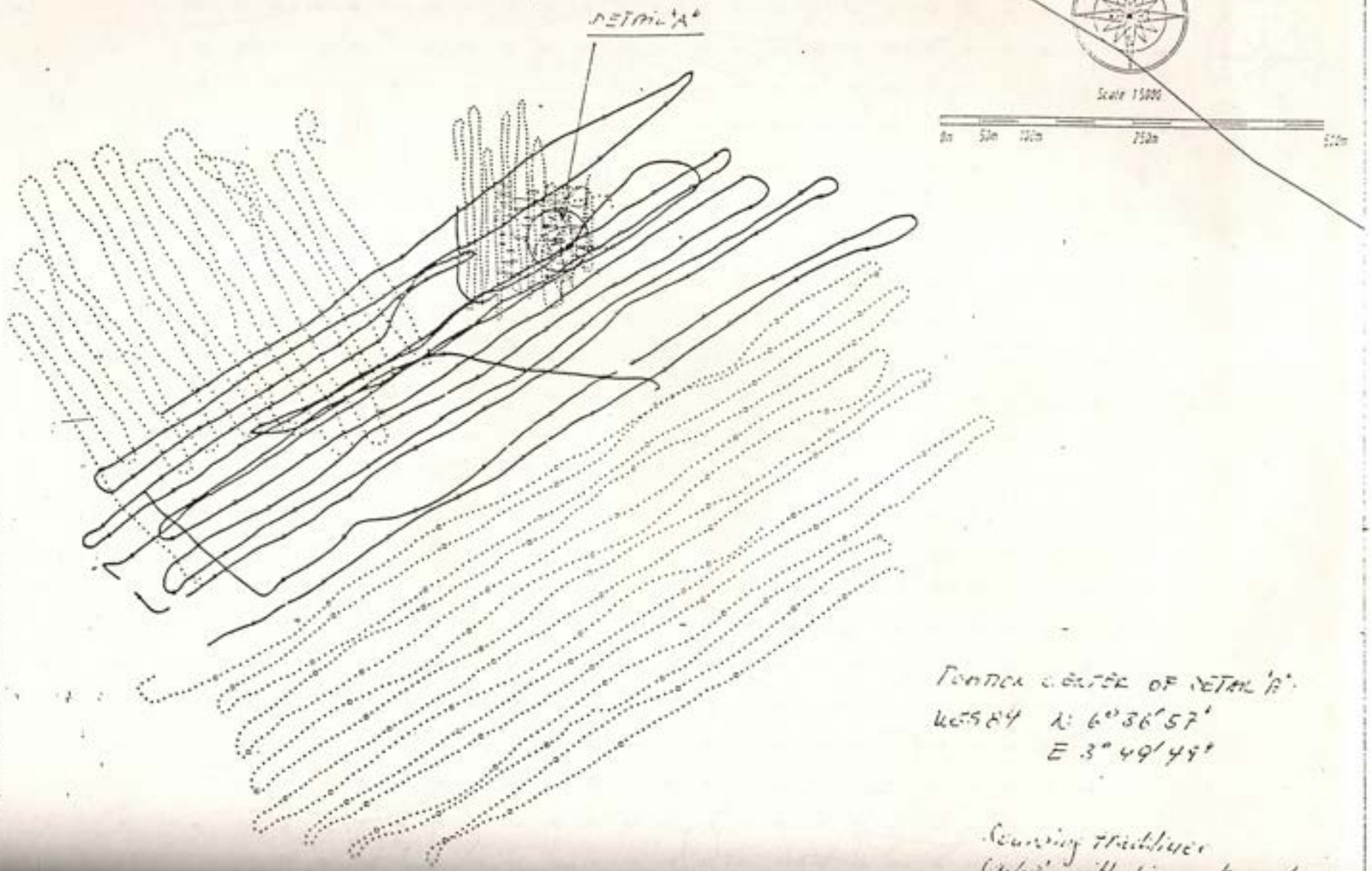


$F = L$

N - G = VERT. ACCELERATION
L = LIFT
W = WEIGHT
Φ = BANK ANGLE

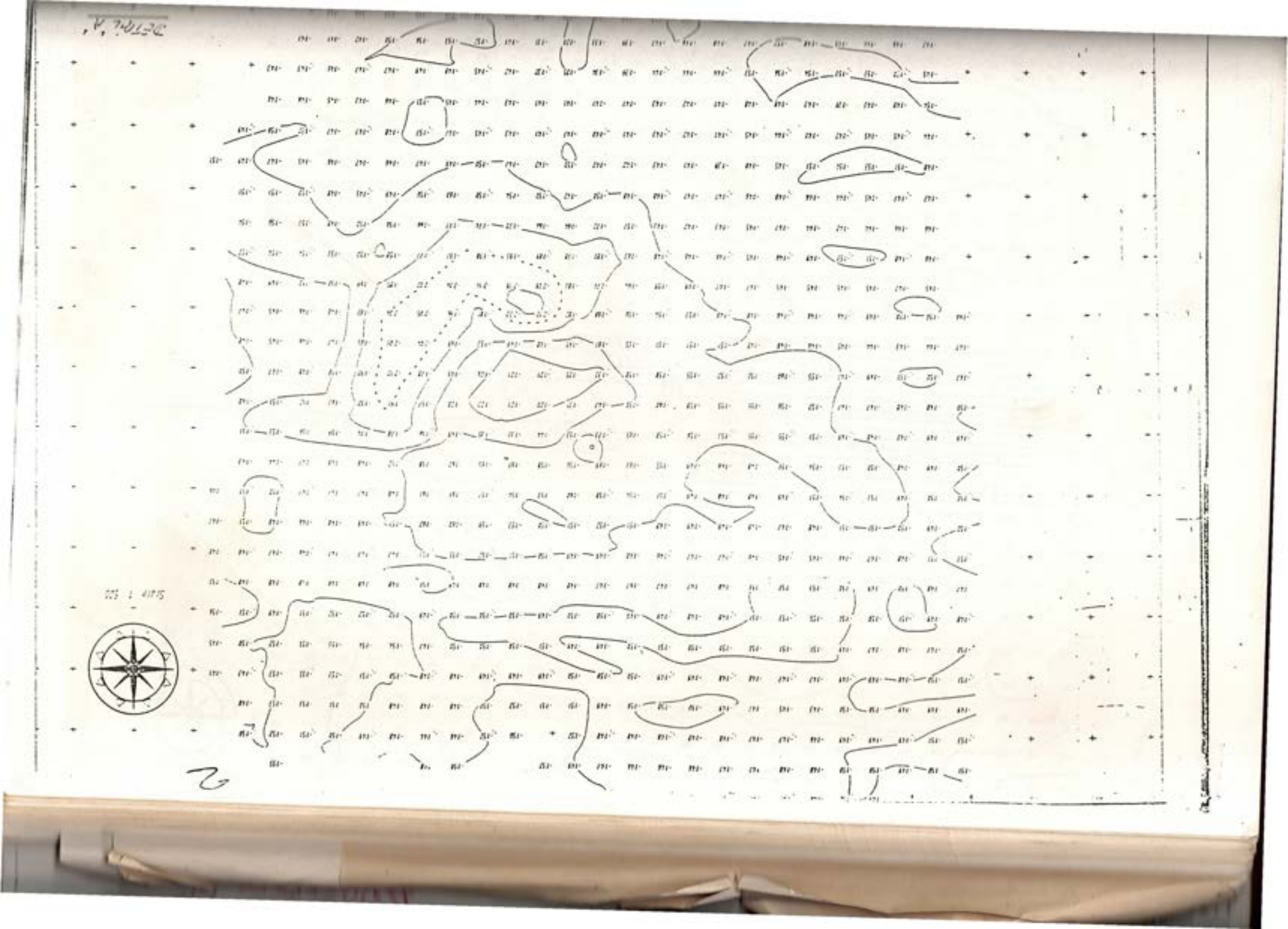
DRAWN A.A. OWYEANA	CHK Eng A.I. Ajuyah	APPR Ajuyah
PREPARED	AIRCRAFT TYPE B 727-231 5N-BBG	

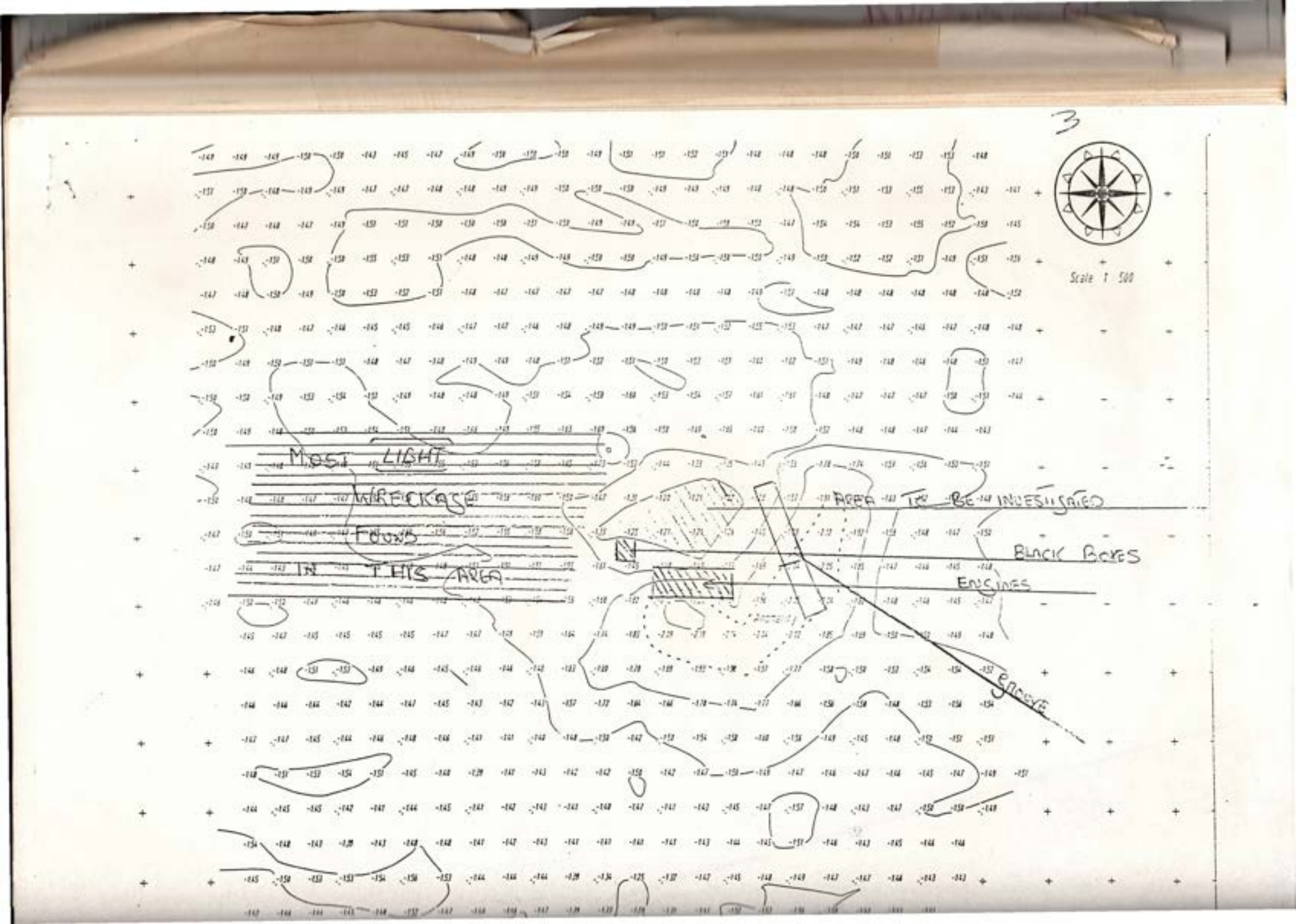
APPENDIX "D"



Position centre of detail 'B'.
WGS84 N: 6° 36' 57"
E 3° 49' 49"

Showing Turbines
Labels with survey Numbers

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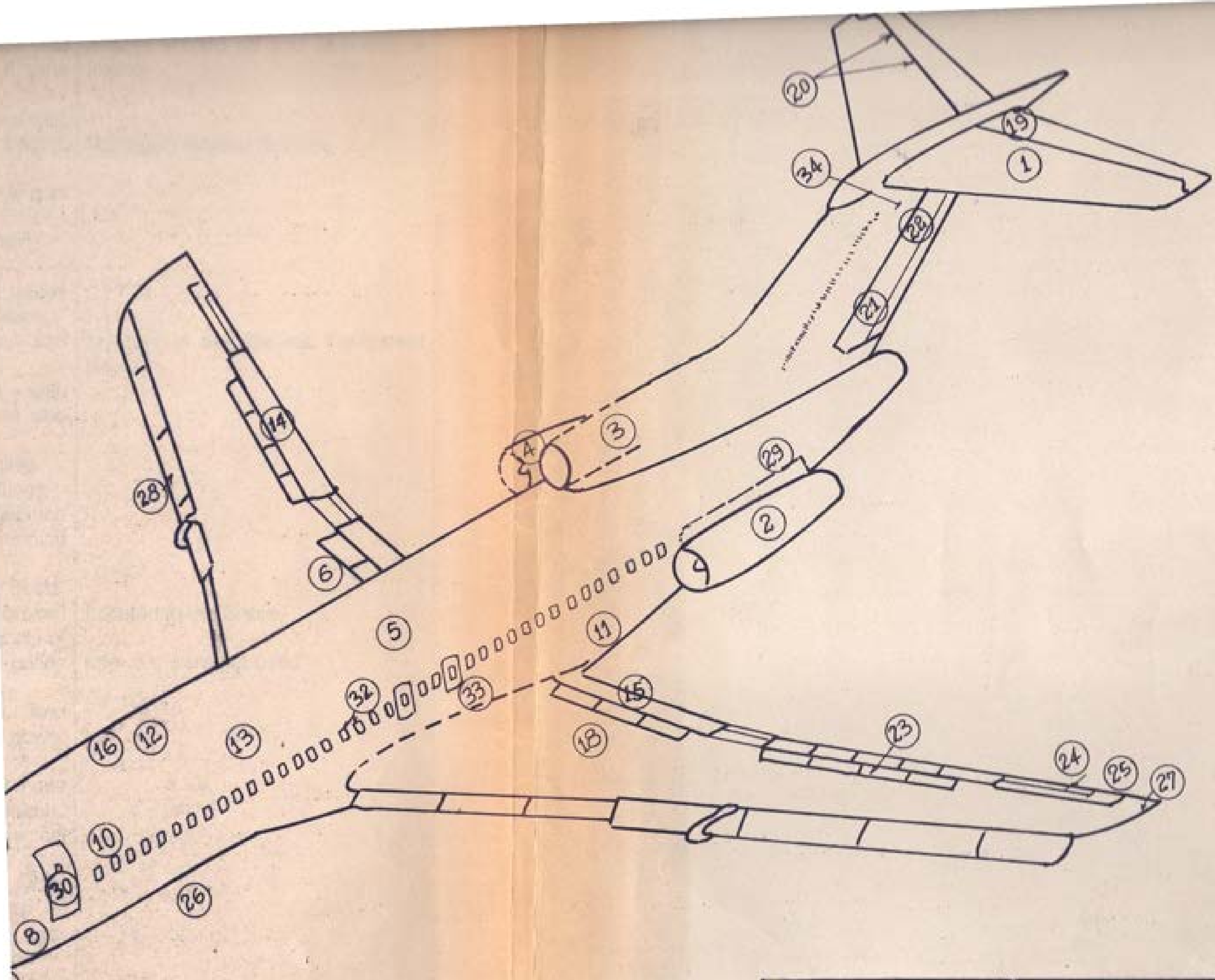
Scale 1 500
MOST LIGHT
WRECKAGE
FOUND
IN THIS AREA
AREA TO BE INVESTIGATED
BLACK BOXES
ENGINES
ENGINE



DRAWN	CHECKED	APPROVED

ITEM	WRECKAGE DISTRIBUTION CHART	REMARK
1.	Part of the left horizontal stabilizer	Contain marks indicating some robbing of internal components
2.	Damaged No. 1 Engine turbine disc assembly and pieces of Engine compressor disc and blades	Blades sheard off and liberated at impact
3.	Damaged No. 2 Engine turbine disc assembly and pieces of Engine compressor disc and blades	Damaged beyond Repairs
4.	Damaged No. 3 Engine Turbine disc assembly	
5.	Damaged APU Electrical starter	
6.	Broken Rear Spar	
7.	Shattered cockpit window panes and cockpit windshield attachment	
8.	Damaged ATC Transponder and Damaged DME Interrogator	Located in the Electric Equipment Racks
9.	Damaged ACARs control unit, Damaged F/E's control panel and Pilot's seat foam	
10.	Punctured portable oxygen bottle	
11.	Broken Hydraulic lines and fittings	
12.	Broken pieces of air-conditioning bay door, ground air-conditioning cart receptacle	
13.	Broken pieces of cabin seats, broken pieces of seat tracks, broken pieces of seat belt, large quantity of torned life vests, damaged galley components and oven timer	Located in the Cabin Life vest were not used
14 & 15.	Flap tracks, Flap drives and carriages and damaged flap power unit	
17&	Broken pieces of main and hose gear struts, Rear spar attachments, damaged Landing gear mechanical door linkages, broken main gear working beams, shattered tyres, broken wheel drums, pieces of brake stators/rotors, Landing gear support struts and Accumulator	
20.	Damaged elevator balance	
34.	Damaged elevator feel Computer	
21& 22.	Damaged rudder power control unit	The upper and lower Rudder power control units are mounted in vertical fin structure
23.	Damaged hydraulic spoiler actuators	

25.	Aileron control rods, damaged Aileron power control unit and damaged Aileron control	Aileron power control units is mounted in the left wheel well. Aileron control valve is located in the wheel well
26.	Fragmented pieces of fuselage skin and broken pieces of stringers	
27.	Damaged fuel shut off valve, pieces of fuel supply line and valves, damaged fuel Boast pump access panel and damaged Boast pump	
28.	Broken pieces of anti-ice ducts and damaged anti-ice valves	
29.	Broken pieces of pneumatic pipes and valves	
30.	Part of the passenger's door	
31.	Part of the toilet draining panel	
32.	Broken pieces of cabin windows	
32.	Broken cabin emergency exit window	

APPENDIX "G"

LAGOS STATE GOVERNMENT

.B. No.
phone: 632951
gram: 634722
tters to be addressed to the
etary

Lagos State Hospitals Management
Board
Laboratory Services
3 Broad Street
Lagos. Nigeria.

Ref:. No. C/45/Vol.I/6

15th January, 1997

The Chairman,
Panel of Inquiry Into ADC Crash,
Federal Secretariat,
Shahu Shagari Way,
Abuja.

THE ADC AIR PLANE CRASH
REIMBURSMENT/SUMMARY

I am directed to forward the attached summary and report on the ADC Plane Crash, and also for reimbursment on amount spent during the rescue Operation. All the attached are well explantory.

This is highly recommended for your action please.

Dr. M. A. Plumptre,
Chief Consultant.Pathologist

Enc.

MEDICAL AND Pathological Information 2

AND AIR PIRIE COUSH

P.M. No

(H.K.) ORDINANCE (CHAPTER 41)
ACT OF MEDICAL PRACTITIONERS

FOUND

Section 14

1. Date and hour of receipt of corpse at Mortuary: 9/11/96 to 18/11/96

2. Condition of corpse on arrival: Fixed Human Parts

3. Mode in which packed: Packed

4. Date and hour of holding examination: 6/11/97

5. Name of deceased (if known) : Unknown Human Parts

6. By whom identified: Accident Investigation Team

7. Approximate age: Teenage to Adult

8. Sex : Unknown

9. Height, Colour of Hair, Eyes peculis, clot and other marks or means of identify : Negroid and White Races

10. Probable date of death: 7/11/96

IN MEDICAL REPORT

EXTERNAL EXAMINATION: 35 Nylon Bags of human parts examined
fragments of human parts.
See Annex B for Detailed Reports.

INTERNAL EXAMINATION: BODY CAVITIES

SKULL BRAIN MENINGES:

Not seen at
part mortem.

MOUTH TONGUE LARYNX PHARYNX:

Not seen at post mortem.

LUNGS: Not seen at
Post mortem

HEART & BLOOD VESSELS: Not seen at
Post mortem.

STOMACH & INTESTINES & APPENDIX: Not seen at post mortem.

LIVER & GALL BLADDER: Not seen at Post mortem.

SPLEEN; Not seen at post mortem.

KIDNEYS & URETERS & BLADDER; Not seen at post mortem.

OVARIES & OTHER GENITAL ORGANS:
Not seen at post mortem.

OTHER REMARKS:

Nil

ANATOMICAL SUMMARY: Human Parts recovered from Accident site.

CONSISTENT WITH: Air Craft Accident.

I certify the cause of death in my opinion to be:

Multiple fractures.
Mutilation

Dr. H. A. Plumptre,
Chief Consultant (Pathologist)
L/S Laboratory Services.

Date: 6/1/97

ANNEX A

PANEL OF INQUIRY INTO THE ADC AIR PLANE FLIGHT 086 B727-231 WHICH CRASHED AT EJINRIN, EPE ON 7th NOVEMBER 1996

SUMMARY

A Total of 35 Nylon bags were received at reception centre situated in Julius Berger workyard at Itoikin from Saturday 9 November to Monday 18 November 1996, and were deposited into our mortuary. Each bag was examined according to your directives on 6th January 1997 as per your request. Each bag contained dismembered human parts which could not be pieced together to form a whole body. All these pieces were chunks of external tissues, mainly, scalps and skin (Flesh) that were torn off from many human bodies. These parts could not be typified to a particular person.

However, some were parts of the bodies of caucasian and Negroid races. Other parts of bodies recognisable in cluded parts of bones, especially of humerus, Femur and tibia. Internal organs such as Heart, Lungs, Intestines, Liver were not seen.

There was no evidence to show that the human parts had been bitten off from the main body by marine life. No evidence of burns were detected from the human parts.

In my opinion, the pieces of human parts examined might have been fragmented from the main body by a tremendous force produced by mid-air explosion combined with/or chopped off effect created by disintegrated or flying metal frame of the air craft and by pressure effects on the body on final landing. I was unable to weigh each bag because there was no weighing machine available to me. Also, I could not take the photographs of the contents of each bag since I have no photographer.

Both 2 procedures could be done if they are available (weighing machine and photographer). The total parts examined were 285 Human Parts.

We, in this Pathology Department, are glad to be part of the Investigation Team. We are sure this information will assist your panel.

N.B: I enclose details of the expenses so far incurred by this department during the salvage operation, for necessary disbursement by the authorities concerned.

Your co-operation will be gratefully appreciated.

Enc.

Dr H A Plumptre.
15/1/97.

Do not type

ANNEX C

4

Mortuary Section,
Laboratory Services,
General Hospital,
Lagos.

15th January, 1997

The Chairman,
Panel of Inquiry
into ADC Crash,
Federal Secretariat,
Shehu Shagari Way,
Abuja.

R E I M B U R S E M E N T

I hereby apply to be reimbursed for money spent so far during the Rescue Operation of ADC Plane Disaster that took place within the last 13 days.

The breakdown is tabulated below:

DAY	ITEM	QTY	UNIT COST	TOTAL
Ist day Sat. 9/11/96	Nylon Wrappers Petrol	4	₦7,200.00 500.00	2 basket of Human parts 1 Nylon Bag of Human "
2nd Day Sun 10/11/96	Petrol	1	300.00	1 Nylon bag of Human Pa
3rd Day Mon 11/11/96	REST DAY			NIL
4th Day Tues 12/11/96	Petrol Transport/Brake Repair		500.00 750.00	6 Nylon Nil
5th Day Wed 13/11/96	Transport		250.00	6 Nylon bags of Human Parts
6th Day Thurs 14/11/96	Transport		250.00	7 Nylon bags of Human Parts.
7th Day Fri 15/11/96	Transport		250.00	6 Nylon bags of Human Parts
8th Day Sat 16/11/96	Transport		250.00	5 Nylon bags of Human Parts
9th Day Sun 17/11/96	Transport		250.00	Nil
10th Day Mon 18/11/96	Transport		250.00	4 Nylon bags of Human Parts
11th Day Tue 19/11/96	Transport		250.00	1 Nylon bag of Human Parts
12th Day Wed 20/11/96	REST DAY			NIL
Thur 21/11/96	MEMORIAL SERVICES DAY			NIL
SAT 9th	Sunday 10th [illegible] Expenses on feeding	5	₦100 ₦1,000.00 Junior Officers	
	TOTAL ₦12,000			

.../2.

Total money spent by by me was ₦12,000 (Twelve Thousand Naira).

I would be gratefull if I am reimbursed.

Dr. H. A. Plumptre,
Chief Consultant Pathologist.

ANNEX B

DETAILED POST MORTEM REPORT OF EACH BAG

S/No	Bag No	CONTENT
1	1	Upper 1/3 of femur (thigh bone) still attached to part of hip bone at the joint (hip) by flesh, - 1 part.
2.	4554	Upper ⅓ of tibia (skin bone) - 1 part.
3.	4551	Human Flesh - 21 parts.
4.	4510	Severed hand and foot with 10 parts of hu human flesh - 12 parts.
5.	4534	4 big human flesh - 4 parts.
6.	4572	Human flesh - 15 parts.
7.	4538	A finger and 9 pieces of Human flesh - 10 parts.
8.	4520	A severed hand and 4 pieces of human flesh - 5 parts.
9.	4548	Human Flesh - 17 parts.
10.	4511	A severed Hand - 1 part.
11.	4536	Fractured forearm and hand with manged flesh and part of ribs vertebre portion - Cervical. Bits of Human flesh. - 18 parts.
12.	4513	Below the wrish amputation of hand; Human flesh (16 pieces) - 17 parts.
13.	4521	19 pieces of Human flesh - 19 parts.
14.	2	Part of a foot and hand 6 pieces of human flesh - 7 parts.
15.	3	Part of of a hand and 4 pieces of human flesh - 5 parts.
16.	4	3 pieces of Human flesh - 3 parts.
17.	4512	Part of hand and 7 pieces of Human flesh - 8 parts.
18	4537	(1) Crushed hand though fingers were recognisable (2) Part of humerus and clavicle attached to scalp and part of toreo (3) 15 pieces of Human flesh - 17 parts.
19.	4463	2 Hands cut off abve the wrist - 2 parts
20.	4464	4 pieces of hands each cut off above the wrist - 1 part.
21.	4522	I hand below the wrist - 1 part.
22.	4465	Crushed fingers with a hand and a piece of human flesh - 2 parts.
23.	4514	I foot severed above the ankle 6 pieces of Human flesh - 7 parts.

/No	Bag No	CONTENT
4.	4549	1 black shoe (California Inscription on the keel) 1 hand cut off above the wrist part of scalp. 18 pieces of human flesh - 20 parts.
5	4550	upper ½ of humerus 7 pieces of humaan flesh - 8 parts.
6	4509	A hand cut off above the wrist 7 pieces of human flesh - 8 parts.
7	4571	Part of pelvis joined to the head of femur and upper 1/3 of the femur. 20 pieces of human flesh - 21 parts.
8	4552	Part of a heel and 2 pieces of human flesh - 3 parts.
9	4535	8 pieces of human flesh - 8 parts.
0	4526	3 pieces of human flesh - 3 parts.
1.	4525	A hand cut soft above the wrist - 1 parts.
2.	4523	1 crushed foot cut off below the ankle 4 pieces of human flesh - 5 parts.
3.	4574	Upper ½ of tibia cut off below the knee - 1 parts.
4.	4524	7 pieces of human flesh - 7 parts.
5.	4573	3 pieces of human flesh - 3 parts.

TOTAL 285 Human Parts.

APPENDIX 'S'

ATC TAPE TRANSCRIPT OF ADC AIRLINES FLIGHT ADK086 OF 7 NOVEMBER, 1996 - TOWER

FREQUENCY - 118.1MHZ

TIME	FROM	TO	TEXT OF TRANSMISSION
154000	TWR	NIG524	Aero 2 ... correction 524 landed at 40, you're welcome.
154010	NIG524	TWR	Thank you.
154014	5-PN	TWR	-PN rolling.
154020	TWR	5-PN	(2 microphone clicks to indicate response).
154114	ETH941	TWR	941, request taxi?
154117	TWR	941	Taxi 19R.
154120	941	TWR	Roger, taxi 19R, 941.
154124	TWR	5-PN	5-PN, airborne 42, Radar 124.3.
154129	5-PN	TWR	124.3.
154149	QNK657	TWR	Tower, QNK657 'LG' South, 2000, 19L
154153	TWR	QNK657	QNK657 cleared to land 19L, surface wind is Westerly, 10knots, check greens.
154200	657	TWR	OK, to land ... eh, 19L, QNK657.
154225	TWR	ETH941	ETH941 is cleared Lagos, eh, TYE en-route Accra maintain FL140, request level change en-route, squawk 0500.
154233	941	TWR	Roger, cleared TYE FL140, request level change en-route, squawk 0500. We have, eh, 33 passengers + 11 ... crew on board, and fuel endurance 0400.
154251	TWR	941	Say again souls on board?
154255	941	TWR	33 passengers and 11 crew.
154258	TWR	941	Endurance?
154300	941	TWR	0400.
154303	TWR	941	Roger.
154413	TWR	657	QNK657 on the ground at ... 45, point of departure, souls on board
154427	657	TWR	Sir, ... Abuja, ... we have ah, 10 souls on board, 12 crew inclusive.
154434	TWR	657	Roger.
154437	941	TWR	ETH941 ... eh, request line up?

.../2.

TIME	FROM	TO	TEXT OF TRANSMISSION
154440	TWR	941	Line up, cleared take-off, departure make a right turn out, eh, establish on heading 270, the wind is, eh, 270/10knots.
154449	941	TWR	Roger, cleared line up and take off, ah, 19R, after airborne right turn heading 270, set on course.
154458	TWR	941	That's correct.
154606	TIX185	TWR	Lagos Tower, TIX185?
154612	TWR	185	Taxi 19L.
154614	185	TWR	19L, thank you, Sir.
154634	TWR	941	... 941, airborne 47, Radar 124.3.
154639	941	TWR	124.7, good night, Sir.
154643	TWR	941	124 decimal 3.
154649	TWR	941	I say again, contact Radar 124 decimal 3.
154715	-	-	(Inaudible transmission).
154807	185	TWR	Lagos, TIX185?
154809	TWR	185	185 is cleared Lagos, ah, UTA ... (interferrence from 123.8MHZ, the ATIS frequency).
154828	185	TWR	... 11 crew, endurance remaining, ah, 3 hours.
154830	TWR	185	Roger.
154831	-	-	(Interferrence from ATIS again).
155000	TWR	185	TIX185 cleared for take-off ... departure right turn heading 330, surface wind is Westerly at 10knots.
155008	185	TWR	Roger, cleared for take-off, ah, departure after airborne, right headin, 330.
155013	TWR	185	That's correct.
155039	-	-	(Interferrence from ATIS).
155250	185	TWR	TIX185 in the right turn.
155255	TWR	185	Roger, Airborne at, ah, 54, Radar 124.3.
155302	185	TWR	124.3, good night, Sir.
155339	-	-	(Interferrence from ATIS).
155503	QNK 626	TWR	Lagos, QNK626?
155511	TWR	626	... 626.
155513	626	TWR	Request start-up for Kaduna.

.../3.

TIME	FROM	TO	TEXT OF TRANSMISSION
155520	TWR	626	Approved, 1007, 35, time at 56.
155526	626	TWR	1007, 35 degrees ... ah, 6 ... '26, cleared to start.
155548	5-LJ	TWR	Lagos Tower, helicopter Lima Juliet?
155553	TWR	5-LJ	Go ahead.
155555	5-LJ	TWR	Roger, ah, we have a flight plan, 1530 departure to "TRIDENT 9". Could you please help us leave the flight plan open, we are still expecting one of the passengers.
155610	TWR	5-LJ	The one I have here is for 1200.
155620	5-LJ	TWR	There's one for 1530 Zulu, over.
155638	TWR	5-LJ	I have 7 o'clock, 10 o'clock, 12 ofclock ... that's all ... I don't have that of 15.
155655	5-LJ	TWR	Sir, let me get the copy ... I will relay to you.
155704	-	-	(Interferrence from ATIS).
155731	5-LJ	TWR	OK, I am with the copy, Sir, it was signed by ... Romeo Alpha India Sierra, ... toddy at time1325, over.
155749	TWR	5-LJ	I am not doubting whether you have a copy or you don't have a copy ... What I am telling you is that, your flight plan is expired ... is expired, what is your intention?
155801	5-LJ	TWR	I am sorry ... (Interference from ATIS again).
160026	626	TWR	626, request taxi.
160028	TWR	626	626, confirm?
160030	626	TWR	Affirmative, QNK626.
160032	TWR	626	... 19L.
160034	626	TWR	... 19L, link 1, 626.
160040	-	-	(Interferrence from ATIS).
160121	TWR	Unidentified Acft.	... UTA Calabar maintain level 150, request level change en-route, squawk 0520.
160127	Unidentified Acft.	TWR	0520, cleared Lagos UTA en-route Calabar level 150 to request level change, standby for souls on board.

.../8.

TIME	FROM	TO	TEXT OF TRANSMISSION
TIME			
160133	TWR	Unident-ified A/C	Roger.
160135	EXW 4205	TWR	Lagos, Echo-line 4205, taxi?
160139	TWR	5205	19L.
160140	4205	TWR	Roger, 19L, and, ah, be advised we routing Owerri first.
160144	TWR	4205	Roger.
160321	-	-	(Interferrence from ATIS).
160339	075	TWR	Lagos, ADK075, 84 souls, 7 crew endurance 0300 and we're ready for take-off.
160350	TWR	075/ NEN371	Roger, ... (inaudible transmission North East 371 down at 04, souls on board?
160358	371	TWR	NEN371, we have 12 souls on board, all crew.
160404	TWR	371	13, confirm?
160407	371	TWR	12souls on board.
160410	TWR	371	Roger, you're down at 04.
160423	TWR	626	QNK626, souls on board, endurance?
160425	626	TWR	We have 95 souls, 11 crew, endurance is 3 hours.
160432	TWR	626	Roger.
160437	626	TWR	..Number 2 ... at the holding point.
160440	-	-	(Interferrence from ATIS).
160511	TWR	4205	EXW4205, souls on board and endurance?
160515	4205	TWR	4205, 102 on board, 09 crew inclusive, endurance 0330.
160520	-	-	(Interferrence from ATIS).
160540	5-PN	TWR	... 5NAPN, good evening.
160542	TWR	5-PN	Go ahead?
160545	5-PN	TWR	Ah, request taxi clearance ... to the ... Compass Swing area for a check?
160552	TWR	5-PN	... check your radio ...
160556	5-PN	TWR	We are at the Police Airwing.

.../5.

TIME	FROM	TO	TEXT OF TRANSMISSION
160600	TWR	5-PN	Roger, approved. Proceed to ... call link 2 for crossing.
160603	5-PN	TWR	Roger, call you link 2 for crossing.
160704	TWR	ADK086	ADK086, Lagos?
160711	-	-	(Interferrence from ATIS).
160740	075	TWR	Tower, confirm you've been calling, ah, ah, ADK075?
160746	TWR	075	I'm trying to raise ... ADK086; he he is not in any of our frequencies.
160752	-	-	(Interferrence from ATIs).
160813	QNK 604	TWR	Ah, Lagos, QNK604?
160815	TWR	604	Go ahead.
160819	604	TWR	Request start up ... start clearance for JOS?
160820	TWR	604	Start is approved, QNH1007, temperature is ah, ... 35.
160825	604	TWR	Roger, 1007, we call you for taxi.
160827	5-PN	TWR	Lagos, from the -PN.
160829	TWR	-PN	Go ahead.
160840	-	-	(Interferrence from ATIS).
160908	604	TWR	Lagos, the QNK6, eh ... 04, requesting taxi?
160920	604	TWR	Lagos, QNK 604?
160927	604	TWR	Lagos Tower, QNK604, do you read?
160930	TWR	604	QNK604, go ahead.
160932	604	TWR	Eh, requesting taxi.
160933	TWR	604	Taxi 19L ... Air Gabon 138 ? (Interferrence from AGN 138).
160940	604	TWR	19L, QNK 6, eh ... 04.
160946	AGN138	TWR	Lagos, good afternoon, AGN138, request start up, destination...
161001	138	TWR	Lagos, good afternoon AGN138, request start-up, destination Abidjan, Delta 45 ...
161005	TWR	138	Start-up is approved, AGN138, QNH1007, temperature 32.
161015	138	TWR	Ah, approved, Gabon 138.

.../6.

APPROACH CONTROL FREQUENCY: 124.7MHZ

TIME	FROM	TO	TEXT OF TRANSMISSION
154207	NEN371	APC	Lagos NEN371, UTA this time, level 280, next call for descent.
154213	APC	371	Roger, report ready for descent.
154248	5-MT	APC	Lagos 5-MT?
154251	APC	5-MT	5-MT, go ahead.
154254	5-MT	APC	Eh, we checked UTA this time at 210.
154259	APC	5-MT	5-MT, roger, continue with en-route frequencies, good day.
154301	5-MT	APC	Good day, Sir.
154321	371	APC	Lagos, NEN 371 ... request descent?
154327	APC	371	NEN 371 descend FL160 report leaving 280.
154334	371	APC	Leaving 280 for 120.
154345	APC	NEN371 / ADK042	NEN ... standby, break ah, ADK 042 Lagos?
154351	371	APC	Say again?
154353	APC	042	ADK 042, Lagos, how do you read?
154403	EMI 2552	APC	Lagos, EMI 2552, UTA boundary FL150 to Benin .
154408	APC	2552	Confirm Premium 2552?
154410	2552	APC	Affirmative Sir.
154411	APC	2552	Roger, Premium 2552, continue with enpoute frequencies, godd day.
154416	2552	APC	Roger, continue with en-route, EMI, good day.
154421	APC	371	NEN, confirm you copied descend to FL160.
154424	371	APC	Confirm level 1-6-0?
154427	APC	371	That is correct, report leaving 280.
154430	371	APC	OK we are out of 280 for 160.
154533	5-GP	APC	Lagos Approach, 5NFGP, good afternoon.
154537	APC	5-GP	Station calling Approach, say again your call-sign?
154540	5-GP	APC	5N-FGP calling Lagos.
154545	APC	5-GP	5NFGP, this is Lagos Approach go ahead.
154549	5-GP	APC	Gulf-stream IV from Freetown (GFLL) to Abuja (DNAA) level 450 maintaining, estimating your FIR in-bound at 1600, GW at 06 BD27, arrival Abuja at 41 17 souls, endurance 02+45 go ahead.

.../7.

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TIME	FROM	TO	TEXT OF TRANSMISSION
154615	APC	371	NEN 7 ... correction 371, contact Radar 124 decimal 3.
1546 22	371	APC	124.3, 7 ... 371.
154632	APC	5-GP	5N-FGP, say again flight level and your estimates.
1546 38	5-GP	APC	Level 410, estimating GWASERO 1606, BD27, Abuja 41,over.
1546 49	ETH941	APC	Radar, ETH941, good evening, out of 2,000.
154700	APC	5-GP	5-GP, report FIR and Squawk 1700.
154703	5-GP	APC	1700 on the squawk, next call FIR -FGP.
	APC	5-GP	That is correct:
154707	APC	941	Station calling say again your call-sign?
1547 10	941	APC	Ah, ETH941, good afternoon, we are out of 2,500 ... climbing 140 on a heading of 270.
154720	APC	941	Contact Radar 124 decimal 3.
154725	941	APC	124.3, good night.
154727	ADK086	APC	Lagos Approach, eh ... good afternoon, ADK086.
154730	APC	086	ADK086, good evening, go ahead.
154736	086	APC	A Boeing 727, eh, Port-harcourt to Lagos, flight level 240, estimating SEPER at 55, 'LG' 1609; on board 144, crew of 01, ... eh, correction 10 included, endurance take-off 0220, go ahead.
154754	APC	086	Say again total crew?
154757	086	APC	10 included.
154802	APC	086	ADK086 is cleared to 'LG' FL240, no delay for VOR approach, runway-in-use 19L, QNH 1016, correction 1007 and, eh, time now 49.
154815	086	APC	Level 240, no delay for 19L, 1007.
154820	APC	086	Eh, ADK086 squawk 0561.
154825	086	APC	0561.
154934	5-PN	APC	Lagos Approach, good evening, 5N-MPN with you.
154941	APC	5-PN	5N-MPN go ahead.

.../8.

APPENDIX 'Q'

TIME	FROM	TO	TEXT OF TRANSMISSION
154949	5-PN	APC	Roger, Sir, we ... estimate SEPPER 1612 and destination 1645.
154955	APC	5-PN	1645 for Port-Harcourt, confirm?
154957	5-PN	APC	Charlie.
155000	APC	5-PN	5-PN ... report maintaining 230 at SEPER.
155005	5-PN	APC	Call you 230 SEPER, 5-PN.
155015	QNK 615	APC	Approach, QNK615?
155017	APC	615	QNK61 ... 5, Lagos ... Approach, go ahead.
155026	615	APC	727, Kano to Lagos, level 260, estimating UTA 1602 and, ah, 'LG' at 17; we have 106 on board, 15 crew inclusive, endurance on departure 3 hours ... 2 hours and 30 minutes, 5N-MMM.
155035	APC	615	Confirm estimate for Lagos is 1617?
155040	615	APC	Affirmative.
155042	APC	615	QNK615 is cleared to 'LG' FL260, expect no delay for VOR approach, runway-in-use 19L, QNH1007, contact time is 52, squawk 0556.
155052	615	APC	0556, ah, QNH1007, ah, we are cleared 'LG' level 260 to expect no delay for 19L, confirm?
155105	APC	615	That is correct.
155135	QNK 645	APC	EH, Lagos Approach, good evening, QNK 645.
155138	APC	615	QNK685, good evening, go ahead.
155140	645	APC	727, Port-Harcourt Lagos, level 220, estimating SEPER at time 56, 'LG' 1609 ... 61 souls, 10 crew inclusive, endurance 0330 departure.
155156	APC	645	QNK645 is cleared 'LG' FL220, expect no delay for VOR Approach runway-in-us is 19L, QNH 1007, and, eh, contact time 53, squawk 0562.
155215	645	APC	Roger time synchronised, ATC clears the 645 'LG' level 220, VOR 19L, 0562, we call you SEPER.

.../9.

TIME	FROM	TO	TEXT OF TRANSMISSION
155228	086	Unknown Person	....., 12345.
155230	Unknown Person	086	Roger.
155240	APC	5-PN	5-PN, what is your passing level?
155243	5-PN	APC	-PN, 185.
155247	APC	5-PN	185, roger and what is your distance, Sir.
155250	5-PN	APC	-PN, 30.
155252	APC	5-PN	Roger.
155320	APC	5-PN	5-PN, report passing 220.
155322	5-PN	APC	Roger.
155339	086	APC	Approach, ADK 086.
155354	APC	086	ADK086, Lagos, go ahead.
155400	086	APC	Yeah ... we are SEPER point, Sir, and, ah, next call descent.
155415	APC	086	Roger.
155430	APC	086	ADK086, confirm squawking 0561?
155440	APC	086	" " " "
155525	APC	086	ADK086, Lagos?
155529	APC	086	ADK086, Lagos?
155604	5-PN	APC	5-PN out of 220.
155610	APC	5-PN	Station calling, say again?
155616	5-PN	APC	5-PN out of 220 for 230.
155621	APC	5-PN	5-PN, roger, report maintaining 230.
155626	QNK645	APC	Ah, Lagos, QNK645, SEPER, level 22
155630	APC	645	QNK645, roger, report ready for descent.
155638	645	APC	Approach, QNK645?
155635	APC	645	That's correct, confirm requesting for descent?
155642	086	APC	Affirmative, 86 requesting descent
155650	APC	645	QNK645 descend to FL160, report leaving 220.

.../10.

TIME	FROM	TO	TEXT OF TRANSMISSION
155655	086	APC	Lagos, this is 86 requesting descent, negative KABO.
155657	APC	086	ADK086, confirm requesting for descent?
155659	086	APC	Affirmative, 73 miles.
155701	APC	086/645	Stand-by/Break, QNK645, Lagos, how do you read?
155703	086	APC	He just called you SEPER at, eh, 57.
155705	APC	645	QNK645, Lagos?
155710	086	645	QNK645, eh, Lagos is calling you.
155722	645	086	Eh, OK, Sir, if you can relay, eh, 645 checked Seper at time 56, level 220.
155725	086	APC	OK, KABO says he checked Seper at 56, and, eh, 220, and ADK086 is 69 miles.
155730	APC	086	Roger, standby, you have opposite direction traffic at 230, -PN, eh, Beech - 190.
155742	5-BN	APC	Approach, 5N-JBN%
155749	APC	5-BN	Stand-by, and the QNK645, you maintain FL220, report again for descent.
155757	APV	5-BN	5N-JBN, Lagos, go ahead.
155800	5-BN	APC	Cessna 441 from AJAOKUTA to Lagos, we are climbing out of 190 for 200, we estimate the UTA 1608, 'LG' 29, 3 souls on board, 4 hours 30 minutes fuel, over.

.../12.
1

TIME	FROM	TO	TEXT OF TRANSMISSION
155814	APC	5-BN	5N-BBN is cleared 'LG' FL200, expect as no delay for approach, VOR approach, runway-in-use 19L, QNH1007, and, eh, contact time at 59, squawk 0564.
155830	5-BN	APC	OK, 0564 coming down on the squawk, 5-BN is cleared to 'LG' flight level 200, no delay is expected on 19L, 1007; next call UTA in-bound, 5-BN.
155845	APC	5-BN	That's correct.
155848	APC	5-PN	5-PN, what is your distance?
155858	5-PN	APC	5-PN, we are 53.
155904	APC	5-PN	Roger, ADK086, your distance?
155907	086	APC	Ah, 55 now, we have the man on our T-CAS, we are just, ah, crossing.
155911	APC	086	Ah, ADK086, report 50 miles.
155916	086	APC	ADK086 has just crossed the traffic ... to our left.
155919	APC	086	Report 50 miles.
155923	5-PN	APC	-PN confirm:we are visual passage with the traffic.
155928	APC	086	Roger,ADK086, descend to FL160, report out of .... eh, report passing 230.
155934	086	APC	Could you say again the clearance, you were blocked out.
155940	APC	086	ADK086, descend ... FL160.
155943	086	APC	Leaving 240, call you out of 230.
155950	645	APC	Lagos, QNK645 requesting descent, 70 DME.
155956	645	APC	Lagos, QNK645?
155957	APC	645	QNK645, stand by.
155959	615	APC	Lagos, QNK615, eh, 96 miles, requesting descent.
160010	APC	615	QNK615, confirm?
160013	615	APC	Affirmative, Sir, 94 miles, request descent.
160021	APC	615/ 086	QNK615 standby for descent/Break, ADK086, contact radar now 124 decimal 3.

.../12.

TIME	FROM	TO	TEXT OF TRANSMISSION
160026	086	APC	Ah, 124 decimal 7, confirm?
160028	APC	086	124, decimal 3.
160029	086	APC	124.3, ADK 086.
160032	APC	ADK045	ADK064 ...045 descend to FL180.
160038	APC	045	ADK045, Lagos, how do you read?
160042	Unidenti-fied Acft	APC	(Depressed microphone - no modulation
160045	APC	045	ADK 045 Lagos?
160050	Unidenti-fied Acft	045	ADK045 Lagos is calling you.
160052	645	APC	Ah, Lagos QNK 645 ... (faded) confirm the PN ... traffic we standin by descent.
160057	APC	645	QNK645 maintain a listening watch, I say again descend to FL180.
160102	645	APC	Lagos, you are confusing the traffic for us, How are we sure you are giving the right people, the right clearance.
160107	APC	645	We say again (KABO) QNK645 is that not the call-sign? Re-cleared 180.
160112	645	APC	You are calling ADKO and you are calling KABO, which one are you clearing to 180?
160120	APC	645	KABO, just do your flying - QNK645 re-cleared 180. We said KABO, ADKO is gone, he is with, ah, Radar.
160135	APC	645	The guy will not ... he just refused to maintain listening watch. QNK645, for the third time, re-cleared FL180.
160141	645	APC	Re-cleared 180, I am not reading you, how do you read me?
160146	APC	645	You have a bad radio there. Your receiver is bad, others are reading me.
160148	645	APC	Not everybody is reading you.
160153	615	APC	Eh, QNK615 is standing by for descent?
160157	APC	615	Ah, I say again descend to flight level .....

.../13.

TIME	FROM	TO	TEXT OF TRANSMISSION
160202	615	APC	Lagos, 615 - KABO?
160207	APC	615	Standby, 615 you are number two (2), standby for descent, maintain 260, what is your distance now?
160213	615	APC	79 miles.
160215	APC	615	79, confirm?
160216	615	APC	Affirmative.
160219	APC	ADK043	OK, the ADKO - 043 distance?
160221	APC	043	ADK 043, Lagos?
160225	APC	043	ADK 043, Lagos?
160228	Unidenti-fied Acft.	APC	You cleared him to ... to Radar.
160235	645	APC	Approach QNK645 45DME, ah, passing 200.
160240	APC	645	Roger you contact Radar now on 124.3, good afternoon.
160243	645	APC	124.3.
160246	615	APC	And the QNK615 is 74 miles, ah, standing by on descent.
160256	615	APC	Approach KABO 615?
160300	APC	615	Yeah, we have opposite direction traffic ... he is ADK043.
160306	5NBHL	APC	Lagos Approach, 5NBHL.
160310	APC	5-HL	HL, standby.
160318	APC	615	The QNK 615 re-cleared to FL 180.
160320	615	APC	615 in-bound on 040 radial, re-cleared 180, leaving 260 this time.
160322	-	-	(2 clicks on the microphone) Lagos the QNK 632 ...
160340	APC	615	QNK 615, contact Radar on 124 - decimal 3.
160342	615	APC	124.3.
160347	QNK632	APC	Lagos, QNK 632.
160349	APC	632	QNK632 confirm your estimate for 'LG' 1626 from, ah, Abuja?
160354	632	APC	Affirmative.
160357	APC	632	Roger ... request souls on board and endurance?

.../14.

TIME	FROM	TO	TEXT OF TRANSMISSION
160400	632	APC	'13, 0230.
160404	APC	632	130, confirm?
160409	632	APC	Thirteen all crew CBN and, ah, 0230.
160411	APC	632	QNK632 is cleared 'LG' flight level, eh, 220, expect no delay for VOR approach, runway-in-use 19L QNH - 1007, and eh, contact time 05.
160425	632	APC	ATC clears QNK 632 to 'LG' level 220, no delay VOR 19L, 1007.
160431	APC	632	That is correct squawk 0564.
160434	632	APC	Say the squawk again?
160437	APC	632	I say again, squawk 05 ... 64, 0564.
160440	632	APC	0564 coming up for QNK632.
160443	5-BN	APC	Approach, 5-BN?
160450	APC	5-BN	5-BN, go ahead.
160455	5-BN	APC	Ah, you asked me to squawk 0564, how come you are giving KABO 0564 again?
160514	5-GP	APC	Lagos, the GP, position?
150518	APC	5GP	5-GP, go ahead.
160519	5-GP	APC	We checked, 'GW', at time 1603 level 410, contact with Kano.
160523	APC	5-GP	Roger, 5NFGP ... (faded).
	-	-	The ... eh, TIX 185, Lagos.
160527	TIX185	APC	Go ahead, Sir.
160530	APC	185	What's your out-bound radial, confirm 100?
160537	185	APC	Charlie, charlie and we are standing by to pass the estimates.
160542	APC	185/ 5-PN	Stand by the -PN, confirm the out-bound radial, 122?
160550	5-PN	APC	Charlie - PN.
1605555	5-PN	APC	Lagos, 5N-MPA.
160600	5-HL	APC	Lagos Approach, 5-BHL standing by.
160604	APC	5-HL	5NBHL is cleared 'LG' FL240 expect no delay for VOR approach 1007 and contact time 07.
160609	5-HL	APC	5-HL cleared 'LG' maintain 240, no delay VOR approach 19L.
160623	APC	5-HL	That's correct 5-HL squawk 0563.

TIME	FROM	TO	TEXT OF TRANSMISSION
160628	5-HL	APC	0563 coming on the squawk, - HL.
160635	5-PA	APC	Lagos, 5N-MPA.
16606			
160643	APC	086	ADK 086, Lagos?
160646	APC	086	ADK 086, Lagos?
160659	616	APC	Approach, QNK 615?
160706	APC	615	QNK 615 contact Radar 124. decimal 3.
160715	615	APC	I am with Radar Sir, we are trying to raise ABK 086.
160720	APC	615	Roger, OK, you can raise him .
160735	615	APC	Say again?
160741	APC	-	(Faded transmission) - bye-bye.
160744	5-PA	APC	Lagos, 5NMPA.
160747	APC	5-PA	5N-MPA, Lagos go ahead.
160749	5-PA	APC	Roger, it's a Beech-1900 from Port-harcourt Lagos estimate UTA boundary at 20, 'LG' 40, we have 21 souls endurance 0300, goa ahead.
160815	APC	5-PA	5N-MPA is cleared to 'LG' FL220 expect no delay for VOR approach Runway-in-use is 19L, QNH1007 contact time 09, squawk 0565.
160825	5-PA	APC	5-PA cleared 'LG' 220 expecting no delay for VOR runway 19L, 0565 on the squawk.
160833	APC	5-PA	That's correct, confirm your in-bound radial 122?
160839	5-PA	APC	That's correct.
160844	5-BN	APC	5BN UTA in-bound next call top of descent.
160848	APC	5-BN	5-BN, roger.
160853	632	APC	QNK 632 ... at 07.
160858	APC	632	Ahp QNK632, roger.
160905	185	APC	Lagos, TIK 185?
160908	APC	185	Go ahead.
160910	185	APC	OK, we estimating the UTA at 15 destination 40.

.../16.

TIME	FROM	TO	TEXT OF TRANSMISSION
160918	APC	185	TIX185, roger report UTA maintaining FL230.
160920	185	APC	Roger, we'll do.
160930	APC	EMI2550	EMI 2550, DME?
160945	APC	5-ET	Yankee - Echo - Tango, DME?
160955	2550	APC	Eh, DME is eh,34.
161000	APC	-	... On QNH 1007, reaching cleared for VOR 19L, report 'LG' South bound leaving 2,000.
161015	5-ET	APC	Confirm you want us down to 2,000.
161023	APC	5-ET	2,200feet on QNH 1007.
161028	5-ET	APC	2,000ft on 1007, ET.
161030	APC	5-ET	That's correct.

.../17.

RADAR FREQUENCY 124.3MHZ

TIME	FROM	TO	TEXT OF TRANSMISSION
154030	RADAR	NIG289	Aero 289 estimates?
154032	289	RADAR	TMA out at 25, correction, 03, Warri will be at 40, 1640.
154040	RADAR	289	Roger.
154203	5-PN	RADAR	Lagos Radar, good evening, 5-PN with you on runway heading.
154210	RADAR	5-PN	-PN, good evening, passing 35 you turn left.
154213	5-PN	RADAR	Roger.
154548	RADAR	5-PN	5MPN continue climb to FL230.
154552	5-PN	RADAR	230, -PN.
154604	RADAR	NIG2981X	NIG 2981X position now TMA squawk A2,000 continue with en-route, ah, continue with Lagos information on 127.3.
154610	2981X	RADAR	2,000ft ah, 2000, 127.3.
154630	NEN371	RADAR	Lagos Radar, good evening, NEN 371 on your frequency?
154638	RADAR	371	November Echo November, squawk Ident?
154642	371	RADAR	Identing.
154645	RADAR	NEN371	November Echo November radar identified at 62 miles south East of the field fly heading ... VOR approach.
154702	371	RADAR	... down to 50 for 19L, 371.
154709	RADAR	371	That's correct.
154728	ETH941	RADAR	Radar .... ETH941 good afternoon out of 3500ft climbing140, heading 270.
154736	RADAR	941	ETH941, squawk ident?
154739	941	RADAR	Identing, 941.
154744	RADAR	941	... 941, radar identified 4 miles West of the field, verify passing 3,800?
154751	941	RADAR	.... (no modulation)
154755	RADAR	941	Roger, proceed on course, when ready.

.../48.

FROM	TO	TEXT OF TRANSMISSION
941	RADAR	Roger, Sir, the 941 we are estimating ah, TYE 1556 and destination Accra will be 1625, Sir.
RADAR	941	... (faded transmission).
941	RADAR	Sorry, Radar could you say again the clearance for ETH 941?
RADAR	941	I say again, re-cleared FL200.
941	RADAR	200, roger, Sir.
RADAR	371	5N - ah, NEN 371 turn left now heading 300.
371	RADAR	Left heading 300.
RADAR	371	That's correct.
941	RADAR	Lagos, ETH941.
RADAR	941	Go aahead, Sir.
941	RADAR	OK, Sir we're out of 170 climbing 200 initially, and Accra has re-cleared us 280, is that OK with you.
RADAR	941	No objection to your climb, report TYE, Sir.
941	RADAR	Thank you Sir, we'll do.
941	Unidentified Str.	..... climbing to 28000 on way to Accra we are following the Coast line over head the City of Cotonou and into Accra, eh, we should be there in 25 minutes from now ... with (faded transmiss
RADAR	371	Turn further left heading 270.
371	RADAR	Left 270, 371.
RADAR	371	That's correct.
TIX185	RADAR	Radar, good evening, TIX185 with you on the right turn.
RADAR	185	TIX185, good evening, radar identified on departure, verify you're passing 1400.
185	RADAR	Charlie, charlie.
RADAR	185	You want a left or right turn?
185	RADAR	OK, we'd like a right turn.

.../19.

APPENDIX 'G'

TIME	FROM	TO	TEXT OF TRANSMISSION
1334	RADAR	185	No problem, you turn right heading 330.
1336	ETN941	RADAR	ETN941, eh ....
1338	RADAR	185	TIX185, I say again, continue turning heading 330.
1426	185	RADAR	Radar, eh, TIX185, ah, again, can we turn further right, Sir?
1430	RADAR	185	The TIX185 ... turn right heading 360, 360.
1438	185	RADAR	Roger, right 360.
1508	RADAR	NEN371	NEN371, continue descent to 2000ft, 1007.
1515	371	RADAR	Dawn to 2,000, 371.
1534	RADAR	185	TIX185, 6 miles North-West of the field, turn right, resume own Navigation.
1540	185	RADAR	Roger, turn right, eh, resume normal navigation, eh.
1608	RADAR	185	TIX185, re-cleared FL250.
1610	185	RADAR	"h, we request 230, please, Sir.
1614	RADAR	185	Re-cleared FL230.
1630	185	RADAR	Roger, stand by estimates.
1643	ETN941	RADAR	Lagos, ETN941 maintaining 280, checked TYE at 1557, contact with Accra.
1650	RADAR	941	Thank you, squawk A2000, continue with Accra, safe flight.
1651	941	RADAR	Good day, Sir.
1654	RADAR	5N-BFW	The 5-BFW position at TMA now, squawk A2000, continue with Lagos Information on 127.3.
1703	5-FW	RADAR	Roger, thank you, to 127.3, good bye, 5-FW.
1745	RADAR	NEN371	NEN2 ... 371 ... maintain present heading descend to 2,000feet, QNH 1007, proceed direct to 'LG', cleared for VOR approach 19L.
1756	371	RADAR	OK, cleared for VOR approach, we call you 'LG'
1801	RADAR	371	Turn left heading 230 now to proceed direct to 'LG'.

.../20.

TIME	FROM	TO	TEXT OF TRANSMISSION
155810	371	RADAR	OK, to go direct 'LG'.
155815	RADAR	185	TIX185, 10 miles East of the field, radar services terminated, maintain squawk, contact Approach 124.7.
155835	185	RADAR	124.7, good night, Sir.
160026	371	RADAR	NEN370 is 'LG' South for 19... left.
160029	RADAR	371	NEN371, position over-head 'LG', contact Tower 118.1 ...
160036	371	RADAR	Good day, Sir.
160039	086	RADAR	Lagos Approach, eh, ADK086, eh, coming out of 210 for 160 ... 44 miles.
160041	RADAR	086	ADK086, squawk ident?
160045	086	RADAR	Ident.
160140	NIG289	RADAR	Lagos, 289 TMA out, 3.5.
160142	RADAR	289	Roger, position now TMA, squawk A2000, continue with Information on 127.3.
160144	289	RADAR	127.3.
160157	RADAR	086	ADK086, radar indentified at 41 miles South-East of the field, fly heading ... fly heading ... eh, 320, vector round traffic, descend maintain FL50.
160208	086	RADAR	Down to 50, heading 320.
160241	RADAR	086	ADK086, what is your actual heading now?
160248	086	RADAR	We are heading, eh, 3 ... 15, turning 320.
160250	RADAR	086	Maintain heading 300, maintain heading 300.
160252	645	RADAR	Ah, Lagos Radar, good evening QNK645, with you, descending out of 205.
160255	086	RADAR	Ah, OK, we have the ....
160258	RADAR	086	Say again?

.../21.

- 20 -

TIME	FROM	TO	TEXT OF TRANSMISSION
155810	371	RADAR	OK, to go direct 'LG'.

TIME	FROM	TO	TEXT OF TRANSMISSION
160308	086	RADAR	I have the traffic ... and I continue my heading to 330, to avoid him.
160315	RADAR	086	That's better.
160318	645	RADAR	Radar QNK645.
160320	RADAR	645	QNK645, Lagos.
160327	645	RADAR	Ah, we go ahead Sir, descending out of 190.
160324	RADAR	645	QNK645, squawk ident?
160330	RADAR	645	QNK645 radar identified at ah, 36 miles South-East of the field, fly heading ... 300, radar vectors for VOR approach 19L, descend maintain FL80.
160340	RADAR	086	ADK, re-cycle squawk 0561.
160349	615	RADAR	Lagos Radar, QNK615?
160352	RADAR	615/ 086	Standby one, ADK086, Lagos?
160355	RADAR	086	ADK086, Lagos?
160401	"	"	ADK086, Lagos?
160402	"	"	ADK086, Lagos?
160424	"	"	ADK086, Lagos?
160428	Unidenti- fied Tfc.	086	ADK086, Lagos wantsyou.
160440	RADAR	615	QNK 615, radar identified 63 miles North-East of the airfield, fly heading 230, radar vectors for VOR approach 19L, descend and maintain 80.
160452	615	RADAR	615 re-cleared 80, heading 230.
160454	RADAR	086	ADK086, Lagos?
160456	615	RADAR	Say again?
160459	RADAR	086	ADK086, Lagos, how do you read?
160505	RADAR	086	ADK086, Lagos?
160510	615	RADAR	Lagos, what's his destination, we'll try and raise him for you.
160518	RADAR	645	QNK645, reduce speed to 220kts, Sir.
160520	645	RADAR	Roger, to reduce speed 220kts.
160523	RADAR	645	Could you help raise ADK086?
160528	645	086	ADK086, QNK645?

.../22.

TIME	FROM	TO	TEXT OF TRANSMISSION
160530	RADAR	086	ADK086 Lagos?
160543	645	RADAR	Lagos, is he in-bound or out-bound, the ADK086?
160548	645	086	ADK086, Lagos calling.
160552	645	RADAR	Can you check with Approach, Lagos?
160557	RADAR	086	ADK086, Lagos?
160608	RADAR	086	ADK086, Lagos?
160612	615	RADAR	Lagos, QNK615?
160614	RADAR	615	615.
160616	615	RADAR	OK, is the 086 in-bound to Lagos or out-bound from Lagos?
160619	RADAR	615	He is in-bound to Lagos ... he is, heh, your traffic ... that's why I gave you 80. I cannot determine his position now.
160624	615	RADAR/ 086	OK, ah, standby one/ADK086 from QNK615?
160632	Unidenti-fied Tfc.	RADAR	Lagos, check may be he is on Approach frequency.
160651	645	RADAR	Radar, 645?
160659	RADAR	086	ADK086, Lagos?
160706	RADAR	086	ADK086, Lagos?
160710	645	RADAR	Radar, QNK645?
160715	RADAR	645	QNK645.
160722	645	RADAR	What level was the ADK086 cleared to?
160727	RADAR	645	... 50 ... FL50.
160730	645	RADAR	Roger, copied, the 645 is descending out of 130.
160735	RADAR	615	The QNK615, you stop descent at FL100.
160738	615	RADAR	Say again?
160739	RADAR	615	QNK615, you copy?
160740	615	RADAR	Confirm, eh, re-cleared 100?
160742	RADAR	615	Affirm.
160744	615	RADAR	615.
160745	RADAR	086	The ADK086, Lagos, how do you read?
160754	615	RADAR	OK, Lagos, what was the last level you gave him?
160800	RADAR	615	FL50, Sir.

.../23.

TIME	FROM	TO	TEXT OF TRANSMISSION
160812	615	RADAR	And did he respond?
160814	RADAR	615	Ah, he responded, and he was even a traffic to TRIAX; when they crossed I called him, I couldn't see him again.
160816	615	RADAR	What was the time of the clearance
160817	RADAR	615	Time of clearance I gave him a heading of, eh, 3 ... 10.
160818	615	RADAR	What time?
160818	RADAR	615	Say again?
160819	615	RADAR	At what time?
160819	RADAR	615	Ah, some 10 minutes ago.
160820	615	RADAR	Lagos, don't you have him on your radar scope?
160823	RADAR	615	I had him last at, eh, 32 miles.
160825	615	RADAR	On what radial?
160827	RADAR	615	On radial 122.
160850	615	RADAR	Lagos, what about the ADK043?
160900	RADAR	086	ADK086, Lagos?
160904	645	RADAR	Lagos, QNK645, 'LG' joining the hold.
160911	645	RADAR	Radar Air Traffic, QNK645?
160913	RADAR	645	QNK645.
160915	645	RADAR	The QNK645 over 'LG' joining the hold.
160918	RADAR	645	Say again, Sir?
160921	645	RADAR	Say again?
160923	RADAR	645	Say again your last transmission.
160925	645	RADAR	Ah, QNK645 over-head the 'LG' at time 09, pjoining the hold.
160928	RADAR	645	Roger,... you ,.. stand-by.
160954	615	RADAR	Lagos, QNK615?
161007	615	RADAR	Lagos, QNK615?
161011	RADAR	615	615.
161013	615	RADAR	OK, do you havem ah, ADK043 on this frequency?
161015	RADAR	615	ADKO what?
161016	615	RADAR	Do you have ... ADK043?
161020	RADAR	615	Negative, negative.
161022	615	RADAR	Do you have the 086?
161025	RADAR	615	..... (inaudible transmission).

.../24.

TIME	FROM	TO	TEXT OF TRANSMISSION
161030	615	RADAR	Is he the one coming from Port-Harcourt with, ah, 144 souls on board?
161033	RADAR	615	Affirm.
161035	615	RADAR	... 144 minus ten on board?
161044	RADAR	615	Are you talking to any ADKO with, ah, 144 minus ten on board?
161049	615	RADAR	Ah, negative, we are just trying to raise ... may be we can find another ADKO in the air ... that can probably give us information.
161058	RADAR	615	The QNK615, you report overhead 'LG' maintaining 100 and stand-by for further instructions.
161105	615	RADAR	OK, we'll do and, ah ... we are 14 miles North of 'LG'.
161112	645	RADAR	And Lagos, the 645 in-bound in the hold, maintaining 80.
161116	RADAR	645	Roger.
161131	075	086	ADK086 from 075?
161258	615	RADAR	Radar Approach, KABO ... Radar, KABO 615?

TIME	FROM	TO	TEXT OF TRANSMISSION
161030	615	RADAR	Is he the one coming from Port-Harcourt with, ah, 144

APPENDIX "H"

Start of Transcript

>1550:47 {18:12}
RDO Roger, Sir , we .... estimate SEPER 1612 and destination '1645.

>1550:53 {18:18}
CAM Approach briefing now, we are coming in on 102 radial MSA will be 2200 feet, airport elevation is 135 feet 113.7 VOR frequency, if we have to hold it will be a parallel entry right turn to 006 heading usually another right turn back to the VOR then a left turn. Otherwise we are approved us to 2000 feet, on the VOR, descending to 590. Missed approach point is on 6 miles. Missed approach procedure climb straight ahead out bound on runway track or as directed.. Weather in Lagos is fair, slight dust haze. Start our descent 75 miles.

>1550:56 {18:21}
CAM 1645 for Port-Harcourt, confirm ?

>1550:57 {18:22}
CAM Charlie

>1551:00 {18:25}
CAM 5-PN ... report maintaining 230, at SEPER.

>1551:07 {18:32}
CAM Call you 230 at SEPER 5-PN.

>1551:11 {18:36}
CAM Approach, QNK 615 ?

>1551:18 {18:43}
CAM QNK 61...5, Lagos... Approach, go ahead.

>1551:22 {18:47}
CAM 727, Kano to Lagos, level 260, estimating UTA 1602 and, "LG" at 17; we have 106 on board, 15 crew inclusive, 3 hours... 2 hours and 30 minutes, 5N-MMM

>1551:41 {19:06}
CAM Confirm estimate for Lagos is 1617 ?

>1551:44 {19:09}
CAM Affirmative.

>1551:46 {19:11}
CAM QNK 615 is cleared to "LG" FL 260, expect no delay for VOR approach, runway in use 19L, QNH 1007, contact time is 52, squawk 0556.

:01 {19:26}
0556, ah, QNH 1007, ah, we are cleared "LG" level 260 to expect no delay for 19L, confirm ?

:10 {19:35}
1 When do you want to go down?

:11 {19:36}
75

:11 {19:36}
That is correct.

:15 {19:40}
Captain

:16 {19:41}
1 Yes, sweetheart.

:19 {19:44}
Water, Coke, and Fanta ? We have run out of juice.

:23 {19:48}
1 Ah ! I cannot run out of juice Ke? Me ? Ran out of juice? I am loaded with juice , I can give you some if you want. I am loaded with Juice. Laughter! OK give me water. You have run out of juice, but I can give you some, I am loaded with that.

:25 {19:50}
Sounds of laughter

:38 {20:03}
Eh, Lagos Approach, good evening, Kabo 645

:45 {20:10}
727. Port Harcourt Lagos, level 220, estimating SEPER at time 56, "LG" 1609, ... 61 souls. 10 crew inclusive , endurance 0330 departure.

:03 {20:28}
Kabo 645 is cleared "LG" FL 220, expect no delay for VOR approach, runway in use is 19L, QNH 1007 and eh, contact time

:20 {20:45}
Roger, time synchronised, ATC clears the 645 "LG" level 220 VOR 19L, 0562, call you SEPER.

:31 {20:56}
Laughter.

:35 {21:00}
Roger.

>1553:40 {21:05}
CAM-1 I want to tell him something. Laughter! That nobody is telling you say again any time I'm airborne and I hear your voice and it is changed I will remind him.

>1554:17 {21:42}
CAM-1 I haven't heard Sheriff's voice lately

>1554:21 {21:56}
CAM-2 Sir , who is the Captain?

>1554:34 {21:59}
CAM-1 I don't know. I think I know him facially or when they call his name. Almost everybody seem to know me, but I don't know them.

>1554:43 {22:08}
CAM-2 It is true sir, Everybody has to know you.

>1554:47 {22:12}
CAM Approach ADK 086

>1554:52 {22:17}
CAM ADK 086, Lagos, go ahead

>1554:55 {22:20}
CAM Yeah, ...we are SEPER point Sir, and, ah, next call descent.

>1555:00 {22:25}
CAM Roger,

>1555:12 {22:37}
CAM-1 Operations, ADK 086, Operations ADK 086...ADC Operations ADK 086

>1555:36 {23:01}
CAM-2 They are probably hearing us, but we can't hear them

>1555:39 {23:04}
CAM-1 I'll call when I am closer.

>1556:17 {23:42}
CAM-2 Yes Sir, start to brief him when you get close.

>1557:08 {24:33}
CAM Station calling, say again?

>1557:14 {24:39}
CAM 5-PN out of 220

>1557:15 {24:40}
CAM 5-PN, out of 220 for 230

:19 {24:44}
5-PN, roger, report maintaining 230

:24 {24:49}
Ah, Lagos, KABO 645, SEPER level 220

:29 {24:54}
KABO 645, roger report ready for descent

:33 {24:58}
Approach KABO 645?

:35 {25:00}
That is correct, confirm requesting for descent

:37 {25:02}
Affirmative, 086 requesting descent

:41 {25:06}
KABO 645 descent to FL 160, report leaving 220

:43 {25:08}
Ah !

:47 {25:12}
Lagos, this is 86 requesting descent negative KABO

:54 {25:19}
ADKO 086, confirm requested for descent?

:57 {25:22}
Affirmative, 73 miles

:01 {25:26}
Standby/Break, KABO 645, Lagos, how do you read?

:06 {25:31}
He just called you SEPER at, eh, 57

:13 {25:38}
KABO 645 Lagos?

:17 {25:42}
KABO 645, eh, Lagos is calling you

:20 {25:45}
Eh, ok, sir, if you relay for 645checked SEPER at time 56,
level 220

:25 {25:51}
Okay, KABO says he checked SEPER at 56 and, eh, 220 and
ADK 086 is 69 miles

>1558:36 {26:01}
CAM Roger, standby, you have opposite direction traffic at 230 - PN, ch, Beech - 190

>1558:43 {26:08}
CAM-2 Let me just slow down a little.

>1558:45 {26:10}
CAM Approach, 5N - JBN?

>1558:48 {26:13}
CAM Standby, and the KABO 645, you maintain FL220, report [illegible] again for descent

>1558:56 {26:21}
CAM You should say that he gives you a radial to descend or hold.

>1558:59 {26:24}
CAM-1 He go say I'm taking job from him.

>1559:00 {26:25}
CAM SN - JBN, Lagos, go ahead

>1559:01 {26:26}
CAM Cessna 441 from Ajaokuta to Lagos we are climbing outof 190 for 200, we estimate the UTA 1608, LG, 29, 3 souls on board, 4 hours 30 minutes fuel, over

>1559:18 {26:43}
CAM 5N - JBN is cleared Lg. FL200, expect no delay forapproach, VOR approach. Runway in use 196, QNH 1007, and ch contact time at 59 squawk

>1559:27 {26:52}
CAM-2 This man has no priority,

>1559:38 {27:03}
CAM Ok, 0564 coming down on the squawk 5N-BN is cleared to LG flight level 200no delay is expected on 196, 1007, next call UTA in-bound, 5-BN

>1559:42 {27:07}
CAM-1 I don't say you should climb-0, don't climb and meet somebody above you please.You are cleared to 240.

>1559:51 {27:16}
CAM That is correct.

>1559:56 {27:21}
CAM-1 Em

>1559:56 {27:21}
CAM 5-PN, what is your distance?

APPENDIX "G"

>1600:00 {27:25}
CAM 5-PN, we are 53.

>1600:04 {27:29}
CAM Roger, ADK 086, your distance?

>1600:07 {27:32}
CAM-1 Ah, 55 now, we have the man on our TCAS,we are just, ah, crossing.

>1600:16 {27:41}
CAM ADKO 086, report 50 miles.

>1600:20 {27:45}
CAM-1 ADKO 086 has just crossed the traffic . . . to our left.

>1600:23 {27:48}
CAM Report 50 miles.

>1600:26 {27:51}
CAM PAPA November confirms we are visual passagewith the ADKO.

>1600:31 {27:56}
CAM Approach KABO 615 - UTA request descent.

>1600:35 {28:00}
CAM Report passing flight level 230

>1600:38 {28:03}
CAM-2 Ah this man is close

>1600:39 {28:04}
CAM Roger, ADKO 086, descent to FL 160, report out - -eh, report passing 230

>1600:39 {28:04}
CAM-1 Could you say again, the clearance you were blocked out.

>1600:41 {28:06}
CAM ADKO 086, descend --- FL 160

>1600:45 {28:10}
CAM-1 Leaving 240, call you out of 230.

>1600:49 {28:14}
CAM Lagos, KABO 645 requesting descent, 70 DME

>1600:51 {28:16}
CAM [sound similar] Throttle horn

>1600:57 {28:22}
CAM Lagos, KABO 645

1601:00 {28:25}
AM KABO 645 standby

1601:04 {28:29}
AM Lagos KABO 615, eh, 96 miles, requesting descent.

1601:08 {28:33}
AM-1 The fact that you want to go down real fast that doesn't mean you should roast the engine. If you look behind, number 2, it is almost going to red. You've got the throttle pulled back, always consider that.

1601:13 {28:38}
AM KABO 615. Confirm?

1601:15 {28:40}
AM Affirmative, sir, 94 miles, request descent.

1601:17 {28:42}
AM KABO 615 standby for descent/break, ADKO 086,contact radar now 124 decimal 3.

1601:25 {28:50}
AM-2 Ah - 124 decimal 7, confirm?

1601:29 {28:54}
AM 124 decimal 3.

1601:32 {28:57}
AM-2 124.3, ADKO 086.

Tape transcription now transferred from 124.7 mHzto 124.3 mHz, the radar controlelrs frequency]

1601:41 {29:06}
AM-1 Lagos approach, eh, ADKO 086, eh, wind out of 210for 160 - 44 miles

1601:48 {29:13}
AM ADKO 086 squawk Ident ?

1601:50 {29:15}
AM Ident.

1602:01 {29:26}
AM ADKO 086, radar identified at 41 miles southeast offlie field, fly heading - - fly heading - eh, 320, vectorround traffic, descent maintain FL 50

1602:15 {29:40}
AM-1 Down to 50, heading 320.

>1602:24 {29:49}
CAM-2 All the traffic they are talking about - - -
unintelligible

CAM-1They don't know what they are doing, don't mind them.

>1602:31 {29:56}
CAM Lagos 289 TMA out, 35.

>1602:34 {29:59}
CAM Roger, position now TMA, squawk A2000continue with
information on 127.3.

>1602:37 {30:02}
CAM 127.3

>1602:37 {30:02}
CAM-1 You see, take this throttle back to this point, at
highaltitude, that is the trick

>1602:41 {30:06}
CAM ADKO 086, what is you actual heading now?

>1602:46 {30:11}
CAM-1 We are heading eh, 3 - - - 15, turning 320

>1602:51 {30:16}
CAM Maintain heading 300, maintain heading 300.

>1602:56 {30:21}
CAM-1 Ah, we - - - - -

>1602:57 {30:22}
TCAS Traffic, Traffic

>1602:58 {30:23}
CAM-1 I have it.

>1603:00 {30:25}
CAM-1 Ah, ok, we have the - - -

>1603:01 {30:26}
CAM Say again

>1603:03 {30:28}
CAM-1 I have the traffic - and I continue my heading to 330,
to avoid him

>1603:08 {30:33}
CAM That's better.

>1603:09 {30:34}
CAM I think we should turn right.

>1603:11 {30:36}
TCAS Reduce descent, reduce, climb, climb, climb.

>1603:20 {30:45}
CAM (Sound similar) High speed klacker.

>1603:25 {30:50}
CAM (Sound Similar) Horn.

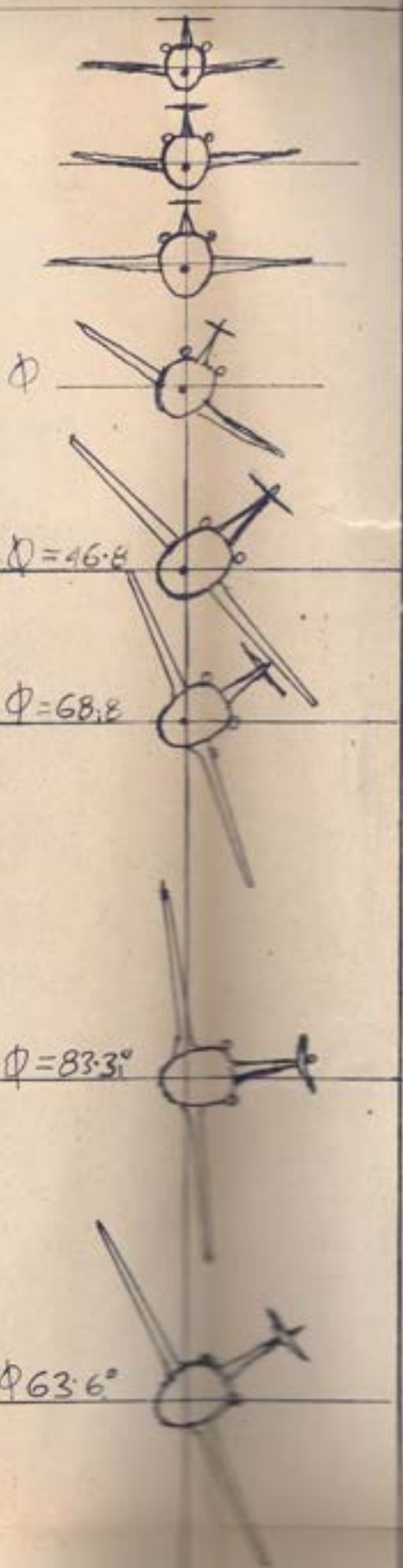
>1603:32 {30:57}
CAM Scream

>1603:40 {31:05}
CAM Knocking noise.

End of Recording
End of Transcript

APPENDIX C

FOR REFERENCE POINT	TIME IN SECONDS	FLIGHT 086 VERTICAL ACCELERATION	BANK ANGLE	AIRCRAFT CONFIGURATION
80	0	1·0	0.0	
85	5	1·0	0·0	
90	10	1·01	0.0	
95	15	- 1·37	43·2	
100	20	0.85		
105	35	1.46	46·8	
110	30	2.42	65·6	
115	35	2·76	68·8	
116	35	2·76	68·8	
		2·71	68·3	
		2·74	68·6	
		2·63	63 6	
116		8·39	83·2	
116		8·44	83 · 2	
117		8·32	83·10	
		8·44	83·3	
		2·23	63·4	
		2·18	62·7	
		2·20	63·0	
		2·18	63·6	
118		2·28		
		2·25	63·6	
119		2·26	63·6	
120	40	2·10	61·1	

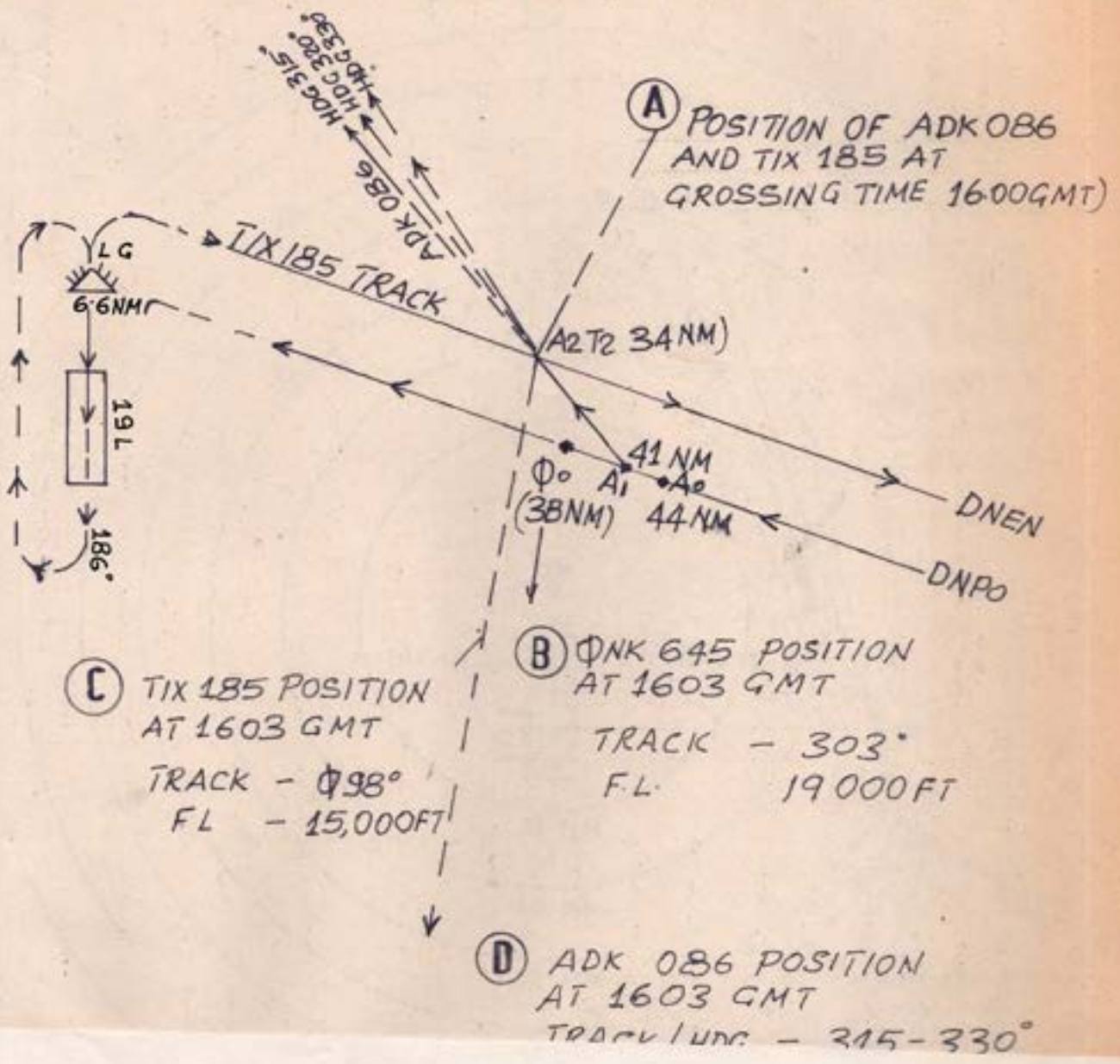


DRAWN [illegible]	CHECKED [illegible]

APPENDIX I.

ANNEX A TO ADK 086
AIRCRASH REPORT
DATED - 12 FEBUARY 1997

DIAGRAMATIC ILUSTRATION OF
RADAR VECTORING AND RELATIVE
POSITIONS OF ADK086 TIX 185 AND ΦNK 645 AT 1603 GMT



ADC Airlines 5N-BBG Passenger Manifest 29/10/06

APPENDIX "J"

-1- EPB(6327) 08 ? LOS 1510

	No.	NAME		TKT NO	SEAT	CLASS
GIVEN	1	JORDAN G. MR	✓	075	2C	F/C
	2	ERIC LEBLANC MR	✓	953	4D	F/C
	3	NIELSEN L.E. MR	✓	272	1D	F/C
	4	[illegible]OONG MR	✓	702	3D	F/C
	5	SURISH I. CHF	✓	734	3A	F/C
	6	MAGGS M. MR	✓	973	4F	F/C
GIVEN	7	[illegible] C. MR	✓	089	1A	F/C
GIVEN	8	[illegible] A. MR	✓	743	3C	F/C
	9	ALLAGOA V. MR	✓	908	1F	F/C
	10	CHILADAKIS C. MR	✓	115	3F	F/C
GIVEN	11	CHINWOKE O.C. MR	✓	939	20B	Y/C
GIVEN	12	HAZEEZ-AGBAJE M.O. MR	✓	080	7B	✓
GIVEN	13	[illegible] C. MR	✓	749	UNIC 1	✓
GIVEN	14	AGBAKOBE B.A. MR	✓	715	27E	✓
	15	PULLAM B. MR	✓	996	4A	F/C
GIVEN	16	OKAFOR M.C. MR	✓	548	12D	Y/C
GIVEN	17	[illegible] I.N.V. MR	✓	239	18F	✓
	18	OLUKUNLE E.A.	✓	016	19A	✓
GIVEN	19	M[illegible] O. CHF	✓	316	9D	✓
GIVEN	20	A[illegible] A.G. MR	✓	306	14E	✓
GIVEN	21	KUMAR P.S. MR	✓	369	15C	✓
	22	OKOR M.E. MRS	✓	038	11D	✓
GIVEN	23	CRUICKFORD S. MR	✓	738	16B	✓
	24	KUKOYI E.A. MR	✓	848	17F	✓
	25	EMEDA V. MRS	✓	039	14E	✓
	26	JOHN A.B. MRS	✓	699	15C	✓
GIVEN	27	OGUNMOLA A. ALH	✓	820	21B	
GIVEN	28	MCM[illegible] J. MR	✓	751	17B	
GIVEN	29	ROSS A. MR	✓	819	21A	
	30	TAJI M.T. ALH	✓	623	12A	
		HASSAN M.A. ALH	✓	525	20C	
		[illegible] J. MR	✓	950	17E	
		KAINE G. MRS	✓	037	18E	
		ODESEN B. MR	✓	955	18B	✗✗

	NAMES	TKT NO	S/NO	CLASS
INFO GIVEN 35	BUMET G. MRS ✓	480	18B	Y/C
INFO GIVEN 36	BUMET L. MR ✓	479	18A	✓
37	SHAOBEFA MR ✓	068	6A	✓
38	PERAZZO G. MR ✓	421	12E	✓
INFO GIVEN 39	ASG P. MR ✓	851	18D	✓
INFO GIVEN 40	LAMINKA MR ✓	013	6F	✓
✓ 41	ADEKUNLE S.A.O. MR ✓	837	20C	✓
INFO GIVEN 42	OLOBUCHMA U. MR ✓	803	9C	✓
INFO GIVEN 43	SACRAMENTO A. MR ✓	804	9A	✓
44	AJUMOGOBIA F. I. MR ✓	054	5D	✓
INFO GIVEN 45	GMR COURTOIS M. MR ✓	538	7D	✓
INFO GIVEN 46	NKANGA E. A. MR ✓	537	7E	✓
INFO GIVEN 47	MISHRA R.K. MR ✓	105	RS 7	✓
INFO GIVEN 48	MELAKUM A. MR ✓	120	RS 8	✓
INFO GIVEN 49	MBADIM Q. J. MAST (5YRS) ✓	514	15D	✓
INFO GIVEN 50	OKPALA E. D. MR ✓	748	RS 9	✓
INFO GIVEN 51	DIKE M. MRS ✓	995	23F	✓
INFO GIVEN 52	DIKE E. MR ✓	994	23D	✓
GIVEN 53	AGABA S. MR ✓	992	22D	✓
54	NWAGBARA N. CHF ✓	709	25E	✓
55	UDEH I. MR ✓	990	21D.	✓
56	FADEYI D. A. O. CHF ✓	986	24C	✓
57	IBRAHIM J. MR ✓	518	16A	✓
58	NWACHUKWU G. C. MR ✓	991	21F	✓
59	EZIUKWU D. MR ✓	721	6B	✓
60	AGU P. MR ✓	720	25F	✓
61	UDOCHUKWU E. N. MR ✓	719	25E	✓
GIVEN 62	MOHAMMED R. MR ✓	979	22A	✓
GIVEN 63	FALEYE A. MR ✓	980	22B	✓
GIVEN 64	USIAGWU M. N. MISS ✓	724	10D	✓
65	OJO T. MR ✓	703	19B	✓
66	NNACHI S. MR ✓	704	19C	✓
67	UBOH P. MR ✓	712	27F	✓
68	SAM S. MISS ✓	121	14B	✓
69	IJEH S. MISS ✓	120	14C	

	NAME	TKT NO.	S/B	CLASS
[illegible]	EKUNDAYO F. MR ✓	705	19B	Y/C
GIVEN [illegible]	SULIEMAN M. ALH ✓	731	11B	✓
GIVEN [illegible]	OLUGHU A. N. MR ✓	983	24A	✓
GIVEN	AJANI S. O. MR. ✓	967	12A	✓
GIVEN [illegible]	OKEKENARU A. MR ✓	742	RQ4	✓
GIVEN 75	IGE S. A. MR. ✓	744	RQ5	✓
GIVEN 76	OKPARA J. MR ✓	750	RQ6	✓
GIVEN 77	OPARA[illegible] O. MR ✓	998	24E	✓ *
GIVEN 78	BOTTER R. MR ✓	516	15E	✓
GIVEN [illegible]	EVANS G. MR ✓	107	9F	✓
80	SOTANDE T. MR ✓	726	11B	✓
81	JAMEDA S. T. MR ✓	725	20F	✓
GIVEN 82	ABBI I. MISS ✓	985	24B	✓
GIVEN 83	OJI P. MRS ✓	126	11B	✓
84	DAUDI P. MR ✓	997	24D	✓ *
GIVEN 85	ORJI O. MR ✓	125	11A	✓
86	OSOMA I. MISS ✓	127	11C	✓
87	HIGGINS C. R. ✓	517	15F	✓
GIVEN 88	JOHN S. MR ✓	739	RQ9	✓
GIVEN 89	NWOOCHA N. U. MRS ✓	740	RQ2	✓
90	EBASIC A. O. MRS ✓	741	RQ3	✓
GIVEN 91	LANIYAN V. O. MR ✓	730	10C	✓
GIVEN [illegible]	SALAMI G. O. MR ✓	729	10B	✓ *
GIVEN 93	AKE C. PROF ✓	083	8D	✓
GIVEN [illegible]	THOSAN J. DR ✓	084	8E	✓
95	BAGATI IDE A. O. MR ✓	706	19E	✓
[illegible]	BELLO B. MR ✓	082	7A	✓
GIVEN 97	OMOLA B. O. MR ✓	112	14D	✓
~~GIVEN~~ 98	BARDE S. ALH ✓	732	12B	✓
99	BOYSTER H. MR ✓	733	17F	✓
100	COMEALL M. MR ✓	113	14F	✓
101	ESIELLE G. MR ✓	723	20A	✓
GIVEN 102	MOHAMMED J. B. ALH ✓	124	8C	✓
103	LINUS A. MR ✓	722	7B	✓

		NAMES		TRT NR.	S/NR	CCNS
	97	NWAKAIBE P. E.	MR ✓	710	25F	✓
	98	FASOLA D. C.	MRS ✓	106	12F	✓
GIVEN	99	ADAMS. O. J.	MISS ✓	114	14C	✓
GIVEN	100	NNAJI V. C.	MR ✓	123	11F	✓
GIVEN	101	IDUNCU O. J.	MR ✓	700	22F	✓
GIVEN	102	MIRIAM E. C.	MRS ✓	513	15C	✓
GIVEN	103	SUNDAY B.	MR ✓	110	9E	✓
GIVEN	104	WOLUGBEMI N.	MRS ✓	707	20D	✓
GIVEN	105	OSUNA A. I.	CHF ✓	081	8F	✓
GIVEN	106	GANESAN N. S.	MR ✓	708	21E	✓
GIVEN	107	JONES G.	MR ✓	090	8A	✓
GIVEN	108	EKONG E. W.	CHF ✓	735	11D	✓
GIVEN	109	UJUCHUKWU O. S.	MR ✓	987	23C	✓
GIVEN	110	OLABALOGUN E.	MR ✓	999	24F	✓
GIVEN	111	DAVID J.	MR ✓	117	11E	✓
GIVEN	112	NJOKU C. E.	✓	993	22E	✓
	113	FILIS O.	MR ✓	728	9B	✓
	114	[illegible] C. A.	MR ✓	086	7C	✓
	115	[illegible] R. B.	MR ✓	951	22C	✓
	116	[illegible] K. I. P.	[illegible] ✓	988	23B	✓
GIVEN	117	[illegible] J. O.	MR ✓	927	8B	✓
	118	[illegible] J.	MR ✓	713	26E	✓
	119	ANABA C.	MR ✓	711	26D	✓
GIVEN	120	[illegible] A.	MR ✓	097	15E	✓
GIVEN	121	[illegible] M. B.	MR ✓	109	6E	✓
GIVEN	122	[illegible] M. D.	MR ✓	982	23A	✓
	123	[illegible] E.	MR ✓	718	28D	✓
GIVEN	124	[illegible] D.	ENGR ✓	714	27D	✓
	125	[illegible] A.	MR ✓	000	23F	✓
	126	[illegible] C.	MR ✓	974	21C	✓
GIVEN	127	[illegible] B.	MR ✓	747	S/AV.	✓

75 Identified from info given.

Comments

1. South east of the field ✓
2. Expecting Police report - ✓
3. Apportioning blame? ✓

* - we have agreed passengers are 144
- - names on the manifest not confirmed
- - tickets used by other passengers
- - There are indications that other those manifested - some
- - Airline cannot reconcile
- - fear of victimization
- - problems that arise and the reasons
- - Why passenger mix-up in the
- - Westminster Dredging
- - Radius of Scatter.

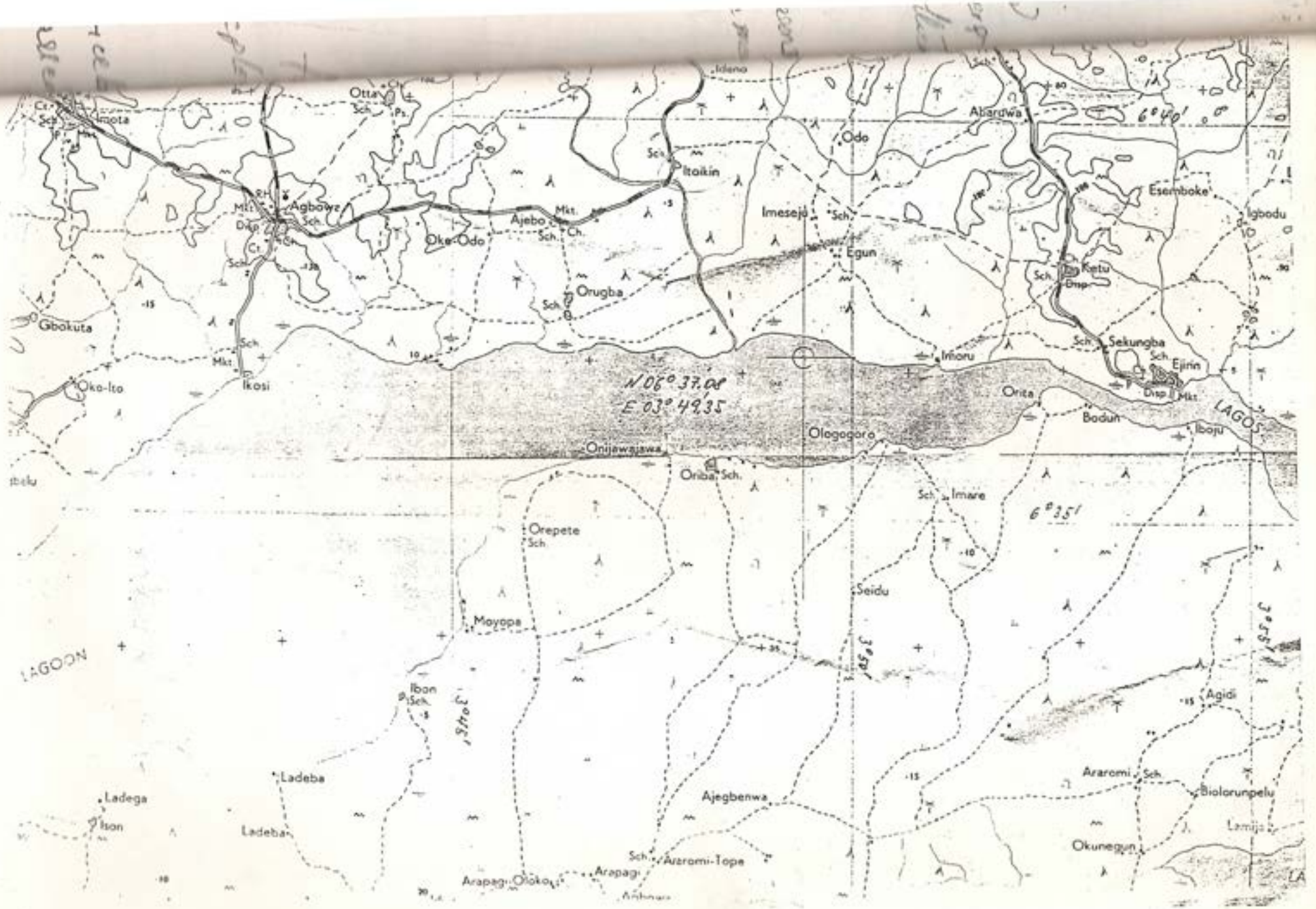
"
- and the Controller agreed

Orders?

The Committee found no evidence to Substantiate Sabotage or Surface explo the

Observations.

- FAA/NTSB to put Signs on notice
- Notice on tickets of pass


Idano
Otta
Imota
Abaruwa
Odo
Itoikin
Agbowe
Ajebo
Oke-Odo
Imesejo
Egun
Esemboke
Igbodu
Ketu
Onugba
Gbokuta
Sekungba
Ejirin
Imoru
Oko-Ito
Ikosi
N 06° 37.08
E 03° 49.35
Orita
Baduh
Iboju
LAGOS
Ologogoro
Onijawojawa
Oriba
Imare
6° 40'
6° 35'
Orepete
Seidu
Mayopa
LAGOON
Ibon
Agidi
Ararom
Biolorunpelu
Ladeba
Ladega
Ison
Ajegbenwa
Okunegun
Araromi-Tope
Arapagi
Oloko
ANNEX A

APPENDIX "K"

CRASHED B727-200 ADC AIRLINE AIRCRAFT COMPONENTS/PARTS DEBRIS IDENTIFICATION REPORT

This report contains our findings on the components and parts debris of the entire structure of B727 aircraft. The report is divided into two sections: Airframe and Engine in accordance with the ATA Chapters.

CHAPTER 21 - AIRCONDITIONING

1. Broken pieces of airconditioning bay door.
2. Ground airconditioning cart receptacle.
3. Compressed airconditoning mix valves assembly.
4. Broken pieces of pneumatic ducts.
5. Damaged Equipment cooling blower.

CHAPTER 23 - COMMUNICATIONS

l. Damaged ACARS control unit.
2. Damaged VHF Comm. Transceiver.
3. Cockpit Voice Recorder.

CHAPTER 24 - ELECTRICAL

l. Broken pieces of cable looms and plugs.
2. Damaged F/E's control panel.

ATA CHAPTER 25 - EQUIPMENT & FURNISHING

l. Broken pieces of Cabin seats.
2. Broken pieces of seat tracks.
3. Broken pieces of seat belt.
4. Large quantity of torned life vests.
5. Damaged escape slides.

6. Pilot's seat foam.
7. Damaged galley components and oven timer.
8. Broken pieces of cargo compartment beams and cargo net hold down points in bits.
9. Pieces of cabin rug.

ATA CHAPTER 26 - FIRE PROTECTION & DETECTION

1. Shattered Engine and fire bottles.

ATA CHAPTER 27 - FLIGHT CONTROLS

1. Flap tracks
2. Flaps drives and carriages.
3. Damaged flap power unit.
4. Stabilizer jack screw.
5. Part of the left horizontal stabilizer.
6. Damaged elevator balance panel.
7. Upper rudder power control unit.
8. Hydraulic spoiler actuators.
9. Aileron control rods.
10. Aileron power control unit.
11. Aileron control valve.
12. Elevator feel computer.

ATA CHAPER 28 - FUEL

1. Fuel shutoff valve.
2. *Pieces of fuel supply line and valves.*
3. Fuel Boast pump access panel.

4. Fuel Boast pump.

ATA CHAPTER 29 - HYDRAULICS

1. Engine Hydraulic pump.
2. Standby Hydraulic module.
3. Hydraulic broken lines and fittings.

ATA CHAPTER 30 - IGE & RAIN PROTECTION

1. Engine anti-ice valves.
2. Broken pieces of anti-ice ducts.

ATA CHAPTER 31 - INSTRUMENT

1. Flight Data Recorder.

ATA CHAPTER 32 - LANDING GEAR

1. Broken pieces of main and nose gear struts.
2. Rear spar attachments.
3. Landing Gear mechanical door linkages.
4. Broken main gear working beams.
5. Shattered tyres.
6. Broken wheel drums.
7. Pieces of brake stators/rotors.
8. Landing Gear support struts.
9. Accumulator.

ATA CHAPTER 34 - NAVIGATION

1. Damaged ATC Transponder.
2. Damaged DME Interrogator.
3. TCAS Antenna base.

ATA CHAPTER 35 - OXYGEN

1. Punctured Portable Oxygen bottle.
2. Oxygen mask.

ATA CHAPTER 36 - PNEUMATICS

1. Broken Pneumatic pipes and valves.
2. Bleed valves.

ATA CHAPTER 38 - WATER/WASTE

1. Part of the toilet draining panel.

ATA CHAPTER 49 - APU

1. APU Electrical starter.

ATA CHAPTER 52 - DOORS

1. Part of the passenger's door.

ATA CHAPTER 53 - FUSELAGE

1. Fragmented pieces of fuselage skin.
2. Broken pieces of stringers.
3. Broken pieces of floor beams.
4. Broken cockpit window attachments.
5. Broken pieces of bulkhead beams and ties.

ATA CHAPTER 55 - TAIL GROUP

1. Part of the left horizontal stabilizer.

ATA CHAPTER 56 - WINDOWS

1. Shattered cockpit window panes.
2. Cockpit windshield attachment.
3. Broken cabin emergency window exit.

4. Broken pieces of cabin windows.

ATA CHAPTERS 72 - 80

1. Engine No. 1 turbine disc assembly.
2. Engine No. 2 turbine disc assembly.
3. Engine No.3 turbine disc assembly.
4. One engine exhaust case assy.
5. Damaged combustion chambers.
6. Damaged pieces of Engine compressor disc and blades.
7. Damaged engine accoustic intake.
8. Part of the engine start valve.
9. Engine mount support beams.
10. Engine thrust reverser cable.
11. Techometer.
12. Techogenerator
13. Broken pieces of engine intermediate casing.

N.B.

There were many unidentifiable Electrical/Electronics units, pieces of aircraft skin, frames, beams, bulkheads and spars badly compressed and fragmented. More than 60 percent of the whole aircraft were recovered and deposited at the FAAN Training School Store Site.

APPENDIX "L"

Telegraphic Address

BOMBFOR IKEJA,

Telephone No. C. O's Office 965704,
E. Q. D OPS Room 961368

In reply Please quote

THE FORCE BOMB DISPOSAL OFFICER
DIRECTORATE OF OPERATIONS,
EXPLOSIVES ORDNANCE DISPOSAL,
SQUADRON HEADQUARTERS
POLICE CENTRAL STORES,
AIRPORT ROAD,
P. M. B 21113,
IKEJA.

Ref No. CB.3383/EOD/Vol.1/50

18th February, 1997

The Chairman,
Panel of Inquiry into ADC Crash,
Federal Secretariat,
Shehu Shagari Way,
P.M.B. 5012,
Wuse - Abuja.

INVESTIGATION REPORT
ON ADC PLANE CRASH

Reference your letter No. CAO/350/S.II/Vol.1 dated 30/12/96 and your request therein, a team of two EOD officers led by Mr. M.A. Adebiyi SP, inspected the remains of the Airplane at FAAN Warehouse and the remains of the victims at Lagos State Mortuary and submit hereunder as follows:-

Observation:

(a) There was no explosive component recovered during the inspection.

(b) The major components of the Plane shattered out of proportion.

(c) The location of the crash and the method of recovery of the wreckage destroyed vital materials required for laboratory test.

Enquiry: A ball of fire was observed prior to the explosion. There was no report of faulty performance of the Aircraft before take off or during the flight.

Analysis: After careful analysis, the damage to the Airplane could be caused by explodable element in aviation fuel like any other fuel.

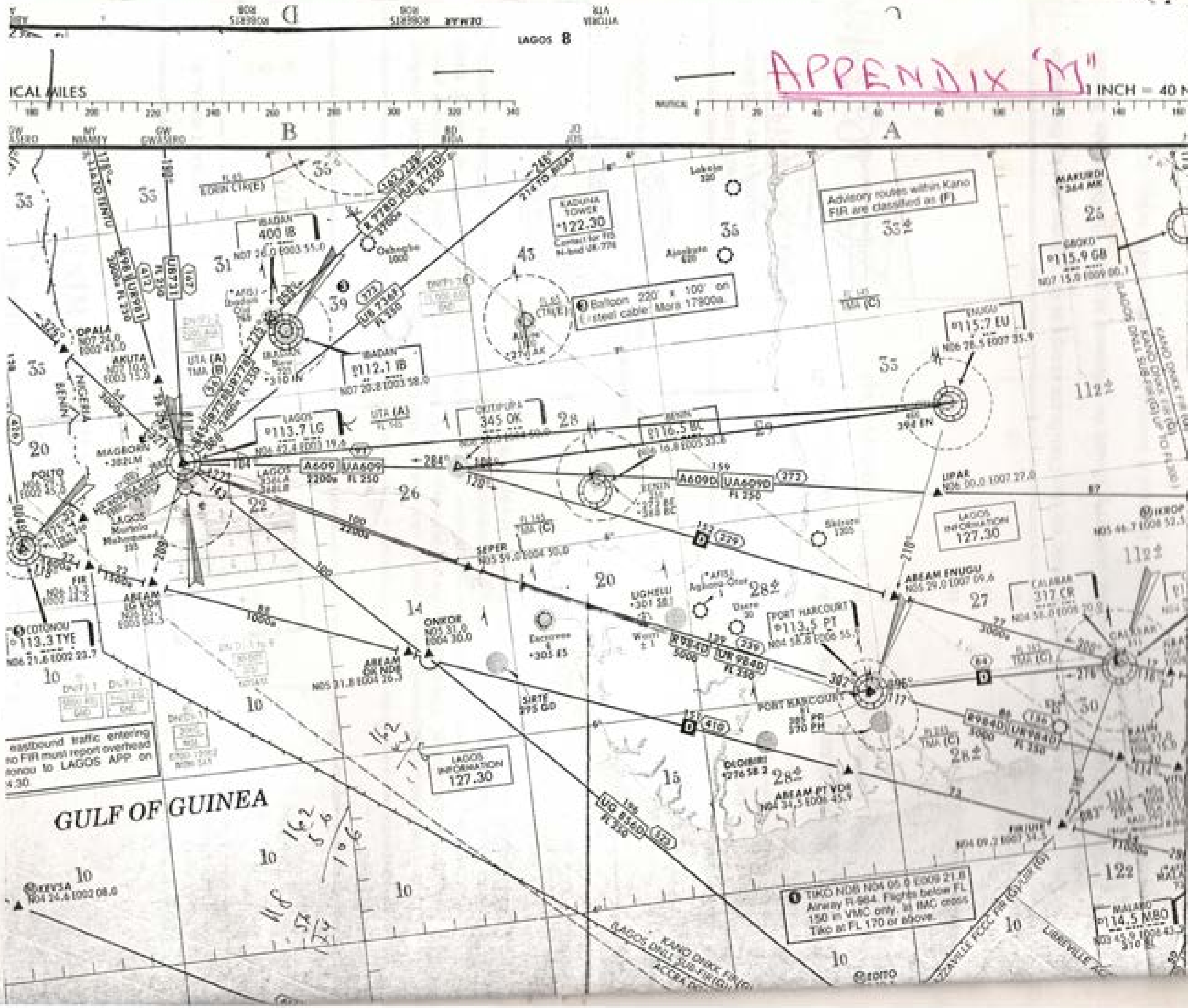
Details: The incident took place in a pressurised machine. There was therefore no free movement of air into and out of the Plane. Aviation fuel exists both in liquid and gaseous States. In a gaseous state, while in a confined

environment as in this case would explode at the slightest spark or flame. Other vital materials required for a laboratory test for the presence of explosives were eroded as an laboratory test on the fragements of the Airplane will only show the salimty of ocean water from where they were recovered. The unimaginable fragmentation of the Plane and the reduction of the victims body into lumps was as a result of metal jam caused by the force of the violent explosion.

Conclusion: Conclusively, from the observation and enquiry carried out, it could not be proved that explosives were involved, please.

(M. A. ADEBIYI) SP.,
2I/C EOD SQUADRON HQ.
for: FORCE BOMB DISPOSAL OFFICER,
EOD SQUADRON HEADQTRS.,
IKEJA - LAGOS.

APPENDIX 'M'



LAGOS 8
1 INCH = 40 N
GULF OF GUINEA
LAGOS INFORMATION 127.30
Advisory routes within Kano FIR are classified as (F)
IBADAN 112.1 IB
LAGOS 113.7 LG
ENUGU 115.7 EU
PORT HARCOURT 113.5 PT
COTONOU 113.3 TYE
KADUNA TOWER 122.30
ONKOR
SEPER
UPAR
ABEAM ENUGU
TIKO NDB N04 05.0 E009 21.8 Airway R-984. Flights below FL 150 in VMC only, in IMC cross Tiko at FL 170 or above.
Balloon 220' x 100' on steel cable; Mora 17900a.

APPENDIX "N"

FEDERAL REPUBLIC OF NIGERIA

FCAA
FEDERAL CIVIL AVIATION AUTHORITY

FEDERAL CIVIL AVIATION AUTHORITY

CERTIFICATE OF AIRWORTHINESS

No. 834

NATIONALITY AND REGISTRATION MARKS	MANUFACTURER AND MANUFACTURER'S DESIGNATION OF AIRCRAFT	AIRCRAFT SERIAL NO.
5N-BBG	BOEING AIRCRAFT COMPANY B727 - 231	20049

CATEGORY :

This Certificate of Airworthiness is issued pursuant to the Convention on International Civil Aviation dated 7th December, 1944, and to the Civil Aviation Act, 1964, and the Order and Regulations issued thereunder, in respect of the above-mentioned aircraft, which is considered to be airworthy when equipped, maintained and operated in accordance with the foregoing and the pertinent operating limitations. A Flight Manual forms part of this Certificate.

Signature _____
for the Federal Civil Aviation Authority

FEDERAL CIVIL AVIATION AUTHORITY

Date of issue 9th August 1995

This certificate is valid for the period(s) indicated below		Signature, Official Stamp and Date
From 9th August 1995	to 8th August 1996	04/8/95 FCAA
From XXXXXXXXXXXXXXXXXX	to XXXXXXXXXXXXXXXXXX	
From 30th August, 1996	to 28th February, 1997	30/8/96
From	to	
From	to	
From	to	
From	to	
From	to	

No entries or endorsements may be made on this Certificate except in the manner and by the persons authorised for the purpose.
If this Certificate is lost, the issuing authority should be informed at once, the Certificate Number being quoted.
Any person finding this Certificate should forward it immediately to the issuing authority.

NICON Insurance Plc.

APPENDIX "C"

RC. No. 198995

TO WHOM IT MAY CONCERN

Date: 29th May, 1996

CERTIFICATE OF INSURANCE NO. AVN/96/051

We hereby confirm that we have arranged Aviation Insurance Coverage in accordance with the terms, conditions and exceptions of the policy to be issued by the Corporation.

INSURED:	AVIATION DEVELOPMENT COMPANY PLC (ADC AIRLINES)
PERIOD:	12 MONTHS AT 14TH DECEMBER, 1995
AIRCRAFT:	134 SEATER B727 5N-BBG
INTEREST:	To cover the Assured's aircraft against All Risks of physical loss or damage whilst in flight, taxying or on the ground, and to include All Risks cover for spare parts and equipment which the Assured may be responsible for including Transit Risks and to cover the Assured's Legal Liability, Bodily Injury, Property Damage including Passenger Liability, Cargo and Baggage (including Declared Values), Mail and General Third Party Liability (Premises, Hangarkeepers and Products), arising out of their operations.
SUM INSURED:	Hull All Risks - US$2,000,000.00 Aircraft Spares:- US$2,000,000 any one occurrence US$1,000,000 any one sending Liability:- Combined Single Limit US$100,000,000 any one occurrence and in the aggregate in respect of products. Cargo Legal Liability limited to US$1,000,000 any one occurrence
DEDUCTIBLES:	Hull (excluding Total Loss/Constructive Total Loss/ Arranged Total Loss) US$500,000 each and every loss Spares: US$10,000 each and every loss Baggage: US$1,250 each and every claim } Not applicable Cargo/Mail: US$10,000 each air Waybill } if arising from accident to carrying aircraft. Hangarkeepers: US$10,000 each and every loss.
CONDITIONS:	Reinsurance Underwriting and Claims Control Clause AV41 War, Hijacking and Other Perils Exclusion Clause AVN48B Agreed Write-back all sections (except 'B') Subject to Extended Coverage Endorsement (Aircraft Liabilities) AVN.52C

...../2

CONDITIONS Cont'd.

Noise and Pollution Exclusion Clause AV46B (not applicable to Passenger Legal Liability) Paragraph 1. (B) does not apply to pollution or contamination of any products sold or supplied by the Assured.
Radioactive Contamination Exclusion Clause AVN38A
Premium Payment Subject to Deferred Premiums Clause AVN5A
Explosive Nuclear Assemblies Exclusion Clause NMA 1623
Agree include Runway foaming, Wreck Removal, Search and Rescue Expenses for US$1,000,000 any one occurrence
Agree include burial and repatriation expenses as required Aircraft Laying-up Returns clause AV.26
Hull only, prior advice deleted, (amended to 15 days)
Ground Risks Only
Rate 2.50%.
Employees of the Assured and/or their subsidiaries, Affiliates, Household, Travelling in any of the Assured's Aircraft (other than Crew Members) to be included as normal fare paying passengers in respect to Passenger Legal Liability (subject to tickets being issued).
Additions and Deletions of aircraft up to maximum agreed value and 150 seats to be agreed by Reinsurers.
Reinsurers hereon agree and recognize all terms and conditions of the lease between the Assured and Lessors.
Agree to include Loss Payee, as Additional Assureds as expiring and/or as original.
New agreements to be agreed by reinsurers.
Airline Finance/Lease contract Endorsement AVN.67B respect of the new agreement.
All amendments, alterations to be agreed by Reinsurers.
Cargo Legal Liability excludes coverage in respect of Perishables, Livestock and Delay.
15% Profit Commission on Renewal (70% basis).

USES: Commercial Carriage of Passenger and Cargo.

PILOTS: Any properly certificated pilot who is approved by the Assured.

GEO. LIMIT: Worldwide excluding Libya, Angola, Mozambique and Somalia on Hull Coverage. Africa, Europe and the Middle East excluding: Ethiopia, Somalia, Sudan, Angola, Zaire, Mozambique Rwanda and Burundi on Hull War Coverage.

INSURANCE CO... AGENT ... for, and on behalf of NIOC INSURANCE PLC

From:- EXH: XVI
Mr Vice Principal
Oriba High School
Oriba Epe

Write on both sides of the paper 8/11/96.

APPENDIX "P"

Divisional Police Office,
Epe,
Lagos State.

Dear Sir

REPORTED CASE OF AEROPLANE CRASH INTO LAGOON NEAR ORIBA, EPE L.G.A:-

This is to bring to your attention an accident that occured yesterday the 7th of November, 1996 in Oriba in Epe L.G.A of Lagos State around 5.30 p.m. in which the plane Suddenly increased the sound with two explosions heard before it plunged into lagoon opposite Oriba town in Epe L.G.A. The fishermen who went to fish at that time came home & confirming that the incident really did happen and had promised to take those concern with the plane to the site of the crash.

Please assist with your good office to connect those concern Federal Aviation authority over the incident before it is too late.

I remain,

P.T.O

APPENDIX "Q"

PRIORITY ADDRESS (ES)

Loadsheet and Loadmessage
Passenger Aircraft

Originator | Date Time | Initials | LDM

Flight | A/C Reg | Version | Crew

ALL WEIGHTS IN lbs

ADC Airlines

Load & Trim Sheet
Boeing (B737 - 200)

	Zero Fuel	Take off	Landing
Dry Operating Basic Weight			
Maximum Weights For			
Take Off Fuel			
Dry Operating Weight			
Allowed weight take off (lowest of a b or c)			
Total Fuel Minus Taxi			
Operating Weight			
Operating Weight			
Allowed Traffic Load			

Dest. | No. of Passenger (M, A/F, Ch, Inf) | Total | Distribution Weight (1, 2) | Remarks (PAX: F, C, Y) | Pieces

Tr / B / C / M / T — PAX

SI

B.O.I = 74
F.I = -4.62
PAX I = 132
T.O.F = 27500 lbs
L. ANIMAL F/CARGO

PASSENGER COMPARTMENT DIVISION

Cpt.	0a	0b	0c	0d	0e	0f	0g
No of Seats	12	21	24	24	24	18	11
Row	1 - 4	5 - 8	9 - 12	14 - 17	18 - 21	22 - 24	25 - 28

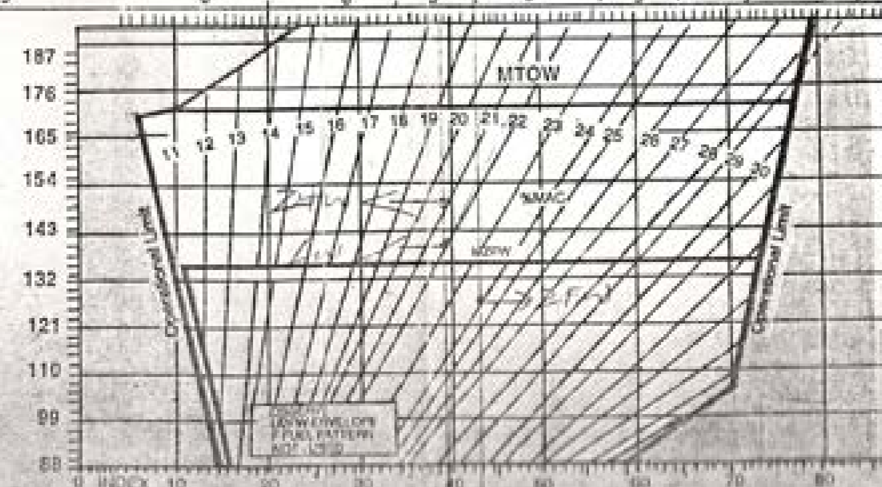
MCD between rows .... / .... Group/Cockpit Crew

DRY OPERATING INDEX 31.0 = 9

STDS
1 =
2 =
3 =
4 =
5 =
6 =

CAPT =
F/O =
F/E =
G/E =
SNY =

Cpt.	Weight/No	DRY OPERATING INDEX
1	9 0 0 0	PITCH 1000 lbs
4	10 1 3 2	PITCH 1000 lbs
0a	12	PITCH 10 Pers
0b	21	PITCH 10 Pers
0c	24	PITCH 10 Pers
0d	24	PITCH 10 Pers
0e	24	NO SCALE
0f	18	PITCH 10 Pers
0g	11	PITCH 10 Pers



ZFW ...... %MAC
TOW ...... %MAC
LW ...... %MAC

CHANGES

Total passengers Weight	22440
Total Traffic Load	24930
Dry Operating Weight	
Zero Fuel Weight (a) MAX	
Take Off Fuel Minus Taxi Fuel	27500
Take off Weight (b) MAX	
Trip Fuel	
Landing Weight (c) MAX	

Allowed traffic load

Under load before LMC

Last minute changes

Dest. | Specification | Cl Cpt. | +/- | Weight

LMC total +/-

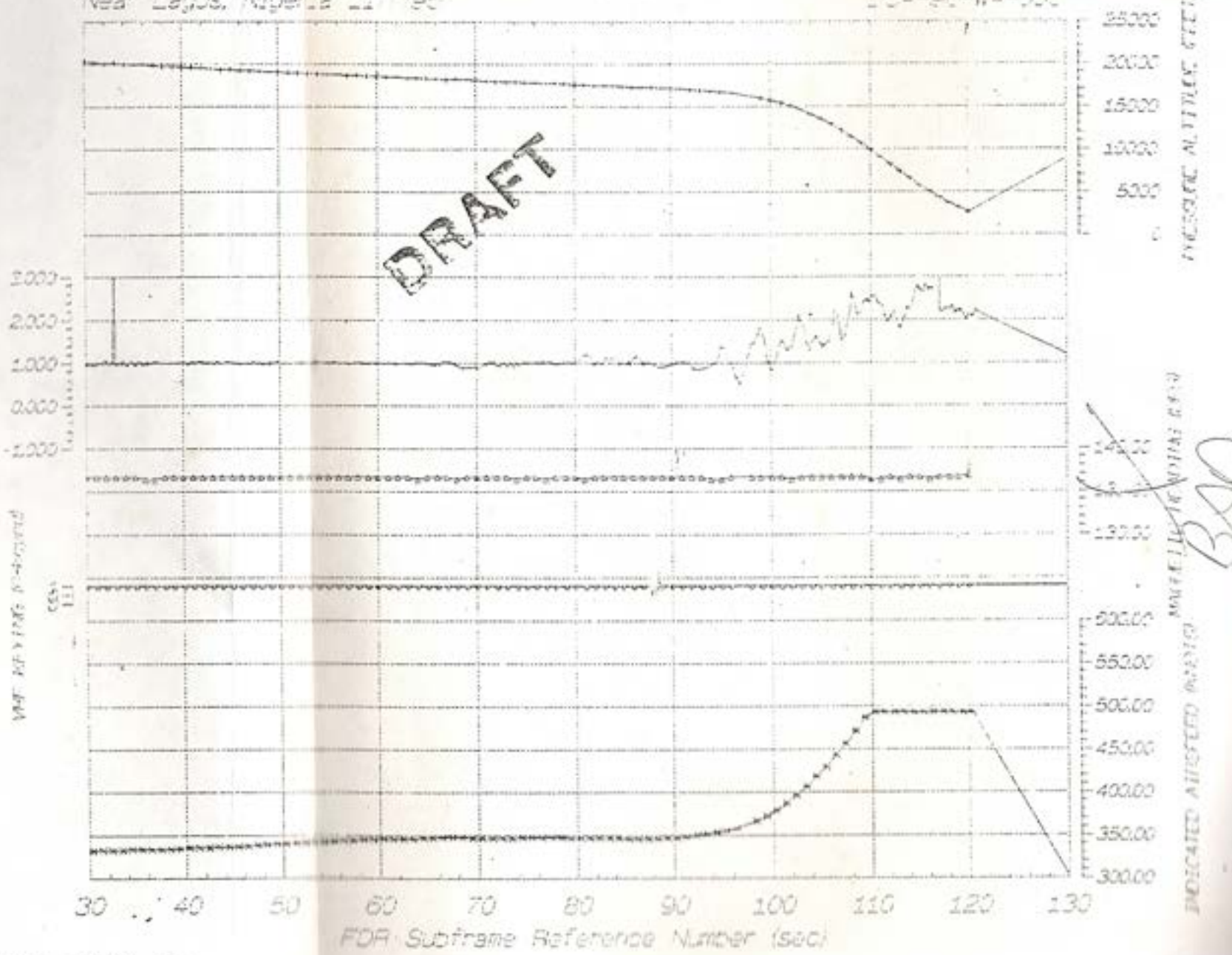
Check: L.M.C. ZFW with (Under load)

OPERATIONS OFFICERS CERTIFICATE
I hereby certify that the aircraft is loaded in accordance with the current loading instructions.

CAPTAIN'S CERTIFICATE
I hereby certify that I am satisfied that all the relevant documents have been complied with.

APPENDIX "R"

ADC Flt 086



NTSB-AE60 DS
Created: December 04, 1996

B727-231 REG SN530