Ministry of Defence

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Ref: FOI2015/06484/75411/18/04

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[redacted]

25 August 2016

[redacted]

Dear [redacted]

Further to my correspondence of 5 August 2015, where I advised that a Public Interest Test (PIT) was required to be conducted prior to the release of the information in scope of your request, I am pleased to inform you that the PIT has been completed and I am able to provide some of the information, which I have attached. I apologise for the length of time it has taken to handle your request, as you rightfully should have expected a final response by 4 September 2015.

After conducting the PIT, some of the information has been found to be exempt under the qualified exemptions provided by Sections 24 (National Security), 26 (Defence), 31 (Law Enforcement), and 38 (Health and Safety). Additionally, the absolute exemption, not requiring a PIT, provided by Section 40 (Personal information) has been applied throughout. As both Sections 24, 26, 31 and 38 are qualified exemptions, the PIT was required to determine whether the balance of public interest lay in releasing or withholding the information.

In broad terms, Section 24(1) (National security) allows a public authority not to disclose information if it considers releasing the information would make the UK or its citizens more vulnerable to a national security threat.

The purpose of Section 26 (Defence) is to protect information which, if released, would, or would be likely to, prejudice the capability, effectiveness, or security of the armed forces. Some of the information was withheld under this exemption as it was determined that the release of some specific details of equipment capabilities, military tactics, techniques and procedures would be likely to endanger the lives of our service personnel in future.

The purpose of Section 31 (Law Enforcement) is to protect information which, if released, would, or would be likely, to prejudice the prevention or detection of crime, the apprehension or prosecution of offenders, or the administration of justice. As the shooting detailed in the information in the information you requested technically remains an open incident subject to police investigation, it was deemed necessary to withhold some of the information on these grounds in order to prevent this prejudice.

Information is exempt under Section 38 (Health and Safety) if its disclosure would, or would be likely to endanger the physical or mental health of any individual, or endanger the safety of any individual. It was deemed necessary to protect some of the information which could lead to the identification of personalities that are named in some of the reports as releasing it could have a detrimental effect on the individuals and their families, and could potentially endanger lives.

If you are not satisfied with this response or you wish to complain about any aspect of the handling of your request, then you should contact me in the first instance. If informal resolution is not possible and you are still dissatisfied then you may apply for an independent internal review by contacting the Information Rights Compliance team, 1st Floor, MOD Main Building, Whitehall, SW1A 2HB (e-mail CIO-FOI-IR@mod.uk). Please note that any request for an internal review must be made within 40 working days of the date on which the attempt to reach informal resolution has come to an end.

If you remain dissatisfied following an internal review, you may take your complaint to the Information Commissioner under the provisions of Section 50 of the Freedom of Information Act. Please note that the Information Commissioner will not investigate your case until the MOD internal review process has been completed. Further details of the role and powers of the Information Commissioner can be found on the Commissioner's website, https://ico.org.uk.

Yours sincerely,

[redacted]

[redacted]
Army Secretariat.

(DD473688) Entity Details

Document Ref: JSG/HQ/1/116161

DOCUMENT BASIC DETAILS

Document ID:	D473688	DSL:	3
Document Type:	IN		
Title:	HELICOPTER SHOOT CROSSMAGLEN		
DOI:	13/02/1991	TOI:	15:17
Classification:	UK [redacted]		
Originating Unit:	ARB/XMG	Dated:	13/02/1991
Grid Ref:	H9115		
Location Name:	CROSSMAGLEN		
Street:	CULLAVILLE ROAD		
Town/District:			
PostTown:	CROSSMAGLEN		
Area:	03		
Grade/Reliability:	A1		
DD Control:	Y		

Received by: Rank: _____ Number: _____

Printed on: [redacted]

DOCUMENT TEXT

Intelligence section
Support Company
45 Commando Group
CROSSMAGLEN
ARB/XMG/IN0391 BFPO 811

13 Febuary 91

INITIAL INCIDENT REPORT HELICOPTER SHOOT CROSSMAGLEN 13 FEB 91

1.On Wednesday 13 FEB at 15:18 hrs, Lynx 5 and Lynx 7 were inbound to XMG SF base (Lynx 7 had an underslung load of rations, Lynx 5 PSA personnel.)

2.Lynx 7 on approach to the SF base from the east was engaged by two different types of weapon (G50 report the differing sounds) from the area of behind the Community centre, GR H 912 151.

3.Lynx 7 ditched its underslung load in a field at GR H 91471525 and then landed NFDK at GR H 9405 1855. Lynx 5 returned to BBK for the ARF who secured the area of Lynx 7.

4.One firing point was identified at GR H 9125 1515 by the presence of 7.62 link, 7.62 single and some 3 metres away a number of 12.7 round cases.

5.At GR H 9123 1523 near the Health centre car park and track leading to Mill lane a 12.7 case was found.

6.A video from one of the CCTV cameras has been passed to the RUC SB and a full incident report will be released when details are known.

[redacted]
LT RM
I O XMG

** END OF PRINT **

(DD473819) Entity Details

Document Ref: JSG/HQ/1/116162

DOCUMENT BASIC DETAILS

Document ID:	D473819	DSL:	3
Document Type:	IN		
Title:	HELICOPTER SHOOT CROSSMAGLEN SQUARE		
DOI:	13/02/1991	TOI:	15:18
Classification:	UK [redacted]		
Originating Unit:	ARB/XMG	Dated:	15/02/1991
Grid Ref:	H9115		
Location Name:	CROSSMAGLEN		
Street:	CULAVILLE ROAD		
Town/District:			
PostTown:	CROSSMAGLEN		
Area:	03		
Grade/Reliability:	A1		
DD Control:	Y		

DOCUMENT TEXT

Int Cell
Support Company
45 Commando Group
Royal Marines
Crossmaglen
ARB/XMG/IN03/91 BFPO 811

Tel: 46602 (v)
Brinton 2108

See Distribution 13 Feb 91

HELICOPTER SHOOT BEHIND CROSSMAGLEN SQUARE

Ref A. D453177[redacted] INCIDENT REPORTING SOP's
B. D473688 INITIAL INCIDENT REPORT: HELICOPTER SHOOT CROSSMAGLEN
C. D473701 XMG Daily Digest 13 Feb 91
D. XMG CCTV Video Tape, Camera 4
E. D (tbc) WISREP BRIEFING
F. D472746 Daily Digest 01 Feb 91

1. On Wed 13 Feb at 1518 LYNX 5 and LYNX 7 were inbound to Crossmaglen SF base (LYNX 7 had an underslung load of rations, LYNX 5 PSA personnel) when LYNX 7 on approach to the SF base from the east was engaged by two different types of weapon (G50 report the differing sounds) from the area of behind the Community centre, GR H 912 151.

2. There were no casulties and LYNX 7 ditched its underslung load in a field at GR H 91471525 and then made an unscheduled landing at GR H 9405 1855. LYNX 5 returned to BBK for the ARF who secured the area of LYNX 7. See sequence of events.

3. [redacted]

4. [redacted]

[redacted]

5. PIRA have claimed responsibility for the incident.

6. [redacted]

<FF>

7. [redacted]

8. Directly adjoining the cattle pens behind the Community centre and the area of Mill lane is an area of rough ground that adjoins the grave yard. [redacted]

9. G50 report the Square had been quiet compared to the last three days which saw a "normal" level of sightings. The significant activity is summarised as follows:

[redacted] was not seen all day, last sighted 12 Feb late in the evening.

[redacted] were not sighted on the 13 Feb, but were sighted heavily over the past three days. [redacted] was sighted at 1100 hrs but not since.

[redacted] hadn't been seen all day [redacted] recent movements had not been unusual but a new pattern had been set, [redacted]

[redacted] sighted heavily over the last three days with both [redacted] not seen on the 13 Feb.

[redacted] sighted together more frequently than usual, [redacted] being seen in [redacted] vehicle, had associated together for the past three days.

On Mon 11 Feb [redacted] in VRN [redacted] On 1 Feb at 1203 hrs [redacted] were seen leaving Mill lane into the square in their vehicles VRN's [redacted] and [redacted]

[redacted] had 1 pax NK in the car with [redacted] and [redacted] had not been seen to enter Mill lane from the square. See suspicious activity Ref F.

At 1422 hrs on Wed 13 Feb [redacted]

<FF>
At 1420 hrs [redacted] VRN [redacted]

Carlingford St had been used much more than normal by [redacted] and also by [redacted]

[redacted] had not been seen in his blue VW Golf VRN [redacted] recently but had been seen driving his red Datsun [redacted], VRN [redacted]

****
**** All the following was observed retrospectively from video tape at Ref D ***
****

10. [redacted]

11. [redacted]

12. [redacted]

<FF>

SEQUENCE OF EVENTS (All timings are local to Wednesday 13 Febuary 1991)

1518 hrs - Contact reported by G50 (E Sangar and pax awaiting LYNX 7 on the helipad hear automatic fire from the east).

1522 hrs - G50 report direction of contact from behind community centre and that both HELS moved off to the NE.

1525 hrs - M0 informs T0 of the HEL LYNX 7 down at GR H[redacted] ARF Y30B tasked to cordon area. USL reorted ditched somewhere between Monog Rd and Urcher house - USL reported as rations only.

1531 hrs - T30A previously awaiting lift by LYNX 7 retasked, area of Square Carlingford St. T0A team deploy.

1549 hrs - T30B tasked to look at the area of the Monog complex.

1557 hrs - CCTV locate USL load in a field at GR H[redacted]

1600 hrs - T20B begin satellite patrol. Y20B tasked to the area north of [redacted] area to flush out any suspicious activity

1612 hrs - T0A reports a firing point at GR H[redacted] 7.62 link and 12.7 cases found. Cordon put in by T30A.

1623 hrs - [redacted]

1639 hrs - C/s Y20A and Y20B north of [redacted] now moving south.

1650 hrs - T30B reports [redacted] and [redacted]

1709 hrs - SOCO, Phot, WIS, CID, 12 x AAC Mechanics stood by at BBK.

1713 hrs - Y20B confirm downed HEL at GR H 9406 1858.

1715 hrs - Y20A at GR H 912[redacted] moving to USL site to secure.

1733 hrs - PUMA arrives at downed helo.

1738 hrs - Y20B report all agencies arrived - move is now to extract HEL.

<FF>

1753 hrs - SOCO and WIS complete on task at downed HEL AAC move in.

1806 hrs - Y21 have [redacted] a. At 1806 hrs.
b. Y21.
c. [redacted]
d. 15 second burst.
e. [redacted]

1808 hrs - Y21 have [redacted] a. At 1808 hrs.
b. Y21.
c. [redacted]
d. 2 second burst.
e. [redacted]

1938 hrs - Y20B report underslung HEL now inbound to Aldergrove.

2016 hrs - T50B report [redacted]. a. At 2016 hrs.
b. T50b.
c. Leaving SF base.
d. 1 burst.
e. [redacted]

2310 hrs - T40B deploy on town patrol to question persons leaving pubs on incidents. NFTR.

140600 hrs - T20B deploy, T30A deploy, Y20A deploy.

141631 hrs - T50B back in, T40B back in, T20B back in.

140927 hrs - Locstats.

T22 - Dundalk Rd
T22D - North St
T30A, T31D - Health centre
T31 - Mill lane
T31C - Grave yard
Y20A - satellite between [redacted]

140949 hrs - RESA/REST team deploy to clear the area of the ditched underslung load (load later removed by QRF in PIGS)

141003 hrs - T0A and ATO deploy.

141027 hrs - All ECM switched off on ATO and T0A instructions.

141140 hrs - SOCO and WIS at scene.
<FF>
141203 hrs - Secondary possible firing point re-identified by aircrew from air investigated at rear of [redacted] - no evidence to substantiate this found.

141218 hrs - Agencies return to SF base.

141230 hrs - Operation ended. T0A back in this location .

[redacted]
LT RM
[redacted]

<FF>

Distribution:

External:

BBK BN Int Cell [redacted]
TRB BN Int Cell [redacted]
FRB BN Int Cell [redacted]
BBK SQN Int Cell [redacted]
NTH COY Int Cell [redacted]
FKH COY Int Cell [redacted]
NEW COY Int Cell [redacted]
HQNI 125 ADBM [redacted]
HQNI ASC PRO [redacted]
HQNI ASC STH [redacted]
3 BDE G2 [redacted]
[redacted]
122 Int Sec [redacted]
123 Int Sec [redacted]
124 Int Sec [redacted]
SNONI (for NIONI) [redacted]

Internal:

XMG Coy Int Cell [redacted]

File XMG Int Cell Copy

** END OF PRINT **

15

Army

Original / Proceedings of a Board of Inquiry or Unit Inquiry into an Aircraft Accident or Other Occurrence

General Details of the Accident or Other Occurrence

Date	Location
13 FEB 91	SOUTH ARMAGH NORTHERN IRELAND

Aircraft Type(s)	Mark(s)	Serial Number(s)	Parent Unit(s)
LYNX	MK7	ZE 380	NI REGT AAC

Name(s) of Pilot(s)	Parent Unit(s)
[redacted] AAC	NI REGT AAC
[redacted] AAC	NI REGT AAC

Number of Casualties

Killed			Injured		
Crew	Passengers	Others	Crew	Passengers	Others
NIL	NIL	NIL	NIL	NIL	NIL

BOARD OF INQUIRY OR UNIT INQUIRY

INTO AN

AIRCRAFT ACCIDENT OR OTHER OCCURRENCE

CONTENTS

PRELIMINARIES

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[redacted]

AMENDMENT LIST

Amendment No	Date of Amendment	Amended By	Signature

[redacted]

[redacted]

AMENDMENT LIST

Amendment No	Date of Amendment	Amended By	Signature

[redacted]

The lowest classification of this form is [redacted] when it includes the proceedings of a Board of Inquiry or Regimental Inquiry.

RECORD OF PROCEEDINGS

of a[1] Board of Inquiry

assembled at Aldergrove

on the Sixteenth day of February 19 91

by order of[2] Brigadier E C Tait, Commander Aviation UKLF

for the purpose of[3] Investigating the sequence of events, circumstances and causes of the accident involving Lynx ZE 380 of the Northern Ireland Regiment Army Air Corps on 13 February 1991.

PRESIDENT [redacted] AAC

MEMBERS { [redacted] REME
[redacted] AAC

The following person[s] [was] [were] in attendance throughout [the whole] [part] of the proceedings in accordance with [Rule] [Regulation] 11 of the [Board of Inquiry (Army) Rules, 1956] [Regimental Inquiry Regulations, 1956]:–

[redacted] RAMC – Spec Avn Med
[redacted] – HFU
[redacted] REME – ALFSWO

~~*[He was] [They were] [unrepresented.] [represented by~~].

The Board of Inquiry, having assembled pursuant to the Convening order attached at page 2 proceed to [record evidence [on oath][4] beginning at page 3.] [hear evidence [on oath][4] in accordance with the transcript attached hereto.] *(or as the case may be)*

The findings *[and opinion] of the Board are attached at page PART 5

** Strike out where not applicable*

1 Although primarily intended for boards of inquiry and regimental inquiries convened under A.A., 1955 ss, 135 and 137 respectively, this form may be used for committees, *etc.*, and this space may be filled in accordingly.
2 Insert here the authority, or the rank, name and appointment of the officer convening the board of inquiry or as the case may be.
3 Here set out the terms of reference as set out in the order convening the board of enquiry or regimental inquiry.
4 This may only be struck out where a regimental inquiry has not been instructed to examine witnesses on oath.
NOTE: In the case of a board of inquiry or a regimental inquiry the proceedings must be signed by the president and by each of the members. Attention is drawn to the Board of Inquiry (Army) Rules, 1956 or to the Regimental Inquiry Regulations 1956, whichever is applicable

Dd. 8016098 60m 11/79 WS883

TERMS OF REFERENCE

1. The Inquiry is to investigate fully all the circumstances and is to record all evidence relevant to the Inquiry.

2. Evidence is to be taken on oath 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 proceedings.

3. Evidence is to be heard and recorded in accordance with Board of Inquiry (Army) Rules 1956. All relevant sections of AAC Form 8 are to be completed in accordance with the Pamphlet NOTES ON BOARDS OF INQUIRY INTO ARMY AIRCRAFT ACCIDENTS.

4. Any person whose character or professional reputation is likely to be affected by the findings is to be given the opportunity of being present or represented in accordance with the provisions of the Army Act 1955 Section 135 (4).

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

a. The circumstances leading up to the accident and the circumstances of the accident.

b. The cause or causes of the accident.

c. The causes and degree of injury suffered by persons both Service and Civilian.

d. Whether Service personnel involved were on duty.

e. Whether all relevant orders and instructions were complied with.

f. The extent of damage to the aircraft.

g. The extent of damage to aircraft removeable role equipment and associated items.

h. The extent of damage to Service and Civilian property.

~~j. Whether any person or persons failed in their duty. If any such failing constitutes negligence, identify the factors, mitigating or otherwise, affecting the act or omission deemed negligent.~~ [redacted].

k. All relevant crash survival aspects.

l. Any other points relevant to the Inquiry.

6. The Inquiry may make any recommendations it considers appropriate to prevent a recurrence.

[redacted]

7. The Inquiry is to order the attendance of any witnesses whose evidence it considers may be relevant to the Inquiry.

8. The attention of the President is drawn to:

a. Queen's Regulations for the Army 1975.

b. Manual of Military Law, Board of Inquiry (Army) Rules and Section 135 of the Army Act.

c. JSP 318 Part 3 Section 5 'Army Regulations', 'Flight Safety'.

d. Notes on Boards of Inquiry into Army Aircraft Accidents.

~~9. A Special Interim Finding on missing personnel (if appropriate) is to be submitted as soon as possible but not later than 3 weeks from the date of this order. This should include a brief report of the circumstances of the incident and opinion of the Board, with supporting reasons, as to whether any death should be presumed~~. [redacted]

10. The proceedings are to be recorded on AAC Form 8 and are to be staffed as laid down in JSP 318 Part 3 'Army Regulations', Section 5 'Flight Safety', Chapter 5, Regulation 0518.

[redacted]

PART 1

SUMMARY OF ACCIDENT OR OCCURRENCE in brief.

1. On Wednesday 13th February 1991 [redacted] was Aircraft Commander and [redacted] was pilot of Lynx AH7 ZE 380. [redacted] was the door gunner on board. [redacted] was flying the aircraft from the right hand seat with [redacted] in the left seat and [redacted] in the rear of the aircraft manning the GPMG with the port door open.

2. They were tasked with a second Lynx as top cover to fly an underslung load from BESSBROOK to CROSSMAGLEN.

3. At approx 1500 hours 1 Km NE of CROSSMAGLEN whilst in the descent between 500' and 800' with an airspeed of 60 kts the aircraft was engaged by automatic fire. The crew took evasive action jettisoning the load and flew clear of the engagement area without returning fire.

4. The crew experiencing cyclic control restrictions elected to execute a run on landing into a suitable field which was conducted without further damage.

5. The aircraft was subsequently recovered to ALDERGROVE by Chinook where it was found to have been hit by a mixture of 10 rounds of 12·7 and 7·62 calibre.

ANNEX C

PART 2

NARRATIVE OF EVENTS

1. 1505 Crew tasked to fly initially with a USL as mutual support to another Lynx dropping pax at G30. They were then to take their USL to CROSSMAGLEN (XMG) where they would be mutually supported by the other Lynx.

1517 Pax drop off at G30 completed without incident.

1519 Whilst on final approach to XMG at between 500' and 800' with 60 Kts airspeed the aircraft was engaged by automatic fire. [redacted]

The mutual support Lynx which observed the jettison of the load ascertained by radio that the other Lynx had come under fire, was damaged and was going to conduct an emergency landing.

1523 Emergency landing executed without further damage 3 - 4 miles from the engagement area.

The crew disembarked with their weapons and took up all round defence whilst the other Lynx was dispatched back to BESSBROOK for the ARF.

1535 Lynx returned with ARF and the crew of ZE 380 picked up and flown to BESSBROOK.

1910 Lynx recovered by Chinook to ALDERGROVE.

[redacted]

PART 3

Supporting Documentation

MATERIAL FACTS

Found during a visit to the scene of the accident ~~before~~/after the aircraft had been removed.

1. Although the aircraft and crew had been recovered to ALDERGROVE from South ARMAGH it was possible to ascertain that the accident was caused by enemy action when the aircraft came under fire light and heavy machine guns.

2. The following parts of the aircraft were damaged:

Starboard Cabin door
Cabin roof and avionic looms
Belly panel, port cyclic and cyclic loom
Belly panel and strobe APU
Main rotor gear box and cowling
Main rotor blade
Aft section centre frame and Flux valve cables
Starboard skid
Port IRCM duct fins.

[redacted]

[redacted]

PART 4

Supporting Documentation

DIAGNOSIS OF THE CAUSES

1. a. The aircraft had been recovered to NI AAC Regt Wksp REME where it had been deroled and prepared for road transportation to RNAY FLEETLANDS.

b. An examination of the aircraft revealed the following damage sustained after being hit by a number of rounds of heavy and light machine gun fire. ANNEX E

(1) **No 2 Belly Access Panel**. A hole in the forward edge of the panel, just forward of the lower strobe light was consistent with that of a 7.62mm round. The round had passed cleanly through the panel and embedded itself in the strobe Power Supply Unit (PSU). The remains of the round had been recovered. ANNEX D

(2) **No 3 Belly Access Panel**. A hole in the right hand edge of the panel was consistent with that of a 12.7mm round. The round had passed through the panel causing damage to the panel attachment frame and underfloor frames. The round then impacted with the port cyclic stick trunnion assy completely severing the right hand attachment point. The cyclic stick electrical loom was also completely severed at the socket attachment. Debris from the impact penetrated the cabin floor in two places under the port pilot's seat and holed the tail rotor pedal connecting control rod.

(3) **Starboard Sliding Door**. A hole in the top edge of the door was consistent with that of a 7.62mm round. The round had penetrated the door, travelled across the upper cabin roof damaging the AFCS loom containing the MRGB access panel. An adjacent loom containing the MRGB oil pressure transmitter electrical feed was partially severed. The MRGB decking oil drain and a fuel vent pipe were also severed prior to the exit of the round through the upper rear of the port cabin wall.

(4) **Fuselage Centre Section**. A hole in the rear of the starboard centre section was consistent with that of a 12.7mm round. The round had penetrated the skin just above the avionics bay door damaging the airframe and an adjoining stringer on entry. The round continued through the centre section, severing the compass flux valve cables and damaging a frame at its exit point on the port side. The torn exit hole measured approximately 4" x 4".

(5) **Main Rotor Blade**. A hole in a main rotor blade approximately 18" from the root end was consistent with that made by a 7.62mm round.

[redacted]

(6) **Main Rotor Gearbox**. A hole in the forward edge of the MRGB port cowling foot step was consistent with that of a 12.7mm round. The round had passed through the cowling and penetrated the MRGB casing at an angle. The entry hole was approximately 2" long and ½" wide. A web adjacent to the entry hole was damaged as was the frame forming the air intake to the port ECU. There was a hole in the upper right hand corner of the cowling footstep and one in the port ECU intake duct (forward of the debris guard). This damage has been caused by either the exit of the fragmented round or debris damage from the MRGB. The spent round may be inside the MRGB.

(7) **IRCM Duct**. Two of the vanes of the Port IRCM duct were holed in their trailing edge, probably caused by a 12.7mm round.

(8) **Undercarriage**. There were entry and exit holes in the starboard skid probably caused by a 12.7mm round.

(9) **Cabin Roof**. There was a 12" by 2" tear hole in the main rotor gear box access panel. Given the size of the hole , this may have been caused by a 12.7mm round.

2. DAMAGE TO SERVICE/CIVILIAN PROPERTY

Other than the damage to the aircraft described in Part 3 there was no damage to service property. Civilian damage was restricted to skid marks in the field at the landing site in South ARMAGH.

3. SURVIVABILITY

a. Technical Aspects

(1) The damage to the aircraft in survivability terms can be divided broadly into two categories - insignificant and significant.

(2) The insignificant damage would have had little or no effect on the survivability of the aircraft and is listed below:

Hole in starboard door.
Tear in cabin roof access panel.
Holes in belly panels.
Damage to strobe APU.
Holes and tears to cowlings.
Hole in one main rotor blade.
Hole and tear in aft section frame.
Severing of flux valve cable.
Hole and tear in starboard skid.
Holes in IRCM duct vanes.

(3) The Board believes that the following damage was significant because it played a major role in the subsequent actions of the crew in their perception of the survivability of the aircraft. However, the Board agreed that none of the damage listed below either singly or collectively would have caused a catastrophic failure.

(a) **Main Rotor Gear Box**. The hole in the gear box casting was above the level of the sight glass and the oil would not have been under high pressure. Therefore the oil lost was due mainly to spillage and in the unlikely event that all the oil was lost the crew were aware that the aircraft could be flown for up to an absolute maximum of 30 mins with a dry gearbox.

(b) **Port Cyclic**. The port cyclic inner trunnion attachment point was severed allowing the cyclic stick to partially rotate about the other trunnion. This gave the stick an exaggerated level of movement before the control input became effective. However the starboard cyclic was not damaged and in the event, the aircraft was safely landed by the Ac Comd in the left seat using the damaged cyclic stick.

(c) **Port Cyclic Loom**. The port cyclic loom was severed at the electrical connection point near the bottom of the cyclic stick. This resulted in the loss of the following facilities:

Trim
P to T
CAC cut out
AFCS

The lack of P to T prevented the Ac Comd from transmitting a contact report and prevented him from calling the aircraft providing mutual support. The loss of AFCS and CAC resulted in increased stick forces which were probably magnified by the underslung load before it was released. Nevertheless the loss of such facilities is a practised skill amongst Lynx pilots and would not degrade the performance of the aircraft.

(d) **Avionic Loom in Roof**. The board were unable at this stage to positively identify the electrical services provided by the partially severed and broken cables in the room. However, the failure of MRGB oil pressure gauge was probably attributable to the damage caused to the loom

b. **Human Factors Aspects**

(1) **Actions by the pilot.** The Board found that the pilot of the aircraft, [redacted] having come under effective enemy fire initially continued the descent but soon afterwards initiated a gentle turn to the right commensurate with carrying an underslung load. Thereafter he experienced abnormal stick forces which the Board considered most probably those associated with the unexpected loss of AFCS in conjunction with an underslung load. This was a phenomenon he had not experienced either in training or on operations and it occurred at a time when a number of major distractions were present including smoke, unusual mechanical noise, debris and aural warnings and communications from other crew members. Near the completion of the turn the underslung load was released by the Ac Comd reaching across to the pilot's cyclic following some confusion over the terminology used by [redacted] who advised the pilot to "dump it" when referring to the load. From the pilot's statements, it is clear that he believed that total hydraulic failure was imminent although there were contrary cockpit indications. Consequently he felt strongly that further control inputs would exhaust any remaining hydraulic control. This situation persisted until control was handed over to [redacted] who was more experienced on the Lynx.

(2) **Actions by the Ac Comd.** [redacted] having perceived the same cues as the pilot began to assess the damage and then advised the pilot to jettison the load. The term "dump it" was used which was not immediately understood by the pilot and after two repetitions he deliberately leant across and operated the load release switch on the pilot's cyclic stick. Thereafter he assumed control of the aircraft which was then flown to a safe area. During this short flight [redacted] in consultation with the pilot, agreed that the aircraft should not be flown longer than necessary and having selected a suitable field he executed a successful run on landing.

(3) **Actions by the Door Gunner.** [redacted], who was in the rear of the aircraft on the portside in the kneeling position, heard a loud overhead noise accompanied by urgent communications between the aircrew. He also saw continuous muzzle flashes from the ground on the approach path some 300m from the aircraft and communicated with the aircrew. However receiving no response and noting that the aircraft was continuing to receive strikes took cover on the floor where he remained until the aircraft landed.

(4) **Operational Aspects.** [redacted]

c. **Other Survivability Aspects.** The Board noted that the aircraft was carrying an underslung load which restricted its forward speed to 60 Kts reduced the ability of the crew to take evasive action and thus presented terrorists equipped with machine guns with a target which could be easily engaged. An internally loaded Lynx would have been flown at approximately [redacted] as it approached the base and its rate of descent would have been much higher than the [redacted] minute used with an underslung load. This was partly explained by the need to recognise that the mortar threat to aircraft on the ground in fixed bases which could be reduced by the use of underslung loads. Another factor is the nature and size of certain loads which cannot easily be fitted into the cabin but can be carried externally.

4. INJURIES

None of the crew sustained injuries. A detailed report carried out by the Spec Avn Med is available in a separate report but it does not contain any evidence which would affect the course of events leading up to or during the accident.

ANNEX F

5. AUTHORISATION

a. The Board were satisfied that the crew were on duty, correctly authorised and were physically fit for their task.

b. The aircraft was being flown in accordance with current operational norms.

[redacted]

PART 5

Supporting Documentation

FINDINGS OF THE BOARD

1. **Cause**. The Board found that the accident was caused by hostile fire from the ground. The aircraft was functioning normally until hit by a mixture of 7.62mm and 12.7mm rounds which forced the crew to carry out an emergency landing.

2. **Contributory Factors**

a. The carriage of an underslung load required the aircraft to be flown low and slow during its final approach. The load was also being flown in a known hostile area in daylight with good visibility. The terrorists were therefore able to acquire and engage the target with comparative ease.

b. Despite the use of mutually supporting aircraft and the display of door guns, the terrorists were not deterred. This may in some way be explained by the present operational techniques which have been employed for over two years. The Board, however, did not feel qualified to suggest specific alternative operational techniques.

c. Although door guns have been fitted to Lynx for over a year there are severe limitations preventing their use. In this instance the following contributory factors were present:

[redacted]

Rules for opening fire from Helicopters (NI)

[redacted]

3. **Aircraft Damage**. All the rounds that hit the aircraft caused damage to varying extents but none prevented the aircraft from being flown away from the ambush to a safe area. Nevertheless it was only by a stroke of luck and not because of any protective measures that the aircraft continued to fly. In the case of the 12.7mm rounds a variation of only a few inches would have caused catastrophic damage to vulnerable vital components or killed any passengers in the cabin area.

4. **Aircraft Survivability**. The Board noted that notwithstanding the lack of armoured protection, the Lynx aircraft with 2 engines 2 hydraulic systems, armoured seats, dual controls and 2 fuel systems does in fact offer limited survivability but there are major areas of concern which need to be urgently addressed by a study.

5. **Training**. It was noted that none of the current army helicopter simulators include hostile engagement scenarios nor is there any training in damage assessment whilst in flight. Linked to this approach is the requirement to introduce into ground school training more specific information on the reliability and flyability of aircraft when damaged in combat.

[redacted]

Supporting Documentation

PART 6

RECOMMENDATIONS OF THE BOARD

1. The Board recommends that where possible the flying of underslung loads during daylight into known hostile areas is avoided.

2. The Board, having noted the ineffectiveness of the deterrent value of Op ATTAINMENT measures in this case recommend a review of the tactics employed but realise that operational factors may impede a simple solution.

3. The Board noted that the GPMG door gun and the rules for its use appeared to be incompatible with the task envisaged and recommends that a more effective weapon system is fitted to the aircraft.

4. The Board recommends that a study into the protection of the vulnerable and vital components of the Lynx is instituted as a matter of urgency. (it is understood that a survivability study associated with GST 3811 was undertaken by RAE in 1981 and the report issued in 1983).

5. The Board recommended that the HFU be tasked (a) to specify a suitable simulator package for incorporation within mooted full mission simulators and for possible retrofitting to the present Lynx Flight Simulators to represent typical effects of hostile action, (b) to explore the possibility of a complementary ground syllabus.

[redacted]

PART 7

OBSERVATIONS OF THE BOARD

1. The Board congratulated the crew on their handling of the aircraft whilst under fire and on their subsequent actions in recovering a damaged aircraft to a safe area. They were particularly impressed by the flying skill displayed by [redacted] and the restraint shown by [redacted]

2. It was noticed that the practice of employing door gunners drawn from other groundcrew posts and rotating them at regular intervals to give them a break from administrative duties was unlikely to develop the full potential of a third crew member.

3. The Board noticed that the door gunner's body armour was inappropriate for the role because it did not cover his back.

[redacted]

7. Cont'd

Supporting Documentation

Signature of: **President** [redacted]

Member [redacted]

Member [redacted]

Date 12 APR 91

[redacted]

[redacted]

PARTS 9/10

REMARKS OF THEATRE COMMANDER AVIATION AND CONVENING AUTHORITY

1. Since the Commanding Officer was the pilot of the aircraft when the incident occurred, I have directed that it would be inappropriate for him to comment at PART 8.

2. This Inquiry was convened in order to determine if there were lessons to be learnt either from the incident, or about the survivabilty of the Lynx helicopter.

3. I agree that the cause of the incident was hostile fire, and I note the contributory factors. The Board is right not to suggest alternative operational techniques, which are properly the concern of those operating within the Province.

4. I do not agree that engagement of an aircraft by hostile fire necessarily precludes effective return fire. Circumstances are likely to be different on each occasion, and the limitations of the present door gun equipment are known. Nevertheless, it must be better to have an offensive fire capability and work is in hand to improve the gun mount and the sight. There are far better systems available but none have yet been fitted to the Lynx. This incident highlights the urgency of the requirement for a really effective system.

5. The Board makes a cogent point about damage and survivability namely:

> "it was only by a stroke of luck and not because of any protective measures that the aircraft continued to fly. In the case of the 12.7 mm rounds, a variation of only a few inches would have caused catastrophic damage ..."

As the Board rightly states, the various dual systems in the Lynx offer a measure of survivability, but I believe that the study of survivability which is in hand, needs to be progressed urgently.

6. I agree that it would be helpful if some of the effects of hostile fire could be reproduced in future simulators. More important now is to determine whether they can be incorporated and used with the present Lynx simulators. I recommend that this is studied without delay.

E C TAIT
Brigadier
Commander Aviation UKLF

30 August 1991

[redacted]

G3 OP Stats 1000 VOL 125

[redacted]

DAILY OPERATIONS BRIEF

PERIOD: 130700Z - 140700Z FEB 91 NO: 045/91

STATS

NORTHERN IRELAND [redacted]

PROVINCE SITREP

3 INF BDE [redacted]

1. [redacted]

03 BDE/RURAL GRH 91201500 H/CROSSMAGLEN 02

2. 131518Z. ATTACK ON HELICOPTER, CROSSMAGLEN (45 CDO RM). A Lynx helicopter, carrying an underslung load, was fire at, as it approached Crossmaglen SF base at, GR 912150. The Lynx was hit several times and was forced to drop its underslung load at, GR 915152 and then carry out a precautionary landing at, GR 941186. During the follow up operation a firing point was located at, GR 913152 where 50 x 7.62 mm and 12 x 12.7 mm empty cases were recovered. A possible second firing point was located at, GR 919149. There were no casualties and the Lynx was recovered to Aldergrove at 1945Z. A further follow up operation will take place. (Target: Helicopter)

3. [redacted]

4. [redacted]

[redacted]

[redacted]

[redacted]

8 INF BDE

[redacted]

7. [redacted]

8. [redacted]

39 INF BDE

9. [redacted]

10. [redacted]

11. [redacted]

[redacted]

14 Feb 91

[redacted]
Maj
for GOC

[redacted]

[redacted]

SHOOTINGS					
[redacted]					
Auto Rounds at SF			1	1	
[redacted]					
SHOOTING INCIDENTS TOTS			1	1	

[redacted]

[redacted]

045/91

045/91

G3 Op Stat 1000 vol 125

[redacted]

DAILY OPERATIONS BRIEF

PERIOD: 140700Z - 150700Z FEB 91 NO: 046/91

Smms

NORTHERN IRELAND

PROVINCE SITREP

3 INF BDE

Connect 044/02

1. 140800Z. FOLLOW UP TO HELICOPTER ATTACK, CROSSMAGLEN (45 CDO RM). (Daily Operations Brief 045/91 refers). During the follow up operation a further 16 x 12.7mm and 124 x 7.62mm empty cases were recovered from the firing point at, GR 913152. A second firing point was not located and the area was declared clear at 1230Z.

[redacted]

3. [redacted]

8 INF BDE

[redacted]

a. [redacted]

b. [redacted]

5. [redacted]

6. [redacted]

[redacted]

[redacted]

7. [redacted]

8. Bde Stats.

[redacted]

39 INF BDE

9. [redacted]

10. [redacted]

11. [redacted]

12. Bde Stats.

a. [redacted]

b. [redacted]

[redacted]

15 Feb 91

[redacted]
Maj
for GOC

[redacted]

046/91

[redacted]

ARMAGH WISREP.
****

3 SECTION WIU.
****

INCIDENT: SHOOTING 12.7mm HMG.
******** FORCED LANDING OF LYNX HELICOPTER.

WISREP REF NO: 3WIS/SOUTH/S/09/91. DOC ID: D473693.
****

REPORT DATE: 19 Feb 91.
****

REFERENCE:

A. ADA/UUA 132300ZFeb91.

1. DATE & TIME: 13 Feb 91 about 1518 hrs.
---

2. LOCATION & GRID: F.P. Rear of Community Centre,

Mill Lane,
Crossmaglen,
South Armagh.

Grid: H9125 1515.

Forced landing location:
Field off,
Drummill Road,
Drummill,
South Armagh.

Grid: H9405 1855.

3. TYPE OF INCIDENT: HMG Shoot at Helicopter.
---

4. CASUALTIES: Nil.

[redacted]

[redacted]

5. ARRESTS: Nil.

6. INVESTIGATORS: [redacted]

DETAILS OF INCIDENT:

7. On Wed 13 Feb 91 about 1518 hrs a Lynx helicopter (C/S ZE 380) crewed by Lt [redacted], Lt Col [redacted] and a door gunner A/Tpr [redacted] were flying into Crossmaglen SF base from Bessbrook. The aircraft was carrying an underslung load. As they approached at a speed of 60 mph and at a height of 200 ft on a flight path over Urcher House, Crossmaglen, the aircraft was hit by possibly 3 bursts of automatic weapons fire.

8. The pilot flew the aircraft out of the contact area dropped the underslung load (Grid H9148 1524) and made a forced landing in a field off the Drummill Road, Drummill, South Armagh, approximately 3.5kms from the contact area. A top cover helicopter was oblivious to the initial contact and observed nothing.

9. All relevant agencies were tasked and the aircraft which had received a number of hits was recovered by Chinook helicopter and conveyed to RAF Aldergrove.

ITEMS OF FORENSIC:

10. The following items of forensic interest were recovered by SOCO/WIS and retained for initial examination and subsequent onward transmission to NIFSL/WERC for further examination:

a. From the FP:

(1) [redacted]

(2) [redacted]

(3) [redacted]

(4) [redacted]

[redacted]

[redacted]

b. From the Helicopter:

(1) [redacted]

(2) [redacted]

INVESTIGATORS COMMENTS:

11. The firing point was located soon after the incident however no EOD action was taken until am 14 Feb 91 due to the possibility of a "come on". ATO was tasked and after declaring the task complete stated [redacted]

12. The Lynx was recovered to Aldergrove, [redacted]

13. [redacted]

14. [redacted]

15. This shoot yet again demonstrates that PIRA are confident to take on targets [redacted]

[redacted]

[redacted]

16. A report has now been received from WERC which confirms that [redacted] Relevant PUN and previous uses are:

a. [redacted]

(1) [redacted]

(2) [redacted]

(3) [redacted]

(4) [redacted]

b. [redacted]

(1) [redacted]

(2) [redacted]

(3) [redacted]

17. [redacted]

18. The last shoot against a helicopter was on 30 Jan 91 when a Wessex was shot at as it lifted off from Forkhill SF base. 3 WIS BORDER(S)/S/08/91. Doc No D[472922] refers.

19. The last incidents in the Crossmaglen area was the bombing in a field near Milltown Brige on 23 JAN 91, 3WIS(S)/S/07/91, Doc No D[473149] refers; and the Mk 10, 8 tube Mortar attack again targetted against a helicopter, 3WIS (S)/B/05/91, Doc No D[471754] refers.

INITIAL ATTRIBUTION: PIRA.

MILITARY UNIT: 655 SQN AAC.

XMG COY 45 CDO (ARB).

[redacted]

[redacted]

ATO: L32.

RUC STATION: CROSSMAGLEN (H DIV).

SOCO DEALING: NEWRY (H DIV).

[redacted]

CPL
for OC.

ANNEXES

A. Map of area.
B. Map of scene.
C. Photographic Supplement.
D. Diagram of Lynx showing Location of Strikes.

Distribution:

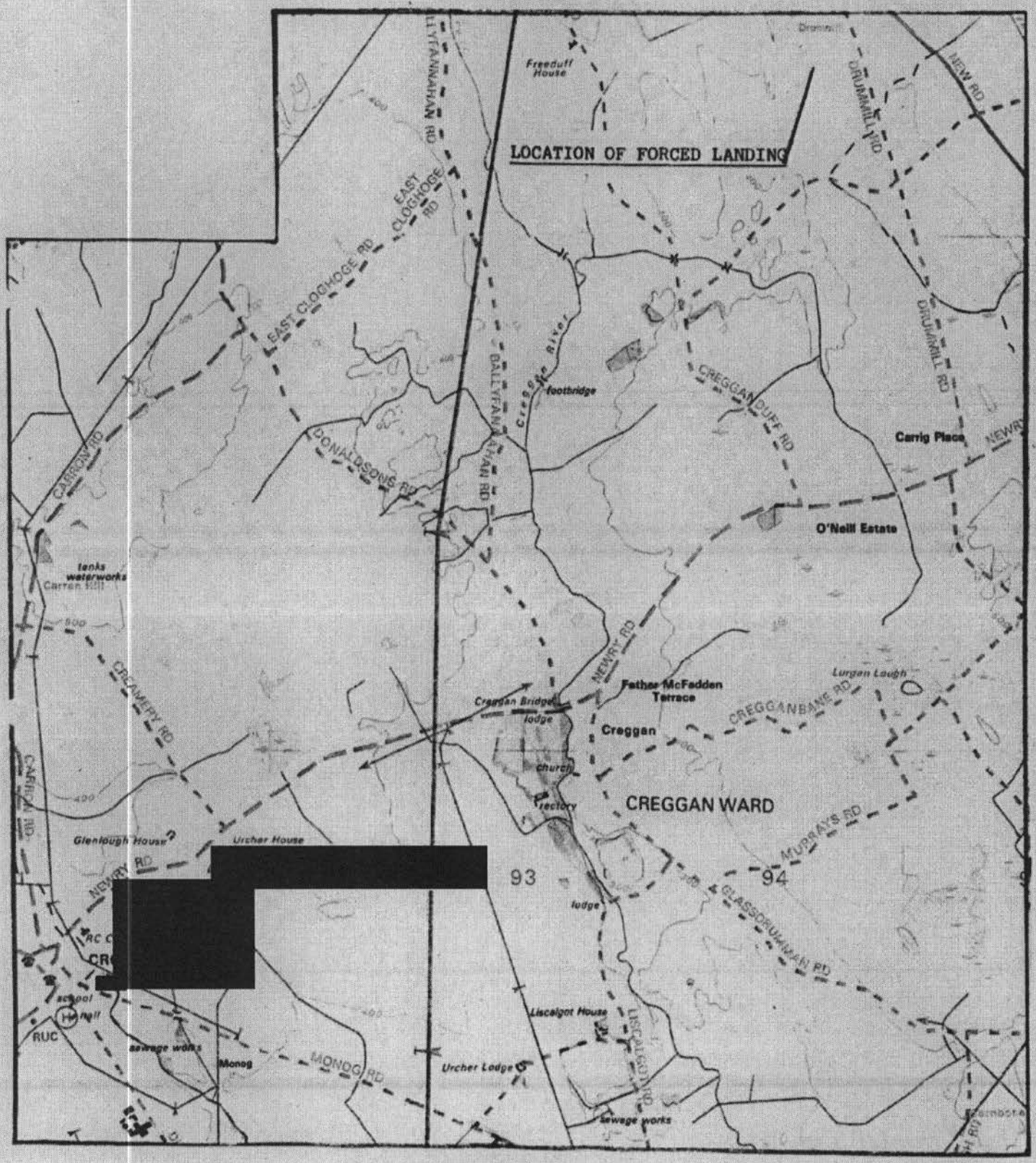
List B.

[redacted]

[redacted]

ANNEX A TO
3WIS/SOUTH/S/09/91
DATED 20 FEB 91

MAP OF AREA.



[redacted]

[redacted]

ANNEX B TO
3WIS/SOUTH/S/09/91
DATED 20 FEB 91

MAP OF SCENE.

[redacted]

[redacted]

[redacted]

ANNEX C TO
3WIS/SOUTH/S/09/91
DATED 20 FEB 91.

****
PHOTOGRAPHIC SUPPLEMENT
****

1. VIEW OF HELICOPTER ON FORCED LANDING.

2. [redacted]

3. [redacted]

4. [redacted]

5. [redacted]

6. [redacted]

7. [redacted]

8. [redacted]

9. [redacted]

10. [redacted]

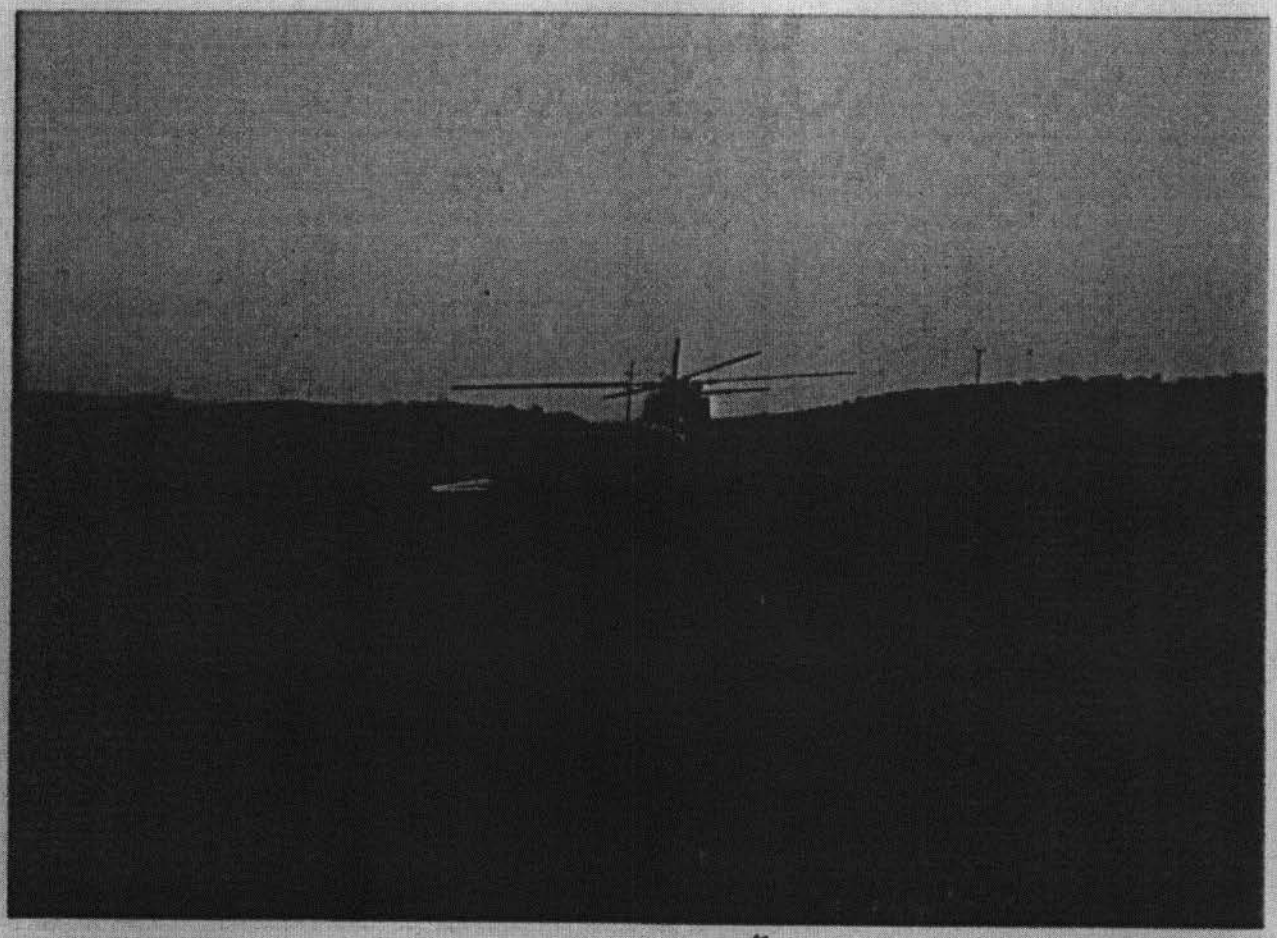
11. [redacted]

12. [redacted]

13. [redacted]

14. [redacted]

[redacted]



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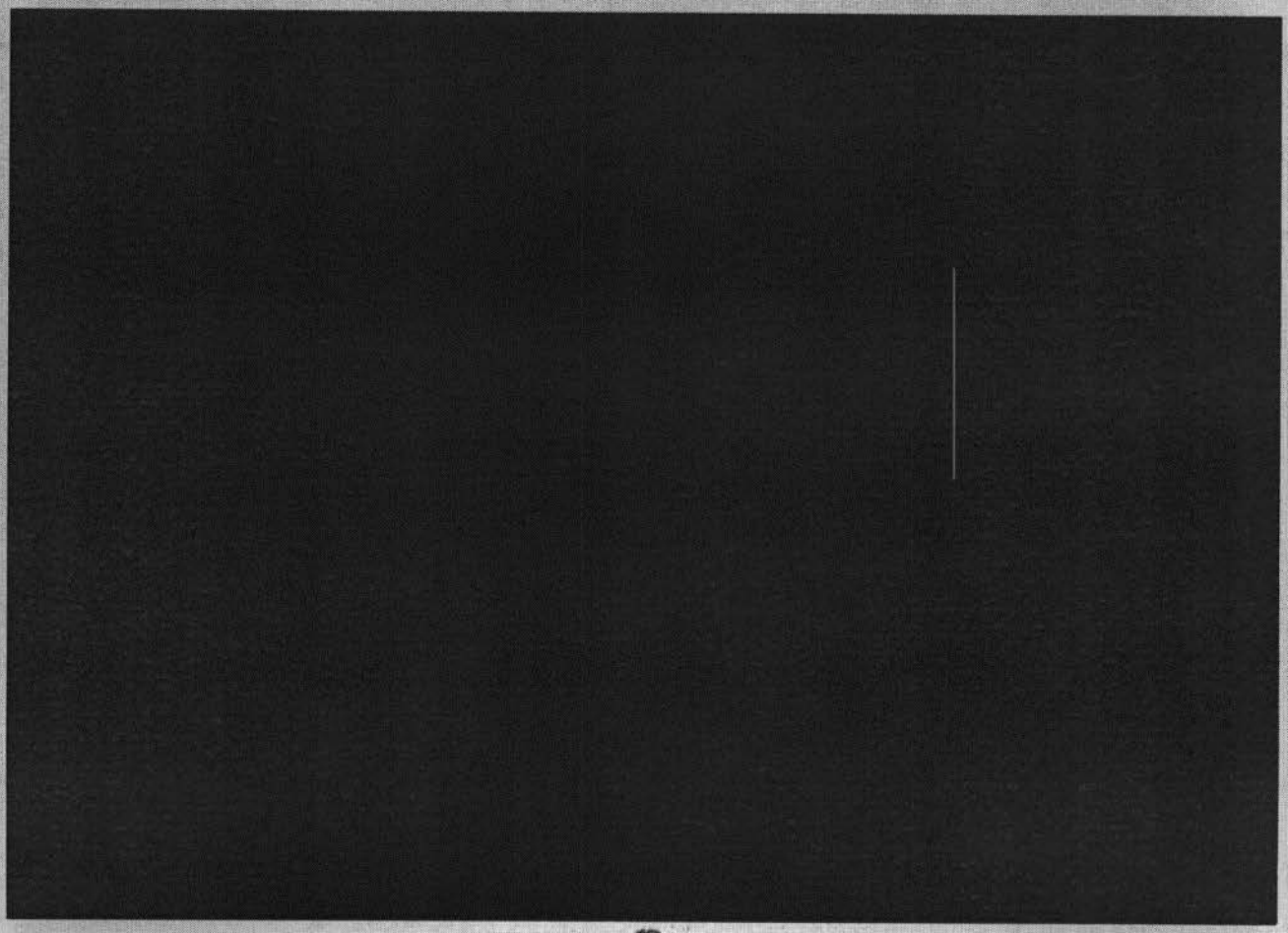
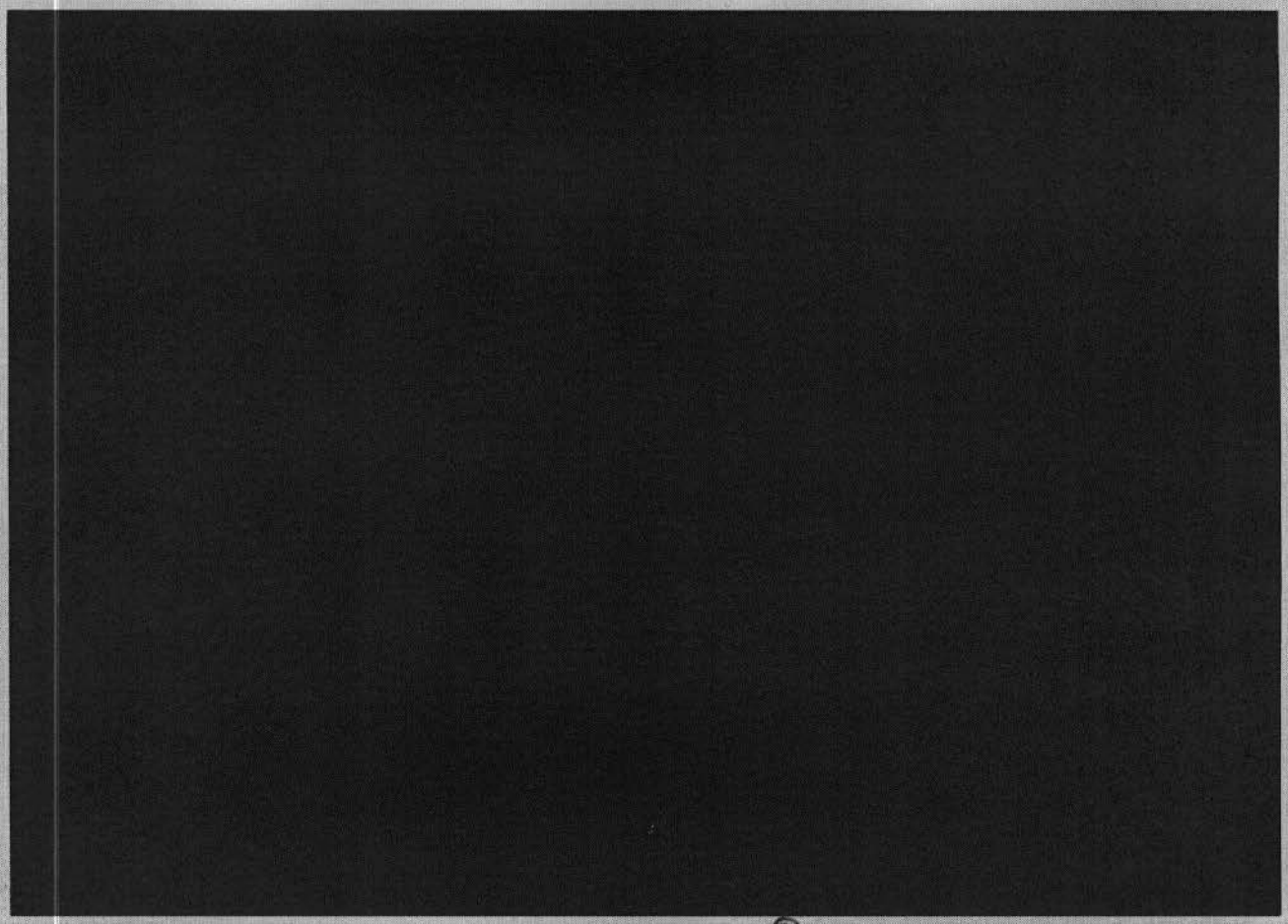
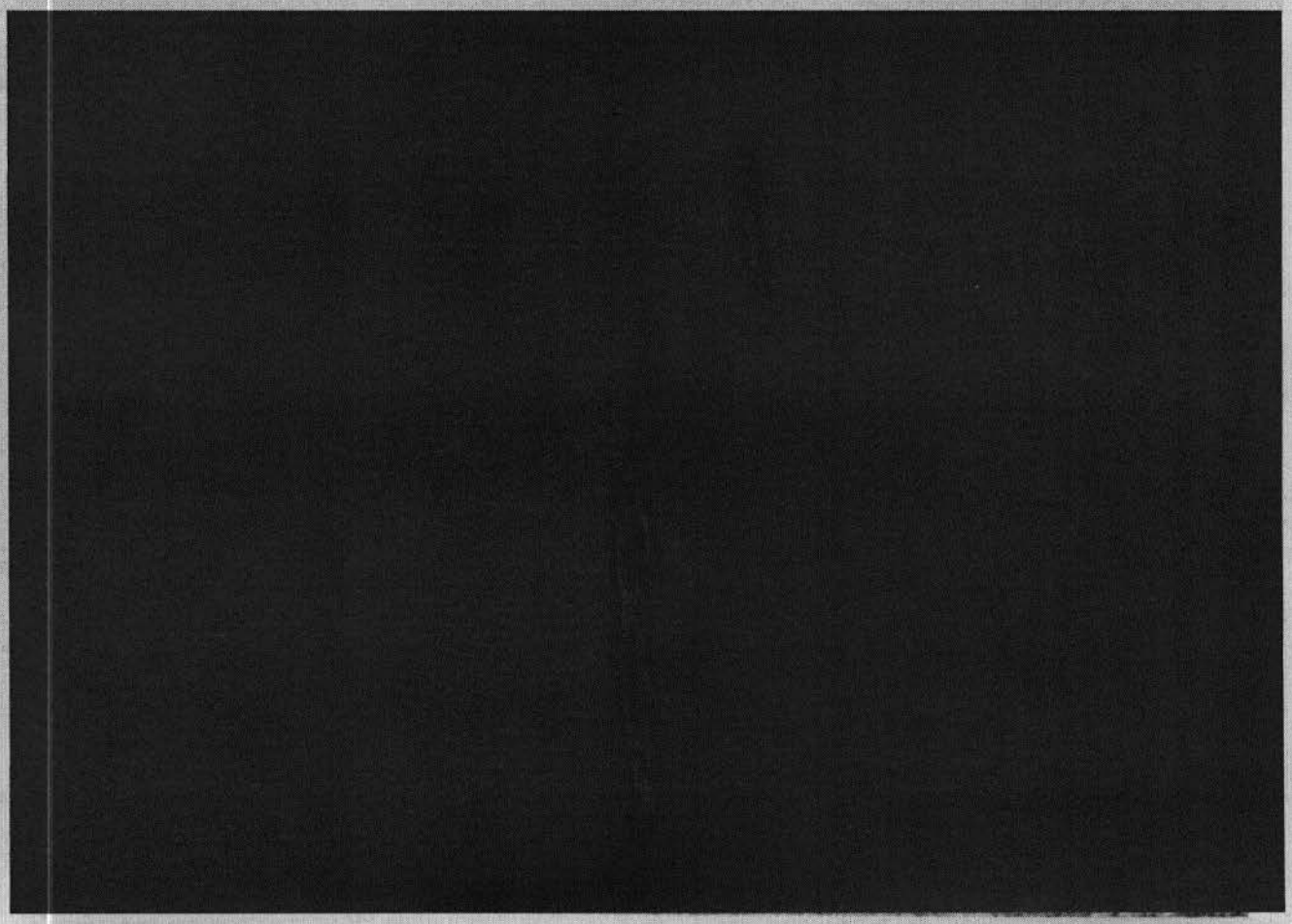


②



3



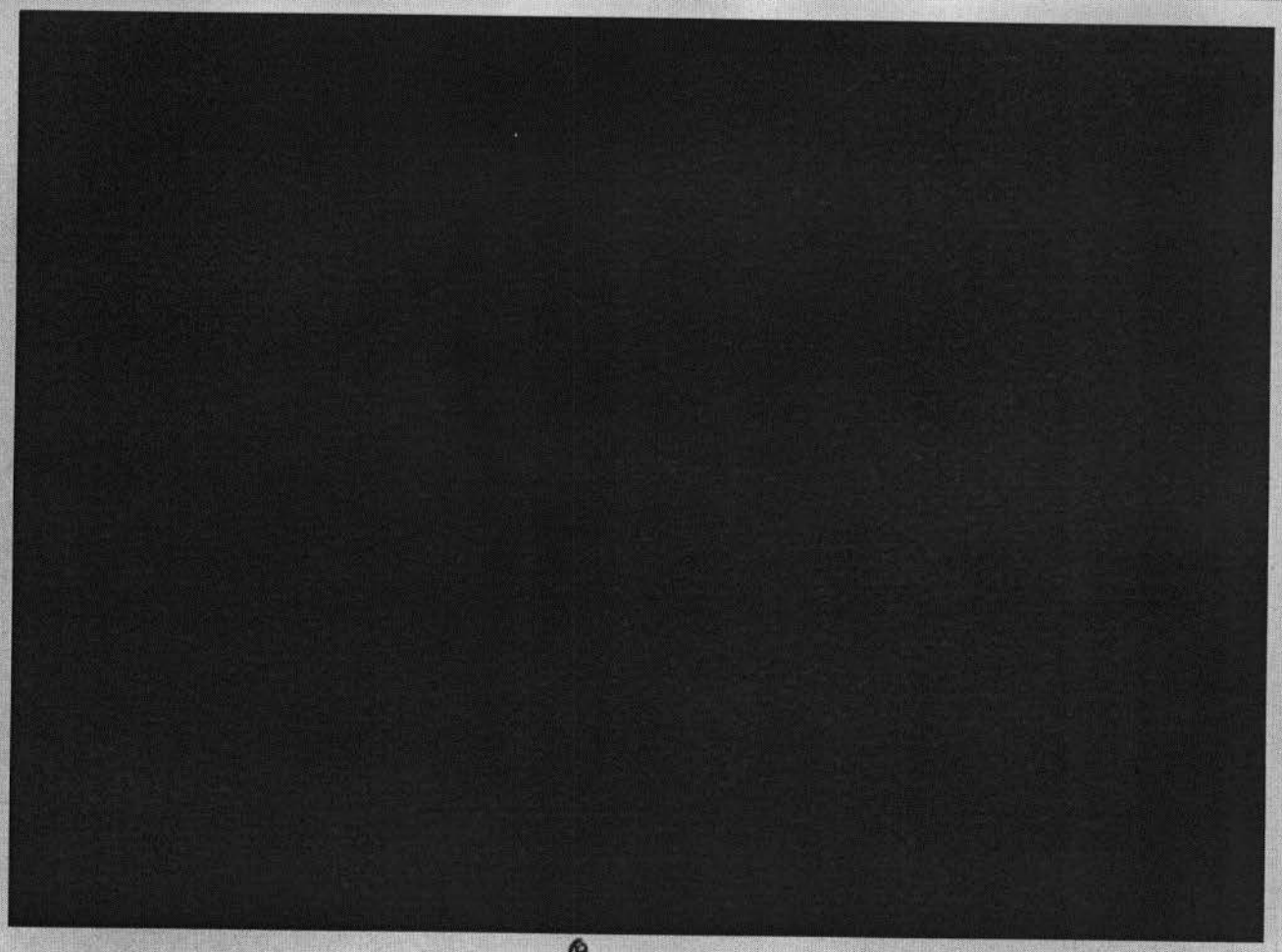
4

(5)

(6)

[redacted]

[redacted]



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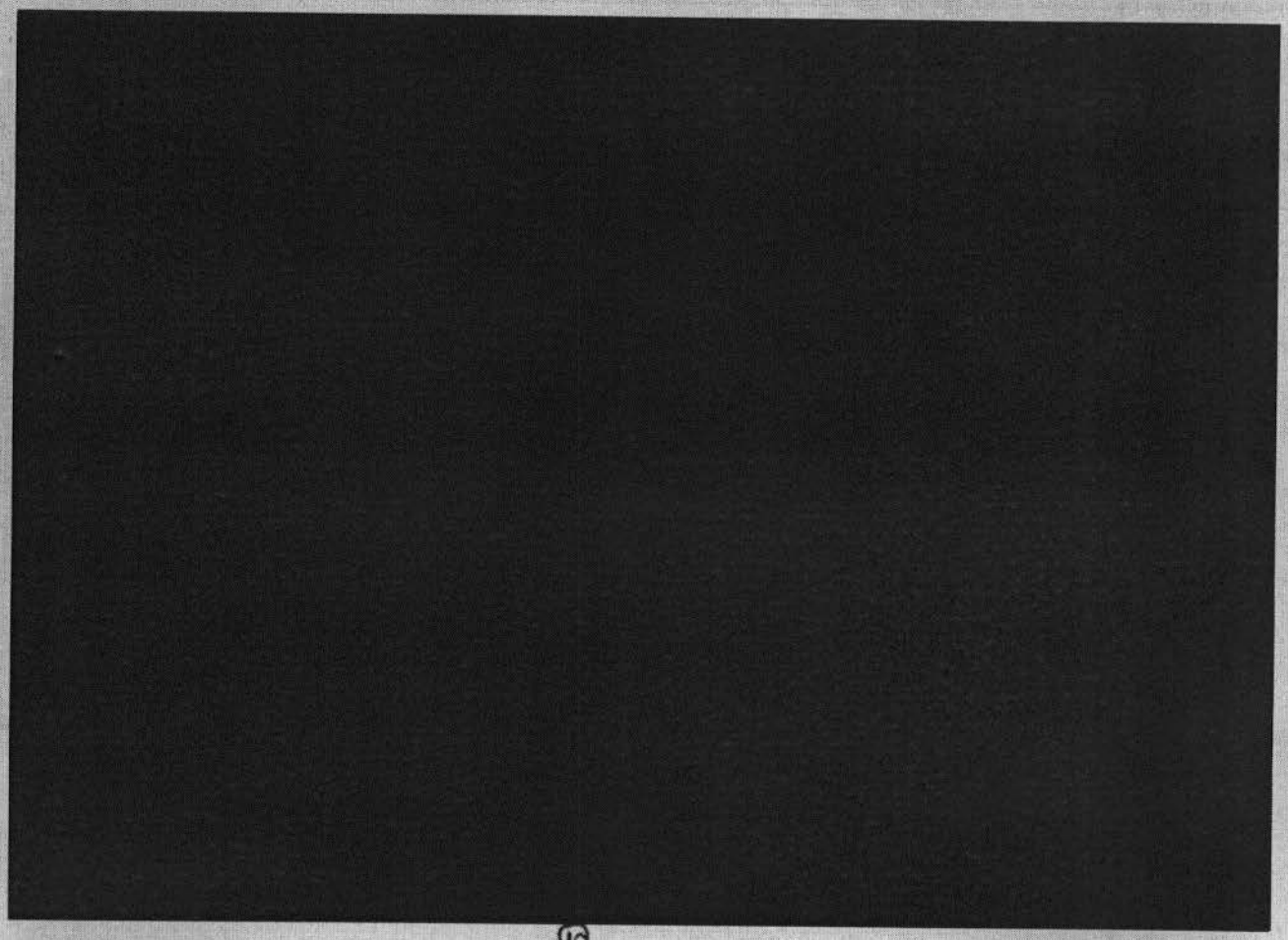

10

[redacted]

[redacted]

(13)

(14)

[redacted]

ANNEX D TO
3WIS/SOUTH/S/09/91.
DATED 20. FEB 91

LOCATION OF HITS ON THE PORT SIDE OF AIRCRAFT.

[redacted]

[redacted]

[redacted]

ANNEX D TO
3WIS/SOUTH/S/09/91.
DATED 20 FEB 91

LOCATION OF HITS ON STARBOARD SIDE OF AIRCRAFT.

[redacted]

[redacted]

[redacted]

3WIS/SOUTH/S/09/91

2 Feb 91

SO2 G2

HELICOPTER SHOOT - CROSSMAGLEN 13 FEB 91.

The weapons used in this incident against the Lynx helicopter have been ballistically tested by WERC [redacted]

[redacted]

The above weapons are attributed to PIRA

[redacted]

Ext 46231

[redacted]

IED Incident Report

[redacted] D25

F Ord 754 (Revised 4/90)

1. Tasking Authority/Formation	2. Police Force/Station/Unit	3. Contact. Rank and Name	4. Report No.
3 Bde	45 CDO RM	[redacted]	136369

6. Operator's Name and Code	7. Type of Incident							5. Multi Task (other Report Nos)
	IED	EXPL	INCDY	FIND	SEARCH ASSIST	HOAX	FALSE	
ALLEN NX	--------	-----	-------	x1	-----	--- -	- -----	N/A

8. DTG Laid/Found	[redacted]	12. DTG Arrival at Scene	[redacted]	16. Day Code	5
9. DTG Tasked	[redacted]	13. DTG Completed	[redacted]	17. Month	FEB
10. DTG of Explosion	N/A	14. DTG In	[redacted]	18. Year	1991
11. DTG Out	[redacted]	15. Kms	EAGLE		

19. Map No.	21. Address/Location	22. Position of Device	23. How Delivered
28	MILL LANE CROSSMAGLEN	N/A	DRIVEN
20. Grid Ref. [redacted]			

24. Device, appearance, size, fastening, etc.	25. Vehicles, make, colour, registration	26. Target
N/A	BLACK JEEP/VAN Stolen ☐ Hijacked ☐	SF (AAC)

27. RSP Codes 13 FEB 91 - [redacted]

14 FEB 91 - [redacted]

Explosive Filling (Type and Wt)	29. Booster (Type and Wt)	30. Initiation
N/A	N/A	N/A

31. Delay of Initiation	32. Arming	33. Delay to Arming
N/A	N/A	N/A

34. Power Source	35. Multi Charge Yes ☐ No ☐ Linked by	36. Shrapnel (Type and Wt)
N/A	N/A	N/A

37. Device Type	38. Effect of Explosion/Incendiares
N/A	N/A (a) (b) (c) (d) (e) (f)

39. Device Failure Code	40. Forensic	41. If Anti - Handling/Victim Operated, Device Details
N/A	[redacted] NEWRY	N/A

[redacted]

42. Operator's Comments (including Sketches etc)

1. At Approx 1518 Hrs 13 Feb 91 gunmen opened fire at a Lynx Helicopter as it brought an under slung load into Crossmaglen SF Base. Thepilot immediatley took evasive action. Dropped its USL and made a forced landing Approx 5 Km NE of Crossmaglen at Grid [redacted]

2. [redacted]

3. [redacted]

4. After EOD Action the following items were recovered from the F.P. area.

a. [redacted]

b. [redacted]

c. [redacted]

d. [redacted]

5. [redacted] Was later recovered by SF on Newry Rd outside the church entrance indicating this was the probable escape route.

6. The follow up to [redacted] Produced nothing of Forensic interest.

Annex A Yes [X] No [ ]

43. Operator	44. OC Unit/Det Comments	45. Tasking Authority Use Only
[redacted] WO1 (SSM)		
Signature [redacted]	Signature [redacted]	Signature [redacted]
Date 5/3/91	Date [redacted] 7 Apr 91	Date 8 Apr 91

[redacted]

ANNEX A TO F ORD 754
(Revised 1986)

Title	Report No
	13636?

[redacted]

[redacted]

Signature [redacted]

Name [redacted]

Date 15/2/91 Rank WO1

[redacted]

[redacted]

DOCUMENT HEADER DETAILS

document ID:	D473693	document type:	WISREP
title:	12.7MM HMG SHOOT/FORCED LANDING OF LYNX HELICOPTER		
DOI:	13/02/91	TOI:	15:18
classification:	RESTRICTED	dsl:	3
orginating unit:	3WIS/ARM	dated:	13/02/91
location name:	REAR OF COMMUNITY CENTER	grid ref:	H91251515
street: MILL	type:LANE	town:	CROSSMAGLEN
grade/reliability: [redacted]	area:03	D&D control:	

[redacted]

RECEIPT COPY 0043

MESSAGE FORM

F. Sigs. 208 (Revised AUG. 81) (Pads of 100)

CHECK BOX

Routed by .....
Time .....
Perforated by .....
Time .....
For SINGLE TRANSMISSION
Transmitted to .....
Channel No/System .....
Time .....
Operator .....

LINE 1
LINE 4

DE 0043

ROUTING INDICATORS

Precedence-Action	Precedence-Info	DTG, Month, Year
IMMEDIATE.	Priority/Routine	132000Z FEB 91

FROM [redacted]

TO [redacted]

INFO 3 INF BDE ALMAGH.

[redacted]

COMMCEN LISBURN

GR

MESSAGE INSTRUCTIONS
TABULATE.

SECURITY CLASSIFICATION (Messages referring to a classified message must be classified RESTRICTED or above.) RESTRICTED.

SIC [redacted]

3 BDE FOR SO3 G3 OPS / SO3 G2 (NORTH). HQ NIL PERSONAL FOR [redacted] COMMCEN LISBURN FOR INFO ONLY

A⊙ 3 WIS (SOUTH) 5/09/91 ⊙ DOC NO: D473693.

B⊙ SHOOTING DOWN OF LYNX HELICOPTER ⊙

C⊙ CP ⊙ ON APPROACH TO XMG SF BASE ⊙ FP ⊙ GRID [redacted] REAR OF COMMUNITY CENTRE AND O'DONNELLS BAR XMG.

D⊙ 13 1518Z FEB 91

E⊙ AS LYNX APPROACHED SF BASE WITH UNDERSLUNG LOAD IT WAS HIT WITH AUTO WPNS FIRE (?) PILOT FLEW OUT OF CONTACT AREA AND DROPPED LOAD AT GRID 91/8 1524 ⊙ LYNX FORCED TO LAND IN FIELD OFF DRUMAIL ROAD. GRID

INTERNAL DISTRIBUTION

FILE NUMBER / OR REFERENCE

DRAFTER'S NAME IN BLOCK LETTERS [redacted]

TELEPHONE NUMBER [redacted]

BRANCH WIU

RELEASING SIGNATURE [redacted]

RANK CR

NAME IN BLOCK LETTERS [redacted]

Page ..... of ..... Pages

This message (tick appropriate box) refers to a classified message ☐ does not refer to a classified message ☐

FOR OPR'S USE	R	FILING TIME / TOR	SYSTEM	OPERATOR	FINAL CHECK OPERATOR

Printed in the UK for HMSO 9/88 Dd.8068718 C134 pads 8830

MESSAGE FORM

Serial No. _____ Form 2000 (Revised Aug. 91) (Page of 100)

CHECK BOX

Routed by .....
Time .....
Perforated by .....
Time .....
For SINGLE TRANSMISSION
Transmitted to .....
Channel No/System .....
Time .....
Operator .....

LINE 1

ROUTING INDICATORS	Precedence-Action	Precedence-Info	DTG, Month, Year
		Routine	
	FROM		
	TO		
	INFO		
GR			

MESSAGE INSTRUCTIONS

SECURITY CLASSIFICATION (Messages referring to a classified message must be classified RESTRICTED or above.)

SIC

[redacted] NIL CAS (.)

FO (.) LYNX HIT POSS 8 TIMES (.) UPLIFTED TO ALDERGROVE WITH SOCO. [redacted]

FROM FP (.)

HO (.) POSS SECOND FP GRID 919149 MONOG ROAD XMG (.)

[redacted]

INTERNAL DISTRIBUTION

FILE NUMBER / OR REFERENCE

DRAFTER'S NAME IN BLOCK LETTERS

Page ..... of ..... Pages

This message (tick appropriate box)
refers to a classified message ☐
does not refer to a classified message ☐

TELEPHONE NUMBER | BRANCH

RELEASING OFFICER'S SIGNATURE | RANK

FOR OPR'S USE	R	FILING TIME / TOR	SYSTEM	OPERATOR	FINAL CHECK OPERATOR	NAME IN BLOCK LETTERS

Printed in the UK for HMSO 9/88 Dd.8068716 C134 pads 9830

W15 3Bde

RMDE

RMDE

RR MBA005 13/02/91 2012 MDE053 14/02/91 0952
RR MDE

RRR-186 GMC
RR MBA MNA MDD XMO MDB MGM SEB SDZ SCB SCD XSS JNA
FOR THE INFORMATION OF : FCIC, CIS, D/CHIEF SUPERINTENDENT AND REGIONAL PRESS OFFICER.

TERRORIST INCIDENTS.

1. 13.2.91.

2. 1525HRS.

3. CROSSMAGLEN.

4. RUCLO BESSBROOK MILL.

5. MONGO ROAD, GRID REF 918/149.

6. HELICOPTER SHOT DOWN.

7. AT 1525HRS A LYNX HELICOPTER CALL SIGN ZE 388 CREWED BY (1) LT [redacted] (2) LT COL [redacted] AND A GUNNER TROOPER [redacted] WERE FLYING INTO CROSS-MAGLEN STATION FROM BESSBROOK WITH AN UNDERSLING . AS THEY APPROACHED AT 200FT ON A FLIGHT PATH OVER ORCHER HOUSE, THE GUNNER TROOPER [redacted] SAW WHAT SEEMED TO HIM AS A SENGER WITH A MACHINE GUN AT [redacted] AS A RESULT OF BEING STRUCK THE PILOT LOST CONTROL AND DROPPED THE UNDERSLING AT GRID 9148/1524. THE CREW WAS UNINJURED AND WERE COLLECTED BY THE TOP COVER HELICOPTER AND RETURNED TO BESSBROOK. AGENCIES VISITED THE DOWNED HELICOPTER AND AN IATAIL EXAMINATION SHOWED FIVE HITS, THE MAIN DAMAGE BEING A HIT ON THE MAIN GEARBOX. THE LYNX WILL BE REMOVED TONIGHT AND TAKEN TO ALDERGROVE FOR A FULL EXAMINATION ON 14/2/91. THE TWO FIRING POINTS HAVE BEEN SEALED AND WILL BE VISITED BY AGENCIES AM ON THE 14/2/91.

8. NONE.

9. [redacted]

10. NONE.

11. POSSIBLE [redacted] USED IN HELI SHOOT AT FORKHILL ON 31/1/91, MSX MBA001 01/02/91 0825 REFERS.

12. D/COMST [redacted] BESSBROOK CID.

13. D/INSP [redacted]

MESSAGE ENDS SENDER

+DE854 14/02/91 0956

CIDENT IN CROSSMAGLEN ON
3.2.91.

28 13/02/91 1721.

-

RAIED OUT A SHOOT AGAINST A HELICOPTER AT FORKHILL.

[redacted]

DE855 14/02/91 0957

ENT IN CROSSMAGLEN 13/02/91.
****

EEN INVOLVED IN THE INCIDENT IN CROSSMAGLEN THIS

MRS.

TO BE CHECKED THOROUGHLY WITH THIS IN MIND.

[redacted]

PART 13

INDEX OF WITNESS EVIDENCE

Page No	Witness No	No Rank Name Initial Arm/Corps	Unit	How concerned with Accident/Occurrence
13-1	1	[redacted] AAC	NI REGT AAC	PILOT
	2	[redacted] AAC	NI REGT AAC	AC COMD
	3	[redacted] WJ AAC	NI REGT AAC	DOOR GUNNER
		[redacted] AAC		AC COMD PROVIDING TOP COVER

MATERIAL WITNESSES WHOSE EVIDENCE HAS NOT BEEN OBTAINED

No Rank Name Initial Arm/Corps	How concerned with accident and reasons why evidence could not be obtained

[redacted]

[redacted]

INCIDENT WITH LYNX ZE 380

CROSSMAGLEN 13 FEB 91

STATEMENT BY [redacted] AAC

IN THE SIMPLEST TERMS

At approx 1510 hours on Wed 13 Feb 91, at 60 kts in a fast descent, between 5 and 800', 1 km NE of XMG (R650) the aircraft came under automatic fire and took hits. Over the next 15-20 seconds it was hit by 2 further bursts. [redacted] The underslung load was jettisoned. Severe cyclic control problems were then being experienced and when the aircraft was well clear of the engagement area an emergency run on landing was made in a suitable field. The crew remained guarding the aircraft until the arrival of the ARF.

IN DETAIL

The aircraft was tasked to fly a USL from Bessbrook to XMG. We routed via G30 to provide mutual support for a second Lynx landing there.

At approximately 1510 hours, the aircraft was some 8-1000 m NE of R650, at 60 kts in a fast descent. With the aircraft between 5-800' AGL, I first noticed a flash in front of the cockpit followed almost immediately by the sound of strikes hitting the aircraft on the port side behind the cockpit area.

The cabin gunner reported that the aircraft had been hit and was on fire. I [redacted] and almost immediately lost AFCS complete and started suffering severe cyclic control problems - 'kicking' and strong and weak feedbacks. At the same time an unusual rattling noise came from the area of the MRGB - like a hand being run down a venetion blind. Although there were no CWP captions lit, nor was their any audio warnings, I feared that a major hydraulic failure was imminent. All my physical effects were then directed towards holding the controls, particularly the cyclic, with both hand and knees, as still as possible.

During the turn and as the aircraft straightened out it was hit by 2 further bursts of automatic fire, some rounds striking the cockpit area. I had the clear impression that we had been engaged by 2 weapons. The first had a high rate of fire with an associated 'cracking' noise. The second a slower rate associated with a 'thumping' noise. During and after the second and third bursts I was aware of smoke and some debris in the cockpit, further metalic noises from the area of the MRGB, and increasing problems in holding the cyclic steady.

Between the first hits on the aircraft and this point there was some general confusion and a fair amount of noise in the cockpit. The cabin gunner, [redacted] was reporting events in an understandably loud and exicted manner and

[redacted]

the aircraft itself seemed to be making much more noise than normal. I was conscious that [redacted] was checking round the cockpit and cabin area and that he was trying to talk to the cabin gunner. I was aware also that he was trying to pass a Contact Report but that he was not transmitting. I therefore transmitted on the flight safety net, to the second Lynx, something like - "We've been shot - follow us!" That message was acknowledged.

At about the same time [redacted] said 'Dump it'. He repeated this at least twice. I was unsure whether he was indicating that the aircraft should be landed or that one of the hydraulic systems should be switched off - neither of which seemed appropriate at that moment! I then realised that he meant that I should jettison the USL. I, at the same time, was telling him I was experiencing severe cyclic control problems and wasn't going to move my right hand at all from the main grip. [redacted] then leaned across and pressed the cargo release button, jettisoning the load.

By now the aircraft was at approximately 200-250', in a gentle descent, on a heading slight East of North, and some 1 - 1½ km away from where it was first hit by ground fire. [redacted] then took over handling the aircraft, with me covering the controls, while I commenced a full instrument check. Everything appeared normal apart from no lights on the AFCS and transmission oil pressure indicating zero. While completing these checks, [redacted] reported that he also was experiencing cyclic control problems. I believe I then said "OK, that's it - pick a field!" We were by then some 3-4 km away from XMG.

[redacted] selected what appeared to be a good flat long field approximately along our line of flight and started an immediate but gentle descent making minimum control movements. When we were effectively committed to that field, it was seen that there was a cross slope and wires across it.

Just prior to touchdown, at about 20 kts, and during the landing run, [redacted] said he was experiencing further difficulties, first with cyclic control and then in his efforts to keep the aircraft straight. I was still covering the controls and it was clear that certainly the movement of the cyclic was abnormal. During the landing run it also become clear that the cross slope was significant and to reduce the landing run I therefore gently eased off on collective pitch, bringing the aircraft to a halt. Once halted the aircraft felt unstable, with a distinct 'lean' to port. [redacted] completed abbreviated shutdown drills. To reduce the likelihood of the aircraft toppling over I remained in my seat until [redacted] and [redacted] had deplaned. I then left the aircraft.

Almost immediately the second Lynx landed some 30 m away. I connected myself to the cabin gunners mic-tel lead and spoke to the Ac Comd, [redacted] I confirmed to him that we had no injuries, other than to our pride, and directed that he collect the ARF as soon as possible but that under no circumstances was he to fly at low level anywhere near XMG. I decided that my crew should remain with the damaged aircraft rather than leave with the other Lynx since I was concerned that with 2 farm complexes in the immediate vicinity to the field it would be all too easy for an unfriendly 'local' to finish the job PIRA had started. With a GPMG with 400 rounds and 2 x HK 53, each with 2 magazines, I considered we were well able to look after ourselves, and the aircraft, for the 10 or so minutes I then expected to wait for the ARF I then deployed the crew to give

STATEMENT OF [redacted]

As we approached XMG on finals I heard a rattling noise comming from somewhere above my head. I then heard A/C Comd say "we've been hit". I then noticed muzzle flashes coming from what looked like a sanger at the back of a house.

I asked if I could return fire, but no reply was given. It was then that rounds seemed to come through my door (portside) and rip through the insulating covers, smoke started to come through from the cockpit and from the roof. I then said "we're on fire". We then took some more machine gun fire.

By this time the aircraft had turned away from the contact point. I felt the aircraft falling towards the ground, then we gained some height and travelled approximately 3kms, whereupon we landed.

[redacted] By this time the other Lynx had landed. We ran toward the awaiting Lynx. It was then that [redacted] said we should remain with the aircraft until the ARF arrived. We [redacted]

[redacted]

[redacted]

best all round defence in reasonable cover. It was a very, very long 10 minutes before the ARF did arrive! Subjects discussed included; the weather, a forthcoming rubgy tour to Singapore, concern that our back up Lynx crew would probably miss their R & R flights and some strange banging noises coming from one of the farms!

On the arrival of the ARF, I confirmed to its commander that we had no casualties and advised him that I was then returning with the rest of the crew to Bessbrook to commence past incident procedure. We did so in the second Lynx.

[redacted]

14 Feb 91

[redacted] AAC

[redacted]

[redacted]

STATEMENT OF [redacted]

Whilst performing my duties as Lx 5 Aircraft Commander on 13 Feb 91 at 1520 hrs Pos Grid 914145 I was providing top cover for Lx 7, who had an underslung load and was on finals for XMG.

We observed Lx 7 jettison his load. I said to [redacted] that the other Lx had dropped his load. I tried to contact Lx 7 on the radio, but go no answer, I then heard [redacted] say "we have been shot". I asked if everything was alright; the reply came back, "no". I then said is anyone hurt, there was no reply. The next transmission from Lx 7 was that he was getting away and going to put the aircraft down. I said that we were right behind them. Lx 7 was landed in a field safely at Grid 94051855. I landed near to it and could see a large hole aft of the IRG and oil gushing out from the transmission area. Lx 7 crew then came over to my aircraft and said they were OK and would stay with the aircraft so I could return and pick up the ARF. This was done within 10 minutes. I then collected the 2 x 7 crew and returned them to BBK then carried on tasking with Puma 2.

[redacted]

STATEMENT [redacted]

At approximately 1810Z 13 Feb 91 we were tasked to fly an underslung load from Bessbrook to Crossmaglen, South Armagh.

Whilst on final descent into the [redacted] the aircraft was engaged by hostile fire. From the initial burst I saw white tracer pass in front of the aircraft and heard a bang towards the rear followed by a knocking. There followed a further two bursts which produced at least two smoking tracer rounds in the cockpit and were in the cabin. I felt at least 2 further impacts on the aircraft. There sounded to be two different types of gunfire, the normal 7.62 sound and a louder, deeper booming noise.

During the second burst [redacted] and the critical damage to the aircraft assessed. I jettisoned the underslung load and then took over control of the aircraft. With the load released there was sufficient power to pull away. The controls were very restricted and were wandering quite violently.

Once clear of the immediate danger area, a further damage assessment was made. Transmission oil pressure guage read zero, the AFCS had disengaged the CWP was dead and the Cougar did not transmit. The controls were still very restricted and were wandering violently. Now at least 3km NE of Crossmaglen the decision to make a precautionary landing was made. A suitable field was chosen and a non-normal landing undertaken.

Immediate checks were made (fuel off, Battery off and Caps, weapons and Cougar [illegible]) the aircraft was protected until our mutually supporting Lynx [illegible] which returned us to BBK.

[redacted]

[redacted]

ANNEX A

BOARD OF INQUIRY OR UNIT INQUIRY

AIRCRAFT ACCIDENT OR OTHER OCCURRENCE

CREW/AIRCRAFT PARTICULARS - TECHNICAL & AIRCREW DOCUMENTATION

INDEX

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[redacted]

CREW/AIRCRAFT PARTICULARS

TECHNICAL AND FLYING DOCUMENTATION

1. Particulars of all Occupants of Aircraft (Crew First).

Number	Rank	Name	Initials	Unit	Crew Status	Position in Aircraft After Occurrence	Extent of Injury
[redacted]			[redacted]	NI REGT AAC	PILOT	RIGHT SEAT	NIL
				NI REGT AAC	AC COMD	LEFT SEAT	NIL
				NI REGT AAC	DOOR GUNNER	LEFT SIDE CABIN DOOR	NIL

2. Particulars of Non Occupant Casualties.

Number	Rank	Name	Initials	Unit	Duty	Position in relation to Aircraft After Occurrence	Extent of Injury

[redacted]

[redacted]

4. Flying Experience of person flying aircraft if not Aircraft Captain.

Number [redacted]	Rank [redacted]	Initials [redacted]	Name [redacted]	Crew Status	PILOT
Present Unit	NI REGT AAC			Regt/Corps	AAC
Instructor Category	Instrument Rating/Date	Medical Category/Date	Age	Seat Occupied	PILOT / RHS
				Last Flying Assessment	
B1 QFI	MASTER GREEN 18 JAN 90	[redacted]	[redacted]	Unit	NI REGT AAC
				Date	28 JAN 91

Aircrew Fatigue Mil & Civ Flg	24 Hour Day	24 Hour Night	24 Hour Total	7 Days	28 Days Normal	28 Days Emergency	84 Days Normal	84 Days Emergency	Extensions Granted
	3.5	1.0	4.5	7.8	11.8		30.3		NIL

Types of Aircraft:		Day Flying 1st Pilot	Day Flying 2nd Pilot	Day Flying Dual	Night Flying 1st Pilot	Night Flying 2nd Pilot	Night Flying Dual	Flight Time Total	Flight Time Capt	Instrument Flying Act	Instrument Flying Sim	Flight Sim	NVG
On which the Accident Occurred	A	16.1	0.1	2.5	1.0	-	1.5	19.2	1.9	0.3	1.5	4.5	0.5
	B	32.5	5.1	10.4	4.5	1.6	2.7	56.8	1.9	0.6	1.9	4.5	7.4
	C	69.9	10.5	45.4	5.8	1.6	12.7	145.9	2.9	3.9	4.4	36.0	16.9
Other RW Experience	A												
	B												
	C	753.7		261.0	56.3		12.3	1053.3	755.6	15.5	33.4		
Other FW Experience	A												
	B												
	C	1534.6	41.0	202.8	55.5	4.7	9.0	1847.6	1542.5	175.3	26.0		
Total All Aircraft	A	14.1	0.1	2.5	1.0	-	1.5	19.2	1.9	0.3	1.5	4.5	1.5
	B	32.5	5.1	10.4	4.5	1.6	2.7	56.8	1.9	0.6	1.9	4.5	7.4
	C	2358.2	51.0	509.2	117.6	6.3	34.0	3076.8	2294.5	198.0	63.8	30.0	16.9

A = LAST 8 WEEKS B = LAST 6 MONTHS C = TOTAL TO DATE

[redacted]

[redacted]

3. Flying Experience of Aircraft Captain				Crew Status	
Number [redacted]	Rank [redacted]	Initials [redacted]	Name [redacted]	Regt/Corps	RAC
Present Unit	665 SQN NT REGT AAC			Seat Occupied	LEFT
Instructor Category	Instrument Rating/Date	Medical Category/Date	Age	Last Flying Assessment	
	WHITE 03 05 90	[redacted]	[redacted]	Unit	3 REGT AAC
				Date	25 OCT 90

Aircrew Fatigue Mil & Civ Flg	24 Hour Day	24 Hour Night	24 Hour Total	7 Days	28 Days Normal	28 Days Emergency	84 Days Normal	84 Days Emergency	Extensions Granted
	3.5	1.0	4.5	18.8		65.4		79.6	NIL

Types of Aircraft:		Day Flying 1st Pilot	Day Flying 2nd Pilot	Day Flying Dual	Night Flying 1st Pilot	Night Flying 2nd Pilot	Night Flying Dual	Flight Time Total	Flight Time Capt	Instrument Flying Act	Instrument Flying Sim	Flight Sim	NVG
On which the Accident Occurred	A	86.5	28.3	-	14.7	5.7	-	135.7	135.7	0.8	2.4	-	13.6
	B	172.2	84.0	4.7	30.1	13.6	2.3	307.1	266.6	2.1	6.6	6.0	37.1
	C	250.3	142.1	94.0	35.0	19.1	20.2	590.7	299.2	5.4	22.5	46.9	49.0
Other RW Experience	A	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-	-	-	-
	C	18.5	-	90.7	2.2	-	7.3	118.7	25.7	4.3	13.1	-	-
Other FW Experience	A	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-	-	-	-
	C	9.2	-	21.9	-	-	-	31.6	9.7	6.4	4.6	-	-
Total All Aircraft	A	86.5	28.3	-	14.9	5.7	-	135.7	135.7	0.8	2.4	-	13.6
	B	172.2	54.0	4.9	30.1	13.6	2.3	407.1	366.6	2.1	6.6	6.0	33.1
	C	305.5	142.1	206.6	37.2	19.1	27.5	741.0	324.6	10.1	40.2	46.9	49.0

A = LAST 8 WEEKS B = LAST 6 MONTHS C = TOTAL TO DATE

[redacted]

[redacted]

5. Flying Experience of other crew member.

Number	Rank	Initials	Name	Crew Status
				Regt/Corps

Present Unit	Seat Occupied
	Last Flying Assessment
	Unit
	Date

Instructor Category	Instrument Rating/Date	Medical Category/Date	Age

Aircrew Fatigue Mil & Civ Flg	24 Hour			7 Days	28 Days		84 Days		Extensions Granted
	Day	Night	Total		Normal	Emergency	Normal	Emergency	

Types of Aircraft		Day Flying			Night Flying			Flight Time		Instrument Flying		Flight Sim	NVG
		1st Pilot	2nd Pilot	Dual	1st Pilot	2nd Pilot	Dual	Total	Capt	Act	Sim		
On which the Accident Occurred	A												
	B												
	C												
Other RW Experience	A												
	B												
	C												
Other FW Experience	A												
	B												
	C												
Total All Aircraft	A												
	B												
	C												

A = LAST 8 WEEKS B = LAST 6 MONTHS C = TOTAL TO DATE

[redacted]

[redacted]

6. Flying Experience of Other Crew Members (if relevant).

Number rank Name Initial Crew Role	Hours on Type			Hours on all Type	
	8 Week	6 Month	Total	6 Month	Total
[redacted]	23	23	23	23	23

7. Rank and Name and Duty of person who authorised the flight.

AC COMD [redacted]

8. Purpose of the flight, with pertinent details of briefings.

ARB TASKING (SOUTH ARMAGH - N I)

[redacted]

[redacted]

9. Particulars of Flight

Flight Plan. ~~IFR/VFR~~/NONE Destination CROSSMAGLEN Type of Ground Control NIL

Stage	Local Time/Zone	Location	IAS	Altitude/Flt Level
Take-off	1505 Z	BESSBROOK	60KT	2000' AGL
Accident	1515 Z	CROSSMAGLEN	60KT	500' AGL
Crash or Landing	1520 Z	SILVERBRIDGE		

Weather Conditions

At the time and place of take-off				At the time and place of the accident			
Cloud Base	NIL SIG	W/V	CALM	Cloud Base	NIL SIG	W/V	CALM
Visibility	20 KM +	Light		Visibility	20KM +	Light	
Reg QNH		QFE		Reg QNH		QFE	

General:

RECENTLY LIFTED FOG

General:

LEAVING VERY CLEAR CONDITIONS

Details of Fire

Stage of Occurrence	Ignition Source	Extent fire developed Fuel or Oil fed? Smoke or toxic fumes in crew or passenger compartments?
Did fire warning device operate?		

Functioning of the Fire Extinguisher System

How operated		Did extinguisher bottles discharge?	
Effect on fire			
Type of hand held extinguishers used by aircrew		Effect on fire:	

Details of Armament

Type	7.62 GPMG	Port No		S'bd No	

Remarks

DOOR GUN ON PORT SIDE

[redacted]

[redacted]

14. Details of Aircraft.

Category of Damage CATEGORY 4 (PROV). (State if Provisional)

Details	Permissible Limits		At Time of Take Off	At Time of Crash/Landing	Grades of Fuel
All Up Mass	max take off	max landing			
Centre of Gravity	Fore	Aft	Fore	Aft	

Details of Airframe

Type	Mk	Serial No	Total Hrs Flown	Hrs Since Last ~~Major~~/Minor Svcg B4	Cat of Damage
LYNX	7	ZE380	755.5	355.5	CAT 4 (PROV)

Serial No and classes of relevant airframe MODs embodied and SIs and STIs

All relevant Planned Alterations embodied

Reasons for non-embodiment of MODs or non-compliance with SIs or STIs

15. Details of Major Components.

	ECU		MRGB	TRGB
	Port	Stbd		
Type and Mark	GEM 205	GEM 205		
Serial Number	A60330	A63992	ACA 5062	ABA 5197
Date Installed	020589		FROM NEW 08 10 86	FROM NEW 08 10 86
Hours Embodied	671.7	1928.8	NIL	NIL
Total Hours	2750.3	1993.3	755.5	755.5
TEST BED Hours since last Major Servicing/ Recondition	15.8	64.5	—	—
Hours Embodied				
Cat of Damage	1	1	5	1

[redacted]

[redacted]

16. Details of Main Rotor Hub and Blades.

	Hub	Blades			
	M 650	1 ABM 5772	2 WAH 1870	3 WAH 1624	4 WAL 2368
Details: AF HRS AT FIT:	NIL				
TOTAL USAGE:	755.5 HRS				
AF HRS AT FIT:	—	311.2	722.8	311.2	311.2
Main Rotors 1/[redacted] USAGE AT FIT:	—	763.2 ACTUAL = 34.78	3406.0 NR	2085.7 NR	1567.4 NR
SI 40C DUE		30.04.91	13.01.92	30.04.91	30.04.91

Serial No and classes of relevant MODs embodied including SIs and STIs.

ALL RELEVANT PLANNED ALTERATIONS EMBODIED

Reasons for non-embodiment of MODs or non-compliance with SIs or STIs.

[redacted]

[redacted]

17. Details of Tail Rotor Hub and Blades.

	Hub	Blades			
	ACB 6503	1 AAU 5600	2 AAM 0883	3 WAL 270	4 WAL 338
Details: DATE FITTED:	22.11.90				
AF HRS AT FIT:	663.3				
LIFE USED:	146.3				
DATE FITTED:		FROM NEW 08 10 86	FROM NEW 08 10 86	FROM NEW 08 10 86	FROM NEW 08 10 86
TOTAL HRS		755.5	755.5	755.5	755.5

Serial No and classes of relevant MODs embodied including SIs and STIs.

ALL RELEVANT PLANNED ALTERATIONS EMBODIED

Reasons for non-embodiment of MODs or non-compliance with SIs or STIs.

[redacted]

[redacted]

18. Details of Internal/External Stores.

Internal Stores:

AC WAS FITTED WITH A DOOR GUN - 7.62 CALIBRE

External Stores:

[redacted]

[redacted]

18. Remarks of the Board after examining the following documents:

Document	Remarks	Supporting Documentation
Flight Authorisation & Flying Hours Records	AUTHORISATION CHECKED AND FOUND TO BE CORRECT	4-6 Para 5 a
Pilots Flying Log Book		
Aircrew Flying Folder		
Aircrew Flying Eqpt Servicing Records		
Aircrew Manual		
Operating Data Manual	NOT PART OF THE REQUIREMENT	
Flight Reference Cards		
JSP 318 Military Flying Regulations		
Theatre Flying Orders		
Unit Flying Orders		
SOPs	AIRCRAFT BEING FLOWN IN ACCORDANCE WITH OPERATIONAL NORMS	4-6 para 5 b

[redacted]

[redacted]

Document	Remarks	Supporting Documentation
Special Technical Flying Instructions (STFIs)		
MOD F700 & Other Servicing Certificates		
Airframe Engine and/ or Component Card		
Servicing Schedules	NOT PART OF THE REQUIREMENT.	
Technical Order Book		
EMERS		

[redacted]

[redacted]

19. Diary of Action.

Serial	Date	Time	Event
(a)	(b)	(c)	(d)
			N/A

[redacted]

Serial	Date	Time	Event
(a)	(b)	(c)	(d)
			N/A

[redacted]

Serial	Date	Time	Event
(a)	(b)	(c)	(d)
			N/A

[redacted]

ANNEX B

BOARD OF INQUIRY CONVENING ORDER

BY

BRIGADIER E C TAIT

COMMANDER AVIATION UNITED KINGDOM LAND FORCES

1. A Board of Inquiry, composed as under, is to assemble at Aldergrove as soon as possible to investigate the sequence of events, circumstances and causes of the incident involving Lynx ZE380 Northern Ireland Regiment Army Air Corps on 13 February 1991

President: [redacted] AAC

Members: [redacted] REME
[redacted] AAC

In Attendance: [redacted] - Spec Avn Med
[redacted] - HFU
[redacted] - AIFSWO

2. The Inquiry is to investigate fully all the circumstances and is to record all evidence relevant to the Inquiry.

3. Evidence is to be taken on oath 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 proceedings.

4. Evidence is to be heard and recorded in accordance with Board of Inquiry (Army) Rules 1956. All relevant sections of AAC Form 8 are to be completed in accordance with the Pamphlet Notes on Boards of Inquiry into Army Aircraft Accidents.

5. Any person whose character or professional reputation is likely to be affected by the findings is to be given the opportunity of being present or represented in accordance with the provisions of the Army Act 1955 Section 135 (4).

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

a. The circumstances leading up to the incident and the circumstances of the incident.

b. The cause or causes of the incident.

c. The causes and degree of injury suffered by persons both Service and civilian.

d. Whether Service personnel involved were on duty.

e. Whether all relevant orders and instructions were complied with.

f. The extent of damage to the aircraft.

g The extent of damage to aircraft removable role equipment and associated items.

h. The extent of damage to Service and civilian property.

j. All relevant survivability aspects.

k. Any other points relevant to the Inquiry.

7. The Inquiry may make any recommendations it considers appropriate to prevent a recurrence.

8. The Inquiry is to order the attendance of any witnesses whose evidence it considers may be relevant to the Inquiry.

9. The attention of the President is drawn to:

a. Queens Regulations for the Army 1975.

b. Manual of Military Law, Board of Inquiry (Army) Rules and Section 135 of the Army Act.

c. JSP 318, Part 3, Section 5 'Army Regulations', 'Flight Safety'.

d. Notes on Boards of Inquiry into Army Aircraft Accidents.

10. The proceedings are to be recorded on AAC Form 8 and are to be staffed as laid down in JSP 318, Part 3 'Army Regulations', Section 5 'Flight Safety', Chapter 5, Regulation 0518. Distribution of the proceedings is to be:

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15 February 1990

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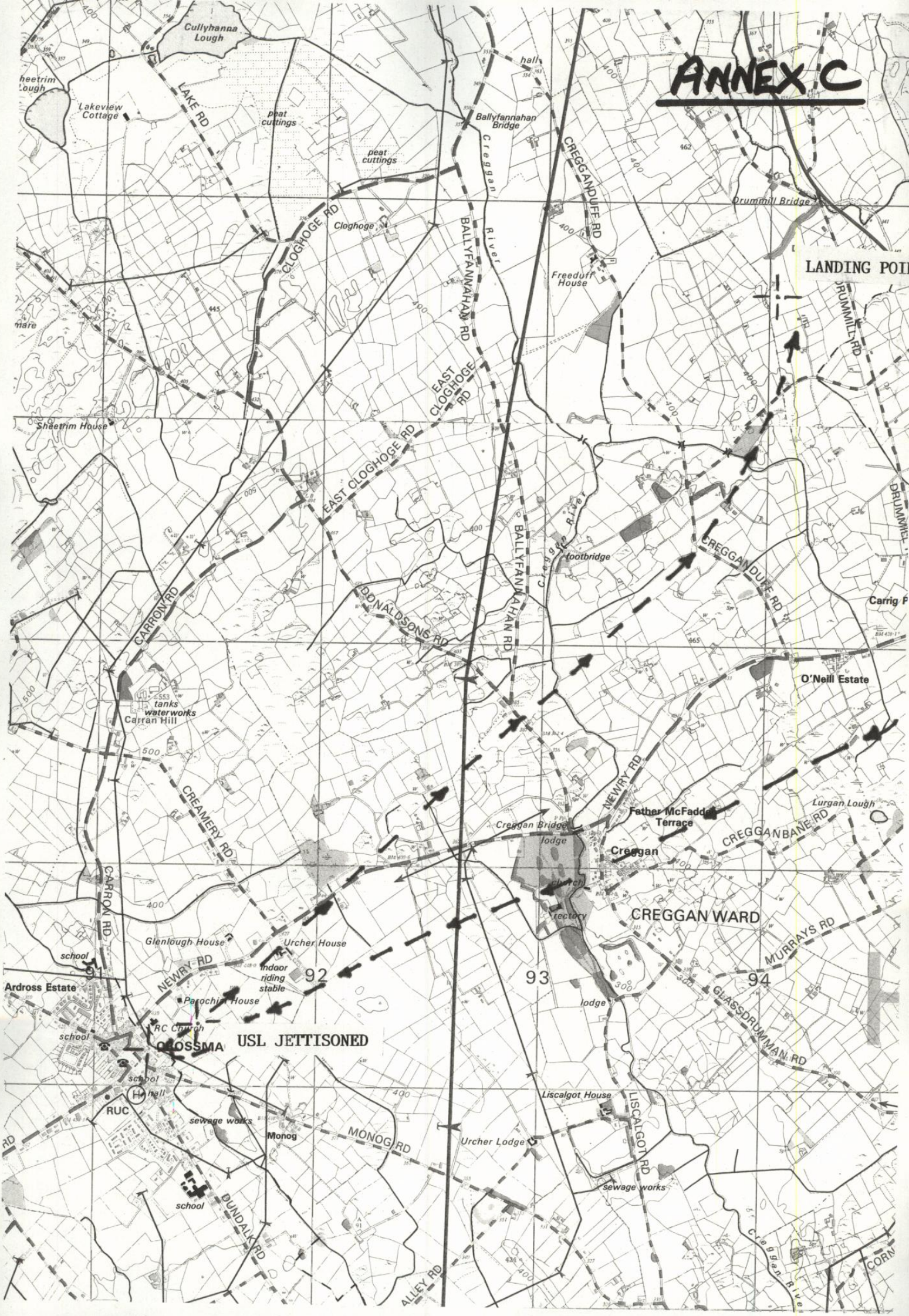
ANNEX C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hall
Creggan River
CREGGANDUFF RD
Drummill Bridge
LANDING POI
CLOGHOGE RD
Cloghoge
BALLYFANNAHAN RD
Freeduff House
DRUMMILL RD
EAST CLOGHOGE RD
Shaetrim House
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Creggan River
footbridge
CREGGANDUFF RD
DONALDSONS RD
BALLYFANNAHAN RD
CARRON RD
Carrig P
O'Neill Estate
tanks
waterworks
Carran Hill
NEWRY RD
Father McFadden Terrace
Lurgan Lough
CREAMERY RD
Creggan Bridge
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CREGGANBANE RD
Creggan
church
rectory
CREGGAN WARD
CARRON RD
Glenlough House
Urcher House
MURRAYS RD
school
NEWRY RD
Indoor riding stable
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93
94
Ardross Estate
Parochial House
lodge
GLASSDRUMMAN RD
RC Church
school
CROSSMA
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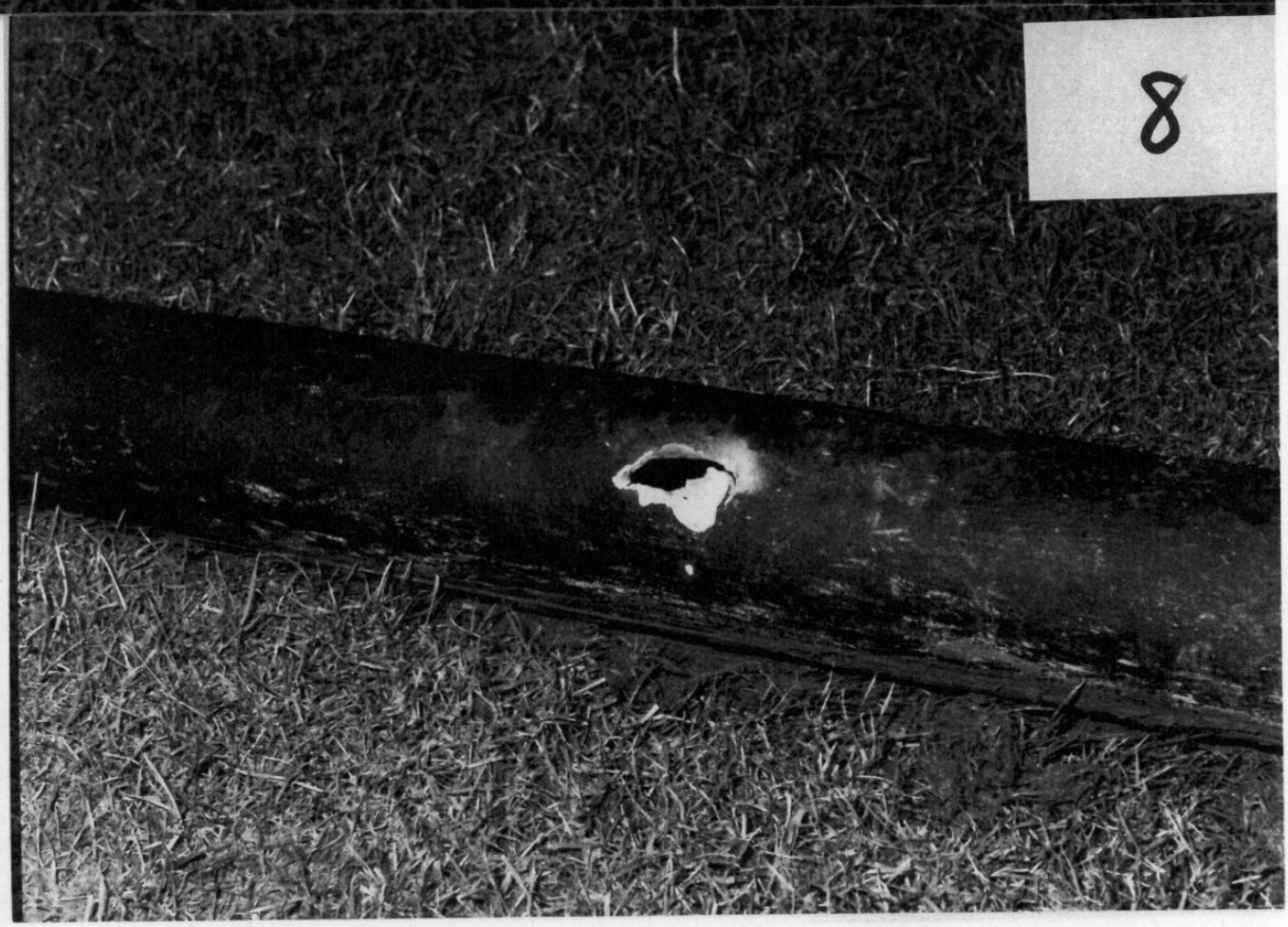
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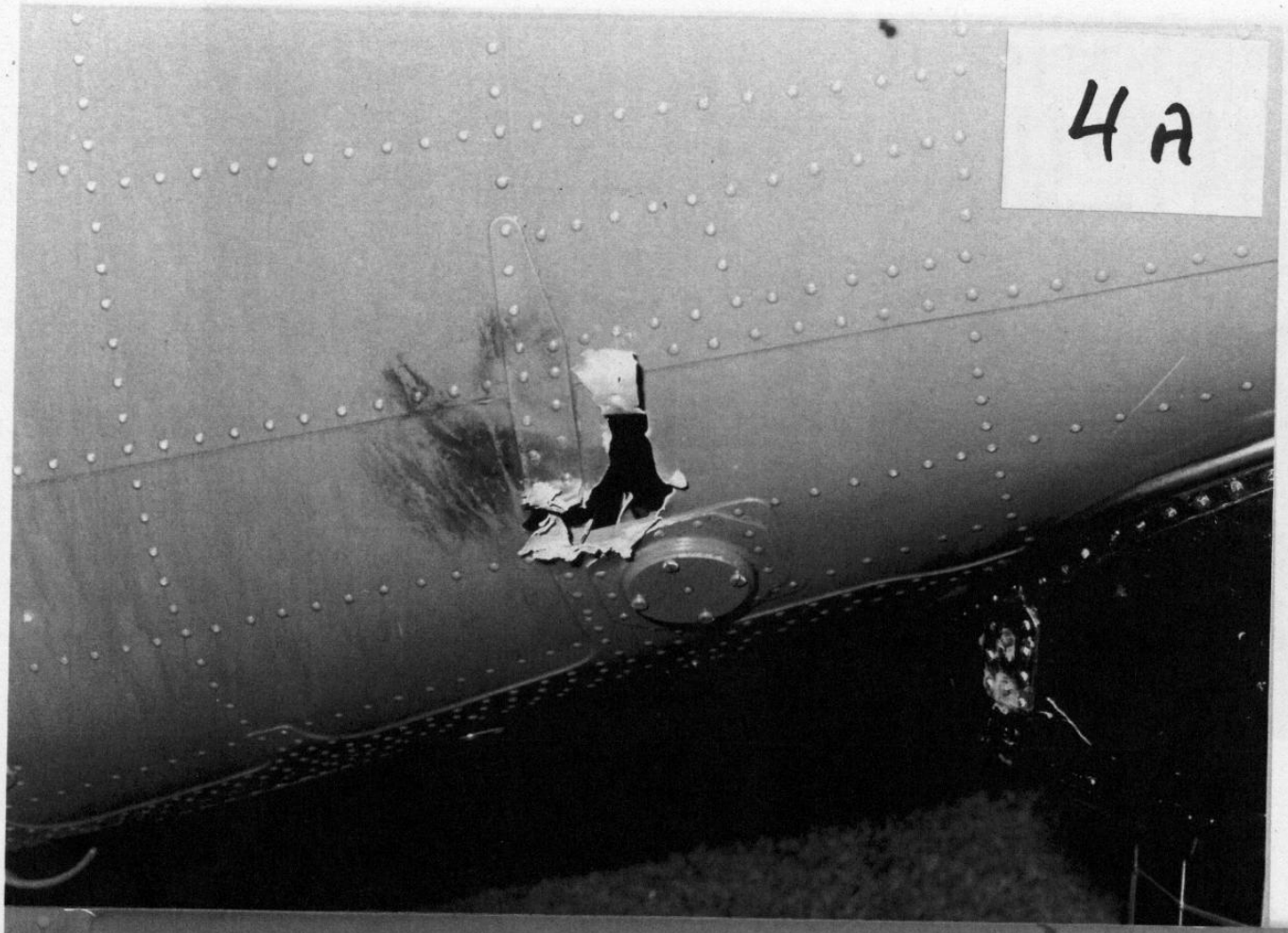
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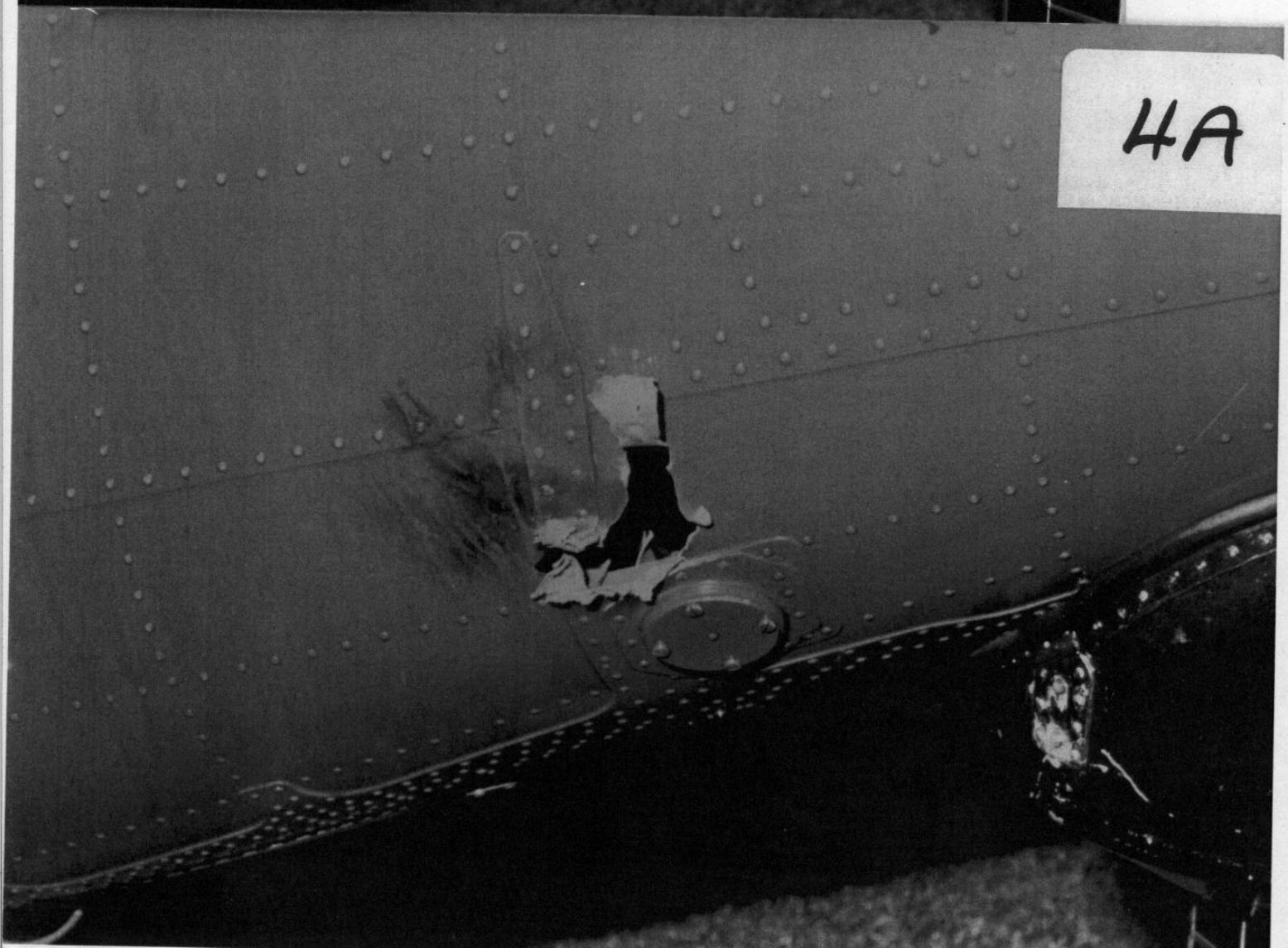
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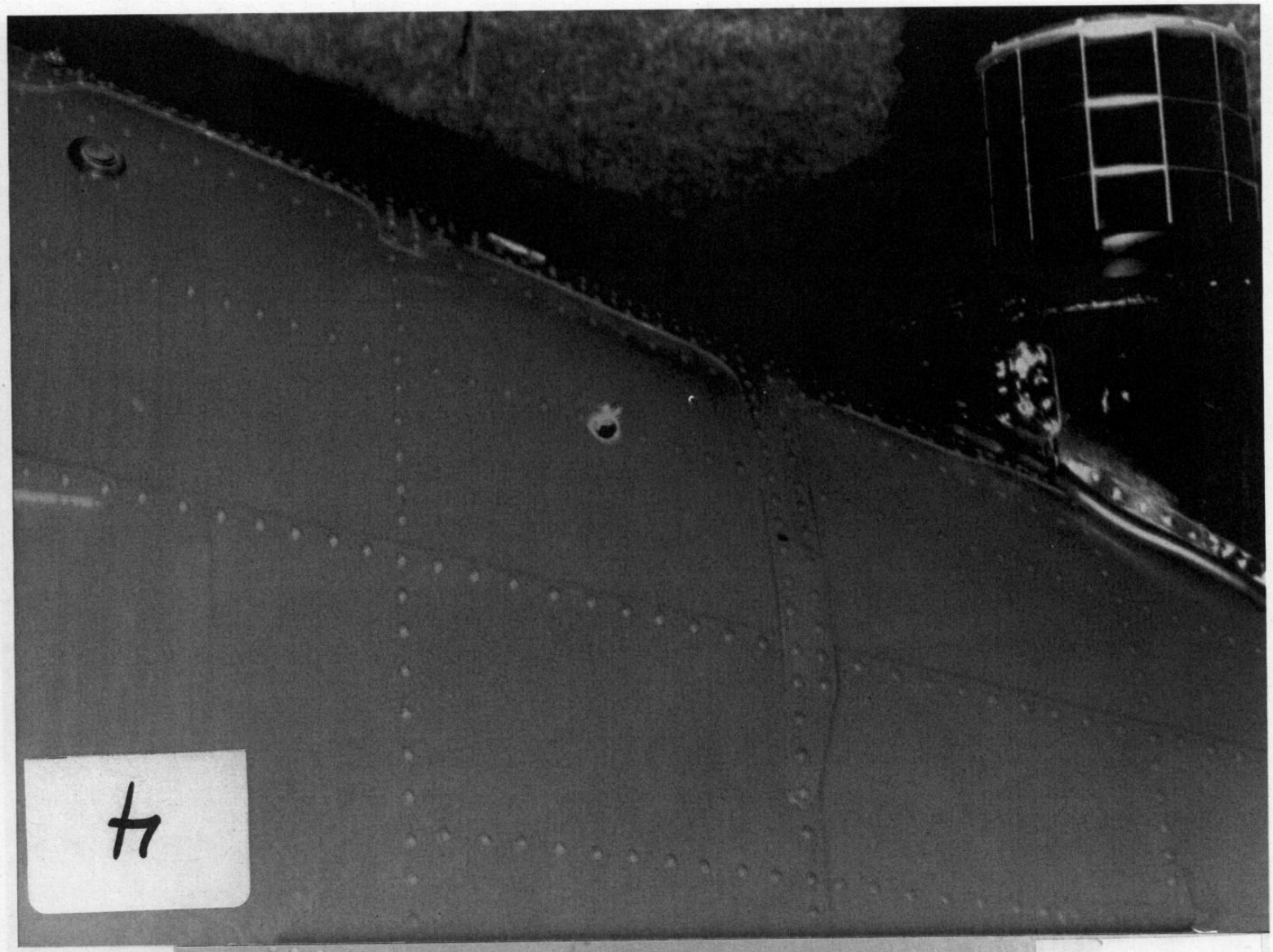
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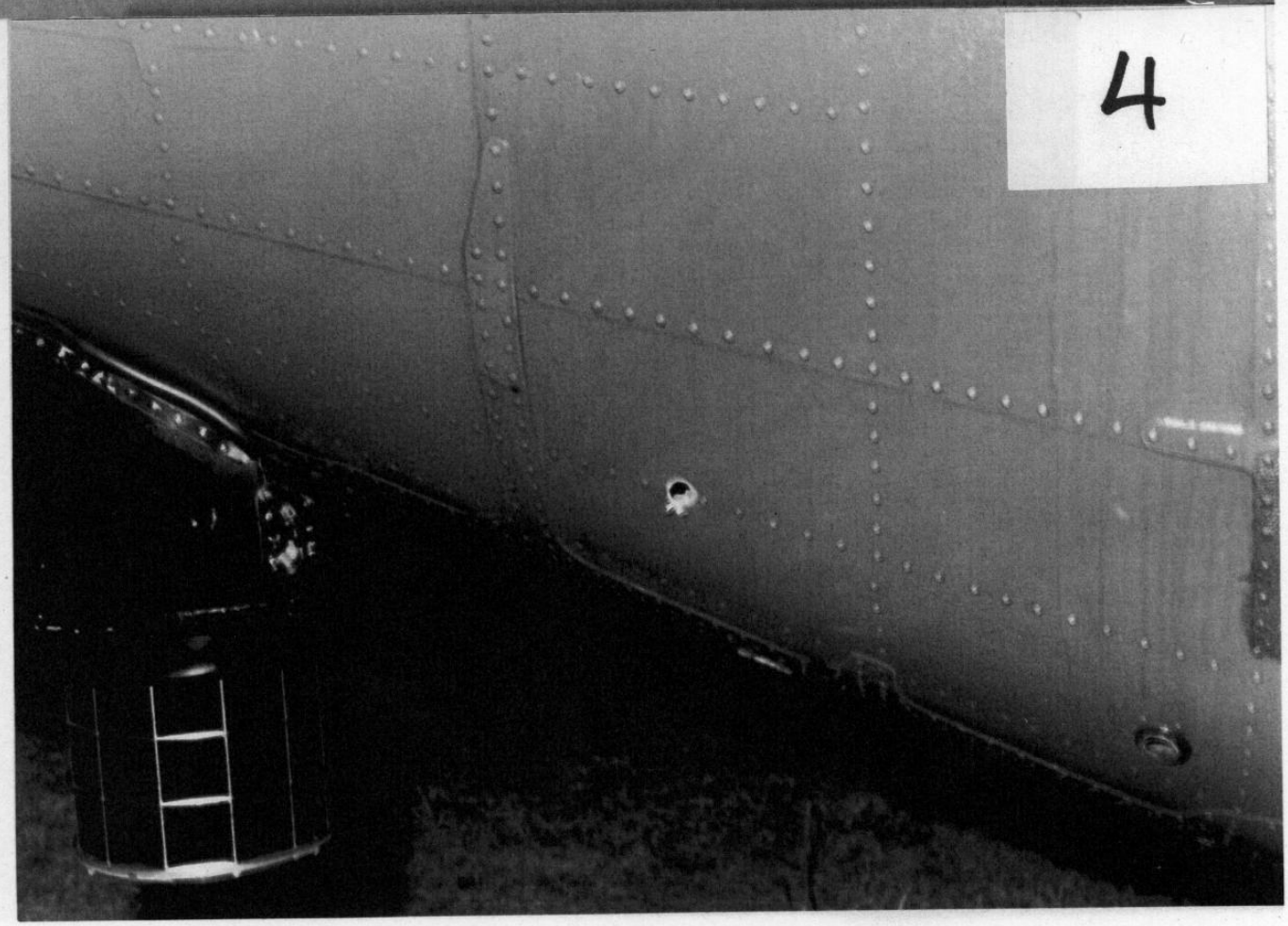
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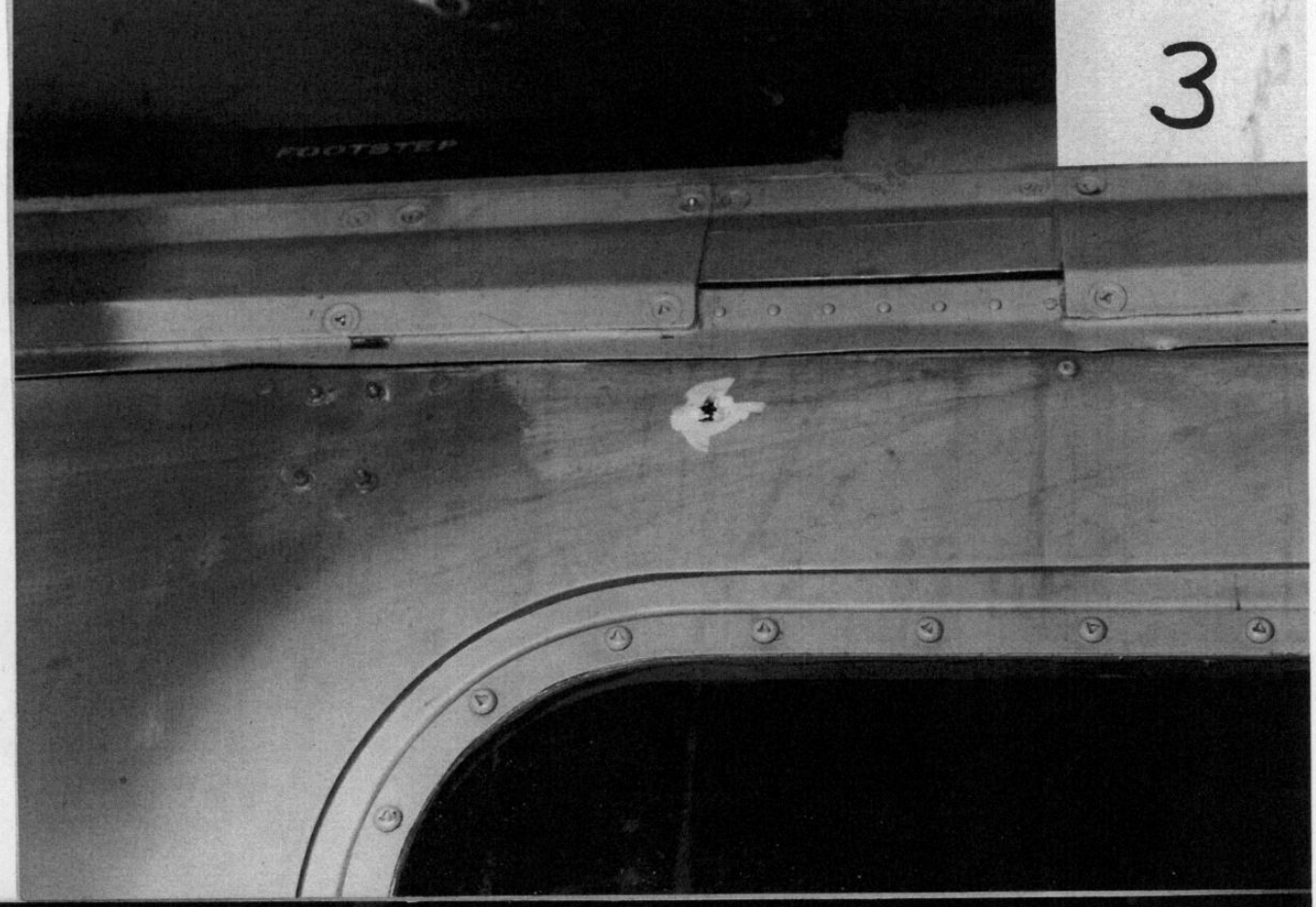
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FOOTSTEP


3
FOOTSTEP

6


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ANNEX E

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[redacted]

[redacted]

TECHNICAL REPORT - LYNX Mk7 - ZE380

PART 1 - INTRODUCTION

BACKGROUND

1. On the 14 February 1991 the Accident Investigation and Flight Safety Officer Warrant Officer (AIFSWO) was informed that a Lynx helicopter on the strength of AAC Regt NI had come under hostile action resulting in Prov Cat 4 damage.

2. The AIFSWO flew out to Northern Irland on the evening of the 14 February 1991. On the morning of the 15 February 1991 the AIFSWO was briefed by the Second in Command AAC Regt NI [redacted] of the situation leading up to the accident and the actions taken by the unit post accident.

PART 2- INITIAL INVESTIGATION

3. Lynx ZE380 had been aerial recovered to the hangar of NI Regt AAC Wksp REME. The helicopter was sat on its skids and was in an upright position. Unit personnel had de-rolled the aircraft and work was in progress removing the special to role mods and fixed fittings and preparing it for road transportation to RNAY Fleetlands.

4. An examination of the aircraft revealed the following damage sustained as a result of being hit by a number of rounds of heavy and light machine gun fire:

AIRFRAME

a. No 2 Belly Panel A hole in the forward edge of the panel three inches forward of the lower strobe light.

b. No 3 Belly Panel A hole in the port edge of No 3 panel. The attachment frame for No 3 panel was slightly damaged as was three frames under the cabin floor.

c. Underfloor Frames The underfloor frames to the rear and port of belly panel No 3 were damaged.

d. Centre Section

(1) A hole approximately one half inch diameter on the starboard side of the aircraft, 3 feet forward of the transportation joint and eight and a half inches up from the rear avionics bay door.

[redacted]

[redacted]

(2) A "L" shaped hole on the port side nearly opposite the one on the starboard, this hole measured 4 x 4 inches. The frame and stringer in the vicinity of these holes were damaged.
(3) A small hole on the port upper cabin wall, just below the upper door rail.

e. Cabin
(1) Two irregular shaped holes each approximately one inch in diameter eight inches aft of the port cyclic stick and five inches in from the port side of the aircraft.
(2) A small tear in the cabin floor approximately 12 inches inboard of the other holes.
(3) A hole approximately one half inch in diameter in the soundproofing fitted to the cabin roof.
(4) A hole approximately 12 inches by two inches in the main rotor gear box access panel.

CABIN DOORS

5. There was a small hole 31.5 inches from the front and 1.25 inches down from the top of the starboard cabin door. The cabin window frame was marked in two places, the rear upright and the bottom frame.

UNDERCARRIAGE

6. The starboard undercarriage skid had a hole in the inboard side approximately half inch diameter four feet ten inches from the front, and a corresponding but larger hole on the outboard side.

SEATS

7. The crew seats were found to be undamaged and the safety harness operated satisfactorily. The only seat in the cabin area was the three man seat which was found to be undamaged and correctly fitted. The safety harnesses for the three man seat were in the stowed position.

COWLINGS

8. There was a hole approxomately half an inch diameter in the lower corner of the port footstep fairing, and the upper aft rear corner of the cowling was damaged as was the frame to which the rear of the cowling attaches.

[redacted]

[redacted]

TRANSMISSION

9. There was no obvious damage to the tail rotor drive shafts or tail rotor transmission and gearboxes. There was a hole in the 11 o'clock position above the oil level sight glass on the port side of the main rotor gear box.

MAIN ROTOR BLADES

10. Apart from one main rotor blade sustaining a hole through it approximately 18 inches from its root end, the blades were not damaged.

CONTROLS

11. Dual controls were fitted. There was no obvious damage to the collective or tail rotor controls. The port cyclic control was found to be floppy. This was due to the fact that the inboard trunion (WG1345-0193-101) and bearing (WG1345-0131-041) was fractured. The cyclic lateral connecting rod (WG0045-0402-041) between the port and starboard cyclic sticks had been punctured in two places.

HYDRAULIC SYSTEM

12. There was no obvious damage to the hydraulic systems or their components.

ENGINE CHANGE UNIT (ECU)

13. The ECUs were still in their correct position. The only obvious damage was to the port ECU IRCM duct which had a hole in two of the IRMC fins.

ECU CONTROLS

14. The throttles were found in the closed and gated positions. Although the throttle teleflexes above the rear cabin roof were slightly distorted.

INSTRUMENT ELECTRICAL and COMMUNICATION SYSTEMS

15. There appeared to be no damage to the instruments, however, the small loom which runs to the port side of the main rotor gearbox access panel in the cabin roof was damaged, as was the larger loom which runs parellel with the smaller one. The port cyclic stick electrical loom was completely severed at its attachment to its plug at the bottom of the cyclic stick. The cables to the flux valve in the rear avionics bay were severed. The Power Control Unit (PCU) for the forward lower strobe light had a hole in one side of its casing.

[redacted]

[redacted]

AUTOMATIC FLIGHT CONTROL SYSTEM (AFCS)

16. The AFCS cable at the base of the port cyclic stick was severed

PART 3 DETAILED TECHNICAL INVESTIGATION

AIRFRAME

17. a. No 2 Belly Panel The hole three inches in front of the lower strobe light, in No 2 belly panel, was approximately a quarter of an inch in diameter and consistant with a 7.62mm bullet having passed through it at an angle of approximately 45 degrees and from the 10 o'clock position in relation to the hole.

b. No 3 Belly Panel The hole in the No 3 belly panel, approximately three quarters of an inch in diameter and the damage to the panel mounting frame was consistant with the damage that would be caused by a 12.7mm bullet passing through it at an angle of approximately 30 degrees from the 2 o'clock position in relation to the hole.

c. Under Floor Frames Frames WG1310-7027-043, WG1310-7116-011, WG1310-7035-043 which form the airframe under the port pilots feet (see attached print out for areas) were all damaged, holed and torn.

d. Centre Section The hole on the starboard side of the centre section at station 2618A, eight and three quarter inches up from the avionics bay door, was approximately three quarters of an inch diameter and was consistant with a 12.7mm round having passed through it at an angle of approximately 10 degrees from the 2 o'clock position in relation to the hole. The stringer at this station was also damaged. The irregular shaped hole at station 2618A LH on the port side (see photo A) measured four inches by four inches. The airframe skin had failed under a tensile load. Frame WG1312-0055-101 was ruptured as was the adjacent stringer. The small hole on the port upper cabin wall at station 470A was approximately a quarter inch diameter. It was consistant with a 7.62mm bullet having passed through it at an angle of approximately 40 degrees from the 2 o'clock position relative to the hole when viewed from inside the cabin.

[redacted]

[redacted]

CABIN

18. The three rupture holes in the cabin floor, under the port pilots seat, were caused by the debris from the control tube, underfloor frames and the cyclic control trunion which were struck by a 12.7mm bullet The entry hole in the sound proofing fitted to the upper rear cabin roof was approximately three quarters of an inch in diameter, and the exit hole approximately 7 inches by 2 inches. The hole in the main rotor gearbox access panel measured 12 inches by 2 inches, and was indicative of having failed as a result of being struck by a tumbling 12.7mm bullet.

CABIN SOUND PROOFING

19. The sound proofing which fits to the cabin roof beneath the main rotor gearbox had a hole approximately three quarter of an inch in diameter on the inboard side and a tear approximately eight inches by 2 inches on the outboard side. The holes were consistant with a 12.7mm bullet having penetrated the sound proofing.

CABIN DOORS

20. The hole in the upper aft area of the starboard cabin door measured approximately a quarter inch in diameter and was consistant with a 7.62mm round having passed through it at an angle of approximately 30 degrees from the 5 o'clock position in relation to the hole. There was evidence that the port cabin door aft section window frame had been struck by a sharp object resulting in the frame being punctured and cracked, the lower frame was dented.

UNDERCARRIAGE

21. The hole 4 feet 6 inches from the toe of the starboard skid, on the inboard side, at the 3 o'clock position as viewed from the front measured approximately three quarter inch in diameter. It was consistant with a 12.7mm bullet having passed through it at an angle of approximately 80 degrees in relation to the skid. The exit hole on the outboard side of the skid, at the 9 o'clock position, measured approximately 2.5 inches long by 1 inch wide was caused by the exiting of the 12.7mm bullet.

SEATS

22. There was no damage to the crew or cabin seats or their mountings.

[redacted]

[redacted]

COWLINGS

23. The hole in the lower forward corner of the port footstep fairing measured approximately three quarter inch in diameter and was consistant with a 12.7mm bullet having passed through it at an angle of approximately 45 degrees from the 7 o'clock position in relation to the hole. The damage to the upper aft corner of the cowling was caused by the exiting of the round and debris from the main rotor gearbox.

TRANSMISSION

24. The hole in the port side of the main rotor gearbox casing measured approximately 2.5 inches long by .5 inch wide travelling from the 8 o'clock to 2 o'clock position viewed from the port side of the aircraft. It was caused by a 12.7mm bullet striking the gearbox at an angle, the bullet travelled along the gearbox casing and hit the web which deflected the bullet causing it to exit through the port footstep fairing.

MAIN ROTOR BLADE

25. The hole in the underside of the main rotor blade, serial No WAH 1624 measured approximately a quarter of an inch in diameter and was consistant with a 7.62mm bullet having passed through the blade at an angle of approximately 30 degrees in relation to the main rotor blade. The hole on the upper surface was the exit hole of the 7.62mm bullet which entered from below.

CONTROLS

26. The damage to the cyclic lateral connecting rod on the starboard side of the aircraft was caused by debris from the under floor frames which were damaged by a 12.7mm bullet.

ENGINE CHANGE UNIT (ECU)

27. The holes in the IRCM duct fins of the port ECU measured approximately half inch in diameter and were consistant with a 12.7mm bullet having passed through them at an angle of approximately 45 degrees from the vertical from the 8 o'clock position.

ECU CONTROLS

28. The ECU controls operated satisfactorily even though they were slightly distorted by movement of the main rotor gearbox access panel in the aft part of the cabin roof.

[redacted]

[redacted]

INSTRUMENT ELECTRICAL and COMMUNICATION SYSTEMS

29. PCU

(a)The hole in the casing of the lower strobe light PCU, approximately a quarter of an inch in diameter and was consistant with a 7.62mm bullet having passed through it. The round caused damage to the capacitors inside. The bullet was recovered from inside .

Electrical System

(b) The smaller loom in the aft cabin roof cables C76-H to DJ10-4 and C76-A to DJ10-8 were severed as were cables (Q5) CN14-7 to C33-2, (W13) CN15-7 to C35-7, (V12) CN1-B1 to C102-9, (V5) D2-5 to CC3-9, DF No 2-D2 to G2-3, (W5) D No 26C-b to C35-1, (P38) DA3-7 to C101-1, (CA) DH9-1 to B No 48 plug 7-D, (CA) DJ14-9 to C No 46 plug 7-g, (CA)DH8-9 to C No 46 plug 7-c in the parallel loom. These looms were severed by a 7.62mm bullet which entered the starboard cabin side travelled across the cabin roof and exited the port cabin side.

Port Cyclic Stick Loom

(c) The loom on the port cyclic stick loom was severed at its connecting plug. This damaged was caused by the 12.7mm bullet which passed through the belly of the aircraft striking the under floor frames, port cyclic stick trunnion and the cabin floor. The severing of this loom would result in the loss of the following facilities:

(1) Controls: AFCS
Cyclic trim (port side only)
CAC cut out (port side only)

(2) Communications: P to T (port side only)

PART 4 - ANALYSIS

30. All the damage sustained by the aircraft was the direct result of being struck by light and heavy machine gun fire.

[redacted]

[redacted]

31. When the electrical looms in the aft upper cabin roof were severed the following services would be lost:

Small loom

C76-H to DJ10-4 }	Loss of Lane 1 on collective
C76-A to DJ10-8 }	servo.

Large loom

(Q5)CN14-7 to C33-2	Loss of automatic fuel transfer
(W13)CN15-7 to C35-7	No1 ECU anti-ice, hot air will remain in selected position. There will be no CWP warning that the anti-ice is on.
(V12)CN1-B1 to C102-9	AC power supply load sheading. Provided that both alternators operate and remain on line, no problem. However, if an alternator does fail the system will load shed irrespective of ECU anti-ice selection, resulting in loss of TOW facility.
(V5)D2-E to CC3-9	Prevents aircraft alternators coming on line with external AC power supply connected. Nil effect on flight.
DF No2-D2 to G2-3 (SEM Lx 78)	Loss of red CWP for rotor brake.
(W5) D No26C-B to C35-1	Loss of No 1 fire extinguisher bottle low pressure indicator.
(P38) DA3-7 to C101-1	No CWP warning if battery master switch is operated in flight, however, the MI would operate normally.
(CA) DJ14-9 to C No46-G	Stick position Tx Lane 1 Roll. Main input Tx stick position to AFCS computer.

[redacted]

[redacted]

(CA)	DJ9-9 to C No46-H	-12 volt supply from AFCS computer to stick position Tx Roll Lane 1.
(CA)	DH9-1 to C No46-D	+12 volt supply from AFCS computer to stick position Tx Roll lane 2.
	DH9-9 to C No46-B	-12 volt supply from AFCS computer to stick position Tx Roll lane 2.
	DH8-9 to C No46-C	Stick position Tx Roll lane 1. Main input Tx stike position to AFCS computer.

PART 5 - PROBABLE SEQUENCE OF EVENTS

32. The probable sequence of events is that as the aircraft approached its landing point, to drop off the underslung load, it was engaged by light and heavy machine gun fire from its 11 o'clock position. [redacted] The total number of hits were 8 x 12.7mm and 2 x 7.62mm, the most probable sequence of strikes is:

a. A 7.62mm bullet which penetrated the No 2 belly panel then embeded into the lower strobe light PCU.

b. A 12.7mm bullet passing through the starboard undercarriage skid.

c. A 12.7mm bullet passed through the open port cabin door into the upper cabin roof sound proofing exiting through the main rotor gearbox access panel.

d. A 12.7mm bullet penetrated the port footstep fairing, struck the main rotor gearbox causing fragmentation, and exited through the upper corner of the footstep fairing.

e. A 12.7mm bullet passed through the port ECU IRCM duct causing damage to two of the fins.

f. A 12.7mm bullet which penetrated the No 3 belly panel and damaged the under floor frames, lateral cyclic control rod, port cyclic stick trunion, port cyclic stick loom and cabin floor under the port side crew seat.

g. A 12.7mm bullet passed through the No 3 belly panel causing damage to the underfloor panels, cyclic lateral

[redacted]

[redacted]

connecting rod, port cyclic stick trunnion, severing the electrical loom at the base of the cyclic stick, this would result in the loss of the AFCS and the Commanders ability to operate P to T, CAC cut out or trim his cyclic. Debris and bullet penetrated the cabin floor under the Commander seat.

h. A 7.62mm bullet passed through the starboard cabin door, between the sound proofing and the upper cabin roof, severing cables in the looms on the port side of the main rotor gearbox access panel. It also severed the main rotor head dish fairing drain tubes and punctured the fuel vent on the port side of the cabin. Before exiting through the port cabin wall, it struck the port cabin door window frame.

i. A 12.7mm bullet entered the starboard side of the aircraft in the area of the aft avionics bay, severing the wires to the flux valve prior to exiting on the port side of the aircraft.

j. A 12.7mm bullet passed through a main rotor blade, most probably just before or just after the 7.62mm bullet struck the starboard cabin door.

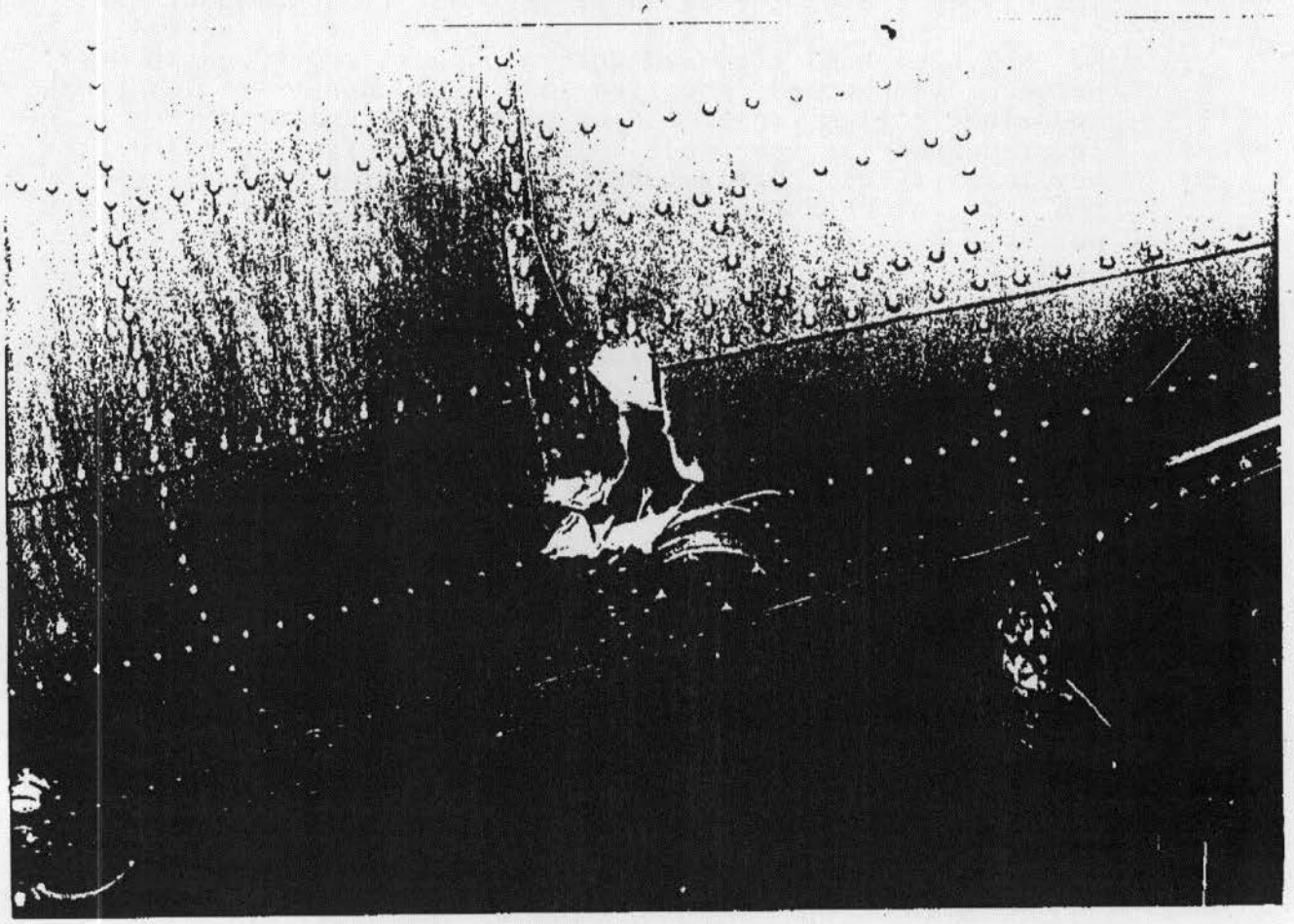
PART 6 - CONCLUSION

33. Examination of the aircraft revealed no technical defects other than those caused by hostile action.

[redacted]

28 Mar 91

[redacted]



ANNEX F

Headquarters Army Air Corps
United Kingdom Land Forces
Airfield Camp
NETHERAVON
Wilts
SP4 9SF

Telephone Netheravon Military
Civil Fulford [redacted]

Your reference

Our reference

See Distribution

Date 26 FEB 91.

MEDICAL REPORT LYNX ZE380 INCIDENT ON 13 FEB 91

1. Please find enclosed a copy of my report on the above incident.

[redacted]

Spec Av Med UKLF

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Action:

CO 9 REGT AAC

Information:

CAAvMed

Internal:

File.

[redacted]

MEDICAL REPORT TO BOARD OF INQUIRY, LYNX ZE380 INCIDENT NI REGIMENT ARMY AIR CORPS ON 13th FEBRUARY 1991.

INTRODUCTION.

1. As specialist in Aviation Medicine UKLF I was called to attend the Board of Inquiry into the incident involving a Lynx helicopter of the Northern Ireland Regiment AAC.

2. This report contains findings which although negative may prove useful when investigating future incidents.

DESCRIPTION OF INCIDENT.

3. The sequence of events are to be determined by the board. Essentially Lynx ZE380 came under hostile fire at 1518 hrs on 13th February 1991 while attempting to insert an underslung load into Crossmaglen. The aircraft was hit by three 7.62mm rounds and five 12.7mm rounds none of which caused any direct injury to the crew. The aircraft made a controlled but fairly heavy run-on landing in a field approximately 3 km from Crossmaglen.

CREW AND PASSENGERS.

4. The aircraft was commmanded by [redacted] from the left hand seat. [redacted] took control of the aircraft during the contact.

5. The pilot was [redacted] who was flying the aircraft from the right hand seat.

6. A door gunner [redacted] was manning a machine gun which was mounted in the port side door.

ESCAPE FROM THE AIRCRAFT.

7. The Aircraft Commander and the pilot exited from their respective doors after landing. They were not impeded by their body armour or equipment. Neither of them were injured.

[redacted]

[redacted]

8. The door gunner was wearing a dispatcher's harness which allowed him free movement around the cabin. He had no seat or secure restraint and had been kneeling behind his machine gun. Prior to landing he unfastened the harness for fear of becoming entangled in it in the event of a crash. On landing [redacted] exited from the starboard cabin door, he was uninjured.

MEDICAL STATUS OF THE CREW.

9 [redacted] medical grading was [redacted] dated [redacted] was graded [redacted] on [redacted] An aircrew medical performed subsequent to the incident was [redacted] [redacted] was graded [redacted] Both aircrew had eaten well and were not fatigued at the time of the incident.

10. On reviewing their medical documents nothing significant was found relating to this incident.

11. Blood for toxicology and alcohol was taken from both aircrew after the incident with negative results.

CLOTHING.

12. The two aircrew were wearing normal flying clothing including, in [redacted] case a norwegian shirt and both wore chest protectors. Both wore MkIVA helmets with visors up and no problems or difficulties were experienced with any item of clothing. The door gunner also wore normal flying clothing and an additional green towel as a scarf. In addition he was wearing a chest protector but no all-round body armour. As with the aircrew the gunner was wearing a MkIVA helmet with the visor up.

[redacted]

[redacted]

OBSERVATIONS.

13. With reference to the door gunner it was noted that:

a. There was no provision for security within the cabin of the aircraft in the event of a crash or heavy landing.

b. All-round body armour was not worn.

14. Neither aircrew had locked the inertia reel mechanism of their harnesses.

CONCLUSIONS AND RECOMMENDATIONS.

15. No evidence was found of a medical factor contributing to the outcome of this incident. However the importance of having an in date aircrew medical grading must be stressed.

16. The safety of the door gunner should be reviewed. In particular it is recommended that a secure seat and restraint should be provided for him. In addition, the provision of all-round body armour such as High-Mark body armour, which has been tested both for safety and crash-worthiness at the Institute of Aviation Medicine and which is currently in use with RAF loadmasters, should be sought post haste.

[redacted]

Spec. Av. Med. UKLF.

[redacted]