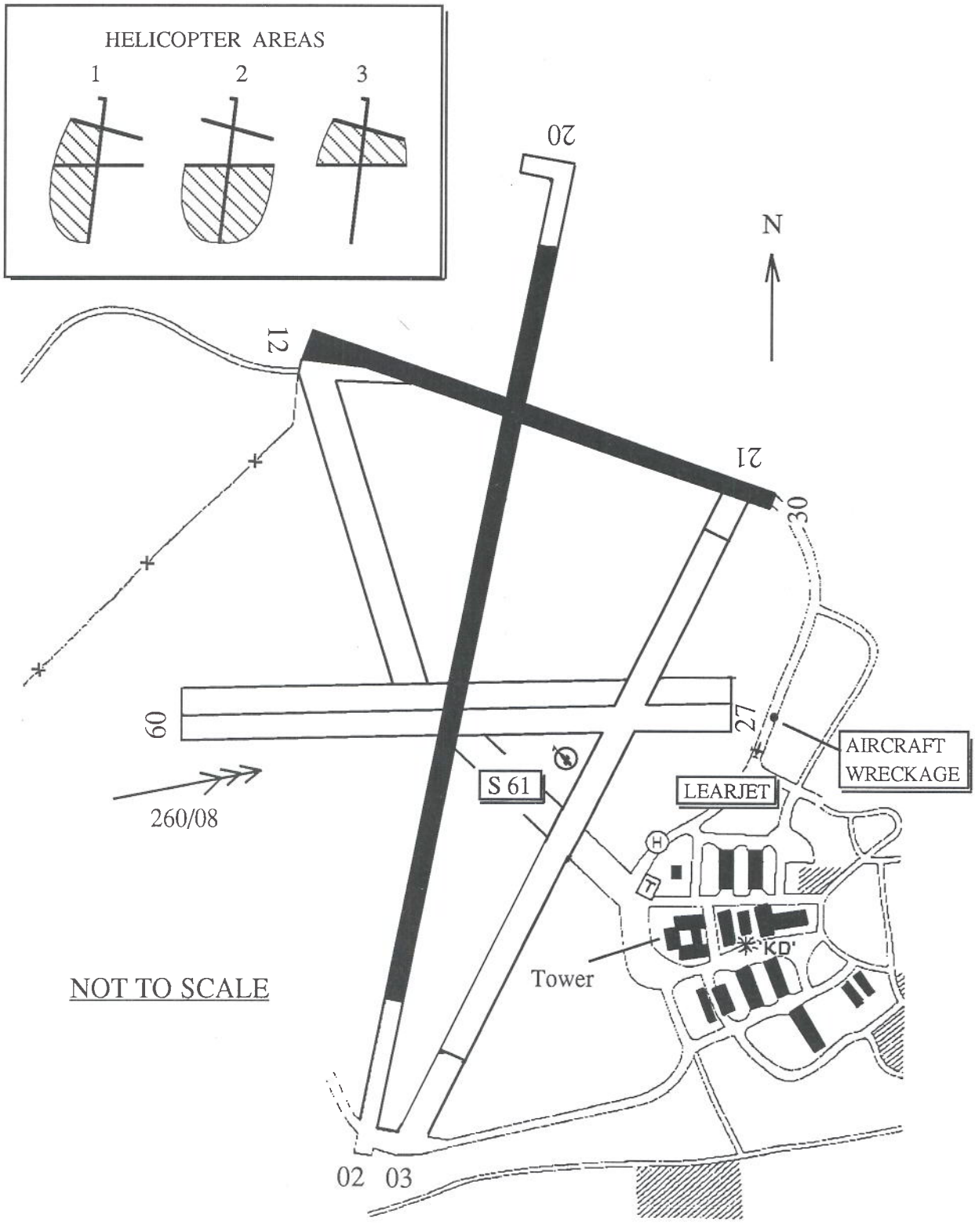
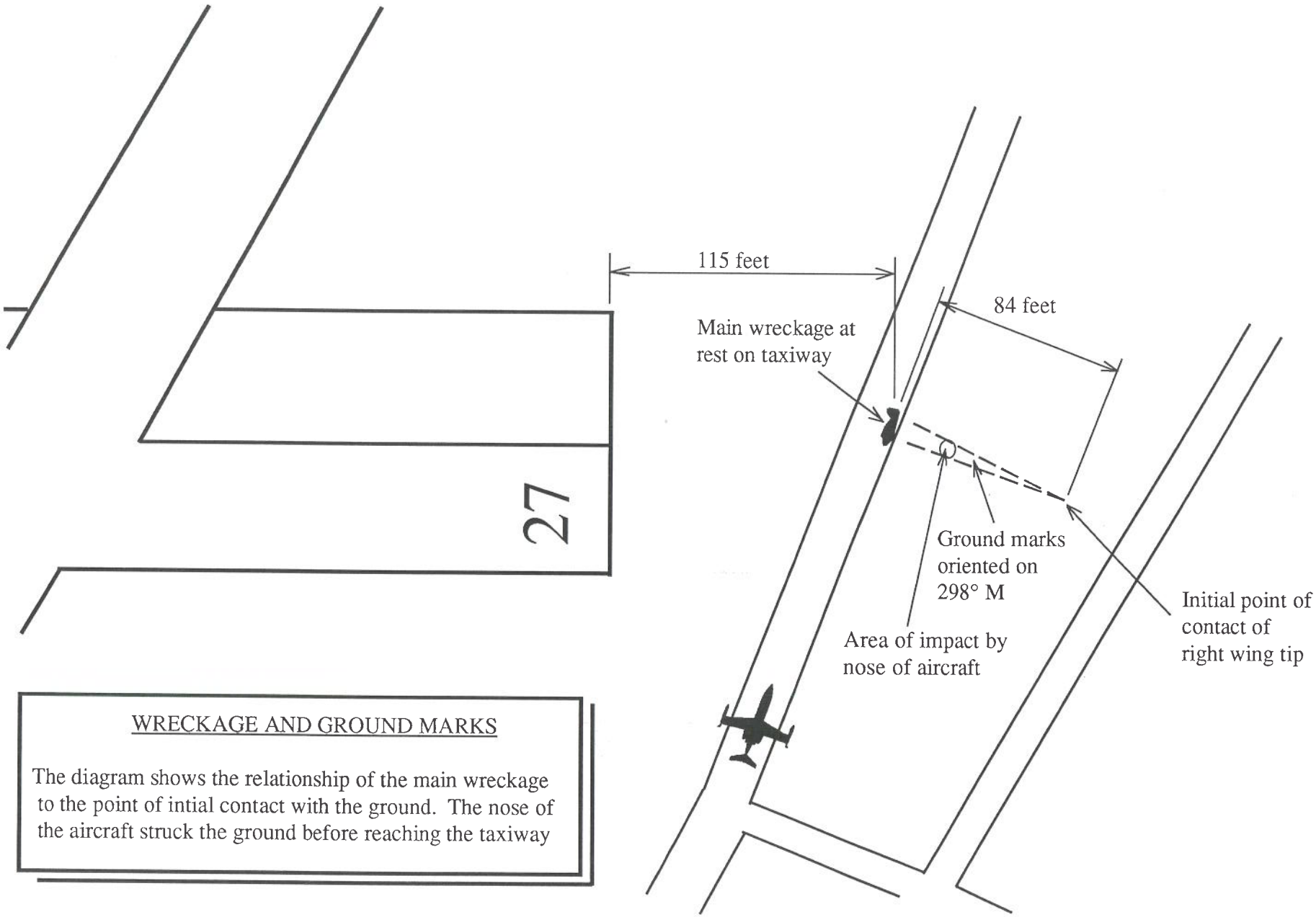
OXFORD KIDLINGTON AIRPORT





WRECKAGE AND GROUND MARKS

The diagram shows the relationship of the main wreckage to the point of intial contact with the ground. The nose of the aircraft struck the ground before reaching the taxiway

APPENDIX B

VORTEX WAKE SPACING

EXTRACTS FROM MANUAL OF AIR TRAFFIC SERVICES PART I

VORTEX WAKE SPACING REQUIREMENTS

The spacing between aircraft, determined either by time or distance, is to be applied so that aircraft of a lower weight category do not fly through the wake of an aircraft of a higher category within the area of maximum vortices. Where minimum separation between IFR flights is greater than the vortex wake spacing requirement then the IFR minima shall be applied. The UK vortex wake categories are listed in Appendix B on page C-3. It should be noted that they differ from the categories used for flight plan purposes.

Flight Path

Hazardous wake vortices begin to be generated when the nosewheel lifts off the runway on take-off and continues until the nosewheel touches down on landing. For vortex wake spacing purposes this phase of flight is known as the 'flight path' of an aircraft.

Arriving Flights

Where flights are operating visually (IFR flights operating under the reduced minima in the vicinity of aerodromes, VFR flights, or a mixture of the two), pilots are to be informed of the recommended spacing.

For other flights the spacing listed below is to be applied between successive aircraft on final approach.

Leading Aircraft	Following Aircraft	Minimum Distance
HEAVY	HEAVY	4 miles
	MEDIUM	5 miles
	SMALL	6 miles
	LIGHT	8 miles
MEDIUM	MEDIUM	3 miles
	SMALL	4 miles
	LIGHT	6 miles
SMALL	MEDIUM or SMALL	3 miles
	LIGHT	4 miles

AIRCRAFT CATEGORIES

SUMMARY OF CONTENTS

This Appendix contains tables of aircraft categories under the following headings:

1 Vortex Wake Categories.

2 Aerodrome Categories for Rescue and Fire Fighting.

1 VORTEX WAKE CATEGORIES

The UK categories differ from the ICAO wake vortex categories used for flight planning purposes. In the UK, aircraft are divided into four categories according to their maximum total weight at take-off as follows:

Heavy:	136 000 kg or greater
Medium:	less than 136 000 kg and more than 40 000 kg
Small:	40 000 kg or less and more than 17 000 kg
Light:	17 000 kg or less

Helicopters generate more intense vortices from their rotors than fixed wing aircraft at the same weight. Therefore Sikorsky S61N and larger helicopters are included in the Small category.

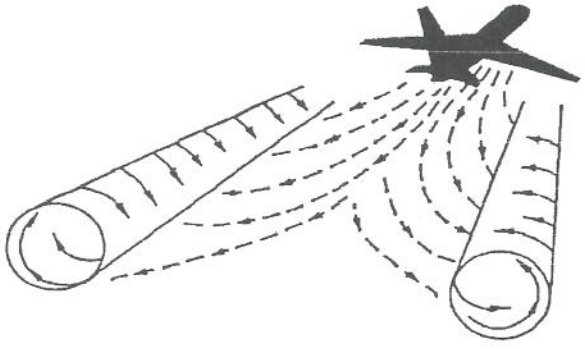
It will be noted that several aircraft types have been grouped in vortex wake categories which do not conform to those listed above. For example, the B707, DC8, VC10 and IL62 have been classified as MEDIUM as experience has shown that the characteristics of these types conform more to that group. Similarly, it has been decided to include the British Aerospace-146 in the SMALL category.

HEAVY	
Aircraft Type	*Maximum Take-off Weight (kg)*
Airbus A300B	160 000
Airbus A310 Series	149 000
BAC-SUD Concorde	182 000
Boeing 747 Series	371 000
Boeing 767 Series	151 950
Douglas DC10	251 000
Ilyusin IL-86	206 000
Lockheed C5A Galaxy	350 000
Lockheed L1011 Tristar	222 000

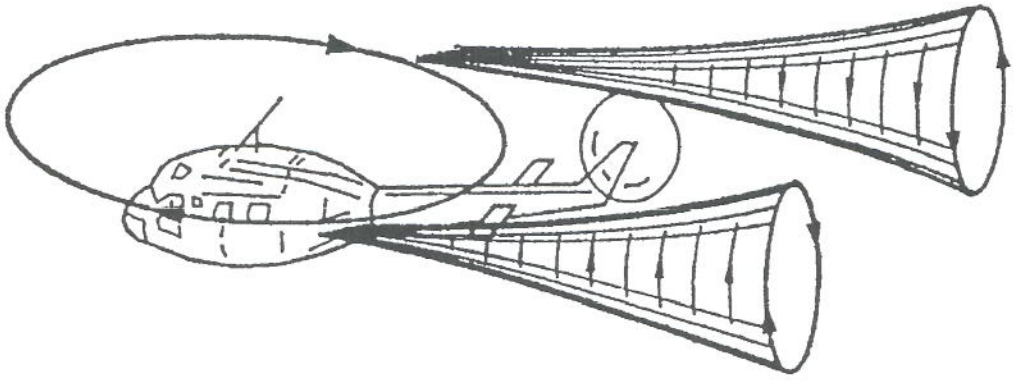
SMALL	
Aircraft Type	*Maximum Take-off Weight (kg)*
BAC Viscount 800	32 600
British Aerospace 146 Series	45 970
Convair CV440	22 200
De Havilland Dash 7	19 500
Fokker F28	29 000
Fokker F27	19 000
Handley Page Herald	19 100
Hawker Siddeley HS748	20 900
Nord Noratlas	23 000
Helicopters	
Boeing Vertol Chinook	
Sikorsky S61N	
Sikorsky CH53E	

MEDIUM	
BAC 1-11	45 000
BAC Vanguard VC9	66 500
BAC Britannia	84 900
BAC Super VC10	151 000
BAC VC10	141 000
Boeing 707 Series	161 000
Boeing 720	106 600
Boeing 727	95 000
Boeing 737	52 400
Boeing 757 Series	108 800
Convair CV990 Cornado	114 700
Douglas DC8 Series	161 000
Douglas DC9	54 400
Hawker Siddeley Trident Series	71 670
Hawker Siddeley Argosy	42 100
Ilyushin Il-62	162 000
Ilyushin IL-18	61 400
Lockheed Hercules	70 200
Lockheed Electra L188	51 200
SUD Caravelle	52 000
Tupolev TU134	45 000
Tupolev TU154	

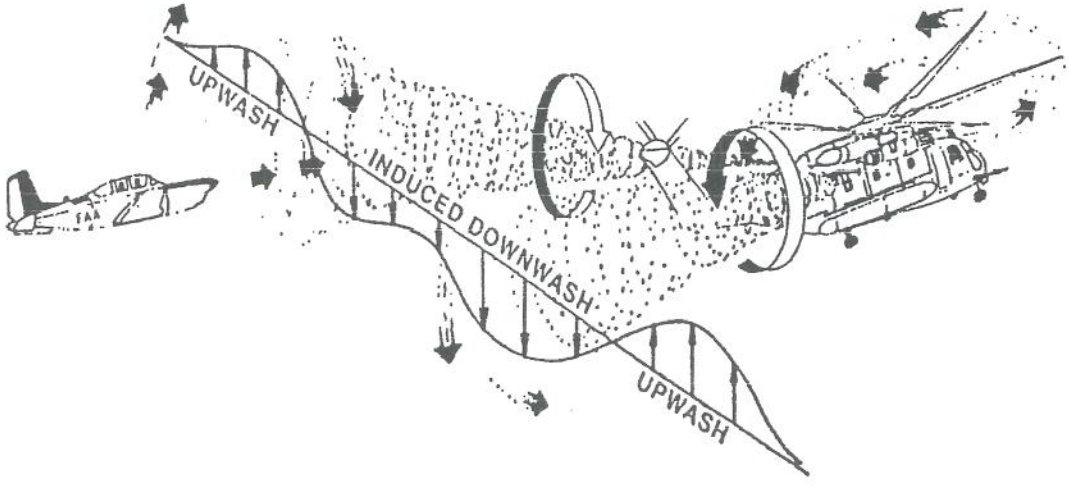
LIGHT	
Aero Commander	3 175
Aerospatiale - Aeritalia ATR 42	16 150
Jet Commander	7 257
Beechcraft Kingair	5 667
Britten Norman BN2 Islander	2 993
Britten Norman Trislander	4 500
Cessna 310	2 400
Cessna Citation	5 210
Dassault DA20 Falcon	16 000
De Havilland Dove	3 991
De Havilland Rapide	2 700
De Havilland Heron 2	6 100
Douglas DC3	11 400
Grumman Gulfstream 1	15 921
Handley Page Jetstream	5 700
Hawker Siddeley HS125	11 300
Learjet 25	6 800
Learjet 28	10 600
Nord 262	10 300
Piper Navajo	3 800
Piper Seneca	1 903
Rockwell Sabreliner	10 400
Short SD3-30	10 000
Short Skyvan	4 214
Yakovlev YAK40	16 100
Helicopters	
Aerospatiale Puma	
Bell 212	
MBB BO 105	
Sikorsky S58	
Sikorsky S76	



General view of aircraft trailing vortex system

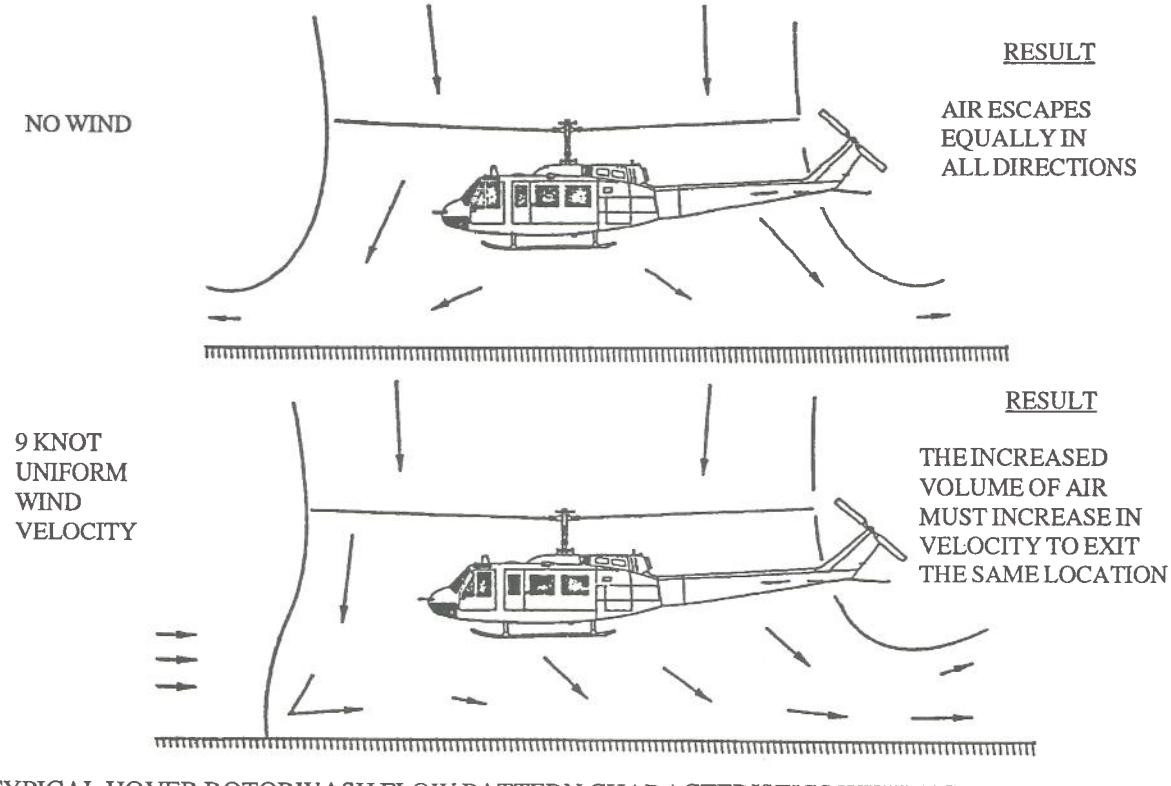


Helicopter Vortices



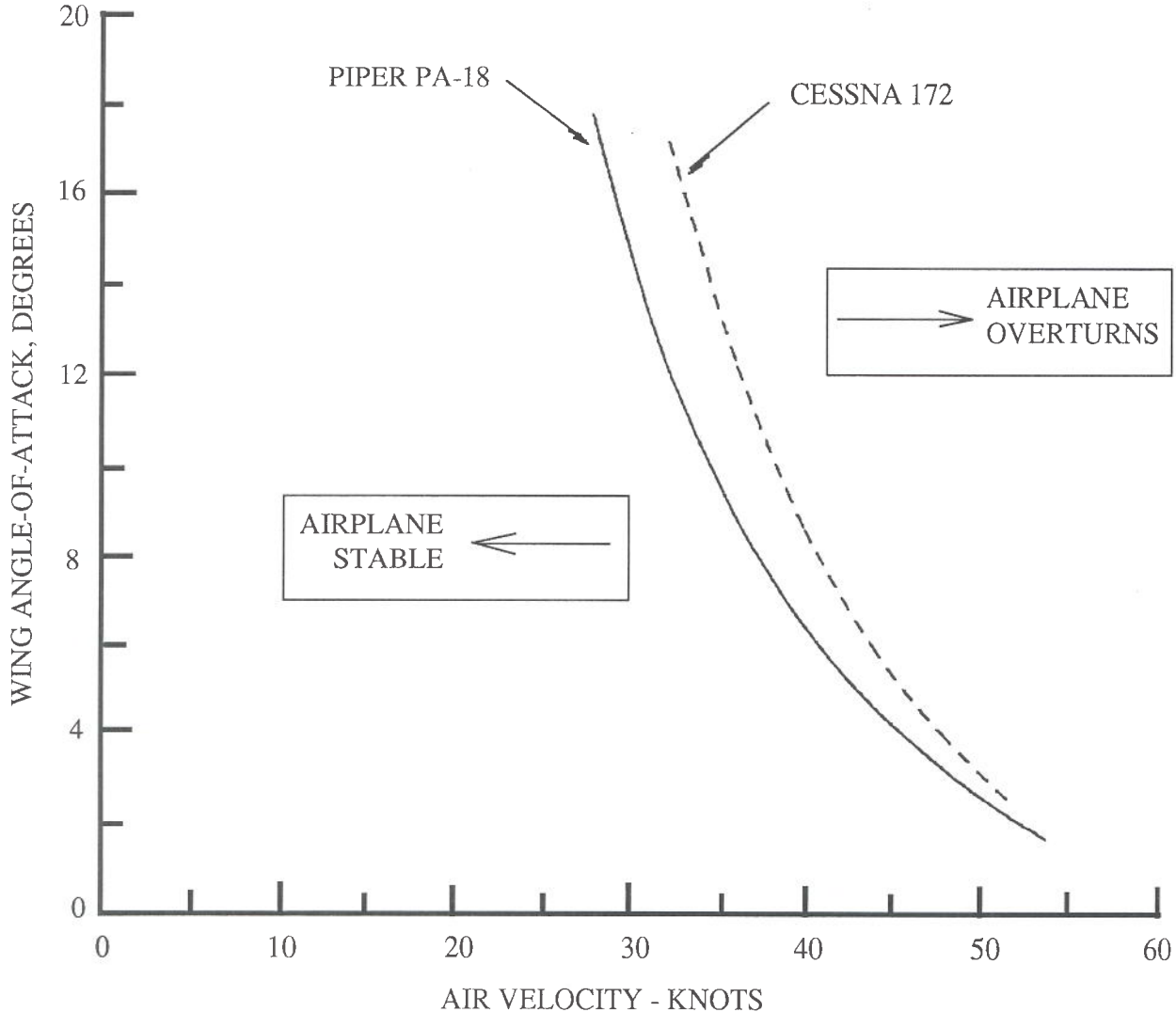
Vortex probing techniques

ROTORWASH AIRFLOW PATTERN DEPICTED OVER WATER

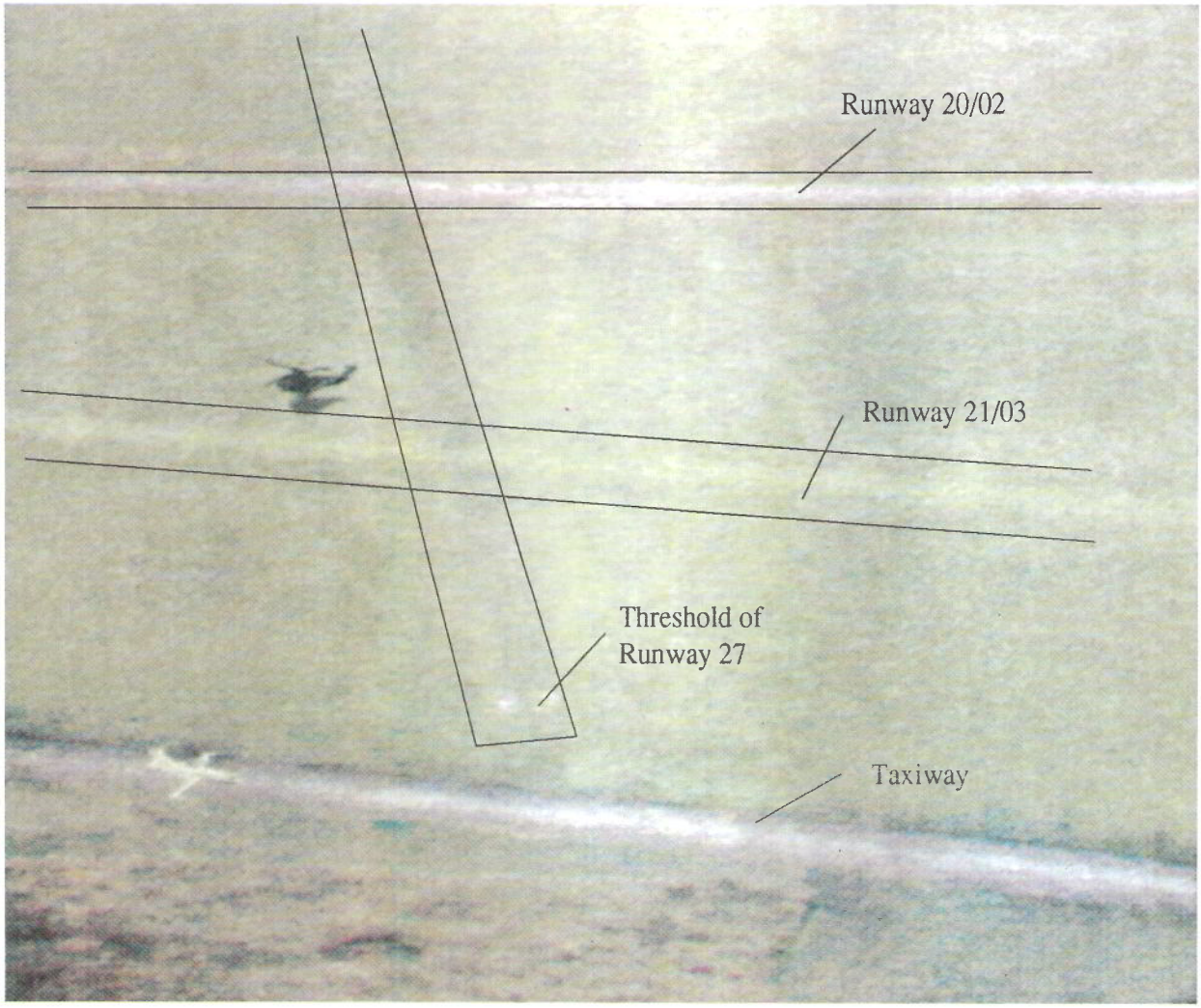


TYPICAL HOVER ROTORWASH FLOW PATTERN CHARACTERISTICS WITH AND WITHOUT WIND

CRITICAL OVERTURNING ANGLES OF ATTACK



MINIMUM AIRSPEED/ANGLE OF ATTACK
REQUIREMENTS FOR THE OVERTURNING
OF LIGHT FIXED WING AIRCRAFT



COMPUTER GENERATED RECONSTRUCTION OF THE VIEW FROM THE APPROACH TO RUNWAY 27 AT KIDLINGTON

This image is reconstructed from an aerial photograph of the accident scene. Using computer techniques the wreckage and rescue vehicles have been removed from the picture and the positions of the S61N and Learjet superimposed, in accordance with witness statements. The aircraft are not necessarily exactly to scale.

Printed in the United Kingdom for HMSO
Dd 296162 C6 4/93 3396/3 17647 237670