EXHIBIT E 2

I Certify that this is the true copy of the original 2 it Col

REPORT BY BOARD OF INQUIRY TO INVESTIGATE THE CIRCUMSTANCES WHICH LED TO THE ACCIDENT OF THE RSLAF MI-24 HIND HELICOPTER, NEAR KENEMA ON FRIDAY 19 OCTOBER 2001.

[redacted]

RECORD OF PROCEEDINGS

Of a Board of Inquiry convened under the Armed Forces of the Republic of Sierra Leone Act 1961 (As Amended) Section 120

and assembled at Defence Headquarters, Cockerill Barracks, Freetown

on Tuesday 6th November 2001, Tuesday 13th November 2001, Wednesday 14th November 2001, Thursday 15th November 2001, Wednesday 21st November 2001, Friday 4th January 2002, Wednesday 27th February 2002, Friday 1st March 2002, Thursday 7th March 2002,Wednesday 13th March 2002 and Friday 15th March 2002.

by order of the Chief of the Defence Staff, Republic of Sierra Leone Armed Forces

for the purpose of investigating the circumstances which led to the accident of the RSLAF Mi-24 HIND helicopter, near Kenema on 19th October 2001.

PRESIDENT: [redacted], SO1 J2
MEMBERS: [redacted] SO2 J3 Trg
[redacted] J4 Log/Coord

SECRETARY: [redacted], OC Force Pro Coy

IN ATTENDANCE: [redacted], SO2 J9 Legal
[redacted] SO2 J9 Legal (previous)

1. There were no persons in attendance during the whole of the proceedings in accordance with Rule 11 of the Board of Inquiry (Army) Rules 1956.

2. The Board of Inquiry, having assembled pursuant to the order attached at pages 3-5 proceeded to hear evidence on oath in accordance with the exhibits attached hereto from the following witnesses:

[redacted] (RMP)
[redacted] (RN)
[redacted] (SIB)
[redacted]

3. In addition the Board also considered the exhibits listed at pages 6-10.

4. The findings and opinions of the Board are set out at pages 11-20.

5. Recommendations are at pages 21-22.

[redacted]

Dated the 18 day of March 2002

President

Members

[redacted]

Defence Headquarters
Armed Forces of the Republic of Sierra Leone
Cockerill North
Wilkinson Road
FREETOWN

Telephone: 233302

Reference: DHQ/SL/108/2/A

See Distribution

Date: 3 November 2001

CONVENING ORDER
BY
[redacted]
CHIEF OF DEFENCE STAFF, REPUBLIC OF SIERRA LEONE ARMED FORCES

INTRODUCTION

1. A Board of Inquiry (BOI) as composed hereunder is to assemble at DHQ, Cockerill Barracks, Freetown on a date and time to be determined by the President to investigate the circumstances which led to the accident of the RSLAF Mi-24 HIND Helicopter, near Kenema on 19 Oct 01.

2. The inquiry is to investigate fully all the circumstances surrounding the accident and record all evidence relevant to the inquiry.

COMPOSITION

3. Members. The Composition of the Board shall be as follows:

a.	[redacted] SO1 J2	-President
b.	[redacted] SO 2 J4 ES	-Member
c.	[redacted], SO 2 J3 Trg	-Member
d.	[redacted], OC Force Provost Coy	-Secretary

In Attendance

a. [redacted] SO 2 J9 Legal
b. [redacted], SO 2 J9 Legal (Des)

WITNESSES

4. The Board is to order the attendance of any witness whose evidence it considers may be relevant to the Inquiry, including but not limited to the following:

a. [redacted] CO JPU
b. [redacted] Pilot
c. [redacted], OC Air Wing/ SO 2 Air
d. [redacted], Air Wing
e. [redacted] JESA Air West Africa
f. [redacted]

[redacted]

EVIDENCE

5. Evidence is to be taken on oath in accordance to Board of Inquiry (Amy) Rules 1956, Rule 13, and any documentary evidence is to be produced on oath by a witness suitably qualified; such documentary evidence is to be attached as an annex to the Record of Proceedings.

6. Should it become apparent during the inquiry that any person whose character or professional reputation is likely to be affected by the findings, the President shall give that person the opportunity of being present or represented in accordance with the provision of the Board of Inquiry (Army) Rules 1956, Rules 11

TERMS OF REFERENCE

7. The Board is to investigate, report and to express an opinion, where appropriate, on the following matters

a. The operational task necessitating the use of the Mi-24 helicopter (the HIND) on 19 Oct 01.
b. The date, time and location of the first landing.
c. The circumstances leading up to the accident.
d. The cause and contributing factors leading to the accident.
e. Assess any human factors relevant to the accident.
f. The cause and degree of injury suffered by persons both service and civilian.
g. Whether service personnel were on duty.
h. Whether all relevant orders and instructions were complied with, including local engineering and flying orders.
i. The maintenance and servicing records of the HIND.
j. The training, qualification and flying hours undertaken by the pilot of the said HIND.
k. The extent of damage to the aircraft.
l. The extent of damage to aircraft removable role equipment and associated items.
m. The extent of damage to service and civilian property.
n. All relevant crash survival aspects.
o. All other points relevant to the injury.

8. The attention of the Board is drawn to:

a. Joint Provost Unit RSLAF evidence obtained during its investigation.
b. Manual of Military Law (MML).
c. Queen's Regulations.
d. Board of Inquiry and other Related Subjects.
e. Army Act 1961 as amended

9. The Board may make any recommendation, or observation, it considers relevant in respect of the events leading up to the accident and in particular make recommendations to prevent a recurrence. The Board is not to attribute blame or negligence to any individual.

10. The inquiry is to express an opinion with regard to any material conflict in the evidence that may arise and give reasons for reaching that opinion.

11. The SO1 Projects is to provide a room suitably equipped for the Inquiry.

12. The SO1 J4 Mat to supply the necessary stationery and materials for the duration.

13. The PM to provide all regulations and a clerical assistant to act as a verbatim scribe for the duration.

14. The Camp Comdt DHQ to detail an orderly for duty during the Inquiry.

15. The proceedings are to be recorded in accordance with Appendix 3 to Annex A to Chapter 5, Queen's regulations for the Army 1975. Distribution is to be:

a.	Chief of Defence Staff	-1 copy (original)
b.	MA GoSL	-1 copy
c.	ACOS Sp	-1 copy
d.	Air Wing	-1 copy
e.	Directorate Legal Services	-1 copy
f.	File	-1 copy

16. The President is to submit an interim report within 96 hours of assembling the board for the first time.

17. The Board are to verbally brief the CDS on the findings of the Board of Inquiry once the proceedings have been completed and prior to the publication of the Inquiry.

18. Final report should be submitted on Wed 14 Nov 01 at 1400 hrs.

[redacted]

Brig
CDS

Distribution:

[redacted], SO 1 J2
[redacted] MBE, CO JPU
[redacted] SO 2 J4 ES
[redacted], SO 2 J3 Trg
[redacted] OC Force Provost Coy
[redacted] SO 2 J9 Legal
[redacted], SO 2 J9 Legal (Des)
[redacted] Air Wing
[redacted], OC Air Wing/ SO 2 Air
[redacted], Air Wing
[redacted], JESA, Air West Africa
SO 1 Projects
SO 1 J4 Mat
Camp Comdt DHQ
PM
[redacted] Air Wing

Copy to:
MA GoSL
ACOS Sp
File

[redacted]

EXHIBIT INDEX

Board Exhibit A:
(Produced by [redacted]
[redacted] – RMP)
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Additional certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]
Certified true copy witness statement from [redacted]

Board Exhibit B: Certified true copy of list of valuable items lost in the crash of SL 202 by [redacted]
(Produced by [redacted]
[redacted] – RMP)

Board Exhibit C: Witness statement of [redacted], RMP.
(Produced by [redacted]
[redacted] – RMP)

Board Exhibit D: Mi 24 V Hind tail No SL 202 – field report and history of flight [redacted], R N.
(Produced by [redacted]

Board Exhibit E: Hind Flying Record book.
(Produced by [redacted]
[redacted] – RMP)

Board Exhibit F: English version of maintenance schedule.
(Produced by [redacted]
[redacted] – RMP)

Board Exhibit G: Photograph of paddy field, debris and wreckage of Hind.
(Produced by [redacted]
[redacted] – RMP)

Board Exhibit H: Witness statement o[redacted] R N.
(Produced by witness)

Board Exhibit I: Aviation Pathology report Nos. 28 of 2001 by [redacted]
(Produced by [redacted]
[redacted] – RMP)

[redacted]

[redacted]

Board Exhibit J: JSPU Initial Case Report.
(Produced by [redacted] – RMP)

Board Exhibit k: Additional witness statement from [redacted]
(Produced by [redacted] Additional witness statement from [redacted]
[redacted] RMP) Additional witness statement from [redacted]
Additional witness statement from [redacted]

Board Exhibit L: Witness statement from [redacted]
(Produced by witness)

Board Exhibit M: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit N: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit O: Additional original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit P: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit Q: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit R: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit S: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit T: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit U: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit V: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit W: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit X: Original witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit Y: Additional original witness statement from [redacted]
(Produced by [redacted] – RMP)

[redacted]

[redacted]

Board Exhibit Z: Original witness statement from [redacted]
(Produced by Lt Col [redacted] – RMP)

Board Exhibit AA: witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit AB: Tape showing Hind helicopter crash.
(Produced by [redacted] – RMP)

Board Exhibit AC: One 3-½ floppy showing [redacted] ID photos.
(Produced by [redacted] – RMP)

Board Exhibit AD: Rough sketch plan of Hind Mi-24 v.
(Produced by [redacted] - RMP)

Board Exhibit AE: Sketch plan of Hind passenger bay.
(Produced by [redacted] – RMP)

Board Exhibit AF: Witness statement from [redacted] SC.
(Produced by [redacted] – RMP)

Board Exhibit AG: One 3-½ floppy showing Hind photos.
(Produced by [redacted] – RMP)

Board Exhibit AH: Witness statement from [redacted] SC.
(Produced by [redacted] – RMP)

Board Exhibit AI: Witness statement from [redacted] SC.
(Produced by [redacted] – RMP)

Board Exhibit AJ: Mi 24 V Airframe and details.
(Produced by [redacted] – RMP)

Board Exhibit AK: Certified true copy of schedule book and log book.
(Produced by [redacted] – RMP)

Board Exhibit AL: Certified true copy of maintenance schedule.
(Produced by [redacted] – RMP)

Board Exhibit AM: Sketch plan of inside of Hind.
(Produced by [redacted] – RMP)

Board Exhibit AN: Sketch showing movement of personnel after crash.
(Produced by [redacted] – RMP)

Board Exhibit AO: Witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit AP: CD containing photographic images.
(Produced by [redacted] – RMP)

Board Exhibit AQ: CD containing photographic images.
(Produced by [redacted] – RMP)

Board Exhibit AR: Photographic supplement.
(Produced by [redacted] RMP)

Board Exhibit AS: Witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit AT: Rough sketch plan of Hind tail no. 202 showing sitting position of occupants.
(Produced by [redacted] – RMP)

Board Exhibit AU: Certified true copy of [redacted] private pilot licence.
(Produced by [redacted] – RMP)

Board Exhibit AV: Panasonic digital video cassette showing scene of Hind helicopter crash.
(Produced by [redacted] – RMP)

Board Exhibit AW: Witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit AX: Certified true copy of Air Accident report.
(Produced by [redacted] – RMP)

Board Exhibit AY: Certified true copy of SIB (GB) final report.
(Produced by [redacted] – RMP)

Board Exhibit AZ: Certified true copy of photographic supplement.
(Produced by [redacted] - RMP)

Board Exhibit AAA: Photographs by [redacted]
(Produced by [redacted] – RMP)

Board Exhibit AAB: Photographs by [redacted]
(Produced by [redacted] RMP)

Board Exhibit AAC: Additional witness statement from [redacted]
(Produced by [redacted] RMP)

Board Exhibit AAD: JESA air West Africa limited-two page letter dated 27 Jul 01
(Produced by [redacted] written by [redacted].
[redacted] - RMP)

[redacted]

Board Exhibit AAE: Additional witness statement from [redacted]
(Produced by [redacted] – RMP)

Board Exhibit AAF: Copy of a two-page letter, reference DHQ/SL/301/1/Q dated 28 May 01
(Produced by [redacted] – RMP)

Board Exhibit AAG: Schedule of non-sensitive unused material.
(Produced by [redacted] - RMP)

Board Exhibit AAH: Additional witness statement of [redacted] RMP.
(Produced by [redacted] – RMP)

Board Exhibit AAI: Items lost in the crash of Air wing MI – 24 SL 202
(Produced by [redacted]

[redacted]

FINDINGS AND OPINIONS OF BOARD OF INQUIRY

INTRODUCTION

1. At about 0720 hours, on 19 Oct 01, Flight SL 202, one of the Republic of Sierra Leone Armed Forces (RSLAF) Mi-24 Hind helicopters, crashed during a forced landing in a paddy field 6-7 km south-west of Kenema (Grid Reference 55816744).

2. As a consequence of the crash a British officer, 510754 Maj V Lang, suffered fatal injuries, and the helicopter subsequently caught fire and was burnt out.

TIIE OPERATIONAL TASK NECESSITATING THE USE OF THE Mi-24 HELICOPTER AND DATE AND TIME OF THE FIRST LANDING

3. Evidence was produced to the Board that Flight SL 202 was detailed to transport British Forces personnel from the Sierra Leone Defence Headquarters, Cockerill Barracks, Freetown to Kenema via Sulima Naval Base on 18 Oct 01. **The Board find from this evidence that Flight SL 202 landed at Sulima Naval Base at approximately 1200 hours, before flying on to 3 Brigade Headquarters, at Kenema where it landed at approximately 1240 hours.** The aircraft remained in Kenema overnight before departing at approximately 0705 hours on 19 Oct 01 to make an identical return trip. **The Board finds that the flight was an operational tasking, the central focus of which was to support Op KPAMBIE. The Board finds that the operational task as such necessitated the use of the Mi-24 helicopter.**

THE CIRCUMSTANCES LEADING UP TO THE ACCIDENT

4. Evidence was produced to the Board which detailed the circumstances leading up to the accident. **The Board finds that on 16 Oct 01 the pilot [redacted] whilst flying the aircraft, had discovered a fuel leak on the fuel filter, and that the main gearbox oil pressure was low but that these problems were repaired. The Board also finds that though the co-pilot's joystick was inoperable this did not make the aircraft unsafe to fly.**

5. From evidence produced to the Board, **the Board finds that the passengers on Flight SL 202 from Freetown to Sulima Naval Base on 18 Oct 01 were [redacted], Maj V Lang and [redacted]** alighted at Sulima, and the helicopter overnighted at Kenema. **The Board finds that the aircrew consisted of the pilot [redacted], the co-pilot [redacted], and the air-gunner [redacted]**

6. From evidence produced to the Board, **the Board finds that an additional**

[redacted]

passenger, [redacted] joined the flight at Kenema, to fly the following day from Kenema to Freetown (via Sulima), whilst the aircrew remained the same. On the morning of 19 Oct 01 following pre-flight servicing inspections carried out by two locally trained RSLAF Air Wing technicians, and a pre-flight inspection carried out by the pilot, none of whom the Board finds, found anything amiss, the aircraft took off at approximately 0705 hours, bound for Sulima.

7. From evidence produced to the Board, the Board finds that the aircraft flew at low level between 200ft and 300ft above the ground for 2 minutes, but then climbed to 1000ft to avoid the low cloud. After 5 minutes the aircraft was descended to 150ft with the intention of flying below the cloud, but after another 5 minutes the pilot decided to climb again as the cloud base had dropped to ground level. As soon as the pilot climbed the aircraft, there was a sudden loud continuous screeching noise that appeared to come from the area of the left-hand side engine (No 1 engine). The pilot continued to fly the aircraft up through the cloud and whilst scanning his instruments noticed no warnings or abnormal indications. No abnormal vibrations were felt through the airframe at this time. Once clear of the cloud, the pilot levelled the aircraft at 1000ft, turned the aircraft left through 180 degrees reduced speed to 180 kph and set a course back to Kenema airfield.

8. From evidence produced to the Board, the Board finds that approximately one minute later, the pilot reported that he saw the right-hand side engine (No 2 engine) vibration warning light flicker on the pilot's cockpit Centralised Warning Panel (CWP). At this time all temperature and pressure indications were within limits. The pilot then further reduced the aircraft's speed to 150kph and the flickering No 2 engine vibration warning stopped. Almost immediately afterwards there was a loud bang and sparks were seen by the air gunner coming from the No 1 engine's exhaust. The No 1 engine chip warning light illuminated closely followed by an accompanying increase in the No 1 engine's oil temperature to 150 deg C (the gauge limit), a rapidly reducing No 1 engine oil pressure and an audio warning confirmation that the No 1 engine had failed. The pilot immediately selected each separate engine throttle control lever to it's maximum power setting to confirm that the problem was with the No 1 engine, to ensure that the No 2 engine was functioning normally, and also to prevent main rotor speed (NR) droop once the No 1 engine had been shut down. Once this was confirmed he shut the No 1 engine down. There was no fire indication on the cockpit instrument panel at this time, but reflections of a fire in the area of No 1 engine could be seen on the left-hand side stub wing by the aircraft passengers. The air gunner looked upwards and to the rear of the aircraft through the cabin's open left-hand side forward window and saw flames coming from the No 1 engine.

9. From evidence produced to the Board, the Board finds that the pilot then directed the co-pilot to select a suitable landing site and the air gunner to warn the passengers to assume the crash position. The latter request was carried out using hand signals as the air gunner had problems hearing the pilot even though he was

[redacted]

wearing a headset. The pilot identified a suitable landing site in a paddy field near a small village and noted that the aircraft could not maintain it's main rotor speed. The pilot put the aircraft into autorotation whilst making a 'Mayday' call and lowering the undercarriage. During the autorotation, there was a loud bang followed by another loud continuous screeching noise and the No 2 engine chip warning light illuminated, closely followed by the No 2 engine oil temperature and oil pressure captions on the Centralised Warning Panel (CWP). Approximately 4 small pieces of hot metal, glowing bright orange/white, entered the cabin narrowly missing the air gunner's head. Because the aircraft was already in autorotation, the pilot shut down the No 2 engine. During the autorotation, the aircraft yawed from left to right slightly.

10. From evidence produced to the Board, the Board finds that at an altitude of 100ft, the pilot started to flare the aircraft in order to reduce forward speed and, when closer to the ground, reduced the flare to a more level altitude. He then cushioned the touchdown by raising the collective. The aircraft made a relatively firm landing, bounced once and came to rest with the left-hand side of it's nose resting on a tree stump, which caused the aircraft to lean over into soft ground onto it's right-hand side stub wing at an angle of 45 degrees. During the landing one of the tail rotor blades struck a tree stump and fractured at it's root end and 3 of the main rotor blades struck the soft ground on the right –hand side of the aircraft causing them to fracture at their root ends. The aircraft was on fire in the area around the both main engines and the front of the main rotor gearbox. This fire spread rapidly and consumed most of the aircraft apart from the tail pylon.

THE CAUSE AND CONTRIBUTING FACTORS LEADING TO THE ACCIDENT

11. From evidence produced to the Board, the Board finds that the accident was caused following an emergency engine off landing into a paddy field, as a result of a double engine failure in flight.

12. The Board finds that the initial cause of this double engine failure was a catastrophic uncontained failure of the No 1 engine's free power turbine. The Board finds this failure was not caused by Foreign Object Damage (FOD).

13. From evidence produced to the Board, the Board is of the opinion that the catastrophic failure of No 1 engine resulted from the failure of the bearing assembly supporting the No1 engine free power turbine assembly, leading to an initial vibration followed by an imbalance of the free power turbine, bearing break up and subsequent catastrophic failure of the free power turbine.

14. From evidence produced to the Board, the Board finds that No 2 engine failed and was shut down as a result of damage sustained from penetrating fragments from the uncontained failure of No 1 engine.

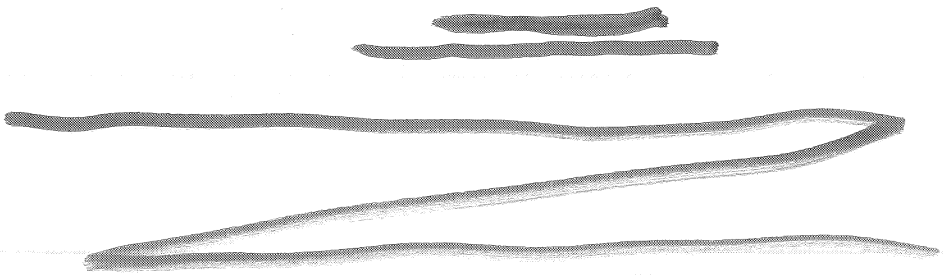
15. From evidence produced to the Board, **the Board finds that it is unable to determine the exact reason for the failure of the No 1 engine free power turbine support bearing.**

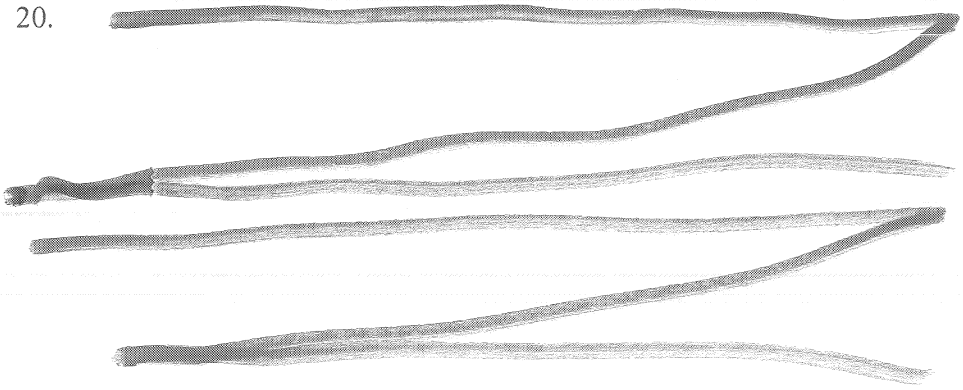
16.

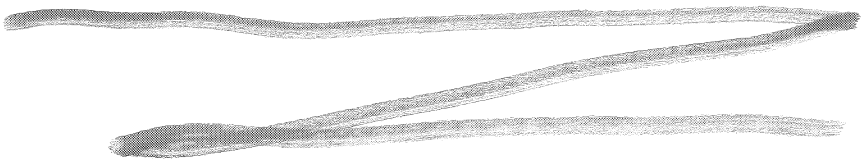
17.

18.

19.



20. 

21. 

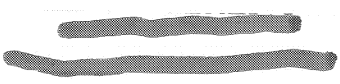
HUMAN FACTORS RELEVANT TO THE ACCIDENT

22. From evidence produced to the Board, **the Board finds that there were no human factors which directly or indirectly contributed towards the accident occurring.** Whilst the Board has concerns over the risk management of the operation of the helicopter, **the Board finds that both the pilot and co-pilot did everything possible to prevent the accident occurring. Indeed the Board commends in particular the pilot** [redacted] **and also the co-pilot** [redacted] **: on their skill in crash-landing the helicopter as well as they did into the only available landing site, in an extremely difficult and dangerous emergency, thereby preventing further fatalities/casualties.**

CAUSE AND DEGREE OF INJURIES SUFFERED BY PERSONS BOTH SERVICE AND CIVILIAN

23. From evidence produced to the Board, **the Board finds that as a direct result of the impact of the helicopter crash-landing Maj Lang sustained fatal injuries.**

24. From evidence produced to the Board, **the Board finds that as a direct result of the impact of the helicopter crash-landing the civilian pilot** [redacted]



[redacted]

25. From evidence produced to the Board, **the Board finds that the only other injuries sustained by either the remaining air crew or passengers were very minor in nature. This, the Board finds, is testament to the skill with which** [redacted] **and** [redacted] **crash-landed the helicopter.**

WERE SERVICE PERSONNEL ON DUTY?

26. From evidence produced to the Board, **the Board finds that all service personnel on board the helicopter on 19 Oct 01 were on duty supporting Op KPAMBIE being conducted by the RSLAF.**

WERE ALL RELEVANT ORDERS AND INSTRUCTIONS COMPLIED WITH?

27. [redacted]

THE MAINTENANCE AND SERVICING RECORDS OF THE HIND

28. From evidence produced to the Board, **the Board finds that flight servicing and scheduled maintenance operations were carried out in accordance with the relevant maintenance and servicing manuals. Furthermore the Board finds that periodic inspections were carried out on a flying hour and calendar basis in accordance with the Operating Instructions, Maintenance Schedule, Flight Preparation and Scheduled Maintenance Procedures books.** These were forecast, recorded and signed for in the Aircraft Documentation Book.

29. [redacted]

[redacted]

30. [redacted]

Boi

31. [redacted]

32. With respect to the immediate maintenance history of the helicopter prior to the accident, from evidence produced to the Board, **the Board finds that it had been correctly serviced and authorised for flight prior to departure from Freetown on 18 Oct 01. The Board further finds that there were no overdue maintenance operations, limitations or accepted deferred faults that would have affected the role or performance of the aircraft for the planned sortie.**

33. [redacted]

34 [redacted]

[redacted]

[redacted]

THE TRAINING, QUALIFICATIONS AND FLYING HOURS OF THE PILOT

35. From evidence produced to the Board, **the Board finds the pilot [redacted], was properly trained and qualified to fly the Hind Mi-24V. The Board finds that he had 250 flying hours on the Hind Mi-24V alone.** This was in the Board's opinion ample flying time for him to be fully familiar with this particular aircraft.

THE EXTENT OF DAMAGE TO THE AIRCRAFT

36. From evidence produced to the Board, **the Board finds that as a result of the crash-landing and more particularly the post-crash fire, the helicopter was burnt out and destroyed. The extent of damage is listed in exhibit AAI.**

THE EXTENT OF DAMAGE TO AIRCRAFT REMOVABLE ROLE EQUIPMENT AND ASSOCIATED ITEMS

37. From evidence produced to the Board, **the Board finds that all aircraft removable role equipment and associated items were either destroyed or damaged beyond repair by the post-crash fire. This is also listed in exhibit AAI.**

THE EXTENT OF DAMAGE TO SERVICE AND CIVILIAN PROPERTY

38. From evidence produced to the Board, **the Board finds that the service property lost in the accident was that listed in exhibit B. The Board finds furthermore, that having investigated the matter, that the extent of the damage done to the paddy field was substantial, but the quantum of this damage is unknown.**

CRASH SURVIVAL ASPECTS

39. [redacted]

40. From evidence produced to the Board, **the Board finds that safety briefings were given to the passengers who departed with the aircraft from Freetown on 18 Oct 01.**

[redacted]

[redacted]

41. Evidence was produced to the Board, in the form of statements from the pilot [redacted], (exhibits A and K) parts of which dealt with what instructions if any, were communicated to the air gunner and passengers to prepare themselves for a crash-landing. **The Board finds that while [redacted] may have briefly attempted to warn the air gunner of the imminent crash-landing, this warning was never received by the other passengers.** This is understandable in the Board's opinion given that the pilot's attention was inevitably focused elsewhere. However, in the Board's opinion, there should have been an opportunity for this warning to have been clearly communicated to the air gunner and other passengers by the co-pilot. **The Board finds that both the air gunner and other passengers realised the helicopter was about to crash-land and improvised their own crash positions.**

SUMMARY OF FINDINGS

42. The flight was an operational tasking, which necessitated the use of the Mi-24V helicopter, the central focus of which was to support Op KPAMBIE.

43. The accident was caused following an emergency engine off landing into a paddy field, as a result of a double engine failure in flight.

44. The initial cause of this double engine failure was a catastrophic uncontained failure of the No 1 engine's free power turbine.

45. The catastrophic failure of No 1 engine was not caused by Foreign Object Damage (FOD).

46. The No 2 engine failed and was shut down as a result of damage sustained from penetrating fragments from the uncontained failure of No 1 engine.

47. The exact reason for the failure of the No 1 engine free power turbine support bearing cannot be determined.

48. [redacted]

49.

50.

51. The pilot [redacted] and the co-pilot [redacted] should be commended on their skill in crash-landing the helicopter in an extremely difficult and dangerous emergency.

52. [redacted]

53. As a direct result of the impact of the helicopter crash-landing Maj Lang sustained fatal injuries and the pilot [redacted] k

54. All service personnel on board the helicopter on 19 Oct 01 were on duty.

55. Flight servicing and scheduled maintenance operations were carried out in accordance with the relevant maintenance and servicing manuals.

56. The helicopter had been correctly serviced and authorised for flight prior to departure from Freetown on 18 Oct 01.

57. The pilot [redacted], was properly trained and qualified to fly the Hind Mi-24V.

58. As a result of the crash-landing and more particularly the post-crash fire, the helicopter was burnt out and destroyed

59. [redacted]

60. Safety briefings were given to the passengers who departed with the aircraft from Freetown on 18 Oct 01.

61. [redacted]

RECOMMENDATIONS

62. [redacted]

63. [redacted]

64. Jesa Air West Africa should be given the opportunity to send routine and suspect oil samples and magnetic plug wipes to a laboratory facility for analysis.

65. Jesa Air West Africa should be funded in order to implement an updated, auditable and improved aircraft fault reporting, rectification and documentation regime such as the UK MOD Form 700 series of forms.

66. Jesa Air West Africa should be funded in order to purchase and use compressor-washing facilities.

67. [redacted]

68. Jesa Air West Africa should be equipped with the means to download the data from the aircraft's flight data recorder.

69. [redacted]

70. [redacted]

71. Flying and local engineering orders/standard operating procedures should be implemented as a matter of urgency, after discussion and agreement with Jesa Air West Africa (or any successor civilian contractor), designed to reduce or compensate for the operation and maintenance of this type of aircraft in the operational and environmental conditions in Sierra Leone.

72. Quality assurance checks by an internationally recognised classification society should be carried out on the remaining RSLAF Air Wing aircraft.

73. [redacted]

74. [redacted]

75. [redacted]

76. [redacted]

77. [redacted]
in [redacted]

78. [redacted]

79. When any new or replacement helicopters are purchased by RSLAF, consideration should be given to finding an alternative helicopter to the Mi-24V Hind, better suited to operating effectively in Sierra Leone.