EXTRACT OF RELEVANT LIMITATIONS CONTAINED IN THE ROTOR CRAFT FLIGHT MANUAL (AS 355 F1)

"COMPLIANCE WITH THE LIMITATIONS PRESCRIBED IN THIS SECTION IS IMPERATIVE

SECTION 2.1

OPERATING LIMITATIONS

1. TYPES OF OPERATION APPROVED

Operating the helicopter is approved, out of icing conditions for:

- Day VFR flight
- Night VFR flight, when the required equipment items are installed, and in accordance with the flight regulations of the country concerned.
- Operation: "Transport category (passenger)".
- Performance: "Groups A and B".

11.4 Engine anti-icing

At temperatures below 5°C, in visible moisture conditions, operate the engine air intake anti-icing system by means of the levers on the cabin floor between the front seats. Check for effective anti-icing by a significant increase in t4.

11.7.1 Anti-icing additive

For operation at temperatures below +4°C an anti-icing additive is mandatory (min. 0.08%: by volume). The additive must be in conformance with MIL–I–27686 specification or equivalent specifications: AIR 3652–D, Eng RD 2451, S 748, PHILLIPS PFA/55MB. Concentration must not exceed 0.15: by volume. For the mixing procedure, refer to SECTION 8.

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"2. LIMITATIONS

The limitations given in the basic Flight Manual and relevant Supplements remain applicable and are completed or modified by the following limitations.

2.2 Types of operation approved

IFR flights except in icing conditions".

AIRCRAFT FLIGHT MANUAL – EMERGENCY PROCEDURES

". AUTOROTATIVE LANDING

The following procedures are to be applied where necessary (unlikely):

2.1 On land or on water with emergency floatation gear

– Reduce collective pitch to obtain an NR near to the nominal speed (380 to 400 rpm). Do not exceed 425 rpm.

– Fly at an IAS of 65 Kt (120 km/h – 75 MPH), into wind.

– Proceed as follows:

- Fuel shut-off control levers in closed position
- Booster pumps off
  Master switch (on final approach)

– At a height of between 50 and 100 feet (15 and 30 m), depending on the weight and external conditions (wind, terrain), start to flare out to a nose-up attitude of 15° to 20° to reduce the forward speed and the rate of descent. Monitor NR.

– At a height of between 10 and 15 feet (3 and 5 m) reduce the nose-up attitude to approximately 5° and start to apply collective pitch.

– Immediately prior to touch-down apply collective pitch progressively up to the high pitch stop if necessary whilst holding back slightly on the cyclic pitch control.

– After touch-down, reduce the collective pitch slowly to prevent an abrupt stop if any forward speed is present.

– Carry out the safety procedures if necessary (master switch, fire extinguisher).

– Apply the rotor brake.

– Evacuate the aircraft by jettisoning the doors if necessary.

3.2 Single-engine failure in flight

The flight may be continued on one engine; the flight restrictions must be observed.

The symptoms are:

- Slight jerk in the yaw axis
- Change in the noise level
- Loss of synchronisation of: torques – Ng – Nf – t4
- "GENE" (GEN) light comes on for defective engine
- Drop in oil pressure
- "PH MOT" (ENG OIL PRESS) light, comes on
- Audible warning operates if NR is 360 rpm or less.

Under these conditions:

- On the remaining engine:
    - Reduce the hot bleed air if appropriate
- On the defective engine, proceed as follows:
    - Fuel flow control lever . . . . . closed position gate
    - Booster pump . . . . . off
    - Generator . . . . . off

  If necessary open the fuel tank crossfeed valve.

  Dependent on the origin of the failure, attempt to re-light the engine in accordance with the normal procedure.

- In order to prevent the turbine turning when the engine is shut down it is recommended not to exceed 100 kts (185 km/h – 115 MPH).

3.3 AURAL WARNING

The warning horn sounds to indicate:

- that the rotor speed NR is below 360 rpm (continuous sound)
- that the rotor speed NR is above 410 rpm (intermittent sound)

It will operate only if the HORN push-button is pressed in. Otherwise, at *nominal rotor speed* the HORN light illuminates on the failure warning panel.

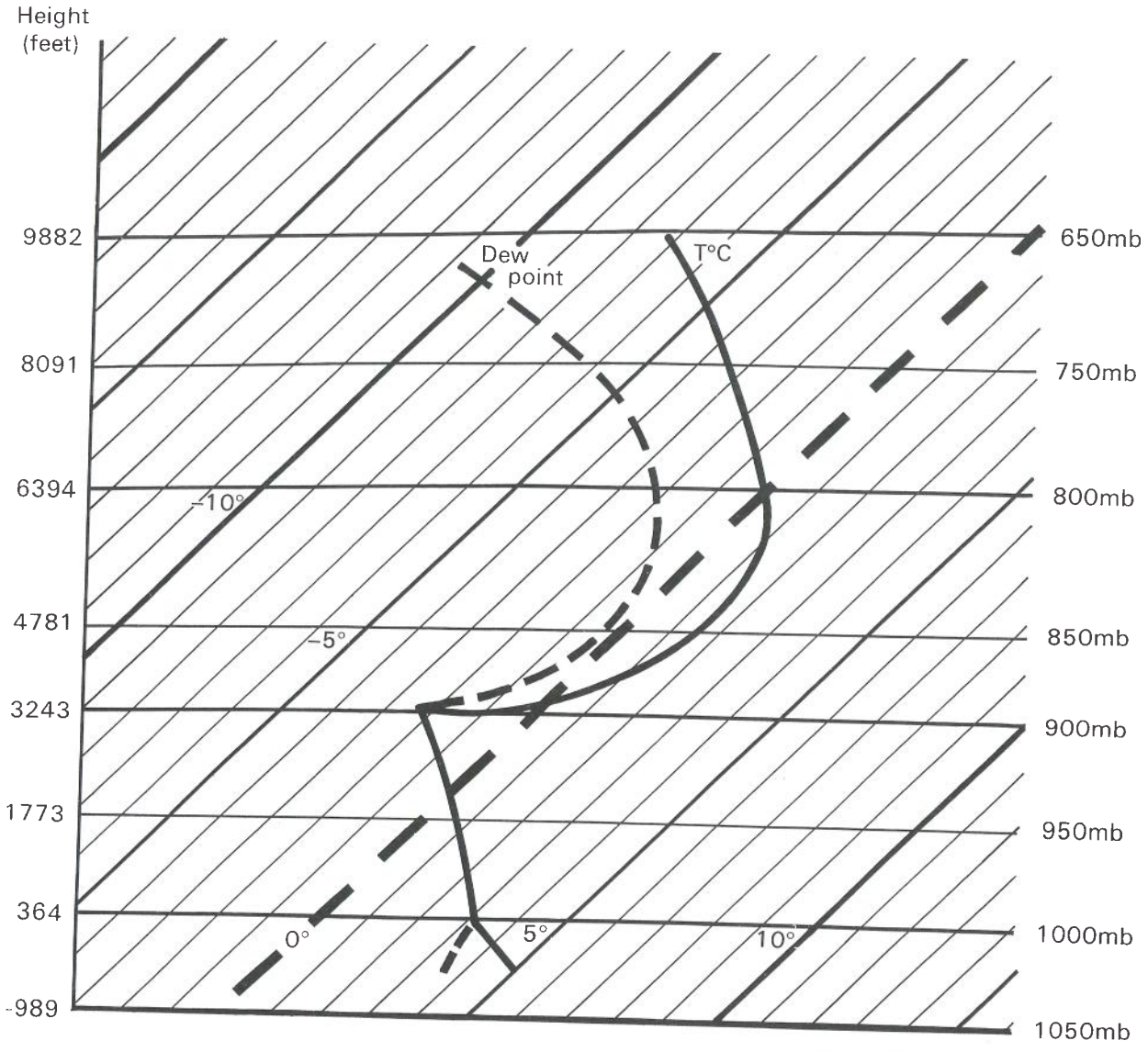
Proceed as follows if the horn sounds:

– Check NR:

  - If NR below 360 rpm (continuous sound)
    Reduce collective pitch

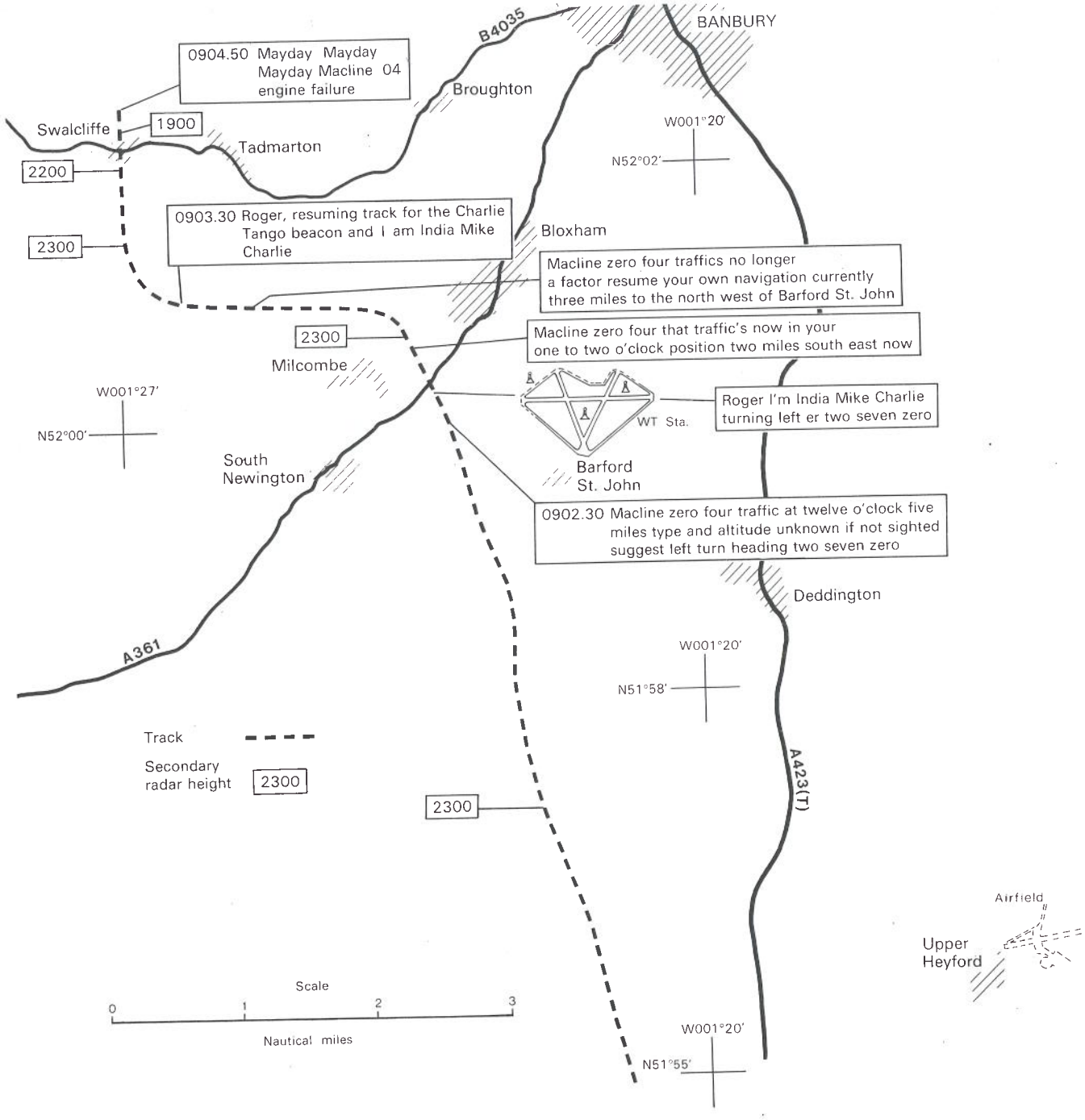
This can only occur in the event of an engine failure. Check the engine parameters by pulling slowly on the collective pitch lever.

  - If NR ABOVE 410 rpm (intermittent sound)
    Slightly increase collective pitch in order not to exceed 425 rpm".

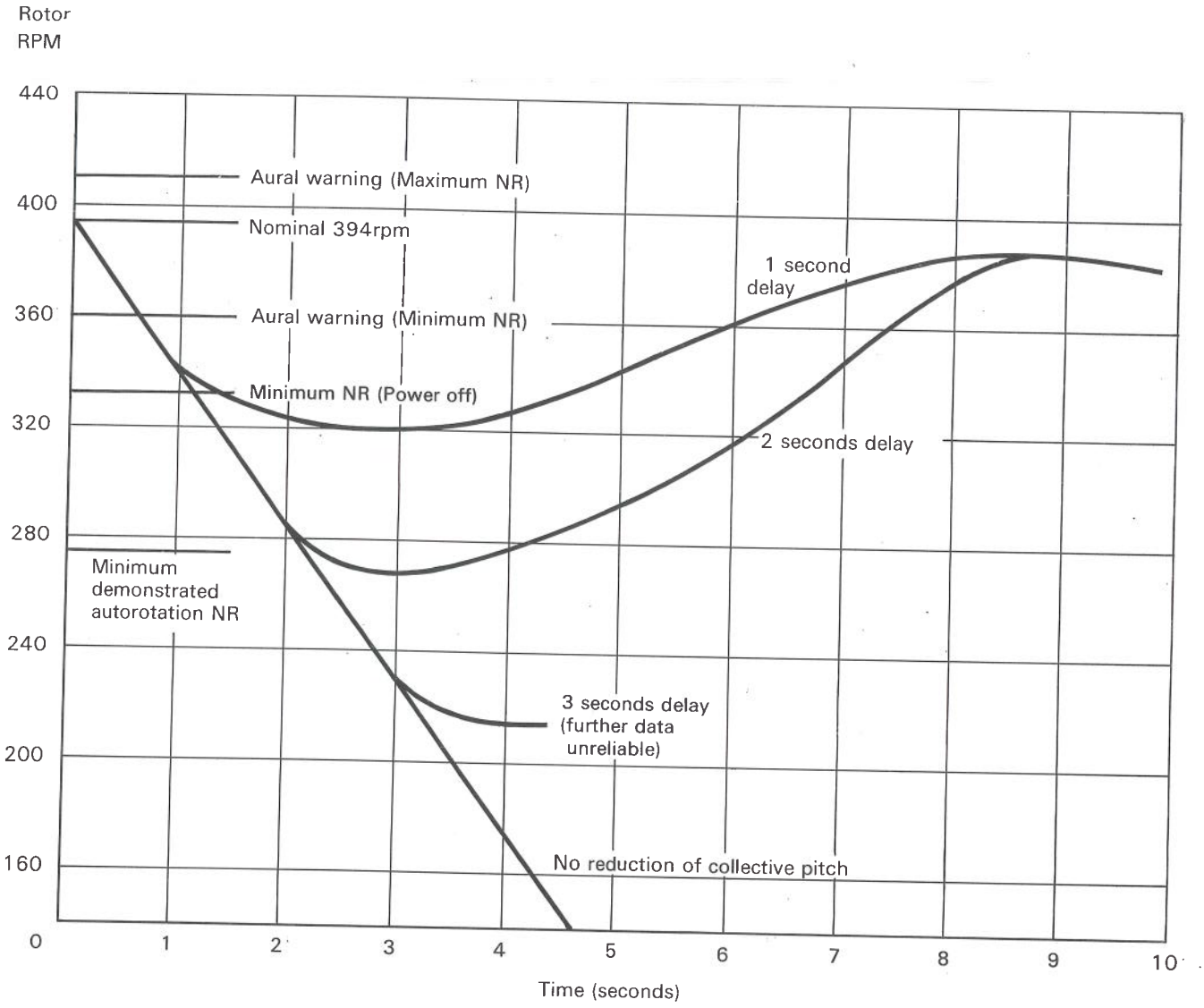


Schematic tephigram simplified for Banbury area on
8th April 1986 at 0900hrs.

Appendix 4



Track of G-BKIH



SIMULATION PARAMETERS

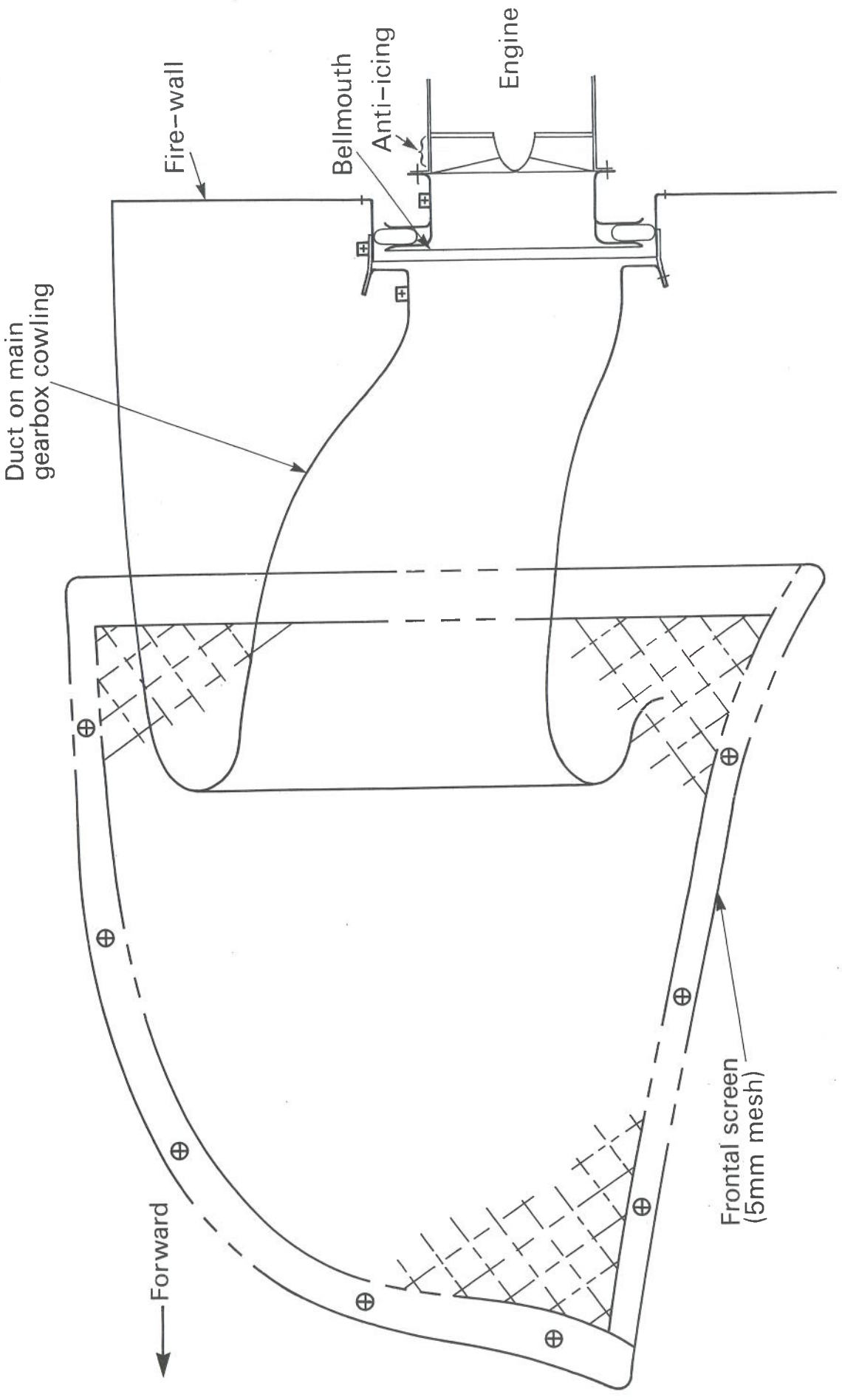
Initial altitude	=	2500 feet
Cruise speed	=	120 knots
Aircraft weight	=	2188 kg

Collective pitch reduced in 0.8 second

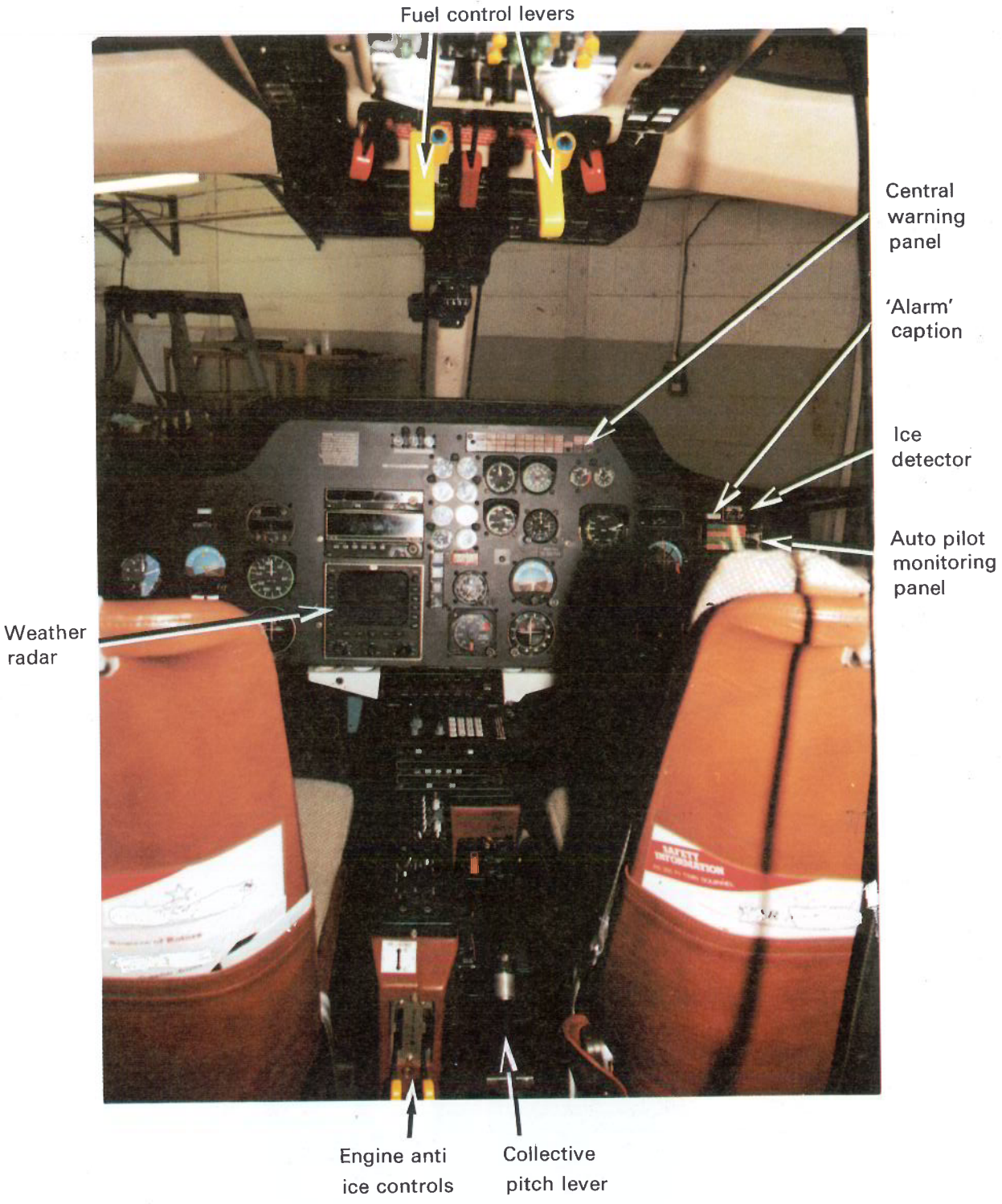
Aircraft pitched up from 4.8° nose down at initiation

Helicopter performance in autorotation

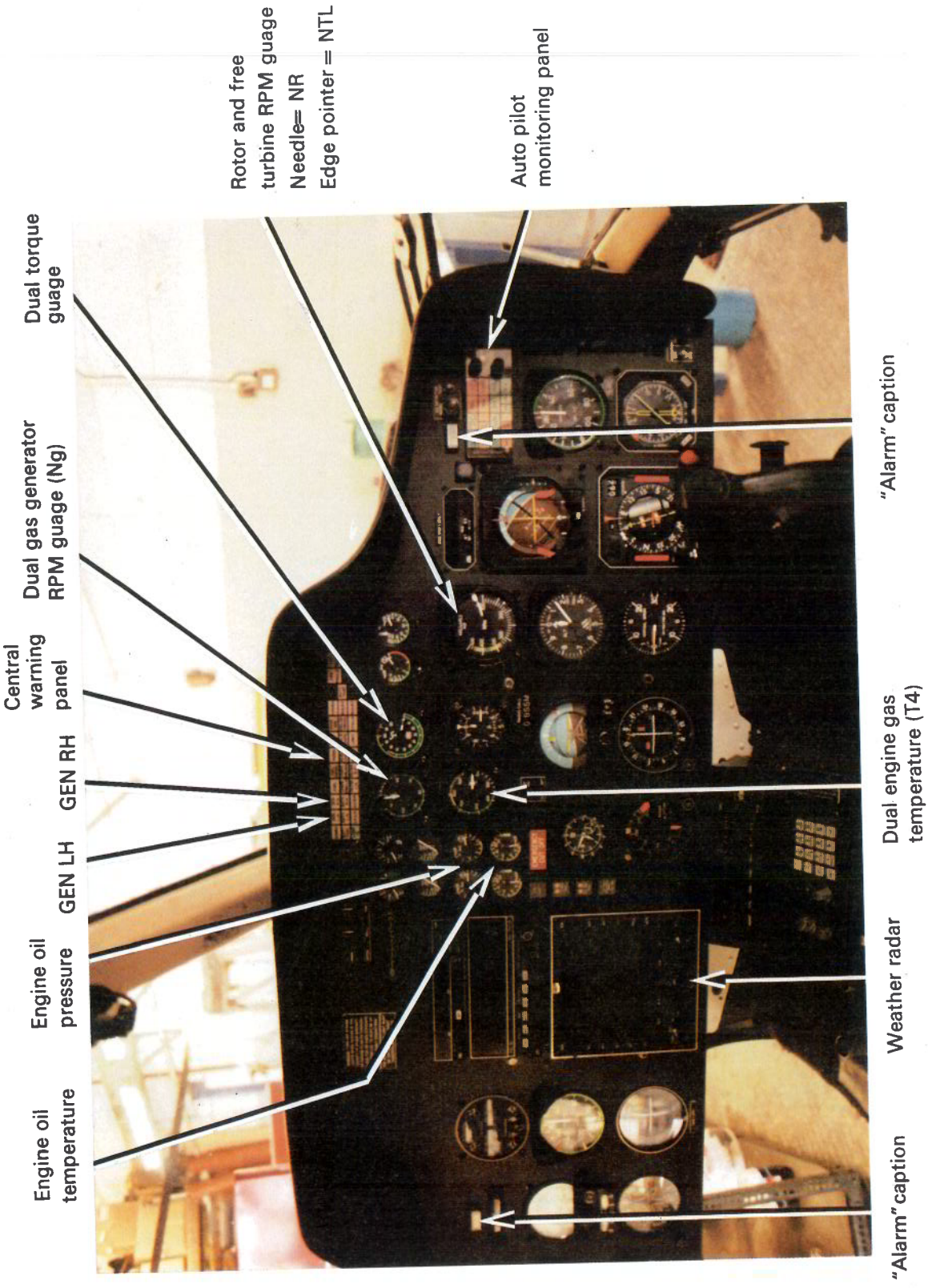
Simulation results using AS 355 F1 rotor characteristics



AS 355 AIR INLET (ELEVATION)



355 F1 cockpit layout



AS 355 F1 instrument panel

ABBREVIATED TERMS USED IN THIS REPORT

AD	Airworthiness Directive
BCARs	British Civil Airworthiness Requirements
CAA	Civil Aviation Authority
CVR	Cockpit Voice Recorder
DGAC	Direction Generale de l'Aviation Civile
FAR	Federal Aviation Regulations
FCU	Fuel Control Unit
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
LWC	Liquid Water Content
MDD	Mean Droplet Diameter
METAR	Routine Meteorological Aerodrome Report
MQAD	Materials Quality Assurance Directorate
MSA	Minimum Safety Altitude
Nf	Free Turbine rpm
Ng	Gas Generator rpm
NR	Rotor rpm
PTG	Power Turbine Governor
RASZ	Radar Advisory Service Zone
RFM	Rotorcraft Flight Manual
SIGMET	Significant Weather Information Report
SVFR	Special Visual Flight Rules
TAF	Aerodrome Forecast
t4	Turbine Outlet Temperature
UTC	Coordinated Universal Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VOLMET	Broadcast METARs
VOR	VHF omni range

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