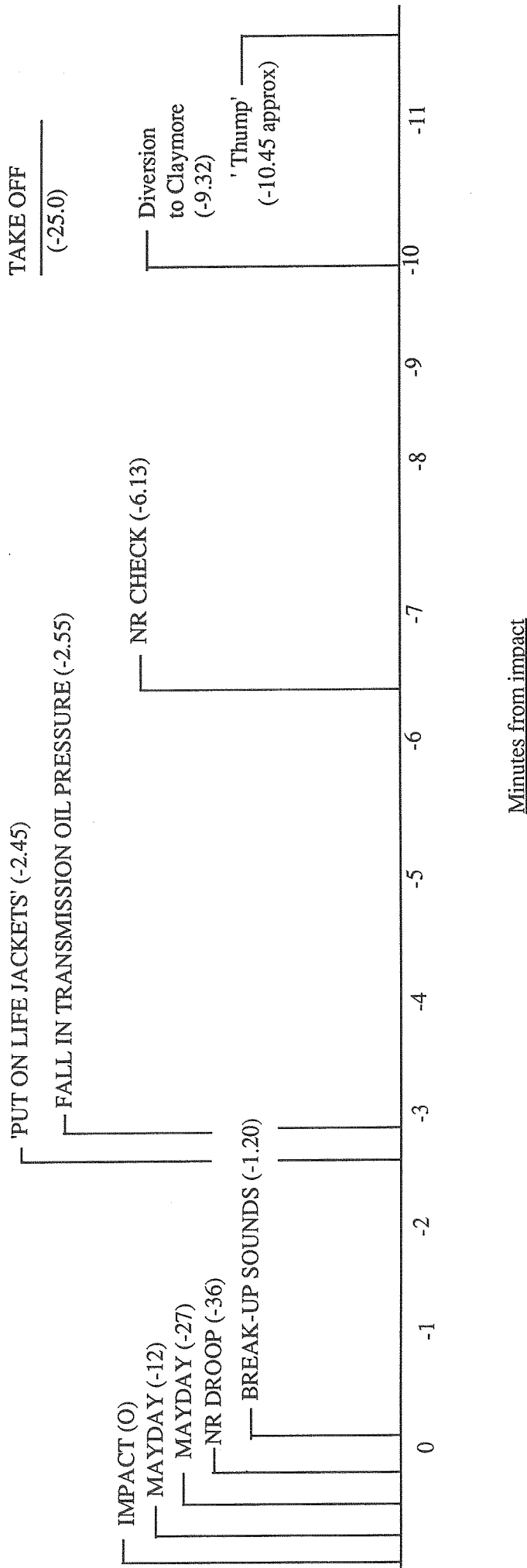
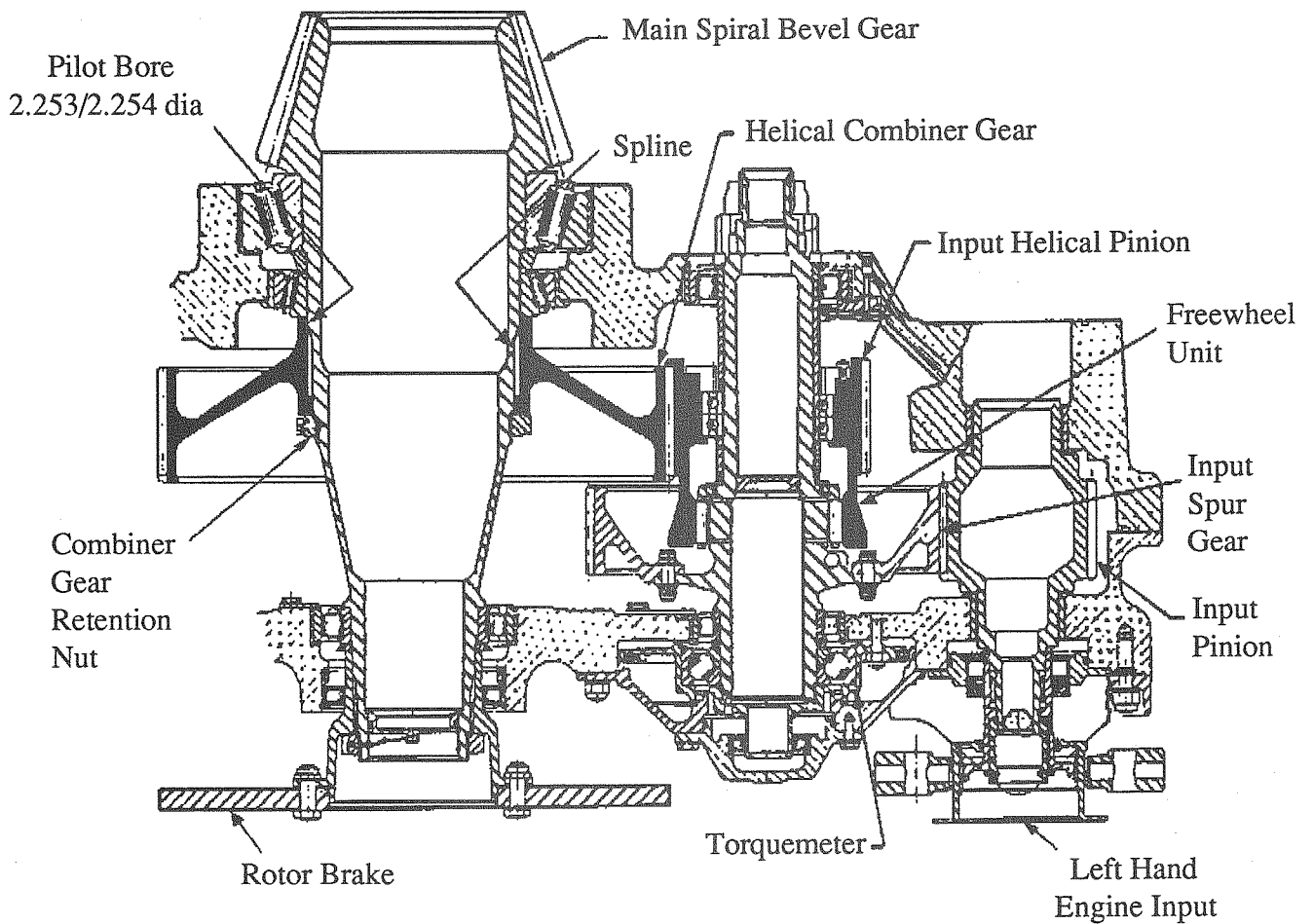
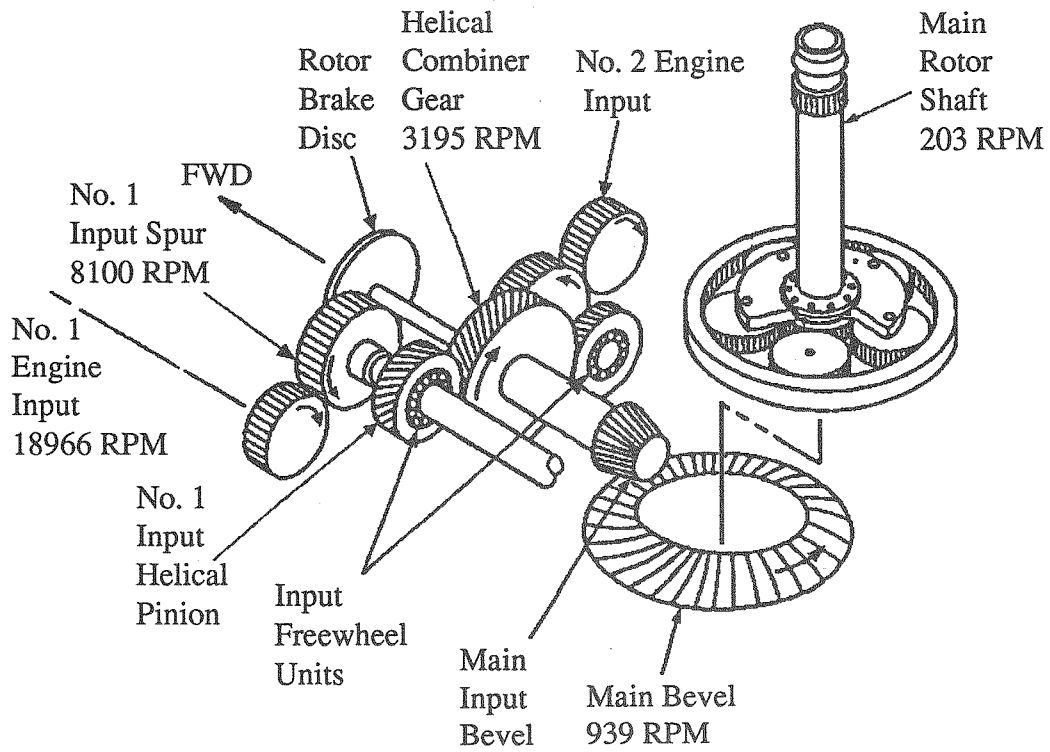


TIMING PROFILE - PRE IMPACT



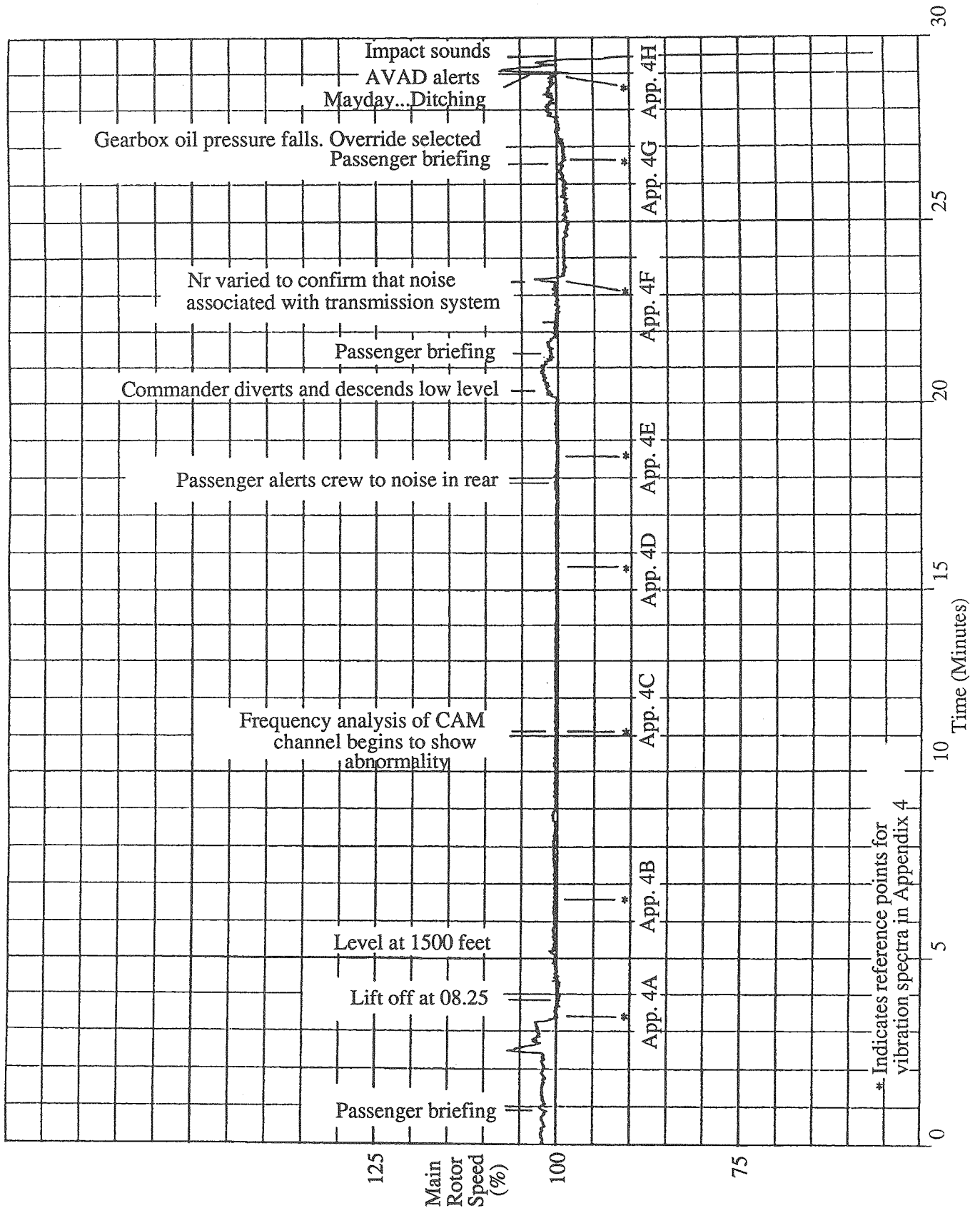
Data source Cockpit Voice Recorder



MAIN GEARBOX INPUT SECTION

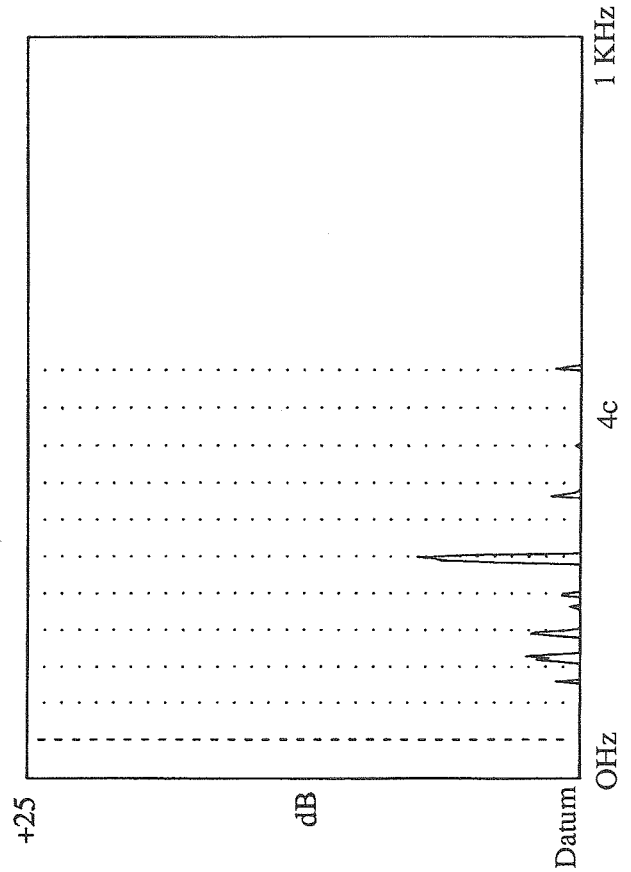
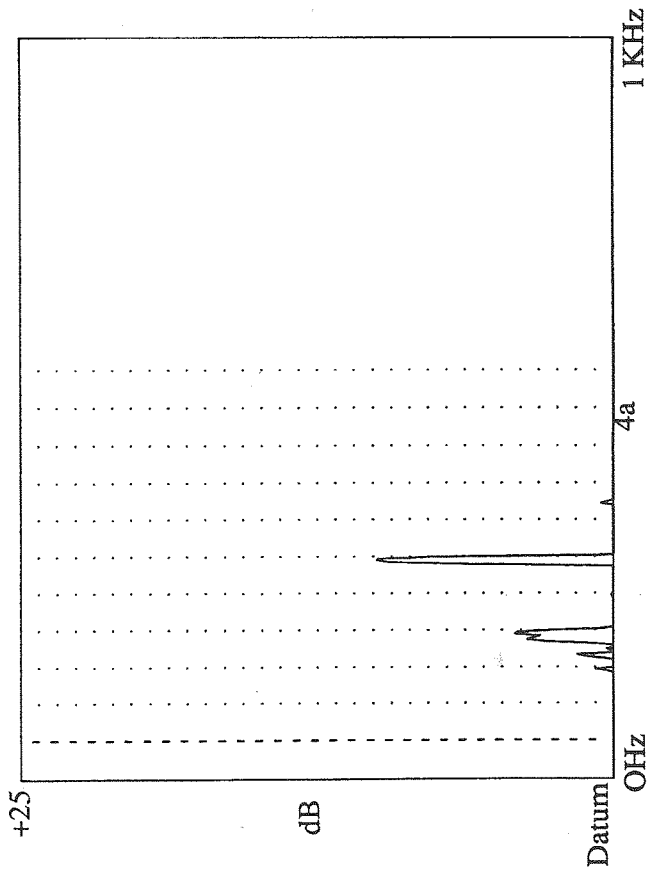
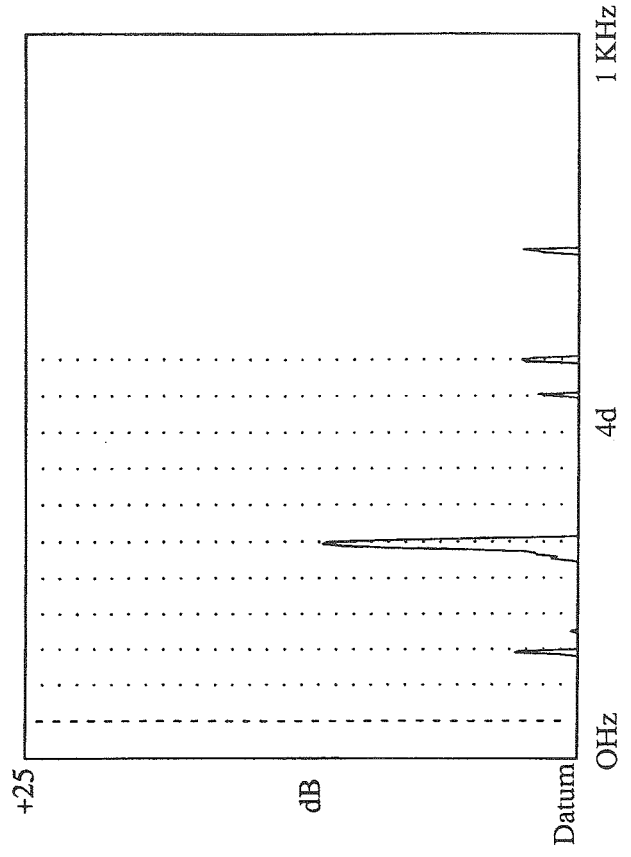
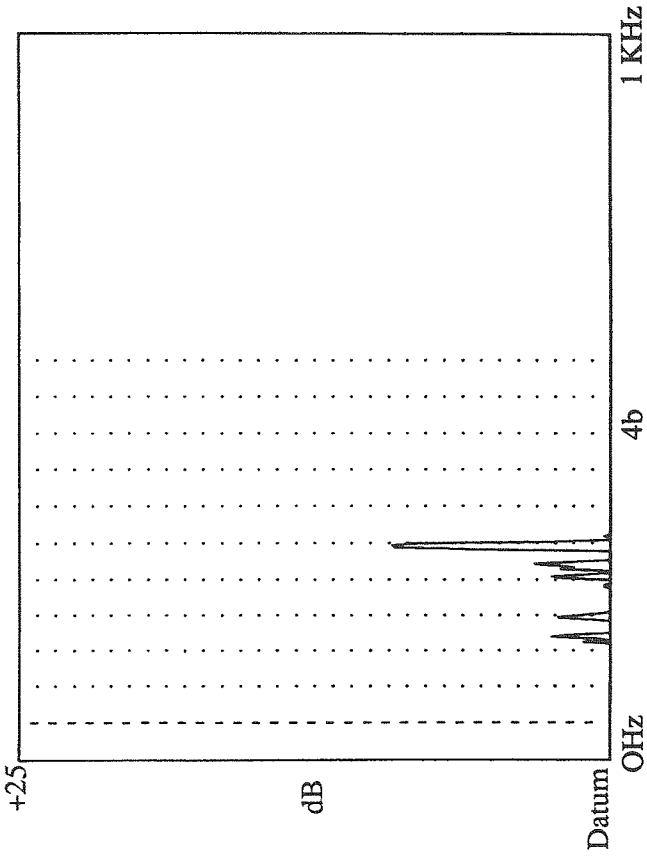
COURTESY SIKORSKY AIRCRAFT

MAIN ROTOR SPEED TRACE (CVR)
WITH LOCATIONS OF SAMPLING POINTS FOR
NOISE SPECTRA IN APPENDIX 4



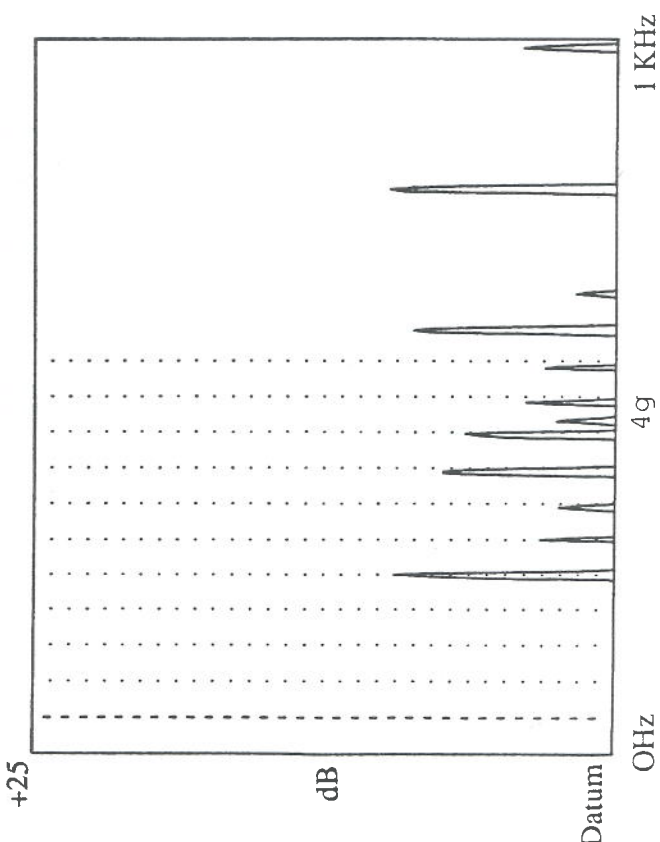
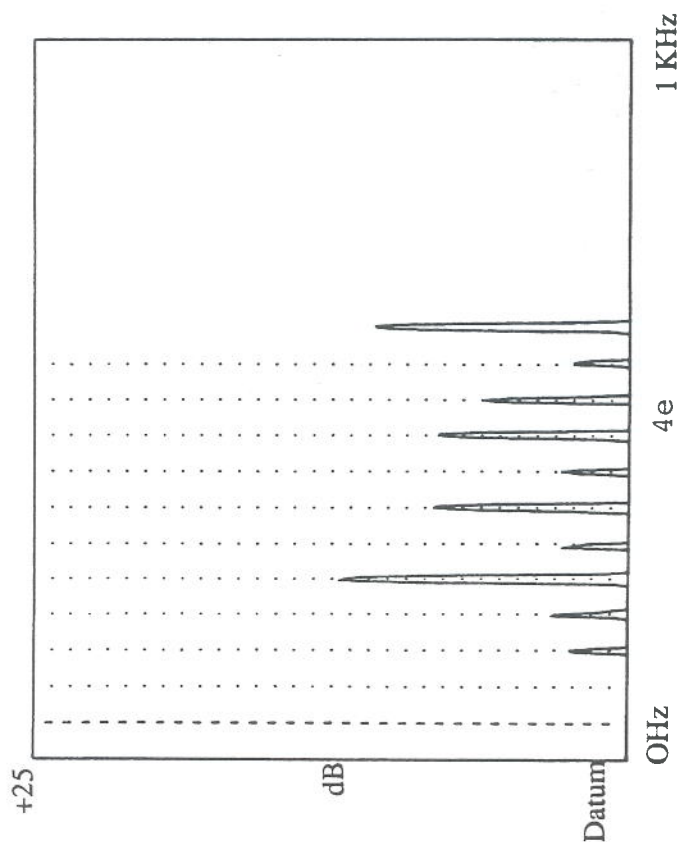
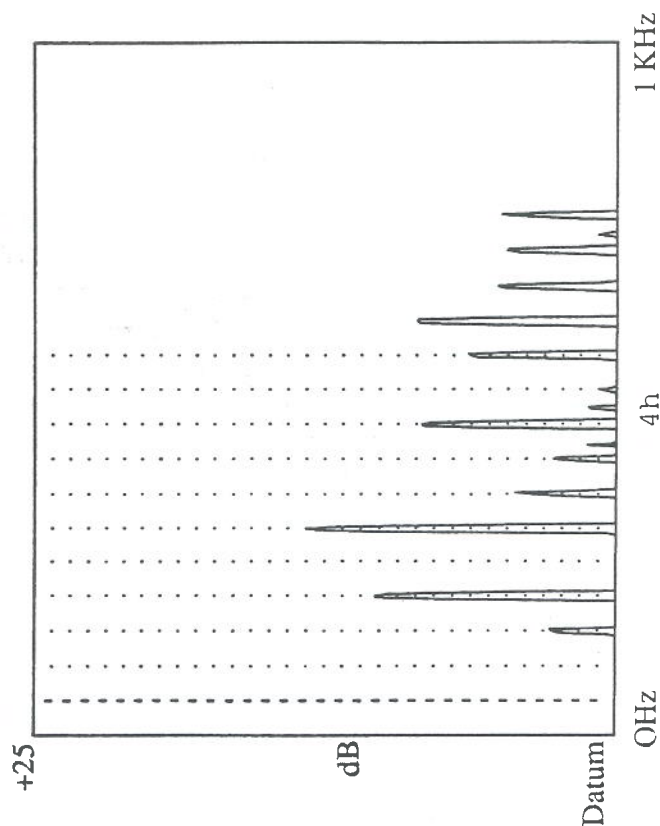
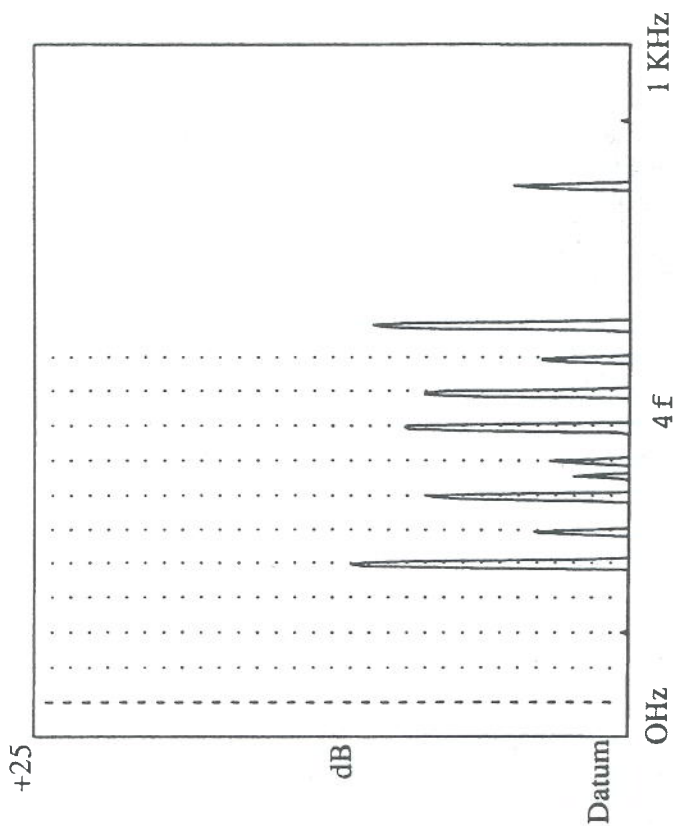
NOISE SPECTRA AT SELECTED POINTS ON
THE COCKPIT VOICE RECORDING
(REF APPENDIX 3)

APPENDIX 4



NOISE SPECTRA AT SELECTED POINTS ON
THE COCKPIT VOICE RECORDING
(REF APPENDIX 3)

APPENDIX 4
(CONTD)



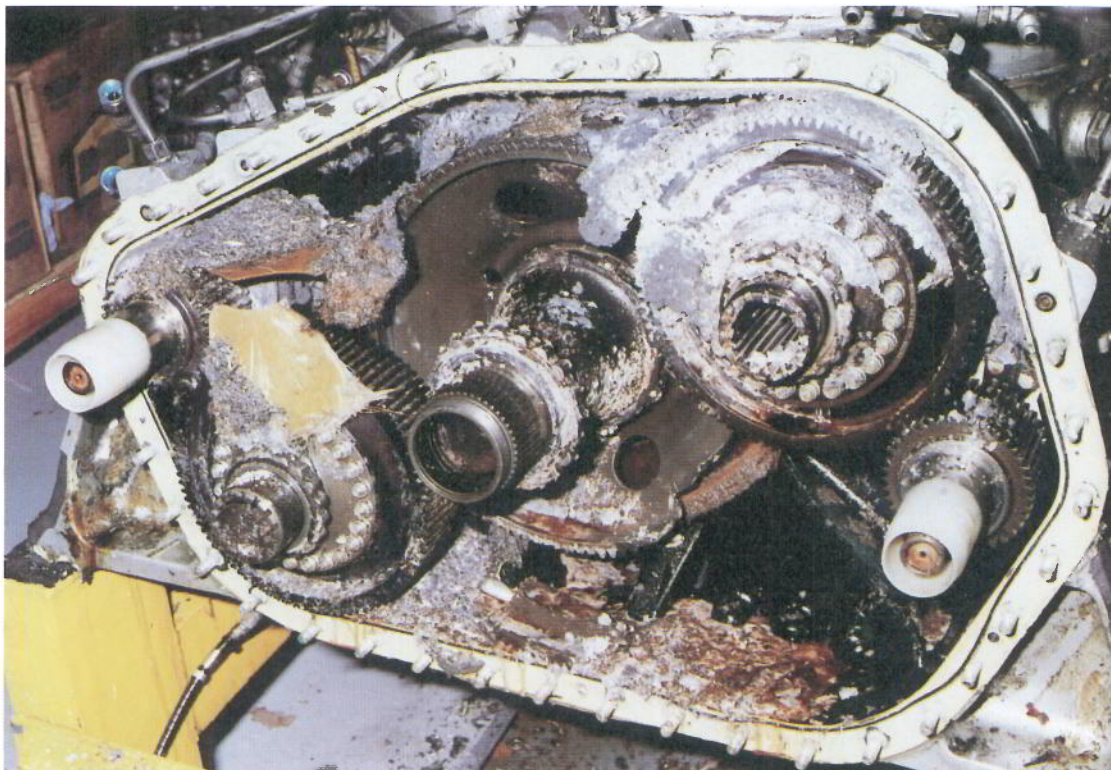


WASP SUBMERSIBLE



Photograph A

**MAIN GEARBOX SCAVENGE STRAINER
AND MAGNETIC CHIP DETECTOR**



Photograph B

MAIN GEARBOX INPUT SECTION



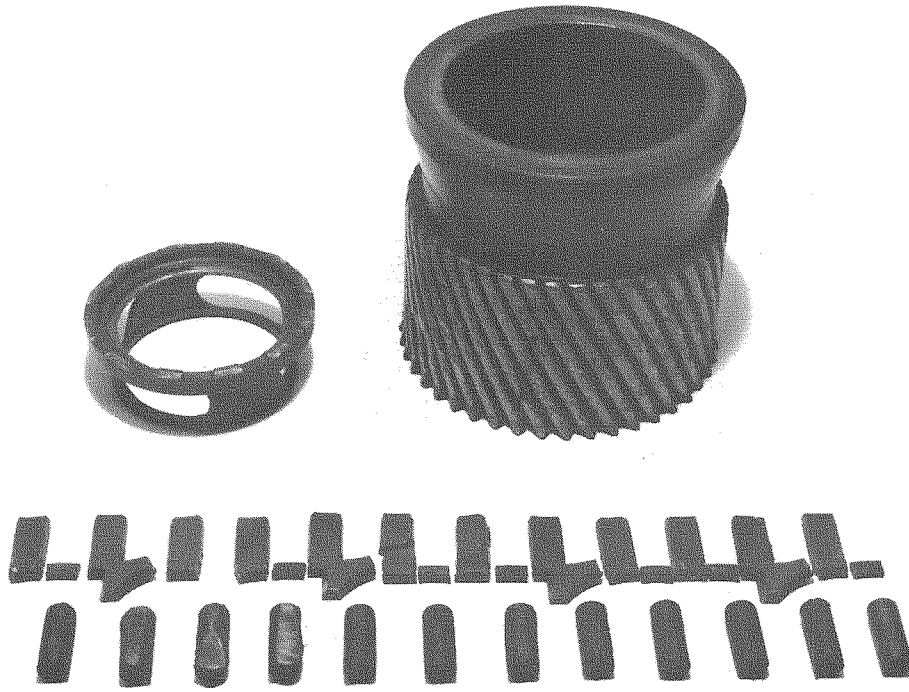
Photograph C

**NO 1 CAMSHAFT ASSEMBLY
AND INPUT SPUR GEAR**



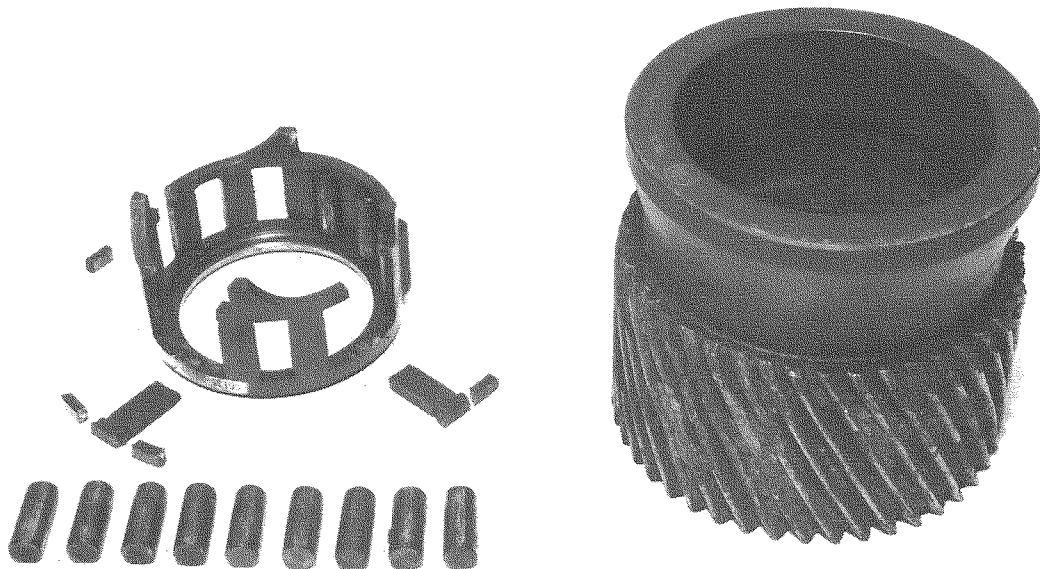
Photograph D

**NO 2 CAMSHAFT ASSEMBLY
AND INPUT SPUR GEAR**



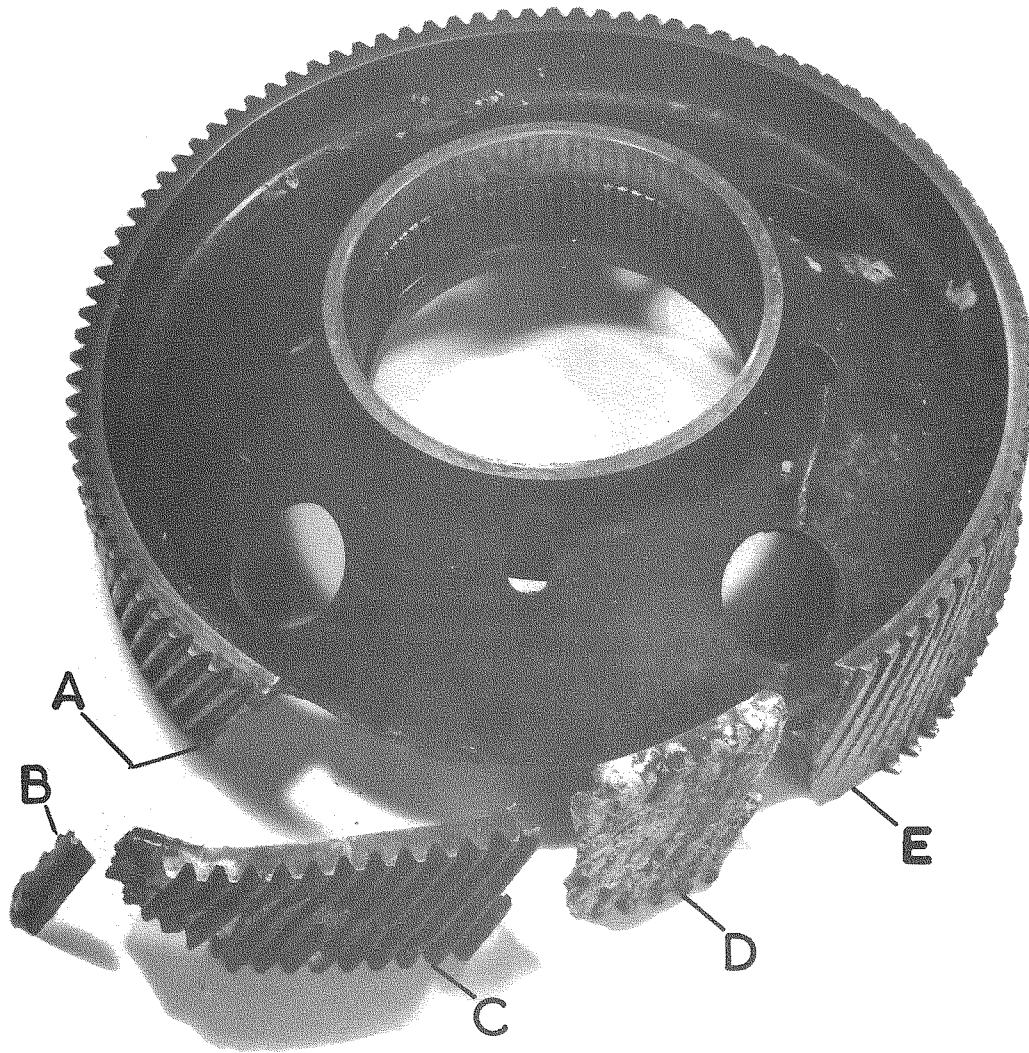
Photograph A

NO 1 FREEWHEEL UNIT

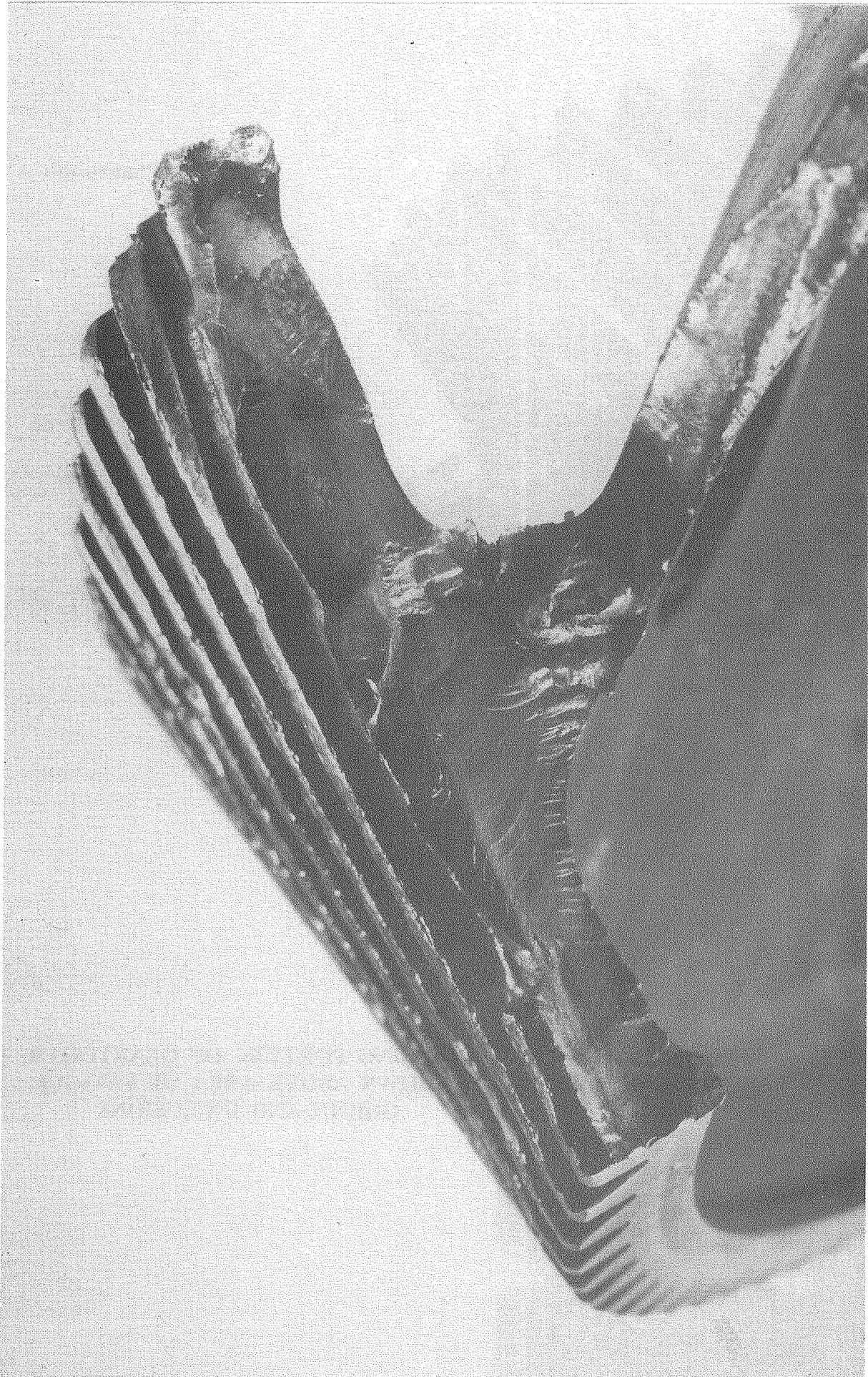


Photograph B

NO 2 FREEWHEEL UNIT

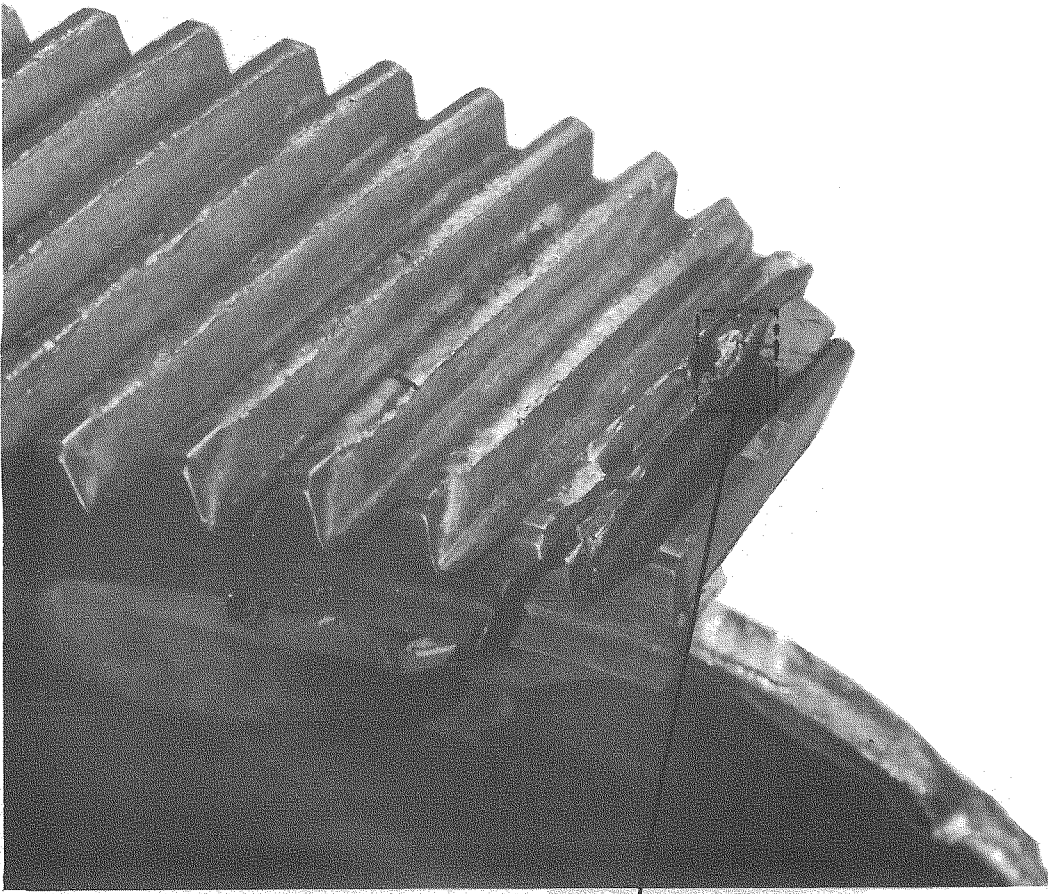


HELICAL COMBINER GEAR WITH PRINCIPAL
FRAGMENTS



**FRACTURE FACE SHOWING FATIGUE DEVELOPMENT
WITHIN GEARTOOTH AND RIM**

COURTESY RAE FARNBOROUGH



Photograph A

RECONSTRUCTION OF FRAGMENTED GEARTOOTH
AND SEPARATED GEARTOOTH



Photograph B

MISSING PORTION OF GEARTOOTH
CROWN ABOVE AREA OF FATIGUE
ORIGIN AND INCLUSIONS

OVAL FEATURE AS SEEN
ON RE-ASSEMBLED
TOOTH FRAGMENTS

HARDENED
LAYER

DRIVEN
FLANK

OVAL
FEATURE



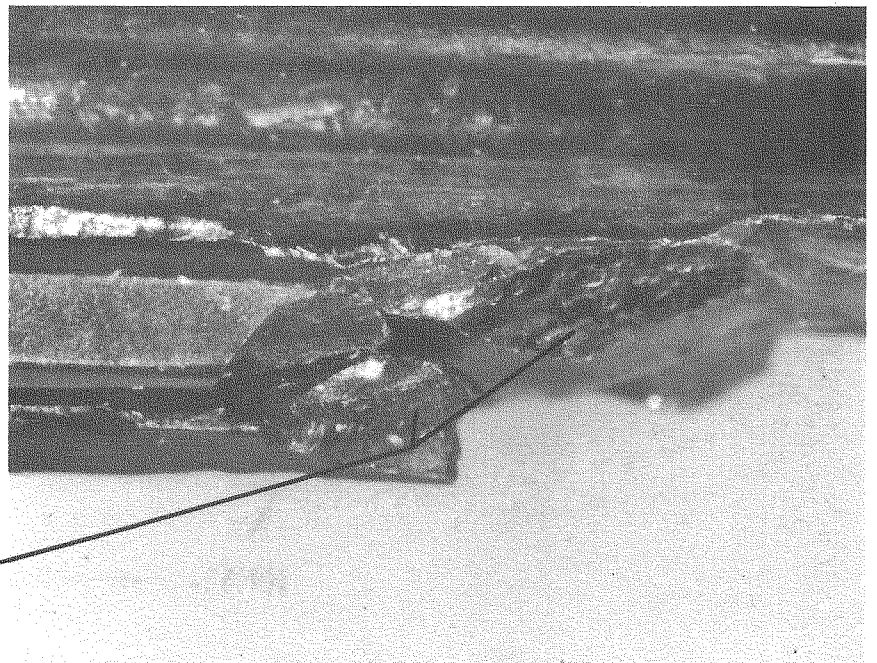
Photograph C

FRAGMENTED TOOTH
FROM ABOVE SHOWING
ANGLE OF OVAL FEATURE

CREST

DRIVEN FLANK

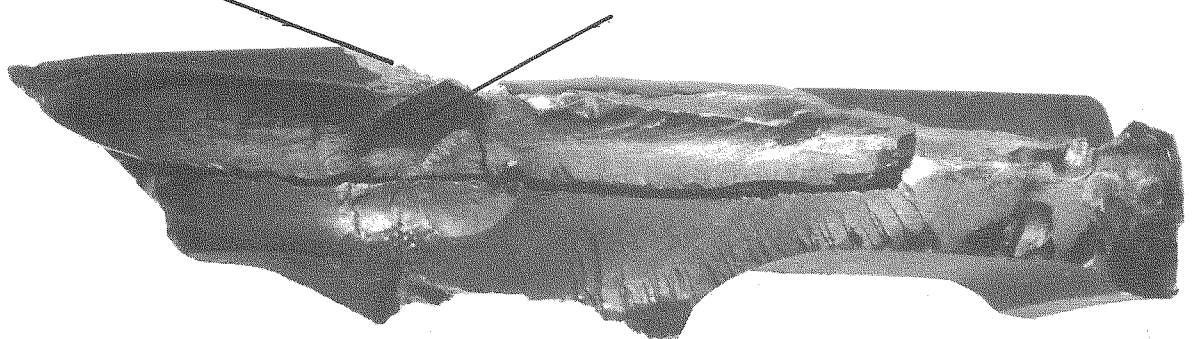
OVAL FEATURE



POSITION OF MISSING MATERIAL
FROM TOOTH CREST

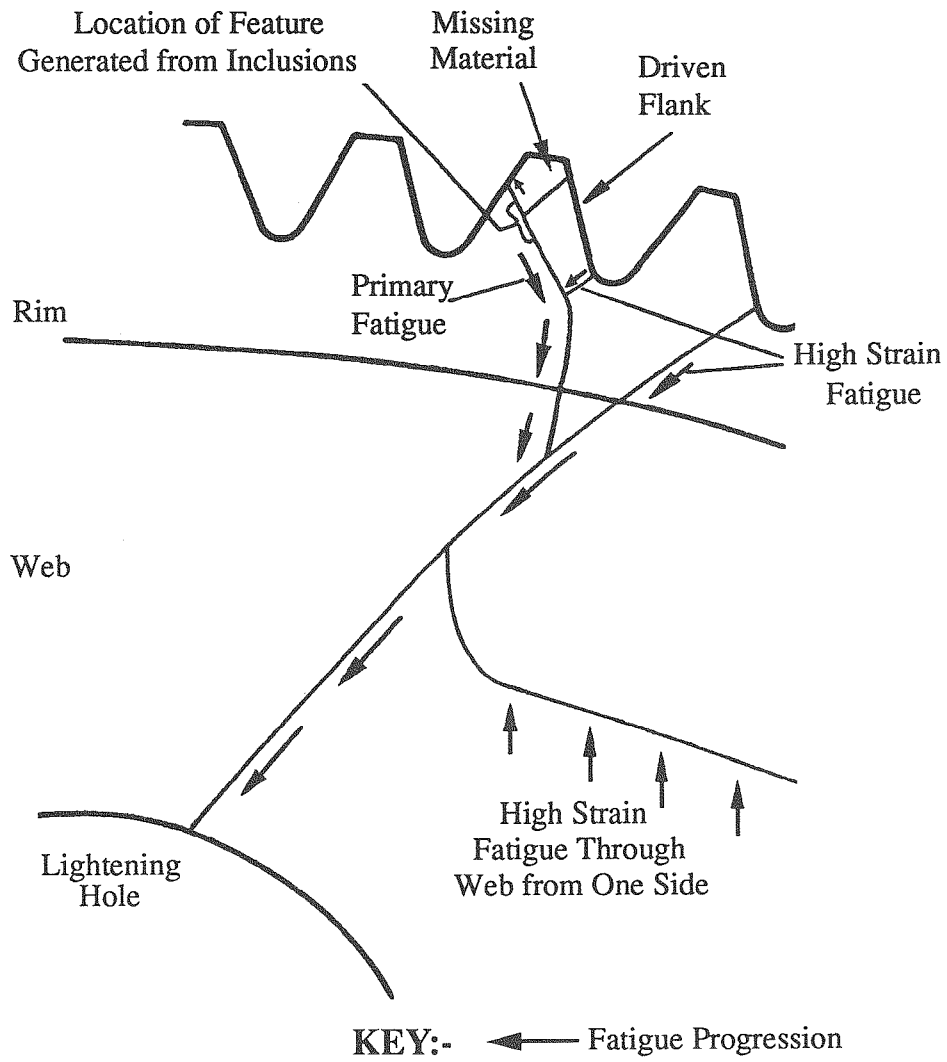
CRACK DEVELOPMENT FROM OVAL FEATURE

Photograph D



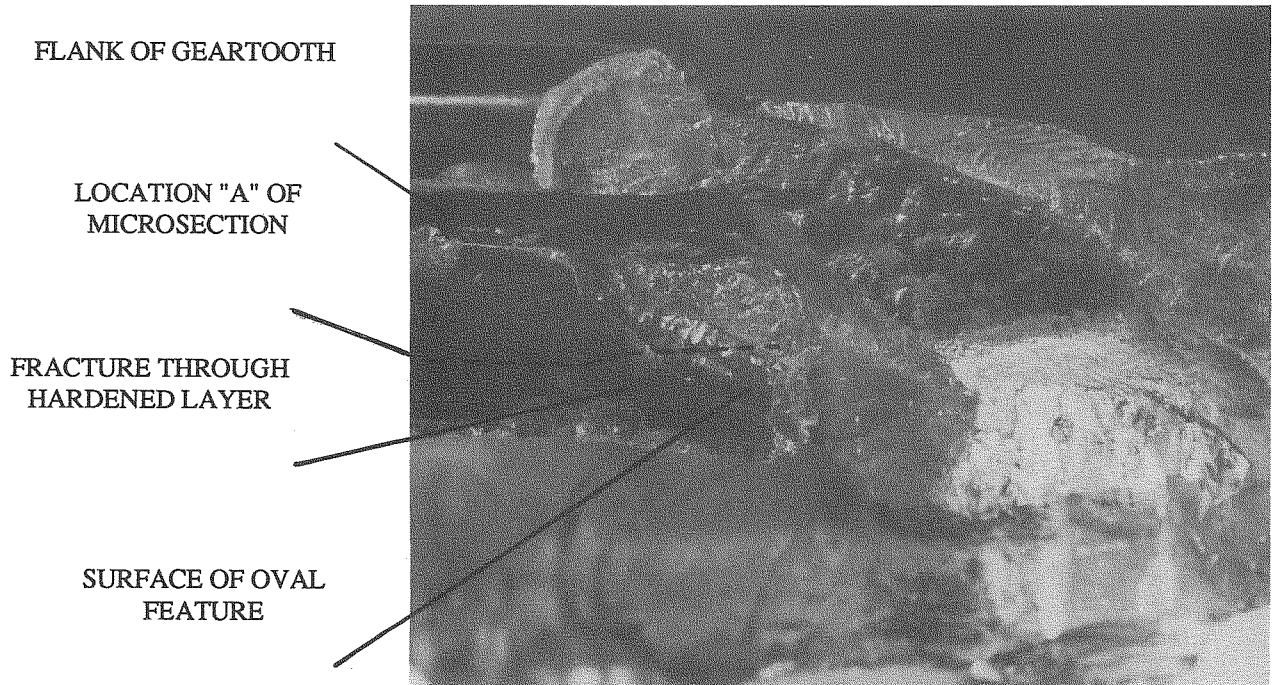
PARTIAL RECONSTRUCTION OF FRAGMENTED TOOTH
SHOWING FATIGUE DEVELOPMENT FROM
OVAL FEATURE INTO TOOTH

Photograph E



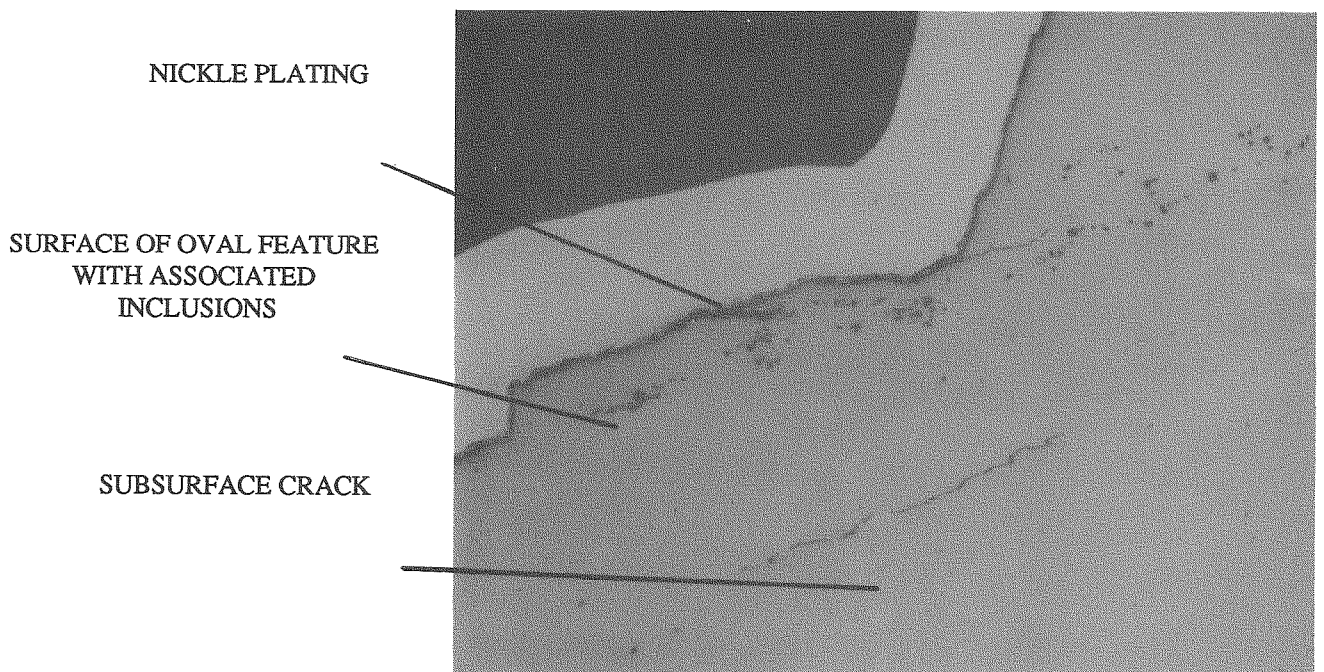
**CRACK DEVELOPMENT IN HELICAL
GEARWHEEL NO 1117**

LOCATION "A" OF METALLOGRAPHIC SECTION



SECTION AT LOCATION "A"
(Before Etching)

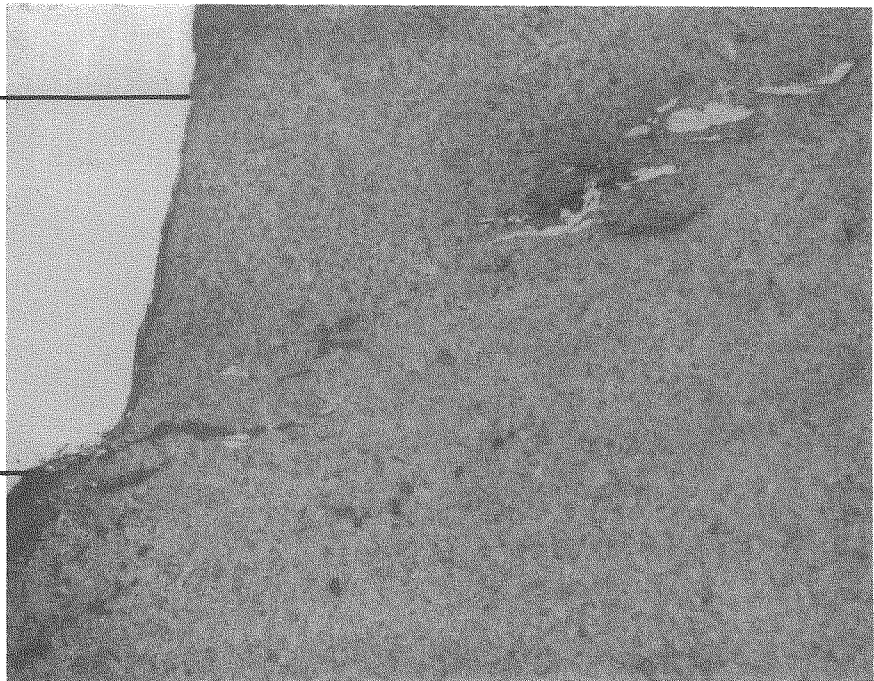
FRACTURE THROUGH HARDENED SURFACE LAYER



DETAIL OF SECTION AT "A" AFTER ETCHING
SHOWING SUB-SURFACE CRACKS, INCLUSIONS AND WHITE
ETCHED AREAS

FRACTURE THROUGH
HARDENED LAYER

SURFACE OF
OVAL FEATURE



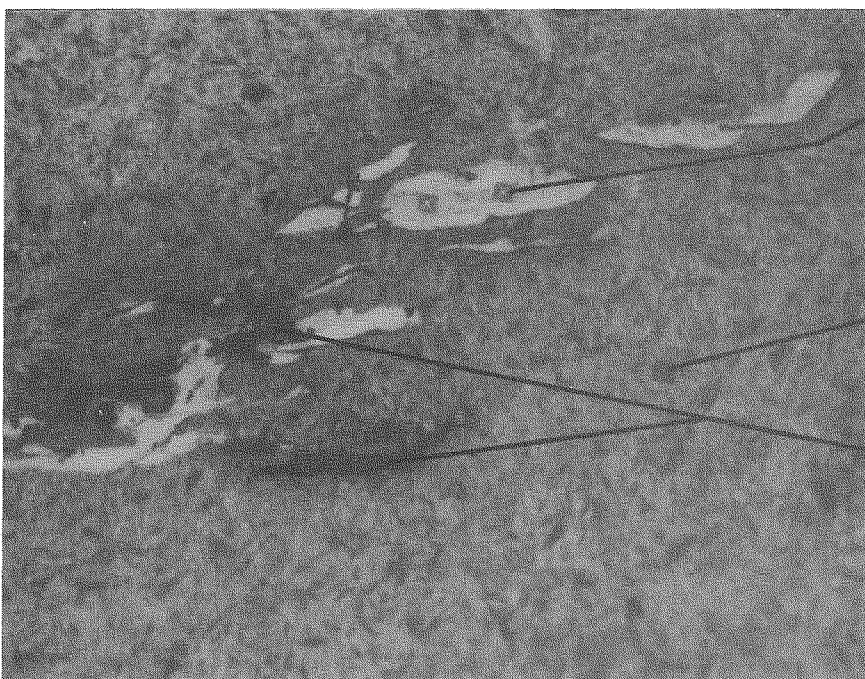
Photograph C
(x 200 approx)

DETAIL OF SECTION AT "A" AFTER ETCHING SHOWING
INCLUSIONS AND WHITE ETCHED AREAS

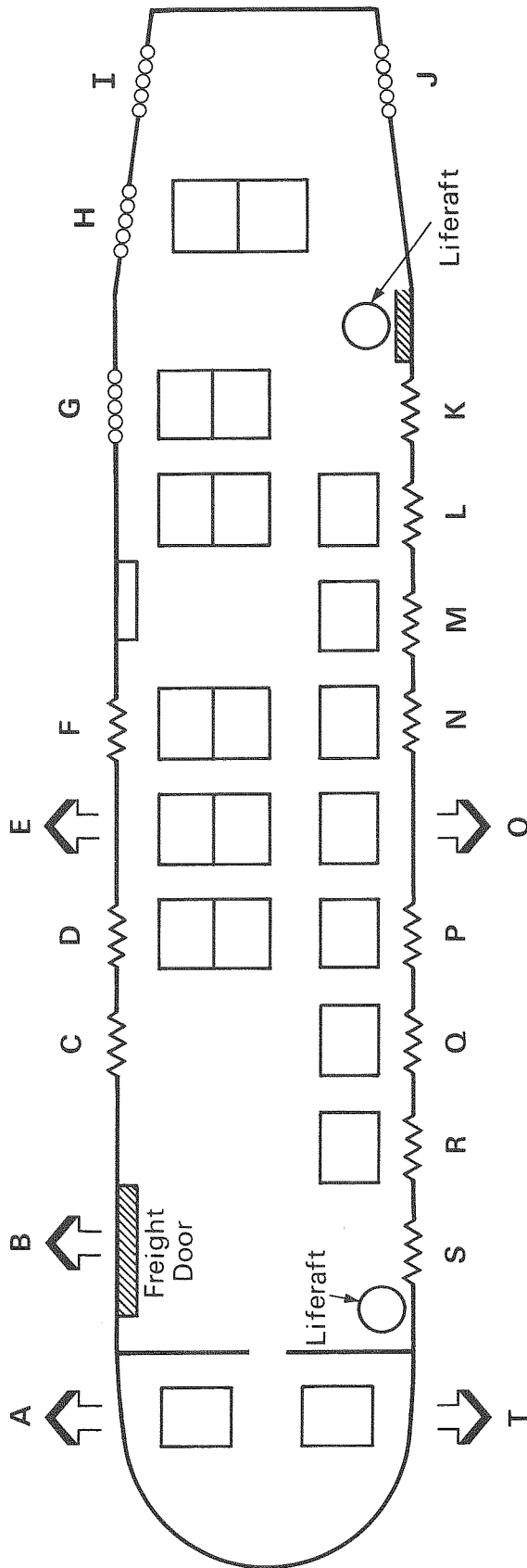
MICROHARDNESS IMPRESSIONS
IN WHITE ETCHED AREAS




MICROHARDNESS IMPRESSIONS
IN NORMAL TEMPERED
MARTENSITIC AREA

NON-METALLIC
INCLUSIONS



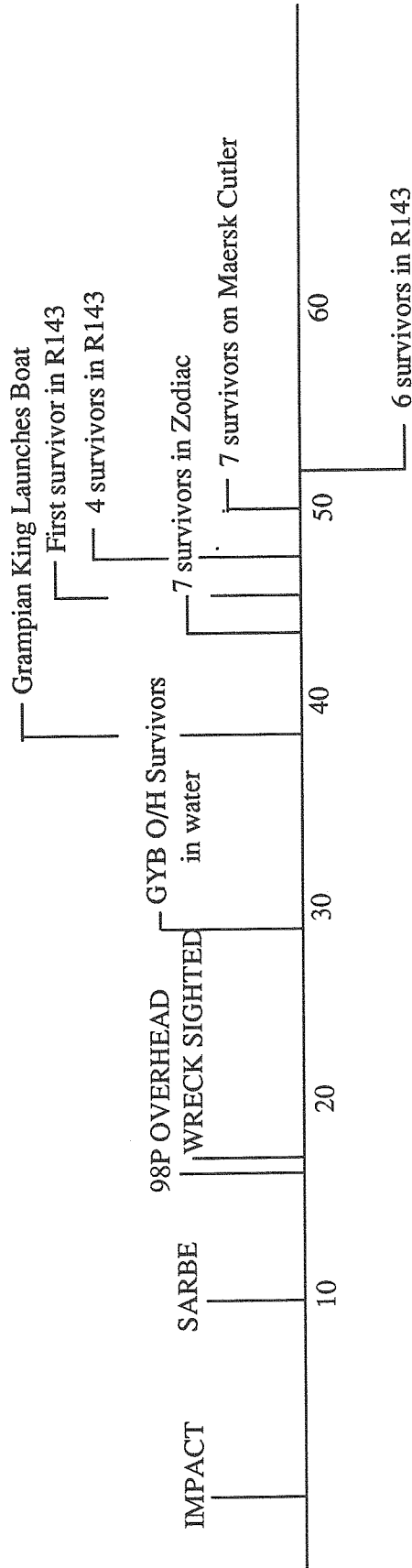
Photograph D
(x 500 approx)



-  Emergency Exit
 -  Push-out window
 -  Fixed window
- Note: drawing not to scale

FLIGHT DECK / CABIN CONFIGURATION

TIMING PROFILE - POST IMPACT



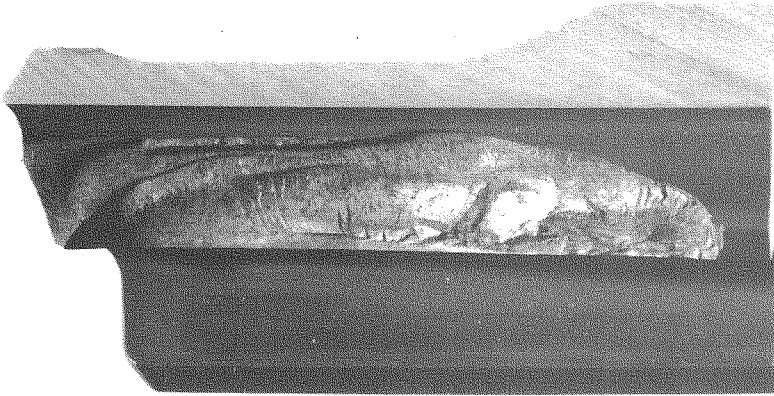
SURVIVORS IN SEA 41 mins
SURVIVORS IN LIFERAFT 53 mins

Data Source Claymore 'A' Log

SAR UNITS DESPATCHED BY RCC EDINBURGH
RESPONSE TIMES

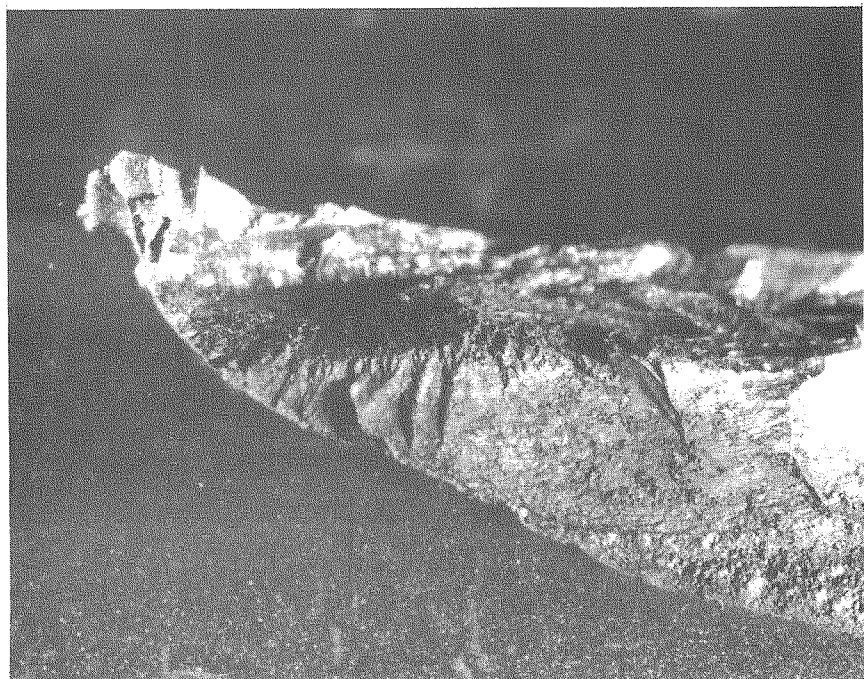
Phase	Rescue 01	Rescue 117	Rescue 137
Alerted	08.59 hrs	08.55 hrs	08.58 hrs
Tasked	08.59 hrs	08.55 hrs	08.58 hrs
Airborne	09.18 hrs	08.57 hrs	09.05 hrs
On Scene	09.36 hrs	-	09.45 hrs
Released	12.40 hrs	09.38 hrs	12.35 hrs
Returned	13.11 hrs	10.00 hrs	13.50 hrs

**EXAMPLE OF GEARTOOTH WITH
CAPPING FAILURE (GEARWHEEL SERIAL No. 1094)**



Photograph A

**PLANAR FEATURE CONTAINING
INCLUSIONS AT ORIGIN OF CAPPING FRACTURE**



Photograph B